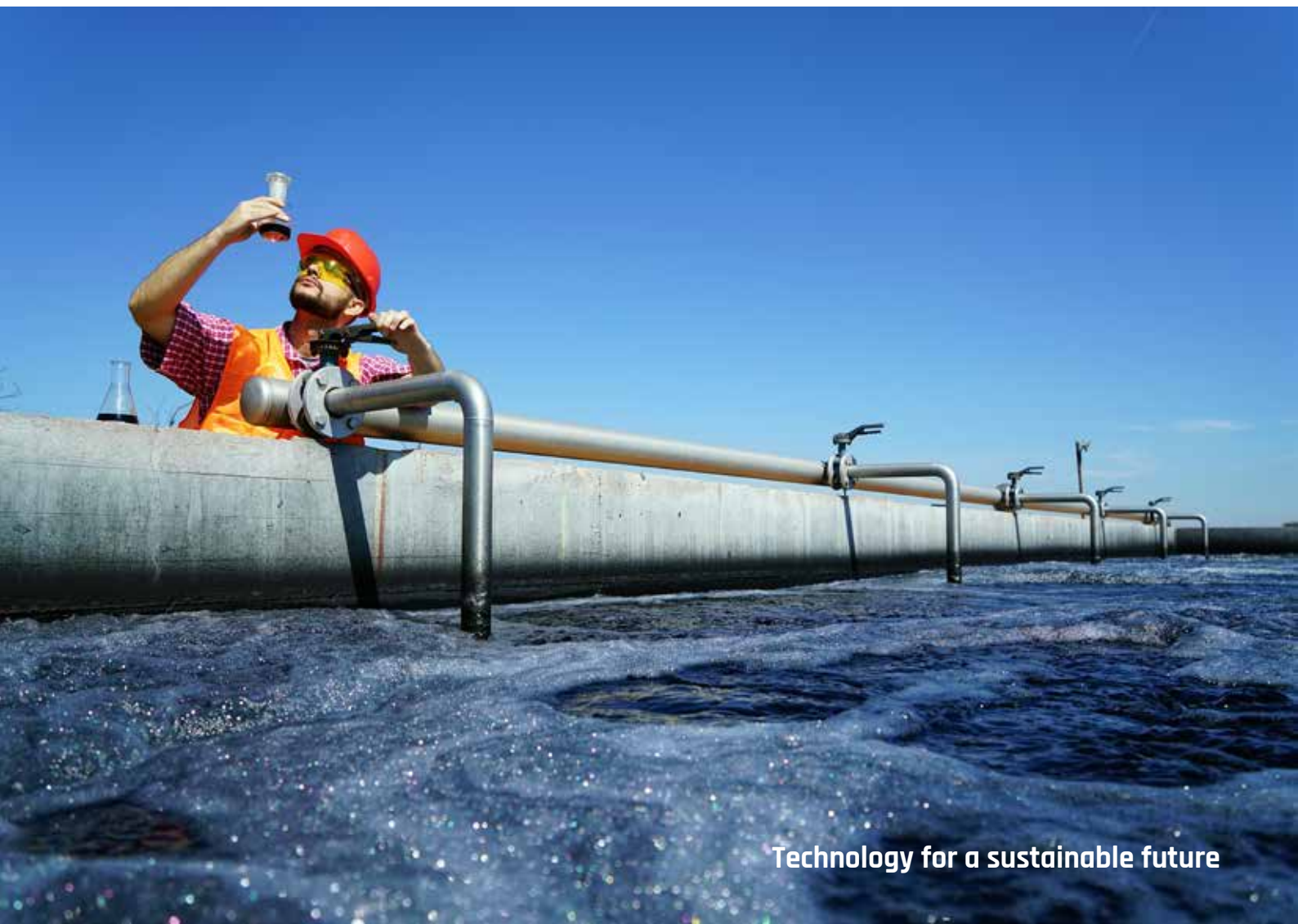


KINGSLEY™

ETP AUDIT & PERFORMANCE ENHANCEMENT



Technology for a sustainable future



2,000,000,000 or 2 billion m³ is the Country Water Footprint of Textile Industry in Bangladesh.

Conservation of water is a global priority issue. Over exploitation of water resources is having severe impact on the environment & human health. Bangladesh is no exception from the situation. Moreover, one of the major industrial sectors of Bangladesh is the textile dyeing and finishing industry which are water intensive processes.

