

**APPLICATION AND EFFECTIVENESS
OF COMPUTERISATION IN
GOVERNMENT OFFICES
AT DISTRICT LEVEL
*A STUDY***

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Summary

This study set out to find out the extent of computerisation of government offices at the district level in Bangladesh, their application as well as increase in organisational effectiveness in those offices due to computerisation. The survey under the study looked at 58 government offices in 22 districts of the country. Out of 21 Deputy Commissioner's Office (DC Office) surveyed only 13 of them had computers, while only 3 Offices of the Superintendent of Police(SP) out of the 18 giving response had computers. On the other hand, 18 of the Local Government Engineering Department (LGED) Offices out of the 19 offices had computers.

The study found that the level of computer usage in district offices is still low as it was found that only 2.45% of the personnel in 13 DC offices having computers, only 6.25% of three SP offices and 24.74% of eighteen LGED offices were found to utilise the available computers. Thus LGED offices are playing a leading role in utilisation of computers at the district level while the DC and SP Offices are lagging far behind. There was definite lack of properly trained manpower at the district level as it was found that there were only 148 trained personnel in 31 offices using computers. Of this LGED offices had the highest number (108) followed by the DC offices(36) and the lowest was in SP offices (only 4 people). This lack of trained manpower undoubtedly contributed substantially towards lower utilisation of computers at the district level

Computers are mainly being used as glorified word processing machines as out of the 34 offices having computers, 12(35.29%) still use type writers for 90-100% of their total official work, 4(11.76%) of them utilise them for 80-90% of work and 13 (38.23%) offices depend on type writers for 10-40% of their work. On the other hand, 5(14.71%) offices do not at use type machines at all. In fact 31 out of the total 34 offices having computers replied that the computers are mostly used for only word processing

The study found that most of those organisations felt that effectiveness of the organisations due to computerisation had inc. 90.32% of the respondents ranked it from maximum to moderate on a scale of 3.5 to 6.0. In these cases none of the DC offices reported it as maximum and one DC office thought that effectiveness was low and two of them thought it was negligible. On the other hand, none of the LGED and SP offices thought that effectiveness was low or negligible after introduction of computers.

The study discovered varying training needs of the respondents. Interestingly, the majority of the offices using computers (29 out of 31) wanted their personnel to be trained in networking inspite of the fact that most of the offices still utilised computers as fancy type machines!

SUGGESTIONS

- In order to ensure that government level personnel can quickly switch over to using computers, an executive order can be issued by the government that all personnel working in the public sector must become computer literate by a time period to be determined by the government. To achieve this goal a strategy for training in government institutions as well as in the private sector should be drawn up immediately and funds set aside in the annual budget for this purpose.
- Since, it is a much more difficult task to train users to use computers effectively as information-processing tools, in respect of training the district offices can utilise the services of Regional Public Administration Training Centres located at Dhaka, Chittagong, Rajshahi, and Khulna and the Vocational Training centres around the country for tailor made courses. Moreover, the services of the private sector providers can be harnessed as well to extend the range of service providers.

The government can take up a crash programme through projects to introduce more computers at the district level on the basis of the recommendations of Public Administration Reforms Commission (PARC). And those computers should be brought together within a wide area network (WAN). The network under the National Data Bank linking up the Prime Minister's Office, the Planning Commission and the Bureau of Statistics- which is expected to be completed by December 2000, can also be hooked up with the network connecting the

districts. In this respect the domestic fibre network that links the railway stations in most of the districts of Bangladesh can be the backbone of a national administrative IT network. This can be further expanded to bring in districts not within the existing railway fibre network within the purview of the national IT network. The government can also use the telephone and utilise File Transfer Protocol to link up offices and exchange information. In this connection laws and regulation have to be changed or updated to allow use of electronic signatures and acceptance of electronic documents as legally valid. Moreover, new laws need to be enacted to provide security and regulation of e-governance.

- Government can also use the Internet to enhance the delivery of government or other services. Information about services and processes can be put in government web sites.
- In order to overcome the problem of inclusion of computers in existing TO&E of government organisations, Government can issue an executive order that all computers purchased with permission of the relevant authorities shall automatically be included in the existing TO&E ; or can take immediate steps to revise and update the TO&E and made it more flexible with an eye towards expanded usage in the future.
- As the government is yet to formulate a IT Policy, it should be done as early as possible to have an overall strategy for IT in the country. The Policy should include a strategy of computerisation of the public sector.

CHAPTER-I

THE INFORMATION AGE AND GOVERNANCE IN A GLOBALISED WORLD

INTRODUCTION

At the start of the new millennium states are facing tremendous challenges. Economic forces of globalisation, innovative technological changes, trans-national organisations with their enormous financial and marketing powers and the new equations in global power relations are set to change the public sector across the globe. The state is in fact under intense scrutiny. Basic questions regarding its role, size and operations are being raised and there is a growing consensus about its limitations and capabilities. There have been calls for 'rolling back the state', 'shrinking the state' and giving the market a greater leeway rather than the state controlling the market. In fact, the relations between the state, market, non-governmental sector and the citizens have changed considerably during the last two decades. This has paved the way to re-examine the role of the public sector in a different light. Nowadays it is being seen more of facilitator who steers others who can deliver better services and act as a catalyst to inject competition in service delivery.

Globalisation and its accompanying wave of the Information Age impact both economies and how governments function. Globalisation is being accelerated by the technology (internet, email, satellites, etc.) which binds and impacts markets beyond national borders. Globalisation, with its enhanced influence of technology on everyday life has both positive and negative implications which planners and managers need to understand, utilise the positive dimensions and take steps accordingly.

The Information Age will make many of the traditional structures, systems, rules and regulations and demands obsolete as new innovations will make them redundant. For example, in the future there may be no further need for traditional banks as more innovative

banking services may evolve. However, a great danger is that whilst the developed nations with their technological advantage will obviously take the lead, and the key divide that may crop up are countries that are Information Rich and those who are Information Poor. In this context, the global mission should be pursuance of the Age of Knowledge which will help to attain sustainable development.

Thus governments across the globe are searching for ways for improvements in the public sector. In some the state has been rolled back considerably while in others the public sector is being changed, albeit slowly by employing many tools and options. As such, greater use of markets is creating competitive pressures and offering more alternatives to public provision for users seeking quality or lower costs.

Governance in developing countries involves coping with a range of socio-economic needs and demands that far exceed the capacity of the governments to respond. The public management reforms in developing countries are constrained by economic and social realities and the political and social consequences must be addressed as part of the change strategy. Moreover, the public sector in those countries will continue to play an important role in years to come and there must be continued focus on access to basic public services. In this context information technology is making possible the concept of a 'joined up' public service as citizens become more and aware of the power of information and they expect governments to be more transparent and would like to actively debate policies and participate in policies and activities which affect them. In fact, many think that instead of creating a 'Big Brother' monolithic government, information is empowering citizens by making them more aware and getting involved in government activities. In fact, a meeting of the Commonwealth nations held in Ottawa in 1998 pointed out that Governance in the 21st Century will be shaped by three great drivers of change, global interdependence, communication/information technology and the expectation of the public to be involved in the decisions of the government (Commonwealth Secretariat 1998).

A famous American futurist John Naisbitt in his book 'Megatrends' pointed to ten directions which he assumed to transform our lives. Core of the transformations was, according to

Naisbitt, a transition from industrial society to information society. Another important shift was from national economy to world economy. As to the development of information society (IS), he identified five key areas:

- Information society is an economic reality.
- Innovations in Information and Communication Technology (ICT) will accelerate the pace of change.
- ICT will at first be applied to old industries, and then gradually evolve into newer activities.
- In an emerging literacy-intensive society the education system of the 1980s was and to a large extent still is turning out increasingly inferior products.
- The new technology will succeed or fail according to the principle of high tech/high touch, *i.e.* how the human responses impact on the technological applications and the formation of new computer-mediated practices.

Naisbitt also predicted several other relevant transformations, like the shift to more decentralised systems of government, gradual transition to more flexible forms of organisation, *i.e.* a transition from hierarchies to networks, increased role of self-help in the creation of wealth and social security, and a transformation towards a participatory democracy (Naisbitt 1984).

There is now, indeed, a transition from a pure hierarchical and centralised 'government' to a more fragmented governance going on across the globe. This means that local authorities are increasingly working alongside and in partnerships with other public, private and voluntary sector organisations in providing services. The first and the key impact of globalisation is on local actors' abilities to manage their local practices and to determine local conditions. A new partnership is therefore emerging across the world, which increases the flexibility of social organisations, and gives opportunities to utilise the strengths of people, associations and communities involved in local affairs. This is in fact a challenge to existing national policies as well as the performances of governments at the local levels. However, it is not only the government but people and communities as well who must cope with this shift. This, in fact, makes the role of local governments even more important. Government at the local level

should help people to cope up with the new practices and the complexities of changes and enable them to make the transition.

An information system provides a societal capability based on the use of information that encompasses its full context of people, institutions, policies, processes, incentives, data, information technology and infrastructure. A strategic information system provides a society fundamental capability of such importance that it can enhance the scope and efficiency of an entire sector and economy. As such, a new concept of **informational governance** may be emerging. As more citizens use more and more computer technology-mediated communication, the more they will tend to challenge traditional ways of doing things. The governments would then be under more pressure to increase the use of new technology and create new ways of giving services e.g. through web sites and make decisions and plans with the help and based on technology.

