Introduction
CHAPTER I

INTRODUCTION

Land is a fundamentally important economic, social, and environmental resource, particularly in a country such as India where a majority of the population still earns their living from agriculture. It follows that defining, allocating, and protecting rights to land are crucially important. The strength and protection of such land rights ultimately depends upon a system of publicly kept land records. Despite the importance of these land records, such records in India, by all accounts, suffer from fundamental problems of inaccuracy, inefficiency, and opaqueness.

India’s basic system of land records was devised more than a century ago and has not adapted to the changing needs and characteristics of today’s society. The current system of land records was designed initially for fiscal purposes. The objectives of better defining, protecting, or transferring the land rights were only incidental. Later, the land records systems evolved to meet other purposes such as statistics for economic planning related to crops, irrigation, soil, and land use. Today, although the governments at the village, taluk, and district levels maintain numerous types of land records that require enormous resources to maintain and update, experts unanimously condemn the land records system as one that is unable to meet its most rudimentary objectives. The inadequate nature of land records has been blamed for the failure of land reforms, the excessive amount of land disputes that are clogging the country’s court systems, and even slow economic growth.

Revenue departments of the various Indian states maintain the most important land record (but not the only land records). While the land records systems are state-specific, most share basic common characteristics. The principal records being maintained are: (1) village
maps; (2) field books or "khasra" which are an index to the map showing changes in plot boundaries, area, particulars of right holders, methods of irrigation, land uses, crop information, etc.; and (3) records of rights in which the names and nature of rights for all right holders are recorded. In addition to these basic categories, the revenue departments at local levels maintain numerous other land registers and records.

Registration offices, which operate under a government department separate from the revenue departments, also maintain a wholly different set of land records. These offices register private documents according to the Indian Registration Act, including documents related to various land transactions.

In recent years, the Ministry of Rural Development (MRD), Government of India has taken initiative to identify the deficiencies in the present systems of land records and to address them. The primary method for addressing the deficiencies has been to use information technology as means for improving the land records. The MRD has provided substantial resources to the states for such Computersation of Land Records (COLR) programs. The COLR scheme has involved three different actors: the National Informatics Centre (NIC); the MRD; and the state governments. NIC is responsible for upgrading its district centers with the latest hardware, software, terminals, and printers to expedite the work of data entry. It is also responsible for creating the software packages and providing training on the software to revenue officials. MRD provides financial support to the states for site preparation, data entry work, purchase of capital equipment, and miscellaneous other expenditures. The state governments are responsible for data collection, data verification and validation, and distribution of the new records of rights to landowners.

Land records give landholders the fullest security of tenure and minimize the possibility of disputes and litigation. It enables them to
obtain credit more easily and to transact in land more quickly, safely and cheaply. It secures the rights of absentees and those enjoying restrictive rights of any kind. (Manoj & Singh)

1.1: Land laws of Karnataka

The state of Karnataka (previously Mysore) came into existence on November 1, 1956 after the amalgamation of the states of Mysore and Coorg, and parts of states of Madras, Hyderabad and Bombay. Each of these constituent areas, with the exception of Coorg, had been formulating and implementing the reforms measures of their own before they joining the integrated state of Karnataka. The challenge before the new state was to formulate an essentially uniform law that would, at the same time, accommodate local problems and various to the greatest degree possible.

Further, as in most other parts of India, the prevalence of feudalistic and tenure systems, such as jagirs and imams, were widely prevalent in Karnataka. Even the key village revenue officials, equivalent to the present day village accountants (VAs), were in hereditary possession of their offices.

Soon after the new state came into existence, efforts began to formulate a uniform land reforms law. In the mean time, for the Coorg area a specific law, the Coorg Tenants Act, 1957 was enacted. Compressive legislation for the entire state, called the Mysore (later Karnataka) Land Reforms Act, 1961 was effectively brought in to force from October 2, 1965. In the interregnum between 1961 and 1965, an interim peace of legislation, the Mysore tenants (Temporary Protection from Eviction) Act, 1961 was enacted and enforced to protect the tenants from eviction while the principals’ scheme of legislation was being formulated. In the compressive legislative enactment, the land ceiling provision was designed in such a way that transaction made between 1961 and 1965 did not fall with in the purview of the enforcements agencies. Later the Act was once again compressively
amended and brought into force March 1, 1974. It is from this date that the implementation of land reforms in the state was undertaken with utmost earnestness. During the period 1974 to 1984, implementation of land reforms aroused intense political fervor, and this was backed up by efficient administrative support.

Meanwhile, the series of other acts of legislation were also enacted to abolish the various personnel, service, religious, charitable, and miscellaneous land tenures. In parallel, hereditary village offices such as those of Shanbhogas, Patwaris and Patels were also abolished by the Karnataka Village Offices (abolition) Act, 1961 which was brought into force in February 1953.

Other major laws that had bearing on the land reforms, such as the Karnataka Land Revenue Act, 1964 and Karnataka land grant rules, 1965 were suitably amended periodically to sustain the professed focus of land reforms.

1.2: History of land records

The land records have a long history behind them, as long back as the history of the revenue administration. The earliest efforts to prepare land records on systematic lines and also to adopt innovative methods began with Sher Shah Suri, the Emperor of northern India, for just five years (1540-1545). During his regime land records were prepared recording the holdings of every cultivator which also showed the extent of area cultivated under each crop in every season. Sher Shah Suri not only changed the system of assessment of land revenue but also introduced some improvements in the methods of its collection. He gave instructions that leniency was to be shown at the time of assessment, but not at the time of collection.