Many of the factories in Bangladesh have their own Effluent Treatment Plants (ETP) to treat wastewater. Yet, many of the factories can not treat their wastewater appropriately.

Two main challenges are-

- ✓ ETPs are not designed as per the need of the factory.
- ✓ Factories are in need of skilled manpower to operate the ETP/WWTP appropriately.

Government of Bangladesh and foreign buyers are pushing factories to reduce their water footprint. Zero Liquid Discharge (ZLD) & Partial wastewater recycling became very vital for the factories in current situation. Moreover, buyers are also insisting to meet ZDHC Progressive parameters for the discharged water to Textile factories.

These Problems and challenges can be easily tackled and managed if properly addressed with risk mitigation. ETP assessment is the most appropriate tool to resolve design and operational problems which will enable the factories to operate by minimizing the operational cost.

GENERAL PROBLEMS OF ETP OPERATIONS & MAINTENANCE



Chemical Purchase Process

- Some chemicals might be harmful to ETP biology
- Chemicals are not MRSL compliant
- Risk assessment is not done properly
- Inappropriate Chemical Purchase procedure



Chemical Warehouse

- Secondary containment's spill directed to ETP
- Dead stock chemicals disposed off into ETP



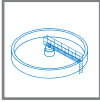
Treatment Chemicals - if any

- Quality of chemicals are not good
- Inappropriate chemicals are selected
- Amount of dosing is in correct



Dyeing / Wet Process

- TDS instruction is not followed properly
- Excessive chemical use
- Impact of production chemicals on ETP are not considered
- Increased production capacity



Liquid Solid Separation System

- Sludge are not settling
- Sludge goes with water
- No sludge produced at all
- loating sludge
- Color in the discharge water



Activated Sludge Process

- Key parameters - MLSS, MLVSS, F/M ratio etc. - are not properly maintained
- Never adjusted key parameters as per changing situation
- Inadequate design of ETP



Sludge Handling System

- Thickened sludge is too watery
- Press is not appropriate to the type of sludge
- Sludge has very bad smell



ETP Personnel

- Never had a good training on ETP
- Insufficient knowledge of Activated Sludge Process
- Not performing in-house tests appropriately
- Little knowledge on the key parameters of ETP

