

Through this component, the Project aims to develop and maintain the applied software, hardware and communications infrastructure for the Land Records Management and Information Systems (LRMIS). Data/Service Centres will be established at district and Tehsil levels. Data from the District Data Centres will be replicated in the Provincial Data Centre and web access will be established through the Provincial Data Centre.

The project will cover all 36 districts in Punjab over 5 years.

For each district entering the Project, a Memorandum of Understanding (MOU) will be signed between the BOR and district government outlining the responsibilities and contributions of both to project implementation. As part of the MOUs, district government will be required to provide a strategy for provision of premises for the Service Centres.

The Project will implement a programme to scan the Patwari map records: the village map (Sharja Parcha); and supplementary field maps and supplementary field books (Tatima Sharja). A pilot will be undertaken in project year 4 to enhance the mapping component with GIS functionality for two Kanungoi, one in a district under the Kishtwar system of settlement survey and one under the rectangular system of settlement survey.

Two pilot projects have been undertaken in two districts (Rahimyar Khan and Gujrat), with an additional pilot being implemented by the Lahore City Government (Raiwind). All three locations are utilizing the same applied software. In the initial phase of the Project new software with significantly improved functionality will be developed through a competitive process.

LRMIS Software Development & Testing

The development of software to support land records management in Punjab has consistently faced a number of challenges. Although the Land Records Manual sets out standard operating procedures (SOPs) there is considerable variety in the manner in which these SOPs are implemented in practice. The SOPs cover a significant number of mutation types (there are at least 40 types of mutations, most of which can be recorded in various types of transactions). Moreover, the implementation has to be developed in the Urdu language using Nastalique font. The deployment of the pilots in Rahimyar Khan and Gujrat has been on the basis of sole-source from a private company. Under LRMIS the Government chose to conduct a competitive tender

for second generation software that involved contracting with four pre-qualified firms to develop applied software through a competitive process. This sub-component was designed not only to develop robust software through a competitive process but essentially to minimize the risks associated with the process of software development i.e. the possibility that the selected vendor may not be able to develop a robust and secure enough solution. The sub-component was also meant to test data entry procedures. At the end of the software development process, the BOR will have selected a second generation LRMIS application that can be used for the roll-out throughout the province.

1. Software Deployment and Further Enhancement

This component will finance the site licenses, installation, staff training, and maintenance costs associated with deployment and operation of the LRMIS software. The selected vendor will be responsible for:

