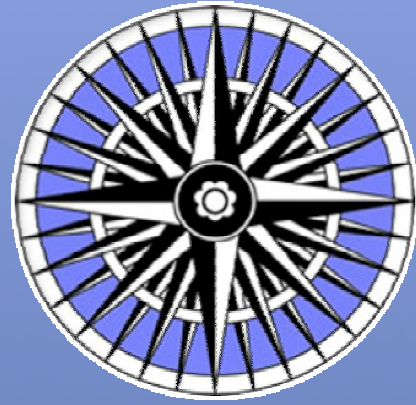


INTERNATIONAL RECORDS MANAGEMENT TRUST



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INDIA, KARNATAKA STATE CASE STUDY

JUNE 2007

Fostering Trust and Transparency in Governance

*Investigating and Addressing the Requirements for Building Integrity  
in Public Sector Information Systems in the ICT Environment*



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## TERMS OF REFERENCE

- 1 Michael Hoyle and Andrew Griffin visited Bangalore and Mysore, in Karnataka State, India in May 2007. The methodology for the study visit comprised two parts:
  - collecting qualitative information, including conducting interviews and carrying out documentary research about public sector reform, electronic governance initiatives, pay, personnel, land and financial processes and records management
  - gaining an understanding of the information flows between the human resources functions and payroll by an examination of systems and procedures.
  
- 2 In particular the study involved consultation with senior officials at the:
  - Department of Personnel and Administrative Reforms
  - Directorate of Treasuries
  - Karnataka Public Service Commission
  - National Informatics Centre, Bangalore
  - E Governance Secretariat
  - offices responsible for the *Khajane* financial management system, *Bhoomi* land registration system and human resource information systems
  - offices responsible for human resources in departments with responsibilities for agriculture, health and education (including teachers).
  
- 3 In contrast with most of the studies developed by this project, this study focused not only on personnel and payroll functions, but it also considered paper and electronic recordkeeping issues in a number of different information systems, including financial management and land registration. It became apparent that while work had been undertaken on an electronic human resource information system, this was limited in scope and implementation, and developments in others areas were far more advanced.

## ACKNOWLEDGEMENTS

- 4 The IRMT is grateful to the government of Ghana for permitting this study to be conducted and for allowing its officials to participate freely. It would like to thank the many officers who provided their time to the research team and offered support and guidance. In particular, Dr Usha Suresh, Director, Karnataka State Archives in Bangalore, and Dr G V Gayathri, Deputy Director, Department of Archaeology,

Museums and Heritage, Mysore, provided valuable advice. In addition, the team received invaluable assistance from Sri. Ranjendra Prasad, Personal Assistant to the Director of the State Archives, who provided logistical support, made appointments with senior officials and escorted team members to meetings.

- 5 This case study represents a snapshot in time. The observations it contains were current as of May 2007. Since then, new developments and improvements have taken place on a regular basis, and therefore, the case study does not represent the situation at present. Nevertheless, the findings in the report should provide useful background in understanding the challenges of providing secure and reliable records as evidence in the electronic environment and in sharing the lessons learned. The IRMT made every effort to verify the information in the report. The officers interviewed did not always have the same views, and the aim was to present a balanced perspective. The IRMT takes full responsibility for any errors that may have been reported inadvertently.

## BACKGROUND

- 6 At the time of the visit in May 2007, Karnataka was at the forefront of India's ICT revolution. As noted by the State Government's E Governance Strategy: 'IT seems to be in the very psyche of Karnataka and its people. So easily and naturally has it taken root in this southern state.'<sup>1</sup>
- 7 Bangalore was well known globally for its dynamic ICT industry and private sector environment including research and development in systems and software and as a hub of call and helpdesk centres. There were a number of excellent examples of ICT developments in government, for example the United Nations award winning *Bhoomi* land registration system, but generally, computerisation in the public service had lagged behind the private sector. This was acknowledged by the State's E Governance strategy which noted that: 'IT usage and penetration is fairly superficial and weak in Government.'<sup>2</sup> While some government offices had excellent ICT capability, others had little or no computerisation. In most cases, manual records systems predominated. It was clear that through the E Governance initiative the government intended to push quickly for an expansion of ICT capability across the public sector.
- 8 Departments and agencies would need to develop strategies, based on sound methodologies and standards, for making the transition to electronic business processes and recordkeeping. Planning for electronic records and information systems would need to ensure that policies and procedures were in place to manage records over time and to maintain accountability and transparency requirements. This study examines these issues in a number of different manual and electronic records and information systems in the public service of Karnataka.

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<sup>1</sup> Government of Karnataka E Governance Strategy (undated) p 1

<sup>2</sup> Government of Karnataka E Governance Strategy p 11



## EXECUTIVE SUMMARY

- 9 Karnataka was at the forefront of India's ICT revolution and its capital, Bangalore, was the centre of the country's ICT industry. The Karnataka State Government had undertaken reforms that included a rapid restructuring and privatisation of State undertakings. The focus had been on reducing the number of public servants and the wage bill. Reforms had also included legislation and measures aimed at increased transparency and accountability. A new emphasis on training acknowledged that many government employees lacked ICT skills. (paras 26 to 31)
- 10 A gulf remained between the private and public sectors in introducing and using ICT. The State Government aimed to use technology to transform the delivery of services. The National Informatics Centre (NIC), a central Government agency, had been a catalyst for ICT development across India, but increasingly the NIC's role was being taken on by state governments and the private sector. The Government of Karnataka had established an E-governance Secretariat to develop and implement IT in government departments and enhance services for citizens. (paras 32 to 36)
- 11 There was a recognition that ICT activities needed to be better co-ordinated. Numerous initiatives were under way. The State Government was introducing 'one-stop shop' Citizen Service Centres and was committed to using Kannada as the official language in e-governance. However, retaining ICT professionals was a challenge. (paras 37 to 40)
- 12 The Government of Karnataka State itself consisted of over 20 departments and a large number of agencies. It employed approximately 600,000 people. All departments had to recruit through the Karnataka Public Services Commission (PSC) with the exception of unskilled employees. The recruitment process was partly automated. Applicants downloaded forms from the PSC website and submitted hard copies; information from the forms was entered in PSC's computerised system. An on-line application system was being developed, but it was dependent on improving the ICT infrastructure. Examination and interview results were published on the PSC website. This had greatly improved transparency, though there was concern about data protection. (paras 41 to 54)
- 13 Payroll management was the responsibility of the Karnataka State Treasury, which maintained the salary and expenditure accounts for all State Government departments. Each department or directorate prepared the monthly payroll for submission to the Treasury, using the *Vethana* system. (paras 55 to 59 and Appendix B)
- 14 Human resources management processes relied on a mix of manual and electronic systems and on centralised and decentralised recordkeeping. Service records were kept manually, and most personnel information continued to be maintained in paper files. The DPAR only kept files for Karnataka Administrative Service officers and officers of the Indian Administrative Service of central government employed in Karnataka. Each department or directorate was responsible for keeping personnel

files for its employees. An electronic document tracking system called *Sachivalaya Vahini* had been developed. (paras 60 to 67)

- 15 The management of education was decentralised, with 202 geographical divisions ('education blocks') covering the State. An Education Management Information System (EMIS) held district education information including, for example, data on the location of teachers, but access to the EMIS was limited. Manual service registers and personnel files were kept at the block level. (paras 68 to 71)
- 16 The *Khajane* (Treasury) system was developed to streamline government payments and accounts, integrate them with budget operations and provide better financial control. *Khajane* was managed by a tripartite public-private partnership. The system connected all the State Treasuries to a central server at the State Secretariat through a satellite-based VSAT system. Before computerisation, it took up to 45 days for consolidated information to reach the State Treasury, leading to serious delays as well as potential for fraud and errors. Real-time budget visibility had helped avoid overspending and had shortened the payment-approval process from two or three days to about 10 minutes. Some officials felt that that the equipment running *Khajane* was obsolete and that the main server needed replacing. (paras 72 to 81)
- 17 The Karnataka Government was justifiably proud of its United Nations award winning land registration and records system, *Bhoomi*, which became fully operational in all districts in 2002. The system captured information about legal rights, liabilities, taxation and charges on the land, as well as geological and economic data about the land itself. The records served a wide variety of purposes, including security of tenure, crop data and planning by administrators. *Bhoomi* had removed many of the potential causes of delays and irregularities. (paras 82 to 90)
- 18 During the design and implementation of *Bhoomi* a great deal was learned about system development. Software had to be designed with built-in authentication, validation, security and accountability processes. The first two years spent converting paper records were largely wasted because there was no process for updating the converted data on the system. There were computerised land record kiosks in 177 offices throughout the state. Villagers had readily adopted *Bhoomi* and did not need to be computer literate to benefit from it. Processes had become much more transparent and equitable. Officials accessed the system by biometric identification; documents issued by the system bore holograms for security and also were stamped and signed. (paras 91 to 104)
- 19 In the Mysore *Bhoomi* office, hard copies of completed transactions were filed in a record room, but it was noted that access to individual documents would be virtually impossible. If the paper records were of continuing value, they needed to be maintained in good order. 'Archiving' of electronic records was taking place, but policies and procedures needed to be developed. (paras 105 to 106)
- 20 The Citizen Centres Project, *Nemmad*, was a key e-governance initiative in Karnataka. The centres aimed to provide a single access point for many government services.