The process of revenue administration started by Sher Shah Suri was continued and improved upon under the reign of the Moghal Emperor Akbar (1556-1605). Todar Mal – the greatest revenue expert, who
started his career under Sher Shah Suri joined in the service of Akbar, is remembered even to this day for evolving a system of revenue assessment and survey – a system which drew a balance between the demands of the state and needs of the subject.

The peasantry, during the British rule became very poor since the share claimed by the government as land revenue was very high. According to Mr. Gokhale, "the peasantry was in debt to an extent which was experienced in no other part of the world largely due to the system of land administration which imposed a burden far beyond what the land could bear". Right from the time of Manu, the land revenue has been a major source of income of the government. The state, according to Manu, obtained one-twelfth to one-sixth of gross produce of the land assessed as a whole during the normal times and at times of war or natural calamities the share was raised to one-fourth of the produce. This was the basic criteria for all the rulers who ruled our state.

The Mauryans surveyed the land and classified it into dry, wet and garden and also fixed the assessment on such lands based on the nature of soil, situation, water supply and crops.

Under the Vijayanagara Kings, the revenue administration had reached the high level of efficiency, who determined the extent of land by the quantity of seeds sown. The Marathas in the integrated areas of Karnataka appointed officers like Deshpande, Kulkarni (Shanbhog), Deshmukh etc., to revenue accounts. The Keladi Nayakas in the north introduced the land revenue system called the sist which was perfected by Shivappa Nayaka who classified the lands into five categories according to their fertility taking into account the average yield over a period of 13 years.

Tippu Sultan introduced a new system of revenue administration who divided the territory into tukadis of 5,000 pagodas each.
restoration of the Mysore State to the Wodeyar Royal Family (1799), Dewan Purnaiah attempted to rationalize and stabilize the various rates of assessment and conferred property rights of soil and allowed the collection of revenue both in cash and kind. The Raiyatwari system laid down by Lord William Bentinck was followed by Cubbon while administering the Mysore territory. In 1862, when Bowring took over the reign of administration, an orderly process of reformation set in. In November 1863 the revenue survey and settlement department was organized. In 1864 comprehensive revenue circular was issued for systematizing revenue procedure.

The Mysore Land Revenue Code (Act V of 1888) was promulgated and came into force from 1st April 1889. The rules framed under the code were first published in July 1890 and revised in August 1901. In the year 1958 the Karnataka Land Record of Rights Act, 1958 and the rules there under came into existence.

After the reorganization of the state the need of adopting a uniform code regarding the maintenance of land revenue records and revenue administration was much felt. As a result evoked a new act to consolidate and amend different laws relating to land and revenue administration in the State, The Karnataka Land Revenue Act, 1964 (Karnataka Act 12 of 1964) was enacted and various rules were framed under the Karnataka Land Revenue Rules, 1966. Sections 127 to 136 of Chapter XI of the Act, and Rules 38 to 71 of Chapters VIII and IX of the said rules deal with Record of Rights. The act is in force till date.

The history of land records is as old as the Indian civilization. Maintenance of these records has gone through a process of evolution as it passed through various administrative systems and socio-economic compulsions. Without going into the details it can safely be stated that the present system of preparing and maintaining land records originated from the Moghal period and it reached its scientific
form during the British rule. All the subsequent efforts are largely revisional with de novo preparations combined by newly accredited areas on the basis of existing laws and rules. Land records are of great importance to contemporary socio-economic imperatives and their revision and updating is necessitated for capturing the essentials of change in social dynamics.

The system of correction and updating of land records is very elaborate. Maps depicting land parcels (cadastral maps) are required to be updated every 30 years through the process of survey and settlement operations. A majority of states have not done any survey and settlement operations after independence. As a consequence, updating of records has suffered and they no longer represent the ground realities relating to ownership and possession. This situation has been well recognized at various levels at different points of time. In December 1988, the Conference of Revenue Secretaries of States took cognizance of the poor state of land records and recommended immediate action. Even the First Five Year Plan (1952-57) took note of this fact and its possible consequences. In a primarily agrarian economy with a distorted social structure, it has serious implications in terms of its impact on the execution of all welfare and economic development activities.

1.3: Importance of land records in India

The collection of land revenue and the existence of the institutions of the state have been co-terminus. A historical analysis of ancient Indian policy suggests that tax on land played a pivotal part in the evolution and maintenance of the systems of governance.

In ancient times, land revenue was possibly the only source from which the entire income of the government was derived. Further, its incidence was on a large section of the population as a major proportion of the people relied on land for their livelihood and existence. Thus, tax on land proved to be the primary source of the
state's wealth. The revenue collected varied from region to region and also depended upon the regimes. Broadly speaking it was a share of the produce paid in kind or cash.

The mode of assessment and collection underwent a change when the British took over the administration. Lands were measured roughly and village records of lands were gradually built up. Thus, closely linked to the collection of land revenue was the creation of an array of land records wherein collection of revenue could be systematized and recorded.

India's independence ushered in the era of the welfare state and accordingly 'land revenue 'or the tax on the agricultural land also witnessed a reduction. Further, other sources of taxation became the primary sources of income for the government.

However, the importance of land records cannot be undermined due to the fall in the importance of land revenue. The entire structure of land records management that was associated with revenue collection now had to sustain its relevance suo moto. The shrinkage in the relevance of land revenue collection does not undermine the importance of the land records in the governance paradigm.

The plan document of the Seventh Five Year Plan rightly opined.

"Land records form the base for all land reforms and therefore regular periodic updating of land records is essential in all states".

