GOVERNMENT OF KHYBER PAKHTUNKHWA

REVENUE & ESTATE DEPARTMENT

PC-I

SETTLEMENT AND LAND RECORD / DIGITIZATION OF LAND RECORDS (FOR 7 DISTRICTS) / CREATION OF RECORD OF PROPERTY RIGHTS

AIP-201920- G067

ESTIMATED COST: 1,188.71 Million PK

1	**Name of the Project**	**Settlement and Land Record / Digitization of Land Records (for 7 Districts) / Creation of Record of Property Rights**
2	**Location**	**Khyber Pakhtunkhwa (Merged Areas)** 1. **Khar (Bajaur)** 2. **Landi Kotal (Khyber)** 3. **Upper Kurram (Kurram)** 4. **Lower Kurram (Kurram)** 5. **Hassan Khel (Peshawar)** 6. **Darra Adam Khel (Kohat)** 7. **Wazir (Bannu)**
3	**Authority Responsible for**	**Revenue and Estate Department, Khyber Pakhtunkhwa**
(i)	Sponsoring	**Revenue and Estate Department, Khyber Pakhtunkhwa**
(ii)	Execution	**Land Settlement Unit, Revenue and Estate Department Khyber Pakhtunkhwa**
(iii)	Operation and Maintenance	**Directorate of Land Records, Revenue and Estate Department Khyber Pakhtunkhwa**

4	**Plan Provision**
	a)
	   i. If the project is included in the medium term/five-year plan, specify actual allocation.
	
	   ii. If not included in the current plan, how is it now proposed to be accommodated.
		The Project is included in the approved AIP 2019-20 (AIP-201920- G067) with allocation of PKR 400 Million for 2019-20

iii. If the project is proposed to be financed out of block provision, indicate, • **Total Block provision** • **Amount already committed** • **Amount proposed for the project.** **b) If the project is not the plan, what warrants its inclusion in the plan?**	

5. Background:

The Project envisions establishment of a system of accurate, transparent and secure land records linked to geospatial information system for the Merged Areas (MAs) of Khyber Pakhtunkhwa.

Exploring land records management requires understanding the concept of land and significance of records management in the development process of urban/rural areas. The development in these areas requires a coordinated work between committed governments at all levels, honest government officials, open legislative and transparent regulatory system.

Unlike rest of the province, the MAs do not have an official system of land and property rights with the exception of only a few pockets of land in Kurram and North Waziristan that have land records prepared and maintained. The current state of property rights is characterized by two main features: (a) the ownership of land is undocumented; and (ii) most of the rights of usufruct are communal in nature. The latter means that the ownership of most of the land rests with the tribe.

In the absence of formal records and any institutional mechanisms for record keeping, disputes regarding land are resolved through the Jirga, community bodies, whilst the sale and purchase of land also remains cumbersome. Land is not taxed and the government has therefore no

database of land titles, occupancy and rights of passage and use. Unlike other areas of Pakistan, the usufruct of the land in MAs remains undocumented.

Government of Khyber Pakhtunkhwa has recently approved a Tribal Decade Strategy (TDS) to address developmental lags of Merged Areas (MAs). It accords high priority to economic development of this region. An important endeavor in this regard is creation of accurate, transparent and secure system of land records providing ease of access of land information to its owners. In addition to this, a system of legal institutions will be required for efficient and affordable dispute resolution. This effort will draw upon the systems, skill sets and manual procedures currently in practice in Khyber Pakhtunkhwa and the rest of Pakistan while also reaching out to benefit from IT based information and innovations in system designs to provide higher level of service delivery to residents and businesses in MAs.

6. Project Objectives and Its Relationship with Sectoral Objectives:

The project has mainly two objectives:

1. Complete settlement operation using GIS based technology
2. Provide computerized transactional services to land owners.

The first objective is to create a series of documents related to land, land owners and its tenants. This step includes survey of the entire area. Boundaries are determined of the basic revenue unit called Mouza, Deh or Revenue Estate. Following are some of the important documents created during this process along with some other auxiliary records.

a. Shajra e Nasab (Pedigree/Family Tree)
b. Khatoni (Records of Tenancy)
c. Field Book (Measurement dimensions)
d. Massavi (Cadastral Map)
e. Record of Rights (Misl e Haqiat)
f. Wajib ul Araz (Document of Customs) of mouza/village.

The second objective is to operationalize Service Delivery Center (SDC) to provide services to the public as soon as records of a mouza is completed. It will reduce the cost of computerization of manual records which is usually done in already settled districts.

Secondary objectives of the project are:

- Initiation of GIS based land settlement operation.
- Survey entire project area using advanced surveying equipment i.e. embedded with RTK and GNSS technology

- Data entry of records of rights and all other related data in the existing LRMIS software.

- Creation of digital Massavi Maps

- Creation of spatial database to store all GIS related data.

- Integration of MIS and GIS data in the existing LRMIS software.

- Provide scalable database solution to accommodate land transaction data both in spatial and non-spatial formats.

The major Long Term goals of the project:

- To maintain and update the existing digital records and prepare digitized Jamabandis from the computerized records.

- To mitigate land disputes on instant update of land records.

- To prepare scalable digital maps for multi sector and multipurpose uses.

- To determine the type of land, crop etc. from satellite imagery of the digitized Mauzas.

- To increase revenue from Fard and Mutation services

- To reduce litigation by accurately maintaining the digital records of rights.

- To facilitate land owners and farmers for acquisition of bank loans.

Relationship with Sectoral Objectives:

The development of Information Technology Sector in the public sector is integral to government initiatives. Strengthening back-office operations and effective public service delivery is part of the objective to help the government achieve its vision of providing quality services to citizens efficaciously and efficiently. This includes providing hassle-free service to citizens which is an important objective of the government and this project would play a vital role in achievement of such objectives.

The wealth of a nation and its economic development are dependent on the state land and its usage. Digitalizing fresh land record through GIS technologies, will reduce potential disputes and will enable the government to efficiently generate revenue from land transactions. One of the key elements of this project is to improve the revenue record system by creating land records in seven selected sub-divisions of Merged Areas (MAs). There is political commitment in making hassle-free services available to the citizens and, at the same time, diminishing the scope for litigation and land-related disputes.

This project would, therefore, help government for implementing the IT policy and good governance.

The Board of Revenue (BoR), Khyber Pakhtunkhwa, Government has in principle agreed to making use of the modern technology and incorporating international practices for Land Administration. The government intends to strengthen its available resources and provide capacity building support for existing staff and hire experienced staff for the project.

7. Key Performance Indicators:

The Key Performance Indicators (KPIs) for measuring project success are:

- Establishment of Settlement Offices
- Parcel survey of entire area using digital surveying equipment and/or satellite imagery.
- Creation of computerized records of rights and other related documents.
- Preparation of both digital and paper based Massavi Maps.
- Providing computerized land transaction services to public.
- Establishment of Service Delivery Centers (SDCs).

Result Based Matrix

Result Based Matrix of the project is given in below table.

Table 1 : Result Based Matrix

Goal	Indicator	Means of Verification	Assumptions
Mainstreaming merged areas through sustainable socio- economic development	G1: % of respondents reporting increases confidence in government in post merger period. G2: % of respondents reporting improvement in livelihood conditions in the post merger period. G3: % of respondents reporting that government is responsive to their needs. G4: % of respondents reporting satisfaction in the reforms implementation	Community feedback surveys; Baseline Mid Term and End line surveys.	Reforms process is implemented smoothly; communities are providing required information; security situation remains favorable; no restriction on access to MAs; communities are cooperating in the development process
Outcome	**Indicator**	**Means of Verification**	**Assumptions**
Land records digitized to give owners access to land records, secure transactions of land titles and financial institutions	OC1: Hectares of lands mapped in the MAs. OC2: Number of owners provided with legal tenancy rights OC3: Number of ,and owners accessing financial institutions for loans OC4: Number of land owners successfully receiving loans from financial institutions.	Program data; financial institutions records; land records	Reforms process is implemented smoothly; communities are providing required information; security situation remains favorable; no restriction on access to MAs; financial institutions have their operations in the MAs
Output	**Indicator**	**Means of Verification**	**Assumptions**
1. Digitized land settlement records created	1.1 No. of Revenue Estates demarcated. (target and timeline) 1.2 Number of owners who have digitized land records.(target and timeline) 1.3 Number of districts that have digitized land records (target and timeline)	Misle-e-Hiqat documents; data base of land records;	Security situation is favorable for carrying out activities; communities are cooperating;
2. Land Records Complex and SDC established	2.1 Number of land record complexes built and operational 2.2 Number of service delivery centers established	Onsite verification; progress reports; monitoring reports; program data	funds are available for construction work;
3. Land revenue services provided in the MAs	3.1 Number of owners received digitized land numbering (fard mutation; correction gardawari etc.) 3.2 Number of owners benefiting from land revenue services	Project data;	Land owners are registering with Revenue authority; timely provision of land revenue services; cooperation on the part of land owners
4. Digital system put in place for land revenue collection	4.1 Number of Merged Areas districts where revenue is collected through digital system. 4.2 Number of land owners registered in the digital revenue collection system.	Project data;	Land owners are registering with Revenue authority; timely provision of land revenue services; cooperation on the part of land owners; timely creation of digitized system; land owners are registering under the digitized system