There were 800 urban and rural citizen centres throughout the state and many more were planned. A visit was made to the Mysore City Citizen Service Centre, which offered a wide range of electronic services such as the issue of licences, applications relating to records of birth and deaths, and payment of fees. Transactions were generally completed on the same day, compared with a fortnight to a month when using the old manual systems. (paras 107 to 111)

- 21 While the State Archives was responsible for semi-current records, it only had an advisory function for current records. This would change under proposed new legislation. The *Right to Information Act, 2005* had been a stimulus for improving recordkeeping in government departments and had raised the profile of the Archives. A simple retention and disposal system existed for government files. A number of digitisation projects were being undertaken for both conservation and access purposes. (paras 112 to 120)

## **Paper and Electronic Records Issues**

- 22 Karnataka had made tremendous strides in modernising government processes and service delivery through the introduction of ICT systems. However, records management functionality was not taken into account when developing new systems. Preservation and migration were considered after systems had been implemented. There was a disconnect between manual and electronic recordkeeping, although they might be related to the same business process. Computers were used largely for specialised applications. Networking at the desk top level was not evident, and email and basic office software packages were not available to many officials. The reality was that the State Government was still dependent on paper records and would remain so for some time. (paras 121 to 124, 127 to 129)
- 23 The Karnataka Government had recognised the need for greater control over its current records. A computerised tracking system had been designed to manage the movement of files and documents within the Secretariat and could be used as the basis for an electronic document management system. However, new policies, standards and procedures for managing electronic records would need to be designed, taught and adopted. (paras 125 to 126)
- 24 Standards and service level agreements needed to be in place if the government and citizens were to be protected from, for example, inappropriate access to, tampering with and manipulation of electronic data. The government recognised the need for a data security policy to ensure that data was authentic, accurate and not corrupted. However, it might be necessary in the first instance to agree on the authority for issuing standards. (paras 130 to 131)
- 25 The State Archives could play a prominent role in the transition from paper to electronic recordkeeping systems. Archivists and records professionals should be involved in the design and agreement of standards, the provision of advice and guidance, and the eventual transfer of electronic records that have enduring value as

archives. However, training in electronic records management was needed urgently, as were facilities to house and manage electronic archives. (para 132)

## FINDINGS

### Public Sector Reforms

- 26 India was undergoing an economic boom, and the nation was viewed as a rising world power. Karnataka was considered to be at the forefront of national transformation. Its capital, Bangalore, was the centre of India's ICT industry.
- 27 The Government of Karnataka has undertaken reforms, including a rapid restructuring and privatisation of state undertakings. These changes commenced with the establishment of the Public Sector Restructuring Commission, which had overseen privatisation and closure of many state industries.<sup>3</sup> Examples included significant restructuring in the power generation industry and water management, as well as deregulation of public transport.
- 28 Reform of the Karnataka public service was focused on reducing the number of public servants and on the wage bill. Functional reviews of all major departments had been undertaken, and many posts had been amalgamated or abolished. Some services had been outsourced; there had been increased use of consultants in specialist areas such as IT and public works. Overall, there had been drastic cuts in the number of public servants. There was a ban on recruiting temporary staff, although appointments could still be made with permission of the State Government.
- 29 Public sector reform also had included measures aimed at increased transparency and accountability. Key components were:
- the *Right to Information Act, 2005*, to provide the right of access to information to the citizens of the State, promote openness, transparency and accountability in administration and encourage participation of people in the administration
  - the *Fiscal Responsibility Act, 2002*, to achieve fiscal stability and sustainability
  - the *Karnataka Transparency in Public Procurement Act, 1999*, to remove irregularities in processing tenders; open tendering and e-procurement was the standard for all government organisations.
- 30 Complaints about corruption were referred to an autonomous body, the Karnataka *Lokayukta*, set up to investigate complaints by citizens about administrative actions. This body, headed by a retired High Court judge, heard cases brought under the *Prevention of Corruption Act, 1988*. The *Lokayukta* had wide powers to pursue cases,

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<sup>3</sup> Parvathi Menon, 'Karnataka's Agenda' *Frontline* Volume 20 - Issue 01, January 18 - 31, 2003, India's National Magazine from the publishers of *The Hindu*

including the ability to raid any office or establishment. Ministers were required to file property returns and government officials had to submit assets and liabilities statements. Any excess of income had to be explained.

- 31 The administrative reforms acknowledged that many government employees were not well educated or skilled. A new emphasis had been placed on identifying training needs and programmes for all levels and cadres of public servants. The highest level of training was conducted by the Administrative Training Institute (ATI). This Mysore-based 'apex' body imparted training to officers of departments; organised foundation courses for gazetted probationers; conducted courses sponsored by the Government of India training division; and provided orientation services for officers promoted to higher cadres. It also trained Indian Administrative Service and Indian Revenue Service probationers assigned to Karnataka. District Training Institutes (DTIs) provided training for district officials and the lower levels of the public services.

## ICT Policy Development and E-Governance

- 32 Despite the reforms, a gulf remained between the private and public sectors in introducing and using ICT. As noted by a locally based journalist: 'If you were to assess India's economic situation by walking its corridors of power, it would be impossible to guess the country was going through a software revolution. Instead of computers you have armies of men shuffling paper.'<sup>4</sup>
- 33 However, the State government aimed to use technology to transform the delivery of services. The goal of Karnataka's own E-Governance Strategy [undated], was: 'To enhance and promote the use of Information and Communications Technologies in the functioning of government in order to make required information available to all citizens and to provide all services in an efficient way and identified service on an online basis.'<sup>5</sup>
- 34 For many years, the National Informatics Centre (NIC), a Union Government agency, had played a catalysing role in ICT development and government modernisation across India. The NIC was the successor body to the Computer Maintenance Corporation (CMS) created when the Government of India had to take over maintenance of IBM mainframes when the company quit India. The NIC was established in Karnataka in 1987 and had offices in Bangalore as well as in all 27 districts. Approximately 100 NIC staff were located in Bangalore.
- 35 As many states had now developed a reasonable level of ICT skills and capacity, the NIC's role in ICT development and implementation was increasingly being taken on by state governments and the private sector. The NIC, however, continued to provide technical and software support. In Karnataka, for example, it hosted government

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<sup>4</sup> Luce, Edward. *In Spite of the Gods – The Strange Rise of Modern India*. Doubleday. New York. 2007. p63

<sup>5</sup> Government of Karnataka. *E Governance Strategy*, Department of Technology and Biotechnology (undated) <http://www.karnataka.gov.in/pdf/egovstrategy.pdf> (accessed 20 August 2007). p1

websites, managed domain name information, conducted consultancy services and concerned itself with key technology issues such as digital signatures.

- 36 The Government of Karnataka had established an E-Governance Secretariat within the Department of Information Technology, Biotechnology, Science and Technology to develop and implement IT in government departments and enhance services for citizens. Departments were supported by the Karnataka Government Computer Centre as the main IT service organisation, as well as by the NIC. E-Governance was being developed as a public-private partnership, with the State Government establishing the network and systems and setting fees and service level agreements, and the private sector providing service delivery.
- 37 There was recognition that ICT infrastructure was decentralised and not well integrated; there needed to be better co-ordination of government ICT activities; and many processes needed to be reengineered to support efficient and effective provision of services<sup>6</sup>. Integrated access to different kinds of information was considered a priority.
- 38 There were numerous ICT initiatives under way, including projects in education, land, financial management, commercial tax collection, insurance, employment, police and courts. Smart cards containing citizens' personal details including driving licence information were being considered.<sup>7</sup> The Government was introducing 'one-stop shop' Citizen Service Centres, which allowed members of the public to use a range of services electronically. These were being expanded as systems developed and there was greater penetration of digital technologies across the public sector and the state. It was envisaged that in future new applications would use mobile technology to deliver services.
- 39 The Government was fully committed to the use of Kannada as the official language in E-Governance initiatives.<sup>8</sup> Although earlier information systems were developed in English, today the majority use only the Kannada language.
- 40 The State Government faced a challenge in retaining ICT professionals. Many left the public service for better pay and benefits in the private sector. Some public servants expressed frustration over the lack of encouragement or opportunity in the public sector to improve ICT skills and capability. The Government emphasised the need to outsource ICT development work to the private sector.

## **Karnataka Public Service**

- 41 The civil service in India was comprised of the central services of the Government of India and the civil services of the individual states. Civil servants employed by the

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<sup>6</sup> Government of Karnataka. *E Governance Strategy* p 10 - 12

<sup>7</sup> Government of Karnataka. *Bangalore IT*. The official website of the Department of IT and Biotechnology Mahithi Policy - E Governance. <http://www.bangaloreit.in/html/egovern/egovernkar.htm> (accessed 14/8/07)

<sup>8</sup> Government of Karnataka. *E Governance Strategy* p 9

Government of India were recruited through the Union Public Service Commission of India, whereas employees of the Government of Karnataka were recruited through the Karnataka Public Service Commission.

