About Centre for Rural Studies

The Centre for Rural Studies (formerly Land Reforms Unit) of the Lal Bahadur Shastri National Academy of Administration was set up in the year 1989 by the Ministry of Rural Development, Government of India, with a multifaceted agenda that included among others, the concurrent evaluation of the ever-unfolding ground realities pertaining to the implementation of the Land Reforms and Poverty Alleviation Programmes in India. Sensitizing the officer trainees of the Indian Administrative Service in the process of evaluating of land reforms and poverty alleviation programmes by exposing them to the ground realities; setting up a forum for regular exchange of views on land reforms and poverty alleviation between academicians, administrators, activists and concerned citizens and creating awareness amongst the public about the various programmes initiated by the government of India through non-governmental organisations are also important objectives of the Centre for Rural Studies. A large number of books, reports related to land reforms, poverty alleviation programmes, rural Socio-economic problems etc. published both externally and internally bear testimony to the excellent research quality of the Centre.

Centre for Rural Studies
Lal Bahadur Shastri
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EVALUATION OF COMPUTERISATION OF LAND RECORDS IN WEST BENGAL

Manoj Ahuja
A.P. Singh

Preface

The basic system of land records in our country was conceived more than a century ago and has not undergone any modification to keep it in tune with today's requirement. The inadequacies of the system have been blamed for the failure of land reforms, the excessive amount of land disputes that are clogging the country's court systems, and even slow economic growth.

In 1988-89 the Ministry of Rural Development (MoRD), Government of India took an initiative to identify the deficiencies in the existing system of land records and to address them. One of the methods identified for addressing the deficiencies was to use information technology. MoRD has provided substantial resources to the states for Computerization of Land Records (CoLR). The CoLR scheme has involved three different agencies: the National Informatics Centre (NIC); the MoRD; and the State governments. NIC is responsible for upgrading its district centers with the latest hardware, software, terminals, and printers to expedite the work of data entry. It is

also responsible for creating the software packages and providing training on the software to revenue officials. MoRD provides financial support to the states for site preparation, data entry work, purchase of capital equipment, and other miscellaneous expenditure. The state governments are responsible for data collection, data verification and validation, interfacing with NIC to ensure proper development of software and distribution of the new records of rights to landowners.

Computerisation of Land Records in West Bengal started in the financial year 1990-91 when the first pilot project was initiated in Burdwan. In 1993-94, the scheme was extended to Jalpaiguri, Hugli and Nadia districts. The project of CoLR was started in Howrah in the year 1994-95. In 1995-96, the project was sanctioned for the districts of Darjeeling, Malda, Birbhum, Bankura, Medinipur, Tamluk, 24-Parganas (North), and 24-Parganas (South). By 1996-97, the scheme of computerisation of land records was sanctioned for all remaining districts in the state of West Bengal. As per the information of State government, the scheme has been operationalised in all blocks. The

computerized certified copies of RoR are being provided to farmers in these blocks.

Ministry of Rural Development, Government of India, entrusted an assessment study of Computerisation of Land Records in West Bengal to Centre for Rural Studies, Lal Bahadur Shastri National Academy of Administration, Mussoorie. In this respect we carried out our survey in Hooghli, Nadia and Burdwan districts and six blocks were covered. The basic objective of the study is to evaluate how CoLR has affected the information system, rent seeking behavior, the institution of sale and purchase, whether it has led to any decline in conflicts within society and to see if there have been any improvements in land record management. This study has used a structured questionnaire method to evaluate the impact of the programme for the different indicators. The present study begins with a brief overview of the CoLR programme in India and West Bengal. In the second section of the study, we take a look at the characteristics of "Bhumi" based on the information gathered during field study. The third section of the study deals with the methodology adopted for the selection of villages. The fourth section describes in detail the findings of the field

study carried out in some selected villages of surveyed districts. The fifth section deals with recommendations for consideration.

We consider this evaluation study to be a significant exercise for the Computerisation of Land Records (CoLR) programme, entrusted to the Centre for Rural studies by the Department of Land Resources, Ministry of Rural Development, Government of India. Our sincere gratitude goes to Shri S.D. Meena, Director, Land Reforms, Department of Land Resources, Ministry of Rural Development, Government of India, for the support extended to us. We also acknowledge the help rendered by Shri S.K. Narula, Research Officer, Department of Land Resources, Ministry of Rural Development, Government of India.

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We acknowledge the help and cooperation rendered by Shri D. K. Chaudhary, Director of Land Records and Surveys, Government of West

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Manoj Ahuja
A.P.Singh

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Chapter 1
Introduction

Preamble

Computerisation of Land Records (CoLR) is a programme that aims at implementing e-governance at the grass root level within the domain of land management in India. One of the major drawbacks in the land management system in India is the opaque, slow moving and corruption ridden methodology for the maintenance of land records.

The data concerning land records in India can be broadly classified into two categories- spatial and non-spatial or attribute data. The spatial data consists of maps of each plot and non-spatial data consists of details about ownership, size of plot, rent payable, irrigation status, crop status etc. Through this programme, it is expected that the government can reach out to the rural population specifically and provide better services in terms of efficiency, time, transparency and reduction in corruption. Once the land management system is responsive and transparent and defines property

rights correctly, it will ensure good governance in one of the most significant sectors of the Indian economy. It may also have spin-offs in improved land productivity by removing asymmetric information in land rights.

In our country, land ownership is in the name of individuals and not the state. In 1985, it was resolved at the Conference of Revenue Ministers to take up a project to computerise land records on a pilot basis. Thus a centrally sponsored scheme on CoLR was started in 1988-89, with an intention of removing problems inherent in the manual system of maintenance and updating of land records, to meet the requirements of various groups of users. It was decided that efforts should be made to computerise core data contained in land records, so as to assist development planning and to make records accessible to people/planners/administrators. The focus here was on computerisation of non-spatial data.

When the scheme was reviewed in 1993-94 it was observed that states were finding it difficult to sustain the project due to non-availability of skilled manpower, hardware maintenance, etc. Therefore, it was decided to use NIC's

infrastructure and network. NIC upgraded its district centres with the latest hardware and software and states were requested to allocate one room near the NIC district centre to start data entry operations. The Ministry of Rural Development (MoRD) & NIC are collaborating in the implementation of the scheme.

The focus of the entire operation has always been to employ IT to transform the existing land record system of the country, thereby ensuring an efficient, accurate and transparent delivery mechanism and conflict resolution in ownership. The key features are the availability of an electronic land record to land owners at nominal rates, information empowerment of land owners, low-cost and easily reproducible data for reliable and durable preservation, value addition and modernisation in land administration and integration with other data sets for comprehensive listing.

The manual system of land records in the country is an age-old system and each state has its own specific way of maintaining records. There are several traditional ways of transfer and recording of ownership of lands. These transfers should

rightly represent shares and inheritance. Each plot is assigned a particular identity number, for which particulars of owners and respective shares are recorded in actual fractions. For assessment of tax, land categories and crop-related details are also recorded. Village officers are supposed to update these records every harvesting season.

Once the transfer has been properly notified it should be duly registered. But in actual practice, the system has not been duly adhered to and thereby, in a majority of cases, the village book that records the transactions is the only document with legal standing. Every owner is given a reference map depicting the boundaries and location of plots. An ownership document and a document containing physical details of the land are also given along with this, referred to as Records of Right (RoR).

In order to develop appropriate software, the Land Records Information Services(LRIS) division of NIC carried out a detailed system study for the existing manual set-up in 17 states. It was noted that these systems were similar to the extent of 60-70 percent in functionality, projecting a requirement for customisation. It was decided

that initially only attribute data would be converted into electronic formats. For this purpose, a data entry module was developed in DOS(Disk Operating System) or a Unix/Foxbase environment. The subsequent and mandatory requirement was to provide for data updates, data verification and validation. To facilitate all these operations, NIC equipped its district centres with appropriate hardware and software. With consistent efforts on the part of NIC officials, most states could successfully complete this stage.

By this time, technology had changed considerably and a requirement to capture all functions in the workflow in a GUI (Graphic's User Interface) environment surfaced. Thus the operation came face-to-face with the usual problems of change management, configuration management and technology obsolescence. Porting of data for more than 5,000 talukas posed yet another challenge. Subsequently the Central and state units developed a new system comprising RoR, mutation (change in ownership either through mutual understanding (sale/purchase) or a court order), a customised query module and several utilities for data porting, validation and verification on the windows platform.

NIC is extending technological support towards operationalisation at the taluk level. Implementation of such a large system in terms of number of sites and related non-technical issues could be no less than solving a tough puzzle. Notwithstanding these issues, the distribution of computerised record of rights to the public is possible in quite a few states.

