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Perundurai SIPCOT Textile Processors Association

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Project Report

on

Handling Textile Processing Effluent and Safeguarding Agriculture / Public Health

Project Document Scope:

The aim of this document is explain the background of the textile processing industries in SIPCOT, the problems that affects the tri-parties namely agriculture, public health & processing industries and the possible remedial measures that is acceptable to all.

SIPCOT Industrial Growth Centre, Perundurai:

State Industries Promotion Corporation of Tamil Nadu Limited (SIPCOT), a fully government owned premier institution, established in the year 1972, has been a catalyst in development of small, medium and large scale industries in Tamil Nadu. Instead of accelerating the pace of industrial growth in already crowded areas, SIPCOT as a nodal agency has created Industrial Complexes and Parks. Perundurai Industrial Growth Centre is one such industrial complex created in Perundurai, Erode District to cater mainly to textile processing units and leather processing units.

With total area of 2850 acres, Perundurai Industrial Growth Centre is one of the largest industrial parks within Tamil Nadu. The project was originally handled by Tamil Nadu Corporation for Industrial Infrastructure Development Limited (TACID) in 1990's and subsequently handed over to SIPCOT. Though the Perundurai SIPCOT was inaugurated in July 2000, it did not witness the growth that is expected because of the problems in handling of industrial effluents and because there is no structured solution being made available to industries operating in Perundurai SIPCOT.

Perundurai SIPCOT Textile Processors Association:

Perundurai SIPCOT Textile Processors Association (PSTPA) is the trade association representing nearly 50 textile processing units who have established their factories at the Perundurai SIPCOT. Our association directly employs around 5,000 people and indirectly provides employment opportunities to around 25,000 people.

Current Problems in SIPCOT Perundurai

Handling of textile effluent is the biggest concern for everybody in SIPCOT Perundurai. The textile processing industries have landed in this problem because of the following reasons:

False Promise By SIPCOT:

When the industrial estate was created under the preview of TACID / SIPCOT, it was advertised and promoted to the industrialists that SIPCOT will handle industrial effluent by establishing the Common Effluent Treatment Plant (CEPT) and by operating CETP by itself. After the industries have put up their plant, SIPCOT has put down its responsibility saying that they cannot run the CETP and dumped it into the heads of industries. Faced with no other option, industries were forced to take up running of CETP and continue the struggle of running it till today. The industries which started their operation later are forced to setup their Individual Effluent Treatment Plant (IETP) and continue the struggle of running it till today.

Lack of guidance from TNPCB:

Tamil Nadu Pollution Control Board (TNPCB) has distanced itself from the argument of whether it is practically possible to achieve zero liquid discharge (ZLD) and also whether it will be viable for industries to operate under ZLD environment. They have confined themselves that they are policing body and will enforce the court rule, without looking whether the rule to be enforced is practically possible to execute and is viable in the long run.

Lack of technical research bodies:

To guide the State Government, there is no separate technical research body. TNPCB, as mentioned above, restricts it selves to policing. Unnecessarily, judicial system is forced to spell out technical parameters. Because of this lack of technical research body, the industries are left with no one to whom they can share their experience in executing ZLD. There is no technical body to represent the true facts to Judicial system. Unfortunately, the Judicial system looks upon the textile processing industries as if they are engaging in a crime, rather than giving an open hearing to their genuine concerns.

Misguidance to Judicial System into ZLD:

Before Zero Liquid Discharge (ZLD) was imposed by the Court, as per CPCB / TNPCB norms, the industries can do the primary treatment and bring the parameters of the effluent to the permissible level and the permeate from effluent treatment can be discharged into land / river. But enforcement of primary treatment was difficult and some industries were discharging untreated effluent into river. Under that circumstance, when the pollution problem is brought into the jurisdiction of Court, the Court was unfortunately misguided into Zero Liquid Discharge (ZLD), rather the providing an alternate viable solution.