- 42 The central services of the Union Government operated across India and included three All India Services (Indian Administrative Service, Indian Police Service and Indian Forest Service) and a larger number of Central Services (such as the Indian Foreign Service and Indian Revenue Service). Many of these services had a presence in each state, and some functions remained under central control. Income tax was paid to central revenues, and the Government of India allocated funding to the states from central resources. In Karnataka State, the Accountant General (Accounts and Establishment) reported to the Controller and Auditor General of the Government of India reflecting the central control that was still exercised. However, each state had its own payroll system and pay rules.
- 43 The Government of Karnataka State itself consisted of over 20 departments (divided into directorates) and a large number of agencies. The Department for Personnel and Administrative Reforms (DPAR) managed human resources for the whole of the State Government. The department's Chief Secretary was head of the state public service. The DPAR was the largest department of the State Government, and in the words of the Chief Secretary, the 'mother of all departments'. It set standards and guidelines for the service, provided opinions on rules and service matters, and posted public servants to departments. The DPAR also maintained the Government Secretariat buildings in Bangalore, the *Vidhana Souda*.
- 44 The State Government employed approximately 600,000 people, 4000 of whom worked in the Secretariat buildings. State employees were either 'gazetted' or non-gazetted'. There were four categories of public servants: A and B categories were gazetted (officers); C and D were non-gazetted and included administrative staff, non-executive and clerical grades, and unskilled workers. The Karnataka Administrative Service and the All Indian Services were the closest to the 'cadre' concept that operated in some other countries. Pay scales could be common to different types of positions. An employee could move to a position in another area as long as it was within the same pay scale. Retirement age in the Karnataka public service was 58 years compared with 60 in the Government of India Civil Service.

## **Personnel Recruitment and Pay Processes**

### *Recruitment*

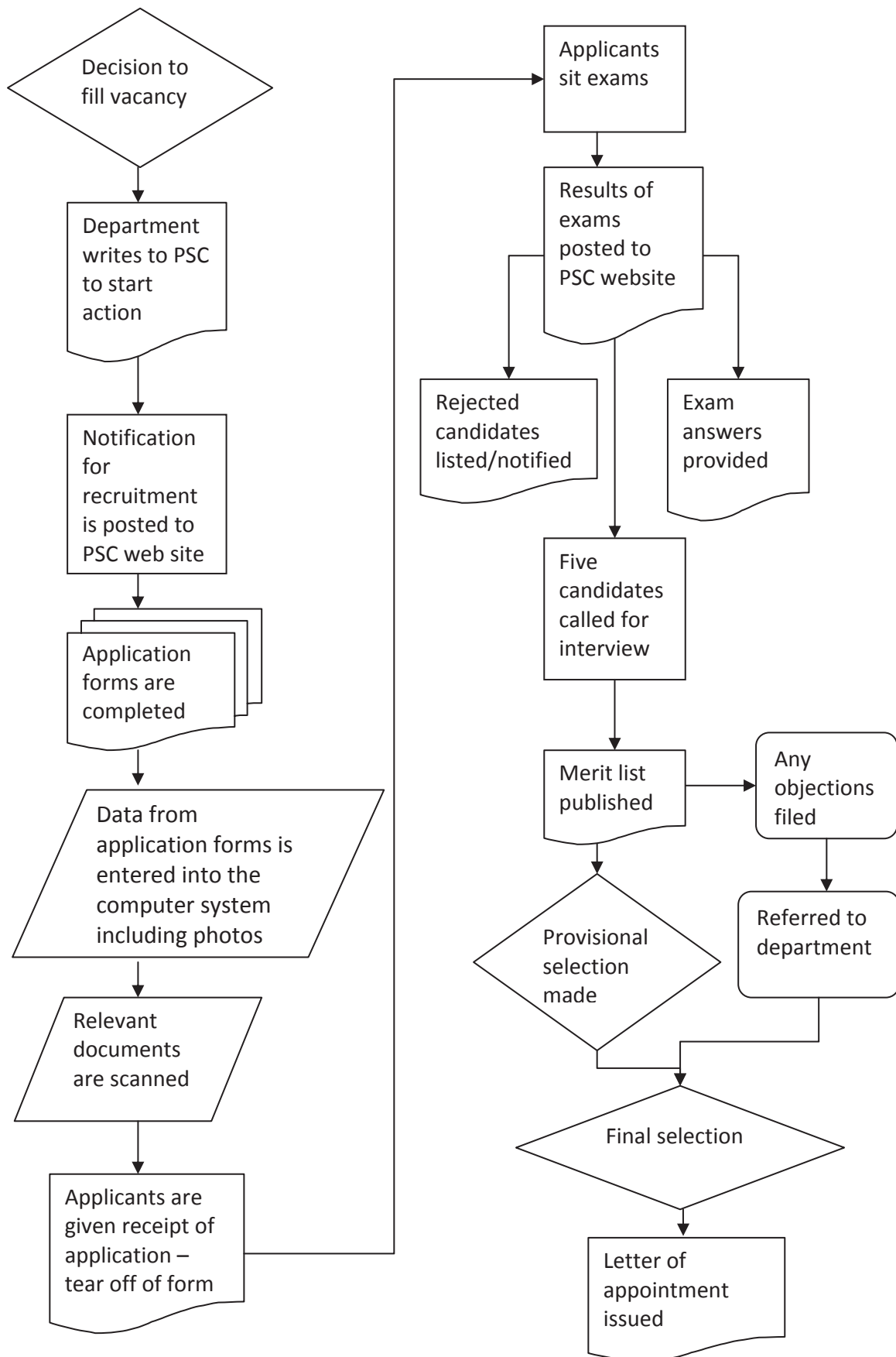
- 45 All departments of the State Government were required to recruit through the Karnataka Public Services Commission (PSC) except where employees were in the unskilled category (D). The PSC was the largest employing agency in the State. Senior officials indicated that the recruitment process was transparent and was covered by rules and procedures as set out in the Karnataka Government's *Secretariat Manual*. Departments were required to write to the Commission when they wished to recruit

and the PSC would allocate candidates. In conjunction with departments, the Commission's opinion was also sought regarding disciplinary matters.

- 46 A degree was the normal entry qualification for senior levels. Employees in categories A - C were required to pass examinations prescribed by the government to become permanent public servants. Those in the unskilled category were not examined. For employees already in the public service there were also departmental examinations for those seeking higher increments and promotion. The Commission approved promotions for A and B categories. Transfers could be made within departments without reference to the PSC, but movements between departments needed PSC approval. Only the Administrative Group (Karnataka Administrative Service) could be transferred to any office within the state public service.
- 47 Recruitment was undertaken through the Internet and through examination. The relevant department prepared the syllabus for the examinations. Candidates were selected for interview based on the examination results and the PSC conducted the interview, with the involvement of the department as necessary. For example, for a technical officer post in the State Archives, the Director would be involved directly in the selection process. However, for general posts such as clerical positions, recruitment was done for the entire State Government and appointees were assigned to departments. 49 percent of posts were reserved for scheduled castes and tribes.
- 48 A general outline of the processes and information flow for recruitment is set out below:



**Process and Information Flow for Recruitment**



- 49 The recruitment process was partly automated. Recruitment notices were posted to the PSC website. Applicants downloaded and completed a hard copy of the application form for submission. Information from the application form was entered into PSC's computerised system, and relevant documents and the applicant's photograph and signature were scanned. Applicants were given a receipt for the application in the form of a tear-off portion of the application. The system generated a list of candidates, an interview admission ticket and various other forms. Hard copy files were also created for each position. It was reported that these files were maintained in case the recruitment process was challenged.
- 50 An on-line application system was being developed. Its adoption would depend on future development of the ICT infrastructure. However, internet access was limited in rural areas. The State Government wanted to avoid unequal treatment of candidates, especially for lower grades. Applicants who lacked basic computer skills might be at a disadvantage if recruitment was conducted through the Internet.
- 51 Written examinations made use of a multiple choice format. Candidates marked their responses on a duplicate form. The form itself was in two parts, part one including personal particulars and part two the answers to questions. The two parts could be separated so that the candidate could not be identified when the responses were captured in the PSC's computerised system. An individual bar code printed on both parts of the form linked the two parts together.
- 52 The results of examinations were published on the PSC website and showed the final selection for interviews. Candidates could see their own scores as well as those of other candidates. Applicants gave permission for personal details to be released. If a candidate's results were over the cut off mark, he/she was notified. Rejected applicants were listed, with reasons given for their failure. These could include, for example, failure to fill in forms properly. Answers to examination questions were also posted.
- 53 Five candidates were called to interview for each position. After interview, a merit list was published and a provisional selection made. Objections could be filed, in which case the selection list was referred to the concerned department. Once a selection was made, an appointment letter was issued to the candidates.
- 54 The computerised system had greatly improved the transparency of the recruitment process. The need for transparency clearly took precedent over data protection considerations. The posting of detailed personal information may have not met the requirements of data protection legislation in other countries.