As of now, the CoLR project is being implemented in 569 districts out of about 599 districts in the country. Ministry of Rural Development, Government of India, has provided around Rs 4 lakh per tehsil/taluk for installation of hardware and software in 2,426 tehsils/talukas out of about 6,000 in the country. Since inception, MoRD has released financial assistance of about Rs 215 crore for computerisation of land records to the states. Some of the major states where work is in progress are Goa, Karnataka, West Bengal, Rajasthan, Gujarat, Tamil Nadu, Sikkim, Orissa, Andhra Pradesh, Haryana, and Madhya Pradesh.

Ministry of Rural Development, Government of India, entrusted an assessment study of Computerisation of Land Records in West Bengal to Centre for Rural Studies, Lal Bahadur Shastri

National Academy of Administration, Mussoorie. The Directorate of Land Records in West Bengal has computerized 94 per cent of the 367 lakh land records for 35077 mauzas (revenue villages) of 341 blocks. A printed copy of RoR can be obtained from block office after paying a prescribed fee. The state government legally abolished all handwritten records after the implementation of this project. In this respect we carried out our survey in Hooghli, Nadia and Burdwan districts and six blocks were covered. The summary of our findings is as follows:

After the field study, we found that the State has not fully succeeded in achieving the objective of creating a clean , upto-date database till date. CoLR in West Bengal has only replaced a hand written RoR with a computer printed RoR. The CoLR project was expected to speed up delivery of RoRs without delays, harassment or bribery. But after the field study of the state, we found that delivery of RoR is still not a hand-to-hand service. The farmer first submits application with a fee in the form of revenue stamps to block office. After the submission of application, the farmer is able to get computerized RoR in a period ranging from 1 day to 30 days. Clearly it indicates that farmers

are not getting computerized RoR without delay. The system of issuing computerized RoRs is the same as manual; therefore it is difficult to say that delivery of RoR is free from harassment and bribery.

Bhumi software in West Bengal provides for printing of land records and updates database in offline mode. This makes the database lag behind the actual changes in the records and therefore of not much use. Security is provided by the traditional password system, which is prone to hacking. Recently, the state introduced online mutation but its implementation has still not taken place in a satisfactory manner.

The first version of Bhumi software was developed by NIC, West Bengal State Unit in 1989, which has been continuously upgraded till date. The software went through as many as 9 versions of development before a GUI version was developed by the NIC. There have been ten upgraded versions of the Bhumi in West Bengal. Bhumi software is in operation at block computer setup at BLLRO(Block Land & Land Reforms Office). In West Bengal, majority of the block offices consisted of DOS system till now. A few block offices have GUI

software Bhumi 2000. The DOS version has been written in Fox Base Software, a third generation programming language. There is no data security in the Fox Base based software package. As the data is highly valuable it should be made tamper proof and free from unauthorized access.

The problem of regular power supply is very much prevalent in West Bengal and this has caused problem in issuing RoR to farmers. A UPS (Uninterrupted Power Supply) with only 10 minutes power back is not sufficient to deal the problem of power failure. Therefore, it is necessary to replace these UPS with some other back up system or generator. There is very poor infrastructure in some of the blocks. Many of the buildings are in bad shape and require repair.

The lack of computer literacy among the Land & Land Reforms office staff has been a major challenge. Only 350 Revenue officers have been trained. Since only one revenue officer had received computer training, his going away led to delays for the farmers. Therefore, more number of revenue official should be trained for the computerized system in phases.

CoLR will definitely result in easy availability of data for planning process. Conversion of this land records data into digital form will make it easy to review, collate and analyze for various administrative and planning purposes.

Finally, we can say that, though a lot of work has been done for CoLR in West Bengal, there are still deficiencies in the system, which need to be addressed to make this programme useful and beneficial to the citizens. Unless the database of land records related information is updated concurrently with a mutation order, the database loses relevance, as it does not reflect the current reality. Therefore, the mutation process has to be made online alongwith imparting training to the concerned staff, ensuring proper security mechanisms and providing the necessary infrastructure.

Introduction

Computerisation of land records in West Bengal started in the financial year 1990-91 when the first pilot was initiated in Burdwan through a centrally sponsored scheme of Computerization of Land Records (CoLR). By 1996-97, the scheme of

Computerisation of Land Records was sanctioned for all remaining districts in the state of West Bengal. Now, as per the information of State government, all blocks of the State have been operationalised but the State has not fully succeeded in achieving the required objective of creating a clean, upto-date database till date.

History of Land Records System in West Bengal

After getting the Diwani of Bengal along with some other provinces in 1775 , the East India Company tried to retain the Mughal system of apportioning a certain portion of the produce of land through local agents, therefore , they tried annual and quinquennial settlements of land revenue. Meanwhile a great famine played havoc in Bengal and it was soon realised that some thing permanent should be done to reorganize the agrarian sector about 1/3rd of which was obliterated by the great famine. The revenue collection also fell short of the requirement of the company. The Committee of the revenue originally set up by the Supreme Council in 1772 was reorganised in 1781. In June 1786, the committee was reconstituted under the

designation of the Board of Revenue, which still continues.

Meanwhile, the Pitt's India Act 1784 ordered an enquiry on the complaints of land holders who were dispossessed of their landed properties due to arrears of revenue and issued a directive to the company to frame rules of rents and services. While the East India Company was busy in finding a solution to the burning problem of land revenue administration, Major James Rennell had started a survey of a vast area of this state and published the maps in 1780 and 1781.

Rennels survey was chiefly historical and in the absence of any other survey these maps were made use of for revenue purposes. Revenue enquires were made from 1786 to 1789 and a decennial settlement was made in 1789 with the landholders. This settlement was made permanent under the permanent settlement regulation 1793. The system thus introduced, remained the major framework of land revenue administration till the coming into force of the West Bengal Estates Acquisition Act of 1953. Under the permanent settlement a class of persons, known as proprietors, was created and the Government fixed revenue payable by them in

perpetuity. This settlement ended all contacts not only with the Zamindars but also with the raiyats and the actual tillers of the soil. The landlord and his underlings could do as they liked so long as the landlord paid revenue to the Government on due dates.

The British Government ultimately realised the deleterious effects of permanent settlement on the raiyats. The administrators addressed themselves to the problems of the peasantry of Bengal and this new development led the government to enact the Regulation of 1822. These regulations could only provide some fringe relief to the poorer class of tenants. There were no authentic records regarding the status of tenants and the maps. The dangers of the situation and the urgency of the need for remedial legislation led to the taking of an effective step in 1859. The main provisions of the Rent Act of 1859 were to safeguard the rights of the raiyats. But those were not found to be adequate. As a result the Rent Law Commission was appointed in 1879 to prepare a digest of existing laws and to draw up a comprehensive bill. This bill ultimately ripened into Bengal Tenancy Act of 1885. The Act empowered

the Government to make cadastral survey with preparation of village or mauza maps.

There is a separate land records directorate headed by the Director, Land Records and Survey who is also Joint Land Reforms Commissioner. He is assisted by a Joint Director Land Records, four Deputy Directors, four Assistant Directors and other office staff. In order to expedite updating of land records, the Government of West Bengal has merged the survey and the district land revenue wings. Below the state level headquarters, there is an ADM rank officer who looks after both the land reforms and survey work. Below him is the Sub Divisional Officer who looks after the same work at his level. At the fourth level is the Block Land Reforms Officer who looks after both the preparation and maintenance of land records. The lowest level revenue functionary is the Revenue Inspector who functions at the Gram Panchayat level and is assisted by one Amin and Bhumi Sahayak.

Land records in West Bengal consist of a Khatian (Records of Rights) and a cadastral map of the area to which the Khatian relates Records of land ownership are required to facilitate sale and

inheritance, or to provide proof of ownership to avail credit.

Khatian's are prepared in a number of stages which are known as Khasra enquiry, Khanapuri, Bujharat, Attestation, Hearing of Objection and final publication. To start with the particulars of a plot such as standing crop, name of owner etc, are recorded on a sheet of paper known as Khasra. Simultaneously all the relevant particulars are put on the Khatian form and this process is known as Khanapuri . The Khatians so prepared are again subjected to further check in the field by examining the persons concerned. The process is known as Bujharat. The records so prepared are known as parcha in common parlance are then distributed to the person concerned and these records are then processed through attestation where the revenue officer designated as an attestation officer puts his signature and stamp on the draft khatian. The attested khatian is then put into draft publication inviting objections. Objections in the form of petitions received are then heard and the records are corrected again on the basis of orders passed by the objection officers. After this the Khatian receives the final shape, and is finally published and printed.