Hence, microcomputers are becoming quite crucial in the area of development administration. Sanwal (1989) points out that development administration is an information intensive activity, with vast databases, spatial diversity, dispersed beneficiaries, a wide variety of programmes and projects, and large number of interacting organisations. Democratised and decentralised information systems also provide an equity enhancing possibility, so essential for social development

Moreover, the changing form of development will also affect politics and democracy. The development of Information Technology thus may be used as a powerful tool for renewing democratic practices in which a considerable part of legitimate decision-making will take place in markets, within the third sector (NGOs), and in the civil society. Increased use of information technology and other forms of the informational mode of service delivery are in fact becoming one of the key aspects of restructuring government in many countries. Provided the recent developments that continue to shape this field such as inception of Electronic Government in Malaysia and in Andhra Pradesh of our neighbouring India, use of computers and the Internet is fast becoming the basic medium of the government not to mention the society. What is essential is that this 'new logistics' or service delivery system

can provide opportunities to deliver services for citizens and customers in a more flexible way. In addition, this system helps to increase the co-operation and the effective use of resources.

Greater use of technology especially information technology will result in exchange of information and services to be more reliable and of quality, have less turn around time and be more transparent. However, use of information technology (IT) presupposes greater computerisation among other things. Computerisation of government offices will pave the way for improved effectiveness and efficiency of the government through better processes, improved information flow and faster communication between government organisations. The government will be in a position to possess more sharper analytical tools and decision making systems which will enable to formulate and implement more transparent and performance oriented policies and actions and successful strategies can be identified and less successful ones modified. Of course, in many cases the human and physical elements are and will remain to be vital. However, computers cannot replace people overnight at least in developing countries, but will enable them to perform better.

Thus governments are relying more and more on computerisation and the benefits offered by IT to be more effective, efficient, transparent, citizen friendly and accountable. The trend is not only confined to the central government but decentralised to local levels too. We do not have to look at developed nations for examples. In neighbouring India, the states of Andhra Pradesh and Karnataka have up taken up the concept of Electronic Government with the Chief Minister of Andhra Pradesh holding monthly video conferencing with the District Magistrates and Police Supers and thus sparing them time consuming travel to the capital. While in Karnataka, legislators are required to open their respective interactive web sites on the work being done in their constituencies. The Mahatir government in Malaysia is also using the concept of Electronic government to introduce the concept of 'paperless office' through linking up government departments and offering facilities and services to citizens as well as businesses.

THE BANGLADESH SCENARIO

Computerisation started in Bangladesh back in 1964 when some private sector banks set up computers in commercial banking. However its usage in the public sector was rather at a snail's pace. With the advent of Personal Computers (PCs) in the eighties one could see more computers in use in the public sector offices. These however were hardly used and remained mostly as showpieces in the office rooms of the top bosses. A report prepared by Bangladesh Computer Council and UNDP indicated that though the last decade has seen ministries and other government departments purchasing computers and other IT related equipment in the name of computerisation, installations were under utilised, both in terms of capacity and applications, and though there has been marked increase in numbers in recent years but their functions remained underused (Khan 2000). A survey carried out jointly by the Computer Council and Bangladesh Bureau of Statistics in July-September 1998 indicted the number of PCs in Bangladesh to be 78,658, and mid range computers to be around 1406, number of Main Frame Computers at 19 and the total number of licensed software to be 12,2713. Out of this government organisations were using 2950 PCs, 19 mid range computers, 6 Main Frame Computers, 462 licensed software and 3182 customised software (GOB 1999:3& 42).

Thus in the last decade or so there has been a steady increase in computerisation in the public sector of Bangladesh and the trend has increased substantially from 1995(Ibid.). With this growth in computer usage there has been a gradual shift too in the overall style of administration with the push towards decentralisation. Consequently computers and related IT technology also started to make inroads into the district levels in Bangladesh. Probably the Local Government Engineering Department (LGED) were the forerunners of large scale introduction of computers in its district level offices. Soon other offices followed suit. Moreover, sometime back the Prime Minister had also instructed that district level offices should be computerised and the government had issued a circular in 1998 to promote use of computers instead of type machines in government offices. But what has been its effect? Have things improved? Are the computers being used properly or are they being under utilised? Have the leadership in the district offices been able to grasp the potentialities of computerisation and utilise them for the benefit of the local people and staff working under them and to change the services offered by the government organisations? Have computers

increased the efficiency and effectiveness of government offices at the district level? Are offices at the districts able to cope with the changing public sector and utilise information technology to serve the people more effectively, efficiently and in a more transparent manner?

This study therefore aims at answering the above questions and will strive to find out the extent of computerisation, application of computers and increase in organisational effectiveness due to computerisation in government offices at district level of Bangladesh.

CHAPTER II

RESEARCH METHODOLOGY

OBJECTIVES

Against the back drop of the global Information Technology Revolution, computers have been making inroads into the public sector of Bangladesh for sometime. As part of the overall computerisation of the government, offices at the district level have also been provided with computers during the last few years. However, are those only for show and treated as ‘look’ but ‘don’t touch’? Or are they being used properly? Therefore the general objective of the research is to find out the extent of application and use of computers in government offices at the district level of Bangladesh. The research thus aims at finding out:

- The extent of computerisation of government offices at the district level in Bangladesh.
- Perceived increase in organisational effectiveness of the district level government offices due to use of computers in office work.
- Identification of problems involved in using computers.
- Possible solutions to the identified problems.

SCOPE OF THE STUDY

The scope of the study centres around the use of computers in government offices at the district level of Bangladesh. For this purpose not all government offices at the district level were brought under the purview of this study. Only three offices, identified by the researchers to be among the core offices of the districts were studied. These were the Offices of the Deputy Commissioner, Superintendent of Police and the Local Government Engineering Department. The study mainly looked at the extent of computerisation, application of computers, whether there has been increase in organisational effectiveness

through use of computers in those offices. It also examined the following:

- Whether there is any alternative to computers for office work and communication and extent of their usage.
- The level of computerisation and their application in official work.
- The numbers of people using computers and whether they are properly trained.
- Whether the computers are being used in human resource development.
- Training needs of the personnel working in those offices.

METHODOLOGY

i) Selection of Study Area

The study is concerned with the use of computers in government offices at the district level in Bangladesh. For this purpose 22 districts of Bangladesh, chosen on random basis, and representing roughly one third of the total number of districts of the country were earmarked for the survey. The districts were mixtures of small and big ones. The district offices located at the metropolitan areas of Dhaka, Chittagong and Khulna were deliberately left out of the scope of the study as it was presumed the existence of more economic and commercial activities in those three cities has led to a proliferation of higher level of computerisation compared to other districts. Therefore inclusion of those three districts would not reflect the true picture prevailing in other districts. Moreover, the districts of the Sylhet Division could be covered due to time constraints. In each of the selected 22 districts, three core offices involved with the overall administration and development activities i.e. the Offices of the Deputy Commissioner, Superintendent of Police and the Local Government Engineering Department were chosen as samples to be representative of the government offices at the district level. The choice of these three offices was based on the assumption of the researchers that they were the most likely candidates for computerisation among the existing government district level offices. The Office of the Deputy Commissioner was picked since it represents the government at the district level and is entrusted with the co-ordination of government activities. The Local Government Engineering Department was chosen as it

implements substantial development works of the government and is thought by many as initiator of effective management practices. The Office of the Superintendent of Police as a crucial player of the law and order situation, which is vital for any activity of the government, was also included as a representative office. All three offices had considerable interaction, some obviously more than others did, with the general public by providing services to the people. Moreover, they had strong 'images' in districts with the possibility of conveying and disseminating new ideas and good management practices

A purposive sampling technique appeared to suit the purposes of this research and for this study only three core offices at the districts were selected. As such the study mainly focused on the findings of a structured questionnaire (see Annex 2 for details), which were administered in the three core offices at the district level identified earlier. This was mainly carried out with the help of data collectors who accomplished the task on the basis of the questionnaire. However, the study was not concentrated on collection of data only, but was involved with the reflexive, developmental and experimental stages of research. The reflexive stage reviewed existing conceptual issues and frameworks for identification of existing paradigms, the developmental stage raised questions for investigation and the experimental stage examined the assumptions and then examined them in context of the field level realities. As such the study involved both qualitative and quantitative methods, which enabled the research team to examine different aspects of the situation.

(ii) Data:

This study was carried out on the basis of primary as well as secondary sources of information such as structured questionnaire, documents, research reports and other secondary data.

(iii) Data Analysis

Collected data have been analysed by using non-inferential statistics and quantitative techniques. The questionnaire used contained a question, which contained rating scales where the lowest value was 1 and the highest 6. Thus the median was 3.5 while analysing the collected data, the average score of the responses were calculated and then quantitative values were transformed into qualitative form.

LIMITATIONS:

The sample size was initially estimated to be around 100 respondents to clearly indicate the actual situation, but due to time constraints and non-availability and/or non-response from the respondents, only 58 respondents participated in the structured survey.

Moreover, time constraints, lukewarm response from respondents, socio-cultural milieu where the respondents were at times perceived to be bothered by the presence of the data collectors were the major limitations of this study. A prime example of the last factor is the non-co-operation of the LGED Office in Comilla, which prevented the data collectors from gathering responses from that office, though in view of the prevailing trend, in all probability computers are used in that office. Time constraint and administrative inconvenience prevented any districts of the Sylhet Division to be covered under this study. However, the general trend that came out was deemed to be adequate by the researchers to be a picture indicative of the overall situation in Bangladesh. Moreover, the observation method and examination of official documents to validate the responses given by the respondents could not be utilised, mainly for time constraints and prevailing 'office culture' in Bangladesh—where official documents are not shown to persons from outside the organisation, and certainly not to a mere data collector. These prevented the researchers from having a truly balanced vision of the situation and take a second look at the responses. Even then, the responses elicited through the structured questionnaire does give an overall picture of the state of computerisation and its application at the district level of Bangladesh.

