



# Water Management at

Sesa Industries Limited  
Pig Iron Plant-Amona, Goa



SIL-PIP





- Sesa Goa Limited is the largest producer & exporter of iron ore, in the private sector, in India with mining operations in Goa, Karnataka & Orissa.
- In April 2007 the Sesa group was taken over by Vedanta resources PLC.
- Sesa Industries, an 88% subsidiary of Sesa Goa Limited, was started in 1992 for manufacturing of pig iron.
- SIL manufactures basic, foundry and nodular grade pig iron for the steel mills and foundries. It also sells good quality slag to the cement industry.
- The Company has developed additional special grades of pig iron to cater to the fast growing niche market of ductile iron castings in India.



### HSEC Vision

To maintain pre-eminent position in health & safety, environment and social responsibility practices, and leveraging it for overall growth of the group companies.

### Strategies

- HSE compliance
- Obtaining all statutory clearances in time, for existing and new projects.
- Benchmarking of existing practices with the best in it's class and devise the road map for HSEC excellence.



- Sesa Industries is the first company to introduce low phosphorous foundry grade pig iron in India, in 1992.
- The Company's plant at Amona, strategically situated on the banks of the Mandovi river, has two blast furnaces of 173 m3 volume and a combined annual capacity of 292,000 metric tonnes.
- Sesa's pig iron plant manufactures special grades of pig iron to meet different customer requirements.
  - Low sulphur and low manganese content pig iron.
  - Nodular grade pig iron.





•It is said that the “Third World War will take place for water”. Sesa Industries Ltd. Pig Iron Plant appreciates the value of water and takes every possible effort to save & conserve this resource.



•Our 4R Water management strategy is:  
Reduce  
Re use  
Recycle  
Recharge (e.g. rainwater harvesting etc.)

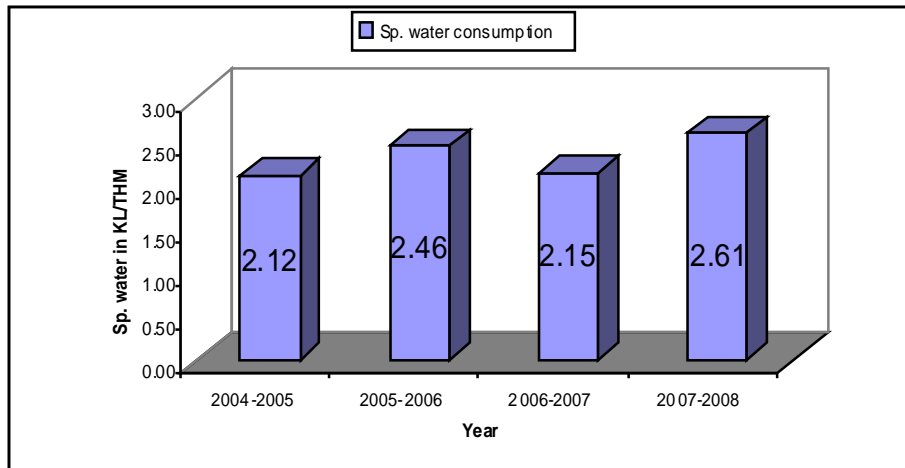


De-Silting of Nallah.

• The company has signed an MOU with Betki Khandola Panlot Sangh and is in the process of signing an MOU with Amona Panlot Sangh.



- The company has installed water meters at all the incoming points to measure the actual water used.
- The company has formed a Water Conservation Cell in Sept. 2007, under the leadership of HOD Production, with members from the production and maintenance departments.
- Every day the water consumption is reported to the General Manager and all the HODs. They monitor the trend and deviation in the consumption pattern, evaluate it and take appropriate action as and when needed.
- The status of our objective of 5% reduction in specific water consumption, is reported to the corporate HSE, monthly through HSE MIS and also discussed in the monthly operational review chaired by the Director.
- Quarterly Vedanta HSE committee meeting, attended by the Group CEO and HSE heads of all the group companies, discusses the group's objectives at the Vedanta headquarters.



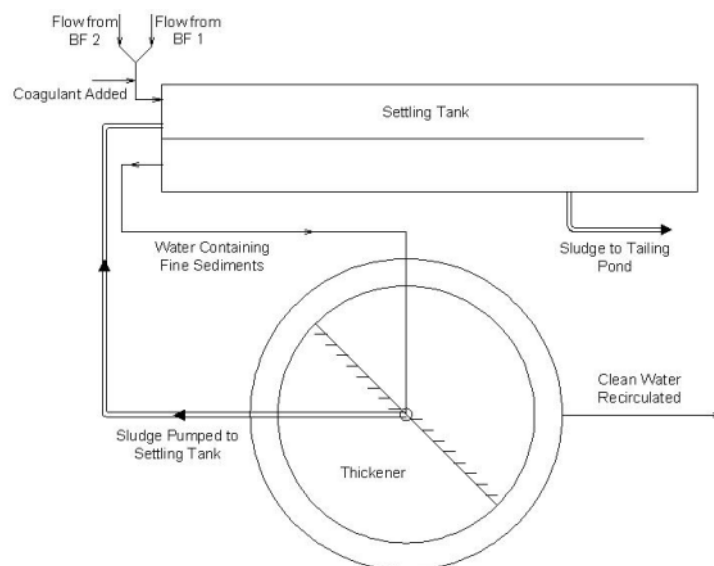
\* Note: The specific water consumption is increased in 2007-08 due to introduction of cooling plates in both the blast furnaces.