Thus, the concept of collection of revenue necessitated the maintenance of land records, in a rudimentary form in ancient times and a more systematic form during the British administration. Maintenance of land records has now become more vital for administrators and creation of a land information system is one of the key issues facing governance today.
1.4: Government Initiatives

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 Second and Third Plans. The Sixth Five Year Plan had envisaged completion and updating of land records during 1980 to 1985. To quote the Sixth Plan document, "systematic programme would be taken up for compilation/updating of land records for completion within a period of 5 years, i.e. 1980-85. In the states, where the backlog is heavy, aerial survey techniques may be employed for expeditious survey operations. Each cultivator would be given a passbook indicating his status/title to description of the land, viz., area and cases along with a copy of khasra or map and other details that are considered necessary. Appropriate provision will be made in revenue laws to confer legal status on these documents, as proof of title and rights in land. Similarly, the Seventh Plan document also emphasized the need for updated and accurate land records. 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 until now."

The Eighth Five Year Plan (1992-97) and the Ninth Five Year Plan (1997-2002) have also envisaged the fulfillment of all five principles of National Land Reforms Policy, that is, abolition of intermediaries, tenancy reforms with security to actual cultivators, redistribution of ceiling surplus land, consolidation of holdings and updating of land records. The general theme including the content of all Plan documents has emphasized that land is an asset which provides the primary and secondary needs of the people. Most of the problems of the people in the villages are due to land-related issues. Planning and
maintenance of land records is a pre-requisite before any land reform policies can be successfully implemented. To achieve this, latest information technology is a must for quicker storing, processing and retrieving of information/data base in land records. Therefore, computersation of land records is an essential step to achieve all these goals especially if we have to realize the goal of decentralized planning and administration as envisaged in the 73rd amendment to the Indian constitution.

The Conference of Revenue Ministers of States and Union Territory (UTs) (1985) advocated the computersation of land and crop-based data on a pilot project basis as a technology proving exercise in one tehsil/revenue circle of each state/UT as a central sector scheme.

A study group (1985) comprising representatives from the Ministry of Agriculture, Central Statistical Organization and from the state governments of Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu and Uttar Pradesh also recommend computersation of core data in land records to assist developmental planning and to make their records more accessible to the people. However, the Planning Commission considered that it would be premature to take up the scheme at that point of time.

A workshop on Computersation of Land Records (1987) reviewed the experience of different states in computersation of land records and recommended that the government of India should fund this programme on a pilot project basis. The Department of Rural Development selected 8 districts in eight states. Morena was one of the Districts selected for computersation of land records, others being Ranga Reddy in Andhra Pradesh, Mayurbhanj in Orissa, Sonitpur in Assam, Singbhun in Bihar, Wardha in Maharashtra, Dungarpur in Rajasthan and Gandhinagar in Gujarat. While approving pilot projects in 1988, the centre decided that the time frame for pilot project should not be more than 6 to 8 months. The states should clearly bring out
benefits that would accrue as a result of these pilot projects and these should be highlighted in project reports. The state governments should show a clear commitment to computerization of land records. An officer with knowledge, training and experience in handling computers should be made in charge of the project and should be posted in districts chosen for the purpose.

1.4.1: Progress

The centrally-sponsored scheme on computerization of land records (COLR) was started in 1988-89 with 100 per cent financial assistance as a pilot project in eight districts as mentioned earlier with a view to removing the problems inherent in the manual system of maintenance and updating of land records and 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 and administrators. By 1991-92 the scheme had been extended to 24 Districts in different States, namely Haryana, Himachal Pradesh Jammu & Kashmir, Kerala, Karnataka, Manipur, Punjab, Tamil Nadu, Tripura, Sikkim, Uttar Pradesh, West Bengal and Delhi.

During the 8th Five Year Plan (1992-97) COLR was approved as a separate centrally-sponsored scheme. The total expenditure under the scheme during the 8th plan period was Rs.59.42 crores which was utilized for covering 299 new districts and also for providing additional funds for the on-going pilot projects. Thus, by the end of the 8th Plan, 323 districts in the country were brought under the scheme at a cost of Rs.64.44 crore.

The scheme is being implemented since 1994-95 in joint collaboration with the National Informatics Centre (NIC) which is responsible for supply, installation and maintenance of hardware, software and other peripherals. NIC also trains the revenue officials and provides
technical support for implementation of the scheme. The Ministry of Rural Development is providing funds to the state governments for site preparation, data entry work and for purchase of necessary furniture and other miscellaneous expenditure. Since the scheme’s inception, the ministry released Rs. 109.37 crore upto 31.3.1999. The utilisation of funds reported by the states/union territories (UTs) as on November 30, 1999 was Rs.62.15 crore which is approximately 57 per cent of the total fund released.

In the 1999-2000 budget provision under the scheme is Rs.33 crore. Out of this allocation funds to the tune of Rs.25.69 crore have already been released to the state governments of Andhra Pradesh, Karnataka, Kerala, Gujarat, Maharastra, Manipur, Mizoram, Madhya Pradesh, Orissa, Punjab, Haryana, Jammu & Kashmir, Goa, Tamil Nadu and Pondicherry up to November 1999 for undertaking pilot project on digitization of cadastral survey maps, operationalisation of the scheme in 407 new tehsils and additional funds for on-going projects. The entire allocated funds under the COLR scheme will be utilized during the current financial year. So far only five projects namely, Sonitpur (Assam), Gulbarga (Karnataka) Morena (Madhya Pradesh) Rewari (Haryana) and Burdwan (West Bengal) have been completed where the computerized Records of Rights (ROR) are being issued to the land owners. In about 90 districts, data entry and data validation work is nearing completion. The progress of implementation of the scheme is periodically reviewed at the level of Joint Secretary as well as through annual conferences of revenue secretaries and revenue ministers of the states and UTs. The officers of the ministry also visit various States in order to assess the progress of the scheme and to have a first-hand information regarding snags and bottlenecks in the implementation of the scheme.
1.5: Computersation of Land Records in Karnataka

The state of Karnataka has been justifiably recognized as a pioneering state in the Computersation of Land Records. Karnataka’s COLR program has attracted widespread recognition and even international awards. Karnataka’s land revenue records include about 20 million plot-specific records of 6.7 million landowners in 177 taluks. These records had been maintained by approximately 9,000 village accountants (VAs).

