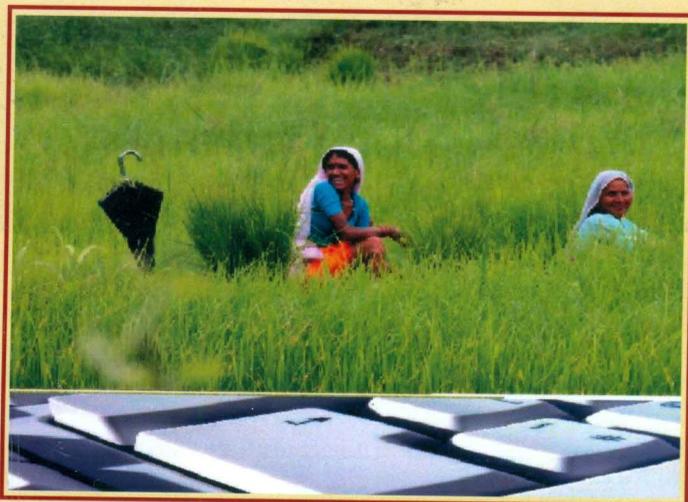


Evaluation of Computerisation of Land Records in Rajasthan



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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.

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<http://www.trekearth.com/gallery/Asia/India/West/Rajasthan/photo818843.htm>

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Preface

Several national developments and planning policies repeatedly focused on land as an asset, which provides the primary and secondary needs of the people. As such, successful implementation of developmental projects need proper and correct land records. Emergence of the computer as a device for quicker storing, processing and retrieving of information database prompted the government into computerisation of traditional land records. Therefore, a centrally sponsored scheme on Computerization of Land Records (CoLR) was started in 1988-89, with the 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.

Computerisation of Land Records (CoLR) in Rajasthan was started in 1994-95. NIC has provided complete technical assistance on turnkey basis which includes feasibility study, design, development, and implementation of software, etc. Rajasthan has provided validity and legality for the computerized RoRs, but there is still a long way to go for complete computerization of records in order to replace the existing handwritten RoRs.

This is now vindicated from the evaluation of the programme CoLR in Rajasthan, which was entrusted to "Centre for Rural Studies" by Ministry of Rural Development of Government of India. With the help of Society for Integrated Developmental Activities, Research and Training (SIDART), a leading voluntary agency fieldwork was conducted for the evaluation. The basic objective of the study is to evaluate and assess how the CoLR influenced the flow of information, whether it has led to decline in the conflict within the

society and the other inner dynamics of the government. The study was conducted on the basis of a sample survey. Structured questionnaires were employed for data collection from the varied respondents in the sample districts of Rajasthan.

The present book is the combination of five important chapters with the beginning of Introduction chapter. This chapter delineates the brief overview of the CoLR program in India and Rajasthan followed by specific objectives and methodological backdrops. The methodology consists of detailed samples, sample sizes and sampling techniques, hypotheses, and methods of data collection. In addition, there is a brief discussion about the respondents' profile in the introduction chapter. The second chapter 'Land Record System in Rajasthan: From Traditional Land Records to Computerised Land Records' is mainly initiated with the historical background. This signifies the characteristics of traditional land record system and their drawbacks. Besides, there is focus on the status of Computerization of Land Records in Rajasthan with the background understanding in Rajasthan. Third chapter is the most important section as far as understanding about outcome and impact of the CoLR in Rajasthan is concerned. This analysis is mainly based on certain parameters/indicators selected for the evaluation study. These parameters include; awareness and motivation, opinion of farmers about CoLR, usage of services, about obtaining computerized RoRs, banning of manual provision of the RoRs, enhancement in information flow, time spent in obtaining RoRs, harassment and manipulation in the computerized system, cost advantage, etc. Besides, there is focus on institutional finance, reduction in disputes, land reforms, mutations, infrastructure and electricity, so on and so forth. The penultimate chapter is the conclusion that was derived from the said study. After assessing from the primary study of the program certain recommendations are cited in the final chapter for the effective and smooth functioning of the computerized land record program in Rajasthan.

We consider this evaluation study as a significant exercise for the Computerization 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.

We wish to register our foremost gratitude to the Director, Lal Bahadur Shastri National Academy of Administration, Shri Rudhra Gangadharan for being a source of inspiration and guidance to us. We are very thankful to the Joint Director of the Academy Shri Padamavir Singh for his support and guidance.

We acknowledge with thanks for the sincere cooperation of Shri Yatendra Kumar, Coordinator and Vice-Chairman, and Professor N. K. Kumaresan Raja of Centre for Rural Studies in completing this report.

We have not enough words to express our gratitude to Shri Parmesh Chandra, Principal Secretary, Revenue Department, Government of Rajasthan who has extended all possible help to make this study possible. Ms. Indu Gupta, SIO, NIC and Shri K. L. Jhawaria, TD, NIC need special mention for they have been the live force behind the organisation of the field study. We thank all the revenue personnel of selected districts, who were involved in this study. We also acknowledge the co-operation extended by the people of selected districts, who have been the source of information without which this study could not be completed.

The study was organized with the help of Society for Integrated Developmental Activities, Research and Training (SIDART), Jaipur. A special thanks to Dr. Sanjaya Saxena, Project Director, SIDART and Shri Satya Bhan Singh, Faculty, SIDART who accompanied the study team during field survey.

We would like to take this opportunity to thank our colleagues, Dr. Saroj Arora, Senior Research Officer and Shri V.V. Singh, Research Associate of the Centre for Rural Studies. We would also like to thank, Shri Ramesh Kothari for feeding data of the whole study and for providing help during field study in spite of hot climate of Rajasthan. Shri S. S. Kharola and Shri Deepak Kumar meticulously typed and formatted the manuscript without which we

could not have managed the manuscript in the present shape. Last but not least, our sincere thanks to Shri Samar Singh Kashyap, Shri Adesh Kumar, Shri Dalip Singh Bisht, Ms. Anita Gupta and Shri Suresh Kumar.

Many other people helped us at various stages of the study, we are also grateful to them.

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Chapter- 1

Introduction

Preamble

Land as an asset, plays a crucial role in the economy of the country. In the rural areas it provides a secure means of livelihood besides contributing to food security. It also has social and cultural value ascribed to it. In order to derive the maximum value from the land, and ensure its efficient use, it is important that the information associated with landholdings is clear, unambiguous and readily available to everyone.

The system of land record maintenance has passed through various administrative systems. The present system of preparing and maintaining land records has its origins in the Moghul period, but it was during the British rule that it evolved into the present day system. The system of correcting and updating land records is very elaborate. Maps depicting land parcels (cadastral maps) are required to be updated periodically through the process of survey and settlement operations. Since the First Five Year Plan, planners have been advocating proper maintenance of land records as the basis of good administration, aimed at social justice through better implementation of rural development programmes. This was reiterated in the subsequent five year plans. According to the Seventh Plan Document, "Land records form the base for all land reforms measures and, therefore, regular periodical updating of land records is essential in all States. This will necessarily have to include scientific survey of unmeasured land and recording of rights of tenants and share-croppers which have remained unrecorded till now."

Emergence of information technology marks a paradigm shift in terms of availability of tools which can radically alter and improve the creation, updation and maintenance of land records. Taking cognizance of this possibility, Government of India initiated a centrally sponsored scheme on Computerisation of Land Records (CoLR) 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 computerize core data contained in land records, so as to assist development planning and to make records accessible to people/planners/administrators. The programme started in 1989 was for computerization of non-spatial data. The prime objective of this programme is to store all information regarding land in a systematic and logical way so that information is easily retrievable. The detailed objectives of the programme are:

- (a) To facilitate easy maintenance and updating of changes which occur in land database such as changes due to availability of irrigation/natural calamities/consolidation/ or on account of legal changes like transfer of ownership, partition, land acquisition, lease etc.
- (b) To provide for comprehensive scrutiny to make land records tamper-proof, this may reduce the menace of litigation and social conflicts, associated with land disputes.
- (c) To provide the required support for implementation of development programmes for which data about distribution of land holdings is vital.
- (d) To facilitate detailed planning for infrastructure as well as environment development.
- (e) To facilitate preparation of an annual set of records in the mechanized process and thereby producing accurate documents for recording details such as collection of land revenue, cropping pattern etc.
- (f) To facilitate a variety of standard and ad-hoc queries on land data.
- (g) To provide a database for agricultural census.

Keeping the above into consideration, Ministry of Rural Development, Government of India entrusted an evaluation study of Computerisation of Land Records in Rajasthan to the Centre for Rural

Studies, Lal Bahadur Shastri National Academy of Administration, Mussoorie. The study was conducted in 2004.

The Specific objectives of the Study

The following are the specific objectives of the study conducted in Rajasthan.

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 minimized 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.

Sample and Sampling Techniques

For the sample of farmers, stratification was done at two levels: districts and tehsil. One district from each division has been selected according to simple random sampling. Nagaur district from Ajmer division, Bikaner from Bikaner, Jaipur from Jaipur, Sirohi from Jodhpur, Bundi from Kota and Dungarpur from Udaipur division were selected for assessing the impact of computerization of land records on farmers.

Two tehsils from each district were selected for field study. These tehsils are Sanganair and Chomu from Jaipur district, Bundi and Hindoli from Bundi, Rewdar and Pindwara from Sirohi, Simalwara and Sagwara from Dungarpur, Deedwana and Ladnu from Nagaur and Nokha and Loon Karansar from Bikaner district. The summary of our findings are as follows

From each tehsil five villages have been selected, based on: (i) distance to the tehsil centre, and (ii) population size. At the spatial level, villages remotely located, and located mid way and near the tehsil centre were selected. At the demographic level, villages with low, average and large population sizes were selected. However, villages with extremely small or extremely large population were avoided.

The respondents were selected by using stratified random sampling. For the selection of functionaries purposive random sampling technique was adopted. We considered tehsil as a sample unit for the purpose of study. The following table describes the tehsil-wise sample size of respondents.

Table 1.1: Tehsil wise Sample Size of Respondents

Sl. No.	District	Tehsil	Respondent
1.	Jaipur	Sanganair	181
		Chomu	177
		Total	358
2.	Bundi	Hindoli	157
		Bundi	178
		Total	335
3.	Sirohi	Rewdar	142
		Pindwara	175
		Total	317
4.	Dungarpur	Semalwara	130
		Sagwara	163
		Total	293
5.	Nagaur	Deedwana	175
		Ladnu	176
		Total	351
6.	Bikanair	Nokha	172
		Loon Karansar	161
		Total	333
Grand Total			1987

Development of Indicators

Keeping the objectives of the study into consideration, there have been different indicators developed for the evaluation of computerization of land records. These indicators give the best picture of the effectiveness, efficiency and relevance of the computerization of land records under taken.

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

Information flow and rent seeking behaviour are negatively related. The primary objective of computerization of land record is easy flow of information. Therefore, it is necessary to examine at what extent the information flow has enabled to reduce the rent seeking behaviour. Computerisation of Land Records (CoLR) has to result in a wider dissemination of information at a lesser cost. Hence, the cost of the 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 is 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 ground realities. 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 if a person is holding land above a prescribed

limit the state is empowered to assume the surplus and distribute it 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. A landholder may own land in several villages, *tehsils* 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. This is now to examine at what extent, the program is efficient, effective and relevant to lead to transparency.

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 is to find out whether the CoLR has reduced the workload of revenue officials. There have been two categories of respondents: (i) patwari (ii) tehsildar.

6. Flow of Institutional Finance

Experience has shown 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 tehsil 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 procedural tangles and facilitate availability of rural credit. It is now necessary to examine how CoLR has been effective for the easy flow of finance by considering beneficiaries' opinion through questionnaire survey method.

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. This study examines whether or not the CoLR program is efficient in achieving this.

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 quickly, 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. Therefore, it is necessary to examine how this study has been effective for the 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 analyzed. Five questionnaires were used in the study.

The Deputy Secretary, Revenue Department, State Informatics Officer NIC, Principal System Analyst and various other officials of NIC,

and other revenue personnels of higher and lower level were also consulted on the questionnaires. The questionnaires were revised according to the opinion of the above officials. After this, pre-testing of questionnaires was done at Rewdar tehsil of Sirohi. The District Collector, ADM of Sirohi, tehsildar of Rewdar and other revenue personnel were also consulted during pre-testing of questionnaires. Pre-testing of questionnaires has been organized amongst the farmers of Jeerawal village at Jeerawal. After this extensive exercise, the questionnaires were finalized. The questionnaire had space for both quantitative and qualitative data, as well as for the investigator's personal observations. The enumerators hired by Society for Integrated Developmental Activities, Research and Training (SIDART), Jaipur were mostly postgraduates and research scholars of Rajasthan University. The faculty staff of the Centre for Rural Studies conducted the training regarding the terminology of land revenue administration and the design of questionnaires. A faculty member of Centre for Rural Studies and two faculty members of SIDART supervised the fieldwork

Village Schedule: The questionnaire involved the collection of basic data on village characteristics. The respondents were usually the patwari and some other knowledgeable local people of village.

Household Schedule: This questionnaire focused 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, and (viii) Mutation.

Tehsildar Schedule: The questionnaire focused on (i) General information on *tehsils* (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.

Patwari Schedule: This questionnaire reflects the attitudes of patwari. 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.