ORGANISATION OF THE STUDY

The study is broadly divided into three main parts: the background, the field research and the analysis of the findings and recommendations. The background has been covered by Chapters 1 to 3. Chapters 1-2 set the stage for the research, while Chapter 3 looks at the issues of the impacts of information technology and computerisation upon governments, and then presents a picture of how it is being successfully utilised by governments in some developing countries. Then the findings of the study on the district level offices in Bangladesh and the analysis are presented in Chapter 4, while the conclusions derived from the findings and recommendations emanating from them have been put into Chapter 5.

CHAPTER-III

Information Technology, Computerisation and the Changing Public Sector

Information Technology and its Impact upon Governments

In an era of globalisation, the public sector officials have to face newer and complex challenges. The fast changing pace of a globalised society demands innovative and accountable decisions on part of the officials working in the public sector. The arrival of the 'new information age' opens doors for us to reap benefits of the information technology, as such access and skills in use of information technology in the public sector become more and crucial as time goes by. The case cited in the box below illustrates how greater access to information can enable governments to tackle new and complex situations.

Box-3.1 Email Helped the Pakistani Government Tackle the Problem of Toxic Dump Episode

In the month of May 1993, an unscrupulous operator had dumped about 2.5 tons of a highly toxic chemical substance, meta-dinitrobenzene near a railway station in Karachi. An unsuspecting godown owner picked it up as probably something useful. This person and his driver died as a result of inhaling the toxic fumes from the chemical. But by then the story had been reported in a national newspaper causing great concern among the environmentally conscious public. The Sustainable Development Network Pakistan, on receiving this information from the IUCN sent an SOS via e-mail. This appeal for the response was nothing short of overwhelming - both through fax and e-mail. Though it was a rather technical question needing very specialised knowledge, more than 50 individuals and organisations responded with concrete suggestions and offers of help. There were responses from places as diverse as Brazil and Finland, New Zealand and Switzerland apart from US, UK, Germany etc. They sent comprehensive fact sheets covering topics like the properties of the substance, how to handle it, known effects on human beings and possible ways of detoxification and disposal. This information which kept trickling in, was enough to compile a small book on the subject. The story had a happy ending when the toxic material was safely incinerated by the government under expert supervision.

Source: Labelle 1998

Thus greater use of information technology by governments will allow:

- Opening up societies to their own citizens and stakeholders, and for presenting a national view of the country to those outside national borders.

- Decision makers to acquire a basis for comparing their situation with that existing in other countries, locations, etc., in order to better appreciate any advantages or disadvantages they have, and to act on these accordingly.
- Actors within country to have better access to information and resources wherever these may be located.
- Stakeholders to have their say, and share knowledge, experiences and information with other stakeholders near and far.
- To encourage and even permit greater access to local knowledge resources, and, to encourage local sources of knowledge and expertise to make this information available via the Internet.
- To inform and attract potential collaborators and potential investors.
- Well informed and networked decision-makers make better decisions and be more transparent and more accountable (Labelle 1998).

Box 3.2 : Role of Internet in Public Interest Litigation

Residents of a densely populated sector of Islamabad (Pakistan), found that government agencies in order to construct an electric grid station within 40 feet of houses were cutting down trees. Threatened by the adverse effects of the electromagnetic fields on human health, particularly for children and pregnant women, the residents filed a writ petition for violation of human rights in the Supreme Court (SC). The Sustainable Development Policy Institute in Pakistan (SDPI) was made a party to the case. The SDPI sent out an appeal on the Internet for latest research evidence and for legal advice. Within 24 hours, evidence and legal advice started coming in. This was in the shape of laws on the 'right of way' of grid stations, transmission lines and research papers. Equipped with convincing evidence SDPI and petitioners' counsel argued in the SC.

The SC has constituted a Technical Committee and directed the relevant government agencies and the Committee to invite public debate and public hearings. The agency was further been directed that while planning future grid stations, these will be publicised and public hearings will be held.. The government has been directed to constitute a commission for the purpose and relevant agency will commence research on the subject.

Source: Labelle (1998)

In the poorest of the developing countries, there are economic activities. Governments operate and civil society also exists, although they have far fewer resources than in other countries. People communicate and transact business, albeit, under sometimes difficult circumstances and at a much reduced scale when compared to other countries. Access to the Internet can be useful for these countries, as long as there is a basic capacity to use the technology. However, in some of the poorer countries especially, and in rural regions in general, as well as for many sectors of society in developing countries, the capacity does not exist to exploit the Internet. A lack of trained personnel is the greatest limitation to diffusion of the Information technology in many developing countries. There is a threshold of 'technological know how' that countries need to reach. Several initiatives are ongoing to help bridge this gap and to help users, especially key decision-makers, connect and become consumers as well as providers of information.

The developing countries to sustainably utilise information technology must ensure that a proper information infrastructure is gradually built up. Moreover, there must exist an information friendly environment where governments are willing to share information and are transparent and citizen friendly. This calls for a basic shift in the mode of governance in many countries along with a planned approach towards education and human resource development so that the society can exploit the opportunities offered by a globalised economy and its accompanying information revolution.

However, the rapidity of changes do have some drawbacks as Kristiadi and Basri (1998) point out that adaptation of management to technological progress is slower than the rate of changes in technology itself. Even if we are seeing faster processors every year or so, have we seen such changes in the case of management practices and /or organisational culture? Kristiadi and Basri (1998: 477) therefore rightly comment that even though we see modern technology being applied in developing countries, there are still traditional management philosophies existing in both developed as well as developing ones.

Both theory and evidence suggest that in the long run new technology should create more jobs than it destroys. But the long run can take a long time. Unfortunately there may be prolonged lags between job losses and the creation of new jobs. And the new jobs may anyway be inappropriate for the displaced workers. Thus governments can help by making workers more adaptable through improvements in education and training and by removing obstacles to free markets in labour and in goods and services.

The advent of the Age of Information has enhanced the ability to communicate and link freely with counterparts around the corner and around the world using email and the Web has empowered stakeholders for sustainable development in ways that could not have been possible before the late 1980s. For accountability and transparency: for those with access, the Internet is perceived to be a fair and equitable communications vehicle, in part because it is not readily controlled by any one interested party and participation in the Internet is not restricted by membership. In developing countries, though, access is limited by availability of expertise and by the cost of equipment and connection fees. Thus Governments and other organisations concerned with managing the development process and mobilising citizens can use the Information Technology to enhance the delivery of services, as well as information and data that governments and other stakeholders were not able previously to share readily with their citizens and other stakeholders for a variety of reasons.

The concept of access to information as a fundamental human right has been recognised and this becomes meaningful with the advent of the Internet, as we know it today. Kofi Annan, the Secretary General of the United Nations, in a speech on the occasion of the GK97 conference that took place in Toronto in 1997, underlined the importance attached to information and access to information. Thus governments are to guarantee that this fundamental human right is ensured to its citizens and that information technology is harnessed properly to provide services to the people. The examples cited below from Malaysia, India and Egypt do indeed portray that greater use of information technology through computerisation does enable governments to play better, more transparent and accountable roles.

Use of Computers by the Public Sector in Developing Countries

i) Computers and Decision Support Systems in Egypt

Decision support systems, since their inception in the 1970s, have been differently defined and conceptualised by vendors, researchers and academic commentators. However, there has been general agreement that decision support systems are computer-based systems that help decision-makers confront ill-structured problems through direct interaction with data and analytical models. Some of the classic Decision Support Systems texts show that the focus of research and application of decision support systems has to a large extent been on individual managers and on organisational decision processes and largely for the private sector.

Sharif Kamel (1998) points out that Decision Support Systems (DSS) are mainly represented as providing a set of opportunities directed toward improving the effectiveness and productivity of managers and professionals, boosting the organisation's competitive edge, and rationalising the decision making process within an organisational context. They aim at realising the desire for accurate, timely and relevant information to help individual managers in organisations deal with an increasingly turbulent economic environment and the growing pressures of competition.

Much less emphasis has been given to the application of DSS in three particular areas: their use with groups (although group decision support systems nevertheless represent a significant domain of research and application); their use in the public sector; and their use to support socio-economic development. An example below taken from Egypt illustrates how the use of Decision Support Systems by the government of Egypt has used computers to rationalise its decision making processes and better allocating scarce resources for socio-economic development.

Egypt like many other developing countries suffer from a less effective government unable to utilise scarce resources in development activities. As such a project was undertaken to improve administrative effectiveness at the governorate level (local areas administered by government appointed governors) through the use of information and decision support tools

and techniques. The focus was to rationalise the decision making process of the governors through the use of state-of-the-art IT. The project adopted its strategy through the implementation of two parallel policies: the development of an infrastructure for informatics and decision support systems; and the development of human capabilities in the areas of information, computers and communications.

To fulfil this strategy, a comprehensive information base was formulated for the governorates through the establishment, in each governorate, of a Governorate Information and Decision Support Centre (GIDSC) to introduce and diffuse information technology, and to re-envision the role of the governorates in development planning.

