

Sindh Irrigation and Drainage Authority

Subproject Implementation Support Consultancy

Terms of Reference

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1. Objective of the Consultancy

This consultancy – the Subproject Implementation Support Consultancy or SISC – will be implemented under the Sindh Water and Agriculture Transformation Project (SWAT) which seeks to increase agricultural water productivity in selected project areas and improve the institutional framework for integrated water resources management. This assignment specifically contributes to SWAT’s *Component 2: Water Services Delivery* and *Component 3: Targeted Agricultural Incentives and Investments*.

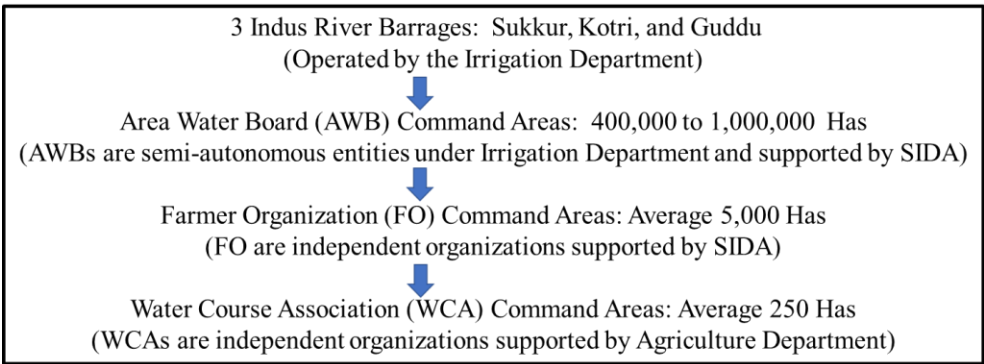
The SISC will provide assistance to the Sindh Irrigation and Drainage Authority (SIDA) and the Agriculture Development Unit (ADU) under Department of Agriculture in preparing and implementing Farmers Organizations (FO) subprojects and for capacity building of FOs. The FO subprojects will be funded by the subcomponents 2.1 and 3.1 of SWAT. The subprojects are expected to result in increased agricultural water productivity through improved canal water deliveries, conjunctive management of canal water and groundwater, and adoption of improved technologies and practices at farm level. The SISC intervention includes both engineering and community mobilization aspects.

The Project Coordination and Monitoring Unit (PCMU) of Planning and Development Department will oversee the implementation of the SWAT project and facilitate the coordination of activities between SIDA and ADU.

2. Context and Description of Project Area

The irrigation system in Sindh has unique features that result from its history. Water distribution is entirely based on fixed irrigation duties and flows are shared on a prorated basis according to these duties. Rotation is normally done at watercourse level. Watercourse outlets (called *moghas*) are designed for proportional distribution of canal flows and there is no control of levels in the Distributary or Minor canals supplying these *moghas*. Hence, the canals are not designed to work at lower flow regimes and the operators are obliged to establish a rotation between distributary canals during time of water shortages, resulting in poor service to farmers. There is no strategy in place to use the existing reservoirs (like Chotiari reservoir located upstream of lower Nara Canal) for flow regulation purposes and to manage the groundwater conjunctively with canal water (where there is fresh groundwater). This poor control of water has contributed to the widespread problem of waterlogging and associated soil salinity within most of the canal commands and farmer reliance on saline groundwater in many of the lower canal regions.

Figure 1. Sindh Irrigation Hierarchy



Most of the main canals in the Sindh network are currently governed by the 1879 Irrigation Act and are managed solely by the Irrigation Department. To promote more participatory irrigation management, the province adopted the Sindh Water Management Ordinance (SWMO) in 2002

which created the Sindh Irrigation and Drainage Authority (SIDA), Area Water Boards, and Farmer Organizations. The SWMO model was applied on four of the fourteen main canals, and it was never fully implemented. Rather than serving as an Authority, SIDA evolved into an important change agent for irrigation modernization within the Irrigation Department. Area Water Boards (AWBs) operate as semi-autonomous organizations under the Irrigation Department responsible for the main canal command areas, but their specific roles, functions, and governance structures need to be better defined. Farmer Organizations (FOs) are organized at the distributary canal network and include constituent Water Course Associations (WCAs).

The project area is the command area of Nara Canal, Ghotki Feeder Canal and Left Bank Canals under the three AWBs of the same name, on the left bank of river Indus. Most of the flow control structures on the main and branch canals have been rehabilitated or reconstructed under the recently closed Water Sector Improvement Program (WSIP) and remaining structures are functional. WSIP also financed the rehabilitation of a number of distributary and minor canals. The intervention on these canals included: reshaping the canal bed to increase its capacity; rehabilitation of watercourse outlets (called modules); and construction or reconstruction of various structures like bridges, washing ghats etc.

Key features of the three command areas of the three AWBs are described in the following table.

Table 1. Command Areas of three AWB

	Nara Canal	Ghotki Feeder Canal	Left Bank Canals
Command area (million acres)	2.27	0.85	1.42
Nb distr./minors	252 (Total Length=2,534Km)	100 (Total Length=1,345Km)	135 (Total Length=1,815Km)
Nb distr./minors rehabilitated under WSIP	44 (total Length = 336 Km; total CCA = 0.30 m acres)	18 (total Length = 206 Km; total CCA = 0.15 m acres)	38 (total Length = 482 Km; total CCA = 0.38 m acres)

The Sindh Agriculture Department is providing support to WCAs for the lining of watercourses and to individual farmers for the adoption of improved irrigation technologies and improved agricultural and water application practices at field level. Such support will also be provided under the SWAT project through the Agriculture Development Unit (ADU) established within the Agriculture Department.

3. Main Features of the Canal Modernization Program

The modernization concept consists of improving the control of flows and using an irrigation scheduling approach for the delivery of water. Currently, flows are distributed within the distributary/minor without any human intervention through the proportional distribution system. It is assumed that the distribution is done equitably at all times. However, there is no way to actually check the flows into each watercourse and there is ample evidence that the actual flows differ from the theoretical ones. The management of water distribution during low-flow periods usually requires the establishment of a rotation between distributary canals.

With modernization, there will be active scheduling and management of controlled and measured flow rates into the various watercourses and Direct Outlets (DOs). This represents a major change of paradigm and it will require an intensive awareness raising, sensitization and capacity building program to succeed. Upstream control will, however, allow Sindh province to allocate water in a much more efficient way and to develop the conjunctive use of surface and groundwater for improved allocation efficiency. The modernization approach will also include a comprehensive metering

program for monitoring of flows at all outlets across the irrigation system. To support an integrated approach to water management (a prerequisite for sustainable agricultural production), groundwater levels will also be monitored, and groundwater accounted as part of the water budget.

The process shall be demand driven, based on clear incentives and social mobilization at FO level. To that end, the project will be implemented through subprojects at FO level. The subproject will be designed and agreed upon with the FO prior to implementation, and implemented under the FO's control. The subproject will include some mandatory activities— notably the infrastructure and training related to flow monitoring and control within the distributary or minor canal under FO management – and optional activities related to FO's operations, social infrastructure, agricultural development support and so on. The SISC will support SIDA and ADU for the preparation and implementation of FO Subprojects.

