Terms of Reference
For
SMART Cotton Farming by using of the IoT / IT field-based gadgets

**Project Name:** Milliner Cotton Initiative

**Project Background:** Agriculture is increasingly becoming more knowledge intensive. Having access to timely and accurate information that is tailored to specific locations and conditions is critical in helping farmers make the most of their resources in often changing circumstances.

Over the past 15 years the information and communication technology (ICT) revolution has driven global development in an unprecedented way. Today, ICTs are a transformative force for good in socio-economic development.

It has been amply demonstrated that enhancing the ability of farming communities to connect with knowledge banks, networks and institutions via information and communication technologies (ICTs) has improved their productivity, profitability, food security and employment opportunities.

Impact of digitization is now evident in each sphere of life; it has increased the speed and breadth of knowledge turnover with the society and economy. Digitization is also fascinating the second largest sector of Pakistan economy, agriculture. Young generation of farming communities have been spellbound by smartphones, watching videos, sharing information, pictures etc. Now it is imperative to devise e-farming tools that will help cotton farmers as well as field personnel for information collection, analyses and reporting. Proposed initiative is small step towards development and testing of digitization in cotton farming.

Milliner Cotton Initiative is Artistic Milliners Group funded project, being implementing in Rahimyar Khan, District of Punjab. The project aims to improve quality of seed cotton and lint within the supply chain of Artistic Milliner by building the capacity of farmers, cotton pickers, and ginners on reducing trash and contamination in seed cotton & lint. And this requires farmers, cotton pickers and ginners to follow certain protocols.

**Objective of the Task:**
Sustainable Agriculture & Food Programme (SAFP) of WWF-Pakistan under its “Milliner Cotton Initiative” project intends to develop an E-Farming solution through the installation of IoT / IT Gadgets at the farm and will be used by the project farmer as pilot. The use of IoT / IT Field based gadgets is the best way to address the issues smartly and monitor the crop health and
parameters remotely. This leads to a more efficient use of inputs like herbicides, pesticides, irrigation, fertilizer and weather updates for the farms.

**Scope of Work:** The upcoming era is the era of technology. Cotton farming is expected to be managed through IT based gadgets. This activity will serve as helpful tool for the cotton farming community to manage their agricultural inputs smartly and efficiently. All the information getting from the farm would be available remotely about the cotton crop through the satellite imagery and the data coming from the sensors. According to the real time data all the information and suggestion will be available for cotton farmers about the cotton crop requirement. This will help the farmers to save their expenses and to manage the cotton crop sustainably.

**Specifications:** This activity requires installation of different IoT gadgets at the farm (size of the farm is 50 acres and is located in Rahimyar Khan district) to record real-time data of different parameters such as soil moisture, soil temperature, salinity, fertilizer (N, P, K), weather and environment conditions etc.

**Deliverables:** The consultant / firm will provide following deliverables during and after the season, the frequency of data sharing is depending on data recordings.

- Real-time monitoring through satellite
- Weather Forecast
- Irrigation Requirement
- Vegetation Indices through satellite imagery
- Soil Mapping (Soil Type and Capacity)
- Monthly and Weekly Reports
- Real Time Soil Parameters (Moisture, Temperature, EC, TDS)
- Real Time Soil Nutrient Usage Tracking (N, P, K)
- Agronomist consultancy
- Plant disease diagnosis
- Pest attack prediction
- Data Visualization
Required Qualifications/Skills:

- Well experience in related consultancies
- Having worth to provide / install related gadgets for the mentioned period
- Experience in documentation and reporting

Selection Process: Donor’s (Artistic Milliner) will be the part of selection and his consent will be taken for the finalization of consultant / Firm.

Timeline:

The activity is for one cotton season as pilot and will starts from 15.06.2021 to 31.12.2021

Terms of payment:

- 60% advance payment will be done just after commissioning the project for installation of devices.
- 40% remaining amount will be released after receiving the final report.