Computersation of Land Records began in Karnataka in 1991 when the first pilot was initiated in Gulbarga district through a centrally-sponsored scheme. By 1996, COLR projects had been sanctioned for a pilot taluk in all districts of the state. These earlier efforts failed to meet their objectives and fizzled out. Sometime later, after assessing the earlier efforts, the state government mandated that COLR be undertaken and finished in all of the state’s 177 taluks by March 2002.

Under this most recent effort, known as the Bhoomi E-governance project, the state government claims to have fully computerized the records of rights maintained by the revenue department throughout the state. The system works with software called “BHOOMI” designed fully in-house by NIC, Bangalore. The software provides for printing of land records and incorporates a process of online updatation to ensure up-to-date issuance of the primary land document, Record of Rights, Tenancy and Crop Information (RTC), to farmers. The software also incorporates a bio-logon metrics system which authenticates various users on the basis of fingerprints in order to reduce or eliminate hacking and manipulation of the land records.

Perhaps most importantly, the system is designed so that computerized copies of RTCs can be obtained at taluk-level computer kiosks by farmers or any member of the general public for a fee of Rs 15 per record. Landowners need copies of such RTCs to undertake
many tasks such as applying for loans, transacting in land, requesting a land survey, engaging in litigation concerning land, and obtaining income certificates (which are often required to prove eligibility for various government programs). Moreover, the state plans to connect the land records database to databases accessible to various courts and banks in order to facilitate their work relating to land records.

1.6: Computersation of Land Records in other states

Goa has become the first state in the country to have completed the computersation of RORs of all villages for all 11 taluks of the state. The reason for the success are: (a) cooperation and coordination between all departments and people involved in this exercise; (b) positive attitude of officers and officials involved in the task of computersation; (c) regular monitoring and periodical review of the scheme at the field as well as at the state secretariat level; (d) determination and commitment of all directorate staff, NIC staff, amlatdar staff and the personnel of the private agencies; (e) motivation and leadership factors; and (f) availability of power and other infrastructure.

Goa still needs to computerize the mutation process so that online mutation is possible. In the field of computersation of cadastral maps, the department undertook pilot project for the digitization of cadastral survey maps in technical collaboration with the private agency involved in the work of Geographic Information System (GIS).

Madhya Pradesh is a state which also implemented this scheme. In Madhya Pradesh, the computerized copies of Record of Rights (ROR) are being distributed in 256 tehsils on demand. Due to decentralized system of authorizing the gram panchayat to certify the mutations, a parallel system of issuance of ROR from the tehsil as well as the gram panchayat is in existence. Madhya Pradesh has also successfully implemented pilot project of digitization of cadastral maps for
Raghogarh *tehsil* of Guna district and Shivpuri *thesil* of Shivpuri district.

**Rajasthan**

Rajasthan has 0.7 crore land records (RORs) and 3.4 crore plots in nearly 42000 villages. A computerisation printed copy of RORs can be obtained from *Apna Khata* centre in 235 out of 241 *tehsils*, after paying Rs 10 for up to 10 plots and Rs 5 per 10 plots thereafter. The state government has provided a validity and legality for the computerised RORs but still there is need to abolish legally handwritten RORs. The *chausala* (four years) updating 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 applications, etc., have been some major teething problems in the computerisation process.

All the 341 blocks, 18 districts of West Bengal have been made operational, from which various services like computerized certified copies of ROR and plot information are being provided to the *raiyats* and other interested citizens within a day. The issue of manual copy of ROR has been prohibited. Rs 98 lakh have been collected from issue of 7.5 lakh certified copies of record of rights. Online mutation that essentially computerises the mutation process has been implemented in three blocks. One touch screen kiosk has been installed for providing information to the *raiyat* regarding land at Kolkata. Pilot project for digitisation of 900 finally published cadastral maps of about 725 *mauzas* of Hugli district has been taken up. The map digitization centre has been installed at the department of land records and surveys at Kolkata with appropriate software and hardware like high-end workstations computers, AO size scanner and other peripherals, all connected in LAN, for validation and electronic storage of the digitized maps. Research and development work for achieving accuracy in digitization of the complicated AO/Al size
cadastral maps of this state is continuing with the assistance of the NIC. On experimental basis digitized mauza maps were integrated with the corresponding ROR database, forming a land GIS for the mauza. This has paved the way to integrate all the 725 mauzas with the ROR. Software to update mauza map online at the block has been envisaged using Collabcad, CAD software from NIC. A mechanism to deliver maps of the plots referred in the ROR along with the computerized ROR has been worked out and would soon be completed.