In conjunction with the FO subproject, there may be a need to also construct an improved water level control structure in the branch canal, or to modify the operational rules of existing structures. Importantly, the DOs abstracting water from the branch canal will also need to be modified. The AWB and SIDA will ensure that all customers of the branch canal understand the new operational rules and the new structures, and that the staff of the AWB provide the agreed-upon water delivery service to the FO.

This section presents this participatory implementation process and describes the various activities and specific arrangements that will contribute to the successful implementation of the modernization program. It includes the following subsections:

- 3.1 The Overall Approach: Participatory Implementation Process
- 3.2 The Supply Side: Flow Monitoring and Control
- 3.3. The Demand Side: Irrigation Scheduling
- 3.4. The Interface: Irrigation Service Agreement and FO Regulations
- 3.5. The Implementation Tool: Farmers Organizations Subprojects
- 3.6. The Supporting Activities: Capacity development activities and services

This process will be described in more details in the Subproject Implementation Manual to be established by PCMU with SIDA and ADU.

3.1. The Overall Approach: Participatory Implementation Process

The implementation process will be demand driven. However, to avoid fragmentation of the implementation area the process will be phased by branch canal. This means that one branch canal will be selected initially by each AWB and the project will be presented to all FOs within this branch canal's command. They will need to fulfill the eligibility criteria to get access to the project's funding. Once the modernization of a branch canal is well advanced, another branch canal can be added, and so on.

The following criteria will be applied for the selection of the initial branch canal:

- The canal should have a reliable water supply at its head. Operational rules at the branch canal's head regulator and the related cross regulator on the main canal may need to be adjusted for that end.
- The majority of distributaries and minor canals supplied by the branch canal have established FOs with sufficient social cohesion and good agricultural potential.
- The area supplied through Direct Outlets (DO) should be minimal.

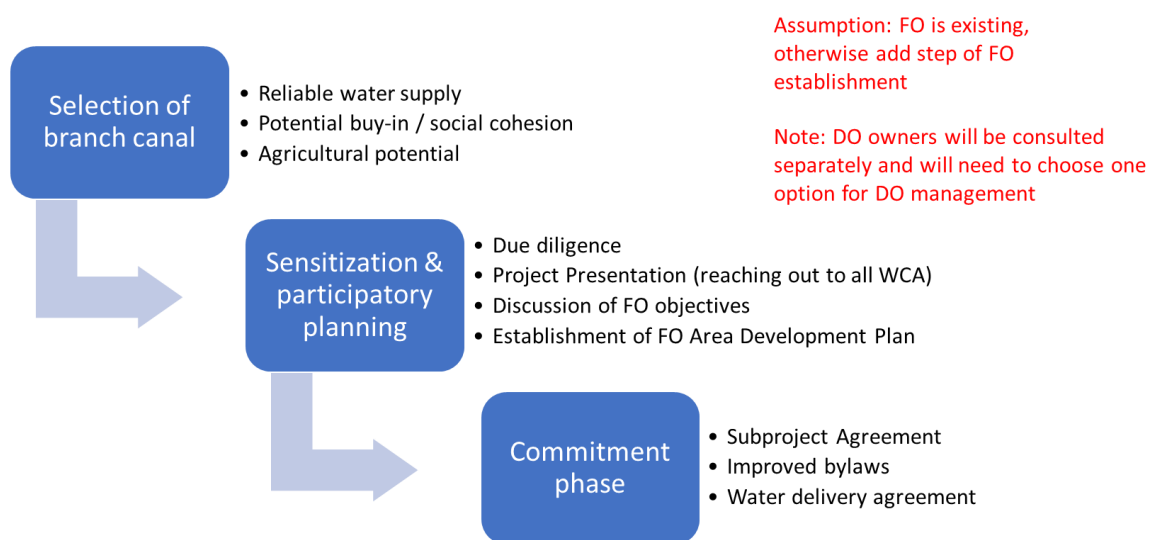
All FOs supplied by the branch canal will be sensitized and trained about the subproject process and the irrigation modernization approach. They will be offered the opportunity to prepare their own subproject and apply for project funding. DO owners within the branch canal command area will be similarly approached and sensitized.

The activities to be included under the Subproject will be prioritized by the FO based on the menu of interventions proposed by the project. These priorities will be reflected in an “FO Area development Plan” which will set the objectives of the FO and the required resources.

DO owners will be offered various options for an improved irrigation service including (i) becoming a member of an adjacent FO; (ii) forming their own FO with other DO owners; and (iii) remaining an individual client of the AWB. Specific conditions and terms of service will be defined for each option. The options will be tailored for each specific location.

The steps for the subproject preparation and approval process are summarized in below Figure 2.

Figure 2. FO Subproject Preparation Process



SIDA with support from SISC will conduct a due diligence process of evaluating the FOs supplied by the selected branch canal to determine their eligibility to project financing. The following criteria will apply:

- All watercourses supplied by the Distributary / Minor canal shall have established Watercourse Associations (WCA) member of the FO (this will ensure that all farmers supplied by the distributary or minor canal are represented in the FO through their WCA)
- The FO is properly registered with SIDA
- Elections of the FO board have been completed and the board’s mandate is still valid, all as per applicable regulations
- The FO is in good standing in terms of Abiana collection (minimum collection rate to be decided)
- The FO has an approved annual budget incorporating minimum required operational expenditures, as per applicable regulations
- The FO has staff on its payroll for canal operation, maintenance, communication with the

WCAs, and enforcement of rules (or the FO will be required to hire staff at the start of the subproject)

The eligible FOs will need to prepare and submit their request for project financing. The process will start with a vote in the General Body (GB) of the FO to approve subproject preparation. This vote will give mandate to the board of the FO to prepare the subproject with SIDA and the Agriculture Department. If all above criteria are not fulfilled at the time of the request, the vote will also give mandate to the board to take necessary action with regard to the missing criteria.

SIDA and the Agriculture Department with support from SISC will guide the subproject preparation and will notably hold series of meetings with all WCAs to explain the project objectives and menu of subproject activities. Training sessions will be organized to expose the farmers to the canal modernization concept and design. The FO will then decide its specific objectives and select its priority interventions for the subproject. This will be supported by SISC through focus group discussions and may require a series of votes in the GB of the FO. The FO Area Development Plan will be established by SIDA and Agriculture Department with support from SISC based on these decisions.

In parallel, SIDA with support from SISC will prepare the water delivery agreement and the new operational rules that will together regulate the supply and distribution of water to all watercourses. SISC will develop the engineering design for the canal modernization works based on an approved design manual.

At the end of subproject preparation phase, the FO will need to fulfill all eligibility criteria and to formally approve through votes in GB (i) the subproject agreement with the Area Development Plan attached to it, (ii) the water delivery agreement and (iii) the new operational rules. Specific majority requirements will be considered to ensure strong buy-in – for example, at least two third of the FO members representing at least one half of the FO command area. A specific vote might be required to approve the inclusion of adjacent land supplied by existing DOs into the FO, as the case may be.

3.2. The Supply Side: Flow Monitoring and Control

The objective of the canal modernization program is to ensure accurate, transparent, equitable, and reliable monitoring and control of the flows down to the mogha. The FO will in turn receive a reliable flow at the head of the distributary / minor canal it manages. A key component of modernization is that there will be physical infrastructure and procedures in place to provide excellent service including when the flow into the distributary/minor is less than the design flow.