### *Payroll Processes*

- 55 Management of the payroll was the responsibility of the Karnataka State Treasury which maintained the salary and expenditure accounts for all departments of the State Government. Each department maintained information in relation to its own

payroll and prepared its payroll for submission to the Treasury, which issued the pay slips. Salaries were paid monthly into employees' bank accounts.

- 56 The payroll system used in departments was called *Vethana* (meaning 'salary' in the Kannada language). *Vethana* covered all staff categories (A - D). The current version (v.2) was Windows based but not networked. It took three or four days a month to prepare the monthly payroll bill compared with about 15 days for the previous manual system.
- 57 Although *Vethana* was called a payroll system, it also included information that was useful for the purposes of human resources management. Presumably, all the data held was necessary for the calculation of pay, deductions, allowances and any other information that had a payroll implication. The Karnataka Government Insurance Department (KGID) number was the employee number used to provide a unique identification of individuals in the system. *Vethana* generated a range of special reports such as an earnings and deductions statement, and lists of staff due for an increment or approaching retirement.
- 58 The system was demonstrated at the Karnataka State Archives, which, as a directorate with its own budget line, prepared a monthly salaries bill for its employees that is then sent to the Treasury. The salaries bill was prepared by a member of the Archives staff on a stand-alone desk top computer and printed on an old dot matrix printer (still commonly in use across the Karnataka Public Service).
- 59 Details of the *Vethana* screens can be found at Appendix B.

## **Manual and Electronic Recordkeeping Systems**

### *Personnel Records*

- 60 Human resources management processes relied on a mix of manual and electronic systems and centralised and decentralised recordkeeping. Service records were kept manually, and most personnel information continued to be maintained in paper files. However, certain processes were computerised, such as the recruitment. Vacancies and examination results were posted on the Internet and, as noted, the electronic payroll system captured a quantity of human resource information.
- 61 Personnel records were kept by both the Karnataka State Government and the Government of India. The State's Accountant General, as the representative of Comptroller and Auditor General of India, kept salary, leave and other records with pay implications; income tax was paid to the central government, not to the State Government. Any documents relating to changes in salary therefore had to be copied to the Accountant General's Department, and each year this department issued a salary certificate, leave statements, and other information for each individual.

- 62 Five years earlier, with World Bank funding, the State Government had begun developing a Human Resource Management System (HRMS) that was intended to be linked to the *Khajane* system of the State Finance Department (see paras 72 to 81) and to improve control of the payroll. Unfortunately, the objectives of the HRMS were not clearly defined, and its full development had not proceeded. However, a senior official at the E Governance Secretariat indicated that the government remained committed to developing an electronic system for managing human resources.
- 63 The DPAR kept only files for Karnataka Administrative Service officers and officers of the Indian Administrative Service of central government employed in Karnataka. Each department of the State Government was responsible for keeping hard-copy personnel files for its employees. Personnel files were kept by departmental secretariats or at the directorate level. Guidelines and office procedures for directorate administration included some guidance on recordkeeping.
- 64 The Accountant General's Department, on behalf of the Government of India, audited personnel files held by the State Departments. Audits ought to be carried out each year, but often, due to staff shortages, there were long delays. Lapses in financial procedures were reported to the Department Secretary, and major problems were referred to the Controller and Accountant General of the Government of India, who prepared a report for submission to the State Government.
- 65 The PSC maintained a paper file for each recruitment position, rather than for individual applicants. While some electronic information was retained, for example, the selection process, no electronic records were kept as part of an official personnel record. Computer printouts were kept of the selection process. The file room at the PSC was well maintained, with good quality storage equipment and environmental conditions. File retention and destruction decisions were made at the Assistant Secretary level.
- 66 Operational, case and policy files were still manual. The traditional split file system was still used, with minutes on the left and documents on the right, which were held on the file by a 'treasury' tag.
- 67 An electronic document tracking system called *Sachivalaya Vahini* had been developed by the NIC for the Government of Karnataka<sup>9</sup> and was accessible through the Secretariat Local Area Network.<sup>10</sup> The aim was to track the movement of, and action taken, on any letter and record where the letter and response had been filed. The system had the capability to store and manage scanned copies of the documents, so that electronic files could be accessed and shared across the Secretariat. However, officials admitted that many public servants did not use the system or were in departments where the presence of computers was limited.

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<sup>9</sup> Government of Karnataka. *E Governance Strategy* p4

<sup>10</sup> Government of Karnataka. *Sachivalaya Vahini*. <http://164.100.80.70/svahini/> (accessed 21 August 2007)

## Education and Teachers' Records

- 68 Management of education was decentralised with 202 'education blocks' covering the State. There were approximately 280,000 primary and secondary school teachers in Karnataka, including those employed in 'grant-in-aid' institutions.
- 69 An Education Management Information System (EMIS) held district education information including, for example, data on the location of teachers. However, the EMIS was not always used, particularly in blocks where not all case workers had access to the system and there might be only one computer in the block. Vacancy lists were available but not online; however, teachers could apply for a vacancy electronically.
- 70 It was reported that there was good control over the allocation of teachers, but that difficulties were experienced in filling of vacancies in particular education blocks, especially in rural areas. Manual service registers and personnel files were kept at the block level. Files moved with the teacher and were sent by registered mail when a teacher transferred. If the file were not transferred, the teacher would not be paid, so there was an incentive for the file transfer system to work. The payroll was 'centralised' at the block level where the payroll bill was prepared.
- 71 Further decentralisation was planned. Assistant Education Development Officers would be made responsible for 70-100 teachers in clusters of schools. Teachers' records would be maintained at the cluster level, although it was noted that records would also be kept at a higher level. The aim was to share information electronically.

## Treasury Financial Management System: *Khajane*

- 72 The *Khajane* (meaning Treasury) system was developed to streamline government payments and accounts and integrate them with budget operations. *Khajane* was managed by a tripartite partnership. The system was administered by the Department of Treasuries, Treasury Network Management Centre; Software Technology Parks of India (STPI), a Government of India enterprise, managed the network hardware and infrastructure and provided the hub and network links to 510 offices throughout the state; and CMC Ltd (formerly a Government of India organisation) was responsible for system design, software development and maintenance of documentation.
- 73 Work on *Khajane*, an Oracle based system, commenced in 2000; a pilot was run in 2002 and the system went live in 2003. The system connected all the State Treasuries to a central server at the State Secretariat through a satellite-based VSAT system. Before computerisation, when all Treasury operations were handled manually, it was reported that truckloads of cheques and challans (delivery notes) were sent out for audit every March. Under the old system, it took up to 45 days for the consolidated information to reach the State Treasury, leading to serious delays in updating the budget and issuing payments. Payment entries were made in multiple registers, overdrawing and fraudulent withdrawals were common place, incorrect classifications

occurred, and there were frequent non reconciliations and delays in submission and settlement of accounts.<sup>11</sup>

74 System implementation began from a very low starting point in terms of IT skills; one official noted that some officers were 'afraid of the mouse'. Trainers who understood the Treasury system were trained so that staff could learn from Treasury officials rather than from technicians and engineers. During *Khajane's* development a number of benefits to the new system were identified including:

- capture of data once
- elimination of entries in multiple registers
- effective budget control
- system automation of accounting processes
- elimination of delays in rendering accounts
- availability of daily cash position to the government.<sup>12</sup>

75 The application software was modular and included modules for payments, receipts, deposits, pensions, stamps, social security pensions, returns, house keeping, and master maintenance. There were also separate monitoring modules including network management of remote sites from the centre.<sup>13</sup>

76 All transactions were conducted online and 34,000 staff in 225 Treasury offices disbursed cheques for departments. Real-time budget visibility had helped avoid overspending and had shortened the payment-approval process from two or three days to about 10 minutes. An online workflow process was used for bill checking, approval and system validation. Bills were presented to Treasury by an authorised drawing officer at the departmental level. The system assigned it an electronic tracking stamp and routed the bill to the appropriate managers for approval. Before approving payments, managers could check the online system to view up-to-date budget allocations and how the payment would impact the balances. As soon as a bill was approved, it was under budget control and was placed under a head of accounts. Bills would not be cleared unless they were placed under a budget head. Agency banks made payments and took receipts. As banks had different software, data was received offline and re-entered. The system also provided information about establishment, including staff strength, number of vacancies and whether officers were temporary or permanent.