In Gujarat, all 226 taluks have been made operational with on-demand distribution of RORs. In the operational taluks, at the click of a button the status of any land is displayed on the screen. All the records pertaining to Form no. 7/12 (which details the location, ownership and other aspects of the land) have been computerized. Since all the taluk-level headquarters are connected through the Gujarat State Wide Area Network (GSWAN), status on any land record can be obtained in any taluk at any moment.

In Tamil Nadu, the data entry and updating of entries of 'A' register and chitta of all rural villages has been completed. Out of 206 taluks, all except five urban taluks in Chennai have online module of distributing computerized RORs. Tamil Nadu government has notified a ban on issue of manual extracts of land records in the operationalised taluks. Till 31 July 2004, an amount of Rs 3.42 crores has been collected through the issue of computerized land records extracts. To increase the public interface, Touch screen kiosks were installed in 29 taluks, one each from every district. Installation of touch screen kiosks in 97 more taluks has also been recently completed.

Sikkim has led an example in implementing IT in different areas of activities in north-eastern states. All the land records of the state have already been fed into computers and the instant updating and
querying software which has been developed by the NIC is working very successfully. The present situation in Sikkim is that, data entry of all taluks has been completed. Two sub-divisions have been operationalised and seven sub-divisions are expected to be operational soon. Online mutation is completed in one district.

According to the latest information in Orissa, RORs are being computerized in 93 tehsils. Land registration activities in the state would be computerized in the second phase. The state government is planning to consolidate all aspects of land records and revenue administration by merging the survey and settlement wings to form a single directorate. However, on the issue of availability of computerized pattas to the farmers, there has not been much success.

Latest available reports from Kerala suggest that one taluk has become operational but 61 per cent of the amount was already spent by 31 January 2003. Pilot projects on digitization of cadastral maps are still under progress.

In Jammu and Kashmir, computer facilities have been provided to all the 59 tehsils of the state and the patwaris have been imparted training in data feeding and elementary computer application. The revenue department has so far procured 400 computers for the state. The amount of Rs 230 lakhs for the computerisation programme was totally funded by the central government. Jammu and Kashmir was the first state to adopt the latest Electronic Total Stations (ETS) for land measurement. ETS furnishes accurate, error-free and perfect data besides being economical in measuring land. By adopting ETS, the state has bid goodbye to the age old chain system. ETS has been introduced throughout the state and is working successfully with Swiss and Japanese technology. With ETS method at least 292,000 survey numbers have been measured comprising 234 villages. The field data collected through ETS is being fed into computers and an accurate print out of the village map comes out. The introduction of
this technology augurs a revolutionary change in the agricultural history of the state. A landholder can now obtain a copy of his landholdings from the provincial record room and preserve it for posterity. He can also use the same as a ready reference without going to the office of *Patwaris*. But the work of computersation of land records is yet to gain momentum.

In Assam computersation of land records was first implemented in the Sonitpur district as a pilot project in 1989. The data-entry work pertaining to land records was completed in the district in 1993. At present, the district is ready to supply computerized RORs to individual owners of land but due to some legal provision, which requires amendment, the matter has been delayed. After Sonitpur, the scheme was extended to Kamrup and Nagaon district. In both the districts data-entry work is going on. In Kamrup district data-entry work has been completed for Guwahati and Rangia sub-divisions. The data-entry work in respect of Pragjyotishpur sub-division is going on. The scheme is also being implemented in Darrang district. Apart from Sonitpur, in all other districts the data-entry work has been entrusted to private firms. In Sonitpur district the data-entry operators were originally recruited by the deputy commissioner and after completion of the data-entry work, they were sent to high court. Two civil rules are pending on the matter of absorbing the data-entry operators in the normal posts in the deputy commissioner's establishment. The Government of India has so far sanctioned 23 projects and the total amount was Rs 335.5 lakhs but only 20 per cent of the amount has been

Arunachal Pradesh, the land records are yet to be prepared and hence no project for computersation has been prepared and implemented. The Government of India has included Arunachal Pradesh under the centrally sponsored computersation of land records programme and has given Rs 75.30 lakhs for this purpose. The amount is yet to be utilised.
In Tripura, a total number of four projects have been sanctioned at an estimated cost of Rs 85 lakhs. Latest data shows that about 14 projects of computersation have been in operation in Tripura and an amount of Rs 1.53 lakhs has been released up to 31 January 2003. No appreciable results have been reported as yet on computersation from Tripura.

The latest report regarding the utilization of funds in Bihar shows that only 22 per cent of the total amount has been used so far. It has revealed that the low capacity of the computers, lack of sufficient terminals and adequate trained manpower have caused the delay in the computersation process. Efforts are being made so that the computersation of land records is accelerated.

A pilot project for computersation of land records was undertaken in the Kangra district of Himachal Pradesh (HP). The installation of hardware and the preparation of the software were done with the help of NIC. Seven other similar projects have been prepared in HP with a sanction by the Government of India. In March 1996, when an in-depth review was conducted by the financial commissioner (revenue), it was found that the entire approach for computerising the land records in Kangra district.

1.7: Relevant Best Practices for Developing Countries

International experts on land administration have outlined numerous best practices for land administration systems in developing countries. These best practices draw on a number of key international documents as well as a wide range of publications concerned with best practice in the development of cadastral and land administration infrastructures. Several of the identified best practices relate to the computersation of land records and may be instructive for Karnataka and other Indian states as they progress with COLR programs. Some of the most important relevant best practices are listed and briefly discussed below.
First, international experience indicates that the success of a land administration system is not dependent on its legal or technical sophistication, but whether it protects land rights adequately and permits those rights to be transacted efficiently, simply, quickly, securely, and at low cost. IT vendors often market "gold-plated", overly technical solutions that should be treated with suspicion. Unfortunately, efforts to upgrade land records systems often equate technical sophistication or "modern" technology with progress or improvement. This is often not the case. Instead, the question to be asked is whether the changes result in land rights that are more secure, better protected, and more easily transacted.