Sarpanch Schedule: In Rajasthan, Gram Panchayat has a pivotal role in land records especially in the case of finalization of mutation. Therefore, we asked basic questions relating to on-line mutation and extra burden of work on Panchayat due to mutation. In addition to this, questionnaire also contains information relating to (i) General information relating to computerisation (ii) Computerisation of other documents like Khasra (iii) Benefits of computerization, etc.

The implementation of CoLR in Rajasthan was almost two- three years old at the time of our field study. The date of implementation of CoLR in the surveyed tehsils may be seen in the following table:

Table 1.2: Operational Time of Surveyed Tehsils

District	Tehsil	Operational Date	No. of Days in operation at the time of study.
Jaipur	Sanganer	Jan,2002	2 year and four months
	Chomu	Nov.2001	2 year and six months
Bundi	Hindoli	Sep.,2001	2 year and eight months
	Bundi	Dec.,2001	2 year and five months
Sirohi	Rewdar	Oct,2001	2 year and seven months
	Pindwara	Oct,2001	2 year and seven months
Dungarpur	Simalwara	July,2001	2 year and ten months
	Sagwara	Oct,2001	2 year and seven months
Nagaur	Didwana	July,2002	One year and ten months
	Ladnun	May 2002	Two years
Bikaner	Nokha	April,2001	3 years and one month
	Loon Karan Sar	March 2002	2 years and two months

In the above table we find that in every surveyed tehsil the computerisation of land records had been operationalised before two years or prior to two years. As per the above table, the most recently operationalised tehsil is Didwana (almost two years) while Nokha

tehsil of Bikaner was operationalised three years before. In our study we try to assess extent of success of CoLR in Rajasthan.

Profile of Respondents

Social Category of the Respondents

We interviewed 18.4 per cent SCs, 8.2 per cent STs, 44.6 per cent OBCs and 28.8 per cent of others in whole of the state. District wise picture of the social categorization may be seen in the following table:

Table 1.3: Social Category of Respondents

District	SCs	STs	OBCs	Others	Total
Jaipur	22.6 (81)	9.2 (33)	44.1 (158)	24 (86)	100 (358)
Bundi	29 (97)	14.9 (50)	32.2 (108)	23.9 (80)	100 (335)
Sirohi	21.5 (68)	14.2 (45)	34.4 (109)	30.0 (95)	100 (317)
Dungar pur	12.6 (37)	6.8 (20)	53.6 (157)	27.0 (79)	100 (293)
Nagaur	12.3 (43)	1.7 (6)	51.3 (180)	34.8 (122)	100 (351)
Bikaner	11.7 (39)	2.7 (9)	52.3 (174)	33.3 (111)	100 (333)
Total	18.4 (365)	8.2 (163)	44.6 (886)	28.8 (573)	100 (1987)

Figures above parenthesis indicate percentage

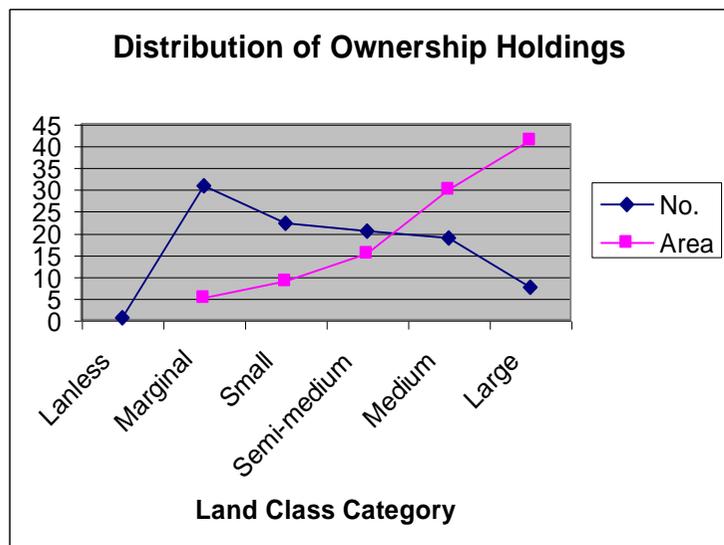
Table 1.4: Distribution of Ownership Holdings (Area in hectares)

District	Marginal		Small		Semi-medium		Medium		Large	
	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area
Jaipur	106	74.21	98	147.04	85	248.38	56	342.63	12	178.75
Bundi	120	75.64	98	153.28	69	191.52	41	259.80	4	54.08
Sirohi	154	89.19	64	96.83	52	142.01	38	211.27	8	149.51
Dungar pur	154	91.63	73	109.33	44	115.49	21	105.81	0	0
Nagaur	60	41.09	80	122.52	88	243.14	101	610.39	20	367.17
Bikaner	19	13.34	28	44.07	68	203.22	114	743.75	103	237.386
Total	613	385.11	441	673.07	406	1143.75	371	2273.64	147	312.337

Above table above gives an idea about the ownership holdings for the surveyed districts. According to above table, among our respondents, 30.85 per cent belongs to marginal class (less than 1 Ha), 22.19 per cent are from small farmers category (1 to 2 Ha), 20.34 are semi-medium (2-4 Ha), 18.67 per cent respondents belongs to medium farmers category (4-10 Ha) and lastly 7.40 per cents are from large farmers (above 10 Ha).

As far as concentration of land is concerned, we found that marginal farmers are controlling only 5.07 per cent of total area, small farmers have only 8.86 per cent area, semi-medium farmers have 15.05 of total area, 18.67 per cent of the medium class respondents are controlling 29.92 percent of the total area and large farmers are controlling about 41.10 per cent of the total area. The following graph will give the snapshot for the distribution of ownership holdings.

Figure 1.1

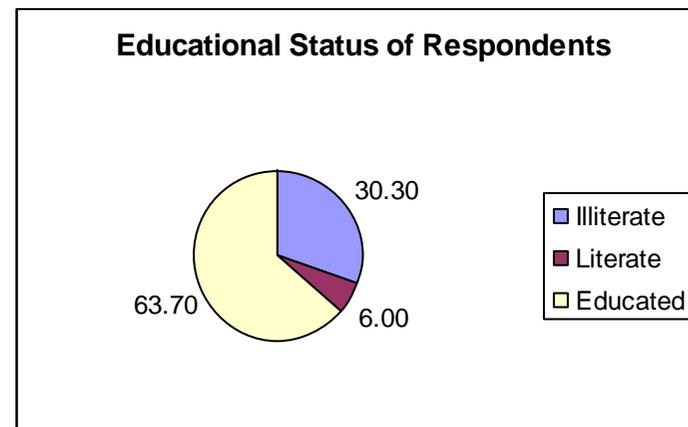


C. Educational Status of the Respondents

As far as educational status of the respondents is concerned it is derived that most of (63.70%) the respondents in the village are educated followed by illiterate which is 30.30 %. And, the total literate percentage is 6.00 %

The following pie diagram illustrates the educational status of the respondents is concerned.

Figure 1.2



D. Occupation of the Respondents

72.5 per cent of the respondents are engaged in agriculture, 1.7 per cent respondents are engaged in the agricultural labour work, 9.9 per cent are doing either government service or private service, 11.2 are engaged in their own business and remaining are doing non agricultural work.

With the above methodological background, the study was conducted in a stipulated time frame. With the inclusion of members from different communities, a clear picture about the current status of the CoLR has been obtained by the researchers. It is obvious to say the said study is an output of collective effort. The large participation of farmers, small, medium, and large landholders, and public and private officials was encouraging in a proper evaluation.

Chapter-2

Land Record System in Rajasthan: From Traditional Land Records to Computerised Land Records

The land record system in Rajasthan is very old, going back three centuries. The ownership rights of the people have become an important legal right after the introduction of land reforms in India soon after independence. The land record has been a significant part of revenue system. The procedure for recording transfer and ownership of lands, shares and inheritance is generally based on the maintenance of registers. Revenue assessment and agricultural yield related data are also recorded based on the regularity and maintenance of several records that are being used in the manual system. In Rajasthan, the following are the important registers maintained in manual land record system.

Jamabandi

The jamabandi constitutes the principal land record in Rajasthan. It is also called 'khevat' or 'khatauni' and may be considered as a record of rights. It is arranged alphabetically in the vernacular by the name of the landholders. It is rewritten every four years in two copies. It contains the following details:

- a) The nature and claim of tenure as determined by the provisions of the Rajasthan Tenancy Act, 1955.
- b) The amount of premium paid for the acquisition of Khatedari rights.
- c) The date of Khatedari parcha together with all particulars of such transfers.
- d) The khasra number of each field comprised in the holding.
- e) The annual rent payable
- f) Any other condition of the tenure whether contained in written lease or not

- g) In the case of a person other than a khatedar tenant the number of years during which he has held the land in his possession
- h) Such other particulars as may be prescribed from time to time.

Mutations register

The changes occurring in the ownership/holding of land are recorded in an annotated form in the jamabandi through the medium of the mutation register, which records the position before and after the transfer of ownership. This is another important register for tracing the ownership of land at any particular point of time. The jamabandi and mutation registers are the most fundamental of all village records along with the village map.

Khasra Girdawari

Further, the khasra girdawari, a statement of crops grown and their respective acreage, is arranged in the descending order of field numbers given at the time of settlement, and also has the details pertaining to the landholder repeated in it.

Khasra Parivarthansheel

Another record maintained for the unauthorized cultivation of government lands is called khasra parivarthansheel and is maintained by the patwari from the data collected by him on his inspection rounds.

During each crop season the patwari is required to physically inspect each field in his patwar circle (average 4,000 to 5,000 fields) and record the crops grown on it along with the area in which each crop is planted. This area is to be measured with the help of a chain of specified length. The Inspector of Land Records (ILR) also performs the crop-cutting experiments on the basis of which expected yield statements are made. The expected yield and expected production statements required for agricultural planning are prepared on the basis of these recordings.

Drawbacks of Traditional land Records

It is clear that land records constitute the important database on which the revenue department operates. The system introduced three centuries earlier is expected to be maintained by the revenue department, along with the additional tasks of development, social welfare, flood/drought relief, census work, compilation of voter lists etc., which were handed over to the same machinery after Independence.

The patwari, the key element in the chain of functionaries, is overburdened with these additional tasks and, therefore, it is quite likely that s/he cannot maintain a high degree of accuracy and reliability. We are not presuming that the other parts of the revenue system are not overburdened; however, the point is that the patwari originates the work, the rest of the officials merely supervise, verify, approve, finalize or collate these activities.

Manual land records are the cause of huge delays and costly. They cause errors which are nearly impossible to detect. These, to a large extent, lead to the litigation that occurs in the area of land records. A wrong mutation can deprive a person of all his productive assets. A lot of litigation arises from errors (willful or otherwise) in the initial preparation of a jamabandi or mutation. Moreover, the principal land record, the jamabandi, becomes, over time, an annotated version of itself due to mutations and is virtually unusable as an item of reference due to the poor quality of paper which deteriorates rapidly due to repeated handlings.

Ceiling legislation has become the most important facet of the rural aspect of the socialist reforms. The really wealthy amongst the landowners do not own land in one village but in different villages, different tehsils and even different districts. Given the fact that the land records are maintained village-wise, it is difficult, rather impossible to detect who in the state owns land larger in area than the maximum limit allowed. It is equally difficult to aggregate the total state-wise landholding of landholder with the present system of maintaining land records.

It is important to bear in mind that land records have come to be the sole proof of asset ownership for about sixty-five percent of the Indian population. Unless a system is evolved in which information related to land ownership record is secure, accurate, and readily accessible, the realization of the concepts of equity and social justice may well remain a distant dream.

Again, the other major issue is that there is no uniformity in writing and maintaining land records registers in the Traditional land records system in Rajasthan. There is much diversity between districts and even *tehsils* in the same district in maintaining land records

In the current century, when advanced scientific methods are available, it is a glaring anomaly to find that the records on which the crop statistics of the entire country are based and which form the only authentic proof of ownership, are collected and compiled through error-prone manual methods. The organization entrusted with this work is overburdened with other tasks, which are typically accorded a higher priority. It is high time to take stock of the situation and investigate the possibility of rectifying its decline through the improved means of data storage and retrieval, which are now available.

Status of Computerization in Land Records in Rajasthan

Computerization of Land Records (CoLR) in Rajasthan was started in 1994-95. Initially, it was started in 2 pilot districts i.e. Jaipur & Barmer. Later on computerization of Land Records was taken up in all 32 districts of the State in 1996-97. The project is being implemented with the complete technical assistance of NIC on turnkey basis which includes feasibility study, design, development, implementation of software and consistent technical support at state, district and field level in all respects.

Rajasthan has seven million land records (RoRs) and 34 millions plots in nearly 42,000 villages. A computerized printed copy of RoRs is obtained from Apna Khata Centre in 235 tehsils after paying Rs. 10 for upto 10 plots and Rs.5 per 10 plots thereupon. The State Government has provided validity and legality for the computerized RoRs but there is

still a need to abolish handwritten RoRs. The Chausala (four years) updation process can be accomplished through computer. Unavailability of regular power supply, lack of trained personnel in remote tehsils, the unfamiliarity of revenue officers with computer application etc. have been some major teething problems in the computerization process.

