



ETP OUTPUT INTEGRITY – A KEY REQUIREMENT TO ZERO DISCHARGE

Thirteen years after coming into force of the Stockholm Convention on Persistent Organic Pollutants (POPs), a wide range of organic chemicals (largely textile products) still poses the highest priority environmental hazard to Bangladesh. The broadening of knowledge of organic pollutants (OPs) environmental fate and effects, as well as the decontamination techniques is made part of Compliance and sustainability upon RMG Sector. Zero Discharge (ZD) or Reuse are a means to stop pollution sources and conserve Dhaka’s Deep Aquifer reserves.

A textile operator will decide on options available to plan a forward strategy (STWI) that will ensure compliance & recovery focused on available options and applied solutions of different separation processes (sedimentation, filtration, membrane separation), and primary ETP physico-chemical treatment steps (i.e. coagulation-flocculation with inorganic coagulants and organic polymers; chemical oxidation; electrochemical process, etc.) integrated into a specific order in the technological process of wastewater treatment for large-scale colour and dye chemicals, metals, COD/BOD/TSS/VOC/POP, etc. inherent to textile effluent.

The satisfaction of both ETP discharge and textile reuse standards within economically viable limits implies critical operating procedures to remove pollutants from final discharge before entering filtration and membrane systems. Dye removal from textile effluents in controlled conditions and strict ETP output integrity is an economic & environmental issue achievable by application of adequate mechano-physico-chemical and also aerobic treatment procedures before entering any Zero Discharge program.

The ETP must operate 24 hours per day for ZD Recovery Purposes. **NEWater should be rewarded by the Buyers.**

ZD is widely researched and recommendations for the ideal ETP treatment process for satisfactory recycling and reuse of textile effluent water are known. They should involve the following steps: Initially, refractory organic compounds and dyes may be electro-chemically oxidized to biodegradable constituents before the wastewater is subjected to treatment under aerobic conditions. Whereas empirical evidence reveals low biodegradability of most textile dyes and chemicals; biological treatment using activated sludge process does not always achieve great success. Retention times are overly extensive and output retains colour & metals with no control on ETP infrastructure for secondary Sludge Management after use of costly poly based de-colorant.

Electrochemical oxidation treatment (ECR) of dye-containing effluents is a powerful method of pollution control, offering high removal efficiencies especially for acid dyes as well as disperse and metal complex dyes. The main advantages of this treatment is its design into smaller more effective ETP’s as compared to activated sludge plants (ASP) requiring huge lands and operational sensitivity. While ASP has proven to be more expensive to operate because de-colorant is required; the output from ECR insures less fouling and scaling because it has removed more contaminants that ultimately decreases membrane cleaning, replacements & total water costs.

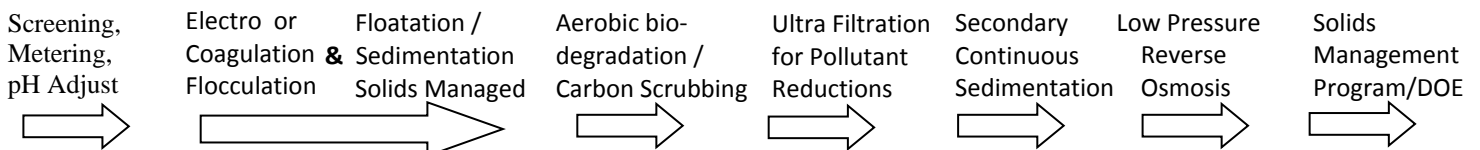
ECR is recommended internationally to be an efficient and economic pretreatment for recycling textile wastewaters. The cost & environmental advantage mainly achieved is the minimization of foulants in liquid entering membranes. Other important advantage is its capacity of adaptation to volumes and pollution loads.

FLAGSHIP Dhaka Central ETP (BD) Ltd *Environment & Water Supply*

FLAGSHIP is a local and foreign expert in RMG based effluent treatment. Since 2008, we have been helping businesses adopt eco-responsible technology by offering high quality and cost-effective ETP ZD Designs, systems and solutions. Our comprehensive solutions bring ETPs operationally & environmentally compliant when operated correctly and responsibly with adequate infrastructure for STWI factory status. ECR ETP Primary treatment of Dye bath, rinse, and wash waters has proven itself in Dhaka ie: **DETOX testing**. Factories clearly generate far less oxide based solids (Non-hazardous and DOE classified as Category B Sludge/solids) and more complete & clear output. FLAGSHIP upgrades or NEW ETP Recovery Designs include waste water analytical & engineering knowledge of Primary ETP, Ultra Filtration and Reverse Osmosis and guarantees **a 70 to 80% Recovery Rate**. We understand DOE, Buyers, and Water Sustainability and remain on-call 24/7 locally.

REDUCE – RECYCLE – REUSE – BD DOE Planning Requirement to ZERO DISCHARGE

Sweden Textile Water Initiative “Achiever Status” ETP Process Steps



GUARANTEED EU, USA – STWI – ETP GUIDELINES and RECOVERY VALUES

An Environmental partnership throughout the Zero Discharge Engineering, Procurement & Commissioning Process