Second, the introduction of information technology and computerisation of land records is difficult and requires long-term political, financial, institutional, and human resource commitment. Training is critical. The long-term costs must be calculated and considered at the start. If insufficient commitment or resources are present for an "ideal" program, realistic efforts should be make improvements in a staged process where each stage provides incremental, stand-alone improvements. For example, computerisation of alpha-numeric data is much easier than the computerisation of spatial data and might be attempted first.

Third, all projects to improve or develop the land administration system must undergo regular assessments based on the primary objectives of the project. This includes COLR programs. The key performance indicators for a successful land administration system are whether the system is trusted by the general populace, protects land rights, provides tenure security for landholders, and is extensively used. A failure to meet these criteria indicates a fundamental problem with the system. Assessments of COLR programs must include a focus on these indicators. A common fault of some land administration projects around the world is that they focus on the technical aspects of the project and forget about the
project’s main objectives. The discussion that follows identifies some of the main objectives that have been articulated for COLR programs in India, particularly for Karnataka.

1.8: Old Manual System

Earlier to computerization, all the land records were maintained by the VAs and all the updation and issuing was manual. The procedures differed from the new computerized system. In the old manual system, information was recorded for every crop season and that information was updated every year. RTCs were prepared once every five years, a five-year old RTC would contain crop information for 5 years and potentially 3 crop seasons per year. The computerized RTCs continue to include crop information, but only information for the main cropping season and for the past year (Tim Hanstad, 2002)

Under the old system, the parties to the transaction registered the transfer at the local registration office. This rather complicated process involves showing the registrar a current copy of the seller’s RTC. The registration officials, after gathering the necessary documents and checking the necessary records in the registration office then send a written communication (known as a J-slip) to the concerned taluk revenue office (Tehsildar’s office). The J-slip contains the basic details of the pending transaction. The Tehsildar, in turn, hands the J-slip to the concerned Revenue Inspector who hands it over to the concerned village accountant.

The concerned village accountant would then post notice of the transaction in his office for 30 days, inviting objections to the transactions. If the village accountant received an objection within the 30-day period, he would make an entry in a dispute register and inform the registration office accordingly. If no objection was received, he would complete a no-objection form and submit the form to his supervisor, the revenue inspector. The revenue inspector, after reviewing and signing the relevant documents intimates both the
village accountant and the registration office. The village accountant then makes an entry in the mutation register and makes the necessary changes in the RTC. This process of updating the RTCs upon a land transaction under the old manual system typically required about 45-50 days if there were no objections.

The process for updating the computerized RTCs generally follows the old process, with a few extra steps. The registration officials now send the J-slip along with copies of the deed and other relevant transaction documents directly to the Tehsildar where they are forwarded to the computer operators. The computer operators prepare a checklist for the transaction using the information from the J-slip and verifying it against the current computer records. The checklist must then be verified and approved by the Shirshedar.

The Taluk-level officials then send the J-slip along with a blank no-objection form, a blank mutation form, the checklist, and other accompanying forms to the revenue inspector (RI). The revenue inspector, in turns, informs the parties to the transaction and passes the information along to the concerned village accountant.

The village accountant then posts notice of the transaction for 30 days in his village office, inviting objections. If objections are received, he makes an entry in the dispute register, and passes the information along to the revenue inspector. If there are no objections, the village accountant completes the blank mutation form and gives it along with the rest of the file to the revenue inspector, who inspects the forms, signs his approval, enters his statement, and gives the entire file back to the village accountant.

The village accountant then takes the file to the taluk office and gives it to the computer operators for making necessary changes in the RTC. The computer operators scan relevant documents and make the necessary entries into the computerized records. Their entries must first be approved by the concerned revenue inspector who does so by
entering his thumb impression. After the revenue inspector approves
the entry, the Shirshedar and the Tehsildar, in turn, must approve the
entry by providing their thumb impression. After the Tehsildar's
approval, the changes are automatically entered in the computerized
RTC record.

The entire process of updating the RTCs upon a land transaction now
takes at least 2-3 months. The Tehsildar's non-availability due to
other work requirements often significantly delays the process. Other
reasons for delay include technical problems with the computer and
inadequately trained computer operators.

1.9: BHOOMI

Under this prestigious Bhoomi E-Governance project of the
government all 20 million land records of 6.7 million land owners in
177 taluks of Karnataka have been computerized. This system works
with the software called "BHOOMI" designed fully in-house by National
Informatics Center, Bangalore. While the project is largely funded by
Government of India; some critical components of this project are
funded by state government.

1.9.1: Important Features of BHOOMI

"Bhoomi" is very comprehensive software designed by NIC, Bangalore.
This software provides for printing of land records as and when
required. It incorporates process of online updation to ensure that the
RTC's provided to the farmers are in sync with the time. The manual
land records in operationalised taluks have been declared illegal. All
the mutations to the land records database are done on the computer
itself so as to ensure that data on computer remain current with time.

It incorporates the state of the art bio-logon metrics system from
Compaq, which authenticates various users on the Bhoomi software
on the basis of fingerprints. This ensures that no body can hack the
system by imitating other users. The replacement of password security system by fingerprint authentication system would go a long way to ensure those databases are free from any hacking and that the non-repudiation system is in place. This software also has the provision of scanning of original mutation orders of the revenue inspector (who is the authorized person to pass orders in the mutations in the field) and notices served on interested parties. Both documents are scanned to ensure that not only responsibility can be fixed on Officials by showing the original documents signed by them but also to ensure that the interested parities do not claim in the court that they were not served with the notice before effecting the mutation.