Activities	Inputs	Means of Verification	Assumptions
1.1: Establishment of Projectized Offices 1.1a: Establishment of Land Settlement Unit (LSU) 1.1b: Establishment of Settlement Offices 1.1c: Procurements for operationalization of offices	Human Resource Project Core Team Formation Equipment and Furniture		Project is approved
1.2: Creation of digitized Land Settlement Records 1.2a: Awareness raising campaign for Land Settlement. 1.2b: Demarcation of Revenue Estate boundaries (Thak Bast) 1.2c: Preparation of digitized Shajra e Nasaab 1.2d: Preparation of digitized Khatoni 1.2e: Digital measurement of Parcels 1.2f: Generation of Misl e Haqiat 1.2g: Taqseem Parcha Khatoni 1.2h: Tasdeeq Akhir	Human Resource Equipment (GIS and IT) Logistics Support Land Settlement Module Training		1. National control network has been extended to each revenue estate. 2. Security situation is normal. 3. Land settlement module is developed.
2.1: Construction of Buildings 2.1a: Construction of Land Records Complex (LRC) 2.1b: Procurement of Land for Service Delivery Center (SDC) 2.1c: Construction of SDCs	Identification of Land Procurement of Land Approval of Designs		Land is identified and procured by the Government.
3.1: Establishment of Service Delivery Centers (SDCs) 3.1a: Development of Centralized Land Record Management Information System (CLRMIS) 3.1b: Hiring of regular staff 3.1c: Procurement of Paraphernalia 3.1d: Provision of live services in SDC building	Selection of third party for development of CLRMIS Human Resource Equipment and Furniture for SDCs Training		1. Requirements of CLRMIS are clear. 2. Land Records Processing Unit (LRPU) is operationalized.
4.1: Land transactions in SDC			

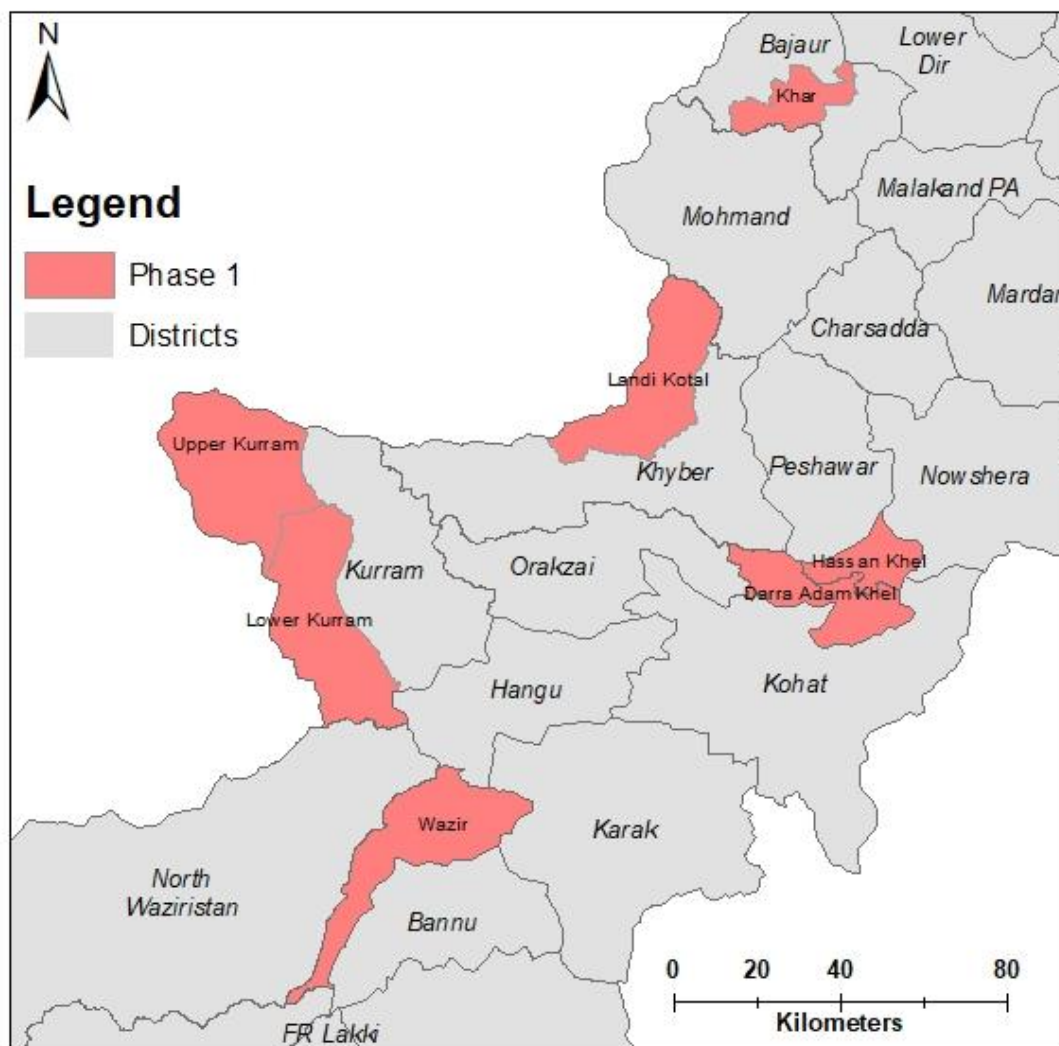## 8. Map of the Project of Merged Areas of Khyber Pakhtunkhwa

Figure 1: Map of sub-divisions of Merged Areas planned for Settlement Operation.

9. Area Statistics:

Table 2 : Area Statistics

S.No.	District Name	Sub-Division	Population (2017)	No. of Households	Area (Sq. Km)
1	Bajaur	Khar Bajaur	247,510	27,044	276
2	Bannu	Wazir	43,114	4,188	824
3	Khyber	Landi Kotal	274,409	29,472	771
4	Kohat	Darra Adam Khel	118,578	14,339	469
5	Kurrum	Lower Kurram	136,719	14,030	949
		Upper Kurram	253,478	25,924	986
6	Peshawar	Hassan Khel	64,691	7,065	260
		Estimated Total	**1,138,499**	**122,062**	**4,535**

9. Description and Justification of the Project:

The most salient output of this project is the creation of new land records and protection of property rights of the citizens as guaranteed in the Constitution of Islamic Republic of Pakistan. This project will also ensure security of records by using a central database as well as safeguard its integrity by preventing fraudulent entries.

The overall objectives of the proposed project are aimed to revolutionize record keeping and land related transactions under the umbrella of a wholesome land management information system in all Merged Areas of Khyber Pakhtunkhwa. This initiative will reduce land related disputes and litigations through the introduction of an authentic recording and mapping system. Land rights would be ensured in a transparent and timely manner. The project would ensure that to provide streamlined services, better public-sector efficiency and citizen satisfaction.

The project intends to make all transactions related to land as transparent, credible, and efficient. The aim of this project is to create GIS based digital fresh land records in merged areas, which would be maintained by the land revenue technical staff in their respective Service Delivery Centers (SDCs). The main theme is to prepare fresh land records in MAs, which is easily accessible as a single electronic database where,

- Efficient record of rights is maintained
- Efficient mutation process is executed
- People can access their records easily

The following specific objectives would be achieved through this project:

- Creation of computerized land records
- Accurate delineation of digital boundaries at various administrative levels
- Transparency in creation and management of record of rights (ownership title)
- Accurate demarcation of land parcels along with their individual dimensions and land record keeping
- Integration of spatial and non-spatial data
- Resolution of land dispute as well as ensuring individual property rights
- Sharing of information electronically among the authorized stakeholders and provision of prescribed information on website

- Support agriculture credit system and provide investment opportunities to Banking Sector
- Institutional development and capacity building of existing staff.
- Better land use planning and providing the opportunity of access to capital for landowners and cultivators.

Justification of the Project:

The use of GIS in land administration system has considerable potential to support society's evolving humankind/land relationship by providing information for decision makers that will enable them to make decisions favorable to sustainable development in the context of land administration and management. GIS is a valuable tool and powerful decision support system for the Computerization of land records for the following reasons:

- Effective land administration
- Efficient resource allocation for land administration
- Sustainable land development and planning
- Improved physical storage facilities for land related matters
- Automation of indexes to provide quicker document retrieval
- Computerization of title documents to provide quicker access to land information

Majority of Merged Areas lack any settlement process and therefore, have no proper land records. As a consequence, updating of records has suffered and they no longer represent the ground realities relating to ownership and possession. For citizens, land records form the basis for assignment and settlement of land titles that determine ownership claims. These records also provide the administration with all the statistical information required for the purpose of development planning, social reforms, rational use and conservation of resources. These are also important as they form a component of Merged Areas revenue from taxes on agriculture income, the transactions of rents, revenues, rates, cases among each of the land titleholders.

10. Implementation Modalities of the Project:

There are two projects of Land Records Computerization ongoing in Board of Revenue. Another ADP approved scheme (ADP No. 190183) of Land Settlement in Dir Lower, Dir Upper and Tehsil Kalam is also planned to be initiated this year (PC-I already submitted). One more project is planned for ADP 2020-2021 to complete the GIS component of current Computerization of Land Records Project. Moreover, Land Records Management Information System (Turn Key Solution) which was approved ADP scheme (ADP No. 17043) will now be the part of this PC-I.

Keeping in view the importance of these projects and space requirements for staff offices, conference rooms and GIS lab a separate building is proposed to be constructed within premises of existing Revenue Academy, Phase-III Chowk Hayatabad, Peshawar. This building will be named as Land Records Complex (LRC).

All the above mentioned projects are technology based and requires a proper infrastructure for storage and centralization. Land Records Processing Unit (LRPU) is planned to be established under this PC-I. LRPU will not only facilitate the storage for these projects but will also host the Centralized Land Records Management Information System (CLRMIS) which is the future software application to be used in Service Delivery Centers (SDCs).