77 A wide range of reports could be generated, including expenditure information for Treasury and for drawing officers. For pensions, two copies of a particular report

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<sup>11</sup> Introduction to *Khajane* System: Undated PowerPoint presentation

<sup>12</sup> Introduction to *Khajane* System: Undated PowerPoint presentation

<sup>13</sup> Introduction to *Khajane* System: Undated PowerPoint presentation.

were produced including one for dispersal and one for the pensioner. According to Oracle, the software supplier, the reports from all Treasuries were accurate, uniform and easy to consolidate.<sup>14</sup>

- 78 Access rights to *Khajane* depended on the role of the staff member. As noted, the system was only accessible on the intranet within the Department of Treasuries; other departments of the State Government did not have access. However, Treasury officials would like to share more data with departments.
- 79 Some officials were of the view that the equipment running *Khajane* was obsolete and that the main server needed replacing. There had been some data crashes, and temporary measures that had to be taken to increase storage capacity.
- 80 There was a daily back up on to tape cartridges that were kept on site in the Department of Treasuries. Although the data was kept for five years, there was no retention or destruction schedule for information held on *Khajane*. As the system went live in 2003, decisions would shortly be required on purging or retaining data. Dump files were being created on the server, and certain static tables were 'archived' (taken off line) at the end of the financial year (31 March 2007). There was a Steering Committee and Implementation Committee looking into archiving, though it was suggested that any solution would probably need to come from Oracle. During discussions, staff also made reference to planning a state data centre where data could be housed.
- 81 The benefits of *Khajane* had included better financial control and transparency. The potential for misappropriating funds was minimised due to built-in checks and balances and the system-controlled budget check. *Khajane* also provided an audit trail for each payment. The number of complaints from vendors and other government departments had reduced substantially since its introduction.

### **Land Registration and Recordkeeping: *Bhoomi***

- 82 Effective and efficient land registration and recordkeeping are fundamental to good governance. As noted in a case study carried out in 2004: 'India's system of land records is crucial for proving ownership of one's land. It is also important for land taxes, reforms, and administration. Indeed, creation of an accurate, complete land information system is one of the key challenges for governance today.'<sup>15</sup>
- 83 The Karnataka Government was justifiably proud of its United Nations award winning land registration and records system, *Bhoomi*. Efforts to computerise land records in

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<sup>14</sup> *Karnataka Government streamlines treasury operations and improves transparency* Oracle E Governance News and Views. Issue 5. 2004. p 5-6

<sup>15</sup> Chawla R. and Bhatnagar S. *Online Delivery of Land Titles to Rural Framers in Karnataka, India. A Case Study from Reducing Poverty, Sustaining Growth – What Works, What Doesn't, and Why. A Global Exchange for Scaling Up Success. Scaling Up Poverty Reduction: A Global Learning Process and Conference Shanghai, May 25 – 27, 2004* World Bank 2004. p1

Karnataka began in 1991; however, it was not until March 2002 that the *Bhoomi* system became fully operational in all districts. The system was designed to apply the Act and Rules relating to land administration, which were documented in the *Karnataka Land Revenue Manual*.

- 84 The complexity of land administration was reflected in the governance structure. At the top of the hierarchy was the Chief Secretary, Revenue Department; at the lowest level there were village accountants who traditionally maintained land records for a group of villages. In between there were officials operating at the *hobli* (large group of villages) *taluk* (sub-division of a district), district, division and state level.
- 85 Land was granted by the Government and an individual could sell or partition the land. The sale was through a registered document. Partition could be through registration or it might be by oral agreement which was also allowed in law. The individual concerned was required to report the transaction to the *tasildar* (government revenue collector, custodian of land records and arbitrator in land disputes) at the *taluk* (sub-division of a district) level.
- 86 A public notice was issued and interested parties could object within a time limit. After 30 days, if there was no objection, the merits of the case were examined and the transaction approved or disallowed. Objections could be, for example, on the grounds of violation of original grant conditions, such as a term limit on transfer or the previous grant of the land to a scheduled caste or minorities group outside of which it could not be sold. Tenancies could not be created according to a law introduced in 1974; land had to be cultivated by the owner and could not be sub-let for cultivation. Violations could result in forfeiture of land to the government. If the transaction was accepted, the Revenue Department certified the transaction. This was a quasi-judicial process involving a hearing before the *tasildar* or deputy *tasildar*.
- 87 Clearly, all these actions and outcomes had to be recorded if entitlements were to be protected. Information about legal rights, liabilities, taxation and charges on the land, as well as data about the land itself had to be captured. Land records included geological data (for example, land shape, size, forms, soil and irrigation); economic information related to crops, cultivatable area, irrigation, and information about land use.<sup>16</sup>
- 88 The records themselves might be required for a wide variety of purposes including security of tenure, crop loan, bail in criminal cases, scholarships for children and planning by administrators, as well as agricultural related purposes in the private sector.<sup>17</sup> Information on loans and crops might have had a bearing on a transaction and were required to be accessed in cases of dispute. For example, an agricultural loan from a cooperative that created a charge on the land had financial implications for the transaction.
- 89 In the 2004 case study on the system, it was noted that:

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<sup>16</sup> Chawla R. and Bhatnagar S. *Online Delivery of Land Titles to Rural Farmers in Karnataka, India*. p1

<sup>17</sup> Government of Karnataka E Governance Strategy. p3



‘Under the manual system, 9,000 village accountants, each serving three or four villages, maintained land records. Farmers had to seek out a village accountant to get a copy of the RTC (record of Rights, Tenancy and Crops), a document required for many common tasks, such as obtaining bank loans, apart from proving ownership. But village accountants were not easily accessible, and it took them 3.3 days to provide such records, depending on the records’ importance for the farmer and the bribe paid to the accountant. Bribes typically ranged from about \$2.40, but could exceed \$200 if details on the records were to be written in a deliberately ambiguous fashion. Moreover, land records held by village accountants were not subject to public scrutiny.’<sup>18</sup>

90 The study noted that other pitfalls were common:

‘Mutation requests to alter land records upon sale or inheritance of land also had to be filed with village accountants. Accountants were required to issue these notices to interested parties and post them in village offices. But often neither action was carried out, nor was any record of the notices maintained. If no objections were received within 30 days, changes to land records were to be carried out by revenue inspectors. But in practice it could take a year or two for records to be updated. Even where accountants were law-abiding, oversight and accuracy suffered as the number of records multiplied over generations and accountant supervisors were burdened with numerous other regulatory and development tasks.’<sup>19</sup>

91 Planners in Karnataka learned a great deal about system development, converting legacy manual systems, reengineering business processes and change management during the design and implementation of *Bhoomi*. An official suggested that the system was only developed successfully because a small number of interested people in government supported it and pushed for it. A major challenge was to capture the legacy system of manual land records, many of which were in poor physical condition. These paper records had to be converted to digital records and validated. Another official noted that the information delivery system was not only about data conversion, but about constructing software with built-in authentication, validation, security and accountability processes. Acceptance of change by the bureaucracy was another significant challenge. There was some resistance to change, sometimes to protect personal interests and corrupt practices, especially at the operation level.

92 Converting the paper records to electronic format was a massive undertaking. Tens of millions of records of land ownership were captured, many dating back several hundred years. The records, which were in the possession of village accountants, documented the record of rights of 6.7 million farmers over 27,000 villages. The software for *Bhoomi* was developed after extensive discussions and consultation at division, district and state level. The land administration processes could not be put on hold during this development phase and hard copy records had to be withdrawn

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<sup>18</sup> Chawla R. and Bhatnagar S. *Online Delivery of Land Titles to Rural Framers in Karnataka, India*. p 1