The impact of the project is reflected in the number of information and decision support cases delivered at the GIDSCs, and in the diffusion of information technology knowledge and use at the governorate level. Moreover, the work of the GIDSCs led to the introduction and implementation of a new law for local administration - representing a direct result of the project - which allowed decentralisation of decision making authority and power to the governors. The decision support systems therefore had a direct impact on the structure of decision making at the governorate level. (Sherif Kamel 1998)

ii) The Electronic Government in Malaysia

The electronic government is the mode of governance of the future. In Malaysia, the government aims to form the foundation of that government's formation of infrastructure to provide more efficient and effective services to its citizens and maintain quality of its day to day operations. In the Malaysian context it is a multimedia networked paperless administration linking government agencies within the capital with government centres around the country to facilitate a collaborative government environment and efficient service to business and citizens. The general objectives are to offer efficient, quality administrative on-line services to citizens; streamline government's internal processes to improve quality of service, reduce costs and increase productivity; increase citizen participation in government and create transparency through better documentation, effective communication (Maarof 1998). In Malaysia, the concept of Electronic Government is in fact become a vision of the

government, businesses and citizens working together for mutual benefits and using IT as tool to achieve to that goal. The Electronic Government will cover services that include:

- Submission of applications electronically to the government
- Electronic transfer of monies as payment.
- On-line information access.
- Communication via electronic / multimedia medium.
- Electronic procurement and tendering.
- Electronic polling.
- One-stop help desk.
- Single interface with public to relay grievances (Karim 1998).

The scope of Electronic Government in Malaysia includes the 24 federal ministries with their 180 federal departments/ agencies, 347 state departments/statutory agencies operating in different states of Malaysia, 148 local government agencies, the business firms and 21 million citizens of the country (Maarof 1998). Improvements in the civil service involve one-stop centres of provision of services, and use of kiosks and Internet to provide government services to the citizens and businesses. Exchange of information as well as transactions (e.g. income returns, payments, and so on) will be on-line without using any paper. This will ensure that such transactions are more reliable, have faster turn-around time and greater transparency. Efficiency and effectiveness will mean improved information flow and communication between government agencies. Moreover, government functions will be improved with more analytical and decision making tools, impact of policies will be more measurable and successful projects and strategies quickly recognised and can be used as a model. of Electronic Government.

As the costs of the full implementation of the Electronic Government would be quite costly, certain pilot projects were taken to be implemented initially. These were

- Licensing and related vehicle services and utility payments in areas such as electricity, telephone and so on.
- Electronic procurement (enabling government to be a smart buyer).
- Prime Minister's Office for information management systems, communication, and collaboration that office and other units of government.

- Human Resource Management System for organisational, training, skill management, benefits, salary appraisal, etc.
- Projects monitoring systems for implementation of government development projects. (Ibid.).

Box-3.3 Multimedia Super Corridor (MSC) In Malaysia

Malaysia has created the Multimedia Super Corridor to help companies of the world test the limits of technology and prepare themselves for the future. The MSC will also accelerate Malaysia's entry into the Information Age, and through it, help actualise Vision 2020 of Malaysia. The MSC will bring together, for the first time ever, an integrated environment with all the unique elements and attributes necessary to create the perfect global multimedia climate. It is a length of 15 kilometres wide and 50 kilometres long, that starts from the Kuala Lumpur City Centre (KLCC- down south to the site of the region's largest international airport, the Kuala Lumpur International Airport (KLIA). It was launched on the 27 Jun 1998 and has a twenty year time frame for full completion.

Two of the world's first Smart Cities are being developed in the Corridor: Putrajaya, the new seat of government and administrative capital of Malaysia (opened in 1999) where the concept of electronic government was introduced (Putrajaya was already); and Cyberjaya, an intelligent city with multimedia industries, R&D centres, a Multimedia University and operational headquarters for multinationals wishing to direct their world wide manufacturing and trading activities using multimedia-technology. The MSC aims to be :

- A vehicle for attracting world-class technology-led companies to Malaysia, and developing local industries
- A Multimedia Utopia offering a productive, intelligent environment within which a multimedia value chain of goods and services will be produced and delivered across the globe
- An island of excellence with multimedia-specific capabilities, technologies, infrastructure, legislation, policies, and systems for competitive advantage
- A test bed for invention, research, and other ground-breaking multimedia developments spearheaded by seven multimedia applications
- A global community living on the leading-edge of the Information Society
- A world of Smart Homes, Smart Cities, Smart Schools, Smart Cards and Smart Partnerships. (Source: *The Internet*)

Thus information technology has been used in Malaysia to ensure that the public sector is able to deliver services effectively and efficiently in line with national aspirations and in tandem with the demands of globalisation.

iii) How India has kept up pace with the Information Technology

India has been always in the forefront of the technological revolution involving computers. Indian Railways and Air India along with universities and research centres were using computers for a long time. The National Informatics Centre (NIC) was set up by the government of India as back as in 1975. It was set up to play a promotional role and implementing computer based information systems for decision support in the ministries and departments of the Central Government. The NIC is also a software which provides services

to the government, all state governments and to the district administration throughout the country. The systems are so designed to provide maximum help to the staff working at the working level, with macro information out of them for decision making and policy formulation at the highest levels. The NIC network (NICNET) has been in operation since 1987 and it links all district headquarters, state/union capitals, and the national capital in New Delhi. The NICNET operates a slow speed network linked up with the satellite INSAT1-D and a number of earth stations (VSATs). Besides linking district, union/ state capital and the central government in Delhi, it also provides a portal to the Internet (Gupta 1998).

The NIC has developed some standard software used by various ministries and departments and include personnel management, grievances monitoring, Action Plan monitoring, Parliament Questions management and file movement monitoring. Computerised rural information systems project was also implemented to process data related to various poverty alleviation schemes and maintenance of tax records, assessment and monitoring have also been implemented. Besides, plans are also there to implement and introduce information kiosks/ manned public access terminals as in Malaysia which would give information to the public on areas such as status of applications, bills tax returns, etc.

All senior officials in India have PCs and MPs have been provided with Notebook computers and as such end user computing in the public sector in India has taken strong hold. To this effect the Indian Institute of Public administration (IIPA) started computer-related training as early as in 1971! Among other courses it offers a yearlong diploma course in Computer Applications and Management (Gupta 1998). Thus India has kept pace with the IT revolution and is well prepared to face the challenges of the new millennium for the move towards electronic governance and a knowledge based society.

CHAPTER IV

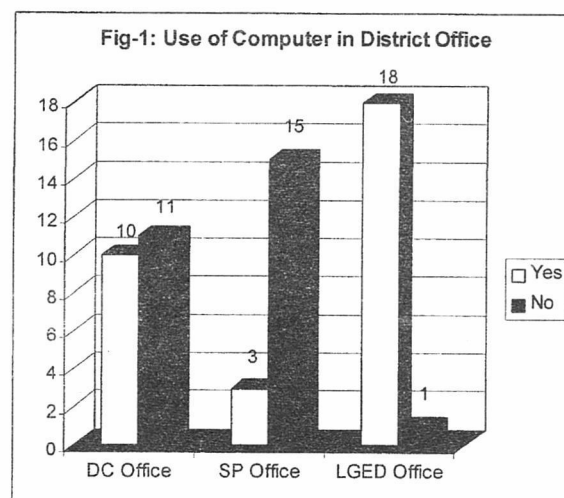
FINDINGS AND ANALYSIS OF THE STUDY

This study was carried out in 22 districts of Bangladesh, which are shown in Table 1 in Annex-1. As indicated in Chapter II, for the sake of convenience only three core offices of the districts, which were targeted earlier by the researchers to be the most likely government organisations at the district level to be computerised were included in the survey.

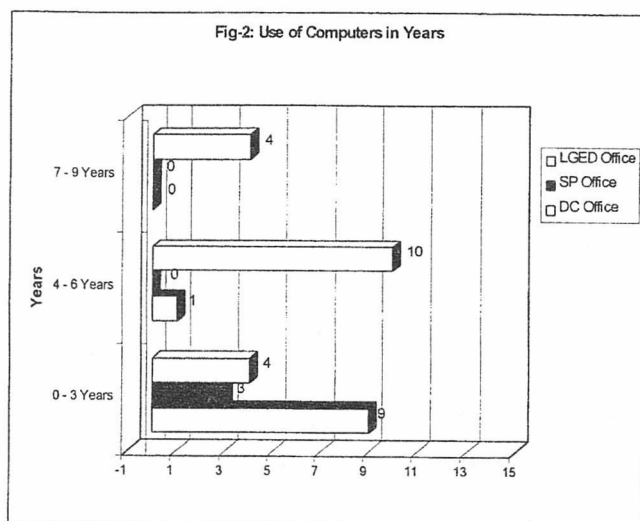
The overall distribution of the districts and the offices covered in this study is shown in Table-1. The study was carried on the basis of random sampling and as such not all districts in all Divisions were covered. The Table shows that 58 offices in 22 districts were subjected to the structured questionnaire (see Annex-2). The Table also indicates that not all the three core district level offices in all the surveyed districts could be studied. This was due the fact the data collectors did not get co-operation from those offices or were asked to leave behind the questionnaire with an assurance that it would be forwarded to the researchers in due course. And true to the prevailing office culture in Bangladesh, this was never done. However, the Table shows that the study does manage to reflect about one third of the total districts of Bangladesh and represents five divisions out of six. As mentioned earlier, Sylhet Division was left out of the scope of the study for matters of administrative convenience.

As regards the availability of computers in government offices in different districts (under this survey), The data (Table-2) shows that out of the 21 Deputy Commissioner's Office (DC Office) surveyed only 13 of them had computers, while only 3 offices of the Superintendent of Police (SP) out of the 18 giving response had computers. On the other hand, 18 of the Local Government Engineering Department (LGED) out of the 19 offices were in possession of computers. The Table also indicates some of the offices in different districts from which information could not be collected. Thus out of the 58 offices surveyed it was found that 34 offices (58.62%) reported having computers while 24 of them did not have them. Of them the Local Government Engineering Department (LGED) was found to have the highest level of computerisation followed by the DC Office.