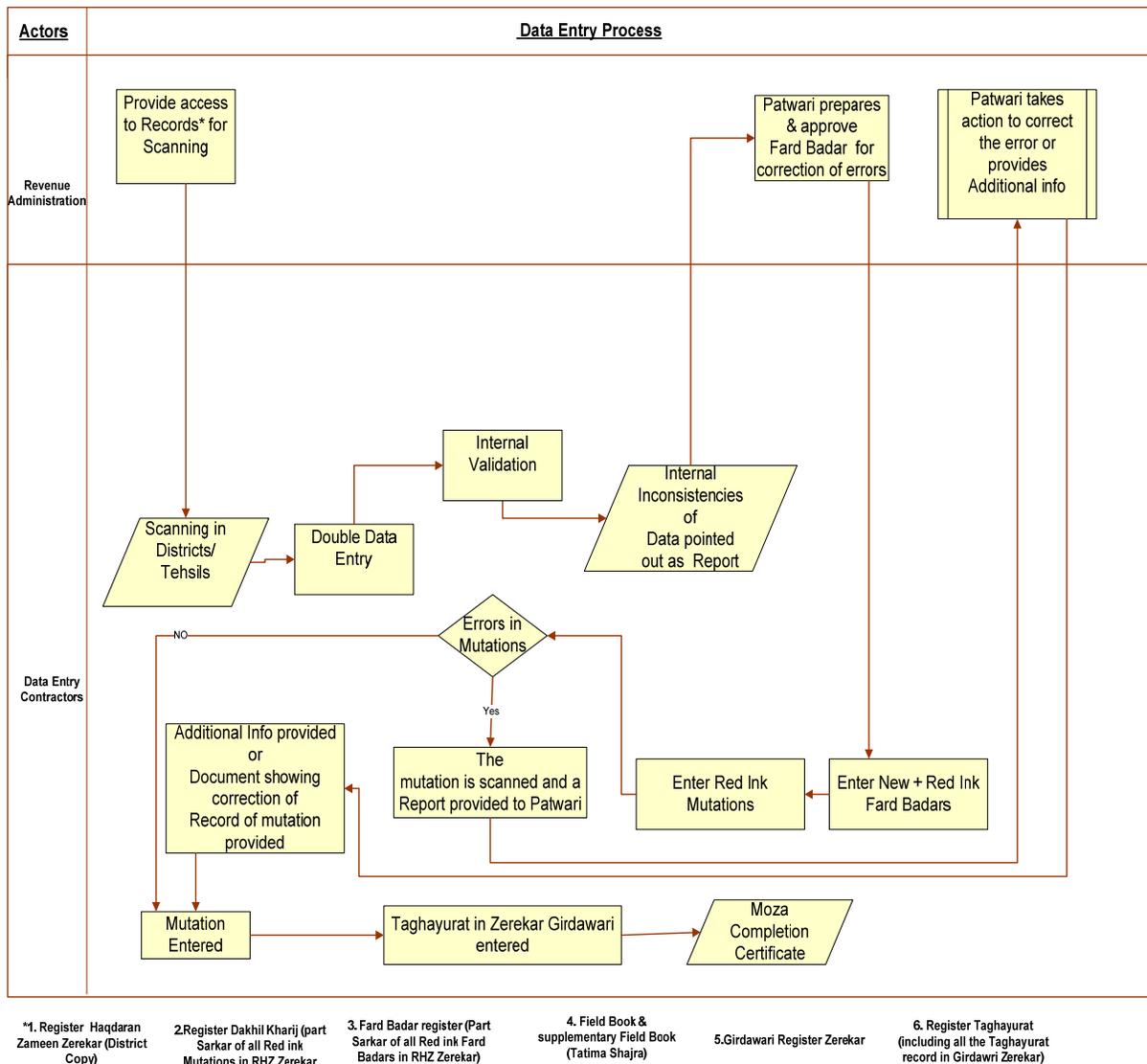
- Provision of distribution packs;
- The initial training of BOR and Service Centre staff;
- On-going product development and maintenance.

The project plans to develop a registration of deeds module at the Tehsil level as an early enhancement of the second generation LRMIS software. This enhancement is planned for project year 3. The implementation of this module will require a detailed study of the legal and institutional issues related to the integration of the two systems and business process re-engineering. A decision will also be needed to be made on the requirements to enter data for previously registered deeds. The software will also undergo further development to allow integration of GIS data associated with the pilot study for spatial data.

2. Data Entry & Validation

Data entry services are a large component of the costs of establishing the automated land records system.

Learning from experience in the pilots and considering the considerably shortened timelines for the extended scope of the project the data entry process has been designed so that the maximum amount of data can be entered and cleansed in the shortest possible time. The major steps of the tentative data entry process have been described in the flow chart below.



Structured procedures and responsibilities for data movement, data entry, verification, correction and validation will be laid down with proper quality control norms, and drawing from international standards (e.g. India). The process, carried out mainly by private vendors, will require the involvement and dedication of selected Revenue staff. After the delivery of databases by the private vendor(s), hard copies of the record of rights will be provided to the revenue staff for validation. Once validated, the manual records and the signed copy of the computer records will be archived in the district office. The computer records will be deployed in the Service Centres as they are installed, with a hard-copy of the computer records provided to the patwari for their records during the transition period. Additional verification of the correctness of records may be done by providing free copies of records to the right/interest holders who will be encouraged to come forward with complaints about errors in record so that these can be corrected.