10.1 Project Structure

The project will be headed by Project Director who will be a grade 19 Government officer, appointed by Project Selection Committee / Establishment Department and will be reporting to Director Land Records (DLR), Revenue and Estate Department. Project Director will lead the overall administration of the project including Land Settlement Unit (LSU) and all Settlement Offices. Overall project structure is illustrated below:
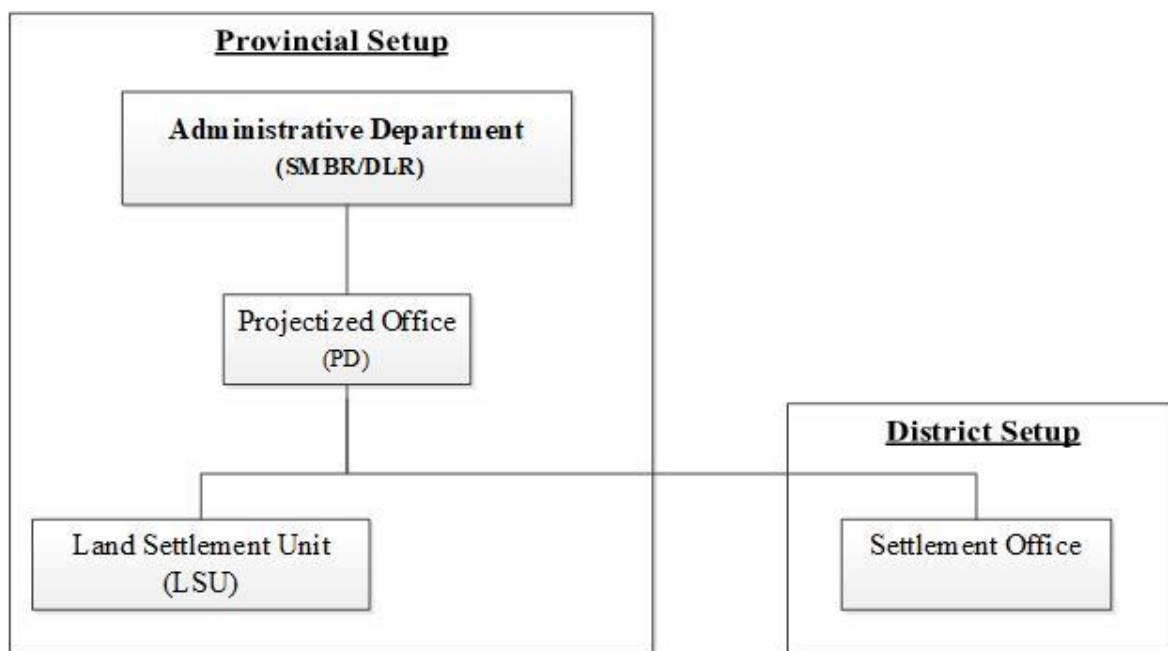

Figure 2: Overall project setup

10.1.1 Land Settlement Unit (LSU):

Land Settlement Unit (LSU) is the main office responsible for overall project management. LSU will not only support project operations but will also supervise all GIS and IT related activities.

Project Director will be supported by three Senior Managers i.e. Senior Manager (Operations), Senior Manager (Technical) and Senior Manager (GIS). These officers will be heading operations and technical wings of IT and GIS throughout the project life. These posts will be filled by existing resources of the department.

In order to support the planning, finance and accounts sections of the project, Senior Planning Officer and Account Officer will be posted from Planning and Development Department and Finance Department/Account General Office respectively. List of staff of Land Settlement Unit (LSU) is given in the following table.

Table 3: List of Staff of Land Settlement Unit

S.No.	Designation	BPS	Mode of Engagement	No. of Posts
1	Project Director (PD)	19	Transfer posting/New Hiring	1
2	Senior Manager (Operations)	19	Transfer posting/New Hiring	1
3	Senior Manager (IT)	19	Transfer posting/New Hiring	1
4	Senior Manager (GIS)	19	Transfer posting/New Hiring	1
5	Manager Database	18	Transfer posting/New Hiring	1
6	Manager Networks	18	Transfer posting/New Hiring	1
7	Senior Planning Officer	17/18	Transfer posting/New Hiring	1
8	Account Officer	17	Transfer posting/New Hiring	1
Sub Total (Government Officers)				**8**
9	Assistant Manager (Database)	Fixed Pay	New Hiring	1
10	Assistant Manager (GIS)	Fixed Pay	New Hiring	1
11	GIS Associate	Fixed Pay	New Hiring	1
12	Network Support Engineer	Fixed Pay	New Hiring	1
13	Accountant	Fixed Pay	New Hiring	1
14	Assistant	Fixed Pay	New Hiring	1
15	Computer Operator	Fixed Pay	New Hiring	2
16	Driver	Fixed Pay	New Hiring	4
17	Naib Qasid/Office Boy	Fixed Pay	New Hiring	4
18	Sweeper	Fixed Pay	New Hiring	2
Sub Total (Contract basis)				**18**
Total Staff of Land Settlement Unit (LSU)				**26**

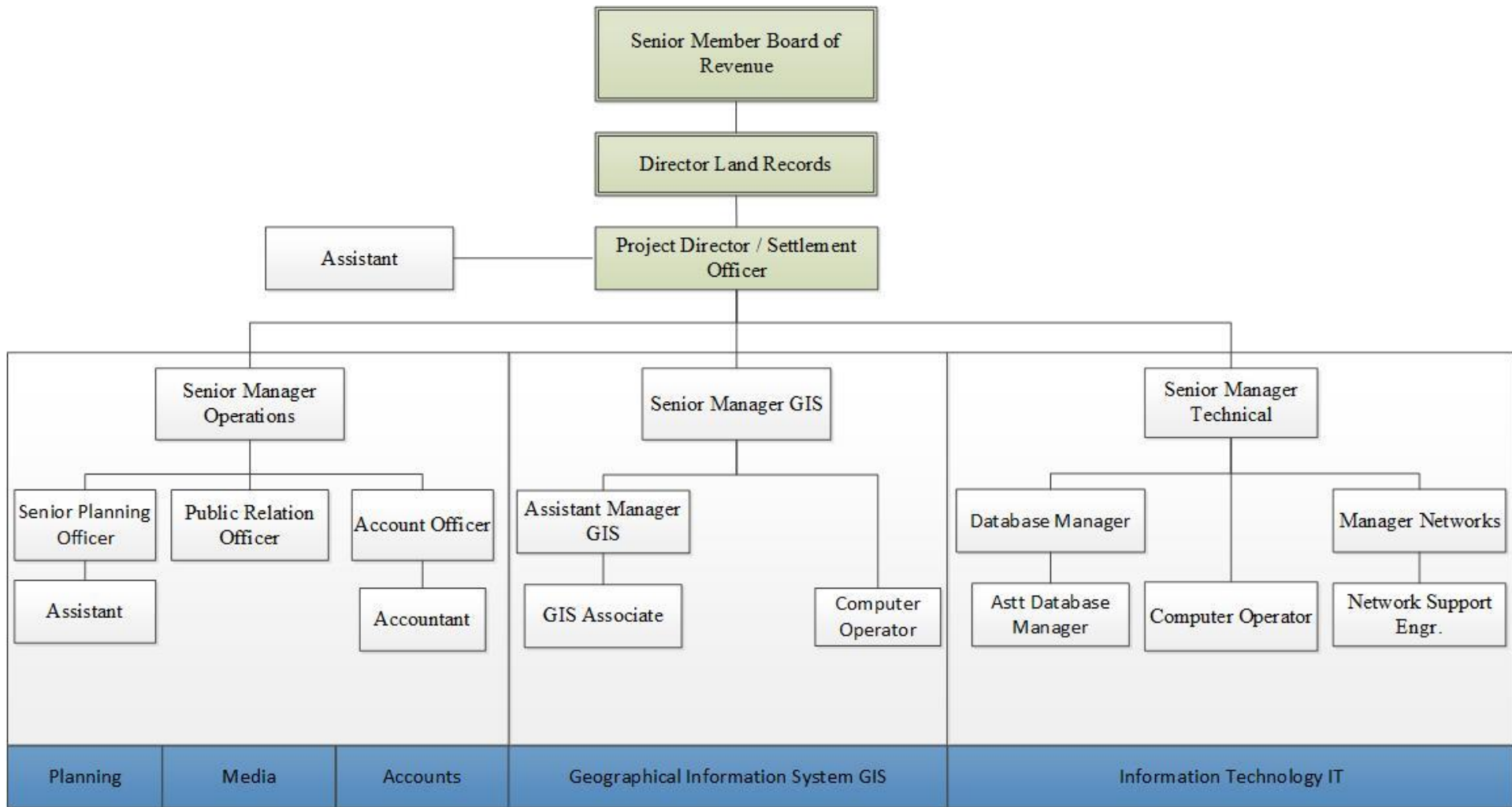Organogram of Land Settlement Unit (LSU) is shown below.

Figure 3: Land Settlement Unit (LSU) Organogram

10.1.2 Settlement Office

Settlement Offices will be established in seven sub-divisions to start settlement operations simultaneously. Assistant Settlement Officer (ASO) will be in-charge of settlement operation in each district and will be stationed at Headquarters (HQ) Settlement Office. In districts like Kurram where settlement is planned in two sub-divisions, there will be one settlement office and one HQ settlement office both led by a single ASO. All staff of Settlement Office will be hired from market on contract basis except ASO who will be appointed by Project Selection Committee / Establishment Department and will be Grade 17/18 Government Officer. List of staff of settlement office along with its aggregate are given as below:

Table 4: List of Staff of Headquarters Settlement Office

S.No.	Designation	BPS	Mode of Engagement	No. of Posts	No. of Units	Total No. of Posts
1	Assistant Settlement Officer	17/18	Transfer posting/New Hiring	1	6	6
Sub Total (Government Officers)				**1**	**6**	**6**
2	Assistant Manager (GIS)	Fixed Pay	New Hiring	1	7	7
3	Tehsildar (Rtd.)	Fixed Pay	New Hiring	1	7	7
4	GIS Associates	Fixed Pay	New Hiring	3	7	21
5	Computer Operator	Fixed Pay	New Hiring	3	7	21
6	Accountant/Assistant	Fixed Pay	New Hiring	1	7	7
7	Girdawar	Fixed Pay	New Hiring	3	7	21
8	Surveyor	Fixed Pay	New Hiring	6	7	42
9	Patwari	Fixed Pay	New Hiring	15	7	105
10	Driver	Fixed Pay	New Hiring	1	6	6
11	Survey Helper	Fixed Pay	New Hiring	6	7	42
12	Chowkidar	Fixed Pay	New Hiring	2	7	14
13	Sweeper	Fixed Pay	New Hiring	1	7	7
14	Naib Qasid	Fixed Pay	New Hiring	1	7	7
Sub Total (Contract basis)				**44**		**307**
Total Staff of Headquarters Settlement Office				**45**		**313**

Settlement staff will be comprised of both Revenue and Technical staff. Tehsildar will be responsible to lead and guide Revenue Staff (i.e. Girdawar and Patwari) while Assistant Manager GIS will be responsible for GIS Associates, Computer Operators and Surveyors. AM GIS will also be responsible for database management at the Settlement Office level.