Interestingly, some district offices lying very near Dhaka like Comilla, Munsiganj, Narshingdi, and Mymensingh did not yet have computers. Though a survey carried out by Bangladesh Computer Council and the Bureau of Statistics during July-September, 1998 indicate the presence of some 69 computers in Narayanganj and 172 computers in Comilla (GOB 1999:54). While, this study was carried out from March -April 2000 the Deputy Commissioner's office was found to have only one computer and there was none in the SP's office in Narayanganj, and there were no computers in both the DC and SP's offices in Comilla! Hence one may conclude that in spite of the presence of quite a few number of computers in those districts, the government offices particularly the 'core ones' identified for this study were not influenced by the advent of the new technology and continued to operate in traditional ways. The researchers are of the opinion that the leadership in those offices lacked the initiative to take advantage of the new technology and impress upon the government to provide them with computers. They were in fact operating in heavily 'insulated pockets' while the world around them was being changed including some of their fellow offices located in other districts.



The study also found that even if they had computers, not all offices were using them (Table 3). Out of the total 34 offices reporting having computers, three of those i.e. DC offices in Barisal, Faridpur and Narail had received computers under Total Literacy Movement Programme of the government only a short time before the survey period and were yet to utilise them. As Table 3 illustrates only 31 offices indicated using computers while 27 did not. This only goes on to show that mere availability of technology is not sufficient enough to guarantee its use, other factors like expertise and willingness to harness new ideas as well as change old working habits methods are also essential.



The survey found out that (Table 4) only the LGED offices (in this case 4 out of 18 were using computers for the last 7 to 9 years and 10 of those were using them for 4 to 6 years and four of them started using about three years back. Whereas ten of the DCs and three of the SP offices were using them from the period 0 to 3 years. It is to be noted that since the DC offices in Barisal, Faridpur and Narail

had acquired computers only a short time before the survey and did start operating them, they were not included in this Table. This information indicates that LGED offices played a pioneering role in the introduction and usage of computers at the district level and continue to play the leading role.

The study also found out of the 34 offices having computers, 12(35.29%) of the offices use type writers for 90-100% of their total official work (Table-5), 4(11.76%) of them utilise them for 80-90% of work and 13(38.23%) offices depend on type writers for 10-40% of their work. While only 5(14.71%) offices do not at use type machines at all. The offices that did not use typewriters were the LGED offices located at Mymensingh, Kushtia, Rajshahi, Panchagarh and Netrokona. On the other hand, it was found out that the most DC offices were depending more on type machines (in some cases as high as 95% of the total workload). The study also found out that in Netrokona though the DC's office got a computer in 1997 it was still depending almost 95% on type machines. In contrast, the LGED office, which started using computers from 1992, does not use type machines at all. It indicates that office cultures do influence working styles and innovative ideas do not seem to travel across offices in the same district. Since one may argue at this point about trained manpower, upon scrutiny it was found that there were only two trained persons in the LGED office under question whereas the DC's office had only one untrained person to operate the computers. This should not be taken as the major factor for less utilisation of the computer on the grounds that the DC's office has been using the computer since 1997 and the single untrained person using the

machine does use it for word processing. Why then depend so much on type machines? Moreover, couldn't that fellow and others in that office be trained up in the last three years? The prevailing office culture and lack of initiative does spring to the mind in this case.

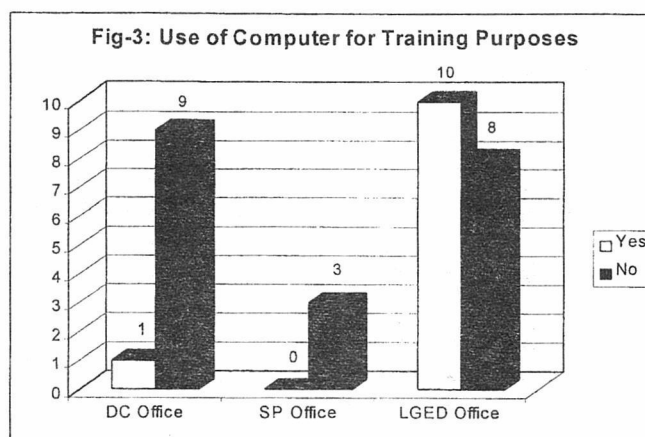
As regards the extent of computerisation in numerical terms, it was found (see Table 6) that the LGED offices had the highest number of computers (51) and printers (38), while the number of computers and printers in DC offices were 20 and 19 respectively. The SP offices under this survey were found to have only three computers and three printers. Some of the LGED offices like Barisal, Patuakhali, and Netrokona had as many as 4 PCs in each office while the LGED Office in Panchagarh had five PCs. Only one LGED office in Bandarban had only one computer. In contrast only Gazipur and Mymensingh DC offices had three computers, while Rajshahi, Bandarban and Gopalganj had two and the rest of the DC offices reported one each. Therefore the survey found that there were 74 computers and 60 printers in the 58 offices surveyed in 22 different districts in Bangladesh.

When asked about the nature of computer work (Table 7) carried out in their offices, most of the respondents i.e. 31 of them (100% of the respondents using computers) replied that the computers are mostly used for only word processing. While 19(61.29%) of them reported that they were using computers for database; of them, 15 were LGED offices and only 4 were DC offices. Moreover only 4(12.9%) of the LGED offices reported using computers for communication purposes and 8(25.8%) of the LGED offices utilised it for training purposes. It was also found that all 31 offices used Bangla software (Table 8), of which 26(83.87%) used Bijoy and only 5(16.12%) used other software like Proshika, Lekhani, etc. It is also to be noted that the three DC offices that were yet to start work with computers (but had them) were not reflected in these Tables. This illustrates that the LGED who were the forerunners of the computer use in the districts were utilising them for various purposes and getting the most advantage out them. They are in fact optimising the utilisation capacities of the computers and using them in as decision support systems instead of only fancy type machines.

Later on when the respondents were specifically asked whether the computers in their offices were used for training purposes (Table 9; for details see question no 3 of the questionnaire at

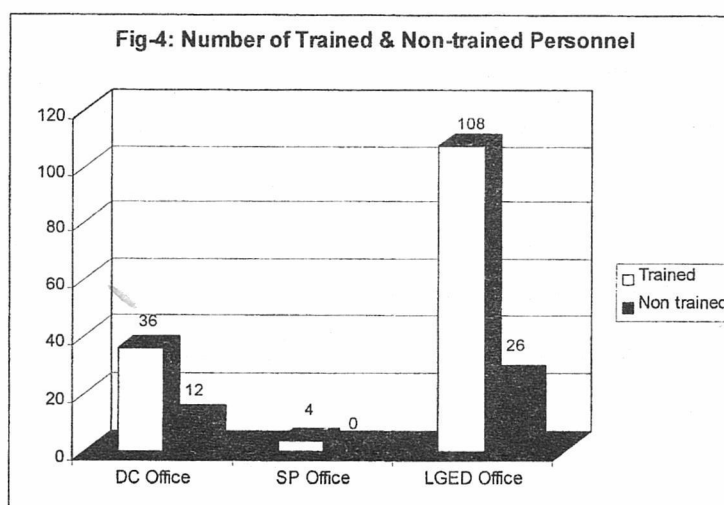
Annex-2) only one DC office (Bandarban) and 18 LGED offices replied in the affirmative.

This response when compared to the information given earlier in Table No 7 gives two different pictures regarding use of computers in training. It can therefore be surmised here that the question here was more direct compared to the previous one and, we can accept the responses given here as valid. Upon scrutiny of the individual responses, we



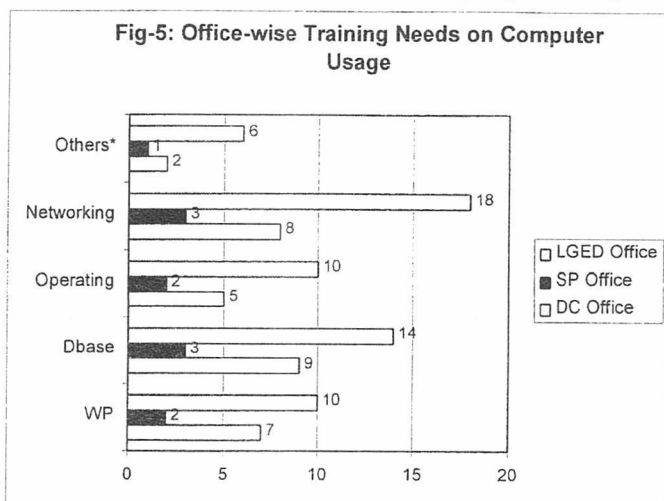
find that in the Bandarban DC office only staff members are trained by the computer, while LGED offices reported training of both officers and staff. The lone DC office trains its staff in computer applications while the LGED reported using training both in application use and as well as for database. Though in the earlier Table (No-7) four DC offices reported using computers for database, none of them indicated that the computers were used as training personnel in database.

It was also found that that the out of the surveyed 34 government offices having computers, the number of trained personnel in those offices (Table No 10) are 148 while the number of untrained ones are 186. Of this LGED offices had the highest number of trained personnel



(108) followed by the DC offices (36) and the lowest were in SP offices (only 4 people).