The following disadvantages of Zero Liquid Discharge (ZLD) was never brought into the eyes of the Court:

- To achieve ZLD, recover of water through membrane process becomes mandatory. But the membranes are not designed for recovering water from treated effluents. Hence, an expensive and elaborate primary treatment has to be setup to ensure that the membranes do not fail. In spite of that, since membranes by nature are not designed for this purpose, in practical usage, we are finding frequent membrane failures and there by increasing the running cost.
- By using membrane process, when the water is recovered, the reject becomes more concentrated making it more difficult to handle. Lesser the concentration, easier to handle.
- The only way to handle the concentrated reject is through Multiple Effect Evaporator (MEE) or through Solar Evaporation Pond (SEP) - for smaller quantities.
- While running evaporator, we are actually converting water pollution into air pollution. Acres and acres of trees are chopped off to feed into evaporators, thereby increasing the global warming. Also the outlet from evaporators (in spite of all control measures) has huge amount of carbon dioxide which pollutes the air and increases global warming.
- Then the final further more concentrated rejects from the evaporator is much more potent and difficult to dispose.

Central Pollution Control Board (CPCB) does not accept in principle with the Tamil Nadu Pollution Control Board (TNPCB)'s ZLD requirement. TNPCB will show precedence of ZLD being successfully implemented in few factories in Tirupur, Erode and Perundurai SIPCOT. Unfortunately, today the situation is such that none of these industries can openly reveal to TNPCB, the day-to-day problem they are facing because of ZLD and how unviable the unit has become. For example, in Perundurai SIPCOT, almost all the textile processing units that are operating there are financially sick and are ready for sale, but no potential buyer is willing to buy units in Perundurai SIPCOT. The 2850 acres Perundurai SIPCOT has not seen any growth in the last few years because of this forceful requirement of ZLD.

We are very well aware that when industries come openly with the problems they face with ZLD, the next day we will get closure notice from TNPCB. There is no open mindedness to look at the problem and find an alternate viable solution.

Proposed Solution

To handle the effluent from the textile processing industry, the various options that are available are:

1) Discharge of harmless permeate from effluent treatment into sea.
2) Discharge of harmless high TDS rejects from effluent treatment into sea.
3) Discharge of harmless permeate from effluent treatment into river.
4) Zero Liquid Discharge (ZLD).

Note: Permeate from effluent treatment through biological means are biologically harmless, so that they can be discharged to sea / river. But they can not be reused for textile dyeing directly without introducing membrane process.

In each of the above methods, the various aspects that needs to be considered are:

a) Capital Cost for Primary Treatment.
b) Capital Cost for Membrane Process.
c) Capital Cost for Reject Management System.
d) Capital Cost for Transportation of Effluent.
e) Running Cost for Primary Treatment.
f) Running Cost for Membrane Process.
g) Running Cost for Reject Management System.
h) Running Cost for Transportation of Effluent.

No	Option	Primary Treatment		Membrane Process (RO)		Reject Management System (RMS)		Transportation	
		Capital Cost	Running Cost	Capital Cost	Running Cost	Capital Cost	Running Cost	Capital Cost	Running Cost
1.	Discharge of harmless permeate from effluent treatment into sea.	Medium	Low	Nil	Nil	Nil	Nil	High	Medium
2.	Discharge of harmless high TDS rejects from effluent treatment into sea.	High	Medium	High	Medium	Nil	Nil	High	Low
3.	Discharge of harmless permeate from effluent treatment into river.	Medium	Low	Nil	Nil	Nil	Nil	Medium	Low
4.	Zero Liquid Discharge.	High	Medium	High	High	High	High	NA	NA

On careful study of the above comparison, it is very evident that 'Discharge of Harmless Permeate from Effluent Treatment into River' is the most optimal method in terms of capital cost and running cost. This method can be elaborated as below.

Discharge of Harmless Permeate from Effluent Treatment into River:

- The effluents from the industrial cluster can be collected and transported to a Common Effluent Treatment Plant setup near the river banks.
- Utilising the existing biological methods, all the harmful nature of the effluent like Colour, Biological Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) can be reduced to the limits prescribed by Central Pollution Control Board (CPCB) / Tamil Nadu Pollution Control Board (TNPCB).
- To reduce the Total Dissolved Solids (TDS) to the acceptable limit of 2100 TDS, the sewage from villages / panchayat / municipalities / corporation can be mixed with the industrial effluent.
- **The above method is followed word wide, even in the advanced developed**

countries.

- The above treatment has to be executed under a separate Board constituted by the State Government with representatives from Government, TNPCB, agriculturists, NGOs and industries.

Advantage to Agriculture

- Ensures that the dry land where the industries are situated and the rivers are not polluted.
- Permeate from effluent treatment can be given free of cost for agriculture purpose, saving them the cost of digging well / bore well and electricity cost of pumping water out.
- Biological Manure generated during the biological primary treatment of effluent can be give free of cost to agriculture. This ensures that chemical fertiliser cost required for agriculture is brought down.