Cadastral maps are also prepared in a number of stages. The general name of the process is known as Kistwar and it starts from a traverse survey. Traverse survey means fixing of some points on the ground after determination of the positions of these points. These points when joined give rise to an irregular geometric figure, which is then divided into quadrilaterals. Straight lines known as chain lines are drawn from point to point in the quadrilaterals and all features of actual plots on the right and left of straight lines and of the plots which are cut across by the chain lines are measured and plotted on the map which when joined show the detailed configuration of the plots in the field. Plots are then given serial numbers in orderly fashion for identification.

CoLR related Land Laws

The West Bengal Land Reforms (WBLR) Act is primarily related to the Land Records of West Bengal. There are some Acts, which are specifically made to maintain the dynamic character of the Land Records.

The Land Records in West Bengal are formed through KB i.e. Khanapuri Bujharat u/s 50 of WBLR

Act which is followed by Attestation (u/s 51), Draft Publication (u/s 51A), Objection hearing of Draft Publication petition [u/s 51A(1)], Final Publication [u/s 51A (3)], Objection hearing of Draft Publication petition [u/s 51A(4)]. The records may be corrected/ modified u/s 51B and 51BB before or after the final publication of Records of Rights.

After this stage, normally the records are corrected through the process of Mutation u/s 50. The classification of a plot is changed/ modified/ corrected by means of the process of Conversion u/s 4(c). The patta is granted to a farmer u/s 49 and Barga (Tenancy) is allowed u/s 21(d) but the record should be corrected under any of the above mentioned section i.e. under Section or Subsections of 50 & 51. And lastly a new subsection 50(2) has been added to the WBLR Act to empower the Revenue Officer to preserve the hand written mother copy of RoRs after activating the computerised one.

Power and Function of Personnel before and after Computerisation

The power and function of the personnel especially in terms of computerisation of land records is clearly mentioned in the WBLR Act. Only the Revenue Officer has the power to correct/modify the land Records. He is also responsible to fix up the rent of a particular khatian. Presently, after computerisation the software prepares the land records and determines the rent automatically but the data should definitely be authenticated by a Revenue Officer of the respective block. No change in powers has been found after computerisation, except the new power given to the Revenue Officer u/s 50(2) to preserve the hand written mother copy of RoRs. No power is vested in any other person like Patwari/Revenue Inspector/Village Accountant etc. to issue, correct or modify the RoRs.

CoLR In West Bengal

Computerisation of Land Records in West Bengal started in the financial year 1990-91 when the first pilot was initiated in Burdwan through a centrally sponsored scheme of Computerization of Land Records (CoLR) as a first step in the district of Burdwan. In 1993-94, the scheme was extended to Jalpaiguri, Hugli and Nadia districts. The project of CoLR was started in Howrah in the year 1994-95. In 1995-96, the project was sanctioned for the districts of Darjeeling, Malda, Birbhum, Bankura, Medinipur, Tamluk, 24-Parganas(North), and 24-Parganas(South). By 1996-97, the scheme of Computerisation of Land Records was sanctioned for all remaining districts in the state of West Bengal.

As per the information of State government, the scheme has been operationalised in all blocks. The computerized certified copies of RoR are being provided to farmers in these blocks. The following table shows the district-wise physical progress of the State on CoLR Scheme upto December,2002.

Table - 1.1
District-wise Status of CoLR Programme

Sl. No.	District	No. of Blocks	No. of Blocks Opernation-alised	No. of Mauzas			Revenue Earned (in Rs.)
				Total	Attested	Corrected	
1.	Burdwan	31	31	2826	2821	2625	534818
2.	Jalpaiguri	13	13	743	730	660	12815
3.	Hugli	18	18	1999	1999	1999	1066875
4.	Nadia	17	17	1406	1406	1404	1335410
5.	Hawrah	14	14	936	836	730	909287
6.	Darjeeling	12	12	615	613	611	317069
7.	W. Medinipur	24	24	8820	8810	7516	653460
8.	Murshidabad	26	26	2290	2290	2269	1605500
9.	E.Mednipur	30	30	3199	3199	1942	1024535
10.	Malda	15	15	1814	1812	1642	114630
11.	Birbhum	19	19	2493	2493	2491	715153
12.	Bankura	22	22	3847	3844	3843	838779
13.	N.24 Pargana	22	22	1829	1776	1586	1489355
14.	S.24 Pargana	29	29	2292	2238	1492	487776
15.	Koochbehar	12	12	1170	1170	694	168674
16.	D.Dinajpur	8	8	1646	1646	1646	128113
17.	U.Dinajpur	9	9	1516	1510	1043	117255
18.	Purulia	20	20	2700	1618	884	2292
TOTAL		**341**	**341**	**42041**	**40811**	**35077**	**11521796**

The Directorate of Land Records in West Bengal has computerized 94 per cent of the 367 lakh land records for 35077 mauzas (revenue villages) of 341 blocks. Records of rights are required to facilitate sale and inheritance or to provide proof of ownership to avail credit. Upon sale or inheritance of a land parcel, requests to alter land records had to be filled with the Revenue Inspector or directly with Revenue Officer. Previously, farmers had to seek out the Revenue

Inspector or Revenue Officer to get a certified copy of the RoR. There were delays and harassment. Bribes had to be paid. The RO/RI could afford to ignore or delay action on these "mutation" requests and delay the requests for certificates. Land records in the custody of RO/RI were not open to public scrutiny. Over time, several inaccuracies crept into the old system through improper manipulation by the RO/RI. In practice, it could take 1-2 years for the records to be updated. The time to provide RoRs used to take 30 days to 90 days depending upon the importance of the record for the farmer and size of the bribe.

Therefore, the Directorate of Land Records, started computerisation of land records in the district of Burdwan in 1990-91 with cent percent financial assistance of Ministry of Rural Development, Government of India. Now, the scheme is being implemented in all districts of the State with the following objectives:

(i) To facilitate easy maintenance of Land Database and updation of changes in land database on account of legal changes like transfer of

ownership, partition, land acquisition, etc.

(ii) To provide comprehensive security to make land records tamper proof.

(iii) To provide certified copies of land records to the land owners (raiyats) quickly and at cheaper rates.

(iv) To facilitate preparation of annual set of records for recording details such as land revenue, cropping pattern, etc.

(v) Sharing of Land Records Database with other Departments to facilitate planning in the area of infrastructure development, agricultural census and implementation of development programmes.

In addition to fulfill the above-mentioned objectives, West Bengal government has taken up a pilot project to integrate CoLR with Registration Department at Rajarhat, District 24- Parganas

(North). The project is in the last stage of completion.

One Touch Screen Kiosk has been installed at Thakurpukur Metiabruz (TM) block , Kolkata for providing land record information. A farmer will be able to operate this kiosk himself or herself. The farmer has to feed a khatian number and after that can view his/her land record. The Touch Screen Kiosk is very easy to operate and a farmer with minimum education can operate it.

Touch Screen Kiosk

Chapter II
Characteristics of Bhumi

The first version of Bhumi software was developed by the State unit of NIC, in 1989, which has been continuously upgraded till date. The software went through as many as 9 versions of development before a GUI(Graphic's User Interface) version was developed by the NIC. There have been ten upgraded versions of the Bhumi in West Bengal. Bhumi software is in operation at block computer setup at BLLRO office. In West Bengal, majority of the Block offices consist of DOS system till now. Very few block offices have GUI software Bhumi 2000. The DOS version has been written in Fox Base Software, a third generation programming language and the package was known as UDENT01, UDENT02, (in UNIX operating system) DDENT01, DDENT02, DDENT03 AND DDENT04 (in DOS). There is no data security in the Fox Base based software package. As the data is highly valuable it should be made tamper proof and free from unauthorized access. Latest version of that package is with following facilities:

- Preparation of a new khatian
- Modification of Records
- Preparation of Plot Index
- Indexing the Records
- To make a Check list of defective records
- Printing of one or more successive khatian

There is a Report generating section in that package which has the facilities to generate a report on

- Plots which are possessed by a particular type of possessors
- Bargadars
- Raiyat's name, address and khatian number
- Khatians where a particular section of WBLR Act is applicable
- Classification-wise plot number with land area
- Khatians with slab-wise land area
- Pattadar
- Sebait
- Motoali
- Trustee
- Total number of Khatians/Plots and area

Apart from this some more reports are generated by making some subsidiary programmes using the dbf files according to demand.