The modernization program for one distributary / minor may include the construction of a new cross regulator or adaptation of an existing one on the branch canal downstream of the distributary / minor canal head regulator. The cross regulator will be used to maintain a fairly constant level upstream of the head regulator to ensure a stable supply to the distributary / minor canal – a key condition for to increase the reliability of the water delivery service.

The distributary / minor canal will be modernized following the upstream control concept design. The infrastructure program includes a new calibrated Head Regulator (HR), Long Crested Weirs (LCW) to control water levels upstream of the outlets, new pre-cast gated outlets (for on/off, flow adjustment, and flow measurement) to water courses, increased freeboard and access path. Flat Long-Throated Flumes (FLTF) may be considered as an alternative to constructing a new or calibrated HR, where appropriate.

New Standard Operating Procedures (SOP) will be developed for all HR and outlets.

Additional works will be prioritized with beneficiaries within a given envelope and may include: canal cleaning / shaping, canal compaction (to reduce seepage), drainage works, groundwater

management, FO office. Concrete lining for distributary / minor canals will not be funded under this project.

Finally, FO staff & operational costs may be supported as needed – on transitional basis – to ensure proper operation and maintenance of the modernized irrigation system. This support will have to be progressively phased out so that the FO is self-sufficient by project closure.

3.3. The Demand Side: Irrigation Scheduling

Once the FO has established good control of the flows inside the distributary/minor to all outlets, it will be able to allocate the available flow through an irrigation scheduling process that will take into account WCA requests (based on crop requirements) while ensuring equity.

A specific SOP will be established for water distribution scheduling, covering topics of water entitlements, seasonal allocations, and crop water requirements. For example, if the schedule shows that only 50% of the full-supply flow rate will be available to the distributary/minor during a period of time, the FO may decide to reduce the flow to every outlet by 50%, or to only provide water to 50% of the area at a time (rotation within the distributary/minor).

A tool will be developed to facilitate the management of the scheduling process. It is envisaged to develop an App working on smartphone to facilitate the communication with WCAs throughout the process. The information could also be available to farmers, but the communications with the FO will be via the WCAs.

3.4. The Interfaces: Irrigation Service Agreement and FO Regulations

The interfaces between the AWB and FO at the upstream end and the FO and WCA at the downstream end will be respectively regulated by the Irrigation Service Agreement signed between the AWB and the FO and the FO Regulations, both approved by vote in GB. These documents will be developed by SIDA with support from SISC.

The tentative contents for these two documents are provided in table below.

Table 1: Contents of Water Delivery Agreement and FO Regulations

Water Delivery Agreement (WDA)	FO Regulations
AWB commits to maintain the water level upstream of Head Regulator constant (within a range).	Definition of FO boundaries and irrigation system (with incorporation of DOs and tubewells as the case may be)
AWB informs FO in advance about each seasonal volumetric allocation for the season and indicative monthly/weekly allocation of flow rates. This is done at least 1 month before each season begins.	FO commits to operate and manage the delivery of water to all watercourses and DOs under its jurisdiction equitably, as per entitlements and seasonal allocations and in-season adjustments of flow rates.
FO submits and AWB approves water delivery schedule (flow) for the season in accordance with allocation and water requirements.	FO implements a transparent seasonal allocation process based on volume allocated by AWB (process to be described).
AWB provides monthly updates to the FO regarding available flow rate schedules. The seasonal plan typically needs to be adjusted up or down based on water availability.	FO mobilizes cash contributions as needed (on top of Abiana) from each WCA and DO under its jurisdiction to finance its operations (overheads, administration, O&M).

Water Delivery Agreement (WDA)	FO Regulations
FO commits to abstract water flows as per agreed schedule. FO has to inform AWB 24 hours in advance of any modification of the abstracted flow – any change needs to be done within the boundaries of weekly and seasonal allocations. AWB and FO jointly monitor the flow at Head Regulator. Penalties apply (cash and/or reduction of flow) if FO changes the flow without prior agreement from AWB. Compensations apply (cash or increase in flow) if AWB does not provide the water delivery service as agreed upon. Attachment: Statement of approval by vote in FO General Body.	The contribution shall be based on the volume delivered (time x flow rate) in the season. Differentiated rates can be used for different level of service (like higher allocation than average). FO uses the contributions in a transparent manner strictly for the purposes of financing irrigation and drainage services (including operation of tubewells for conjunctive management of groundwater). Adequate penalties for infractions are defined. Attachment: Statement of approval by vote in FO General Body.

Note: the Irrigation and Drainage Management Transfer Agreement (IDMTA) already signed between the AWB and the FO remains in place. It regulates the transfer of responsibility for the O&M of the distributary / minor canal. It is different from the WDA which regulates the improved delivery of water at the head of the distributary / minor.

3.5. The Implementation Tool: Farmers Organizations Subprojects

The subproject agreement is a tripartite agreement between FO, SIDA+AWB and ADU signed after approval in FO General Body and after FO complies with all eligibility criteria. It defines the commitments made by the FO to access project financing for its subproject. Its contents are described in the table below.

Table 2: Contents of subproject agreement

FO Subproject Agreement for Area Development (FO-SAAD)
SIDA provides modernized distributary /minor canal infrastructure for application of upstream flow control SIDA+AWB provides technical assistance for the irrigation scheduling process SIDA provides support for & finances other irrigation investments ADU provides support for & finances agricultural development activities FO becomes eligible to (has to) enter into Improved Water Delivery Agreement with AWB FO commits to maintain the infrastructure in good shape (refer IDMTA) FO commits to apply improved Regulations including: • operate and manage the delivery of water to all watercourses equitably, as per entitlements and seasonal allocations (including in-season allocation adjustment) • mobilize cash contributions from its members to finance its operations (overheads, administration, O&M)

FO Subproject Agreement for Area Development (FO-SAAD)
FO commits to incorporate areas irrigated by DOs and falling under FO's jurisdiction (when such option is retained for DO management) FO commits to support the implementation of all components of the FO Area Development Plan Approved FO Area Development Plan (selected activities and budget) is attached to (part of) the Agreement

Table 3: Contents of FO Area Development Plan

FO Area Development Plan
Objectives of the Development Plan • Statement of objectives and expected results Activities implemented at the SIDA/AWB level • Headworks Improvement ○ Improvement of water level control in the Branch Canal ○ Head Regulator improvement/calibration ○ Possible Flat Long-Throated Flume (FLTF) ○ Training at Hyderabad Activities implemented at FO level • Canal Improvement Works: ○ Canal modernization works on distributary / minor canal (under operational responsibility of FO): LCWs, WC Outlets, Canal berms (ensuring required freeboard) ○ Additional (optional) canal works on distributary / minor canal: canal prism, inspection paths, compaction, social structures • Groundwater monitoring /management works within FO command area • Other works: FO office • Transitional funding of FO's Incremental Operating Cost (part of the subproject with degressive funding and as complement to on-going ID support): ○ Additional / better remunerated staff ○ Financial management and auditing cost ○ Incremental operating cost (meetings etc.) ○ Mobility (motorbikes etc.) • Training costs for FO representatives and staff on organizational and financial management, leadership, communication, technical skills and so on Activities implemented by WCA (with list of beneficiary WCAs) • Watercourse lining works • On-farm drainage rehabilitation Activities implemented by individual farmers (with list of beneficiary farmers) • HEIS equipment

FO Area Development Plan
• Land levelling and other land improvement / reclamation works (waterlogging and salinity management) • Training on improved agronomic and in-field water management practices; • Climate smart agriculture • Value chain development

3.6. The Supporting Activities: Capacity development activities and services

Complementary agricultural support will be provided under SWAT Component 3 with the objective to increase agricultural water productivity. This may include: watercourse lining, adoption of solar powered High Efficiency Irrigation Systems (HEIS), land leveling, on-farm drainage rehabilitation; introduction of new crops, value chain development and improved agricultural practices (Climate Smart Agriculture – CSA),. Priorities will be defined by the FO with its WCA members and reflected in the Area Development Plan.