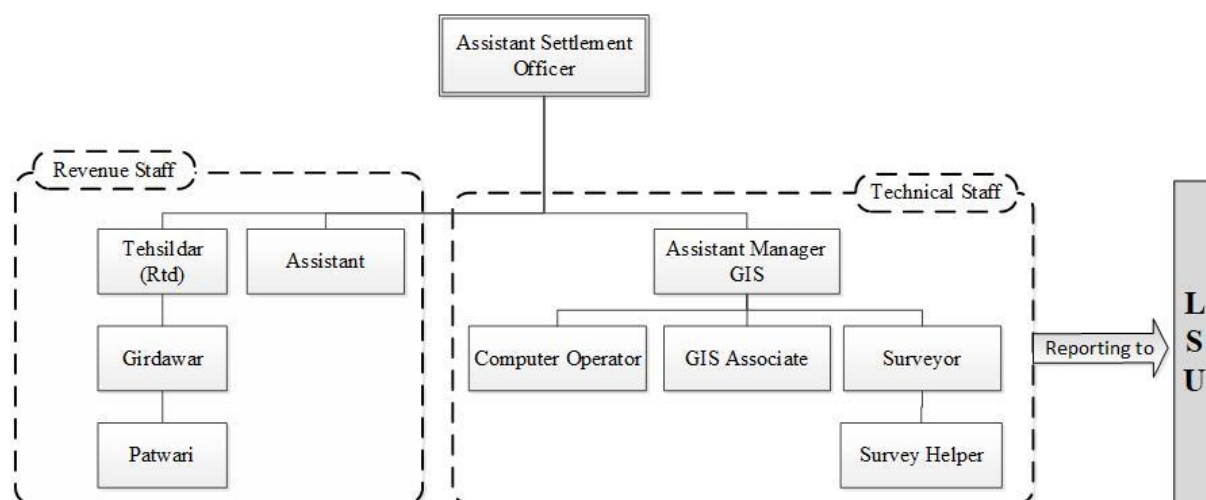Organogram of settlement office is shown in below figure.

Figure 4: Organogram of HQ Settlement Office

10.1.3. Service Delivery Center (SDC)

Service Delivery Center (SDC) is the facilitation center to provide services related to land record transactions. These SDCs will be established on the analogy of Computerization of Land Records Project, Khyber Pakhtunkhwa. In order to operationalize SDCs, permanent staff will be hired through proper channel. List of SDC staff are given below:

Table 5: List of Staff of Service Delivery Center

S.No.	Designation	BPS	Mode of Engagement	No. of Posts	No. of Units	Total No. of Posts
1	Deputy Director Database	18	New Hiring	1	3	3
2	Assistant Director GIS	17	New Hiring	1	3	3
3	Assistant	16	New Hiring	1	7	7
4	Service Delivery Official	16	New Hiring	10	7	70
5	GIS Associates	16	New Hiring	1	7	7
6	Driver	6	New Hiring	2	7	10
7	Naib Qasid	3	New Hiring	4	7	28
8	Chowkidar	3	New Hiring	2	7	14
9	Sweeper	3	New Hiring	1	7	7
Total Staff of SDC				**23**		**149**

It is pertinent to note that Deputy Director Database (DD Database) will be hired for Headquarters SDC meaning there will be only one DD Database for a district and will be

looking after multiple SDCs. In seven sub-divisions of this project, three sub-divisions i.e. Hassan Khel, Darra Adam Khel and Wazir (erstwhile FR) will be looked after by DD Database of Peshawar, Kohat and Bannu respectively.

Procurement of land and construction of SDCs are also included in this project. From the experience of Computerization of Land Records Project, Khyber Pakhtunkhwa, it has been noted that construction work takes more time than expected. That's why during the project's life, provision of rented building for SDCs have been allocated.

Service Delivery Centers will be able to provide services to the public as soon as settlement operation is completed in a mouza.

10.1.4. Project Review Board (PRB)

Overall supervision and keeping the project on track will be ensured by Project Review Board (PRB). Project Review Board will consist of the following members:

Table 6 : Project review Board Structure

S.No.	Designation	Status
1	Senior Member Board of Revenue	Chairman
2	Representative of Finance Department	Member
3	Representative of P&D Department	Member
4	Director Land Records (DLR)	Member
5	Project Director	Member/Secretary
6	Representative of ST&IT Department	Member

Frequency of Meeting: The Project Review Board (PRB) meeting will be organized at least once in a quarter to review the progress as per the project goals.

Justification for PRB: The Project of land settlement in Merged Areas (MAs), will require consistent guidance and supervision as for the first-time land settlement will be created through GIS Technology. PRB will act as major forum to give directions after carefully monitoring the progress of the project and help to solve the administrative and legal matters during project implementation.

Terms of Reference (TORs) of PRB

- Review and coordinate over-all progress and provide strategic direction to project implementation.
- Performance overview and consistency with the project goals.
- Support and solve the project objectives with the administrative and line departments for legal matters.
- Guidance for the KPIs progress and support any higher support to the project;
- Any other action / decision for smooth implementation of the project and achieving the objectives.

10.2. Project Execution

Land settlement operation is an extensive exercise of engaging people, surveying entire area, recording records of rights and preparing other records related to land and its access. Settlement operation will be initiated in all sub-divisions simultaneously. The overall timeline of the project is three (03) years.

To efficiently utilize staff of settlement operation, they have been organized in three (03) teams/per sub-division. These teams are illustrated in the figure below.
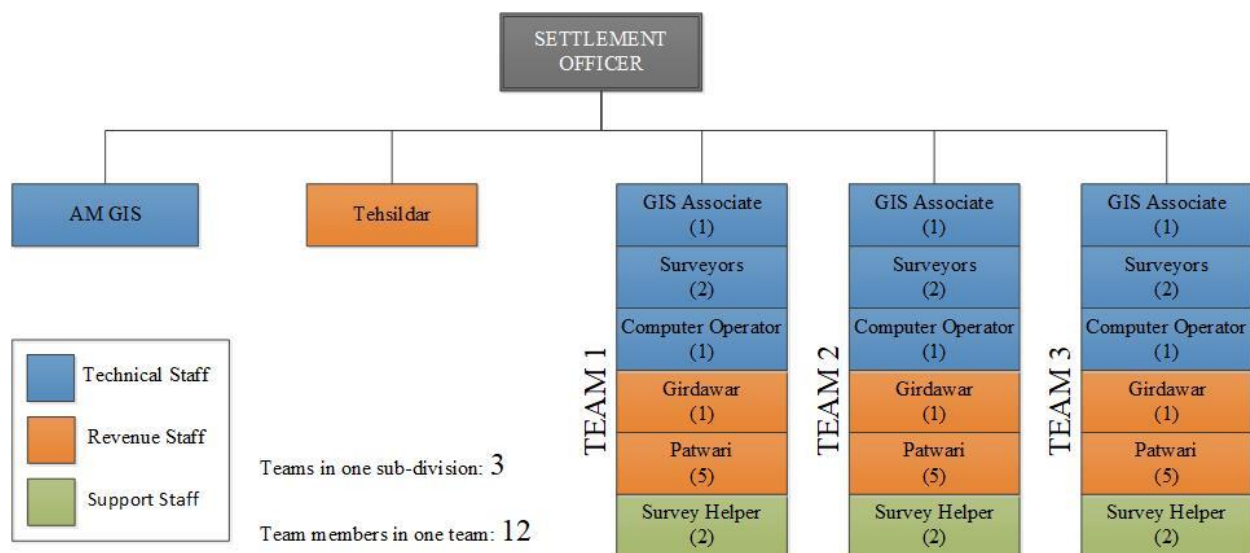

Figure 5: Team structure of Settlement Office

Each team will be comprised of both Revenue and Technical staff. Team composition is shown in below table.

Table 7 : Team Composition

S.No.	Designation	No.
1	GIS Associate	1
2	Surveyors	2
3	Computer Operator	1
4	Girdawar	1
5	Patwari	5
6	Survey Helper	2
No. of Staff in a team		**12**

Each team will be working in five mouzas simultaneously i.e. at a single time settlement operation will be ongoing in 15 mouzas in a sub-division. After completing five mouzas by a single team, another group of five mouzas will be assigned to them by the Assistant Settlement Officer.

There will be five Patwaris working in a team. They will be preparing Shajra e Nasb, writing Khatoni, verifying field measurements, verifying field book, preparation of Misl e Haqiat and verification of all other revenue documents. He will be supervised and guided by Girdawar. Patwari will be working closely with Computer Operator to ensure data has been entered and with GIS staff to make sure measurements of parcels are correct.

As soon as the Patwari starts writing Shajra e Nasb and Khatoni, Surveyors with the help of GIS Associate will start Khasra Measurement. GIS Associate will be extending GIS support to the team and will be primarily responsible to demarcate mouza boundaries, manage and verify survey data, finalize Massavis and perform ground truthing where required.

Surveyors will be supporting GIS Associate and Patwari in field data collection and field verification. He will also be responsible to handle and use GNSS/RTK equipment. Computer Operator will perform the scanning and data entry of Shajra e Nasb and Khatoni received from Patwari on daily basis. Computer Operator will be a trained personnel to use Land Settlement Module and support the Revenue staff and Assistant Settlement Officer in performing verification of the data entered. Surveyors will be assisted by Survey Helpers in handling survey equipment and do the duty of attendants where Base (DGPS) is fixed.

Field work will be conducted by Patwari and Surveyors where GIS Associate and Computer Operator will do the desk work. In case of any verification needed, both the staff members will

move with the field team. In order to facilitate the field staff i.e. Patwari, Surveyors and Survey Helpers, each team will be provided with a vehicle.

Once the record is finalized by Patwari, it will be verified by Girdawar, Tehsildar, Assistant Settlement Officer and finally by the Settlement Officer. After signing off the records, data will be available for live services.

10.3 Implementation Methodology

Settlement operation will be carried out in two different modalities i.e.

    a. Fresh Settlement
    b. Re-settlement

Both the processes are explained in detail as below.