<sup>19</sup> *Ibid.* p 2

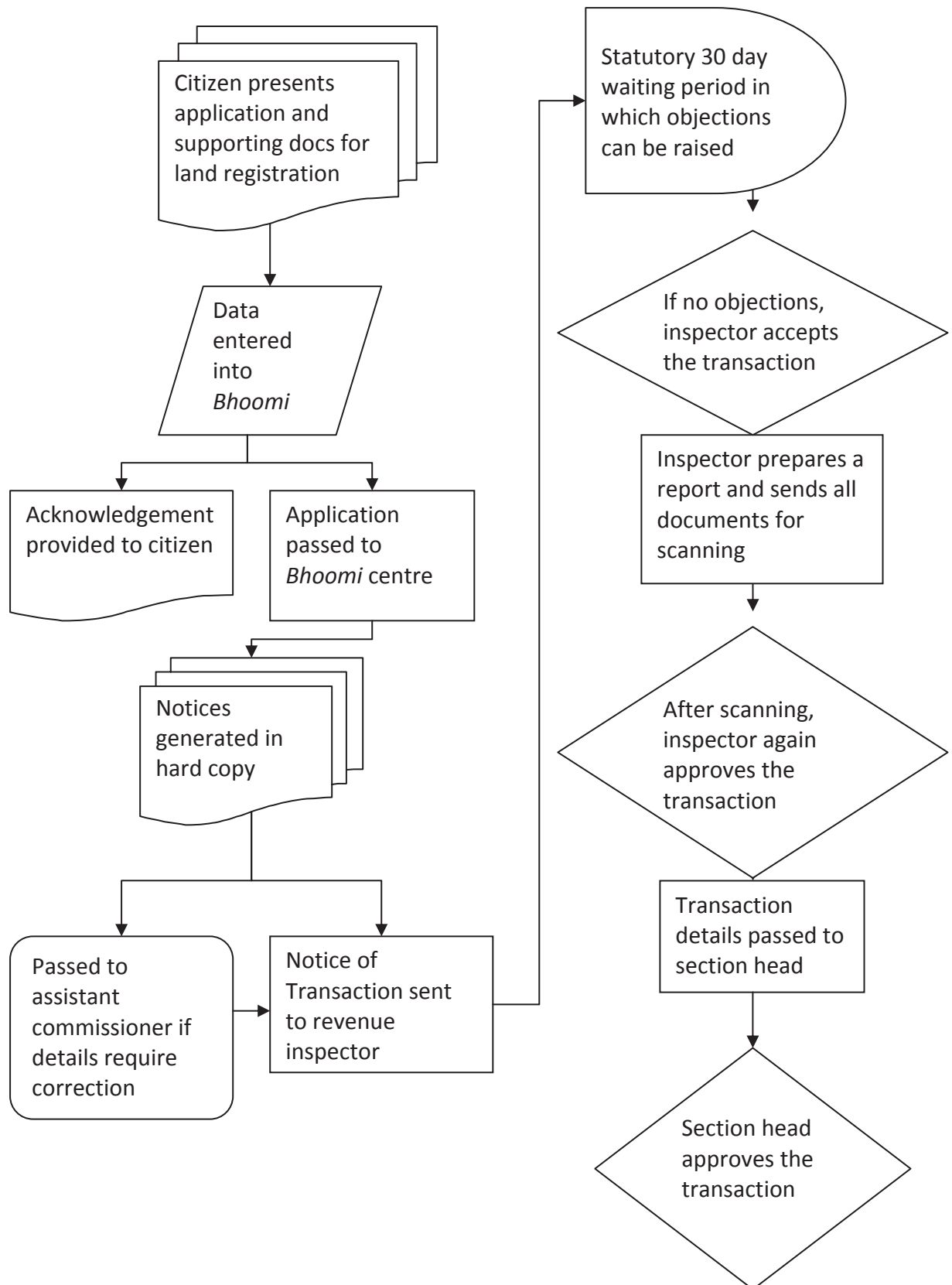
from use in a phased manner. It took over five years to enter the land data and validate it. Verification was done against land registers.

- 93 There was a false start. Two years spent converting records were largely wasted because there was no process for updating the converted data on the system. A fresh approach was required. This involved reengineering processes and allowing the software to update the records as transactions took place, thereby automatically capturing the changes. Online processes began in 1999, but there were still functional limitations, such as inability to carry out simultaneous transactions. Later versions had integrated improved functionality and workflow.
- 94 At the time of this study, for a fee of Rs 15, a printed copy of the RTC could be obtained online at computerised land record kiosks in 177 *taluk* (or district sub-divisional) offices.<sup>20</sup> The kiosk might be up to 40 kilometres from a village requiring a lengthy journey by a villager to register a land transaction or obtain a copy of a record. However, access in the future would be provided more locally at the *hobli* level (cluster of villages) which should be no more than 20 kilometres from the furthest village.
- 95 A visit was made to the Mysore *taluk* office which covered 165 villages in Mysore district. The office, headed by a District Commissioner, held approximately 80,000 records of land rights and received up to 1600 applications a month. The office facility was large with up to 100 clerks working on a range of processes, many manual. A considerable quantity of paper records continued to accumulate on desks and shelves. Within this office, eight staff worked specifically on land transactions and with the *Bhoomi* system.
- 96 A typical process was the sale of land. The buyer would go to a registration office and register the transfer. Details of the new owner were recorded and notifications were issued. Time limits were applied automatically by the *Bhoomi* system and a workflow ensured that validation was carried out. Ownership was changed automatically on the system. The total time for completion, from first application to final approval, was about 45 days. When the manual system was used, the process would normally take six months. The processes followed at the time of this study are set out in the flow chart below:

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<sup>20</sup> Government of Karnataka. *E Governance Strategy* p3

## Process for Land Sale



- 97 Self service kiosks seen in Mysore were all staffed, with members of the public coming to a booth window to conduct a transaction. Members of the public presented an application and supporting documents for the land transaction at a kiosk. A clerk in the kiosk recorded the details and a computer generated acknowledgement was provided to the applicant. The application was then passed to the *Bhoomi* centre where relevant notices were generated in hard copy. In cases of correction, the documents were passed to an Assistant Commissioner to be reviewed and actioned. The notice of the transaction was sent to a revenue inspector. There was a statutory 30 day waiting period during which objections to the transaction could be raised. If there was no objection, the revenue inspector accepted the document and sent a report to the Revenue Service, where all the documents were scanned. After scanning, the revenue inspector again approved the transaction. Finally, the section head approved the transaction and this completed the process.
- 98 To enable divisions of parcels of land to be dealt with electronically, new or upgraded software within *Bhoomi* had recently been introduced. Again, all the relevant documents were scanned (including a sketch of the land showing the division) and a notice was generated which went to the revenue inspector, who then approved the transaction. The documents were then sent to the survey section for approval, input and updating in the *Bhoomi* system. Two records of rights were issued, one for each piece of the divided land.
- 99 Officials said that villagers had coped well with the system and had readily adopted it. They did not need detailed technical knowledge of the system or of computers. In the manual system land, records were maintained in registers to which citizens had no access. The process had become much more transparent and equitable to the extent that citizens could observe the stored image of their land records on a monitor facing them. Villagers were now less likely to be obstructed by lower level public servants.<sup>21</sup> Sixty six percent of users of the manual system reported having to pay frequent bribes. In contrast, only three percent of the users of the *Bhoomi* system reported any bribery.<sup>22</sup>
- 100 There had been many benefits of *Bhoomi*, but the system had to be demonstrated as beneficial for full adoption. In the 2004 case study of the system, it was noted that errors had been greatly reduced between the manual and electronic systems.<sup>23</sup> Data from the case study is set out in the table below:

|                      | <b>Error free documents to users</b> | <b>Major errors in land details</b> | <b>Incorrectly spelled names</b> |
|----------------------|--------------------------------------|-------------------------------------|----------------------------------|
| <b>Manual</b>        | 63%                                  | 31%                                 | 81%                              |
| <b><i>Bhoomi</i></b> | 74%                                  | 4%                                  | 53%                              |

<sup>21</sup> Chawla R. and Bhatnagar S. *Online Delivery of Land Titles to Rural Framers in Karnataka, India*. p 14

<sup>22</sup> Ibid. p 13

<sup>23</sup> Ibid. p 12

- 101 It was Government of India policy that *Bhoomi* should be adopted by all states. The Department of Information Technology had embarked upon a major programme to roll out land records computerisation in several states of the country.
- 102 *Bhoomi* was built on a Microsoft Platform and programmed in Visual Basic. The current version at the time of this study is v4.5. There had already been migrations of data through different versions of the system and improvements have been ongoing. A fibre optic network provided the telecommunications infrastructure. Each *taluk* had a server that held the land administration data for that area. Data was updated through a client system developed by the NIC. A local server handled the transactions and at the end of each day data was sent to the central facility in Bangalore. At the Mysore *taluk*, an uninterruptible power supply (UPS) system would provide four to six hours of power if there were a break in supply. A daily back-up was done on cartridge and these were sent offsite weekly.
- 103 New technologies were starting to be used to collect and access data. One case involved the collection of crop data on hand-held devices that was uploaded directly into the central database. Until a year ago, information was written down on paper and had to go through various stages and processes to be entered in the system. One official thought that the future lay in the use of mobile phone technology. Other developments included linking the kiosks by broadband and allowing direct access by courts and banks. For example, a bank loan application could be approved on line once information from *Bhoomi* had been accessed.
- 104 System security involved a thumb or finger based biometric process to enable officials to access the system. Documents issued by the system bore holograms for security and were also stamped and signed. There were moves to introduce digital signatures, and cards would be issued to *tahsildars* for authentication purposes. The card had a PIN number and password for security and would be swiped to authenticate a transaction.
- 105 In Mysore, *taluk* hard copy documents for completed transactions were filed in a record room. The *Bhoomi* Centre provided copies of these documents on request, but as data was held in the system, officials indicated that there was little or no need to access the hard copy papers. Documents were marked with a disposal category. Details of the closed files were entered in a register and were bundled together in a coloured cloth bag. The colour of the cloth indicated the retention period for the contents. For example, red cloth bundles were deemed of permanent value, while blue bundles were retained for 30 years. The storage room was full of hundreds of multi coloured bundles in no apparent order. Access to hard copy documents would be virtually impossible if they were required. If there were a continuing potential use or value in the paper records, they needed to be maintained in good order; if not, their retention was not a good use of resources.
- 106 'Archiving' of records of the *Bhoomi* system was taking place but officials suggested that policies and procedures needed to be developed to ensure that records kept off-line were protected and preserved over time.