New computer centers have been constructed in 240 tehsils and they have been equipped with necessary hardware and software. About 1000 patwaris and other field functionaries have been trained to run them and already more than 2.5 lakh tenants have been provided with copies of land records in computerised print-outs. Regular training program for revenue officials on computer awareness and software features have also resulted in significant gains for the project. The operational manual has been provided in Hindi for users of the system.

The district wise status of computerization is given below.

Table 2.1: Status of Computerisation in different Districts of State

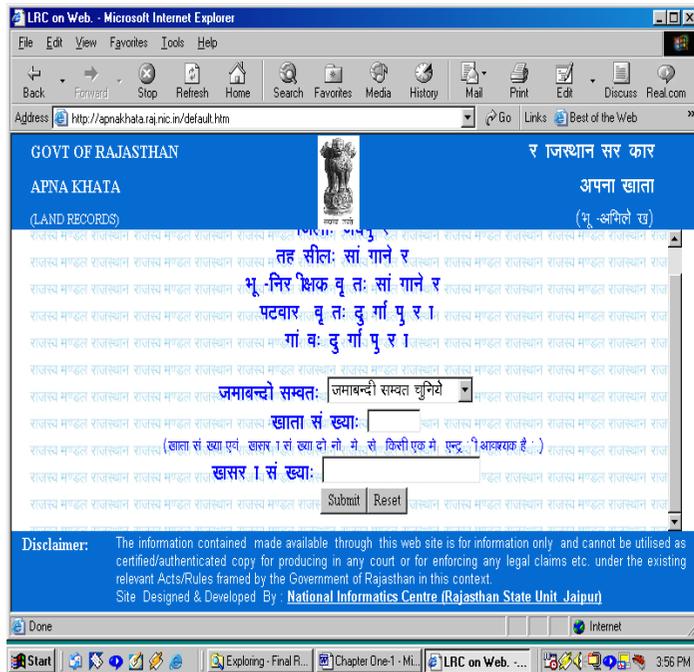
Division	District	No. of Tehsils	No. of Tehsils in			
			Training	Site Pre	Operationalised	RoRs issued
Ajmer	Ajmer	9	9	8	9	2331
	Bhilwara	12	12	12	12	24307
	Nagaur	10	10	10	9	2905
	Tonk	7	7	7	7	12658
Bikaner	<i>Bikaner</i>	8	8	8	8	16608
	Churu	6	6	6	6	1101
	Ganganagar	9	9	9	8	67
	Hanumangarh	7	7	7	7	643
Jaipur	Jaipur	13	13	13	13	61636
	Alwar	12	12	12	12	3019
	Bharatpur	10	10	10	10	911
	Dholpur	5	5	5	5	2217
	Jhunjhunu	6	6	6	5	717
	Sikar	6	6	6	6	1003
	Dausa	5	5	5	5	423
Jodhpur	Jodhpur	7	7	7	7	41473
	Barmer	8	8	8	8	1111
	Jaisalmer	3	3	3	3	958
	Jalore	7	7	7	7	1407
	Pali	9	9	9	9	7689

	Sirohi	5	5	5	5	4752
Kota	Kota	5	5	4	4	544
	Bundi	5	5	5	5	914
	Jhalwar	7	7	7	7	14048
	SawaiMadhpur	7	7	7	7	481
	Karauli	6	6	6	6	197
	Baran	8	8	8	8	883
Udaipur	Udaipur	10	10	10	10	950
	Banswara	5	5	5	4	3222
	Chittorgarh	13	13	13	13	4885
	Dungarpur	4	4	4	3	5689
	Rajsamand	7	7	7	7	4472

Rajasthan's Land Records on Website

Rajasthan is one of the first States for hosting the entire state land records data on a web for public use. The details of land can be viewed on apnakhata.raj.nic.in web site. The certified copy of RoR can be obtained from the authorized centres. The Govt. of Rajasthan has authorized Kiosks holders to obtain the Land Records Copy from the Internet on payment basis as prescribed, which is valid and legal for all purposes. At present the project has been launched in all 32 districts of Rajasthan at the level of a tehsil. The data is available in Hindi. Any person can retrieve his/her land details by providing the tehsil's name, village, khata number. The data is being updated in a decentralised manner on regular basis.

Fig 2.1



Apna Khata Software

It was observed that various types of practices are involved in writing land records registers in Rajasthan. It is quite surprising that, there was much diversity between districts and even among tehsils in the same district in writing and maintaining land records. Over the period, the traditional system of writing the land records maintenance became the informal practice in the state for revenue official. Therefore it was imperative to find out a unified and common system of writing land records for the whole state as per Land Revenue rules and acts, for the preparation of software. To achieve this, several conferences of Collectors were organized at State level to expose the diversities in the existing system. A study was also made through interactions with grassroots level and field officials of revenue department. A successful

milestone was achieved in 2001 when common software was launched for all the 241 tehsils. This software is called as 'Apna Khata'. The software was rolled out or launched through out the state in Feb-Mar 2004.

The present software has the following main features:

- (i) The software can create new Chausala
- (ii) There is inbuilt security provision for the operating system, Database and application. The software also takes care of automatic backup.
- (iii) The software also provides facilities for the entering of new mutation.
- (iv) Various administrative reports can be generated in text format.

The software at present does not have inbuilt workflow automation, where transactions move from one personnel to another revenue personnel on the system itself. In January 2004, International Organization for Standardization certified the existing software of land records of Rajasthan.

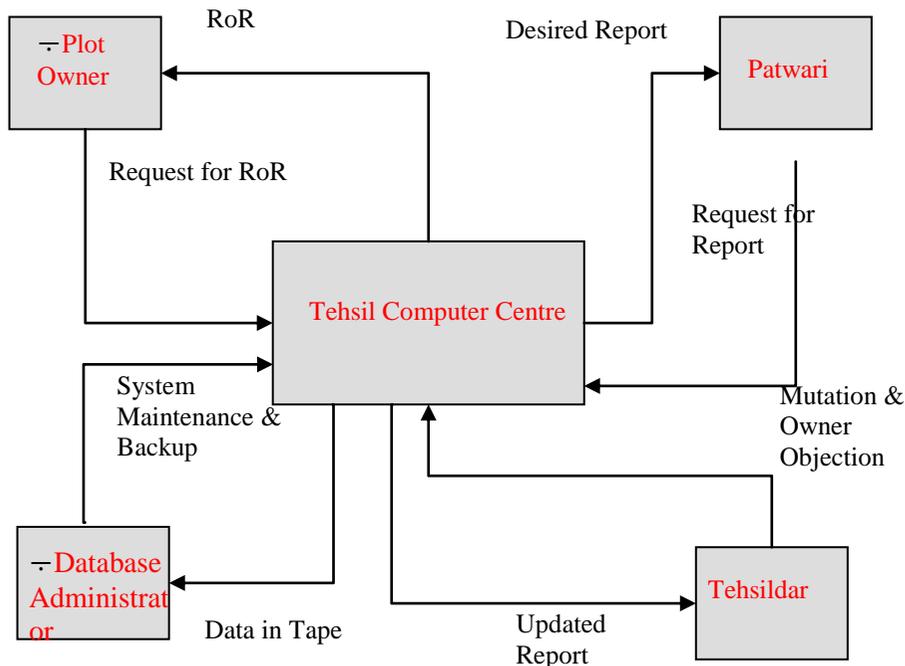
Data Base Preparation

For preparing computerized land records data in local language, GIST technology was used as hardware solution in Unix/Oracle platform. In this project 10-20 terminals along with one server were used in the entire district NIC centres. After the verification of data at District level, data were normalized and converted from seven bit data to eight bit data at state centre for all tehsils. It took around 2-3 years for data entry and verification process. The tehsil data is kept on Windows platform using windows Server-2000as operating system, SQL Server 2000 as RDBMS and Visual Basic is used for front end. GIST SDK software (software solution) was used in place of GIST Card for Hindi data.

The application is user friendly and GUI based. It operates in windows 2000 operating systems. The front end was used VB 6.0 and database is managed in SQL server 2000. The architecture of application is server as client. The security aspect for the smooth operation is well taken care of

at the design time. The software also takes care of automatic backup. The software was developed in house in NIC state Unit, Jaipur.

Fig 2.2 LR Computerisation Process: At Tehsil



Special Delivery

In Rajasthan 22 tehsils pertaining to 3 districts belong to Nahari Jamabandi. It has a different aspect of writing the Chausala. Separate software is designed and developed for the implementation of the state target. The common man is being benefited as and when he requires his copy of Records of Rights.

Whenever there is a change control or enhancement in application, the modified scripts are made available on web site and to inform all districts through mail. A user-friendly web enabled application has been developed for monitoring the progress of Computerisation of Land Records' work.

Training Programme

Different types of training programmes are being carried out through out the state. Three major training programs for a total of 1070 revenue officials for 12 days, refresher training programmes 4 days and many exclusive applications related training programs have been conducted so far. It has spread awareness and motivated a majority of revenue officials to work with new zeal for the project. In the similar manner all district units of NIC are providing daily support for the computerisation project at tehsil and district levels. The software helps the revenue officials in their day-to-day activities viz., writing of new Chausala, summary report, khasra index, in Goswara and land utilization reports. The operational manual has been provided in Hindi for smooth operation. Till now, 235 tehsils out of 241 tehsils have been operationalised.

Drawbacks of early software

The software for computerisation of land records which was introduced at the beginning did not serve the purpose due to following drawbacks:

- (i) Version 1.0 software was incapable of large extent volume of database.
- (ii) This version of software was not based on the GUI (Graphical User Interface).
- (iii) It was not prepared as per the field requirement.
- (iv) Retrieval of data was either not possible or very slow.
- (v) Hardware used contained low memory.

To overcome the deficiencies of version 1.0 software, NIC, State Unit, Rajasthan Jaipur, launched software for Land records computerisation in June, 2001. This software contained many specific

features but after the operationalisation of software, many drawbacks were detected in this version. Therefore NIC State unit released another version of software to overcome the deficiencies. This version was the Version 3 and released by NIC on December, 2001. This version also contained some glitches, and therefore NIC released get another Version 4 in July 2002. Finally, the present version was launched on 13 Oct, 2003 in all tehsils of the State.

Mutation Procedure

Government of Rajasthan in 1957 decided that the powers under Section 135 of Rajasthan Land Revenue Act should be exercised by the Panchayat concerned instead of tehsildars. The procedure of mutation in Rajasthan explained it as follows:

The applicant may report for mutation directly to patwari or through tehsildar. The patwari writes the report in Mutation register as per para 121 of the Rajasthan Land Revenue (Land Records) Rules, 1957. After that Inspector, Land Records instead of tehsildar verifies the mutation and puts forward to sarpanch for necessary orders. The Panchayat shall decide mutations in accordance with the provisions of section 135 of the Rajasthan Land Revenue Act, 1956 and Rajasthan Land Revenue (Land Records) Rules, 1957. In case the Panchayat fails to give any decision on the mutation cases as per the rules, the matter may be reported to tehsildar. He may order for the disposal of mutation within 30 days.

The tehsildar has no power to review the orders of the Panchayat. The Panchayat has also the power to sanction the mutation under section 19 of the Rajasthan Tenancy Act. The tehsildar cannot exercise these powers. An appeal against the orders of the Panchayat would lie with the Collector.

After the computerisation of land records the same process is continuing. After completion of mutation, as per above mentioned procedure, the mutation entry is entered in the computer. The mutation does not work like an online module to carry out mutation on the database for dynamic updating of database. Another flaw of present mutation system is that it does not have a built in workflow automation system which moves transactions from one personnel to another on the

system with specific roles and responsibility of the revenue personnel. According to the Revenue personnel, the online mutation as has been done in Karnataka may not be possible in Rajasthan due to involvement of Gram Panchayat in this mutation procedure. Therefore, either an amendment should be made in this regard for the success of Computerisation of Land records programme or the activities being carried out at the Panchayat level have to be incorporated in to the work flow system either in an online manner or if this is not feasible in an offline manner. The latter would involve batch updation of data on a periodic basis.

Issues

The software contains many glitches. The mutation does not reflect the real benefits of computerization, as it does not ensure automatic updation of land records. The state government is still providing printing hard copy of land records and updation of the data base in offline model, which makes it out of sync with current status of land records and, therefore, is not very useful. It needs online mutation, which can work only in a workflow automation system. The security in Apna Khata software is provided by the traditional password system, which is prone to hacking. Presently, the Rajasthan Government has computerized only the RoR (Khatauni). The Khasra (Crop details document) still remains to be computerized. The people of Rajasthan will be able to get full benefits of CoLR only after the computerisation of Khasra and implementation of online mutation.

In addition, the architecture of server is playing monopoly role as a client. It is not possible in Rajasthan to extend this system to other client(s). This server as client monopoly has not produced effective result for online mutation.

Presently, the State government in association with NIC provides training only to one patwari from each tehsil. Whenever the trained patwari is on leave, RoRs seekers have to wait up to the end of his leave. Therefore, more revenue officials should be trained for the computerized system in phases. It may also be a good idea to recruit fresh entrants at that level from amongst people who have some knowledge of computers.

In Rajasthan, We found that most of the farmers receive computerized RoRs at the prescribed rate, while in manual, the farmers pay Rs. 50 or more to receive RoRs.

The findings of field study indicated that CoLR in Rajasthan has not been fully successful as the distribution of manual RoR is continuing.