10.3.1 Fresh Settlement

Most of the areas of Merged Areas (MAs) are lacking proper record of rights that's why Fresh Settlement process will be adopted. The use of GIS and IT has been illustrated in the figure below. Land Records Management Information System (LRMIS) which is already in use in Service Delivery Centers (SDCs) of District Peshawar, Mardan and Abbotabad. Land Settlement Module will be developed and integrated with current LRMIS software. Initial data entry of Shajra e Nasab and Khatoni will be stored in Settlement Module which after verification (Parthal) from concerned revenue staff will be updated to LRMIS database.

Khasra measurement and Field Book preparation will be done using GIS technology as illustrated in Figure 5. All the Khasra measurement will be done by using Very High Resolution Satellite Stereo Imagery and using advanced surveying equipment i.e. DGPS + GNSS. This data will be stored in a Geo-database and then after verification from concerned revenue staff will be integrated with LRMIS database. After completing all the required processes of Settlement Operation, the data will be ready for live services.

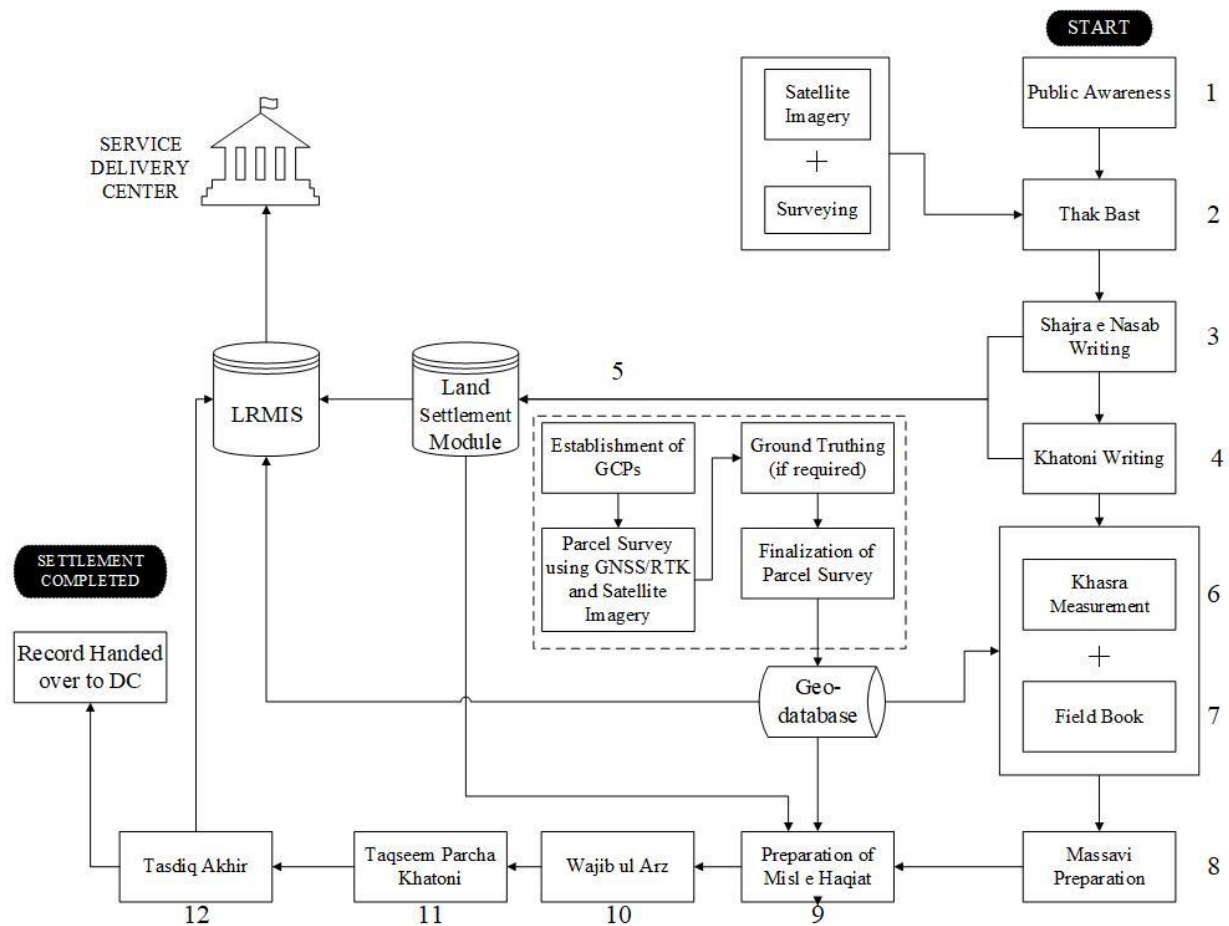The detail process is discussed below and is shown in Figure 6.

Figure 6: Settlement Methodology

1. Public Awareness

The department will initiate and coordinate mass awareness campaigns before the settlement process begins in each area separately. A range of tools and techniques will be developed to foster participation through elders and mass awareness campaigns. It will include posters and leaflets, mass media campaigns (radio, television), mobile display/announcements, public meetings, using social media campaigns, and school/college class awareness with the help of local administration. Keeping in view the importance of the project, the awareness campaign will be focused to develop a clear perception, understanding, and familiarity of how the target masses will get benefits out of the settlement operation. Assistant Settlement Officer will be looking after and coordinating this activity.

Objectives of Public awareness campaign are:

- Establishing the fact that settlement operation and land record management information system will offer services that will advantage land owners.
- Familiarizing the audiences with the use, and ease of the system.

- Educating the target audience on how to use the offered Services.
- Minimizing resistance among the target audience against the change of operation.
- To ensure that awareness campaign is reached to the maximum audience.

Public support and understanding are essential to educate potential landowners and other stakeholders. The campaign would involve information about benefits and obligations of registering title transactions, title alterations and the risks associated with unregistered interests.

Reach: The mass awareness campaign will be launched through village-based meetings, print and electronic media and also by arranging sessions in school and colleges.

Printing: Special awareness poster will be printed for describing land settlement process step by step and will be shared with local community and stakeholders etc.

Frequency: The message reaching the audiences should be received more than once. This ensures attendance and improves recall.

2. *Thak Bast*

Thak Bast is the first practical step of settlement operation. It is the process of drawing a sketch of revenue estate or in other words we can say it is the process of determining boundary line of that revenue estate. It is precisely determined with the help of community elders and land owners.

Role of Technology: This process will be supported by GIS by printing high resolution satellite imagery on paper. These maps will be presented and discussed in the community to determine boundary line of that revenue estate. If the boundary line is a natural feature like river, stream or hill/mountain or it's a manmade feature like road, canal etc. then physical survey may not be needed. But if the boundary line is within parcels and is not clear in satellite imagery then physical survey using advanced surveying equipment will be carried out.

In this process a number of staff will be involved. GIS Associate will be responsible to print satellite imagery on paper maps of that area on suitable scale. Tehsildar/Patwari will be responsible to determine the boundary line with the help of community and land owners while Surveyors will be responsible to survey that area if required. At the end GIS Associate will produce the final boundary of that revenue estate.

3. Chatta Shajra Nasb writing

Shajra Nasb writing (Pedigree/Family Tree) is the process of noting down list of all owners along with their ancestors. Owner list is written in the form of a tree through which relation between owners can be determined. It also provides the list of different tribes and clans residing in that area.

Writing Shajra Nasb is an ongoing process and it is usually not completed in a single sitting. It is completed towards record finalization stage. Shajra Nasb will be written by Patwari on prescribed form and that form will be handed over to Computer Operator.

> **Role of Technology:** Computer Operator will scan the hand written Shajra e Nasb and will do data entry in settlement module of existing LRMIS software. Scanned record and data entry will be compared for verification purposes.

4. Khatoni Writing

Khatoni is the primary document to record information of cultivator of a piece of land. This information is collected for each and every parcel in a given revenue estate.

> **Role of Technology:** Patwari will be responsible to write Khatoni in the field and then deliver it to respective Computer Operator. Computer Operator will scan it and will enter the data in exiting LRMIS software. At the completion of Khatoni writing, both the hand written and printed out records will be compared for verification and in case of any inconsistency, will be corrected at the field level.

5. Chanda Bandi/Establishment of Ground Control Points (GCPs)

In manual settlement process Chanda bandi is the process of setting base for measurement. In this process, points of equal distance are lay down in all over revenue estate. These points can be referred to as reference points. Khasra measurement is taken place using reference from these points and are used as a source of triangulation.

> **Role of Technology:** In GIS based settlement Chanda Bandi will be replaced by using Ground Control Points (GCPs). GCPs are termed as permanent locations on ground which do not change over time. These points are very important for referencing location of land features. GCPs are usually established and managed by the National Surveying Agency i.e. Survey of Pakistan (SOP). SOP has already established network of GCPs/Benchmarks in all over Pakistan and they might be engaged to further increase the density of these points by traversing it, so that it may cover all the areas.

In revenue system "Seh Hada" which acts as GCP and are marked at the common/junction point of three Mouzas. A small rock is placed or cemented block is constructed at that point and its location is also marked on Massavi Map with a Red Dot. Seh Hada will also be referenced with GCPs of Survey of Pakistan.

6. *Khasra Measurement*

Khasra measurement is the most time taking process of manual settlement operation. In this process dimensions of each and every Khasra is measured.

> **Role of Technology:** Khasra measurement will be done using GIS technology. A hybrid approach of both satellite imagery and surveying equipment will be used. Very High Resolution (VHR) satellite imagery will be used to digitize the entire area. As the settlement operation is going to take place mostly in hilly areas, it will be difficult to conduct survey in rough terrain, deep valleys and inaccessible areas. Such areas will be digitized and measured using VHR satellite imagery. Areas which are congested, will be surveyed using advanced surveying equipment.
>
> In this process GIS Associates and Surveyors will play the vital role under the guidance of Assistant Manager GIS of each district. GIS Associates will be digitizing the areas while Surveyors will be doing ground survey where required.

7. *Field Book preparation*

Field Book is also one of the most important record regarding Khasra measurement. This record is prepared while measurement is ongoing. Each of the Khasra is given a unique ID and lengths of each dimension is noted down in it. Area of each Khasra is also determined in Field Book. Khatoni No. of each Khasra is also recorded.