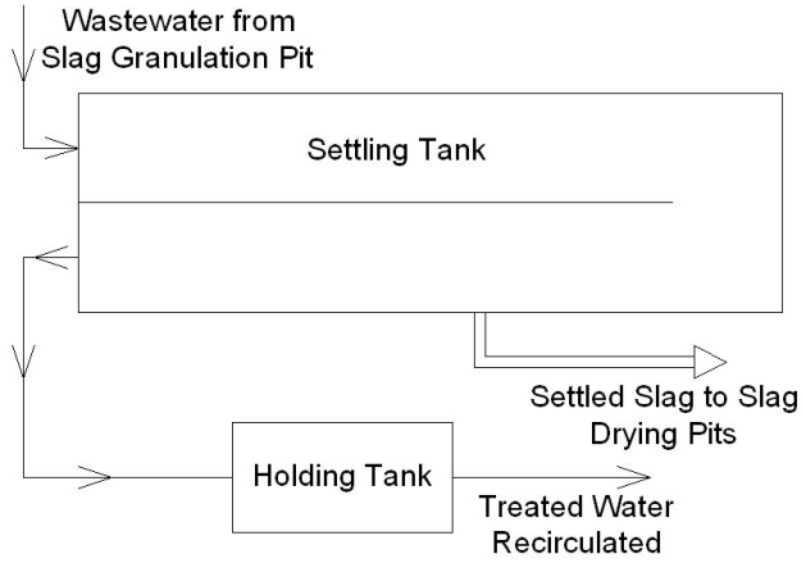
- Automation of saline water pump for slag granulation.
  - Pumps are fitted at a distance of about 1 km. from the plant. Once started, the pumps were running continuously, resulting in the overflow of the slag granulation tank, due to the delay in covering the distance to stop them. The automation of the pumps, based on the water level in the tank, has resulted in saving the water which used to overflow and saving of energy.
  - Cost of the project: 4 Lacs
- Water from the coke shed roof is connected to the settling tank, thereby reducing the water requirement in the monsoon.
- Other minor steps such as arresting the leakages and diverting the water seal overflow to the two pond settling tanks, installation of sensor based taps, installation of water meters to the canteen etc, are taken up from 2007 to reduce the water consumption.



- Water requirement for the blast furnace unit:
  - Process water for gas cleaning system,
  - Slag granulation
  - Cooling water for PCM
  - Cooling of furnace & other auxiliaries,
  - Domestic purpose







- Thickener - To Recycle Process Water







- The molten metal is poured in the PCM, which is then cooled with water sprays. After the pouring is over the pigs are cooled with water. This water is presently diverted to the slag granulation pit, which acts as the make up water.

- Future Project

- PCM cooling water is mixed with lime & some metal chips. This water will be taken to a settling tank & then the clean water will be re-circulated in the system. The settled matter will be removed periodically to recover the metallic chips.
- This will result in saving of fresh water, which will reduce the fresh make up water requirement

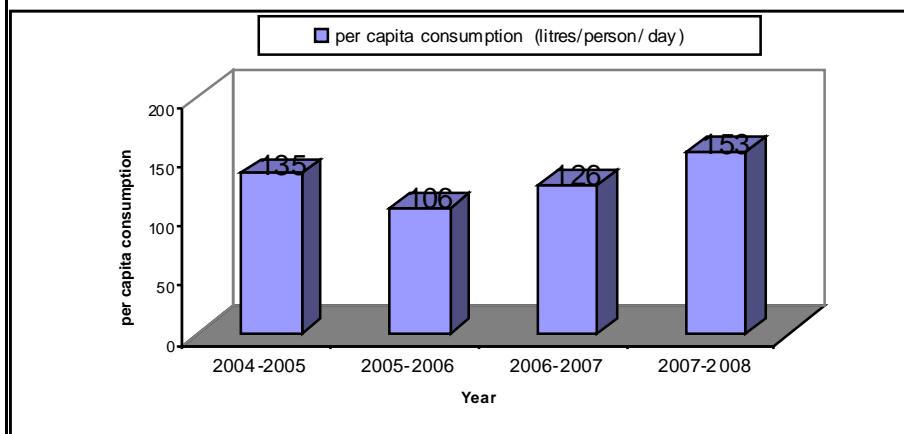


- The furnace shell is cooled externally & water is also circulated thru tuyeres. This water is then passed through the cooling tower before re-circulating in the system. There is no treatment required for this water. The evaporation losses are made up with fresh water.





- The water used for gardening, floor cleaning, sanitary use etc. is termed as domestic water.
- **Total domestic water requirement for the entire complex is about 80 Kl/day, from which the waste water generation is very less only sanitary & washing.**
- **The water used in the canteen & washing is used for gardening purpose, after treatment,**
- The sewage water generated from toilets & wash rooms, is collected and sent to the sludge soak pit. Sludge soak pit is the one in which the sewage effluents from the residential drain are directly discharged. The water in the accumulated sewage is soaked by adjoining pervious soil, while the sludge is digested in the pit. The pit is lined with masonry with open joints and the top is covered with a rigid slab.



\* Per capita water consumption includes water for gardening.

THANK YOU