Awareness of the programme is also low as compared to other states of India. The system of providing manual RoRs needs to be stopped, but prior to that the computerized system should be foolproof and reliable. The data needs to be real time and the mutation process should be online. Once the mutation is approved, the land records database should simultaneously get updated. However, the concern is concurrent continuation of both the manual and the computerized system. This may sideline the computerized system. Keeping this into consideration, the State Government should speed up the work and ensure that the database is clean and without errors. Besides, there should be focus upon functioning of online mutation procedure, security aspects, and maintenance. The manual system would automatically be stopped if the people realized that the computerized one is more efficient, error free, and easy to access.

From the field study we observed that there is efficiency in accessing the service in those places where there is CoLR operation. Farmers are getting computerised RoRs without any delay and harassment. In order to get it, the farmer first submits an application with revenue stamps to tehsil office and majority of the farmers obtain the computerised RoRs within one day. However, the farmers have to visit the tehsil for obtaining computerised RoRs, thus causing some inconvenience to them.

Summing Up

The computerised mutation does not convey full benefits of computerisation as it does not ensure automatic updation of land records. It needs real online mutation, which can work only in a workflow automation system. The real online mutation may not perhaps be possible without amendment in the present mutation procedure.

The software contains some glitches, therefore modification in software should be considered necessary. The following are the main glitches in software:

- a) Mutation updation module is not updating the name in the original Jamabandi module automatically.
- b) The codes for different types of land should be separate like in the manual records.
- c) Khatedar and Gair-khatedar should be separate in computer programme to facilitate detecting separately.
- d) The software designed for Nahari area is not working properly, therefore there is a need to modify existing software.
- e) The software does not show the area according to Khasra.
- f) The password security system should be replaced by the thumb impression of the selected revenue personnel.

Presently, the Rajasthan Government has computerized only the RoR (Khatauni). The Khasra (Crop details document) still remains to be computerised. The people of Rajasthan will be able to get full benefits of Computerisation of Land Records only after the computerisation of Khasra and implementation of online mutation.

Chapter-3

Analysis

The chapter deals with the detailed analysis of the computerised programs (CoLR). In order to do this, the analysis of non-spatial data has been in a significant position. The analysis of attributes is equally emphasized in order to examine the enhancement, effectiveness and relevance of the programs.

1) Awareness and Motivation

The awareness level of the farmers about computerisation of land records is low in Rajasthan. The level of awareness is only 57.1 per cent. The proportion of awareness is very high in district Jaipur i.e. 72.6 per cent while very low in Bikaner i.e. 32.7 per cent. All the surveyed tehsils of Rajasthan had operationalised the CoLR programme more than two years ago. Even after two years of implementation of the project, however, awareness level is less than 50 per cent in some of the tehsils. The low awareness stems from the fact that the use of manual RoR is still prevalent in the State and patwaris are still providing manual RoR to the farmers. Thus use of computerized RoR's, to a large extent, depends on the will of the revenue functionary. We found that the awareness level is not related strongly with the extent of the time of operationalisation, but depends on the will and the interest shown by the tehsildars and other revenue functionaries. During our study we found that majority of the farmers got the information of computerisation of land records either from friends/ Neighbours/ known persons or were able to know on their own after visiting the tehsil. The following table gives the detailed information regarding the sources of awareness. According to *Mangal Ram* a farmer, Village *Vatika*, District Jaipur, "awareness of computerized system should be spread like the awareness about Electronic Voting Machine amongst rural masses".

IdsA. We would agree with him and suggest that a campaign needs to be launched to bring about universal awareness.

Table 3. 1
Awareness about Computerised RoRs among the Respondents (in Percent)

Tehsil/District	About awareness of Computerized RoRs(in %)	
	Yes	No
Sanganer	66.3	33.7
Chomu	79.7	20.3
Jaipur	72.6	27.4
Hindoli	70.1	29.9
Bundi	57.3	42.7
Bundi	63.3	36.7
Rewdar	78.2	21.8
Pindwara	60.6	39.4
Sirohi	68.5	31.5
Simalwara	57.7	42.3
Sagwara	63.2	36.8
Dungarpur	60.8	39.2
Didwana	42.3	57.7
Ladnun	47.7	52.3
Nagaur	44.7	55.3
Nokha	28.5	71.5
L.Karan Sar	37.3	62.7
Bikaner	32.7	67.3
Total	57.1	42.9

Table 3.2
Sources of Awareness in Different Tehsils (In Percent)

Tehsils/ Districts	Friend/ Neighbors/ Known Persons	Patwari/ Other Revenue Officials	Government Publica tions	Newsp apers	After Visiting Tehsils
Sanganer	39.7	13.2	8.3	5.8	33.1
Chomu	39.7	5.7	4.3	12.1	38.3
Jaipur	39.7	9.2	6.1	9.2	35.9
Hindoli	19.1	12.7	2.7	30.0	35.5
Bundi	30.1	12.6	3.9	23.3	30.1
Bundi	24.4	12.7	3.3	26.8	32.9
Rewdar	44.1	18.0	0.0	3.6	34.2
Pindwara	50.9	13.2	0.9	7.5	27.4
Sirohi	47.5	15.7	0.5	5.5	60.9
Simalwara	30.3	35.5	0.0	7.9	26.3
Sagwara	43.7	24.3	3.9	8.7	19.4
Dungarpur	38.0	29.1	2.2	8.4	22.3
Didwana	29.7	18.9	0.0	25.7	25.7
Ladnun	39.3	20.2	1.2	16.7	22.6
Nagaur	34.8	19.6	0.6	20.9	24.1
Nokha	28.6	16.3	4.1	20.4	30.6
L.Karan Sar	41.7	16.7	0.0	13.3	28.3
Bikaner	35.8	16.5	1.8	16.5	29.4
Total	37.0	16.3	2.7	14.0	30.0

An analysis as shown in the above table shows that the sources of awareness for 37 per cent of the respondents are friends/ neighbors/ known persons. 30 percent became aware after visiting tehsil, 16.30 per cent came to know through revenue personnel, and the remaining through government publication and newspapers. Thus the main source of awareness is through word of mouth and through a visit to the tehsil. This also highlights the limited role of the patwari/other revenue personnel and government publications in creation of awareness. In our opinion, while it is true that a majority of farmers may not be literate to

read government publications, but the awareness spread through patwari and other revenue personnel should be much higher. We attribute the lack of awareness to two reasons: First, the continuation of manual RoRs and Second: the patwari and other revenue personnel are not doing enough to spread awareness amongst landholders. Several farmers strongly opined that revenue personnel should go from village to village, to spread awareness about the computerisation of land records. They feel that it should be community driven activity; word –of –mouth publicity and it must be done with renewed vigor. Therefore it becomes necessary that State government should ban the use of manual RoR forthwith and revenue personnel should be involved in enhancing awareness through a structured programme, or alternatively, NGO's could be utilized for the awareness campaign.

2) Opinion of farmers about the benefits of computerisation of land records.

Table 3.3
Opinion about Computerisation

Tehsil/ District	Opinion About Computerisation (in %)		
	Beneficial	Not Beneficial	Computerisation of all documents
Sanganer	46.5	1.8	51.8
Chomu	17.8	1.2	81.0
Jaipur	32.4	1.5	66.1
Hindoli	31.9	0.7	67.4
Bundi	36.9	0.6	62.5
Bundi	34.7	0.7	64.7
Rewdar	20.6	0.0	79.4
Pindwara	44.4	0.7	54.9
Sirohi	32.7	0.4	66.9
Simalwara	34.0	0.0	66.0
Sagwara	40.2	0.0	59.8
Dungarpur	37.4	0.0	62.6
Didwana	40.1	2.2	57.7
Ladnun	45.5	0.0	54.5
Nagaur	42.8	1.1	56.1
Nokha	39.1	1.4	59.4
L.Karan Sar	46.0	4.0	50.0

Bikaner	42.4	2.7	54.9
Total	36.8	1.1	62.1

Table 3.3 shows that 36.8% respondents opine that the computerization of land records is beneficial. 62.1 percent of respondents in favour of computerization of all documents. Thus it clearly indicates that almost all landholders are in favour of a computerized system of land records. They state that it will be better to computerise all the land documents. Land holders also demanded the computerization of Khasra Girdawari (Records of Crops). According to them, the computerisation of RoRs will not be successful as ultimately they have to meet the patwari for the issue of Khasra Girdawari. According to them, if the government wants to improve service delivery of the revenue administration, there is a need for computerizing the Khasra Girdawari also. *According to Sualal Choudhary, a sarpanch, village Vatika, District Jaipur; the facility of computerization is very good but the discretion of the patwari should be reduced to the minimum.* (Lkqvkyky pkS/kjh] ljiap] xkao&okfVdk] ftyk& t;iqj ds vuqlkj] dEl;wVj dh lqfo/kk cgqr vPNh gS ij iVokjh ds gLrk{ksi dks de ls de djus dh dksf'k'k dh tk, A)

If we consider the result of above table, 62.1 per cent respondents state that computerization of land records will be really beneficial when the computerisation of Khasra Girdawari is also completed. 36.8 per cent of the landholders feel that the present system provides benefits to the landholders. Only a negligible percent were of the opinion that the system after computerization does not give any additional benefits.

According to the sarpanches; 93.94 per cent have a positive opinion about computerisation of land records. They stated that computerisation is benefiting the land holder. Only a small proportion (6.06 %) was not in favour of computerisation. According to them, computerisation of land records is not benefiting the landholder to any

extent, because the landholders still have to visit tehsil for obtaining computerised RoRs. After the computerisation of RoRs, patwaris are still creating problems in issuing Khasra Girdawari and charging the same amount of money which they were charging for Khasra and Khatauni. *According to Smt. Patasi Devi, sarpanch of Gram Panchyat Daulatpur, tehsil Deedwana of District Nagaur, all work relating to the patwari should be computerised. It will ensure the lessening of harassment, by the patwari, in different ways.*

3) Usage of Services

As already discussed, the level of awareness about the programme is low. It logically follows that the knowledge about the procedure of obtaining computerized RoRs is also low.

Table No.: 3. 4
Awareness about the Procedures for Obtaining Computerised RoRs

Tehsil/District	About the awareness of procedure for obtaining computerised RoRs (in %)	
	Yes	No
Sanganer	53.3	46.7
Chomu	66	34.0
Jaipur	60.2	39.8
Hindoli	57.3	42.7
Bundi	47.1	52.9
Bundi	52.4	47.6
Rewdar	88.3	11.7
Pindwara	45.3	54.7
Sirohi	67.3	32.7
Simalwara	46.7	53.3
Sagwara	24.3	75.7
Dungarpur	33.7	66.3
Didwana	16.2	83.8
Ladnun	21.4	78.6
Nagaur	19.0	81.0
Nokha	24.5	75.5
L.Karan Sar	13.3	86.7

Bikaner	18.3	81.7
Total	46.2	53.8

Again, one can see that, amongst the people who are aware, less than half or 46.2 per cent know about the procedure for obtaining computerised RoRs. Where the district tops the list with 67.3 percent in Bikaner the percentage of people who are aware about the procedure for obtaining computerized RoRs is as low as 18.3 percent. On the basis of the above, we feel there is a strong need to enhance awareness, not only in terms of knowledge of computerised systems established at tehsil headquarters but also in terms of procedure of obtaining computerised RoRs. Awareness in districts Dungarpur, Nagaur and Bikaner is especially low on both the aspects- general awareness and procedure of obtaining computerised RoRs. In the following paragraph we will discuss the number of persons obtained computerised RoRs. Knowledge about the procedure is higher than the average in Jaipur, Bundi and Sirohi districts.

4) Persons obtained computerized RoRs

Amongst those who are aware of the programme, only 23.1 per cent of the persons obtained computerised RoRs. A large percentage of persons (76.9%) have not obtained the computerized RoRs so far. This proportion is very low in Sirohi, Dungarpur, Nagaur and Bikaner. Since manual RoRs are still continuing in the State, therefore landholders are taking manual RoRs. We feel that the number of beneficiaries of the computerised system will increase after the abolishment of the distribution of manual copies of RoRs. Another reason for not obtaining the computerized copy is the establishment of Apna Khata Centre only at tehsil headquarters. The landholder has to cover a long distance to reach the tehsil office. Experience of different states has demonstrated

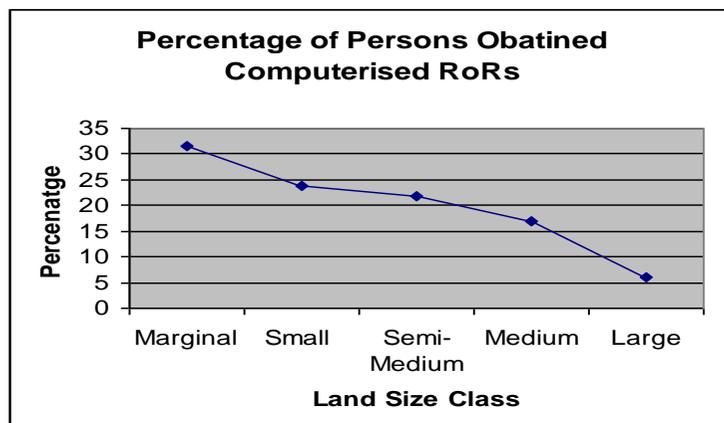
that once the manual RoR's are banned, automatically the people will opt for the computerized RoR's.