Note: farmers may also benefit from a smart subsidy scheme financed under subcomponent 3.2 of SWAT and this opportunity should be considered when developing the area development plan.

4. Scope of Works of the Subproject Implementation Support Consultancy

The SISC will assist SIDA and ADU in preparing and implementation of all aspects of the FO subprojects. It will also contribute to build the capacity of the FOs and of the AWBs. The intervention on each subproject will include on-going support to the FO, WCAs and farmers for at least one year (two full cropping seasons) after the end of the construction phase.

Activities will start in the command area of one priority branch canal for each AWB (three branch canals). Additional branch canals may be added during the assignment based on progress on priority branch canals. It is expected that up to 30 subprojects in up to six branch canals will reach various stages of preparation but not all will be implemented. The target number of FO subprojects fully implemented by the end of SISC assignment (preparation, construction and operational support) is 15. A tentative program is provided in chapter **Error! Reference source not found..**

The first three subprojects (one in each AWB) will follow a somewhat shortened process and move quickly into implementation during the first year of the assignment, for demonstration purposes. They will require less commitments from the FO and more hands-on support from SIDA, ADU and SISC. These FO will receive prolonged operational support and problem-solving assistance.

The following subprojects will take somewhat longer to prepare with more training and farmers participation at preparation stage in return for stronger commitments. The approach will be fine-tuned based on the lessons learnt from the first subprojects.

The tasks listed below are considered necessary to achieve the objectives of the consultancy, but they are not necessarily comprehensive. The bidders shall describe in their technical proposal their understanding of the process and make any suggestion for alternative arrangements and additional tasks.

4.1. Due diligence process

Task 1.1: Due diligence of FO (verification of eligibility criteria)

Survey of FOs located in the command area of the selected branch canals

Verification of eligibility criteria (based on appropriate evidence)

Organization and facilitation of GB meetings with each FO to inform about project and eligibility criteria

Definition of action plan for each FO to fulfill eligibility criteria

Assessment of gender representation in the FO and WCA

Task 1.2: Due diligence of DOs in the vicinity

Presentation of the project in meetings with DO owners

Survey of DO owners for all DO located in the command area of the selected branch canals

Delineation of the command area of each DO

Task 1.3: Assistance to fulfill the criteria (in parallel with subproject preparation)

Assistance for elections of FO board (as need be) including women representatives

Training of FO board members and facilitation of their communication towards their members

Assistance for establishment and approval of FO budget

Facilitation of adhesion of missing WCAs

Assessment of operational staff (number, capacity)

4.2. Subproject preparation

Task 2.1: Presentation and discussion of subproject approach

Focus group discussions with all WCAs within the FO and with all DO owners in the vicinity to present the subproject approach (one meeting per WCA plus specific meetings with women as need be)

Focus group discussions with DO owners on options to be proposed to DO owners (with 10-15 participants per meeting)

Follow up meetings and response to questions raised (minimum one meeting per WCA and additional meetings with DO owners and women)

Task 2.2: Organization of training and demonstration on canal modernization

Selection of groups of trainees for each FO (about 20 WCA representatives per FO) and AWB operational staff (about 20 staff per branch canal) including specific sessions for women farmers

Organization and facilitation of training on improved flow and water level control, plus flow measurement, at the Hydrology Lab in Hyderabad

Organization and implementation of training on irrigation scheduling / improved allocation of water

Organization and facilitation of visits to subprojects under implementation

Task 2.3: Training of FO on financial management

Establishment / improvement of financial management procedures applicable to FO Organization and implementation of training of FO representatives on financial management (budget preparation, cash and bank account management, record keeping, controls and audit, and so on)

Task2.4: Preparation of Area Development Plan

Detailed definition with PCMU, SIDA and ADU of menu of eligible activities under Area Development Plan

Survey of FO (and associated DOs) command area: agronomic potential, crops grown, irrigation practices, identification of production and marketing constraints, typology of farmers and their cropping systems

Condition survey of canal system (including watercourses and DOs) and drainage facilities

Survey of wells (or collection of existing wells data), mapping of groundwater issues including waterlogged and salinity affected areas

Facilitation of groundwater and soil quality testing (lab tests will be financed separately by the project)

Production of maps showing canal system including all watercourses and DOs and their respective command areas, extent of cultivated area over time (using remote sensing analysis), wells and other relevant information

Determination of crop water requirements and establishment of water balance (10-daily basis, for average year, wet year and dry year) based on current cropping pattern

Assessment of different cropping pattern changes on crop water requirements and water balance throughout the two cropping seasons on 10-daily basis

Preparation of initial cost estimates and assessment of related beneficiaries' contributions for various optional activities considered under the Area Development Plan

Participatory establishment (in coordination with ADU for agricultural inputs) of FO Area Development Plan including location of social structures on canals and selection of optional subproject activities specially related to sub-component 3.1 – this process will include focus group discussions with women to assess their priorities

Participatory establishment of specific options applicable to DOs in the vicinity Screening of all proposed activities under the subproject to identify their risk category with regard to the environmental and social safeguards requirements and confirming of safeguard instruments to be prepared as per project's Environmental and Social Management Framework (ESMF) accessible at <http://sida.org.pk/pages.aspx?id=106>

Task2.5: Design of canal improvement works

Topographic survey of the distributary / minor canal (canal prism, banks and ground level at 100 m interval)

Survey of water levels at full supply level (using marks indicated by farmers on the canal berms) in the parent canal and the abstracting canal at each bifurcation in the system (head of the distributary and head of each watercourse including all DOs in the vicinity)

Measurement of flow at the head of the distributary canal at different supply levels (including full-supply level) using appropriate flow measurement device (like ADCP)

Proposal of design flow to be validated by SIDA and the FO (in case any change from sanctioned design flow is required)

Verification of canal conveyance capacity using simple one-dimensional hydraulic model

Design of canal modernization works for Branch canal, Distributary / Minor canal, and DOs based on new SIDA guidelines (accessible at: https://drive.google.com/file/d/1PteS5z8tO4zi0sZW1y8ldghzvu-scmJ1/view?usp=drive_web and of additional subproject works (raising / strengthening of canal berms, adjustment of canal prism, social structures and so on)

Definition of procurement plan for works (including packaging of works based on phased progress and contract for provision of pre-cast watercourse outlets).

Development of site specific Environmental and Social Management Plan (ESMP) for the subproject in accordance with the provisions of the ESMF.

Development of Resettlement Action Plan (RAP) in accordance with the project's Resettlement Policy Framework (RPF), as the case may be (note: need for RAP is expected to be minimal under FO subprojects, but cannot be entirely ruled out).

Provide inputs to the canal improvement works design from environmental and social aspects.

Facilitation of decisions on DOs (selection of a management option for each DO and definition of DO-specific actions to be included in subproject agreement).