WINDOWS based BHUMI programme has been setup using Client/ Server architecture. It uses Relational Data Base Management (RDBMS), Microsoft SQL Server 7.0, as a back end tool to maintain the data. The front end GUI based software is developed using Microsoft Visual Basic 6.0 for effective transaction processing. That package gives the same facilities as the earlier software alongwith some additional ones. The additional facilities include the ONLINE and OFFLINE operation and PASSWORD facilities for data security. SQL server machines have been supplied for BHUMI operation and accordingly the database structure has been changed. The Report Generation Section has been made more powerful and one can generate the report of the whole block/village at a time within a few seconds. The general features of Bhumi are as follows:

(i) The software is in local language (Bangla).

(ii) Various analytical reports can be generated in text format.

Site preparation is also not good in case of some of the blocks. In a few blocks computer rooms are damp. This could cause damage to the computer machines. Hence, there is a need to ensure proper rooms for keeping the IT infrastructure. The dampness caused failure of RAM etc. in some of the blocks. Therefore, the computers should be shifted to proper rooms having all necessary facilities.

Presently, in West Bengal data backup is taken weekly, fortnightly and monthly from the block usually in a floppy. Recently in some cases, CD-ROM's have been used for storing back-up data. That backup is sent to the sub division and district office and also to the Directorate at Survey Building, Kolkata for storing it in Server of the Directorate. It is necessary to take daily back up of data in DAT or in CD-ROM when changes to the database are being made on a daily basis.

The software does not have inbuilt workflow automation, where transactions move from one personnel to another revenue personnel on the system itself.

Chapter III
Methodology

Objectives of the Study:

1. To examine the extent and impact of Computerization of Land Records on revenue administration and cultivators.

2. To examine the ease and speed with which the cultivators are able to obtain the land records and the procedure for the same.

3. To examine the human resource development, capacity building and awareness generation taken up for the implementation of the programme, and the adequacy of the same.

4. To examine the procedure for making mutation and the time taken for the same.

5. To study broadly

   (a) the hardware and software utilised for the computerization of land records

(b) the methods of maintenance of the same
(c) the measures for security and preservation of the data stored in the computer;

6. To examine the changes necessary in existing legal provisions in the revenue laws.

7. To examine the extent to which the data generated through the computerized Land Records system is helpful in planning and decision-making.

8. To find out the extent to which:

   (i) CoLR has reduced and changed the workload of the revenue functionaries.
   (ii) It has minimised the possibilities of interpolation of land records and rent seeking behaviour.
   (iii) A comprehensive database on various facets of land is available for helping in land reforms.
   (iv) The system has cultivated a sense of awareness among the cultivators and prompted them to exercise their rights.
   (v) The support extended or resistance by various official agencies and other interest groups for effective operationalisation and functioning of the system.

Sample and Sampling Techniques

For the sample of farmers, stratification was done at two levels: districts and blocks. Three districts were purposively selected: Hooghly, Nadia and Burdwan. Two blocks were selected through random sampling. These blocks are : Mogra Chinsurha, Polba Dadpur from Hooghly, Chakdah and Nakashipara from Nadia and Burdwan-I and Khandaghose from district Burdwan. At the block level, the villages have been selected based on the distance and size as the criterion in order to minimize spatial bias. The villages, which were located far off, midway and near to the blocks, were selected for the study. The respondents were selected by using stratified random sampling. We considered block as a sample unit for the purpose of study. 35 respondents were interviewed from every selected block. A total of 210 respondents were interviewed. The interviews addressed the following:

(i) General Awareness of Computerisation
(ii) General Benefits accruing from Computerisation
(iii) Rent Seeking Behavior
(iv) Reduction in conflicts/ disputes after computerisation
(v) Facilitation in Availing Institutional Finance
(vi) Facilitation in Mutation.

Ten structured interviews were carried out with officials implementing computerisation of land records.

Hypothesis

The hypothesis that has been taken for this study is that many problems in rural areas arise because of contracted information flow. The lower level revenue officials exercise monopoly custody over the land revenue data and hence they control the information flow. There is a price attached to information. It also gives rise to conflict over land. Restricted flow of information further gives rise to distortions in transactions and provides space for rent seeking behavior. This raises the transactions cost in society, the burden of which

falls mainly upon the poorest of the poor. The primary assumption has been that once the information flow is enhanced the extent of problem is going to be reduced. This will bring down the transaction costs, thereby also reducing the rent seeking behaviour on part of officials and others. Based on this hypothesis, the following indicators have been adopted for impact evaluation:

1.Enhancement in Information Flow

The first and the principal objective of the study has been to find out to what extent information flow has been enhanced by CoLR.

2. Decrease in Rent Seeking Behaviour

It is well established that information flow and rent seeking behaviour are negatively co-related. The increased information flow would lead to a decline in rent seeking behaviour. Computerisation of Land Records (CoLR) would bring forward a wider dissemination of information at a lesser cost. Hence, the cost related to information would stand reduced and thereby the rent being charged by the revenue officials and others who had real

monopoly access to the information will also decline. The others will include the local elite and the influential persons who have had pre-existing access to land information. It had been the attempt in this study to find out whether this objective of CoLR has been met and if so to what extent.

3.Transparency in Decision Making

The problem of transparency in decision making is related to enhancement in information flow and decrease in rent seeking behaviour. However, there was a necessity to place it as a separate indicator in the sense that transparency in decision making is an objective to CoLR in itself. The flawed record management and the limited information flow imply that the quality of decisions will not conform to the ground realties. As a consequence of this, the quality of decision is likely to be poor even where not influenced otherwise. This study proposes to test to what extent this objective has been achieved under field conditions.

4. Better Implementation of land Reforms

It has been admitted that implementation of Land Reforms has suffered on account of poor records base. Land records provide the legs for the case to stand on. In distributive legislation or even otherwise the case of the state is that a person is holding land above a prescribed limit which the state is empowered to assume and distribute amongst the landless. Where the landholder denies this contention of the state the matter is settled through a quasi-judicial process of adjudication. In such cases the accuracy of the records develops as a key factor. It is true that computerisation cannot impart accuracy to land records. However, the hypothesis is that by bringing about improvements in terms of management and transparency, CoLR will provide a firm basis to the programme of Land Reforms. A landholder may own land in several villages, *blocks* and districts, and in the names of relatives. Under a computerised system of record keeping such data can be collected, collated and retrieved easily. Therefore, CoLR has been rightly considered as a major support to Land Reforms.

5.Reduced Workload for Revenue Officials

The work for Patwari/Revenue Inspector/other lower revenue official has been increasing and becoming multifarious. New Government programmes and functions have been getting added on to the duties of the lower revenue official. Therefore, our objective to find out whether the CoLR has reduced the workload of revenue officials. There have been two categories of respondents: (i) Revenue Inspector (ii) Revenue Officer.

6.Flow of Institutional Finance

Experience has been that the procedure for obtaining loans is so cumbersome that many a time loan applications are held up for want of ownership/possession certificates and the loanee has to make several visits to the Block and banks for which he has to incur additional expenditure. Besides, the loan may not be available in time. There is an opportunity cost attached to the time of the loanee as well. All these factors add to the cost of the loan and make the loan more costly to the loanee as compared to what is available in the market. An important objective of the CoLR was

that it should be able to cut across the procedural tangles and facilitate availability of rural credit.

7. Better Conveyancing

A major objective for the CoLR was that it will introduce greater certainty in the property market and will also reduce search and transaction costs.

8.Improved Planning Process

One of the primary usages of CoLR has been perceived as an aid and adjunct to the planning process. Needless to say, the planning process is a complex exercise, which involves different streams of human learning. It must however, have a strong statistical platform to stand upon. There are numerous planning exercises connected with district, sub-division and villages which would require constant use of land and land related data. In the normal process it may not be possible to have this data for a long period, whereas the CoLR based Land Information System (LIS) can provide this data instantly.

9.Reduction in Dispute Burden

It has been well accepted that a majority of the disputes and conflicts in rural areas are related to land. These land disputes have been analysed and it has been found that many of them stemmed from lack of perfect knowledge. The hypothesis for this study has been that dissemination of information relating to land will lead to reduction in disputes. These disputes or conflicts in the rural society act as a burden on the rural economy because it results in financial outgo in the form of litigation. Therefore, though it had not been specifically conceived as a programme objective, it has been retained as an indicator.

Methods of Data Collection

While dealing with the indicators used and their analysis, the study used the questionnaire method. The questionnaires were framed in relation to the objectives of the study, as has already been discussed. The questionnaires were structured but left open ended partially. The questionnaires were pre-tested under field conditions and the responses analysed. Three questionnaires were used in the study. Director, Land Records &

Surveys, Government of West Bengal, District Land & Land Reforms Officer, Hooghly, Special Revenue Officers, Revenue Officers and Staff of District Land & Land Reforms Office were also consulted on the questionnaires. The questionnaires were revised according to the opinion of the above officials.