Details are given in Table: 3.5

Table No.3.5
Persons Obtained Computerised RoRs amongst Aware Persons (in Percent)

Tehsil/District	Persons obtained computerised RoRs amongst aware persons (in %)	
	Yes	No
Sanganer	45.0	55.0
Chomu	49.6	50.4
Jaipur	47.5	52.5
Hindoli	30.0	70.0
Bundi	33.3	66.7
Bundi	31.6	68.4
Rewdar	1.8	98.2
Pindwara	13.2	86.8
Sirohi	7.4	92.6
Simalwara	33.3	66.7
Sagwara	4.9	95.1
Dungarpur	16.9	83.1
Didwana	10.8	89.2
Ladnun	7.1	92.9
Nagaur	8.9	91.1
Nokha	12.2	87.8
L. Karan Sar	8.3	91.7
Bikaner	10.1	89.9
Total	23.1	76.9

Fig 3.1



Adjoining graph shows that the percentage of persons obtaining computerized RoRs is decreasing as the land size is increasing. This result may seem surprising, but It clearly indicates that large and medium size farmers are not fully utilizing the service of new computerized system. Since in the state the distribution of manual RoRs is still valid, they are taking the service of patwari.

5) Banning of Manual Provision of the RoR's.

We also asked a question on the banning of manual RoR's from landholders. Responses from landholders also vary according to their awareness of computerisation of land records and if they have already obtained computerised RoRs. If we talk about all respondents, then slightly more than half of the respondents i.e.56.8 per cent are in favour of banning the manual RoRs. 69.7 per cent aware persons are in favour

of banning manual RORs, while on the other hand about 85.5 per cent who have already obtained computerised RoRs are in favour of banning manual records. In our opinion, the response from this category is important because they are aware of the present computerised system. Since they faced no problems in obtaining computerised RoRs from tehsil headquarters, they are recommending the ban on manual distribution of RoRs. In this category, it also becomes important to see the tehsil and districtwise scenario of the responses.

The sarpanches were also asked the same question, 54.55 per cent of the sarpanches are in favour of the banning of manual extraction, 27.27 per cent are against the banning of manual records and remaining (18.18%) are unable to voice an opinion on this.

**Table No.3.6
Opinion about Banning of Manual RoRs**

Tehsil/District	Opinion about Banning of Manual RoRs amongst persons obtained computerised RoRs (in %)		
	Yes	No	Can't Say
Sanganer	83.3	13.0	3.7
Chomu	92.9	4.3	2.9
Jaipur	88.7	8.1	3.2
Hindoli	78.8	21.2	0
Bundi	82.4	8.8	8.8
Bundi	80.6	14.9	4.5
Rewdar	100	0.0	0
Pindwara	78.6	14.3	7.1
Sirohi	81.3	12.5	6.3
Simalwara	92.0	8.0	0
Sagwara	60.0	40.0	0
Dungarpur	86.7	13.3	0
Didwana	87.5	12.5	0
Ladnun	66.7	33.3	0
Nagaur	78.6	21.4	0
Nokha	83.3	16.7	0
L.Karan Sar	100	0.0	0

Bikaner	90.9	9.1	0
Total	85.5	11.5	3.1

The opinion about banning of manual RoRs is also dependent on the ease and convenience with which they are getting the computerized documents from the concerned tehsil staff. If they get it without any difficulty, they would give a positive reply in favour of banning manual RoR's. From the adjoining table it is clear that in most of the tehsils except Sagwara and Ladnun, a high percentage of respondents are in favour of banning manual RoR's. In these two tehsils the reason for this low proportion may be indifference of the staff involved in the computerisation of land records. The success of computerisation of land records depends directly on the abolishment of the manual records. Wherever this will continue, the revenue staff will force these on the farmers for their personal vested interests.

Table No. 3.7
Opinion about Banning of Manual RoRs amongst Persons Obtained Computerized RoRs

Caste Category	Opinion about Banning of manual RoRs amongst persons obtained computerized RoRs (in %)		
	Yes	No	Can't Say
SC	94.3	3.8	1.9
ST	83.3	11.1	5.6
OBC	85.8	11.5	2.7
Others	79.5	16.7	3.8
Total	85.5	11.5	2.7

Significant at the .05 level (2- tailed)

Adjoining table depicts that majority of the Scheduled Castes farmers are in favour of banning manual RoRs because in majority of the cases in India this category suffered a lot due to improper and poor land records management.

Table 3.7 reflects the opinion of the farmers who have already obtained computerized land records. It also indicates that these persons are not facing any problem in accessing computerized records from tehsil. We found that manual system was good to some extent for large and medium farmers as well as influential persons. In many cases we also found that patwari did not charge money against the issue of manual RoR from large and medium farmers. But in computerized system there is no possibility of issuing computerized RoRs without any charge. Thus we may say that computerization is bringing equity.

6) 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. The speed of Apna Khata Centre is rated as excellent in almost all the surveyed tehsils. About 92.7 per cent of the respondents got the RoR without any delay, the remaining 7.3% of the respondents found service not satisfactory in terms of consumption of time.

Table No. 3.8
Opinion about Quickness in Service Delivery

Tehsil/District	Opinion about quickness in Service Delivery (in %)	
	Yes	No
Sanganer	92.6	7.4
Chomu	94.3	5.7
Jaipur	93.5	6.5
Hindoli	90.9	7.1
B5ndi	88.2	11.8
Bundi	89.6	10.4
Rewdar	100.0	0.0
Pindwara	92.9	7.1
Sirohi	93.8	6.3
Simalw!ra	100.0	0.0
Sagwara	80.0	20.0
Dungarpur	96.7	3.3
Di`wana	87.5	12.5

Ladnun	100.0	0.0
Nagaur	92.9	7.1
Nokha	83.0	16.7
L.Karan Sar	100.0	0.0
Bikaner	90.9	9.1
Total	92.7	7.3

The reasons attributed for delay are power failure at tehsil headquarter and unavailability of tehsildar and computer operator. As the State government has trained only one person from every tehsil, his absence causes delay. However, these problems can be easily tackled and should be sorted out in the near future. The adjoining table provides the tehsilwise information relating to the quickness of the service. About 65.3 per cent respondents stated that sometimes delay was caused due to problems in getting revenue stamps. Sometimes the revenue stamp vendors created problems or charged extra money to issue revenue stamps. Therefore, we feel that it is a better idea to replace it by giving payment of fees directly at the counter. 92.4 per cent of the respondents from all over the State are of the opinion that fees should be deposited at the counter itself.

7) Time Spent in Obtaining Computerised RoRs

After computerization, one expects a substantial reduction in terms of the time taken for getting RoR's. The table below indicates the % of people and the time taken in getting the RoR's. About 15.6% got the RoR immediately, while 56.9% got it within one to two hours and nearly 95% of the respondents got it within one day. The following table shows the district wise details of the time spent by the farmers in obtaining computerised RoRs.

Table 3.9
Time Required to Obtain Computerised RoRs (In Per cent)

Tehsil/ District	Time							Average Time (in Hours)
	Imm	1-2 Hours	½ day	1 Day	2 Days	3 Days	Ten Days	
Sanganer	11.1	42.6	7.4	31.5	7.4	0.0	0.0	6 h
Chomu	8.6	61.4	4.3	21.4	1.4	1.4	1.4	7h & 45 m
Jaipur	9.7	53.3	5.6	25.8	4.0	0.8	0.8	7
Hindoli	15.2	45.4	3.0	33.3	3.0	0.0	0.0	4 h & 45 m
Bundi	23.6	41.1	0.0	35.3	0.0	0.0	0.0	3 h
Bundi	19.4	43.3	1.5	34.3	1.5	0.0	0.0	4 h
Rewdar	50.0	50.0	0.0	0.0	0.0	0.0	0.0	1 h
Pindwara	21.4	35.6	7.1	28.6	7.1	0.0	0.0	7 h
Sirohi	25.0	27.6	6.3	25.0	6.3	0.0	0.0	6 h & 15 m
Simalwara	20.0	8.0	0.0	68.0	4.0	0.0	0.0	7 h
Sagwara	20.0	20.0	0.0	60.0	0.0	0.0	0.0	4 h & 30m
Dungarpur	20.0	10.0	0.0	66.7	3.3	0.0	0.0	6 h & 30 m
Didwana	12.5	25.0	0.0	50.0	0.0	0.0	12.5	34 h
Ladnun	66.7	0.0	0.0	33.3	0.0	0.0	0.0	3 h & 45 m
Nagaur	35.7	14.2	0.0	42.9	0.0	0.0	7.1	21 hrs
Nokha	0.0	16.7	0.0	83.3	0.0	0.0	0.0	6 h
L.Karan Sar	20.0	20.0	0.0	60.0	0.0	0.0	0.0	4 hrs & 45m

Bikaner	9.1	18.2	0.0	72.7	0.0	0.0	0.0	5 h & 30 m
Total	15.6	41.3	3.4	35.5	3.1	0.4	0.8	6 h & 45 m

According to table 3.9, 95.8 per cent get a copy of the computerised RoR on the same day and the remaining, less than 5%, get it in a period of anything between 2 to 10 days. In the latter case, the reasons are: unavailability of computer operator or tehsildar, problem in computer system and unavailability of revenue stamps at tehsil. The State government has trained only one person per tehsil for the computerised system, his absence for any reason may lead to delay for the farmers. On the other hand, the tehsildar has to shoulder a lot of responsibility which takes him away from his office; therefore, he is not the right person for the purpose of authentication. In our opinion, the computer operator himself should authenticate the computerised RoR as is done in the state of Karnataka. Unavailability and higher price for revenue stamps was noticed in some of the surveyed tehsils during our field visit. This can be tackled by stressing the deposition of fees directly at the counter. Another major problem is the breakdown of the computer system. Whenever any hardware or software related problems occurs, there is no expert available at tehsil headquarter. We found that there is no State level agency for providing service at tehsil level. Whenever a breakdown occurs one person has to go with computer peripherals to the district headquarter. This whole procedure is time consuming and causes unnecessary delay.

45 per cent of the total respondents were in favour of authentication of RoR by the computer operator while only 2.6 per cent were not in favour of this argument and the remaining were unable to say anything because they had never visited the Apna Khata Centre. On the other hand, if we consider the responses of the persons who had visited Apna Khata Centre, we found that about 83.6 per cent of the landholders favored the argument that computerised RoRs should be authenticated by the computer operator, 5 per cent were opposed to this and 11.5 per cent were unable to say anything about this.

To understand the improvement over the previous system, we need to find out the time taken for obtaining manual RoR's. According to

many of the respondents, time taken for obtaining RoRs from patwari is also dependent on the money provided to him. In the following table we will discuss details of the time taken in obtaining manual RoR by the farmers.

Table: 3.10
Time Required for Obtaining Land Records prior to Computerisation (in Percent)

Tehsil/ District	Average Time prior to Computerisation (in Hrs.)	Average Time after Computerisation (in Hrs.)	Reduction in Time (in days)
Sanganer	552	06.00	23
Chomu	168	07.45	7
Jaipur	360	07.00	15
Hindoli	360	04.45	15
Bundi	288	03.00	12
Bundi	336	04.00	14
Rewdar	264	01.00	11
Pindwara	336	07.00	14
Sirohi	288	06.15	12
Simalwara	432	07.00	18
Sagwara	432	04.30	18
Dungarpur	432	06.30	18
Didwana	336	34.00	13
Ladhun	408	03.45	17
Nagaur	384	21.00	15
Nokha	384	06.00	16
L.Karan Sar	816	04.45	34
Bikaner	576	05.30	24
Total	384	06.45	16**

computerised RoR, we find that in computerised system, 95.8 per cent of the landholders are getting the RoR on the same day ,while in manual system only 8.3 per cent of the landholders were able to get the RoR on the same day. Definitely, this is a sizeable improvement over the existing system in terms of time taken for the documents.

Table 3.11

District	Same Day	1-3 Days	3-7 Days	1-2 weeks	2-4 Weeks	One month	More than one month	Average Time (Days)
Sanganer	0.60	25.80	20.70	17	18.20	10.70	7	23
Chomu	9.50	32	17.70	13	20.70	4.70	2.4	7
Jaipur	5.1	29	19.2	14.9	19.5	7.6	4.7	15
Hindoli	9.30	14.70	27.3	26.7	6	7.3	8.7	15
Bundi	9.30	11	25.6	33.70	11	4.10	5.3	12
Bundi	9.4	12.7	26.4	30.4	8.7	5.6	6.8	14
Rewdar	2.9	18.20	32.10	21.90	15.30	5.10	4.5	11
Pindwara	4.50	12.10	17.20	20.70	31.10	10.9	3.5	14
Sirohi	3.9	14.8	23.8	21.2	24.1	8.4	3.8	12
Simalwara	14.40	9.60	12.80	12.80	21.60	20.80	8	18
Sagwara	8.10	13.50	8.80	13.50	27	20.90	8.2	18
Dungarpur	11	11.7	10.6	13.2	24.5	20.9	8.1	18
Didwana	13.80	11.70	9.40	12.90	18.10	27.60	6.5	14
Ladnun	13.50	16.70	5.60	2.40	24.60	32.50	4.7	17
Nagaur	13.7	16.9	7.4	7.4	21.5	30.2	2.9	16
Nokha	13	14.80	12.20	7.8	18.20	31.30	2.7	16
L.Karan Sar	2	4.1	14.20	9.20	12.30	40.80	17.4	34
Bikaner	8	9.9	13.2	8.5	15.5	35.7	9.2	24
Total	8.3	16.3	17.6	16.9	18.9	16.3	5.7	16

Above table clearly indicates that only 42.2 per cent of the respondents were getting RoRs within one week and for the remaining it took more than a week. In one case of Bikaner district, we found that the patwari had not provided the RoR to the landholder till one year because the landholder was not interested in paying extra money to patwari. Basically, if we compare the time of manual RoR with

Reduction in Time after Computerisation in issuing RoR

**** Significant at the .05 level (2- tailed)**

8) Accuracy of Computerised Land Records

From amongst the persons who had already obtained computerised documents, 96.2 per cent of the respondents were satisfied with the accuracy of the computerised system. Only 1.1 persons found that computerised system was not accurate and the remaining was not able to comment anything on the accuracy of the system. *According to Shri Lal Chand Bunkar of Hadota Village of Chomu tehsil, in his computerized Jamabandi, the name of his father was recorded wrong.* Most of the mistakes were related to wrong spelling of the names of landholders or their father's name. In our opinion, further work needs to be done in this area to ensure the accuracy of land records. Errors in the database may lead to complaints from the citizens and also give cause to vested interests to speak against the system.