Advantage to Public Health

- Ensures that the dry land where the industries are situated and the rivers are not polluted.
- In the current scenario, the domestic sewage (which is equally pollutant as industrial effluent) is discharged without any treatment into land and river, thereby polluting water tables in the land and the river. By combining domestic sewage with industrial effluent for primary treatment, the scenario of untreated domestic sewage let out into land / river is eliminated, there by safeguarding the public health.
- By delivering biological manure free of cost of agriculture, the usage of chemical fertilisers can be reduced. Otherwise, harmful chemicals from fertilisers finds their way back into land water table / river, thereby polluting them.

Advantage to Government

- Ensures that land and rivers are not polluted and current grudges from agriculturist / public are removed.
- If pollution problem is solved, the industries can grow in leaps and bounds. If that happens, Government can get higher revenues through taxes / levies. Also unemployment problem can be reduced.
- If Government sets up the CETP at its cost and collects only usage charge, even the unorganised industries will be tempted to join the CETP by getting themselves organised. This will ensure that the revenue stream for Government is increased.

Advantage to Industries

- If Government sets up the CETP at its cost and collects only usage charge, then it brings level playing field between small / medium and large scale industries. Otherwise, small / medium scale industries are forced to close down as they can never invest in the capital cost required to set up Zero Liquid Discharge (ZLD)

methodology.

- Before ZLD become law, there were disparities between industries doing primary treatment and industries letting out effluent without any treatment. In such cases, even the industries that doing the primary treatment was clubbed along disobeying industries as they was no sound method to ensure that primary treatment is done. Hence, for lack of proper implementation of primary treatment, Zero Liquid Discharge was forced upon all industries. Since in the proposed solution, the Government Body takes over the primary treatment and all industries have to treat their effluent only through State run CETPs, it ensures that there is no errant.

Implementation Methodology

- Under Department of Industries and Commerce, Tamil Nadu State Government, a separate board (Tamil Nadu Effluent Treatment Board) has to be formed.
- The Tamil Nadu Effluent Treatment Board has to establish a Common Effluent Treatment Plant (CETP) within Perundurai SIPCOT itself or on the banks of Noyyal River by obtaining grants / subsidies from State Government and Central Government. Since all the textile processing industries are present within few square kilo meters, the trade effluent from all the industries can be collected easily. Also the distance between Perundurai SIPCOT and Noyyal River at Orathupalayam is just 15 KM and pipeline can be layed within Rs.20 Crore expense. (Please refer to Appendix B containing map).
- To start with, primary treatment of the effluent can be done through biological method and harmful nature of the effluent (i.e. Colour, COD and BOD) can be brought down to the allowed limits prescribed by Central Pollution Control Board (CPCB) / Tamil Nadu Pollution Control Board (TNPCB). The treatment charges can be collected from the industries based on the quantity of effluent let into CETP.
- Total Dissolved Solids (TDS) of the effluent can be diluted to the permissible 2100 ppm level, by mixing the sewage from the panchayats / towns / municipalities that lie along the pipeline to be laid between SIPCOT and Noyyal River. This serves the dual purpose of reducing TDS to permissible level and also treatment of domestic sewage without any cost to the public.
- This will ensure that the dry lands are protected from any degradation due to industrial effluents. Since the quality of the permeate from effluent treatment will be within the permissible levels, it can be safely discharged into river or can be supplied free of cost to agriculturists for agriculture purpose.
- The Tamil Nadu Effluent Treatment Board has to appear along side with the industries in the Court and ensure that this proposal is accepted by the Court. Since the permeate from effluent treatment is of the required quality, the Board should convince the Court that river discharge is acceptable, even though Noyyal River is not perennial.
- After running the primary treatment plant for some period and by doing extensive analysis whether membrane process is required, then the Tamil Nadu Effluent Treatment Board can decide upon whether to lay pipeline to sea to discharge rejects from the membrane process.

- Until a clarity is obtained, to ensure the existing problem is not aggravated further, no new industries under red category / orange category should be allowed to set up plant within SIPCOT.

Conclusion

On behalf of agriculture, public health and textile processing industries, we plead the State Government to take a lead in this problem and show us a way out of this problem.

Enclosures:

- Appendix A: Map containing the proposed pipeline between Perundurai SIPCOT and Noyyal River.