The questionnaire had space for both quantitative and qualitative data, as well as for the investigator's personal observations.

Household Schedule: This questionnaire had focused respectively on (i) the household (ii) Land (iii) General awareness about the Computerisation of Land Records (iv) General benefits occurring from Computerisation of Land Records (v) Rent Seeking Behaviour (vi) Behavior of Conflicts / Disputes after Computerisation of Land Records (vii) Facilitation in availing Institutional Finance (viii) Facilitation in Sale/ Purchase of Land (ix) Mutation.

Revenue Officer Schedule: The questionnaire had focused on (i) General information on blocks (ii) Background of computerisation (iii) Training of the staff (iv) Benefits of computerisation (v) Maintenance of online computerised land records

(vi) Other miscellaneous information regarding the computerisation of land records.

Revenue Inspector Schedule: This questionnaire reflects the attitudes of Revenue Inspector. The questionnaire focused on (i) Impact and extent of computerisation of land records (ii) Whether the method of mutation was simplified (iii) Land reforms before computerisation (iv) Benefits accruing from computerised Land records System (v) Enhancement in information (vi) Decline in litigation (vii) Training (viii) Four subjective questions.

Chapter IV
Findings

The Centre for Rural Studies conducted a brief field study of CoLR in six blocks, of Hogghly, Nadia and Bardwan districts of West Bengal in May 2003. These blocks are: Mogra Chinsruha, Polba Dodpur of Hooghly, Chakdah and Nakashipara of Nadia and Khandaghos and Bardwan-I of Bardwan. The total number of respondents is 210. 35 beneficiaries were interviewed from each block. The computerisation of land records was expected to speed up delivery of RoRs and reduce delays, harassment or bribery. This assessment study highlights the benefits that accrued to users of computerized land records and the existing deficiencies and drawbacks in the system.

The following tables indicate the socio-economic status of the respondents.

Profile of Respondents

The profile of respondents indicates the diversity of users of land records.

(i) The following table indicates the details of the educational background of the respondents:

Table - 4.1
Educational Background of Respondents

Education	Respondents (%)
Illiterate	6.9
Informally Literate	7.4
Upto Primary	13.1
Upto Middle	25.1
Upto High School	16.6
Upto Higher Secondary	14.3
Graduate	13.7
Professionals	2.3
Post Graduate & above	0.6

(ii) The following table describes the social groups of the respondents:

Table - 4.2
Social Group of Respondents

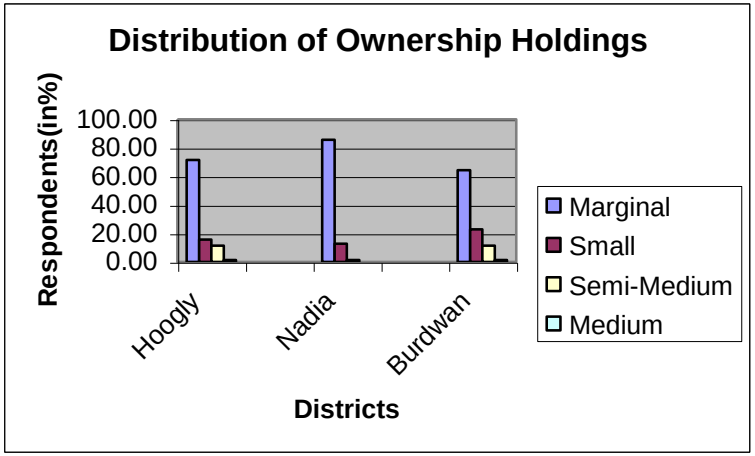
Social Group	Respondents (%)
Scheduled Castes	21.7
Scheduled Tribes	2.9
Backward Classes	6.3
Others	69.1

(i) The following table shows the absolute figures of number of ownership holdings

and area. Of the total respondents, 73.8 per cent are marginal farmers, 17.1 per cent are small farmers, 8.1 per cent are semi-medium and 1.0 per cent are medium farmers.

Table - 4.3
Distribution of Ownership Holdings

District	Marginal		Small		Semi-Medium		Medium		Total	
	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area
Hoogly	71.43	34.14	15.71	25.50	11.43	33.04	1.43	7.31	100.00	100.00
	(50.00)	(19.85)	(11.00)	(14.83)	(8.00)	(19.21)	(1.00)	(4.25)	(70.00)	(58.15)
Nadia	85.71	58.50	12.86	34.86	1.43	6.61	0.00	0.00	100.00	100.00
	(60.00)	(21.50)	(9.00)	(12.81)	(1.00)	(2.43)	(0.00)	(0.00)	(70.00)	(36.75)
Burdwan	64.29	25.38	22.86	36.21	11.43	31.97	1.43	6.46	100.00	100.00
	(45.00)	(16.11)	(16.00)	(22.98)	(8.00)	(20.29)	(1.00)	(4.10)	(70.00)	(63.47)
Total	73.81	36.28	17.14	31.96	8.10	26.48	0.95	5.27	100.00	100.00
	(155.00)	(57.46)	(36.00)	(50.62)	(17.00)	(41.93)	(2.00)	(8.35)	(210.00)	(158.37)



(ii) 54.3 per cent of the respondents were engaged in agriculture, 13.7 per cent were doing agriculture labour work,13.1 per cent were having an independent occupation, 13.1 per cent doing other works,5.1 per cent were doing government service in addition to agriculture and remaining 0.6 per cent were doing non-agriculture work.

Table - 4.4
Occupation of the Respondents

Occupation	Respondents (%)
Agriculture	54.3
Agriculture Labour	13.7
Non-agriculture Labour	0.6
Government Service	5.1
Independent Occupation	13.1
Others	13.1

Analysis of Data

In the following paragraphs we will analyse the data indicator wise:

A) General Awareness about the Computerisation of RoRs

Only 79 per cent of the respondents were aware of the Computerisation of Land Records. Most of the respondents learnt about the Computerisation of Land Records from the revenue personnels. Some of the respondents reported awareness through friends and neighbours. There is a need to raise the computerisation awareness of land records amongst the users.

It is important to note that all the blocks of the selected districts were computerized long back i.e. 3-4 years ago. Therefore, it is really a surprise that even after such a long time awareness amongst the farmers is not universal. The Government of West Bengal abolished the distribution of hand written RoR by making an amendment in West Bengal Land Reforms Act,1955 by adding a new section 50(2) in the year 2000. The Centre also published a report entitled " Evaluation of Computerisation of Land Records in Karnataka : A study from Gulbarga district" , written by Manoj Ahuja and A.P.Singh during last year. According to this report, survey team visited Gulbarga district soon after the implementation of the project. The time of operation ranged from

eight months to one month for the taluks of Gulbarga district. In such a short time the awareness amongst the farmers of Gulbarga district was 85 per cent, which is greater than the awareness amongst the farmers of West Bengal (79 per cent) opernationalised long ago. It clearly indicates that there is a need to raise the awareness regarding the programme in West Bengal as in Karnataka.

The awareness regarding the procedure for obtaining computerized RoRs is directly related to the general awareness of the Computerisation of land records. 70.3 per cent respondents knew that block has one computer kiosk at which they can apply for computerized RoRs and plot information. Some of the respondents (8.7 %) knew about Computerisation but not exactly the procedure for obtaining computerized RoRs. 50.9 per cent of the total respondents obtained Computerised RoRs through revenue personnels or middleman or directly from the block office for one self or for other persons.

B) Information Flow

It has been conceived that within the existing institutional frame work enhancement of

Information Flow has a multidimensional impact. This affects other factors like rent seeking behaviour, improvement in record management and storage and reduction of the dispute burden. At the time of survey, only 44 per cent stated that RoR was available without delay, 49.1 per cent could not definitely say whether the availability of RoR was easier after the computerisation and only 6.9 per cent of the respondents indicated that there was delay in obtaining RoR after computerisation.

In the following table, we will discuss the time required for obtaining RoR after computerisation.

Table - 4.5
Time Required to Obtain Land Records after Computerisation

Time	Respondents (%)
One Day	12.4
Two Days	18.0
Three Days	13.5
One Week	49.4
!5-30 Days	4.5
One Month	2.2

In the above table, it is rather surprising to note that only 12.4 per cent of the respondents get the RoR on the same day and for the remaining it takes more than one day to get RoRs. Nearly half of the respondents were able to get RoR after one week. According to the revenue personnel, the main reason for taking so long to issue computerized RoR was a lack of power supply. They said that since the supply of electricity is erratic, they asked farmers to come another day for receiving the computerized RoR. The UPS(Uninterrupted Power Supply) has a short duration battery back up, which does not adequately address the needs. Therefore, it is necessary to equip the block office with a UPS having a minimum of four hours battery backup or with a generator. Another reason for delay is absence of computer operator (Revenue Officer). Since only one person had received computer training, his staying away from office led to delays for farmers.