9) Harassment and Manipulation in the Computerized System

As we already discussed above, after Computerisation, farmers can now get a copy of RoR for any parcel of land on the same day from Apna Khata Centre at the tehsil headquarters. In principle, these records had already been available directly from the patwari; but in

practice it meant a lot of inconvenience, harassment and bribes. patwaris have travel duty and are generally not easily accessible. Now the Land records are in the public domain. Therefore, when we asked beneficiaries; do you think that the process of obtaining computerized RoRs is free from harassment of government officials or any other person?; only 21.40 per cent of the respondents who obtained computerized RoRs replied negatively.

Table 3.12
Cross Tabulation between Persons Obtained Computerised RoRs and Computerised system is Free from Harassment (in Percent)

Persons Obtained computerized RoR	The computerised system is free from Harassment			
	Yes	No	Cant' Say	Total
Yes	76.30	21.40	2.30	13.20
No	51.40	5.50	43.10	86.80
Total	54.70	7.60	37.70	100

Above table indicates persons who obtained computerized records are in favour of computerized system. On the other hand, persons who have never visited Apna Khata Centre were unable to say anything about the harassment in computerized system. 21.40 per cent of the respondents who obtained computerized RoRs faced difficulty in obtaining computerized records. Respondents faced harassment due to problems in obtaining revenue stamps. In some of the tehsils computer operators and patwaris were also not extending the required co-operation to farmers in terms of informing them the procedure for obtaining computerised RoRs.

The manual system of land records maintenance has been described as highly opaque. patwaris have been perceived as monopolizing the records, which were not open to public scrutiny. Several inaccuracies crept into old manual system due to improper manipulation by the patwari. In the computerized system, there should be no possibility of any type of manipulation by any revenue officials but presently in Rajasthan it does not seem true. The main reason is the

lack of work flow automation in the State. 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, 44.50 per cent of the respondents relied on the present system and were quite sure that no manipulation is possible by patwari or the computer operator. 42.3 per cent of the beneficiaries were unable to respond since they did not know the details and power of the officials in the new computerized system.

10) Cost Advantage

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. Therefore, in the following table we will discuss the rent paid by the farmers prior to the Computerisation of land records. According to table, 46% of the respondents were getting a copy of the manual RoR by paying more than Rs.50 and the remaining were getting it by paying less than Rs.50. During our study we found that actual rate of issuing of each document is put up at the Patwar Ghar. Still, we found that awareness regarding the prescribed charges for obtaining documents was lacking amongst the farmers. Only 12.1 per cent of the farmers were paying in the range of the prescribed fee or nothing. In fact it is the farmers who belong to the medium and large category who paid nothing. It clearly indicates that farmers of these categories either have influence on the patwaris or are aware and knowledgeable and in a position to complain to higher authorities and thus the patwari does not demand money from them.

Bikaner		5.1	6.5	13.6	57.0	17.8		155	140
Total	12.1	15.7	26.6	23.3	14.2	7.3	0.8	119	104

Table 3.13
Money required to obtain RoR prior to Computerisation (in Percent)

Tehsil/ District	Money(in Rs.)							Average Cost (in Rs.)	Reduct ion in Cost (Rs.)*@
	None	10-20	20-50	50-100	100-200	200-500	> 500		
Sanganer	8.8	1.7	8.8	27.10	33.70	19.90		149	134
Chomu	5.7	7.4	29.7	28	16	10.30	2.90	126	111
Jaipur	7.3	4.5	19.10	27.50	25.00	15.2	1.4	138	123
Hindoli	1.3	10.20	33.10	14.60	36.30	4.50		91	76
Bundi	0.6	6.7	20.8	23.0	43.8	5.1		97	82
Bundi	0.9	8.4	26.6	19.1	40.3	4.8		94	79
Rewdar	2.8	1.4	7.7	32.4	50.7	4.9		112	97
Pindwara	2.3	10.9	10.9	30.9	32.6	12.6		117	102
Sirohi	2.5	6.6	9.5	31.5	40.7	9.1		115	100
Simalwar a	4.6	5.4	2.3	40.0	33.1	14.6		123	108
Sagwara	9.2	7.4	6.1	35.0	35.0	7.4		101	86
Dungarp ur	7.2	6.5	4.4	37.2	34.1	10.6		111	96
Didwana		6.0	13.7	22.2	50.4	7.7		117	102
Ladnun	1.6	10.9	15.5	27.1	41.9	3.1		93	78
Nagaur	0.8	8.5	14.6	24.8	45.9	5.3		104	89
Nokha		7.0	11.4	21.1	47.4	13.2		121	106
L.Karan Sar		3.0	1.0	5.0	68.0	23.0		195	180

*** After computerization farmers are paying Rs. 10 for upto ten plots and Rs. 5 per 10 plots thereupon. Therefore as per our analysis, average cost is Rs. 15. @ Significant at the .05 level (2- tailed)**

The above table also clearly indicates that corruption is widespread and prevalent amongst the revenue personnel. After computerization, we found that in most of the cases farmers were paying only prescribed fee. However the farmers are still bound to take Khasra Girdawari from the patwari, therefore now the patwari is charging more money from them for this record. The farmers need these records every kharif and rabi season to get crop loans. Therefore, the need for computerisation of Khasra Girdawari is required at the earliest for reducing corruption. 81.6 per cent of the beneficiaries obtained computerised RoRs by paying upto Rs 20 while in the manual system above 75% farmers obtained RoRs by paying more than Rs.50. It clearly indicates that farmers benefit in terms of reduced corruption and payment of bribes after computerisation.. The prescribed fee for obtaining computerized RoRs is Rs. 10 for upto ten plots and Rs. 5 per 10 plots thereupon. The no. of plot varies from one plots to forty-five plots. *According to Jagdish Sharma , a villager of village Muhana, Jaipur, Computerisation of RoRs has facilitated us very much and we are very much happy with this work of government.*

10) Table 3.14
Opinion about Computerisation of Khasra Girdawari

Tehsil/District	Opinion about Computerisation of Khasra Girdawari (in %)		
	Yes	No	Can't Say
Sanganer	86.7	6.6	6.6
Chomu	92.1	5.6	2.3
Jaipur	89.4	6.1	4.5
Hindoli	82.8	9.6	7.6
Bundi	93.3	5.1	1.7
Bundi	88.4	7.2	4.5
Rewdar	100	0.0	0.0
Pindwara	83.4	8.0	8.6
Sirohi	90.9	4.4	4.7
Simalwara	75.4	12.3	12.3
Sagwara	71.2	2.5	26.4
Dungarpur	73.0	6.8	20.1
Didwana	80.6	8.0	11.4
Ladnun	81.5	2.3	16.2
Nagaur	81.0	5.2	13.8
Nokha	79.7	5.8	14.5
L.Karan Sar	78.8	2.5	18.8
Bikaner	79.2	4.2	16.6
Total	83.9	5.6	10.5

Farmers expressed a strong desire for computerisation of Khasra Girdawari, as is evident from the adjoining table. According to this, about 84 per cent of the farmers are in favour of the computerisation of Khasra. If we see the details of respective tehsils, more than 70 per cent of the respondents in every tehsil are in favour of computerisation.

Hindoli tehsil has a maximum number of people against computerization which is 9.6 per cent. This can also be attributed to the fact that the computerisation process in this tehsil is not progressing well. Therefore, many respondents have bitter experiences of computerisation. In the following table we will see the proportion of the persons facing problem in obtaining manual Khasra Girdawari from the patwari. According to responses, 67.9 per cent of the respondents faced problems in obtaining Khasra, 28 per cent are satisfied with the service provided by the patwari and remaining 4.1 per cent were unable to comment on the matter. According to responses from sarpanches; 91.91 per cent are in strong favour of computerisation of Khasra Girdawari, 6.06 per cent are against the computerisation of Khasra and remaining (3.03) per cent are unable to say anything. According to Shri Bhudesh Ji Baba, village Jeerawal, district Sirohi; computerization of khasra and maps will provide sufficient facility to the villagers. (Jh Hkqn'k th ckck jke] xkao & thjkoy] ftyk & fljksgh ds vuqlkj] [krkSuh ds lkFk [kljk fxjnkojh ,oa uD'kk dk Hkh dEl;wVjhdj.k gksus ls xzkeokfl;ksa dks i`;kZlr lqfo/kk fey ldsxh A) The following table gives the tehsilwise situation:

Table 3.15
Persons Faced Problems in Obtaining Khasra

Tehsil/District	Proportion of the persons faced problems in Obtaining Khasra		
	Yes	No	Can't Say
Sanganer	82.9	12.2	5.0
Chomu	83.6	14.1	2.3
Jaipur	83.2	13.1	3.6
Hindoli	70.7	22.3	7.0
Bundi	77.5	21.3	1.1
Bundi	74.3	21.8	3.9
Rewdar	90.1	9.9	0.0
Pindwara	64.6	30.9	4.6
Sirohi	76.0	21.5	2.5
Simalwara	60.8	33.8	5.4
Sagwara	57.1	38.0	4.9

Dungarpur	58.7	36.2	5.1
Didwana	49.7	45.7	4.6
Ladnun	56.1	40.5	3.5
Nagaur	52.9	43.1	4.0
Nokha	53.8	38.6	7.6
L.Karan Sar	68.8	27.5	3.8
Bikaner	61.0	33.2	5.7
Total	67.9	28.0	4.1

The table 3.15 shows that in every tehsil more than half of the persons are facing problems in getting Khasra from the patwari. Amongst the persons who have obtained computerised RoRs, 98 per cent desired the computerisation of Khasra Girdawari. But in our opinion, there is a need to simplify the fields of RoR and Khasra Girdawari prior to computerisation. We found that there are many columns common in RoR and Khasra Girdawari. Therefore we may merge both documents to provide a single document to the farmers in place of two documents. In Karnataka, the computerised system was popular because RTC contains both the ownership information as well as crop information. According to responses from sarpanches, 60.61 per cent stated that presently landholders are facing problems in obtaining manual Khasras, therefore computerisation of Khasra is necessary. 36.36 per cent are against the computerisation of Khasra, as according to them, Khasra requires the details of current crop, therefore it is very difficult to computerise this document. But in our opinion, Rajasthan should go forward for the computerisation of Khasra as has been done in Karnataka.

In the following table we will discuss the time taken by the patwari in providing Khasra to farmers.

Table No. 3.16
Time Required to Obtain Khasra (In Percent)

District	Same Day	1-3 Days	3-7 Days	1-2 weeks	2-4 Weeks	One Month	More than one month
Jaipur	7.7	8.1	11.3	31.5	15.8	8.6	17.2
Bundi	12.6	10.8	9.6	32.5	10.2	15.7	8.4

Sirohi	12.3	10.7	15.6	24.6	22.1	9.0	5.7
Dungarpur	16.8	7.4	6.5	14.9	28.2	23.3	3.0
Nagaur	11.1	15.2	14.7	23.4	21.3	10.2	4.0
Bikaner	0.7	4.3	13.6	20.7	32.8	22.1	5.7
Total	10.5	9.5	11.6	24.7	21.3	14.7	7.8

The above table shows that only 31.6 per cent of the respondents are getting the Khasra within one week, 46 per cent between one week to 4 weeks, 14.7 per cent in one month and 7.8 per cent in more than one month. It clearly reveals that service delivery mechanism is not working well in the case of distribution of Khasra. This needs to be studied with the money paid for obtaining this document.