Establishment of bidding documents for all contracts and ensure all the ESMP requirements are properly reflected in the bidding documents.

Task2.6: Preparation of FO-SAAD, WDA and FO regulations

Contribution to the discussions and finalization of subproject agreement, service agreement and revised FO regulations: facilitation of participatory process under SIDA leadership and with AWB and FO representatives

Yearly review and reporting on issues faced in implementing the agreements and proposals for improvement (as stipulated under Task 5.5)

4.3. Construction supervision

The SISC will provide complete construction supervision services for all works under the subprojects.

Task3.1: Supervision of canal improvement works

The SISC will work with two different “end-owners” for the works:

- AWB for the works in branch canals
- FO for the works in distributary / minor canals

The SISC will provide the following support to SIDA and the end-owners:

- a) Assistance to procurement of works packages: establishment of bid documents, communication with bidders, production of bid evaluation reports, assistance to contracting
- b) Engineering supervision of construction works as defined under FIDIC agreement including but not limited to:
 - Contract administration and management

- Prepare required working drawings during construction stage
- Check working drawings prepared by the Contractors
- Inspection of construction activities, including quality of works
- Testing of materials on site, off-site testing when needed, as necessary the in-factory testing and inspection of good and materials
- Review of contractor's submittals, verification of progress and interim payment requests
- Determination of final construction quantities
- Measurement of works and maintenance of records
- Contract works or goods acceptance and close of contract, issuance of completion certificates, and preparation of documents as required for acceptance of works/goods by the works owner and in compliance with all applicable regulations

Task3.2: Supervision of works on watercourses and on-farm drainage works

The SISC will work with the ADU and the On Farm Water Management (OFWM) Directorate of the Agriculture Department, according to the applicable operational manual and standards, and provide the following specific support to WCAs:

- a) Watercourses (full, partial) rehabilitation works (indicatively 685 watercourses): support/guide WCAs in completion of application requirements; verify survey and design work done by OFWM staff; provide engineering supervision of lining works; certify completion of milestones; determine specifications for lining materials (PCPS) and ensure its compliance by the manufacturing yards by making visits to the manufacturing yards and at the delivery points on-farm (e.g., using Schmidt hammer).
- b) Rehabilitation of on-farm access drains (indicatively 60 access drains): support/guide farmers in completion of application requirements; verify survey and design work done by OFWM staff; provide engineering supervision of rehabilitation works; certify completion of milestones; determining specifications for materials/equipment used for rehabilitation works and compliance by farmers/contractors).

Task3.3: Supervision of on-farm works

The SISC will work with the ADU and the On Farm Water Management (OFWM) Directorate of the Agriculture Department, according to the applicable operational manual and standards, and provide the following specific support to individual farmers:

- a) Installation of HEIS (indicatively for 900 acres - avg. 10 acres per farmer): support OFWM (ADU) in determining equipment standards & specifications; market survey and equipment price determination; prequalification criteria development and selection/enlistment of equipment suppliers; supervision of installation works (verification of survey and BOQs by SSCs; issuing certification for completion of milestones; verification of training of farmer by SSC in O&M of the equipment); checking quality, quantity and performance at points of supply, installation, commissioning respectively.
- b) Construction of water storage tank for HEIS (indicatively for 1200 acres with avg.10 acres

per farmer): support/guide farmers in completion of application requirements; verify survey and design work done by OFWM staff; provide engineering supervision of the construction works; certification of milestone's completion; determining specifications for construction materials and ensure its compliance by the farmer/contractor.

- c) Solarization of HEIS (indicatively for 1200 acres with avg.10 acres per farmer) & Solarization of approved lift machines (indicatively 140 Units): support OFWM (ADU) in determining equipment standards & specifications; market survey and equipment price determination; prequalification criteria development and selection/enlistment of equipment suppliers; supervision of installation works (verification of survey and BOQs by SSCs; verification of training of farmer by SSC in O&M of the equipment; issuing certification for completion of milestones); checking quality, quantity and performance at points of supply, installation, commissioning respectively.
- d) Provision of laser guided land leveling equipment (indicatively 200 units): support OFWM (ADU) in determining equipment standards & specifications; market survey and equipment price determination; prequalification criteria and selection/enlistment of equipment suppliers; support/guide farmers in completion of application requirements; supervision of delivery (verification of equipment supplied by SSCs; issuing certification for completion of milestones; training of farmers/tractor drivers in using PLL.

Note: for Tasks 3.2 and 3.3 the relevant parts of the operational manual used under Sindh Irrigated Agriculture Productivity Enhancement Project (SIAPEP) will be applicable. **The SIAPEP POM will be provided as and when required.**

Task 3.4: Supervision of ESMP implementation

The SISC will supervise the implementation of all aspects of the ESMP applicable to each FO subproject. This includes notably:

- Review and clear the contractors' ESMPs and other environmental and social management plans/requirements and institutional set-up of the contractor
- Ensure implementation of the ESMPs and carry out environmental and social monitoring and reporting including incident and accident reporting
- Ensure compliance of civil works with applicable environmental and social standards and ESMP implementation including Occupational Health and Safety (OHS) aspects
- Prepare and deliver capacity building material on operationalization of the safeguard's instruments including screening, ESMPs, OHS and other associated plans
- Ensure implementation of RAP as applicable
- Assist PIUs to closely consult and coordinate with the concerned agencies, local governments, and communities, and other stakeholders to support the implementation of ESMP

Note: the SISC will also assist SIDA and the AWBs to make the grievance redress mechanism (GRM) functional and monitor GRM implementation. This activity is included under Task 4.4 and mentioned here for reference.

4.4. Support to improved canal and field operations

SIDA will commit to provide close operational support to the participating FO for minimum of one year after completion of subproject construction works. This support will continue afterwards on need basis. SISC will deliver this support on behalf of SIDA.

Task 4.1: Operational support to FO for irrigation scheduling and water management

Definition of irrigation scheduling process and provision of simple irrigation scheduling tool (EXCEL file or similar)

Implementation of the irrigation scheduling process for each FO for the first season, and assistance to the FO in implementing it for the second season

Selection and recruitment of FO canal operators

Operational training of canal operators on model canal in Hydrology Lab and in the field (total of two weeks for each operator)

Hands-on training on the canal the operator is managing (the canal operator will be embedded with SISC team for 18 months – six months during subproject preparation phase and 12 months during operational support phase)

Close oversight of canal operations (daily visits initially, progressively spaced to weekly visits)

Verification of all records

Focus group discussions with WCAs to verify their satisfaction and discuss issues raised

Task 4.2: On-going training of operational staff and FO representatives

Provision of regular training sessions on all aspects of operation and maintenance of the system, including irrigation scheduling and monitoring and control of flows, environmental and social aspects with refresher trainings – indicatively, every FO representative (board members and WCA leads) should participate in at least two training sessions per year, and all sessions should have less than 20 participants

Task 4.3: On-going farmers sensitization

Organization and facilitation of at least two meetings per year for each WCA to further sensitize them on opportunities offered under the subproject, gather feedback and respond to questions and concerns

Task 4.4: Problem solving

Response to grievances / complaints on ad hoc basis (complaints will be received through the grievance redress systems established by SIDA and each AWB). This includes all sorts of complaints related to the project activities and to water delivery service and shall be done in compliance with the ESMP.

4.5. Communication and training

Communication and training is a key component of the SISC assignment and will support all above activities.