On the other hand in Karnataka, we found that 86 per cent of the respondents were able to get their RTCs on the same day.

NIC, which is the technical partner for the "Bhumi" project has made 10 upgrades versions of

the software since the software was first developed in 1989. These changes are not due to any changes in procedures but due to glitches/ implementation problems of the software. One of the reasons for this, can be due to the lack of reengineering of processes. Computerisation of manual system would require a through study of the systems, understanding the environment in which it works and reengineering the systems so that it works effectively when computerized. This needs elaborate and detailed consultation between the present department, which is the revenue department and the software provider, which is NIC.

However, according to our study the main reasons why copies of RoRs can not be given over the counter are due to the fact that the data is not updated online and the fact that there are still errors in the computerized data as the workflow process is not online, the data base has to be updated in a batch process, either fortnightly or monthly. This leads to a situation where the data base is out of sync with the actual land records and also to some errors due to manual entry of all mutations. As a consequence when an applicant approaches the Block office for a copy of a RoR,

the mother copy of the RoR is taken as a base and his land record data in the computer is corrected according to this copy. In case there are discrepancies, the computerized records are updated on the basis of the manual record and then a computerized print is given to the applicant. Thus this procedure generally indicates:

(a) Lack of faith in the computerized data because it is not updated and has errors.
(b) The computerised system has not been fully implemented, as it is the manual system, which is being used as a base, and therefore there is duplication of work instead of reduction of work.
(c) Total lack of a security as anybody can tamper directly with the database. The database in fact should be sacrosanct and nobody should be allowed to tamper with it. In case of an extraordinary circumstance where need arises to change the database directly a proper protocol should be followed to prevent any illegal or arbitrary change in the database.

Table - 4.6
Time Required to Obtain Land Records prior to Computerisation

Time	Respondents (%)
One Day	1.2
One Week	14.3
!5-30 Days	37.7
Two Months	31.4
Three Months	14.3
Three to six Months	1.1

The time required to obtain a RoR in the manual system ranged from one day to six months. The time ranged from one week to three months for the majority of the respondents. Further, according to one respondent, in the manual system the service in many cases also depended upon the money provided by the farmer.

It is true that till now, the information flow has not been very good as it was expected in the beginning of the programme. But if we compare the time required for issuing an RoR after Computerisation with prior to Computerisation, we find that in the computerized system 93.3 percent of the respondents got the RoR within one week

whereas in the manual system only 15.5 per cent farmers were able to get it in one week. This comparison clearly indicates that information flow has improved. This may be due to the fact that the issue of computerized RoRs is being monitored separately.

Accuracy of Computerised Land Records

43.4 per cent of the respondents are confident about the accuracy of computerized land records. They say that new system is more accurate. About 7.4 per cent are not sure about the accuracy of computerized RoRs. These persons found many errors in the computerized RoRs and therefore they contacted the revenue personnel for the required corrections. Remaining respondents were not able to say anything about the accuracy of the system. In other words, further work needs to be done in this area to ensure the accuracy of land records. Once an online mutation system is followed, the errors creeping in due to updating data to mutations would reduce as the database will be automatically updated. However, before the online mutation system is introduced, great care has to be taken to ensure that the legacy data is free from errors. This will be a tedious and time

consuming exercise. Errors in the legacy database may lead to complaints from the citizens and also give cause to vested interests to speak against the system.

Errors in documents

The manual procedures had significant implications on the integrity of documents, and the possibility of errors coming out of the indifference of the staff. User feedback indicates that computerized land records system provided error free documents to 76 percent users. Among those reporting errors, wrongly spelt names was the most frequent error (47.8 %). However, major errors in land details were the issue for 7.4 % users. This low error rate in land details could be due to the fact that the computerized database is first compared with the manual ROR copy and corrected if necessary. Therefore, this low rate of error is no indicator of the correctness and authenticity of the database.

Table - 4.7
Type of errors in documents generated

Type of errors found (Based on those found errors)	Percentage
Wrong entry of name/address/other particulars	8.9
Misspellings of name/address/other particulars	47.8
Minor error in the entry of land details(eg. size, types, etc.)	31.7
Major error in the entry of land details(eg size, types, etc.)	7.4
Others	4.2

According to revenue personnel, for the accuracy of data, data verification was carried out three times at the time of data entry. On an average, 35 per cent RoRs were found with errors during first verification and 15 per cent were found with errors during second verification.

Rectification of Errors

Given that errors are not unusual at this stage of development of the Bhumi System, how efficient is the response system when rectification of errors is sought? Timely response is a critical part of

service delivery. Only 57.8 per cent got timely response to their complaints.

Table - 4.8
Institutional response to complaints

Response to Complaints	Percentage
Complaint not heard /official did not give time	8.9
Complaint heard, no action taken	8.9
Action was taken; delayed	22.2
Action was taken; timely	57.8
Others	2.2

Harassment in the Computerized System

44.6 per cent of the respondents said that new computerized system is free from any type of harassment. Respondents said that they paid only prescribed fee to the Revenue Inspector and were able to get RoR without harassment. Some of the respondents said that whenever Revenue Inspector demanded more money, we ourselves went for the RoR. Some of the respondents got RoR on the same day but a majority had to go two times for the computerized RoR. Majority of the farmers get a computerized RoR in one week even though they

reported that with the computerized system it took less time to obtain a RoR. Earlier, in the manual system it took more than a month to get RoRs. 7.4 per cent of the respondents stated that there was still harassment from officials and middlemen. The farmer first had to purchase revenue stamps for the prescribed fee and after that they had to go to the block office for the submission of application. They had to visit the block office twice or pay extra money to RI for the collection of computerized RoR. 48 per cent were unable to say anything about harassment levels since they had not obtained an RoR after computerisation. **Shri Tarapada Roy of Khandaghose block of Burdwan district said that after the computerisation there is still same kind of harassment by the revenue officials since the process of issuing RoR is still same as was in the manual system.**

Manipulation

The manual system of land records maintenance has been described as highly opaque. Several inaccuracies crept into old manual system due to improper manipulation by the revenue officials. In the computerized system, there should be no

possibility of any type of manipulation by any revenue officials but presently in West Bengal it does not seem true. The main reason is the lack of work flow automation in the State. In the present system only one Revenue Officer is responsible for all the work of computerized system. For taking care of the possibility of manipulation, the software should have a built in workflow automation and the progress in work should be moved from one revenue personnel to another on the computer system. In Karnataka, there is no possibility of any type of manipulation by a Village Accountant or kiosk operator or any other person due to workflow automation in which the transaction moves from one revenue person to another revenue person on computer system. According to the beneficiaries, 58.90 per cent of the respondents relied on the present system. It clearly shows good faith of the public in Land and Land Reforms department of the State. 33.10 per cent of the respondents were unable to respond since they do not know the details about the programme. Only 8 per cent of the respondents gave a negative response.

Rent Seeking Behavior

Rent seeking behavior is especially pronounced at the grass root level in the revenue administration. The findings clearly establish that the revenue officials have been in a position to seek rent for transactions. In West Bengal, Computerised Certified copy of ROR and Plot information is given to the people against revenue through a Court Fee Stamp. The Computerised Certified copy of RoR costs Rs.5 for application fee per khatian and Rs.5 per page for authentication fee. Similarly in case of Plot Information it costs Rs. 2 as application fee per plot and Rs.2 for authentication fee. In West Bengal, after Computerisation still the same system of issuing RoRs is continuing. Therefore the system of middlemen is very much prevalent. The middleman charged money from farmer as per the urgency of required document. The charges paid by farmer for receiving RoR ranged from Rs.10 to Rs.100. The following table will give the details about the rent paid by the farmers after computerisation.

Table - 4.9
Rent Pattern for Obtaining RoR after computerisation

Rent (in Rs.)	Respondents (%)
10	61.8
15	19.1
20	12.4
25	3.3
50	2.2
100	1.1

The costs for obtaining RoR in the old system ranged from Rs.1.50 to More than Rs.100. In the following table, we will see the rent pattern for obtaining RoR prior to computerisation.