> **Role of Technology:** Using GIS based technology, Field Book preparation will be much easier. Measurement of each dimension of a Khasra will be determined from VHR satellite imagery or advanced survey equipment (as discussed in the previous step). Area of each Khasra will also be determined automatically. Only Khatoni No. will be recorded from the field by Patwari which will provide the basis for cross verification of the data. Field Book and Khatoni will be verified by relevant revenue staff after its completion.

8. Massavi preparation

Plotting of Massavi using manual methods requires very high degree of skills. In manual system, it is plotted using Plane Table technique which is obsolete now in this era of technology.

Role of Technology: All the Khasra measurements of a given revenue estate will be organized in the form of Massavi. This Massavi will have the same scale which is used for manual one i.e. 1inch = 40 Karam or 220 feet. It will also have the 4x4 grid each of 200x200 Karam. This grid will initially be extended from settled districts to avoid any inconsistency on the borders of its neighboring districts.
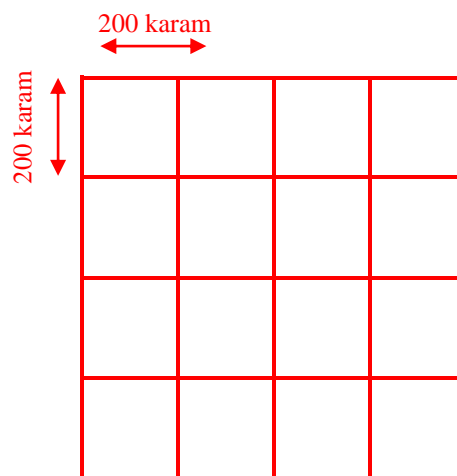
GIS Associates will be responsible to create these Massavis. Massavis will be verified on ground by concerned revenue officials before it is finalized.

9. Writing of Misl e Haqiat

Misl e Haqiat is the primary document and final deliverable for records of rights. It is the combination of multiple documents which is written at the end of settlement operation.

Role of Technology: As Misl e Haqiat is written from multiple documents like Shajra e Nasab, Khatoni and Field Book, it will be generated automatically from the land settlement module of existing LRMIS software. After it is generated, it will be handed over to revenue staff for verification.

Computer Operator will be responsible to generate it from the system.

10. Wajib ul Araz

Wajib ul Araz is the document of common lands, its customs, accessibility for different tribes/clans and distribution of resources. This document is written by Patwari of the concern revenue estate.

> **Role of Technology:** Once Patwari is finished writing it, it will be handed over to Computer Operator to scan and incorporate it with Misl e Haqiat in to the system.

11. Taqseem Parcha Khatoni

Taqseem Parcha Khatoni is the process of distributing owner's land information to respective owners to find out if there is any discrepancy in the data.

> **Role of Technology:** Parcha Khatoni of each owner will be generated from the system by Computer Operator on its prescribed format and will be distributed by concerned Patwari. In case of any issues reported by the owner will be corrected accordingly.

12. Tasdeeq Akhir

Tasdeeq Akhir is the final process of verification done by the Assistant Settlement Officer (ASO). All the required documents will be generated from the system which will be verified by respective ASO. In case of any discrepancy found in data will be corrected accordingly.

After the completion of Tasdeeq Akhir, data will be handed over to District Administration and will be ready to get live on Service Delivery Center (SDC).

10.3.2 Re-settlement

There are a few pockets in Merged Areas (MAs) where settlement has previously been done like Kurram and North Waziristan. In these areas Re-settlement operation will be carried out which has a few different steps from Fresh Settlement process which are explained below. Figure 6 shows the methodology of Re-settlement process.
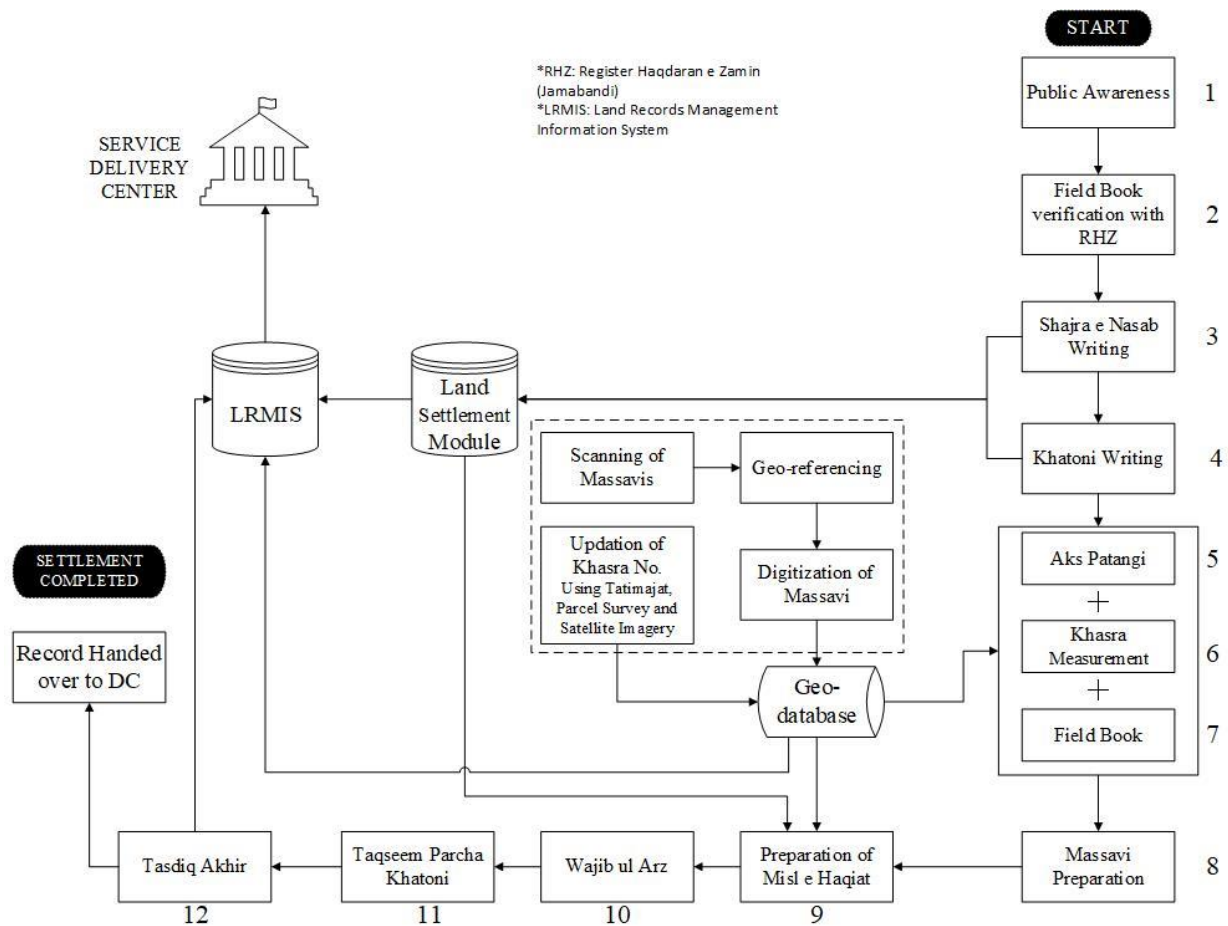
Figure 7: Re-settlement Methodology

1. Public Awareness

It has been explained under "Public Awareness" of section **10.3.1.**

2. Field Book verification with Jamabandi (Field Book ba Jamabandi)

This process involves cross verification of *Field Book* with latest *Jamabandi*. This activity is done by revenue official and it is a desk review.

3. Chatta Shajra Nasb writing

Details of "Chatta Shajra Nasb writing" are given in section 10.3.1. In Re-settlement the previous Shajra Nasab is updated.

4. Khatoni Writing

In Re-settlement process, Khatoni writing has the same process as of Fresh settlement only the previous Khatoni Number is added in the record. Khatoni writing is explained in section 10.3.1.

5. *Aks Patangi*

Aks Patangi is the process of photocopying original Massavi manually. This process is carried out by placing tracing paper on Massavi and draw each and every Khasra on it. Aks Patangi is then plotted on new sheet and then is updated in the field by Patwari.

> **Role of Technology:** This step will be skipped in GIS based land settlement as Massavis will be digitized from old ones. Once the digital copy is prepared, it can be printed as many times as required.

6. *Khasra Measurement*

Once the previous Massavi of a mouza is digitized, it will be printed out and the relevant Patwari will start updating it. Surveyor will conduct field surveys where required and the changes will be recorded accordingly including Khasra divisions, new features addition like roads, schools, health facilities and change in type of land.

> **Role of Technology:** In digital mode, the previous Massavis will be scanned, geo-referenced, digitized and then will be updated according to the ground situation. This updation will be done using satellite imagery and mostly by ground survey. Updated Massavis will be prepared by GIS Associates and will be shared with concern Revenue officials for verification.

7. *Field Book preparation*

Field Book will also be prepared in parallel with Khasra measurement. Details of Field Book preparation is already discussed in section 10.3.1.

8. *Massavi preparation*

Massavi preparation is also discussed in section 10.3.1.

9. *Writing of Misl e Haqiat*

Preparation of Misl e Haqiat is discussed in section 10.3.1

10. *Wajib ul Araz*

Writing of Wajib ul Araz is discussed in section 10.3.1.

11. *Taqseem Parcha Khatoni*

Taqseem Parcha Khatoni is discussed in section 10.3.1.

12. *Tasdeeq Akhir*

Tasdeeq Akhir is discussed in section 10.3.1.

After the completion of Tasdeeq Akhir, data will be handed over to District Administration and will be ready to get live on Service Delivery Center (SDC).