Once a Service Centre is authorized to begin operation, the computer system will capture mutations and produce fards. For the first 12 months (or less depending on the decision of the Board of Revenue), users will have the option of obtaining fards from either the Service Centre or the patwari. Similarly for the first 12 months (or less depending on the decision of the Board of Revenue) after the Service Centre is opened, the patwari will also be able to initiate mutation requests, but will record these requests at the Service Centre. Once a mutation is approved by the Revenue Officer, the mutation will be recorded in the Service Centre. These transition periods will enable the Service Centre and computer system to gain community confidence. Following the first 12 months (or less depending on the decision of the Board of Revenue) of the operation of a Service Centre, the patwaris in the administrative area served by the Centre will review and certify the existing digital land records and maintenance of the paper-based records will be archived and their further maintenance will be discontinued. After the transition periods have expired, fards will only be available from the Service Centre and the mutation requests will be initiated at the Service Centre with the Service Centre passing the mutation to the patwari. The conversion to the issuance of fards and initiation of mutations only at the Service Centres required changes in the legal framework. These changes have already been enacted through amendments in the Land Revenue Act, 1967.

3. Establishment of Data/Service Centre for the Delivery of Land

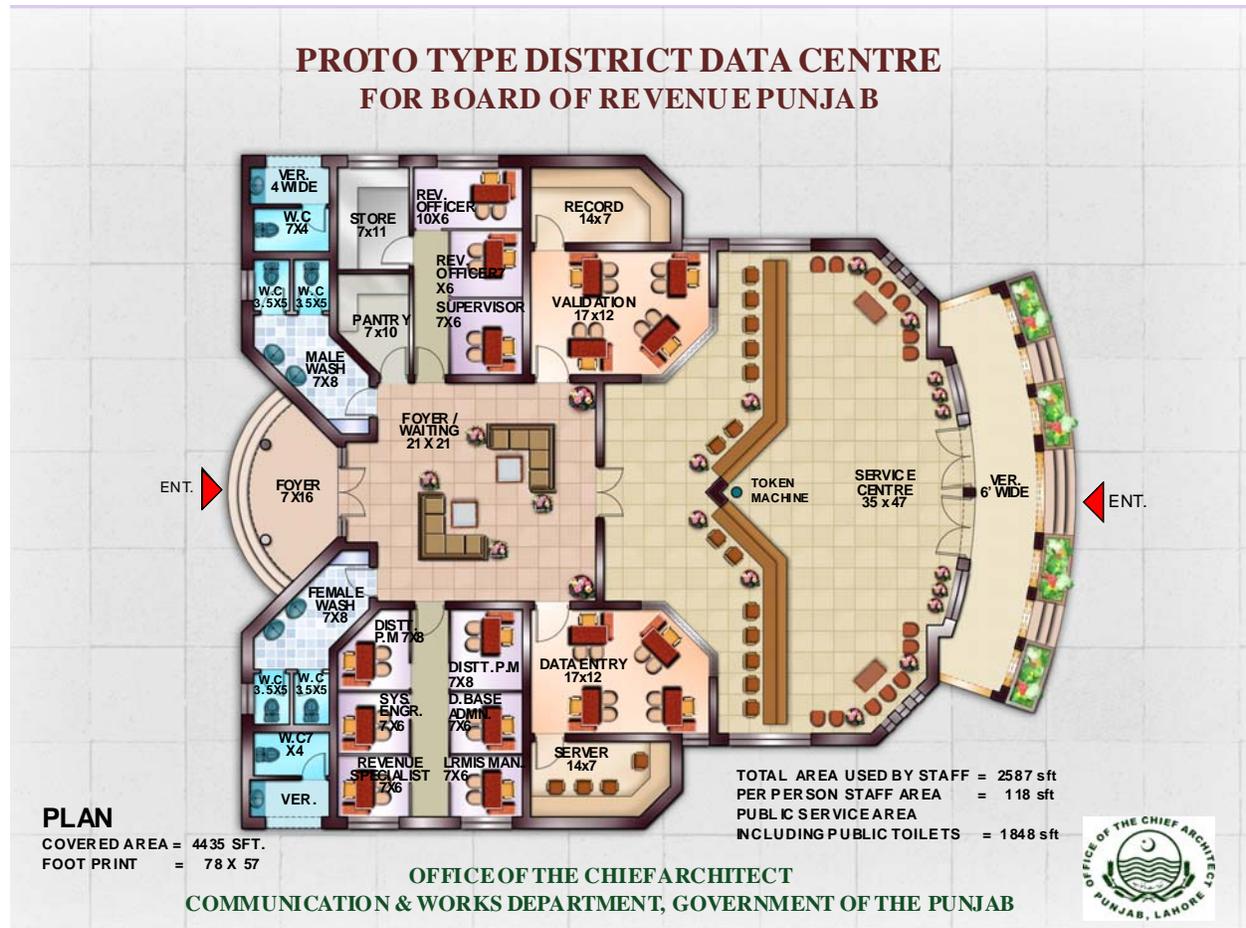
Record Services

Data/Service centres will be established in each Tehsil & Sub-Tehsil (with the headquarter Tehsil centre also serving as the District Data Centre) A Provincial Data Centre will be established that will link all the Tehsil/Sub-Tehsil and District Data/Service Centres and make data available for WEB access. The Tehsil/Sub-Tehsil Data/Service Centres will have on-line connection to the Provincial Data Centre, either through existing networks or through networks established by the Project. This sub-component will finance the goods and equipment