Task5.1: Communication towards farmers and women

The SISC will develop appropriate training material including brochures, posters and videos in local language. This will include at least:

- Brochure, poster and video on general concept of modernization
- Brochure, poster and video on subproject approach
- Brochure, poster and video showing the need for and functioning of the new hydraulic structures

- Several brochures, posters and videos presenting each of the options for improved water management at farm level (in collaboration with ADU)
- Brochures and posters on environmental and social safeguards
- Informational material specifically targeted at women with limited or no literacy

Specific training material will be developed in local language for the training sessions at hydraulic facility in Hydrology Lab, Hyderabad.

Task 5.2: Communication towards AWB staff and FO representatives

The same training material (posters and videos) will be used for the AWB and FO staff. Specific material (posters, videos and appropriate training material/manual) will be developed for the following trainings:

- irrigation scheduling process
- interface between AWB and FO (water delivery agreement and management of the distributary / minor canal head regulator)
- rules for water distribution within the FO (to be reflected in improved FO regulations)
- implementation of environmental and social safeguards requirements
- specific role of women representatives in FO and AWB

Training sessions on the above subjects should be attended by a mix of FO representatives and AWB staff.

In developing these training materials, the SISC shall use existing training need assessments.

Task5.3: Communication towards general public

The SISC will develop and implement a program of radio and social media messages for dissemination of information on project progress, meetings announcement, general public sensitization on key messages and so on.

Meetings with influential leaders will be held at regular interval (at least quarterly in each AWB area).

Task 5.4: Irrigation scheduling App

The SISC will establish specifications and bid document for the development of an irrigation scheduling App. The App would be used to replace the irrigation scheduling tool developed by the SISC and would help ease the irrigation scheduling process. The SISC will support the procurement of the App developer, supervise the development and help test the App in real conditions.

Task 5.5: Learning and final reporting

The SISC will facilitate an annual learning workshop with representation from all relevant stakeholders to draw lessons from successes and issues faced during the past year and present recommendations for the improvement of the canal modernization approach.

During the last year of the assignment, the SISC will compile all learnings into a final report to be issued in draft latest three months before the end of the assignment. The report will be presented and reviewed in a workshop facilitated by the SISC. The final version of the report will be delivered before closure of the assignment after responding to all comments received. Besides, all lessons learnt will be reflected in a final version of all communication and training materials developed and used under this assignment (as described above). That updated

material will be handed over to SIDA in soft, editable format for future scale up of the program.

5. Implementation Program and Timeframe

The overall timeframe for implementation is five years. As indicated above, the implementation will start with rapid preparation of three pilot FO subprojects that will be used to test and fine-tune the above-described approach. These three subprojects will follow a fast-track approach with very strong support and oversight. They will then be used for demonstration and training purposes. All communication and training material will be developed in parallel with this testing phase.

It is expected that thirty subprojects will be prepared for fifteen to be completed under SWAT. From the other fifteen subprojects, it is expected that some would be dropped at the end of preparation project (if FO fails to fulfil all eligibility criteria or cannot reach a final decision in GB) and other would be implemented under separate financing to be mobilized.

Depending on the performance of the first subprojects and demand from the FOs, it is possible that implementation could be accelerated and construction of fifteen subprojects completed in three years instead of four. The deployment of SISC team would be adjusted accordingly.

Table 4: Indicative Program

Year	Subproject preparation	Subproject construction	One-year full operational Support	Total subprojects completed
1	6	3 (pilots)	0	0
2	6	2	3	3
3	6	5	2	5
4	6	5	5	10
5	6	-	5	15

Note: all completed subprojects will continue receiving operational support on need basis throughout project duration

6. Deliverables

The SISC will produce the following deliverables:

- Quarterly progress report covering all Tasks under Chapter 4 (note: the first quarterly report will serve as inception report)
- Monthly construction supervision report related to Tasks listed under Section 4.3
- Final report, to be submitted in draft version at least three months before the end of the assignment and final version before the end of the assignment as described under Task 5.5
- Communication and training material, as stipulated under Section 4.5

The outline and format of each report (except the inception report) will be submitted by SISC for approval latest three months after the start of the assignment.

7. Performance monitoring

The SISC performance will be monitored throughout project implementation by SIDA, ADU and the project's M&E Consultant hired by PCMU. The following Key Performance Indicators (KPI) will be used:

1. Number of signed FO-SAAD compared to agreed program
2. Number of irrigation schedules established and agreed between AWB and FO one month before start of irrigation season compared to agreed program
3. Percentage number of complaints / grievances satisfactorily resolved within one month after receipt

In case of variation in the pace of delivery of the program (as measured against indicators 1 and 2), the level of effort required for each position will be adjusted accordingly. Appropriate remedies will be considered in case of low quality of delivery (as measured against indicator 3).

8. Support and Facilities provided by the Employer

The SWAT project includes several activities that will come in support of the SISC assignment. The SISC will need to coordinate its inputs with the relevant partners including other technical assistances financed under the project. The Employer (SIDA) will also provide some facilities for the SISC.

8.1. Related activities and associated technical assistance support

High level TA for canal modernization (ITRC)

SIDA intends to hire the service of the Irrigation Training and Research Center (ITRC) from CalPoly (California Polytechnic State University) to support the various aspects of canal modernization. ITRC expertise would be provided to guide the engineering designs and establishment of water management rules. ITRC has already supported SIDA developing the concept designs described in the SIDA guidelines for canal modernization (link provided above).

During the first year, all 60% and 100% typical hydraulic designs (outlets, LCWs, HR, etc.), along with all supporting background information and computations produced by the SISC, are to be reviewed and approved by ITRC. This is important because most of the design concepts are new for Sindh, and consistency with the objectives will require close coordination at first.

The Core Team members (described below) and all the engineering design staff must attend a 1.5 week training program by ITRC at Hyderabad before beginning field work. This will help ensure that all have a common understanding of terminology, strategies, and design concept.

Hydro-Agro-informatics (HAI) services

The PCMU will hire the services of a technical assistance in charge of establishing the Sindh HAI center. The HAI program will deliver a range of services that aim to use knowledge-based and technologically driven approaches for enhancing water services and water productivity in Sindh. There will be six core functionalities with a focus on the FO subproject areas:

1. Flow and irrigation service Monitoring Report
2. Water Accounting Report for each AWBs
3. Waterlogging and Salinity Report
4. Flood and Drought Assessment Report
5. Crop Monitoring Report
6. Agricultural Water Productivity Report

The SISC will be required to collaborate closely with the HAI technical assistance under PCMU to facilitate the transfer of data from the field to the HAI and to support the delivery of HAI services towards the AWBs, FOs and farmers.

Groundwater Management

A dedicated Groundwater Management Unit (GMU) will be created under PCMU with support from SWAT. As well as monitoring groundwater across the three AWBs, the GMU will support groundwater management activities under the FO subprojects, including those aimed at management of waterlogging or salinity. It is expected that two FO will be supported to implement a pilot “conjunctive management” scheme (managing groundwater conjunctively with surface water for improved water service and increased resilience to drought). Technical assistance for these activities will be provided through a specific consultancy.

Agriculture Delivery Unit (ADU)

The Agriculture, Supply & Prices Department will be responsible for implementation of the component 3 of the project through its Agriculture Delivery Unit (ADU). ADU will ensure overall coordination between different wings of Agriculture Department for implementation of component 3 activities and maintain close liaison with SIDA for implementation of FOs sub-project activities under component 2.