The software enables the administrators to generate various reports based on type of soil, land holding size, type of crops grown etc. This information would enable administrators to take informed policy decision.

1.9.2: Implementation

The process of digitizing the legacy data of 20 million records started about 6 years back. The following were the steps performed to capture the manual data.

The most important item in Computersation of Land Records was (as still remains) the land records themselves. If the legacy data was not captured properly the computerized processes or the system would have been of absolutely no use.

While there was an existing data entry software which was used in earlier attempts for computersation of land records, it was felt that the aberrations and the variations in maintenance of land records (although the Karnataka Land Revenue Act 1965 and the rules made there under did not provide for such variation) needed to be studied in real detail so as to make the data entry software comprehensive to capture all such aberrations and variations (even if they were not as
per the Act). The department was clear in its mind that land records, being legal property records there was no discretion to modify or to add or delete any information at the data entry process.

Karnataka state is divided into four divisions and every division had its own variation in maintenance of land records. Four divisional one day workshops attended by representatives from the hierarchy of revenue department and representatives of data entry agencies threw much needed insight into such variations. The feedback from such workshops was documented & data entry software modified to take care of additional needs because of variations in maintenance of land records.

Some of these variations were just not needed and were removed before the digitization process by way of issue of appropriate administrative orders.

1.9.3: Issues of detailed guidelines

After the four divisional workshops, detailed set of guidelines were also issued for preparation of legacy land records data by the village officials. The guidelines were very detailed & covered each & every field of the data entry screens. Number of examples was provided from each region of the state so as to facilitate its understanding.

1.9.4: Engaging Private data agencies

While the idea of Government of India was to get the data entry work by the village officials, the department had quickly realized that activity of this size was not possible departmentally. Hence it was decided to outsource the data entry work to private data entry agencies. This step was also preferred as it would have facilitated huge data entry capabilities at district level which could not only be later useful for other similar project but also would have provided employment to educated but unemployed youth.
1.9.5: Phased Implementation

While data entry was started in all districts simultaneously after workshops at division, state and district levels, the state level Bhoomi team concentrated on 5 pilot taluks and expedited the data entry process by direct interventions. These five taluks were chosen very carefully to ensure success of pilots. The proximity to Bangalore was one of the criterions apart for the quality of revenue officials in charge of these sub districts. The implementation in these 5 sub districts in controlled environment gave very useful experience in later expanding the scheme to 27 pilot sub districts. In third phase all remaining 145 sub districts were taken up simultaneously for implementation. Phasing of implementation helped in smooth replication of the scheme.

1.9.6: Banning of manual records

It was clear that two parallel systems would always work at cross purpose with each other and probably even making the computerized system a casualty. The manual system suffered from malafides, was exploitative and inefficient. The successful pilots had given the required confidence to the department that manual system can be disbandened in phases in such sub districts where scheme was being operationalised. Banning manual system did put pressure on the system as it required computerized system to perform at least as good as manual system (to start with). However the Bhoomi team, district Administration and NIC rose to the occasion as single team and withstood such pressure successfully (177 Bhoomi kiosk had to perform the task earlier done by 9000 village officials).

1.9.7: Imposition of user Changes

Bhoomi team and the department were aware that the scheme is going to be the trend setter for the whole country. Such scheme was to be designed not only to be self sustaining but also facilitate government
to recover the huge capital expenditure (Rs.250 millions). Further considering the capital cost to be incurred every 4-5 years (by way of investing in new computers and other particulars) user charges were to be designed appropriately. Each service has been accordingly priced at Rs.15. Rs.24 million have been collected upto March 2002. It is hoped that every year approximately Rs.90-100 million would be collected from this scheme.

1.9.8: Training of Revenue Staff

While it is ideal to train each and every official on working of Bhoomi. It was certainly not possible in the short run. It was therefore decided to select young educated committed village’s officials who were recruited into the cadre on compassionate appointment basics (whenever an employee dies while in service, his dependant is offered an employment in the government). These village officials were willing to learn and take up the new responsibilities. The software was designed in such a way to minimize day to day data entry work by any other official other than these village officials. The training is continuing for last about 40 weeks training 20 officials per week. Another 40-50 weeks of training would create a battalion of young officials who would be ever ready to take up these new responsibilities. The department would not require any new recruitment for running this programme.

1.9.9: Data entry operation for first year of operation

While the training of village officials was immediately started, it was decided to engage the services of data entry agencies to depute data entry operators to do day to day data entry work so that scheme doesn’t suffer because of immediate lack of trained village officials. However these operators are removed as and when one year of operations is over in a sub district.
1.10: Kaveri

Kaveri is an automation of the registration process under the Registration Act, 1908, implemented under a private sector/public sector partnership. It has been in operation in all sub-registries since the first of December 2003. Features of the system at present include:

a) Issue of an electronic token sheet with an allocation of time for presentation of documents.

b) Following entry of data into the computer:

c) Calculation of any delay and fine;

d) Assessment of value and calculation of stamp duty and fees;

e) Selection of required support documents;

f) Generation of a check slip indicating whether document can be registered;

g) Allocation of registration number;

h) Generation of receipt.

i) Use of a web camera and fingerprint scanning device for printing of identification details on document.

k) Scanning of the document after registration.

l) Automatic update of Books and Indexes.

m) Preparation of reports.