10.4 Data Management

Data management is the compilation and storage of both spatial and non-spatial. All the data collected from field during survey will be compiled at the Settlement Office, which will also be transported to Land Records Processing Unit (LRPU) through secure Virtual Private Network for safe storage as shown in below figure. The data collected from the field may consist of semi digitized data i.e. data in digital form collected through GPS/GNSS devices and manual/textual records. The semi digitized data will be cleaned and post processed after correction of necessary errors and removal of unwanted attributes. This data will be locally stored at each Settlement Office in a work station, which will be accessed by the survey teams and digitizers on a local area network (LAN) for local processing. The Settlement Office will provide all the data processing facilities along with necessary hardware for printing, scanning and sending the final data to LRPU. All the data transmission between the Settlement Offices and LRPU will be protected by firewall at LRPU and a Remote Ethernet Device (RED) connected to DSL to provide secure VPN over internet. The data from all the offices will be accumulated in LRPU and the backup copies of the same will also be created on a backup server. Figure 7 shows the data management and data flow between Settlement Offices and LRPU.

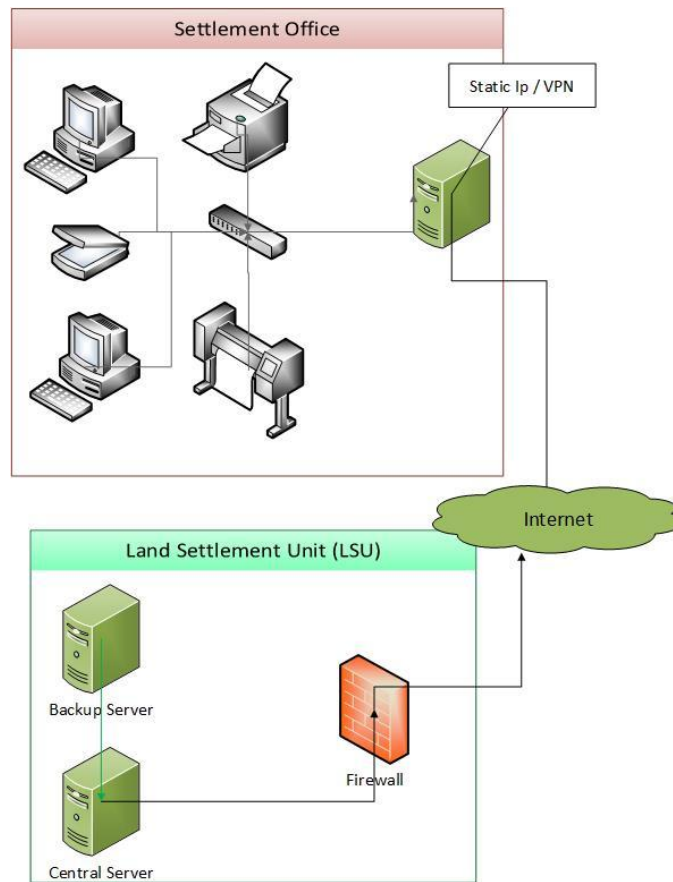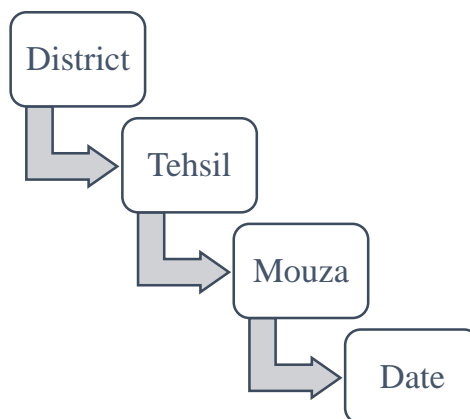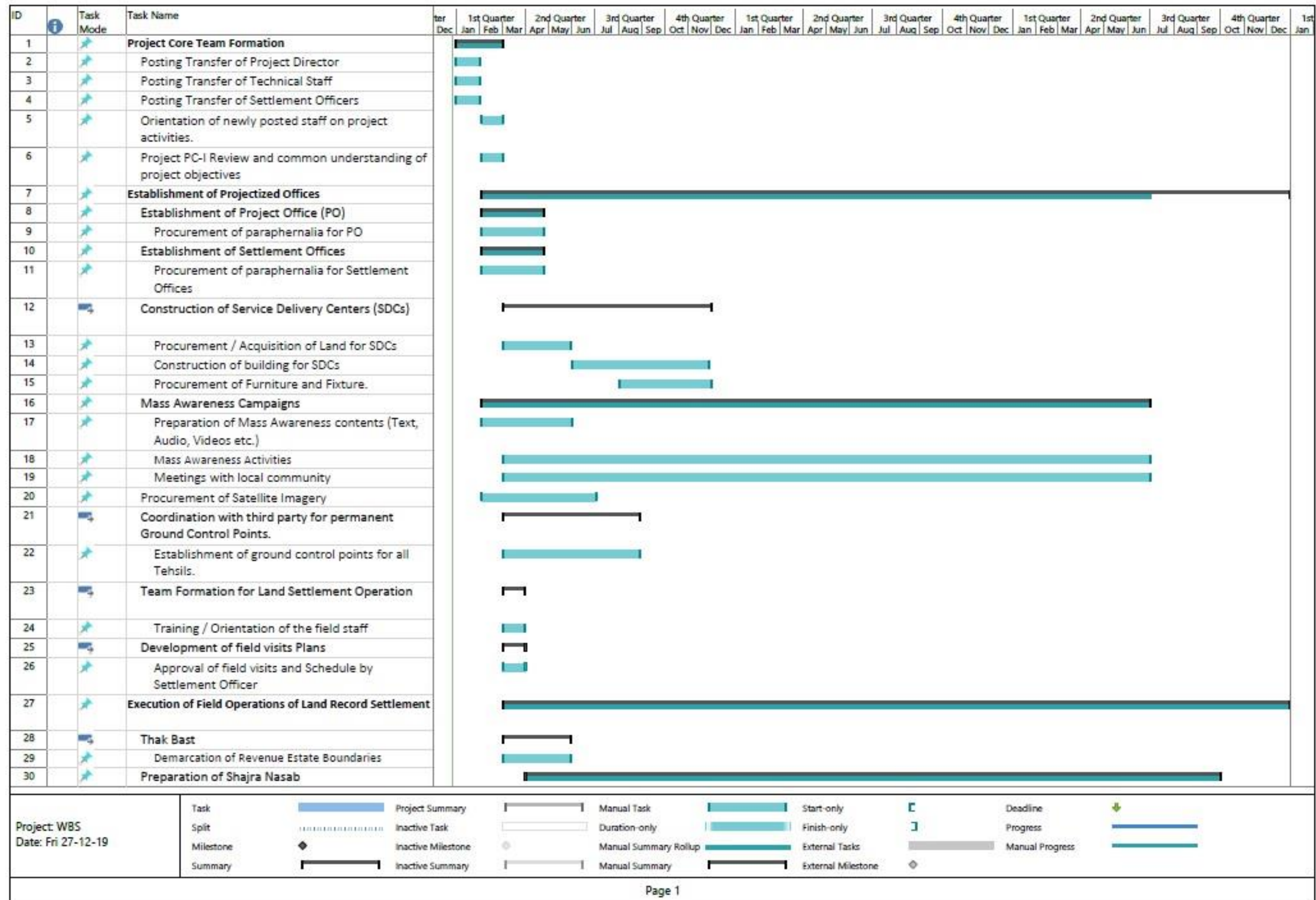*Figure 8: Data Management and Data Flow Diagram.*

Survey data collected by surveyor will be handed over to GIS Associate and will be saved in a proper folder structure which is shown as below. This survey data will be post processed to remove errors and will be plotted on respective Massavi. Processed data will be updated in respective spatial database.

PROJECT WORK PLAN

Project work plan is as below.

ID	Task Mode	Task Name
1		**Project Core Team Formation**
2		Posting Transfer of Project Director
3		Posting Transfer of Technical Staff
4		Posting Transfer of Settlement Officers
5		Orientation of newly posted staff on project activities.
6		Project PC-I Review and common understanding of project objectives
7		**Establishment of Projectized Offices**
8		Establishment of Project Office (PO)
9		Procurement of paraphernalia for PO
10		Establishment of Settlement Offices
11		Procurement of paraphernalia for Settlement Offices
12		Construction of Service Delivery Centers (SDCs)
13		Procurement / Acquisition of Land for SDCs
14		Construction of building for SDCs
15		Procurement of Furniture and Fixture.
16		Mass Awareness Campaigns
17		Preparation of Mass Awareness contents (Text, Audio, Videos etc.)
18		Mass Awareness Activities
19		Meetings with local community
20		Procurement of Satellite Imagery
21		Coordination with third party for permanent Ground Control Points.
22		Establishment of ground control points for all Tehsils.
23		Team Formation for Land Settlement Operation
24		Training / Orientation of the field staff
25		Development of field visits Plans
26		Approval of field visits and Schedule by Settlement Officer
27		**Execution of Field Operations of Land Record Settlement**
28		**Thak Bast**
29		Demarcation of Revenue Estate Boundaries
30		Preparation of Shajra Nasab

Timeline header: 1st Quarter (Jan Feb Mar) | 2nd Quarter (Apr May Jun) | 3rd Quarter (Jul Aug Sep) | 4th Quarter (Oct Nov Dec) | 1st Quarter (Jan Feb Mar) | 2nd Quarter (Apr May Jun) | 3rd Quarter (Jul Aug Sep) | 4th Quarter (Oct Nov Dec) | 1st Quarter (Jan Feb Mar) | 2nd Quarter (Apr May Jun) | 3rd Quarter (Jul Aug Sep) | 4th Quarter (Oct Nov Dec) | 1st (Jan)

Legend:
Task	Project Summary	Manual Task	Start-only	Deadline
Split	Inactive Task	Duration-only	Finish-only	Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone	

Project: WBS
Date: Fri 27-12-19

ID	Task Mode	Task Name
31		Writing of Shajra e Nasab
32		**Khatoni Writing**
33		Writing of Khatoni
34		**Khasra Measurement with the help of GNSS Survey Equipment**
35		Khasra Measurement of individual Khasra boundary
36		**Generation of field book**
37		Preparation of Field Book
38		**Preparation of Massavies**
39		Preparation of Massavi
40		**Preparation of Misl e Haqiat**
41		Preparation of Misl e Haqiat
42		**Preparation of Wajib ul Arz**
43		Monthly Status Review Meeting
44		**Taqseem Parcha Khatoni**
45		Taqseem Parcha Khatoni
46		**Tasdeeq Akhir**
47		**Certificate of Completion**
48		**Go Live**
49		**Monitoring and Control**
50		**Project Review Meeting (PRB) Meeting**
62		Monthly Status Review Meetings
63		Bi-Weekly Review Meetings.
64		Weekly updation of Progress on the M&C Dashboard for the KPI.
65		**Closeout**
66		Mauzas wise Completion Certificate by Settlement officer
67		Handing over / taking over of all land settlement record by Settlement officer and District Administration.
68		Live Services of Completed Services in Service Delivery Center.
69		Update / Maintenance of the digital record.
70		Formal Closure of project
71		Release of project resources.

