**Terms of Reference**

**Technical trainer on water-energy audit skills**

**Supervised by:** *WWF-Viet Nam Textile Program Manager*

**Work location:** *Ho Chi Minh City*

**Duration:** April 2021 to July 2021

**Background**

Domestic fabric production and finishing is now considered in great demand for growth in the context of Vietnam’s goals to boost its larger value added earnings from textile trade in the CPTPP and EVFTA, where the rule of tariffs removal is commonly applied for ‘yarn forward’ or ‘fabric forward’ sourcing internally in those FTAs’ territories. At the same time, weaving and dyeing facilities are confronting scarcer and more expensive resources to reach their full production capacity. Water, energy is taking higher proportion of operational cost, while the cost for effluent of all kinds of wastes (wastewater, solid waste and gas emission) are peaking to comply with environmental regulations. Overexploitation of water, combing with drought and salt intrusion as the consequence of climate change have caused massive degradation in the quantity and quality of water aquifers. To its turn, water stress affects the energy production, as both hydro and thermal power plants heavily depend on water source. This time is more than ever when the business sustainability solutions is placing around the water and energy efficiency, renewable energy, and boosting resources’ circularity.

Following the theory of change, behavioral change starts with change of knowledge and awareness for relevant stakeholders. As a science-based organization, WWF conducts a variety of researches to provide evidences of risk implications as well as practical solutions for stakeholders to address those risks. We aim to organize training seminar to transfer the knowledge to relevant parties. The engagement activities continue to ensure all relevant parties are required to engage and push the transformation process of the Textile sector becoming cleaner and environmental friendly, helping Vietnam Textile sector gaining brand “Sustainably Made in Viet Nam” instead of currently “Made in Viet Nam” one.

The green transformation journey at one textile-dyeing facility starts with a baseline water-energy audit which is to find out ineffective use of resources in the main production process or in auxiliary system. Often, factories rely on external consultant team to conduct water-energy audit. This is an expensive and unsustainable solution in the context that more textile facilities are put in operation, each has demand for regular audit to timely find out and act on inefficiencies in their system. Equipping factory team with knowledge and key skill set to observe, monitor, report on their own system is necessary and not that too hard to bring the internal team up to the level of auditor, given that factory’s technical team has had enormous understanding and experiences of their products, production process, machinery and equipment.

**Objective of the assignment**

Technical trainer is to deliver the training on introducing and improving skill set for senior factories’ technical staff to systemically identify water-energy chemical resource inefficiency, loss and waste of resources in the production plants, analyze the root causes and develop corrective action plan to improve resource efficiency.

The training is divided into two modules, each last for 2 days and an interval of at least 1 week between the two modules in order for trainees to practice the trained audit skill. The training aims at following objectives:

Gain a better understanding of the water and energy management system, monitoring of input and output components and signs of loss/leak in the systems

Gain the knowledge of Best Available Technology (BATs) and Best Environmental Practices (BEPs) in textile wet processing facility. Besides, the consultant is to provide the water-energy consumption benchmark of the textile-dying sector, in specific to the type of products and technologies

Gain the skill of a full audit process for energy (covering production machinery, boiler, air compressors, steam pipeline, ventilated air conditioning, fan, lighting, etc.)

Gain the skill of a full audit process for water and chemical (covering production process and machinery, water input and wastewater discharge, boiler, etc.)

Gain the skill of audit process for wastewater treatment plant

Provide feedbacks and coach for trainees upon their audit skill practice

**Scopes of work**

The Consultant will perform the following scope of work:

1. Develop a water-energy audit skill booklet in the textile sector, guiding technical teams of textile factories on steps and checklists to monitor water-energy consumption efficiency indicators
2. Deliver the training contents for Section 1, 2, 3, and 6 of the training agenda, including:

Provide the knowledge of the water and energy management system, process and machinery efficiency calculation method, monitoring of input and output components, and observatory signs of loss/leak in the systems,

Provide the knowledge of Best Available Technology (BATs) and Best Environmental Practices (BEPs) in textile wet processing facility. Besides, the consultant is to provide the water-energy consumption benchmark of the textile-dying sector, in specific to the type of products and technologies

Guide the skill of a full audit process for energy (covering production machinery, boiler, air compressors, steam pipeline, ventilated air conditioning, fan, lighting, wastewater treatment plan, etc.)

On-site coach for trainees at 10 selected textile SMEs to practice energy-water audit skills, 2 labor days at each factory.

**Output and deliverables**

Consultant will provide deliverables as below:

* **Output 1: Water-energy audit skill booklet in the textile sector feasibility study report**

One (01) water-energy audit skill booklet in the textile sector, in English and Vietnamese language

* **Output 2: Associated Presentations/Slides for 02 training modules**

One (01) set of presentations/slides for training modules, in English and Vietnamese language

* **Output 3: Aggregated on-site audit skill coach report at 10 factories**

One (01) aggregated report of on-site audit skill coach for factories’ technical teams, in English and Vietnamese language

**Timelines**

The Consultant will perform the assignment from April to July 2021

Delivery Schedule (only milestone tasks/deliverables listed below):

*The consultant should plan their program to meet the following major project milestones:*

***Milestone Tasks/Deliverables Timelines***

(a). Deliver (01) water-energy audit skill booklet End of Apr 2021

(b). Deliver (01) training presentations/slides Mid of May 2021

(c). Deliver (01) aggregated report of on-site audit skill coach Mid of Jul 2021

**Required Profile**

**Essential qualifications, knowledge and expertise:**

* Excellent knowledge and experience of working with Vietnam textile sector in general and sustainability aspect in specific;
* Proven experience of water-energy audit in textile wet processing facilities
* Very familiar with the environmental dimension of the textile sector (i.e. water, energy, chemical and waste and wastewater management);
* Knowledge of water-energy efficient solutions, Best Available Techniques (BATs), Best Environmental Practices (BEPs) and pollution parameters in the textile and garment sector
* Good working experience at enterprise level, especially textile and garment enterprise;
* Experience working with research, primary and secondary data collection and other relevant professionals;
* Writing proficiency in English and Vietnamese languages.

**Reporting line**

This consultancy will be directly managed by WWF Vietnam’s textile project manager. Relevant colleagues from WWF International and regional teams will provide indirect supervision.

**Proposal format**

1.   Proposal Cover Letter signed by a person authorised to sign on behalf of the Consultant;

2.   CV & Summary of relevant experience and projects;

3.   Technical Approach/Proposal for completing the deliverables;

4.   Financial proposal.

**How to apply**

All proposals must clearly indicate the tender reference*:* “Ref. 43.21: “*Technical trainer on water-energy audit skills”* and be sent **via email to:**  [procurement@wwf.org.vn](mailto:procurement@wwf.org.vn)

The deadline for proposal submission is at 10 AM 7th April 2021.

Questions for TOR clarifications can be sent to [procurement@wwf.org.vn](mailto:procurement@wwf.org.vn) no later than 10 AM 27th March 2021.

Late bids will be declared invalid.

“WWF is an equal opportunity employer and committed to having a diverse workforce.”