An automated encumbrance search was developed and started its operation from end 2004. In addition an electronic interface with Bhoomi is being developed for the sending of J-slips.
1. 11: Scope and Importance of the study

India's basic system of land records was devised more than a century ago and has not adapted to the changing needs and characteristics of today's society. The current system of land records was designed initially for fiscal purposes. The objectives of better defining, protecting, or transferring the land rights were only incidental. Later, the land records systems evolved to meet other purposes such as statistics for economic planning related to crops, irrigation, soil, and land use. Today, although the government at the village, taluk, and district levels maintains numerous types of land records that require enormous resources to maintain and update, experts unanimously condemn the land records system as one that is unable to meet its most rudimentary objectives. The inadequate nature of land records has been blamed for the failure of land reforms, the excessive amount of land disputes that are clogging the country's court systems, and even slow economic growth.

COLR being a huge investment project (Rs 185 million apart from annual maintenance cost) undertaken by the Government of Karnataka is perceived to have metamorphic impact. COLR is proposed to address the inherent problems in the old manual system. With this background, the study intends to evaluate COLR process with respect to the landowners and the revenue officials. A sincere and modest attempt would be made to study the existing process of COLR and to come up with the opinion of the kiosk users, revenue officials and with further policy recommendations and suggestions for the betterment of landowners as well as for the concerned departments.

A very few studies and research have been conducted on this very important topic of computerisation. This program of government is somewhat new and has drawn the attention of the entire globe. The program implementation has been considered as the role model for
the other states of India as this program is directly related to the rural community, it is very important to do some further research on this esteemed program mainly to know the process in detail and to come up with the suggestions and recommendations for its best success. The study was taken up in Tumkur and Gulbarga districts of Karnataka state with the following objectives,

1. **Objectives**

1. To assess the impact of COLR.

2. To estimate the transaction cost of accessing information from Kiosk, obtain information about the time and costs necessary for farmers to obtain computerized land records.

3. To study the constraints and infrastructural bottlenecks in the effectiveness of COLR.

4. To document the views of land revenue officials regarding the advantages and disadvantages of the new computerized land records system.

1.13 **Hypothesis:**

1. Transparency with regard to land records.

2. COLR reduces the time and costs necessary for farmers to obtain computerized land records.

3. COLR has reduced the rent seeking behavior of the revenue officials and also reduced the workload of revenue officials.

4. COLR in general has addressed the problems perceived to be inherent in the old manual system.
1.14: Limitations of the study

The study has given its best to overcome all the limitations within its control. Some of the limitations observed while conducting this study were:

1. The interview method of data collection requires the respondents to recall details about the COLR and agricultural operations that they have already completed. Hence, the findings might be subjected to memory lapses of respondents.

2. There are many gaps in the secondary data and also there is a difference in the figures from different sources. Hence, some of the results suffer this from inconsistency.

3. The primary data was collected at different places in the taluk office as per the availability of the end users, some of the respondents were present to collect the RTC for different purposes and the mood varied from person to person depending on the purpose for which they were taking the RTC. Hence, in such cases the response given and the findings may be subject to errors.

4. The response of the revenue officials tend to be more in the positive side as it’s the program of their department, hence to extract the prompt response and to identify the bottle necks was a bit challenging.

5. As this is a new program of government, not much research has been done on this topic. Hence, finding the suitable references is a difficulty task. The research is conducted mainly based on the primary data. Hence, the findings will mainly pertaining to primary data.
1.15: Need for the Study

The COLR program in Karnataka is innovative and is implemented in the recent past. Any effort to assess its success must take its newness and pioneering nature into consideration. Identifying practical problems related to ongoing implementation should not be misinterpreted as factors justifying the elimination or substantial overhaul of this pioneering effort.

The study has helped us in understanding the benefits sought by the land owners and efforts made by the state government for the whole COLR process and to come up with suitable policy suggestions which enhance the pace of the services provided by the government and at the same time helps the land owners to get the best results from this COLR attempt.

The concept of COLR is very fresh and new to the government and to the end users. Very few studies have been conducted to assess the impact of computerization of land records in Karnataka. The study has been conducted in the two administrative zones of Karnataka. This research is a modest attempt to critically assess the highly acclaimed and to know the efforts and the results of COLR in Karnataka.

1.16: Organization of the thesis

For analytical convenience, the thesis is organized into seven chapters. The 1st chapter deals with introduction and objectives of the study. The 2nd chapter reviews the available research and literature on the topic. The 3rd chapter covers methodology. The 4th chapter presents the results of the study, while the 5th chapter interprets (discusses) these results. The 6th chapter presents the summary and policy implications of the study. The 7th chapter pertains to citation of references.
Chapter I: Presents the theme, detail background on the computersation, its operation, state and international experiences and cover the need of the present study. The objectives of the study and hypotheses to be tested are specified. The limitations of the study are presented at the end of the introduction chapter.

Chapter II: Discusses the review of literature related to the study, covered past research literatures related to the study.

Chapter III: Presents the methodology adopted for the study, description of the study area, sampling design, collection of primary and secondary data and analytical methods used in the research.

Chapter IV: Discusses general information like age and education level of the family members, occupation, income from different sources and other socio-economic attributes, type of land, source of irrigation, impact of COLR, the constraints and infrastructural bottlenecks in COLR. Views of land revenue officials regarding the advantages and disadvantages of the new computerized land records system are also present.

Chapter V: Discusses the results of study.

Chapter VI: Presents the summary of the findings and policy implications.

Chapter VII: Mentions on the citation of references.