Table No. 3.17
Money Required to Obtain Khasra (In Per cent)

Tehsil/ District	Money (in Rs.)						
	Non e	10- 20	20- 50	50- 100	100- 200	200- 500	> 500
Sanganer	0.9	2.7	19.7	33.0	25.0	16.1	2.7
Chomu	2.8	38.0	27.7	10.2	13.0	8.3	0.0
Jaipur	1.8	20	23.6	21.8	19.1	12.3	1.4
Hindoli	1.4	38.0	11.2	21.1	23.9	4.2	0.0
Bundi	0.0	43.7	19.7	19.7	7.0	7.0	2.8
Bundi	0.7	40.8	15.5	20.4	15.5	5.6	1.4
Rewdar	8.3	4.2	37.5	20.8	12.5	8.3	8.3
Pindwara	21.6	6.8	22.8	23.9	11.4	13.6	0.0
Sirohi	18.8	6.3	25.9	23.2	11.6	12.5	1.8
Simalwara	25.8	2.1	23.7	18.6	17.5	12.4	0.0
Sagwara	26.4	7.5	30.2	29.2	5.7	0.9	0.0
Dungarpur	26.1	4.9	27.1	24.1	11.3	6.4	0.0
Didwana	29.5	14.7	29.5	15.8	9.5	1.1	0.0
Ladnun	15.4	23.1	37.1	11.5	10.3	1.3	1.3
Nagaur	23.1	18.5	32.9	13.9	9.8	1.2	0.6
Nokha	0.0	1.7	23.8	48.3	12.1	5.2	0.0
L.Karan Sar	0.0	2.8	36.1	33.3	20.8	6.9	0.0

Bikaner	0.0	2.3	34.6	40.0	16.9	11.1	0.0
Total	12.1	15.7	26.6	23.3	14.2	7.3	0.8

The above table indicates that the farmers are paying a higher amount than the prescribed fee. Only 27.80 percent of the farmers are receiving Khasra Girdawari by paying upto Rs.20. The prescribed fee for Obtaining Khasra is Rs.10 upto 10 plots and Rs. 5 per 10 plots thereupon.

12) Institutional Finance

An important objective of the CoLR was that it should be able to cut across procedural tangles and facilitate availability of rural credit. Bank loans are given on the basis of RoR's. Therefore, landowners need copies of such RoRs for applying for loans. It was observed that there has been some positive impact on the flow of institutional finance because farmers are now getting very good printable computerized copy, and in less time, as compared to manual illegible hand written copy. According to farmers, due to legible computerized copy financial institutions are convinced easily. We asked a very simple question from respondents about the availability of finance after computerisation. About 47 per cent of the respondents found that it become easy to obtain a loan after computerisation. Only a very low percentage (4 %) found, there was no change. 49 per cent could not say anything because they had never applied for a bank loan. One can conclude that computerization of land records has slightly facilitated availability of loans from banks for the farmers.

13) Reduction in Disputes

Many of the disputes originate from a faulty record system. 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. Opaqueness of records also leads to adverse selection, litigation and high transaction costs. For this indicator, we asked the respondents about land-related disputes. About 40.8 per cent of the respondents are sure that computerisation has reduced the land-related conflicts. 5.4 per cent respondents opined that computerisation is not

helping in the reduction of disputes. Remaining respondents (53.9%) are unable to say anything about the reduction in disputes due to computerisation. It is too early to draw conclusions on this matter, but it is expected that with better and transparent records, availability of information to different parties will increase before they make a transaction and hence related disputes may decline. On the other hand computerization may increase knowledge about matters which were previously not known and this may lead to an increase in litigation, at least initially.

14) Land Reforms

Implementation of Land Reforms has suffered a lot on account of poor records base. However, It was assumed at the beginning of this programme that CoLR will provide a firm basis to the programme of Land Reforms. A landholder may own land in several villages, *tehsils* 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.

But we found that the present manner of computerization of land records is not sufficient for further implementation of computerization of land records. Basically, in every Indian State, the computerization of land records is designed to promote delivery of documents in terms of money and time not in terms of detecting case of ceiling surplus. With this background; it appears that present form of CoLR may not contribute to the promotion of further implementation of Land Reforms legislations. This may be due to fact that implementation of CoLR is at a tehsil level and the records are not integrated .Once the database is integrated at the district level or State level, there might be emergence of new cases.

15) Mutation

We already mentioned in the beginning that after computerisation the same process of mutation is still continuing. After the completion of mutation manually, the mutation entry performed in

the computer. According to revenue personnel, the online mutation like Karnataka may not be possible in Rajasthan due to the involvement of Gram Panchayat in mutation procedure. Therefore we asked similar question with the respondents about the facilitation of Panchayat in mutation process, it is evident from the following table that the respondents found that the involvement of the Panchayat in the process of mutation facilitates the process of mutation.

Table 3.18
Opinion about Facilitation of Panchayat in Mutation (in Percent)

Tehsil/District	Opinion about the facilitation of Panchayat in mutation (in %)		
	Yes	No	Can't Say
Sanganer	70.2	26.5	3.3
Chomu	87.6	11.9	0.6
Jaipur	78.8	19.3	2.0
Hindoli	72.6	23.6	3.8
Bundi	89.9	9.6	0.6
Bundi	81.8	16.1	2.1
Rewdar	43.0	57.0	0.0
Pindwara	80.6	18.3	1.1
Sirohi	63.7	35.6	0.6
Simalwara	96.9	2.3	0.8
Sagwara	96.3	1.8	1.8
Dungarpur	96.6	2.0	1.4
Didwana	97.1	1.1	1.7
Ladnun	98.3	1.1	0.6
Nagaur	97.7	1.1	1.1
Nokha	97.1	1.7	1.2
L.Karan Sar	98.8	0.6	0.6
Bikaner	97.9	1.2	0.9
Total	86.1	12.6	1.4

According to our study, 86.1 per cent of the respondents stated that the role of Panchayat in revenue matter is helpful and therefore this

practice should be continued without any major modification. Only 12.6 per cent of the respondents are against the above statement.

Table 3.19
Opinion about the change of Role of Panchayat in Mutation Process (in percent)

Tehsil/District	Opinion about the change of Role of Panchayat in Mutation Process (in percent)		
	Yes	No	Can't Say
Sanganer	11.6	85.1	3.3
Chomu	9.0	90.4	0.6
Jaipur	10.3	87.7	2.0
Hindoli	9.6	88.5	1.9
Bundi	2.2	97.2	0.6
Bundi	5.7	93.1	1.2
Rewdar	54.9	25.4	19.7
Pindwara	15.4	83.4	1.1
Sirohi	33.1	57.4	9.5
Simalwara	6.2	93.8	0.0
Sagwara	2.5	94.5	3.1
Dungarpur	4.1	94.2	1.7
Didwana	0.6	98.9	0.6
Ladnun	0.6	90.9	8.5
Nagaur	0.6	94.9	4.6
Nokha	0.6	84.3	15.1
L.Karan Sar	1.9	85.0	13.1

Bikaner	1.2	84.6	14.2
Total	9.0	85.5	5.5

According to adjoining table, only 9 per cent of the respondents are in favour of changing the role of Panchayat in revenue matters. The others are happy with the role of the *panchayat* in revenue matters. However, the proportion of persons in Rewdar shows some resistance against the Panchayat. In this tehsil, we found that majority of the farmers were not happy with the functioning of Panchayat. Some farmers complained about the corruption in Gram Panchayats. It seems that the decentralization of powers to the panchayat has worked for the benefit of farmers. There were some complaints against the panchayats in terms of corruption and discrimination on basis of caste etc, but overall more than 85% of the respondents wanted the involvement of the Panchayat in the mutation process.

Table 3.20

Tehsil/District	Opinion about Computerisation of Mutation (%)		
	Yes	No	Can't Say
Sanganer	91.7	4.4	3.9
Chomu	94.9	2.3	2.8
Jaipur	93.3	3.4	3.4
Hindoli	92.4	1.9	5.7
Bundi	95.5	1.7	2.8
Bundi	94.0	1.8	4.2
Rewdar	97.2	0.0	2.8
Pindwara	70.9	8.6	20.6
Sirohi	82.6	4.7	12.6
Simalwara	69.2	10.0	20.8
Sagwara	70.6	5.5	23.9
Dungarpur	70.0	7.5	22.5
Didwana	75.6	14.0	10.5
Ladnun	74.4	1.1	24.4

Nagaur	78.6	2.4	19.0
Nokha	79.7	4.1	16.3
L.Karan Sar	77.5	0.6	21.9
Bikaner	78.6	2.4	19.0
Total	82.6	4.5	12.9

We also asked about the computerisation of mutation process from the respondents. According to them, 82.6 per cent were in favour of computerisation of the mutation process 4.5 per cent of the respondents were against the computerised system and remaining could not say anything because they don't know about the computerised system. *According to many respondents; "computer se paise and time ki bachat hoti hai".(Computerisation saves money and time).* It clearly indicates that they hope that computer will curb corruption. The main reason of the success of Bhoomi project in Karnataka was online mutation process which ensures that database is current and valid. Without the assurance of a correct and updated database, computerization does not have any meaning as the computerized RoR will not have reliability or validity and one will have to check the records against manual RoR's. Therefore it is desirable that on-line mutation should be launched in the State to ensure that the system is fully computerized and the benefits of information technology accrue to the programme.

According to responses from the sarpanches, 84.85 per cent are in favour of computerisation and on-line mutation. The sarpanches also do not feel any burden due to extra work of mutation. According to them, 81.82 per cent stated that there is no extra burden due to mutation workload on the Panchayats, the remaining (18.18 per cent) felt that the workload had increased due to the mutation work.

16) Infrastructure and Electricity

We found sufficient infrastructure at every tehsil of the State except in tehsils of Dungarpur District. In every tehsil of Dungarpur, the facility of Air Conditioners was not established till date even after two years. Similarly, we also found the problem of computer furniture at many places. The problem of irregular electric supply is prevalent at

every tehsils except some tehsils of Jaipur district, but we found that the work of distribution of computerised RoRs was not affected due to lack of electricity. In some of the tehsils, UPS is not working for the required period and therefore there is a need to replace UPS with generator. Every tehsils contain only one computer system and printer, breakdown in the computer affected the work of distribution of computerised RoRs. Therefore it is recommended that one extra computer with printer could be provided at every tehsil. In addition, One 5 KV generator may also be set up at tehsils.

17) Points of View of Farmers

- (a) The facility of computerisation of land records is extremely beneficial and there is a need to enhance awareness amongst the farmers. It will be better if the revenue department organized camps at village level to explain the procedure of obtaining computerised RoRs. The government may also take help from Panchayat members for the publicity of computerised system.
- (b) Availability of RoR's should be extended to the Panchayat level.
- (c) The computerisation of RoRs will not curb the corruption existing in the revenue department. There is also a need to computerise all documents issued by patwari or other revenue personnel like Khasra Girdawari , birth and death certificates etc.
- (d) The State government has established Gram Doot in some of the selected districts at village level and therefore there is a need to extend this service in all the villages of State.
- (e) We have acute problem of electricity, therefore good battery back should be provided to face the problem of power.
- (f) In some of the places, computer operator is not available all the time during working hours and its engagement in some other unofficial works. Therefore it is necessary that computer operator should be available all the time to facilitate in time saving to farmers.

- (g) There should be a photograph of the main landholder at the top of the RoR.

(ii) Points of View of revenue personnel

(a) Tehsildar

- i) There is a need to provide separate computer system for the registration work. Presently we are doing registration as well as land record's work on same computer, causing delay in the issue of land records to the landholders.
- ii) There should be two resource persons at tehsil headquarter in place of one, because whenever a resource person goes on leave for any reason, problems are caused for the beneficiaries.
- iii) The fee for the computerised RoRs should be deposited in cash in place of revenue stamps, because sometimes there is a shortage of revenue stamps. This also causes problem to farmers.
- iv) The password security system should be replaced by the thumb impression of the selected revenue personnel.
- v) Presently, the service proved by the AMC contractor is not satisfactory, therefore there is a need to revise the present system of AMC.

(b) Patwari (Resource Person)

- (i) The training provided by the State government to the patwaris (designated as resource person after completion of computer training) is not adequate for the handling of Apna Khata Centre. Therefore, thorough training should be provided to at least two-three persons from every tehsil.

- (ii) Most of the tehsils are facing the shortage of computer stationery and problem of UPS (Uninterrupted Power Supply).
- (iii) Since only one patwari is trained in every tehsil, therefore they have a heavy work load. As per the discussion with resource person, we found that they feel that their appointment is a punishment because their colleagues (patwaris) are earning extra money by issuing other documents.
- (iv) The work of land records is generally affected due to the engagement of the computer for work other than land records. This can lead to security problems and should be avoided.
- (v) The software contains some glitches, therefore modification in software should be considered necessary. The following are the main glitches in software:
 - a) Mutation updation module is not updating the name in the original Jamabandi module automatically.
 - b) The codes for different types of land should be separate like in the manual records.
 - c) Khatedar and Gair-khatedar should be separate in computer programme to facilitate in detecting separately.
 - d) The software designed for Nahari area is not working properly, therefore there is a need to modify existing software.
 - e) The software does not show the area according to Khasra.

- (vi) There should be one standby printer in case of failure of first printer.
- (vii) At least two computers should be provided to every tehsil, one for issuing RoRs and the other for updation of Jamabandi.
- (viii) Every tehsil has an acute problem of electricity, therefore mini generator should be provided for smooth functioning of Apna Khata Centre.
- (ix) The computerisation of all remaining documents is also essential.
- (x) The merging of Khatauni Jamabandi and Khasra Girdwari becomes essential in computerised system.
- (xi) A scanner is also required some times in cases of mutation.