The ADU will hire a number of market-based staff for various roles and will deploy field teams to help prepare FO subprojects and facilitate their implementation as far as component 3 is concerned with the support of various consultancies.

Project Implementation Consultants and other consultancies under ADU

The Project Implementation Consultants (PIC) will be contracted by the ADU to provide supplemental support for execution of the component 3 of the project, including: development of detailed project implementation / work plan; preparation of detailed communications strategy and plan for raising awareness of farmers on component 3 activities; training and capacity building program for farmers and staff of the Agriculture, Supply & Prices Department.

Further, procurement of specialized consultancy services is envisaged to support implementation of specific tasks under specific sub-components e.g., an IT firm for agriculture market information management; a firm for the work of the crop reporting service; a firm for M&E work.

Since most of the activities under the PIC mandate will happen primarily in the selected 15 FO areas, coordination and collaboration between SISC and PIC will be very important. Further, as the engineering supervision of on-farm works under subcomponent 3.1.1 of the project will be the direct responsibility of SISC (as described above), it will be very important that SISC works in concert with the OFWM Wing of the Agriculture, Supply & Prices Department.

8.2. Facilities provided by the Employer

The following staff members of SIDA will be seconded to the SISC field teams with the three AWB for the duration of the contract:

- Three community organizers (one for each AWB)
- Three inspectors (one for each AWB)

Canal operators (beldars) from the AWB will be seconded to the SISC field teams for the operation of the distributary / minor canals under Farmers Organization responsibility for an indicative period of two years covering subproject preparation, implementation and initial operational phase. They will receive a compensation as per terms and conditions of the Project Operational Manual paid by SISC using a provisional sum provided in the SISC Financial Proposal.

Following office space will be provided for the use of SISC for the duration of the contract:

- One to two rooms at each AWB headquarters in Mirpurkhas, Tando M. Khan and Ghotki

SISC will make its own arrangements for office space in Hyderabad and additional office space at each AWB.

9. Team Organization

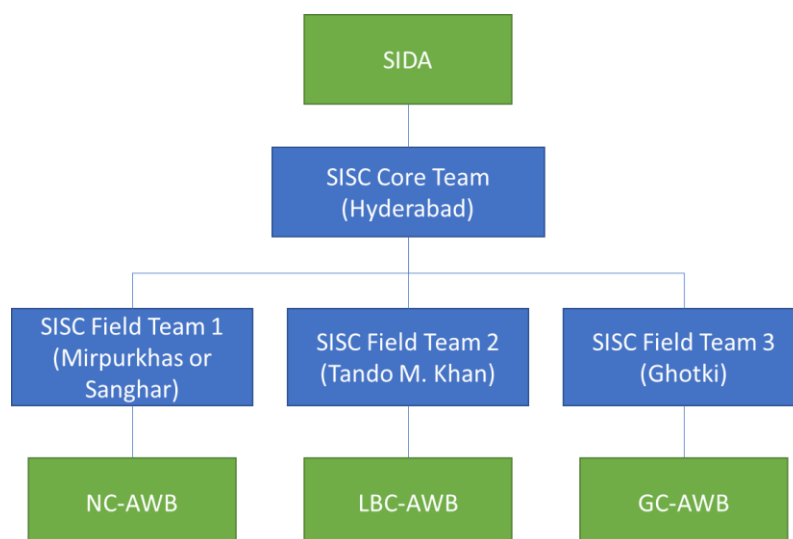
The SISC will mobilize a team consisting of a core team based in Hyderabad and three field teams, one for each AWB.

The entire SISC team will be headed by a Project Manager and a Team Leader. Each field team will be headed by a Deputy Team Leader.

The field teams will be based in the following locations:

- Mirpurkhas or Sanghar for Nara Canal AWB
- Tando M. Khan for Left Bank Canals AWB
- Ghotki for Ghotki Canal AWB

Figure 1: SISC Organogram



10. Qualification Requirement of Firm and integrate Staff Requirements

In this section, the qualifications and experience are provided for each of the key staff required for the Technical Assistance. For all positions, professional experience in Asia, and in Pakistan in particular, would be an advantage. International expertise can be mobilized to respond to specific profile requirements, provided that language requirements are also met.

Additional expertise and support staff shall be mobilized as need be in order to respond to all aspects of the above scope of the assignment.

The SISC is encouraged to ensure gender balance within its team. Some positions require female staff for ease of interaction with female farmers.

10.1. Core Team

Project Manager

- M.Sc. in civil / agriculture / irrigation engineering or social sciences; additional training on project management is an advantage;
- More than 20 years of professional experience with irrigation and rural development projects; and
- Demonstrated experience with leading and managing complex technical assistance contracts preferably including both engineering and social mobilization aspects. The size and complexity must be comparable to the requirements of the present assignment.
- Excellent command of English language.

The Project Manager will be responsible for overall implementation of the assignment, coordination of all Tasks, quality insurance including performance of each staff, performance of delivery, and reporting. He/she will be specifically responsible for Task 5.5.

Resident Team Leader

- M.Sc. in irrigation, hydraulics, water resources planning and management, or similar;
- More than 15 years of professional experience in design and implementation of irrigation and rural development projects including references with irrigated agriculture, irrigation management, community-based development, capacity building and so on; and
- Demonstrated experience with leading complex technical assistance related to irrigation improvement projects including both engineering and social mobilization aspects. The size and complexity must be comparable to the requirements of the present assignment.
- Excellent command of English and Urdu languages.

The Resident Team Leader will be responsible for overall implementation of the assignment, coordination of all Tasks, quality insurance including performance of each staff, performance of delivery, and reporting. He/she will be specifically responsible for Task 5.5.

Hydraulics Expert / Canal Modernization Specialist

- M.Sc. in hydraulics or similar;
- More than 15 years of professional experience in hydraulic engineering including strong references with canal modernization works;
- Experience with design and construction supervision of flow regulation structures on canal systems, improved hydraulic structures (gated and overflow), flow monitoring devices;
- Specific experience with training of engineers and /or operational staff on hydraulic engineering is an advantage.
- Command of English language.

The Hydraulics Expert / Canal Modernization Specialist will be responsible for delivery of Tasks 2.5 and 3.1. He/she will contribute to Tasks 2.1 and 2.2, 2.4, 2.6, 3.2 and 3.3, 4.1 to 4.4, and 5.1 to 5.5.

Agriculture/on-farm irrigation specialist

- M.Sc. in irrigation and drainage, land and water use, agricultural engineering, or similar;
- More than 15 years of professional experience in technical, financial, management, governance and social aspects of irrigated agriculture;
- Specific experience with crop water requirements and irrigation scheduling;
- Experience with agricultural sector planning, irrigation development planning, groundwater-based irrigation, and salinity/yield assessments;
- Command of English and Urdu languages; Sindhi language is an advantage.

The Agriculture/on-farm irrigation specialist will be responsible for implementation of Tasks 2.4, 2.6 and 4.1. He/she will contribute to Tasks 2.1, 2.5, 3.2 and 3.3, 4.2 to 4.4, and 5.1 to 5.5.