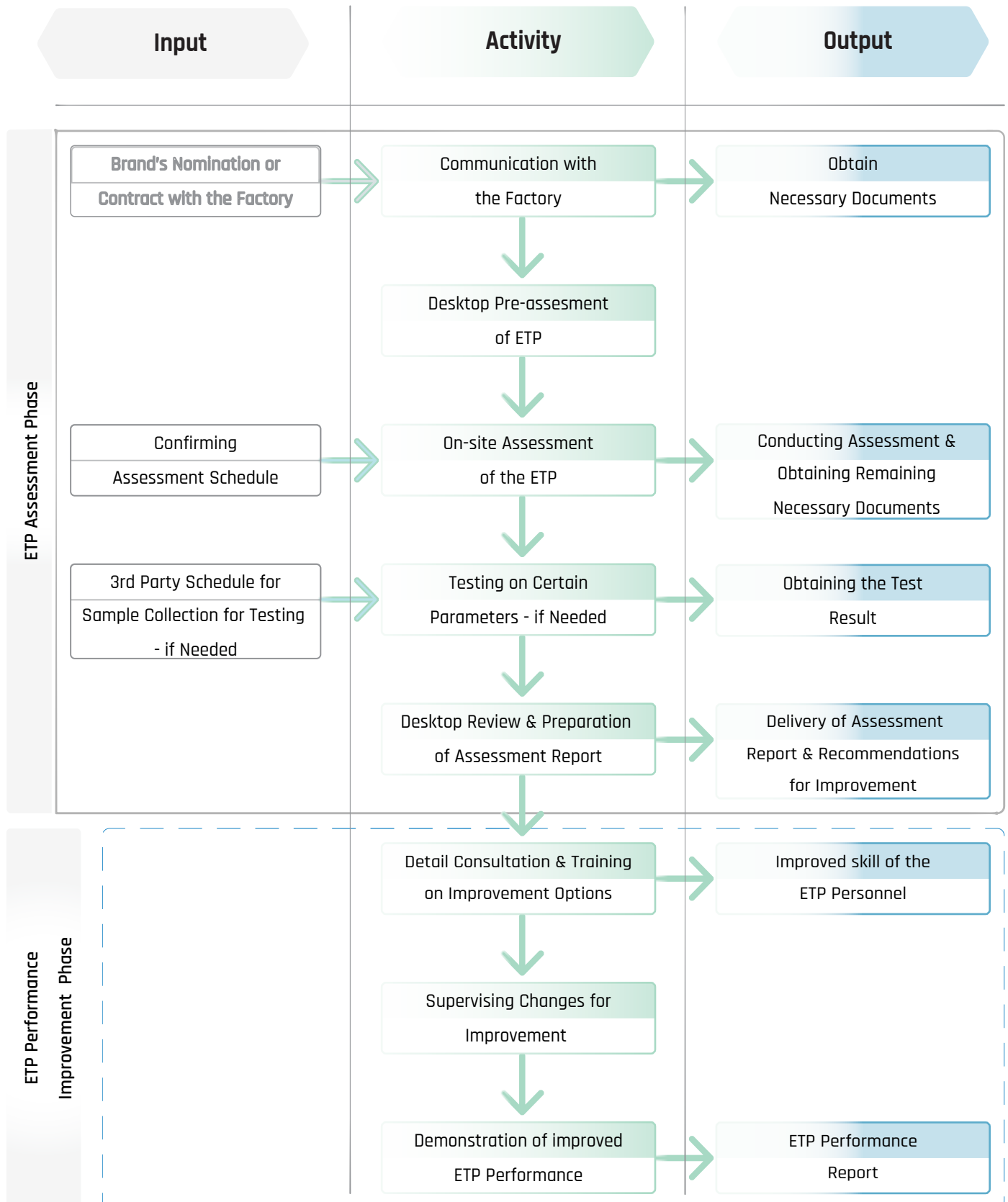


Why we should do an ETP Assessment?

- ✓ Portraying the current scenario of the WWTP in terms of discharge water parameters, operation, design adequacy, functionality and operational cost.
- ✓ Reducing water usage is an important goal for SDG, buyer and government.
- ✓ Assessing the appropriate technology for retrofitting the ETP - if needed.
- ✓ Recommending the appropriate cost of WWTP retrofitting.
- ✓ Transforming the WWTP into a ZLD or partial recycling one.
- ✓ Identifying the problem with either design or operation.
- ✓ Assess whether the energy and chemical cost is more than the requirement
- ✓ Retrofitting the WWTP for complying more stringent parameters i.e., from ZDHC foundational to progressive.



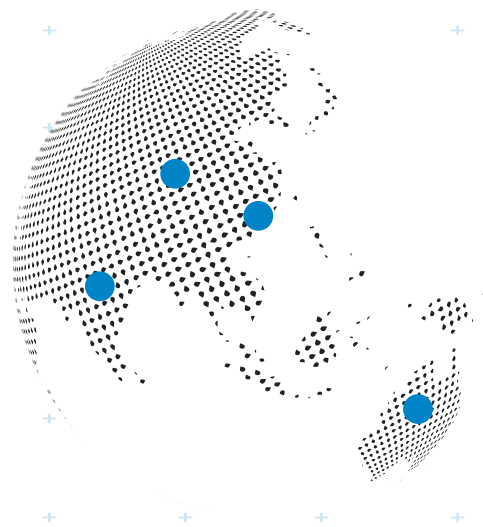
ETP Audit & Performance Enhancement Program Flowchart



**This is the methodology of the ETP Assessment and Performance Improvement Program.
It can be adjusted as per requirement of brands, buyers or factory.**

Outcome of the WWTP Assessment

- ✓ Factory & the top management will get authentic information on current situation of the WWTP.
- ✓ Assessment will prevail the retrofiting technology and the cost.
- ✓ Assessment will recommend the short, medium and long term improvement option.
- ✓ It will assist the factory to the grading of their WWTP i.e., from Yellow to Green.
- ✓ Factory will be better equipped to face WWTP audits from buyer's end.
- ✓ There will be recommendation on how to solve all the observations of buyer regarding WWTP.
- ✓ Recommendations will be there on how to reduce the operational cost.



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