In order to find out the number of people using computers in contrast to the total number of



personnel working in those offices, a comparative analysis (Table No 11) of the offices having computers was carried out. It was found that only 48(2.45%) people out of a total of 1958 working in 13 DC offices having computers, only 4(6.25%) out of 63 personnel of three SP offices and 134(26.12%) out 513 people of

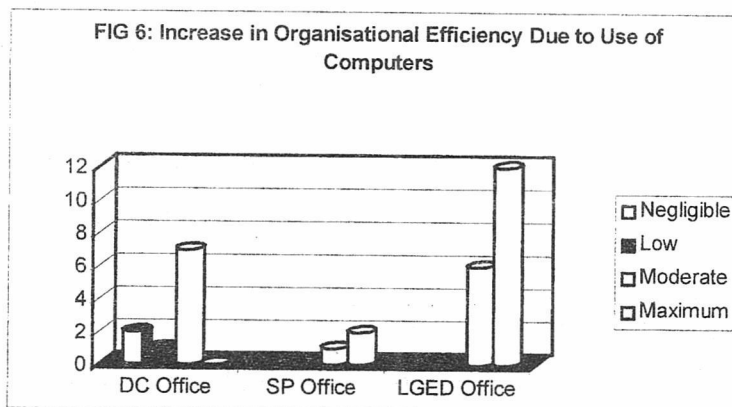
eighteen LGED offices were utilising the available computers. It indicates that the LGED office is essentially playing a leading role in utilisation of computers at the district level while the DC and SP Offices where there are greater interactions with the citizens, are in fact lagging far behind. This goes on to show that bigger and more traditional the organisation, slower is its' responses to changes.

The respondents when asked to give preferences of computer related training they felt was needed came up with varying needs (Table 12). 20 of the offices (including 10 from LGED) opted for word processing; 27 opted for Dbase, 17 wanted training on operating, only 9 of them were interested in other types training (Hardware Maintenance, Accounting Software, Project, Windows, Ms Excel, Fox Pro, Power Point, Programming, and so on). The majority of the offices using computers (29 out of 31) wanted their personnel to be trained in networking. This can be construed that majority of the offices surveyed are aware of the utilities of networking and therefore are inclined to reap the benefits of such usage of computers in the future.

In response to question no 6.0 of the questionnaire (see in Annex-2) it was found that 16 LGED Offices maintained log books to keep track of accessories like paper, toners, floppy diskettes being utilised while using computers, whereas only two of the DC offices and none of the SP Offices followed such practices. Moreover, in response to questions nos.6.2 and 6.3 (Please see Annex-2 for details) none of the offices reported having separate budgetary

provisions for repair and maintenance of computers. In practice such costs were usually borne from the contingency funds of those offices. It only indicates that even at the central level of the government, there exists a fuzzy comprehension about computers and the need to integrate them into annual budgets. This lacuna in appropriate funding for maintenance may have led many of the offices to use computers less than expected. Usage would have definitely led to wear and tear; and that in turn would have landed many an office in new demands on their annual budgets which they were not prepared for or unable to meet. This may be a reason many of the offices still depending on traditional type machines-the maintenance and accessory costs of which are usually included in the annual budgets of the offices.

The respondents when asked about their opinion about increase in organisational effectiveness by using computers (Table 13), 28 respondents (90.32%) opined that it ranged from maximum to moderate on the scale of 3.5 to 6.0 indicated in the questionnaire



(Question no 7). In each case the number of respondents were 14 i.e. 45.16% of the respondents. In these cases none of the DC offices reported it as maximum and 12 LGED offices and 3 SP offices were of the opinion that effectiveness was maximum. In the moderate group, 6 LGED offices, 7 DC offices and one SP office thought it be such. On the other hand, only one DC office thought that effectiveness was low and two of them thought it was negligible. On the other hand, none of the LGED and SP offices thought that effectiveness was low or negligible! The researchers upon close scrutiny of the three DC offices reporting low or negligible scores found that all of them were depending on typewriters in 95% of their office work. More over in one of those offices there were only two staff members trained in computer use, while another office had only one untrained staff using the computer; and the third DC office had three trained officials and no staff at all. Keeping in mind that the prevailing office culture in district offices where in most cases staff

members are instrumental in preparing notes or files, the scarcity of trained manpower is probably the reason for those offices giving low scores regarding effectiveness of computers in office work. Surprisingly the average time period from when computers were being used in those offices was found to be around two years. It can therefore be pointed out that this reflects the traditional outlook of the official in the three DC offices and their failure to utilise modern technology even when put within their grasp. It is even more discouraging when one finds three trained officials in one office who are not inclined to train up their subordinates.

When asked about problems in using computers (Table 14), 11 respondents (35.48%) indicated that they had no problems and 4(12.9%) did give any response; 5(16.12%) respondents in each case reported servicing/ maintenance problems, lack of professional manpower, and hardware related problems. Three respondents (9.67%) in each case reported problems with software and lack of training of the user, while two (6.45%) indicated environmental problems (such as no air conditioned or separate room) and only one pointed out problem with accessories. Thus most of the problems are clustered around hardware, software, maintenance and lack of trained manpower at the district level.

As regards actions usually taken when faced with problems (Table 15) majority of the respondents i.e. 15 did not give any response or said it was not applicable. Five of the respondents replied that they contact the sellers of the computers, while another 5 said that they got the computer serviced locally or installed anti-virus software. Meanwhile 4 of the respondents said that they arranged training for the problem of unskilled manpower while 2, in this case- LGED, reported the problem to the authorities and surprisingly three (one each from DC, SP and LGED offices) replied that they did not take any action.

Though this study found the existence of 74 computers and 60 printers in the 58 offices surveyed in 22 different districts in Bangladesh, the findings in this chapter indicate that even though computers are being increasingly used in district level offices, there is a sort of apathy and unwillingness to fully utilise the potentialities of computers and in most cases it is still being used as a 'state of the art' word processor.

More over no serious effort has been undertaken to recognise it as a tool, which can raise organisational efficiency and can help in decision making. There is still fuzzy understanding of the potentials of computer technology which can enable one to seek information, facilitate easily transfer knowledge and information.

CHAPTER V

Pulling Together the Strands

CONCLUSION

This study set out to find out the extent of computerisation at the district level government offices in Bangladesh, their application and as well as increase in effectiveness in the overall work of the organisations due to computerisation. As the findings of the earlier chapter indicate computerisation at the district level offices is still at the primary stage. The survey carried out in 22 districts and covering 3 core offices for this study does not present a very bright picture. The following picture emerges from the findings:

Out of 21 Deputy Commissioner's Office (DC Office) surveyed only 13 of them had computers, while only 3 offices of the Superintendent of Police (SP) out of the 18 giving response had computers. Whereas, 18 of the Local Government Engineering Department (LGED) Offices out of the 19 offices had computers.

Computers are mainly being used as glorified word processing machines as out of the 34 offices having computers, 12(35.29%) still use type writers for 90-100% of their total official work, 4(11.76%) of them utilise them for 80-90% of work and 13 (38.23%) offices depend on type writers for 10-40% of their work. On the other hand, 5(14.71%) offices do not at use type machines at all. In fact 31 out 34 offices having computers replied that the computers are mostly used for only word processing.

Among the respondents, 61.29% of them reported that they were using computers for database; of them 15 were LGED offices and only 4 were DC offices. Moreover only 4 of the LGED offices and only one DC office reported using computers for communication purposes and 18 of LGED offices and only one of the Dc offices utilised it for training purposes.

The level of computer usage in district offices is still low as it was found that only 2.45% of the personnel in 13 DC offices having computers, only 6.25% of three SP offices and

26.712% of eighteen LGED offices were utilising the available computers. Thus LGED offices are playing a leading role in utilisation of computers at the district level while the DC and SP Offices are lagging far behind. This indicates that bigger and more traditional the organisation, slower is its' responses to changes.

The study found that most of the organisations using computers, when asked to indicate on a given scale of 1 to 6 to what extent there has increase of organisational effectiveness due to use of computers, felt that effectiveness of the organisations had increased. In fact, 90.32% of the respondents ranked it from maximum to moderate on a scale of 3.5 to 6.0. In each case, the number of respondents were 14 i.e. 45.16% of the respondents. In these cases none of the DC offices reported it as maximum and only one DC office thought that increase in effectiveness was low and two of them thought it was negligible. On the other hand, none of the LGED and SP offices thought that increase in effectiveness was low or negligible! The researchers upon close scrutiny of the three DC offices reporting low or negligible scores found that all of them were still depending on type writers in 95% of their office work.

Most of the problems of computerisation are clustered around hardware, software, and lack of maintenance facilities at the district level and lack of trained manpower. There was definite lack of properly trained manpower at the district level as there are only 148 trained personnel in 31 offices using computers. Of this LGED offices have the highest number (108) followed by the DC offices (36) and the lowest is in SP offices (only 4 people). This factor undoubtedly contributes substantially towards lower utilisation of computers at the district level.

The study discovered varying training needs of the respondents. 20 of the offices (including 10 from LGED) opted for word processing; 27 opted for Dbase, 17 wanted training on operating computers, and only 9 of them were interested in training on Hardware Maintenance, Accounting Software, Project, Windows, Ms Excel, Fox Pro, Power Point, and Programming. Interestingly, the majority of the offices using computers (29 out of 31) wanted their personnel to be trained in networking.

The study found that the LGED offices are playing roles in computerisation at the district level with the highest number of computers and printers, its usage (both in terms of length of time and application) and having more trained manpower. As such they have gone beyond the concept of computers as fancy word processors and have started utilising them as part of decision support systems.

On the other hand in spite of having greater interaction with people and enjoying far more power as well as access to power centres of the government the DC and SP offices are lagging behind in matters of computerisation and its applications. They were still bound by traditional management culture and moving at snail's pace to about bring changes.

SUGGESTIONS AND POLICY OPTIONS

Though the above findings are not too encouraging, and Bangladesh has still a long way to go to emulate the pace of IT usage and dimensions in neighbouring India or even the Electronic Government of Malaysia, it is taking small but faltering steps forward. However, we cannot afford to wait too long. Otherwise we may totally miss the bus. As such Public Administration Reforms Commission (2000) has recommended to the government to introduce modern technologies and their optimal use in government functioning at all levels. It has suggested optimal use of optic fibres, increased telecommunication, utilisation of email, and other facilities in the functioning in all spheres of administration. The recommendations of PARC should be given due consideration by the government and implemented as soon as possible.