Benefits of Computerisation of Land Records

(i) From the point of View of Government

- a) The load of records room has declined after the computerisation and there will be no need for extra space for putting records in near future.
- b) The computerisation is saving time of the revenue personnel, now they may concentrate more on other work.
- c) The revenue has increased against the issue of RoRs. The total revenue collected from September 2002 to till onwards is 121 lacs. In the current financial year till January 06 Rs. 60 lacs have been collected.

(ii) From the Point of View of Land holders

- (a) The general public can get a copy of RoR at tehsil headquarter without any delay or harassment during

office hours. In the manual system, there was difficulty in accessing the patwari.

- (b) Previously there were many cases reported about errors in the RoR due to human arbitration, but after the computerization process the possibility of errors in the documents has decreased.

(iii) Suggestions for Improvement

- (a) There is a need to modify software from the point of view of future prospects and there is a need to computerise the Khasra Girdawari also.
- (b) Mutation should be on-line and there is a need to integrate khasra and khatuni prior to implementation of on-line mutation.
- (c) The updation of chausala should be on a yearly basis in place of four years.
- (d) There is a need to amend the mutation process after the computerisation of land records and made it online.
- (e) There should be a tie up with an agency at the district to provide software and hardware support to the computer systems at the tehsil level.

Opinion about On-line Mutation

About three-fourth of the tehsildars are of the opinion that on-line mutation will help in quick disposal of mutation. About 16.67 per cent of the tehsildars do not agree with the statement, and the remaining i.e. 8.33 percent are unable to say anything about it.

Opinion about accuracy

About 91.67 per cent of the tehsildars agreed with the statement that computerised RoRs are accurate and updated. The same is the opinion amongst the patwaris also, 82.35 per cent of the patwari

stated that computerised land records are accurate, 14.70 per cent did not agree with the statement and only 2.95 per cent of the patwaris are of the view that it was too early to say anything about accuracy of the system. In addition, 79.41 per cent of the patwaris accepted that computerised RoRs are more accurate than manual RoRs. According to them, whenever we wrote a copy of RoR from Jamabandi register, there were chances of human mistakes at the time of writing RoR and in computerised system there is no chance of any inaccuracies after the correct feeding of raw data. Remaining 20.59 per cent of the patwaris did not agree with the statement.

Reduction in Corruption

We also found during our study that CoLR reduced corruption to a large extent. The majority of the tehsildars are also of the same view. According to our responses, 91.67 per cent of the tehsildars are in the view that computerised system of distributing RoRs reduced corruption of revenue department. One tehsildar argued that at this stage, it will be premature to comment on the reduction in corruption, which is an age old practice.

Rise in Revenue Collection

According to 51.52 per cent of the patwaris, computerisation of land records has resulted in the increase of revenue collection. According to remaining patwaris since the cost of obtaining computerised RoRs is the same therefore it is very difficult to say that computerisation enhanced the government revenue. According to sarpanchs of the gram Panchayat, 84.85 per cent are also saying that computerisation enhanced the revenue of state government while remaining (15.15) opposes the statement.

Workload of Revenue Department

The spirit behind the computerisation of land records is to reduce the workload of over burdened revenue personnel and provide easy access to the farmers to documents without any bribe or harassment. Prior to computerisation, there were various tasks related to land records involving many personnel at different stages. In

Rajasthan, the farmers are in need of mainly two documents related to land, namely : Jamabandi Khatauni and Khasra Girdawari. The state government has computerised only the Jamabandi Khatauni and computerisation of Khasra Girdawari is still awaited. In addition , the mutation process is still continuing in the same way as was in the manual system. The computerisation of RoRs reduced the workload of patwaris only to some extent. 75 per cent of the tehsildars accepted that computerisation reduced the workload of revenue personnel marginally. To ensure the success of the programme, it should reduce the workload of the revenue personnel substantially.

Reduced Interpolation

In manual documents there were many complaints of tampering and interpolation by the patwari since patwari was the sole person in charge of the manual records. After the computerisation the power of updation was not vested with patwari and other revenue personnel. Therefore, any type of interpolation and tampering after computerisation decreased. 75 per cent of the tehsildars agreed with this and stated that computerisation helps in diminishing interpolation by the revenue personnel as they do not have any power of modification in raw data.

Rise of Public Faith in Revenue Administration

The basic and grass root work pertaining to land records is done by the patwari. Due to the opaque nature of revenue record keeping, and also due to his monopoly, the patwari could tamper with the records. But after computerisation, since there is a reduced role of patwari in updation or modification of land records, there is a lesser possibility of tampering of records or delaying matters. According to tehsildars and sarpanches of gram Panchayats, there has been growth of public trust in the revenue administration after computerization.. About 85.29 per cent of the patwaris stated that after the computerisation of land records the faith of public in revenue administration has increased.

Chapter- 4

Conclusion

The findings of field study indicated that CoLR in Rajasthan has not been fully successful as the distribution of manual RoR is continuing. Awareness of the programme is also low as compared to other states of India. The system of providing manual RoRs needs to be stopped, but prior to that the computerized system should be foolproof and reliable. The data needs to be real time and the mutation process should be online. Once the mutation is approved at the computer the land records database should simultaneously get updated. Presently, the state government is providing printing of land records and updation of the database in offline model makes it out of sync with current status of land records and therefore is not very useful. Working of both the manual and the computerized system concurrently will lead to the computerized system being sidelined and it will not be successful. The State Govt should ensure that the database is clean and without errors, the online mutation procedure is working , look into the security aspects as well as maintenance, switch over to the computerized mode fully and ban the manual system.

Even in the present state the CoLR is dealing with some of deficiencies of manual land records. Farmers may access their records any time at tehsil without the help of a patwari. Therefore, land records are more transparent and open for public scrutiny.

During our study, we found that farmers are getting computerised RoRs without any delay and harassment. The farmer first submits an application with revenue stamps to tehsil office and majority of the farmers obtain the computerised RoRs within one day. However, the farmers have to visit the tehsil for obtaining computerised RoRs, thus causing some inconvenience to them.

The application of Apna Khata software is user friendly and GUI based. It operates in windows 2000 operating systems. The front end was used VB 6.0 and database is managed in SQL server 2000. The architecture of application is server as a client, therefore it is not possible in Rajasthan to extend this system to other clients. It is true that International Organization of Standardization has certified the existing software; however this software still contains many glitches. The computerized mutation does not reflect the real benefits of computerisation, as it does not ensure automatic updation of land records. It needs online mutation, which can work only in a workflow automation system. The security in Apna Khata software is provided by the traditional password system, which is prone to hacking. Presently, the Rajasthan Government has computerized only the RoR (Khatauni). The Khasra (Crop details document) still remains to be computerised. The people of Rajasthan will be able to get full benefits of Computerisation of Land Records only after the computerisation of Khasra and implementation of online mutation.

Presently, the State government in association with NIC has provided training only to one patwari from each tehsil. Whenever the trained patwari is on leave, RoRs seekers have to wait up to the end of his leave. Therefore, more revenue officials should be trained for the computerized system in phases. It may also be a good idea to recruit fresh entrants at that level from amongst people who have some knowledge of computers.

In Rajasthan, we found that most of the farmers are getting RoRs at the prescribed rate while in manual, most of the farmers were getting RoRs for Rs.50 or more.

Finally we may say that in Rajasthan, the service delivery system is satisfactory in most of the tehsils and farmers are not facing any type of harassment in obtaining computerised RoRs. But there is a need to ban manual extraction and enhancement of awareness amongst farmers through various sources to provide real benefits to farmers of the State. The shifting of architecture from server as client to server-clients will provide the real benefits of online mutation to farmers. The amendment in the related act of mutation is also desirable.

Chapter -5

Recommendations

- Presently, the state government is providing printing of land records and updation of the database in offline model makes it out of sync with current status of land records and therefore is not very useful. Therefore, it is necessary to ensure online mutation and workflow automation in the present software for a dynamic and current database.
- Streamlining the system and banning of manual extraction will provide the full benefits of computerisation of land records to the farmers. Therefore, relevant acts would have to be amended to render hand written land records illegal. This is necessary because existence of both hand written and computerized records makes the CoLR programme redundant.
- Security through password is prone to hacking. Therefore, it is necessary to provide security through bio- metric identification technology in-place of traditional password. It was seen that the computer containing land records data is also being used for other purposes. This may endanger the security of land records

data and create possibility of infection through virus in computer system.

- Farmers have to purchase revenue stamp from the vendor (middleman) for obtaining a computerized RoR, resulting in inconvenience and loss of time. Therefore, the state government should accept cash against the fee of computerized RoR. The revenue officials may deposit money in Revenue Department of every tehsils at the end of the day.
- The architecture of application of computerized system is server as a client; therefore it is not possible in Rajasthan to extend this system in other clients. The shifting of architecture from server as a client to server-client will provide the real benefits of computerization to landholders.
- Whenever any software or hardware related problems occurred in the computer system, no expert was available at tehsil level. Therefore, either an expert had to arrive from district headquarter or a resource person had to depart to tehsil office with computer system to remove the computer problem. The time taken was anywhere between 3 days to one week. Due to this, users faced inconvenience. Therefore a trained person should be available at tehsil office to sort out these problems or the State should tie up with computer agencies to provide maintenance at the tehsil level.
- Farmers have to visit tehsil office for obtaining computerized RoRs which causes delays and greater cost to them. Therefore, it will be better, if the Apna Khata centres at sub tehsil level are extended to the sub panchayat level, subsequently.
- One mini generator, one extra printer, one scanner and a standby computer should be provided to every tehsil for smooth functioning of Apna Khata Centre. In most of the tehsils we found acute shortage of stationery and problems in UPS, These problems though minor need to be attended to.

- At present, one patwari has been trained from every tehsil for dealing with the work of computerization of land records . His absence from the tehsil for any reason may lead to delay for the farmers. Therefore, other revenue officials also should be trained for the use of the computerized system.
- Touch screen kiosks should be installed in all tehsils to empower the farmers and provide them access to information.
- At present the computerization of land records in Rajasthan is restricted only to Records of rights. The benefits of computerization will be reflected fully after the computerization of Khasra i.e. records of crops. Therefore, the computerization of Khasra is also necessary.
- Computerization of land records will not be complete without the digitization of cadastral maps. Therefore it is necessary that in the next phase digitization of maps should be taken up.
- There is a need to integrate Registration Department with the land records data to facilitate simultaneous initiation of mutation cases and updation of land records.

References

- Ahuja Manoj & Singh, A.P. (2006), "Evaluation of Computerisation of Land Records in Karnataka: A Study from Gulbarga District", *Economic and Political Weekly*, Vol XLI , No 1, January 7, 2006.
- Ahuja Manoj & Singh, A.P. (2005), "Appraisal of Computerisation of Land Records in West Bengal", in *Land Reforms in India : Computerisation of Land Records*; Edited by Wajahat Habibullah & Manoj Ahuja , Sage Publications, India.
- Appu, P.S. (1995), *Report of the National Committee on Revitalization of Land Revenue Administration*, Ministry of Rural Development, GoI.
- Appu, P.S. (1996), *Land Reforms in India*, Vikas Publishing House, New Delhi.
- Contributory Papers of National Workshop on Computerisation of Land Records, Centre for Rural Studies, LBSNAA, Mussoorie, Nov.2001 and Dec.2005.
- Government of India, Ministry of Rural Development, *Annual Reports from 1995-2004*.
- Government of India, Ministry of Rural Development, *Conference of Revenue Ministers on Land Reforms, 1985 & 1992*.
- Government of India, Ministry of Rural Development, *Vision Document*.
- Government of India, Planning Commission, the First, Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth and Ninth five year plans (Chapter on Land Reforms).
- Indu Gupta (2005), " Computerization of Land Records in Rajasthan: Accomplish Some Objectives" , in *Land Reforms in India : Computerisation of Land Records* ; Edited by Wajahat Habibullah & Manoj Ahuja , Sage Publications, India.
- Singh, S.K. (2001), *Dictionary of Land Revenue Terms in India*, Greenfield Publishers, Dehradun.
- Sinha, B.K. (1998), "Evaluation of Computerisation of Land Records in Morena District", Published by Land Reforms Unit, LBSNAA, Mussoorie.
- Sinha, B.K., (2000) "Dynamic Land Records Management System : A Pressing Need"; in *Land Reforms in India : An Unfinished Agenda*; Edited by B.K.Sinha & Pushpendra, Sage Publications, India.

Abbreviations

CoLR: Computerisation of Land Records

NIC: National Informatics Centre

SIO: State Informatics Officer

SIDART: Society for Integrated Developmental Activities, Research and Training

RORs: Record of Rights (RoRs)

ILR: Inspector of Land Records

GIST: Graphics and Intelligence based Script Technology

RDBMS: Relational Database Management System

GUI: Graphic Users Interface

RTC: Records of Rights, Tenancy and Cultivation

UPS: Uninterrupted Power Supply

Glossary

Cadastral Map: Map depicting land parcels

Cadastral Survey: Survey of legal boundaries of Land

Chausala: Four years updation process of Land Records

Gair Khatedar: Allottees, holders of maufi lands

Katauni: Record of rights

Khasra: crop details document

Mutation: changes due to availability of irrigation/natural calamities/consolidation/ or on account of legal changes like transfer of ownership, partition, land acquisition, lease etc.

NIC under the Ministry of Communications & Information Technology, Government of India provides technical support for the operationalisation of computerisation of Land Records.

Patwari is the village level revenue Official.