## Community Service Centres: *Nemmadi*

- 107 The Citizen Centres Project, *Nemmadi* (which roughly translates as comfort or relief), was a key e-governance initiative in Karnataka. The centres aimed to provide a single access point for many government services. There were approximately 100,000 such centres in the country as a whole. A Wide Area Network and common infrastructure was being created for Karnataka and national standardised software was used. Retrospective data entry was not normally a feature of the development phases, although there were exceptions, as in the case of birth and death records. Currently there were 800 urban and rural citizen centres throughout the state. Two thousand centres were planned to be established within the next two years and 5000 within five years. Kiosks were planned in regional offices and some services were now available on the Internet.
- 108 The Citizen Centres were run by third parties through public-private partnerships. The Government would build the network and basic system and was responsible for standards, specifications, integration, and target service requirements. The centres, however, were run on a commercial basis with a private sector organisation being responsible for service delivery.
- 109 A visit was made to the Mysore City Citizen Service Centre. This facility, located in the semi-autonomous Mysore Corporation, was started in 1997 and offered electronic services such as renewal of trade licences, issue of residential building construction licences, applications relating to records of birth and deaths, tax payment receipts, affidavits, indemnity bonds, and payment of fees. Births and deaths records, for example, dated from 1899 and had been digitised up to 1991. Copies could be generated direct from the computer record. Fees for manual services had only been marginally increased for the new electronic services.
- 110 A typical process involved a member of the public visiting the Service Centre to submit an application for a residential building licence with supporting documentation. A fee was paid, the application was checked, and a license issued. The whole transaction was completed on the same day, compared with a fortnight to a month when using the old manual systems. Some services were also available on the Internet. In the future, documents would be scanned and held in digital form.
- 111 As well as greatly improving efficiency and responsiveness, *Nemmadi* was being used to strengthen transparency and accountability. The complaints process was witnessed during the visit to the Mysore Service Centre. Complaints were received either in person, by telephone, or online at a kiosk and were logged. Each complaint was assigned to an official. Responses were provided to complainants but might also be seen online by members of the public.

## Karnataka State Archives

- 112 The Archives Directorate came under the Kannada and Culture Department of the State Government. The Archives was headed by a Director, who was assisted by a Deputy Director. Beneath the Deputy Director, there were two separate employment streams: Archives and Administration. Senior Archives staff were mostly historians, but all had undergone some training in archives management, for example at the National Archives of India or other archival institutions. The establishment had recently been cut from 150 to 107. Most staff were located in Bangalore, but there were also staff based in a Divisional Archives Office in Mysore. In recent years, a considerable amount of outsourcing had taken place, and a range of functions, including computerisation, scanning, conservation, binding, preparation of catalogues and indexing, were now performed by outside agencies and staff.
- 113 The *Public Records Act, 1993* regulated the management and preservation of the records of the Union Government and its territories, public sector undertakings, statutory bodies and corporations, and commissions and committees. Although the National Archives of India had no administrative control over the State Archives, its mandate allowed it to provide professional and technical advice and assistance. The Director of the Karnataka State Archives noted that a Karnataka Public Records Bill was being considered.
- 114 While the State Archives was responsible for semi-current records, it only had an advisory function for current records. This would change under the proposed new legislation, which would give greater authority to the Archives for the management of records throughout their life cycle. The *Right to Information Act, 2005* had been a stimulus for improving recordkeeping in government departments and had raised the profile of the Archives amongst citizens. The historical archives mostly comprised pre-independence material up to 1947, suggesting that the bulk of more recent non-current records transferred by departments had yet to be processed, or that transfers had not been taking place systematically. There did not appear to be any transfer lists. The Assistant Archivist noted that departments were supposed to follow transfer instructions, but many did not.
- 115 Semi current records were housed in the General Records Section (GRS) of the State Archives in what was essentially the Government's records centre. The GRS used to be managed under the Government Secretariat itself as a Records Section, but it was transferred to the Archives in the early 1970s. Records stored in the GRS remained the 'property' of the transferring department and could be requested by and made available to the transferring department.
- 116 It is estimated that there were about 700,000 files in the GRS. Files were stored in bundles labelled by department, year and file batch. While there did not appear to be retention schedules in operation, a simple retention and disposal system existed for government files. Category A files were permanently preserved. B files were retained for 30 years before being transferred to the Archives. C files were automatically destroyed after ten years. Formerly, C files were destroyed after five years but the

retention period was increased to ten years. As the Archives had no direct control over current records, it appeared that the department that created the files decided, normally at the file creation stage, which retention category applied and when to transfer files to the Archives. Category B files were presumably subject to appraisal to determine whether they had continuing value.

- 117 A number of digitisation projects were being undertaken for both conservation and access purposes. The Reference Archivist said that digitisation made searching for and locating requested information far easier. Materials in high demand by researchers were scanned, including archives catalogues, the Karnataka *Gazette*, government administration reports and the *Proceedings of the Mysore Government*. Digitised records were captured in a database called KSANIC (Karnataka State Archives National Informatics Centre). The database was created and was managed by a Bangalore-based company, Indigo Information Systems. Data input was also outsourced.
- 118 Currently, the *Gazette* was being scanned, series by series. A TIFF file was created, then converted to PDF format to allow text searching. Details of each scanned document were entered in a Microsoft Access database. Each government order in the *Gazette* had its own database entry. Keywords were entered as search terms, but there did not appear to be a standard list of keyword terms or controlled vocabulary. The Reference Archivist said that the selection of keywords (maximum of five) was usually obvious, for example the name of a village or the subject matter. She also said that as the notifications and orders in the *Gazette* were normally short and specific to a subject, keyword indexing was relatively easy.
- 119 The Archives and GRS were moving to a new building where mobile shelving would be installed. Current and semi-current records would be housed in the new facilities, while some historical archives would remain in the old Secretariat building.
- 120 A visit was also made to the Divisional Archives Office in Mysore. The Divisional Office was housed in a two year old building, which was being expanded in stages. There were ten staff, headed by the Divisional Archivist. The Archives held the Palace Archives of the Maharaja of Mysore, as well as the extensive *Proceedings of the Government of Mysore*. There were also a long series of *Gazettes*, other printed records and private collections in the holdings. The *Proceedings* were being scanned and catalogued, using the same system in use in the Archives in Bangalore. The Palace Archives had been catalogued but not yet scanned.

## PAPER AND ELECTRONIC RECORDS ISSUES

- 121 Karnataka and India as a whole have made tremendous strides in modernising government processes and service delivery through the introduction of ICT systems. Less clear were the steps being taken for the day-to-day management of the records generated or held by these systems, and the retention of records deemed of long term or enduring value. With the exception of the *Bhoomi* land registration system, recordkeeping functionality and maintenance of electronic records over time



appeared to play little part in the development of new systems. There was no evidence to suggest that officials responsible for planning and implementing ICT systems were aware of the international standard for Records Management (ISO 15489)<sup>24</sup> or of other standards or guidelines relating to records and content management.

- 122 While paper-based records systems, often dating back to processes developed many decades ago, were adequate and well understood, there appeared to be little knowledge or understanding of how electronic records and archives should be captured and managed to preserve their integrity and reliability over time. Issues such as preservation and migration were generally considered only after systems had been in operation for some time, rather than at the design stage. Furthermore, with one or two exceptions, there was usually a ‘disconnect’ between manual and electronic recordkeeping; the relationship between the two types of records as the products of inter-connected business processes was not generally taken into account when planning new ICT systems. This was apparent even in the case of the *Bhoomi* system, which continued to generate large quantities of paper records that were placed in storage. The view was that digital records, as a replacement for paper records, did not need to be integrated with them. Paper files were the responsibility of low level clerks, while information generated by the electronic systems was under the purview of IT administrators and technicians. There was minimal or no interaction between the managers or custodians of the two forms of information and little or no input and advice being provided by records management professionals. On the one hand, the electronic records were not being managed as legally verifiable sources of evidence according to international good practice; on the other hand, paper records were being neglected.
- 123 Computers were more likely to be used for specialised applications that needed to be available only to limited numbers of staff. Where desk top computers were in use, they often dated from the early 1990s and were used for word processing. Networking at the desk top level was not generally evident. Email and basic office software packages, were in use in some cases, but were not available to many officials. Indeed it was doubtful that many public servants were familiar with, or had been exposed to, computerised office processes.
- 124 The reality was that the State Government was still dependent on paper records and would remain so for some time. It was possible to pass by offices and see dozens of clerks dealing with large quantities of paper. Indeed, work processes often appeared to hark back to an earlier era. The vast majority of public servants did not have computers on their desks and had little familiarity with or exposure to computerised office processes. This applied as much to senior officials as to junior public servants. When computers did become commonplace and were used by most officials to conduct government business, the State Government might well find, as other countries have, that more, not less paper, is generated. Electronic and paper records

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<sup>24</sup> ISO 15489-1: Information and Documentation – Records Management - Part 1: General; ISO/TR 15489-2 Information and Documentation – Records Management - Part 2: Guidelines.

must be managed according to established standards and practices if the information base of government is to be protected and resources not wasted.