required for the Tehsil/Sub-Tehsil and District Data/Service Centres and the Provincial Data Centre. These will be subject to adjustments on the basis of service requirements in each district/Tehsil/sub-tehsil. The service delivery requirements will be established at the time of signing MOUs with the district governments as mentioned in component 3. Web access to the computerized land records will be provided through the Provincial Data Centre.

In land administration systems key determinants for success are accessibility and efficiency. These entail a decision on the level at which services will be provided and the required degree of investment and variable costs. The lower the level at which services are provided, the more convenient it is for users to access the system, but the higher the overall costs as more Service Centres will need to be established and supported. BOR had carefully reviewed this trade-off, and decided to establish the Service Centres at the Kanungoi level. However, when it was decided to extend the scope of the project to 36 districts within the existing timeframe of the project the decision was reviewed in consultation with the World Bank and it has been decided that the Service Centres will be established at the Tehsil/Sub-Tehsil level. The Finance Department has confirmed that the Province is prepared to underwrite the additional cost of operating Service Centres. There are 134 Tehsils and 22 Sub-Tehsils in the Punjab Province. This sub-component will establish Service Centres and modernize the support and supervision levels of the BOR at the Tehsil/Sub-Tehsil level. The establishment of the Project Service Centres entails the construction of offices, the procurement of a standard set of equipment (furniture and hardware). Other parts of the Project will provide support to the Service Centres

in the form of deployment and installation of LRMIS software and the computerized records, training of staff, and comprehensive public awareness and education programs.

The designs of prototype Service Centres to be constructed in the District Headquarters Tehsil and other Tehsils/Sub-Tehsils have been prepared by the Office of Chief Architect, Punjab and are given below.