Table - 4.10
Rent Pattern for Obtaining RoR prior to computerisation

Rent (in Rs.)	Respondents (%)
1.50-10	64.1
10-25	10.1
25-50	15.7
50-100	3.4
More than 100	6.7

The above table indicates that 64.1 per cent of the respondents were paying between Rs.1.50 to Rs.10. This fee looks reasonable since in West Bengal the cost of RoR depends on the number of pages of RoR. 25.8 per cent of the respondents were paying between Rs.25-50. 10.1 per cent of the respondents paid more than Rs.50 for ROR. The amount paid to the revenue personnel depended on the importance and urgency of records. If any person wanted to obtain RoR immediately then he had to pay more money.

Land Reforms

Over the past few decades, while land reform has made little headway in most of India, West Bengal has achieved notable progress. The progress has occurred in three areas: redistributing agricultural land ownership, regulating sharecropping relationships, and distributing homestead land. Major initiatives in land reforms had already been taken by the State prior to the computerisation of land records. Therefore, it is very difficult to say that CoLR has helped in any extent for furthering the programme.

Reduction in disputes

Land from time immemorial has been a source of pride for its owners, and a means to generate revenues for the governments. Land has always been considered as a status symbol deriving its strengths from area, location, fertility and other such factors attached to it. Land also has emotional attachments and hence has been a cause of jubilations and miseries, rewards and exploitations. Land has been a cause of many bloody wars fought between nations and families for generations together. A greater part of the agrarian population being inadequately educated or not literate at all has set off the trend of wrong practices. Boundary or ownership amendments take eons to corroborate, because much of our Land records is either untraceable or manipulated with the procedural red tapes. All of these shortcomings in our existent systems can be effectively alleviated with a little persuasion and persistence on modernization of the current cycle.

Definitely, in the absence of an efficient and up-to-date management system, Land will always remain a source of grievances. A system which can

provide such information is Computerisation of Land Records.

Many of the disputes originate from a faulty record system. About 43 per cent of the respondents are sure that Computerisation has reduced the land related conflicts. 5.1 per cent respondents opined that Computerisation is not helping in any reduction of disputes. Remaining respondents were unable to say anything about Computerisation.

Land tenancy could be one of the points of conflict. But In West Bengal, the state government has also taken determined steps to bolster the position of sharecroppers (*bargadars*) by regulating the landlord-sharecropper relationship through a programme called Operation *Barga*. The main components of this regulation consist of tenure security protection for *bargadars* and control over the share amount afforded to *bargadars.* The government also placed a near absolute prohibition on fixed rent tenancies. Implementation of these protections has been made possible largely through the determined recording of existing *bargadars* throughout the state. In addition to redistributing some agricultural land in ownership and protecting

bargadars, West Bengal has also transferred ownership of home stead land to landless agricultural labourers, *bargadars* and artisans. The legislation provided that such homestead plots could be up to eight one-hundredths of an acre, about 325 square meters. The government of West Bengal attaches great importance to the recording of tenancy rights and sorting conflicts relating to the same. Conflicts relating to tenancy have already been sorted out by the government. Any significant impact on the reduction of land related disputes is not apparent in West Bengal due to the implementation of CoLR project.

Institutional Finance

Bank loans are given on the basis of RoR. Therefore, landowners need copies of RoR for applying for loans. We asked respondents a very simple question about the easy availability of finance after computerisation. About 66.9 per cent of the respondents hoped that it would be easy to obtain loan after computerisation. 6.3 per cent viewed that there will be no change. 26.9 per cent did not make any comment. The computerisation will help in reality if State government connects the land records database to databases accessible

to various courts and banks. This will facilitate the work relating to land records.

Complexity of Procedures

Government offices have elaborate procedures involving many levels of officials to maintain land records in a secure manner. The diversity of layers of personnel that a person had to see for his work was seen as a major problem in our system.

Table - 4.11
Number of Officials Met

Number of officials met	Before Computerisation (in %)	After Computerisation (in %)
None	-	17.5
1	18.6	6.5
2-4	61	76
More than 5	20.30	-

As per the above table after the computerisation, the situation has not changed much since the state government is not providing a single window service to the farmers for the issue of RoRs. Due to this

reason, farmers do not visit block office for the issuing of RoR. Feedback from the users indicates that to obtain computerised copy of land records most users(76 %) took the help of 2-4 persons involved. Firstly, they have to go to purchase revenue stamp as a fee of computerized RoR, after that they have to contact Revenue Officer for the computreised RoR. In this process there may be more than two persons. 18.6 per cent had to meet one official in the case of the manual system. The extent of the complexity is reflected in the fact that 61 per cent of the users of the manual system had to meet two to four officials regarding their work. Therefore we can say that the legacies of the manual system have not faded away.

Planning Process

Whenever the deficiencies of the Computerized Land Records System is addressed, the Computerisation of Land Records will provide a reliable information source for both generation of development plans and also for monitoring to planners and administrators. The system generates various types of reports on land ownership, Bargadar, Pattadar, type of soil etc. which would be useful for the planning of Poverty

Alleviation Programmes, supplying of inputs etc. Banks and other lending institutions could be given electronic access to the database for processing requests for crop loans, and may conduct some advanced planning on the quantum of lending required. The computerized system could also lead to better administration of Land Reforms Act.

Therefore, we can say that CoLR will make data and information readily available for planning at different levels from the Village to the State Government level. Further, with such large amounts of data available, techniques such as data mining can throw up interesting and new information for policy makers.

Mutation

Even though Bengal was one of the early states to computerise the data, the software did not provide the facility for online mutation. Only recently NIC has incorporated online mutation facility with the software. However, this has not yet been put to use by the revenue officials. As has been mentioned earlier in the study online mutation facility is a sine-qua-non for successful implementation of the computerisation of the land records programme. West Bengal would do well to

follow the model for online mutation and workflow automation as has been done successfully in Karnataka. This would involve changing roles and responsibilities of the revenue officials in view of the additional capabilities and limitation of the computerised system as well as changes in the process and a workflow automation to ensure that the existing revenue staff can easily adopt the new system. It should also have a provision of scanning storing of written documents and notices to improve the accountability of the officials involved and also to ensure that legal documents/ proof/ evidence is available in case the applicants later decide to go for appeal. In case online mutation is adopted the system should also provide for non repudiation by the revenue officials and fixing of accountability. This also could be done by providing bio-metric identification facility by which different revenue officials can log on into the system. Individual logs would therefore be maintained for each officer.

Updation of land records also depends on filing for mutation after the registration of land. Presently, there are many delays and omissions in applying for mutations, as a result updation of land records become tedious. Also, farmers often donot report

transactions within the family either because they are discouraged by the attitude of the revenue staff or due to internal family problems. Many farmers do not take interest in changing of their names in records of rights after registration of land. Therefore, it is necessary to have a system to ensure that mutations are brought to the notice of the revenue personnel automatically.

Registration of a deed is the beginning point that triggers the process of updating of the land records. The change in the ownership of immovable property arises from the document, which comes out of the process of registered deeds like, sale deed, gift deed and so on. As a consequence of this, mutation process takes off and after the attestation of the mutation the land records are up dated. Therefore, there is need to integrate registration department with Computerisation of Land Records which could facilitate simultaneous updating of land records.

Reduced Workload of Revenue Officials

The data which the Patwari/Village Accountant/ Revenue Inspector handle and the nature of their revenue work is mostly repetitive and clerical by

nature. This introduces monotony and many errors advertent or inadvertent creep in. One of the objectives of CoLR was that the computer would be able to take care of the repetitive and clerical nature of job and would hence economize on the time of the Patwari/Village Accountant/Revenue Inspector. The time saved can be better utilised by the lower revenue official for a number of productive purposes including more field visits, better recording of entries and greater application of mind for quality output. Without the automatic workflow automation and on-line mutation, the workload of the revenue officials cannot be reduced as he shall have to do the same work he was doing in the manual system.

Problems as stated by Revenue Personnel

We also interacted during our field visit with local level functionaries involved in the distribution of land records and obtained their views about advantages and disadvantages of the programme. The officials who were interviewed were:

(i) Revenue Officer: Occupy an intermediate position between the BLLRO and Revenue Inspector.

(ii) Revenue Inspector: The lowest level revenue functionary who functions at the Gram Panchayat level and is assisted by one Amin and Bhumi Sahayak.

The Revenue Inspectors and Revenue Officers mentioned certain problems of the computerized land records system. The following are the important views of the officials:

(i) Electricity

In some rural areas of West Bengal electricity is supplied intermittently. The revenue personnel said that since the supply of electricity was erratic, farmers were asked to come again on another day for receiving computerized RoR. Due to this the process of issuing RoRs often involved delays. The Directorate supplied a UPS with short duration battery back up to every block office, which is inadequate for the purpose. Therefore, it is necessary to equip block office with a UPS with a four hour battery backup or a generator.

