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Some historic places continue their history of rewriting the history!

Panipat is a historic place, which has seen battles which rewrote Indian history- In the 1st battle here in 1526 Babur defeated Ibrahim Lodhi, laying the foundation of the Mughal empire. In the 2nd battle in 1556 Akbar defeated Hemu to consolidate Mughal rule. The 3rd battle in 1761 saw the waning of Maratha power in North India. All these battles changed the course of Indian history. In its 4th battle against water pollution from industries, history of industrial pollution abatement is being created with active partnership of stakeholders.

Panipat is a big center of textile industry, particularly the home furnishings. It is also a major source of pollution in Budda Nala and River Yamuna as textiles processing industries consume huge quantity of water and produce large volume of waste water from different steps in various processes- right from cotton growing to garment and wash the excess chemicals used down the drain, polluting water bodies. Thus, textile industry is a big concern for water quantity and quality management, the two pillars of water security and sustainability. Chemical wet processing of textile consumes 50K-60K chemicals, dyes and auxiliaries, some of which has now been banned due to carcinogenic

The 4th Battle of PANI-PAT

and other adverse impacts on human beings, animals/plant and atmosphere. Chemicals are used in processes like de-sizing, scouring, bleaching, dyeing, printing, finishing, softening, washing and for specialized effects on garments etc.

Innovative Processes re-engineering can reduce to consumption of water and reuse and recycling of water can reduce abstraction of fresh water and hence reduce the water foot print considerably. Recovery and reuse of resources like water, chemicals and even heat energy can reduce the input costs and the load on ETPs and environment and hence the cost for its treatment.

Supreme Court has clearly laid down the polluter pays principle for any pollution abatement, mitigation and restoration of affected environment. However, thanks to the clout of the polluters, these are always flouted. Polluters continue to pollute the air and water laughing their way to banks, leaving the responsibility to clean it up to governments.

The Panipat pollution project was awarded to Solidaridad, an environment friendly organization from The Netherlands, working in over 140 countries, by National Mission for Clean Ganga (NMCG), when I was its Director General. This Rs 19 Cr project was mainly to reduce the water usage in and pollution from the Textile industries. From the initial proposal of 50:50 partnership, due to exigency I had agreed for 80:20 partnership. From a reluctant industry response then, to an overwhelming acceptance now, 3 years later is a testimony of the effectiveness of January 2023 launched win-win intervention -- the significant reduction of cost for the industries (reduced consumption

of: power (by 10%), water (by 32%), chemicals (by 20%) and for abatement of environment pollution. (much less effluents with lesser pollution load and reduced GHG foot prints)!

Solidaridad introduced innovations: to reduce water usage and increase recycling- eg Auto controller on Jet dyeing machines; Vacuum suction slit on Stenter machines; Water spray gun; Reuse of water from ETP; optimizing MLR (Materials to Liquid Ratio) in Jet, Soft Flow and Hank dyeing machine; DAF units; to reduce the energy consumption- eg insulation cladding; heat recovery system from the chimney smoke; heat exchanger in hot drains; from steam ager exhaust gasses; steam condensate recovery system; to reduce chemical consumption- eg by process reengineering in dyeing units, print-washer/Soaper units, jigger units; recycling softener from hydro extractor effluents; salt and soda reduction in cotton dyeing by graphical methods, substitution of ascertic acid with formic acid in polyester dyeing units etc, which earned them the GEEF Global Water Award 2004, under the industrial Water Project of the Year category.

In Panipat it was a pleasant experience to see some interventions made a few years earlier, being accepted by the stakeholders to reduce the pollution load in water (Pani)! This can be a role model for pollution abatement in industrial clusters.

Proud to be a part of the 4th battle of PANI-pat, against pani-pollution, - with supportive stakeholders on board!!

**A ret'd IAS officer, former DG, NMCG, popular as "Rain Man" for his Catch-The-Rain Campaign.*