As the price of microcomputers drop, their availability becomes less of an issue, but it is still critical that resources be directed to the most effective users. Therefore the government can take up a crash programme through a project to introduce more computers at the district level. And those computers should be brought together within a wide area network (WAN). In this respect the domestic fibre network that links the railway stations in most of the districts of Bangladesh can be the backbone of a national administrative IT network. This can

be further expanded to bring in districts not within the existing railway fibre network within the purview of the national IT network. Moreover, the government can also use the telephone and utilise File Transfer Protocol to link up offices and exchange information. In this connection necessary laws and regulations need to be changed or updated to allow use of electronic signatures and acceptance of electronic documents as legally valid. Moreover, new laws need to be enacted to provide security and facilitate 'e-governance'.

As ownership of a microcomputer is still a symbol of prestige and potentially an indication of authority, unfortunately this often results in machines being claimed by senior administrators who may have no specific skills in their use. Therefore use and acceptance of computers is bound to be much higher if there are sufficient resources (in areas of procurement of computers and related accessories, as well as human resource development) are pumped into districts so that a group of users can support each other in the learning process.

Assuming that the implementation of the system goes well from a technical point of view, that is, the computers and programs function adequately, certain components of training are necessary to successfully put the information system into effect. First, users will have to be trained in the specific details of the operation of the system. Secondly, it is a much more difficult task to train users to use computers effectively as information-processing tools as it involves providing training in other aspects of computer-based information processing, for example, how to use spreadsheets and database management programs. Nevertheless, the value of an individual with such capabilities is much greater than one who knows only how to use the specific set of programs developed for the task at hand. Therefore, personnel of the district offices will have to be trained up in data management systems.

In order to ensure that government level personnel can quickly switch over to using computers, an executive order can be issued by the government declaring that all personnel working in the public sector must become computer literate within a specific time period to be determined by the government. To achieve this goal a strategy for training in government institutions as well as in the private sector should be drawn up immediately and funds set aside in the annual budget for this purpose.

In respect of training the district offices can utilise the services of Regional Public Administration Training Centres (RPATCs) located at Dhaka, Chittagong, Rajshahi, and Khulna can be utilised as the RPATCs have already been provided with 25 computers each for training purposes. Moreover, there are Vocational Training Institutes scattered all over the country which can also be used for demand driven tailor made courses. Moreover, the training programmes offered by the private sector can also be utilised. If funding is a problem, it can be incorporated in the annual budgets and even can be easily managed on a small scale with local resources or unutilised funds lying with the district level offices. Finally, by far the biggest challenge and one that is frequently ignored completely is the need to train users to become effective information users and knowledge-based workers. It is a folly to assume that just because an information system puts large amounts of timely, accurate and appropriately analysed information into the hands of potential users, the information will be used effectively, or at all know. It is essential also to know how to handle and utilise it effectively.

As such, the government should redesign its information needs and local level planning and its implementation so that district level personnel cannot only effectively use available information, but also get inputs from the citizens for greater effectiveness and efficiency. This entails the switch from the existing bureaucratic incremental decision making of the government towards a more strategic approach. Moreover, the personnel will have to be motivated to seek inputs from sources both within and outside to maximise the possible alternatives based on as much information as possible. This study reflects that the opinion of Kristiadi and Basri (1998) regarding the prevalence of traditional management philosophies in many countries in spite of introduction of 'state of the art' technology-which means that those countries have sophisticated technologies which are not being used for modern management purposes. That is why many of the more traditional government offices at the district level in Bangladesh, like the DC and SP Offices are yet to understand and not to speak of utilising the potentials of computers and related information technology. One may thus conclude that even the existence and usage of computers in the neighbouring LGED offices at the district level for quite some time have failed to open the eyes of the leadership

in many of the DC and SP offices and motivate them to procure and utilise the new technology.

One of the major problems that may arise that even if there are funds available in the districts offices is that computers cannot be purchased in most of the offices due to the archaic Table of Office and Equipment (TO&E) for government offices spelled out by the Enam Committee in 1982. The existing TO&Es in most of the district level offices do not include computers in their list of equipment and haven't been revised till now. Inclusion of any new equipment in the TO&E of any government office involves a cumbersome and time consuming process which at times, even needs the approval of the Prime Minister! This calls for a decision of the government regarding continuation of outdated TO&E. Immediate steps should be taken to revise and update the TO&E and made it more flexible with an eye towards expanded usage in the future. And until that decision is taken, in order to overcome the problem of inclusion of computers in existing TO&E of government organisations, Government can issue an executive order that all computers purchased with permission of the relevant authorities shall automatically be included in the existing TO&E.

Unrestricted and continuous sharing of global and local knowledge between policy-makers, public and private sectors, and the civil society heralds the way forward to an empowered knowledge society, which can efficiently manage the change process towards sustainable development. The concept of access to information as a fundamental human right has been recognised and this becomes meaningful with the advent of the Internet, as we know it today. Kofi Annan, the Secretary General of the United Nations, in a speech on the occasion of the GK 97 conference that took place in Toronto in 1997, underlined the importance attached to information and access to information. Today, global evolution of knowledge based society bridge the gap between the communities and between development professionals and local people through initiating interaction and dialogue, new alliances, inter-personal networks, and cross-sectoral links between organisations so that "useful knowledge" is shared and channelled to provide decision-making support systems. Only then, can a country proceed towards the goal of a knowledge-based society. **Should Bangladesh lag behind in this respect?**

Governments can, therefore, use the Internet to enhance the delivery of government or other services, as well as information and data that governments and other stakeholders may not be able to share readily with their citizens and other stakeholders for a variety of reasons but is possible through the Internet.

The government is yet to formulate an IT Policy, though the process is going on and it is hoped we are going to see such a policy very soon. However, the proposed IT policy should incorporate a strategy of computerisation of the public sector. As such, we suggest that the following matrix proposed by Sanwal (1989) can be used as a blue print of that strategy:

Design Stages			
Goal	Plan	Issue	Structure
Initiation	Determination of national policy	Institutional Framework	Ministerial committee
Spread	Decentralisation of operations	Local level computing	Administrative body
Development	Institutionalisation of processes	End user computing	Training institutes
Implementation Stages			
Method	Objective	Procedure	Role
Quantitative Spread	Promote compatibility	Operating Systems Standards	Managing technological transition
Common database	Resource sharing	Information Standards	Organisational concerns
Decision Support Systems	Develop capability to innovate	Standard software	Actor oriented Strategies

Source: Sanwal 1989

Government's intervention to harness IT for development is imperative as it is both a policy maker which can act as a catalyst for the transformation to knowledge based societies and should also be the single largest user of knowledge products. In its role as a policy maker, the

government needs to set up an information technology vision for the country to spearhead the IT revolution. As a user of knowledge products, the government should itself start to function as an IT-based model. To ensure that, the government can take steps through training up its personnel and incentives so that there is greater use of Information Technology in the public sector. It is heartening to note that the Prime Minister's Office, Planning Commission and the Bangladesh Bureau of Statistics are going to be networked by December 2000 under the National Data Bank Project. To make the system more effective, the various ministries as well as the district level offices, should also be integrated into this network.

As mere networking of public sector offices will not be enough to guarantee their usage for public benefits, efforts should therefore, be made towards rapid dissemination of information to be made available in the public. This, however, calls for a change in the overall governance mind set from restrictive flow of information to more open flow of information so that the emerging concept of **informational governance** can anchor its roots and contribute towards the overarching goal of **good governance**. Otherwise, we might just miss the bus on the Information Super Highway towards the destination of a 'knowledge based society'-which will be an integral part of the 'globalised village' of the future.

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ANNEX-1

Table No. 1 : Offices Surveyed Under the Study

District	Name of the Office			Total
	DC Off.	SP Off.	LGED	
Bandarban	1	NR	1	2
Barisal	1	1	1	3
Comilla	1	1	NR	3
Faridpur	1	1	1	3
Gazipur	1	1	1	3
Gopalganj	1	1	1	3
Jhalokathi	1	1	1	3
Khagrachari	1	NR	1	2
Kushtia	1	1	1	3
Munshiganj	1	1	1	3
Mymensingh	1	1	1	3
Narayanganj	1	1	1	3
Narail	1	1	1	3
Narshingdi	1	1	1	3
Netrokona	1	1	1	3
Panchagarh	NR	NR	1	1
Pirojpur	1	1		2
Patuakhali	1	1	1	3
Rajbari	1	1	1	3
Rajshahi	1	NR	1	2
Rangpur	1	1	NR	2
Tangail	1	1	1	3
Total(22)	21	18	19	58

NR= No response from the respondent

Table No 2 Availability of Computers In Districts Surveyed

District (N=58)	Name of Office					
	DC Off.		SP Off.		LGED Off.	
	Yes	No	Yes	No	Yes	No
Bandarban	✓		NR		✓	
Barisal	✓			✓	✓	
Comilla		✓		✓	NR	
Faridpur	✓			✓	✓	
Gazipur	✓			✓	✓	
Gopalganj	✓		✓		✓	
Jhalokathi		✓		✓	✓	
Khagrachari		✓	NR			✓
Kushtia		✓		✓	✓	
Munshiganj		✓		✓	✓	
Mymensing	✓			✓	✓	
Narayanganj	✓			✓	✓	
Narial	✓			✓	✓	
Narshingdi		✓		✓	✓	
Netrokona	✓			✓	✓	
Panchagarh	NR		NR		✓	
Pirojpur	✓		✓			
Patuakhali	✓			✓	✓	
Rajbari		✓		✓	✓	
Rajshahi	✓		NR		✓	
Rangpur		✓	✓		NR	
Tangail	✓			✓	✓	
Total (22)	13	8	3	15	18	1