(ii) Shortage of Trained Staff

Since only one person (Revenue Officer) from each block had received computer training, his staying away from the office led to delays for farmers.

(iii) Delays due to breakdown in the System

Whenever any software or hardware related problems occurred in the computer system, no expert was available at the block office. Therefore, an expert had to be called from the district headquarter to tackle the problem. Some times it takes 3 days to one week. Due to this users faced a lot of inconvenience.

(iv) Infrastructure Problem

There is very poor infrastructure in some of the blocks. Many of the buildings are in bad shape and require repair. In one block, the RAM of the computer became defective due to the dampness in the computer room.

(v) Glitches in Software

The first version of Bhumi software was developed by NIC,WBSU in 1989, which has been continuously upgraded till date. The software went through as many as 9 versions of development before a GUI version was developed by the NIC. There have been ten upgraded versions of the Bhumi in West Bengal, still the software contains glitches.

Chapter V
Conclusion

(1) After the field study, we found that the State had not fully achieved the required objectives of creating a clean, upto-date database till date. CoLR in West Bengal has replaced the hand written RoRs with computer printed RoRs. CoLR project was expected to speed up delivery of RoRs without delays, harassment or bribery. But after the field study in the state, we found that delivery of RoR is still not a hand-to-hand service. The farmer first submits application with a fee in the form of revenue stamps to block office. After the submission of application, farmer gets computerized RoR from 1 day to 30 days. The system of issuing computerized RoR remains same as the manual one, therefore it is very difficult to say that delivery of RoR will be free from harassment and bribery.

(2) Bhumi software in West Bengal provides for printing of land records and updating the database in offline model makes it out of sync with current status of land records and therefore of not much

use. Recently, state introduced online mutation, which has also not been adopted by the staff.

(3) Security is provided by the traditional password system, which is prone to hacking. It was seen that the computer in which the Bhumi software was used, was also being utilised for other puroses. There is a real danger of compromising security and also a possibility that the system will be infected by virus.

(4) The first version of Bhumi software was developed by NIC,WBSU in 1989, which has been continuously upgraded till date. The software went through as many as 9 versions of development before a GUI version was developed by the NIC. There have been ten upgraded versions of the Bhumi in West Bengal, still software contained glitches.

(5) Bhumi software is in operation at block computer setup at BLLRO office. In West Bengal, a majority of the Block offices have the DOS system till now. A very few block offices have GUI software Bhumi 2000. The DOS version has been written in Fox Base Software, a third generation programming language. There is no data security in

the Fox Base based software package. As the data is highly valuable it should be made tamper proof and free from unauthorized access.

(6) The problem of erratic power is prevalent in West Bengal, which causes problems in issuing RoR to farmers. The UPS with only 10 minutes power backup is not sufficient to deal with the problem of power failure. Therefore, it is necessary to replace these UPS with some other back up systems or generators. There is very poor infrastructure in some of the blocks. Many of the buildings are in bad shape and require repair.

(7) The lack of computer literacy among the Land & Land Reforms office staff has been a major challenge. Only 350 revenue officers have been trained. Since only one revenue officer from each block had received computer training, his going away led to delays for the farmers. Therefore, every revenue official should be trained for the computerized system in phases.

(8) Whenever the deficiencies of the Computerized Land Records System are addressed, the CoLR will provide the reliable information source for both generation of development plans

and also monitoring the progress to planners and administrators.

Finally, we can say that CoLR in West Bengal has benefited only to a small extent, but the actual benefits, which can accrue to the masses as a consequence of CoLR, have not yet been attained.

Chapter VI
Recommendations

It is necessary to view the implementation of Computerization of Land Records programme in a project mode. It is necessary to set up a project at the State Government level preferably manned by a middle level IAS Officer who is comfortable in Information Technology. The team should assist him and provide him with full support by the State Government to ensure success with in a definite time frame. This would be necessary to ensure the cooperation of different persons involved and also to address new issues related to technology, change management and business processes re-engineering and people management. A project mode approach would also speed up the implementation of the project to make the project successful secondly, it is necessary to ensure online mutation and work flow automation in the Bhumi Software universally though this facility has been provided in the recent software. There is need for having a re-look at it, which adapts the manual process keeping in mind the following aspects:

(a) Mapping the existing manual process and making it amenable to computerization.

(b) Redesigning the process wherever feasible.

(c) Changing the roles and responsibilities of the people involved

A mere mapping of the manual process would not be successful, as problems would arise during implementation.

Presently, security is provided through the traditional password system, which is prone to hacking. Therefore, it is necessary to supplement this by bio-metric identification technology. It is necessary to provide a front online record shop from where a farmer can buy their records. These land records shop would provide transparency in land record administration and empower farmers. If the State Government is willing to impose user charges then the front end shop can be set up in a public/private partnership mode. The District Informatics Office of the National Informatics Centre is over burdened in several districts and therefore, to concentrate on land record computerization, it is necessary that a Consultant

may be engaged from the market for the initial project duration. The cost of the Consultant can be borne by the State Government.

(d) Relevant State Acts would have to be amended to make hand written land records illegal or irrelevant and give necessary evidentiary value to computerised records. This is necessary as in any system in which hand written and computerized records are allowed to co-exist, it is bound to make Computerization of Land Records scheme redundant.

(e) The security of the data is of immense importance to prevent any unauthorized access or modifications of land records. Access to database should not be available to any unauthorized person. An audit trail should be made for each transaction. Daily data back ups should be taken and data disaster recovery strategy through disc mirroring and scheduled back ups should be ensured.

(f) The problem of erratic power supply is quite regular in rural West Bengal and it is necessary to provide UPS (Uninterrupted Power Supply)

with atleast four-hour power back up or generators to run the system.

(g) There is very poor infrastructure in some of the blocks and some of the buildings are in very poor condition and require repair.

(h) To sustain the computerized system, adequate training on hardware maintenance and Bhoomi should be imparted to relevant personnel. If possible, the Directorate should tie up with a Computer Agency, the district and block level to sort out the software or hardware related problems.

(i) There is a need to train other revenue officials for upgradation of their skills in computerization of land records.

(j) At present, there are different operating systems being used for the CoLR in West Bengal. There is need to upgrade and standardize the software and hardware across the State being used for this programme.

(k) An introduction of new system would throw out new issues which need to be addressed by

detailed administrative circulars, so that district administration can manage the implementation of the programme.

(l) There is need to integrate registration department with the land records data to facilitate simultaneous initiation of mutation cases and updating of land records.

Glossary

Amin : A revenue official who measures land and then prepares it map and revenue records as per the plots of the map.

Barga: An agreement by which the cultivator is required to pay the landlord half the price of the produce whereas the landlord provides for the seed and pays all the revenue.

Bargadar : Crop sharing tenant

BLLRO : Block Land & Land Reforms Officer.

Bujharat : an audit or adjustment of account between the landlord and the tenants, in survey operation it means preliminary explanations of the entries in the record by *munsarims* to the parties concerned.

Diwani : Office or jurisdiction of Diwan which mainly relates to collection of revenues .

Khanapuri : The filling up of Khatiyan's columns like individual's name, the khasra, possession, etc.

in preliminary record writing stage of survey and settlement operations.

Khasra: A written record of the particulars of a rough map of a village in which different plots of land are numbered and their numbers which are known as ' khasra" are entered in the book along with the area and the crop, list of fields serially numbered according to the map showing occupants, area and class plot by plot.

Khatian : A record of tenants' rights including the identity, extent, quality and possession of land.

Kistwar : Measurement and plotting of the fields according to the cultivation.

Mauza : A village having a separate name in revenue records.

Patta : In ancient India it meant a territorial division, a sub-division of 'visaya; also deed to lease given by some receiver of revenue to the cultivator or under-tenant, specifying the conditions on which the lands are held and proportion of the produce to be paid to the authority or person from whom the lands are held.

Pattadar : One who holds a lease or engagement for his lands.

Raiyat: A tenant in erstwhile Zamindari areas and an occupier of land paying land revenue directly to government.

Rennel Survey: Carried on both in land and water by the first Surveyor General of India from 1763 to 1782.

Revisional Survey : survey operations initiated and conducted on the basis of the blue print map of the cadastral survey in accordance with the provisions of the law in order to update the landrecords

Sebait : Priest who arranges for the worship of a deity and manages the endowment.

Traverse Survey: It precedes general survey so as to make fixed points near the boundaries of villages to prepare a skeleton plan of each village.

Traverse: A land survey technique of measuring successive angles and distances to establish new positions.

Zamindar : The word means" landholder". In the literature on Indian Land Reform the term connotes the holder of an intermediate interest in land with the obligation to pay land revenue to the government.

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