**PROTO TYPE TEHSIL DATA/SERVICE CENTRE
FOR BOARD OF REVENUE PUNJAB**



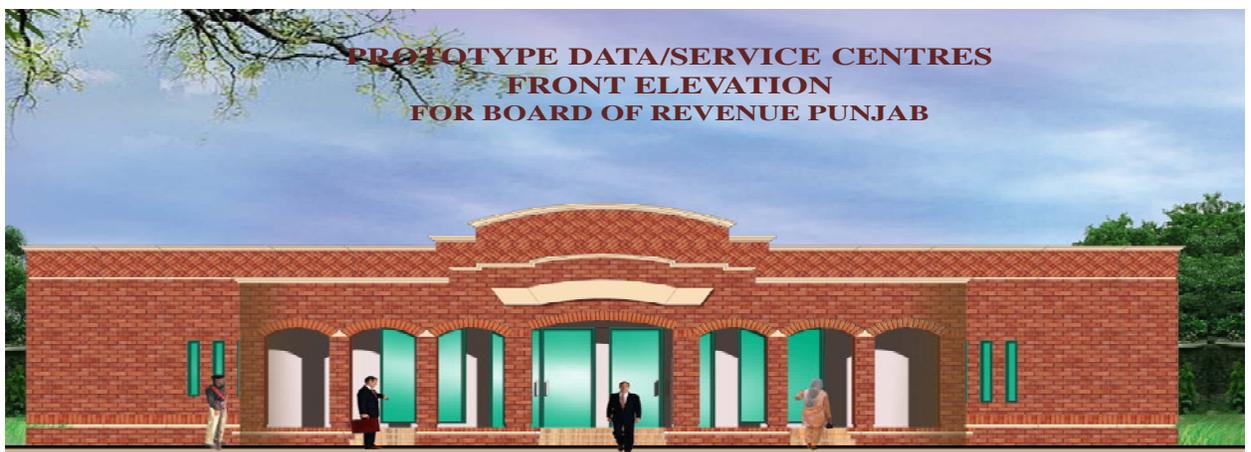
PLAN
COVERED AREA = 3740 SFT
FOOT PRINT = 68 x 65

TOTAL AREA USED BY STAFF = 2150 sft
PER PERSON STAFF AREA = 119.5 sft
PUBLIC SERVICE AREA INCLUDING PUBLIC TOILETS = 1590 sft

OFFICE OF THE CHIEF ARCHITECT
COMMUNICATION & WORKS DEPARTMENT, GOVERNMENT OF THE PUNJAB



**PROTOTYPE DATA/SERVICE CENTRES
FRONT ELEVATION
FOR BOARD OF REVENUE PUNJAB**



OFFICE OF THE CHIEF ARCHITECT
COMMUNICATION & WORKS DEPARTMENT, GOVERNMENT OF THE PUNJAB



Subject to the decision of the Government, maximum efforts will be made to identify appropriate existing government buildings, which can be used as District/Tehsil/sub Tehsil Service Centres with appropriate renovation and/or redesigning and/or addition/alteration. In case such a building can not be identified by the District Government new buildings will be constructed.

Pilot for Spatial Data

The Project will implement a program to scan the patwari map records: the village map (Sharja Parcha); and supplementary field maps (Tatima Sharja). The LRMIS software will have the capacity for the storage of the map records in the LRMIS database and the linkage of the land records to the maps. A pilot will be undertaken in project year 4 to enhance the mapping component with GIS functionality for two limited areas (Patwar Circles), one in a district under the Kishtwar system of settlement survey and one under the rectangular system of settlement survey. High-resolution satellite imagery will be acquired over the two pilot areas. This imagery will be geo-referenced and used as the spatial framework for the GIS pilot. The scanned maps will be vectorised and parcel polygons and topology formed. This data will be referenced to the imagery. The GIS parcel polygons will be linked to the LRMIS land record information. The database in the two areas will be used to investigate the relationship between the information in the land records for ownership (Khewat) and tenancy (Khatuni), and the information in the maps, which is generally based on Khasra numbers. This pilot will investigate the issues involved in moving to a parcel-based land records system, including: the functional specifications and requirements; the procedures to maintain and update the parcel polygons; the procedures to maintain the linkage to the LRMIS land record information; the requirements for business process re-engineering; the requirement for supplementary field surveys; and the resource requirements to support a GIS functionality in a Service Centre, particularly the requirements for staff training.