Project: WBS
Date: Fri 27-12-19

Legend: Task, Split, Milestone, Summary, Project Summary, Inactive Task, Inactive Milestone, Inactive Summary, Manual Task, Duration-only, Manual Summary Rollup, Manual Summary, Start-only, Finish-only, External Tasks, External Milestone, Deadline, Progress, Manual Progress

Page 2

Figure 9: Project Work plan

❖ In case of availability of additional resources, better level of accessibility of the local population and preparedness at the project and departmental level, the project can be initiated in other sub-divisions of the Merged Areas during this project life.

14. Project Benefit and Analysis:

Secure land tenancy and property rights are fundamental to shelter and livelihoods and serve as solid foundation for the realization of human rights and poverty reduction. It enables people in rural and urban areas to invest in improved livelihoods. Secure land rights are particularly important in helping reverse gender discrimination, social exclusion of vulnerable groups and wider social and economic inequalities linked to inequitable and insecure access to land. They also help to promote good environmental management, improve revenue collection, improve food security, and assist directly in the realization of human rights, including the elimination of discrimination against women, the vulnerable, indigenous groups and minorities. It is vital for good governance at all levels as it promotes transparency and accountability in its service delivery in unequivocal terms.

The project is to improve the land records service delivery of the Merged Areas of Khyber Pakhtunkhwa, contributing to long-lasting tenure security and more efficient functioning of land markets, and to establish a basis for comprehensive integration of information associated with rights in land. Parcel information is comprised of the documents, maps, attribute and attribute information that represent rights and interests in land. It includes ownership, legal description, location, and nature and extent of a particular piece of land. Parcel information plays an important role in the economic development of individuals and communities. Parcel information provides a public record of who owns what, where and how much.

Merged Areas needs secure, accessible and authoritative land information to build a successful cadastral system. The benefits of land information systems (cadastral and geographic information systems) are many and varied. In analyzing the benefits, it is best to look at urban and rural areas separately, both of which have economic, social and environmental benefits.

Economic Benefits:

- To reduce time and cost of transaction
- To utilize digital land records data mining for planning and taxation.

- System will support government, private, commercial and civil departments in land revenue, land titles, land holdings, land mortgage and land leasing.

Social Benefits:

- Public access to records through Service Deliver Centre (SDC's) and eventually, the internet via web for basic information.
- Increased access to land records at lower transaction cost for the beneficiary, through a client-responsive service.
- Increased level of tenancy security of land-right holders.
- Definite and secure transactions at mutation.
- Central maintenance of electronic land records and instantly update and backup in secure terminal.
- E-Pass Book and Computerize Fard, Jamabandi and Massavi.
- Efficient and easy searching facilities.
- Land transfer within in a one window operation.
- Get "FARD" instantly without any delays.

Environmental:

- Provide basis for integrated spatial decision support systems. (SDSS)
- Geospatial data created during the project will help in Environmental Impact Assessments (EIA)
- Will help in identification and demarcation of forests, mines and other features.

The overall benefits of modern technology in Land Administration is to design a land system, which will facilitate the land administration process such as:

Land Valuation

- Determining values, objectives and the legal framework in relation to management of land as a legal, economic, and physical object.
- Basis for building sound land administration infrastructures.

Cadastral Systems

- Identification of land parcels and securing land rights.
- Facilitate land registration, land valuation, and land-use control.
- Underpin Sound Land Administration

Land Administration Systems

- Administration of land tenure, land value, land-use, and land development.
- Facilitate efficient land markets and effective land-use management.
- Underpin Sound Land Management

Land Management

- Management of processes by which land resources are put into good effect.
- Facilitates economic, social, environmental sustainability.
- Underpins and implements sound Land Policies

Justification for Land Settlement Special Allowance

Manual procedure of Land Settlement Operations and land records creation is a very complex and time consuming activity, which is going on in District Chitral for the last two decades incurring more than 703 million cost. Utilizing the lessons learnt from settlement operations, Board of Revenue, Khyber Pakhtunkhwa for the first time in history of Pakistan is proposing to execute digital land settlement with latest surveying equipment having GNSS/RTK technology. The overall project methodology has been designed in such a way to maximum utilization of latest technology and Satellite Imagery thus reducing completion time by approximately six folds. The department has completed a dry run of the proposed methodology in a sample Mouza in District Malakand as a pilot with outstanding results having accuracy up to centimeters in Khasra measurement.

The Project needs multi-dimensional Professionals having sound understanding of the latest technology and settlement methodology to execute the project activities in hard and far-flung areas of Merged Areas having volatile law and order situations. In order to attract good human resource and keep them motivated "Land Settlement Special Allowance" is proposed in addition to the project salary on the analogy of Independent Monitoring Unit (IMU) and Performance Monitoring and Reform Unit (PMRU). The overall financial implications of the proposed allowance for seven Settlement Offices and Land Settlement Unit for complete project life (3-Years) is **58.32 million**. Justification for each post is given as below.

S#	Role / Designation	Justification
1	Project Director	The GIS based settlement is out of the box and innovative solution never done in Pakistan before. The project is specialized, unique and significant for Government, donor partner as well as general public to create GIS based settlement records including accurate measurement using GNSS / RTK technology and Satellite Imagery. UNDP proposed salary @ 600,000 per month whereas, this project proposes **'Land Settlement Special Allowance'** @ 160,000 per month in addition to his own salary to attract qualified, professional and experienced officer as per Project Policy.

2	Sr. Manager Operations	The project needs a seasoned officer in the capacity of Sr. Manager Operations having unique multidimensional and multi-sectorial experience to manage the operations of GIS based land settlement project encompassing Planning, Audit & Accounts and Mass Awareness. The said post with specialized knowledge of land settlement and project operations management have high market demand. This project proposes **'Land Settlement Special Allowance'** @ 140,000 per month in addition to his own salary to attract qualified, professional and experienced officer as per Project Policy.
3	Sr. Manager Technical	Designing, developing and installation of centralized Land Records Management Information System (CLRMIS) and ICT Infrastructure for Land Record Processing Unit, needs the services of a senior technical veteran having expertise in similar nature work. The job nature of Sr. Manager Technical is extremely technical, specialized, unique and having very high market value. UNDP proposed salary @ 550,000 per month for similar nature post whereas, this project proposes **'Land Settlement Special Allowance'** @ 140,000 per month in addition to his own salary to attract qualified, professional and experienced officer as per Project Policy.
4	Sr. Manager GIS	GIS is the major operational component of the project which needs a GIS specialist having practical expertise in the use of satellite imagery, GNSS / RTK technology based survey for creation of digitized Massavis (cadastral maps). The expertise in this specialized field are very rare and have very high market value in Pakistan as well as abroad. UNDP

		proposed salary @ 550,000 per month whereas, this project proposes **'Land Settlement Special Allowance'** @ 140,000 per month in addition to his own salary to attract qualified, professional and experienced officer as per Project Policy.
5	Manager Networks	The deployment of state of the art IT infrastructure in Land Records Processing Unit (LRPU) needs a dynamic, passionate and market oriented IT Infrastructure specialist. The market value of IT Professional with such expertise is approximately 250K to 300K. This project proposes **'Settlement Special Allowance'** @ 100,000 per month in addition to his own salary to attract qualified, professional and experienced officer as per Project Policy.
6	Manager Database	The designing, deployment and maintenance of Centralized Land Records Management Information System is a very complex and specialized task, which needs expertise in database as well as Revenue domain. A manager database without expertise in Revenue domain cannot comprehend the complexities involved in the old and manual records of Patwari. Such specialty is very rare and have high demand in market. The market value of IT Professional with such expertise is approximately 250K to 300K. This project proposes **'Land Settlement Special Allowance'** @ 100,000 per month in addition to his own salary to attract qualified, professional and experienced officer as per Project Policy.
7	Senior Planning Officer	Detailed and comprehensive planning is the guarantee for successful project completion. Planning and executing Land records settlement project in merged areas is a very challenging job and needs a dynamic

		and market oriented professional having proficiency in planning, scheduling, budgeting, execution, monitoring and risk management. Such multi-dimensional officers need good compensation to keep them motivated. This project proposes **'Land Settlement Special Allowance'** @ 100,000 per month in addition to his own salary to attract qualified experienced officer as per Project Policy.
8	Account Officer	Sound communication/correspondence between Finance Department, Accountant General office and Project offices is the guarantee for smooth operations of the project. A competent and dynamic AO is required to pursue the project cases at finance for timely releases and AG office for timely expenditure. This will ensure timely expenditure and progress in the project. Therefore, this project proposes **'Land Settlement Special Allowance'** @ 70,000 per month in addition to his own salary to attract qualified and experienced officer as per Project Policy.
9	Assistant Settlement Officer.	Assistant Settlement officer (ASO) is the in charge of settlement operations in each district, who has to mobilize Tehsildars, Girdawars, Patwaris, Surveyors, AM GIS and AM Database for field activities. He also has to monitor and supervise the field staff progress. A revenue knowing officer, who have sound understanding of settlement operations and project management can ensure timely completion of the project. The ASO has a specialized nature job in the hard and remote areas of MAs and therefore this project proposes **'Land Settlement Special Allowance'** @ 100,000 per month in addition to his own salary to attract qualified, professional and experienced officer as per Project Policy.

15. **Certified that the project proposal has been prepared on the basis of instructions provided by the Planning Commission for the preparation of PC-I for Social Sector projects.**

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