- 125 The Karnataka Government had recognised the need for greater control over its current records. A computerised tracking system had been designed to manage the movement of files and documents within the Secretariat and could be used as the basis for an electronic document management system. Officials admitted that many public servants did not use the system or were in departments where the limited presence of computers restricted its use. However, it would be important to have a system in place to manage electronic documents and records as desktop office systems and email communication become part of business practices. In this respect, the State Government had an advantage over other countries where desktops and email communications had taken over from manual systems in the absence of electronic document and records management systems (EDRMS). However, the State Government would need to manage the change from paper-based to electronic recordkeeping systems. As desktops became the means of conducting business, new policies, standards and procedures would need to be designed, taught and adopted. Resistance to change could be one of the biggest obstacles, especially at the operational level. This resistance may be a consequence of fear of technology and new practices, perceived loss of control or protection of interests including corruption.
- 126 The transformation to new business practices was well under way. For example, in the Treasury and the PSC, there were modern offices with up to date equipment and systems. The E Governance Secretariat hummed with modern technology, and even the Archives had commenced digitisation projects for preservation and access purposes. Public servants included young, better educated staff, who were eager to explore the possibilities of ICT. However, as several officials noted, it was difficult to recruit or retain well qualified staff as opportunities and remuneration were considered far superior in the private sector. One official suggested that government was no longer the place where the young wanted to work; the public service was considered bureaucratic and old fashioned.
- 127 It was still unclear how electronic records produced by the relatively new information systems would be managed in the longer term. Solutions to preservation appeared to be *ad hoc*. In some cases, records were printed and kept on paper files. More commonly, records were stored on systems until 'archiving' became a priority. The solution then was to store information off line rather than applying retention rules or appraising electronic records for their long term value. This underlined the need to build in records management functionality when planning and designing new systems, so that retention and disposal requirements were included from the outset. In addition, system planners did not appear to be aware of the need to plan for the migration of electronic records or have emulation systems available once data was no longer required on the system. These were important issues, the significance of which would become apparent when there were system upgrades or major changes in technology.

- 128 *Bhoomi* had enabled Karnataka to demonstrate the potential of e-governance and bring services to citizens, thereby improving their lives. While the *Bhoomi* system had served citizens well, and new versions of the system had successfully managed migration of records, it was essential that records and archives policies, procedures and processes were developed and implemented to ensure long term maintenance and usability of electronic land records. The relationship between paper and electronic records that provided evidence of land entitlements and transactions also needed to be clarified so that appropriate policies and procedures could be applied. Although there was evidence of some processes for the appraisal of paper input and output records, it was essential that paper and electronic records were managed as an integrated whole.
- 129 As one IT official noted, the implementation of a computerised system that started with new data was far less of a challenge than a system that was dependent on legacy records that had to be converted and validated. The *Bhoomi* system was dependent on information in paper land records dating back several hundred years. Initial attempts to convert this data to become the systems information base were not successful because there were no processes in place to update the data when changes occurred during the conversion phase. This emphasised the importance of integrating recordkeeping, whether paper or electronic, with business processes so that records were updated as transactions took place.
- 130 Given the quantity of ICT work and services outsourced to the private sector, and the number of public private partnerships, it was important that all parties were clear regarding their roles and responsibilities. Standards and service level agreements needed to be in place if the government and citizens were to be protected from, for example, inappropriate access to, tampering with and manipulation of electronic data. Currently, transparency seemed to take precedence over privacy considerations. Data protection might well become an issue. The government, commendably, had set standards and service agreements, but these did not yet embrace electronic records.
- 131 The government recognised that a data security policy needed to be developed and enforced to ensure that data was authentic, accurate and not corrupted. This involved careful design, planning and adoption of technological solutions, such as smart cards, biometrics, digital signatures and other authentication processes as well as the education of users.<sup>25</sup> However, it might be necessary in the first instance to agree on the authority for issuing standards. The NIC Senior Technical Director, Bangalore, said that the NIC head office in Delhi office set standards for security, data exchange, architecture, legal issues and digital signatures etc. According to an official in the Karnataka E-Governance Secretariat, the Government of India's Ministry of Communications and Information Technology (Department of Science and Technology) should be the national body concerned with industry standards, including the electronic records storage issue.

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<sup>25</sup> Government of Karnataka E Governance Strategy p 23

132 The State Archives could play a significant role in the transition from paper to electronic recordkeeping systems. Records professionals should be involved in the design and agreement of standards, the provision of advice and guidance, and the eventual transfer of electronic records that have enduring value as archives. However, as noted above, the State Archives did not have statutory responsibility for current records. Moreover, while it was gaining some expertise in digitisation work (although this is largely outsourced), the State Archives did not yet have the resources or the skill base needed to build capacity and capability in modern methods and practices in records and archives management. Staff training was urgently needed in electronic records management and a significant upgrading of facilities was required in order to house and manage electronic archives. During a meeting outside of the Archives, an official spoke of the likely development of a state data centre; the Archives should play a key role in any such development.

## SUMMARY

133 Karnataka was undergoing dynamic and impressive development. While the private sector was booming, government was playing a catch up role to develop electronic systems within the public service and to deliver digital services to citizens. A number of such systems were high quality and clearly had brought many benefits, including faster and more efficient services and greater transparency and accountability. However, more attention needed to be paid to the management of both traditional paper-based and modern electronic records and their integration in business processes. Without the development of modern recordkeeping policies, procedures, and practices for both manual and electronic formats, there was a danger that many of the gains that had been made in recent years would be at risk in the future. Government needed to ensure that the records of day-to-day business were authentic, accurate, reliable and complete for evidentiary purposes, while citizens needed to be certain that records would be properly managed to ensure accountability and transparency of government and to protect their rights and entitlements.

## PEOPLE CONSULTED

### Chief Secretary, Karnataka Public Service

Pralhad B Mahishi, Chief Secretary

### Department of Personnel and Administrative Reforms

Geetha Ramesh, Deputy Secretary, Administrative Reforms

### Public Service Commission

Dr H V Parshwanath, Secretary

K Anil Kumar, Deputy Secretary

M N Gururaja Rao, Assistant Secretary (Administration)

Mahest M Nadugeri, Senior Programmer, Computer Section

### Department of Treasuries

Purushotham Singh, Assistant Director, Treasury Network Management Centre

Nanda Gopal, Senior Database Administrator, Treasury Network Management Centre

### Department of Education

T M Vijay Bhaskar, Secretary, Primary and Secondary Education, Education Department

### E-Governance Secretariat

G Sathyavathi, Joint Secretary

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Elisha Andrews, Tahsildar, *Bhoomi* Monitoring Cell

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## **National Informatics Centre, Ministry of Communications & Information Technology**

A Venkatesan, Senior Technical Director and State Informatics Officer  
V Mahadesha, Team Leader, e-Gov Network Groups, Software Technology Parks of India (STPI)

## **Citizens Service Centre, Mysore City Corporation**

Nanjunda Swamy, Statistical Officer

## **Karnataka State Archives**

Dr Usha Suresh, Director  
Ranjendra Prasad, PA to Director  
J E Mallikarjunappa, Administrative Officer  
Dr Ambijakshi, Archivist, Historical Records Section,  
Swamy, Assistant Archivist, General Records Section  
K N Naveen Kumar, Consultant, Indigo Information Systems  
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## **Department of Archaeology, Museums and Heritage, Mysore**

Dr G V Gayathri, Deputy Director

## **Natural History Museum, Mysore**

Dr B Venugopal, Scientist in Charge

## PAYROLL HUMAN RESOURCES SCREENS: VETHANA

### 1. *Employee personal data screen:*

#### *Page 1:*

- Employee number
- Name
- Date of birth
- Male/female
- Date of first appointment
- Date of present appointment
- Name of department
- Designation
- Bill unit/budget unit
- Bank
- Bank account number

#### *Page 2:*

- General provident fund account (tax) details
- Technical post y/n
- Place of work (eg Bangalore)
- Band no. (income tax band)
- Budget account
- Category of post (eg, Indian Foreign Service or K. State Service)
- Employee Group Insurance Scheme – state/central
- Pay scale/band (different pay scales depending on length of service, promotions)
- Basic pay
- Date of next increment

#### *Page 3:*

- Stop payment of salary (for disciplinary reasons) y/n
- House rent allowance
- City compensation allowance
- Whether house rent allowance is limited y/n
- Physically handicapped y/n
- Professional tax y/n
- Whether staying in government quarters y/n
- Whether drawing house rental allowance y/n

## **Summary of Other Screens**

3 *Attendance screen*

4 *Other particulars (not used)*

5 *Deductions details*

6 *Loans and other particulars*

7 *Festival advance (interest free loan that can be taken once a year)*

8 *Updating of files (used for editing basis personal details that appear on every screen, for example name)*

- Promotion details
- Details of government quarters
- Donations (for natural disasters, etc)
- Final calculation and printing
- Diurnal allowance (linked to CPI and can go up and down)





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