Irrigation Engineer

- M.Sc. in irrigation or agricultural engineering, or similar;
- At least 5 years of professional experience in design and supervision of irrigation projects;

- Specific experience with design and supervision of various on-farm irrigation improvement works including watercourse lining, HEIS (installation, O&M and crop agronomy), land leveling;
- Command of English and Urdu languages; Sindhi language is an advantage.

The Irrigation Engineer will be responsible for implementation of Tasks 3.2 and 3.3. He/she will contribute to Tasks 2.4 and 5.1.to 5.5. An electrical engineer might be mobilized as additional expertise (support staff) to supervise the solarization works under Task 3.3(c) if the Irrigation Engineer does not have this expertise.

Database/ Information Technology specialist

- M.Sc. in information management, geo-informatics, computer sciences, water resources system engineering, or similar;
- At least 10 years of technical professional experience in the design and construction of information/knowledge bases, including databases, GIS, telemetry, remote sensing, modelling and web applications in support of water and natural resources management;
- Experience with quality control, capacity building and training.
- Command of English language.

The Database/information specialist will oversee all data collection and management requirements for the assignment. He/she will work closely with SIDA, ADU and the three AWBs to check the existing information systems and recommend improvements. He/she will also work closely with the M&E Consultant hired by PCMU, the HAI Consultant, and other relevant stakeholders to make data accessible and ensure quality control of the data. He/she will be responsible for Task 5.4 and specifically contribute to Tasks 4.1 and 4.4.

Capacity Building/ Training Specialist

- Master in agriculture / civil engineering or rural / social sciences, with specific training on adult education;
- More than 15 years of professional experience in designing, delivering, and evaluating participatory, learner-centered training programs;
- Proven references in designing and delivering trainings for local populations in Sindh;
- Experience with capacity building and training of a water sector organization is an advantage.
- Command of English and Urdu languages.

The Capacity building/training specialist will be responsible for Tasks 4.1 to 4.3, 5.1 and 5.3. He will contribute to all other Tasks as needed.

Community Mobilization Specialist

- MSc in social sciences or similar;
- At least 15 years experience in community mobilization projects / assignments;
- Proven references in establishing and strengthening community-based organizations, setting rules and building consensus for their application, problem solving and conflict resolution and so on;
- Such references acquired with projects related to irrigated agriculture are an advantage.

- Command of English and Urdu languages. Sindhi language is an advantage.

The Community mobilization specialist will be responsible for Tasks 1.1 to 1.3, 2.1 to 2.3. He/she will contribute to all other Tasks as needed.

Environmental and Social Safeguards Specialist

- B.E. / MSc in Environmental Engineering, Environmental Science or other related fields;
- At least 7 years professional experience in the preparation of environmental and social impact assessments, environmental and social management plans and monitoring implementation and reporting of environmental and social management plans;
- Specific experience in implementation of IFI safeguards policies and requirements, including ESMP and RAP;
- Experience in occupational and community health and safety;
- Knowledge of the relevant environmental regulations governing irrigation development;
- Experience in development and delivery of capacity building in areas of E&S risk management;
- Command of English and Urdu languages; Sindhi language is an advantage.

The Environmental and Social Safeguards Specialist will be responsible for Task 3.4. He/she will contribute to Tasks 2.1, 2.4 and 2.5, 5.1 to 5.3, and 5.5.

Communication Specialist

- MSc in communication sciences or in social sciences with specific training in communication;
- At least 10 years of experience in various fields related to communication with rural populations;
- Proven references in delivering high quality communication material of various nature (radio, social media, brochures and posters, videos) adapted for rural people in Sindh.
- Command of English, Urdu and Sindhi languages;
- Knowledge of local languages spoken in project areas are an advantage.

The Communication Specialist will be responsible for Task 5.3. He/she will closely contribute to Tasks 5.1 and 5.2, and contribute to all other Tasks as needed.

Gender Specialist (female)

- MSc in social sciences with specific training in gender-specific studies;
- At least 7 years of experience in working on gender-related issues / projects;
- Proven references of engaging and consulting with relevant women's groups, government departments and private and public sector organizations;
- Proven references of using gender analysis tools and methodologies;
- Command of English and Sindhi languages;
- Knowledge of local languages spoken in project areas will be a plus;
- Advanced knowledge of gender issues in Pakistan is especially valuable.

The Gender Specialist will be responsible for ensuring gender inclusion in all aspects of project implementation. She will closely contribute to Tasks 1.1, 1.3,2.1, 2.2 2.4, 5.1 and 5.2 to ensure proper representation of women's voice, and contribute to all other Tasks as needed.

Table 5: List of Core Support Staff

Sr	Position	Key Staff	Number	Estimated man.month (actual time exclusive of paid leave)
1	Project Manager / Team Leader	Y	1	10
2	Hydraulics Expert	Y	1	25
3	Database/ IT specialist	Y	1	30
4	Communication specialist	Y	1	30
5	Gender specialist	Y	1	35
	Total			130

Table 6: List of Resident Staff(Hyderabad)

Sr	Position	Key Staff	Number	Estimated man.month (including paid leave)
1	Chief Resident Engineer	Y	1	60
2	Agriculture/ on-farm irrigation specialist	Y	1	60
3	Irrigation engineer	Y	1	60
4	Capacity building/training specialist	Y	1	60
5	Community mobilization specialist	Y	1	60
6	E&S Safeguards specialist	Y	1	60
	Total			360

10.2. Field teams

Among the field teams the three Deputy Team Leaders will be key staff, other team members are non-key staff.

Deputy Team Leader (three positions)

- M.Sc. in irrigation and drainage, land and water use, agricultural engineering, or similar;
- More than 10 years of professional experience in irrigated agriculture and/or rural development;
- Specific experience with management of multitask teams and assignments and with interacting with farmers and farmer organizations;
- Command of English and Urdu languages; Sindhi language is an advantage.

The Deputy Team Leader will work under the direct supervision of the Resident Team Leader and be responsible for overall implementation of the assignment, leading the engagement with Farmers Organizations, supervision of field team, coordination of all Tasks, performance of delivery, and reporting within his/her area of jurisdiction.

Table 7: List of field team positions

Position	Key Staff	Number	Estimated man.month (including paid leave)	
			number*months*years	Total
Deputy team leader	Y	3	3*12*5	180
Community organizer (female)	N	3	3*12*5	180
Community organizer (male)	-	3	(seconded from SIDA)	0
Surveyor / Engineer	N	3	3*12*5	180
Inspector	-	3	(seconded from SIDA)	0
Accountant / Admin Officer	N	3	3*12*5	180
Canal operator (beldars)	-	At least 15	(seconded from AWB)	0
TOTAL				720

Attachment 1: indicative selection of priority branch canals and their characteristics (to be completed)

AWB	Priority Branch Canal Name	Length in mile	CA (acres)	Number of FOs	Number of farmers	Number of watercourses	Number of DOs
GF-AWB	Qazi Wah		111,700	8	20,650	237	
NC-AWB	Dim Branch	33.2	74,000	6		91	
LBC-AWB	Shadi Wah Large	31.2	53,000	2	7,980	133	

11. Procurement Method and Implementation period:

Selection method:

The consultancy firms will be selected through Request for Proposal (RFP) in accordance with the Qualification and Cost Based Selection (QCBS) method set out in the Procurement Regulations for IPF Borrowers November 2020 (www.worldbank.org/procure).

Implementation Period:

The total contract period for the Consulting Services would be 60 months and will be Time Based.