**Rainwater Harvesting Potential at Sterling Engineering (Pvt. Ltd)**

7 th July 2008

The objective of the visit was to assess the potential for Rainwater Harvesting and to incorporate the concept, along with the construction of the new Washing Plant of the factory.

From the unscaled drawing provided, it was worked out that the premises had 4 major buildings with potential roof areas of over 157000 Sq.Feet (Say 150000Sq. Ft or 15000 Sq. metre)

It was also stated that a 120 Cubic metre partially buried tank would be part of the proposed new construction.

The Total demand for the industrial (Washing) process was given as 120 Cubic Metre per day, provided by Bowser. Boiler Feed and other domestic demand was stated to be 35 Cubic Metre per day, which is provided by BOI.

Considering the rainfall pattern and figures for the area, for over 30 years, a 200 Sq. Metre Roof area with a 50 Cubic metre storage would yield a firm 0.7 Cubic Meter daily. Hence a 15000 Sq. Metre Roof with a 3750 Cubic Metre storage would yield over 53 Cubic meters daily.

It is seen that a substantial amount of the daily requirements of the factory could be provided for with rainwater, provided sufficient storage is put in place

To achieve the above, the following steps are proposed. This could be done in stages

* Establish a easily dismantlable large diameter steel tank, in the area denoted as ‘open to sky’ in the given plan. A12 m diam. Tank with a 2.2 m height would store 248 Cubic Metre, whilst a 4.6 m Diam of same height would store only 38 Cubic metre. This shows the advantage of squeezing in the maximum sized tank into the available space. Advantage of siting the steel tank in close proximity to its major points of use (Boiler , washing Plant and Canteen) would be obvious.

* Modify the back side roof downpipes of the 4 major buildings (Embroidery, Cutting, Fabric and Finishing) to manifold pipes in lieu of the present direct discharge into the storm drain. The manifold pipe could discharge to an on ground 10 Cubic meter locally available HDPE tank. At least 1 Tank per building per side is recommended. Variable speed pumps with level control could pump this water to the Central steel tank.

* Similarly do for the front side roof downpipes. With careful manifold pipe sizing the need for a set of on ground tanks may be avoided by direct discharge to the large diameter steel tank by gravity, using different inlets to the tank. This method would save on pumping costs. Alternatively, a second set of HDPE tanks and pumps could be used.

* Have a pipe link between the Steel tank and the proposed 120 Cubic meter storage tank for flexibility of operations.
* As further water saving measures, Waterless urinals, Aerator faucets. Bidet showers and similar fixtures are recommended in the washrooms.

* Depending on the experience gained from the harvesting from the bigger roofs, gradually, more big sized storage could be added along with coupling of the smaller roofs , according to available requirements and availability of funds.

A copy of the National Rainwater Policy accepted by the Cabinet in June 2005, (annexed) shows both the additional potential for rainwater and the future commitment of the State in this regard, so that investments in this regard would be of no risk.

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