NR= No response received from the concerned office

Table No:3: Use of Available Computers in District Offices

Name of the Office	Use of Computers		Total
	Yes	No	
DC Office	10	11	21
SP Office	03	15	18
LGED Office	18	01	19
Total	31	27	58

Table No. 4 : Use of Computers in Years

Years	DC Office	SP Office	LGED Office	Total
0 – 3	09	03	04	17
4 – 6	01	-	10	11
7 – 9	-	-	04	04
Total	10	03	18	32

Table No 5: Use of Typewriters in Surveyed District Level Offices

Name of Office	Use of Type Writer				
	90 – 100 (%)	80 – 90 (%)	50 – 80 (%)	10 – 40 (%)	None
DC Office	10	03			
SP Office	02	01			
LGED Office				13	05
Total	12	04		13	05

Table 6: Number of Computers and Printers

District	Name of Office					
	DC Off.		SP Off.		LGED Off.	
	Computer	Printer	Computer	Printer	Computer	Printer
Bandarban	2	1	NR		1	1
Barisal	1	none			4	3
Comilla					NR	
Faridpur	1	1			3	3
Gazipur	3	3			2	2
Gopalganj	2	2	1	1	3	2
Jhalokathi					3	2
Khagrachari			NR			
Kushtia					3	2
Munshiganj					2	2
Mymensingh	3	3			3	3
Narayanganj	1	1			2	2
Narail	1	1			3	2
Narshingdi					3	3
Netrokona	1	2			4	1
Panchagarh	NR		NR		5	4
Pirojpur	1	1	1	1	NR	
Patuakhali	1	1			4	4
Rajbari					2	1
Rajshahi	2	2	NR		1	1
Rangpur			1	1	NR	
Tangail	1	1			3	1
Total (22)	20	19	3	3	51	38

NR= No response received from the concerned office

Table No. 7 : Nature of Computer Use

Name of Office	Nature of Computer Work			
	WP	Dbase	Communication	Training
DC Office	10	04	-	-
SP Office	03	-	-	-
LGED Office	18	15	04	08
Total	31	19	04	08

Table No: 8 Use of Bangla Soft ware

Name of Office	Use of Bangla Software	
	Bijoy	Others
DC Office	07	03
SP Office	01	02
LGED Office	18	-
Total	26	05

Table No. 9 Use of Computers For Training Purposes

Use of Computer in Training	DC Office	SP Office	LGED Office	Total
Yes	01	-	10	11
No	09	03	08	20
Total	10	03	18	31

Table No. 10: Number of Trained and Non-trained Personnel Using Computers in the Offices Surveyed

Name of Office	User		Total
	Trained	Non trained	
DC Office	36	12	48
SP Office	04	-	04
LGED Office	108	26	134
Total	148	38	186

Table No. 11: Number of Total Personnel in the Offices Surveyed and the Numbers Using Computers

District (N=58)	Name of Office					
	DC Office.		SP Office.		LGED	
	Total Employee	Computer User	Total Employee	Computer User	Total Employee	Computer User
Bandarban	091	08	-	-	10	01
Barisal	195	-	-	-	26	07
Comilla	-	-	-	-	-	-
Faridpur	169	-	-	-	30	13
Gazipur	108	07	-	-	23	04
Gopalganj	107	08	24	-	14	07
Jhalokathi	-	-	-	-	32	07
Khagrachari	-	-	-	-	-	-
Kushtia	-	-	-	-	56	18
Munshiganj	247	03	-	-	31	08
Mymensingh	-	-	-	-	18	07
Narayanganj	135	5	-	-	11	03
Narial	104	-	-	-	11	06
Narshingdi	-	-	-	-	44	08
Netrokona	169	01	-	-	20	02
Panchagarh	-	-	-	-	29	09
Pirojpur	140	04	26	02	-	-
Patuakhali	114	07	-	-	40	10
Rajbari	-	-	-	-	38	09
Rajshahi	073	02	-	-	09	04
Rangpur	-	-	13	02	-	-
Tangail	306	03			71	11
Total	1958	48 (2.45)	63	04 (6.35)	513	134 (24.75)

Table No. 12 : Office-wise Training Needs on Computer Usage

Name of Office	Training Needs on Computer					Total
	WP	Dbase	Operating	Networking	Others*	
DC Office	07	09	05	08	02	31
SP Office	02	03	02	03	01	11
LGED Office	10	14	10	18	06	58
Total	19	26	17	29	09	100

* Hardware Maintenance, Accounting Software, Project, Windows, MsExcel, Foxpro, Powerpoint, Programming, Auto Cad etc.

**Table No. 13 :Increase in Organisational Effectiveness Due to Computer Use in
Office Work in the Offices Surveyed**

Name of Office	Negligible (1.0 – 2.5)	Low (2.5 – 3.5)	Moderate (3.5 – 5.0)	Maximum (5.1 – 6.0)	Total
DC Office	02	01	07		10
SP Office			01	02	03
LGED Office			06	12	18
Total	2	1	14	14	31

Table No. 14 : Problems in Using Computers

Nature of Problems	DC Office	SP Office	LGED Office	Total
Maintenance Problems/ Servicing Problem	01		04	5
Lack of Proper Training of the user	03			3
Hardware Problem	03		02	5
Software Problem	01		02	3
Lack of Professional Person	03	01	01	5
Environmental Problem		01	01	2
Accessories Problem			01	1
No Problem	02		09	11
No Response	03	01		4

Table No. 15 : Action Usually Taken for Solving Problems

Nature of Action	DC Office	SP Office	LGED Office	Total
Arrange Training	03	01		4
Contact with the Seller	01		04	5
Authority			02	2
Don't take any action	01	01	01	3
Locally Servicing/ Install Anti Virus	01		04	5
No response or N/A	06	01	08	15

**Bangladesh Public Administration Training Centre
Savar, Dhaka**

**APPLICATION AND EFFECTIVENESS OF COMPUTERISATION IN
GOVERNMENT OFFICES AT DISTRICT LEVEL: A STUDY**

(Bangladesh Public Administration Training Centre has undertaken this research to find out the application and effectiveness of computers being used in the government offices at the district level. This questionnaire is a part of the process of finding out information for that research that research. The information gathered through this questionnaire will be utilised only for research work. The research team requests you to extend your co-operation during collection of this information-Rizwan Khair, Research Director).

1.0 Basic Information about the organisation

1.1 Name of the Organisation:

1.2 Designation of the Head of the Organisation:

1.3 Main Functions of the organisation:

a.

b.

c.

d.

e.

1.4 Number of personnel in the organisation

Manpower	Number of Sanctioned Posts;	Presently working
Class 1		
Class 2		
Class 3		
Class 4		
Total		

2.0 Information Regarding Use of Computers

2.1 From when did your organisation start using computers:

2.2 Besides Computers, are Type writers used in your organisation ?

Yes ☐

No ☐

2.3 If the answer to the previous question is 'yes', what percentage of the total work is done by typewriters?

2.4 Number of Computers/ Printers in the Organisation

Type of Computers	Operational (in numbers)	Non- operational (in numbers)	Total
Printer			

2.5 Type of Work Done By Computers

a. Word Processing

b. Database

c. Communication

d. Training

2.6 Is Bangla used in the computers of your organisation?

Yes ☐

No ☐

2.7 If the answer is 'yes', please what kind of Bangla Software is used.

Proshika ☐ Lekhani ☐ Bijoy ☐ Abaha ☐

Others (Please Mention) ☐

3.0 Are computers utilised for training purposes in your organisation?

Yes ☐

No ☐

3.1 If the answer is 'yes', who are trained?

a.

b.

c.

3.2 Please indicate what kind of training is given:

a.

b.

c.

4.0 Information on personnel using computers

Computer User	Trained	Untrained	Total
Officer			
Staff			

5.0 Is there any need for training the officers/staff of your organisation for optimum utilisation of the available computers?

Yes ☐

No ☐

5.1 If the answer is 'yes', what type of training is required?

- a. Word Processing
- b. Data Base
- c. Operation of computers
 - d. Networking
 - e. Others (please specify)

6.0 Do you maintain any log book for the work done by computers in your organisation?

Yes ☐

No ☐

6.1 If the answer is 'yes', please show the usage of items mentioned below:

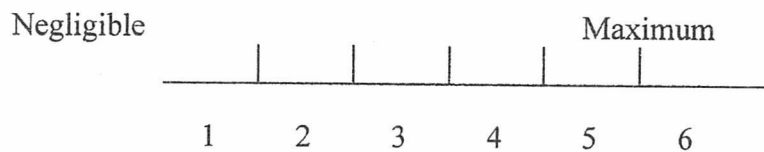
Item	Number/Quantity
Paper	
Ribbon	
Toner	
Floppy	
Diskette	
Others	

6.2 If the answer to question no 6.0 is no, how do you maintain the records of the costs involved and usage of the computers in your organisation?

6.3 Please indicate the actual allocation and spending (if any) of the past two years against Computers in your organisation.

Years	Allocation for computers	Actual Expenditure
1997-98		
1998-99		

7.0 Please indicate in the scale below to what extent there has been increase of organisational effectiveness in your organisation due to use of computers.



8.0 Please list below the problems(if any) in using computers in your organisation

- a.
- b.
- c.
- d.
- e.

8.1 Please mention below the steps you have taken to solve those problems

a.

b.

c.

d.

e.

THANK YOU FOR YOUR COOPERATION