DEPARTMENT OF INFORMATION ANDCOMMUNICATION TECHNOLOGY, GOVERNMENT OF MIZORAM:

ORGANIZATION AND FUNCTIONS

A Dissertation Submitted to Mizoram University

For the Award of the Degree of Master of Philosophy in

PUBLIC ADMINISTRATION

Submitted by

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CERTIFICATE

Certified that Ms. Lalnunthari, a student of M.Phil programme in the Department of Public Administration, Mizoram University has prepared the present dissertation titled ' Department of Information Communication Technology, Government of Mizoram: Organisation and Functions, this is an original work of research which has not been used previously and which has not been submitted to any other University for any purpose. It covers the topic of research adequately.

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DECLARATION

I, Lalnunthari, do hereby declare that the subject matter of this dissertation is the record of work done by me, that the contents of this dissertation did not form the basis of the award of any previous degree to me or to do the best of my knowledge to anybody else, and that the dissertation has not been submitted by me for any research degree in any other University/ Institute.

This is being submitted to the Mizoram University for the degree of Master of Philosophy in Public Administration.

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ACKNOWLEDGEMENT

LIST OF ABBREVATIONS

BHQ	Block Headquarters
BSNL	Bharat Sanchar Nigam Limited
CCTNS	Crime and Criminal Tracking Network System
CDAC	Centre for Development of Advanced Computing
CIC	Community Information Centre
CSC	Common Service Centre
DARPG	Department of Administrative Reforms and Public Grievance
DeitY	Department of Electronics and Information Technology
DHQ	District Headquarters
DNS	Domain Name Server
DPR	Detailed Project Report
FTP	Transmission Control Protocol
G2B	Government to Business
G2C	Government to Citizens
G2G	Government to Government
GoM-CMS	Government of Mizoram Content Management System
ICT	Information and Communication Technology
ICTD	Information and Communication Technology Department
IMS	Inventory Management System

ITES	Information Technology Enabled Services
LDAP	Lightweight Directory Access Protocol
MGNREGA	Mahatma Gandhi National Rural Employment Gurantee Act
MMP	Mission Mode Projects
MSA	Master Service Agreement
MSWAN	Mizoram State Wide Area Network
MSDG	Mobile Service Delivery Gateways
NEC	North Eastern Council
NeGP	National e-Governance Plan
NGO	Non Government Organization
NIELIT	National Institute of Electronics and Information Technology
NISG	National Informatics and Service Gateways
NREGA	National Rural Employment Guarantee Act
NIC	National Informatics Centre
NPI	National Portal of India
NSDG	National Service Delivery Gateways
PMO	Prime Minister Office
PoP	Point of Presence
PPP	Public –Private Partnership
PROS	Property Return Online System
RFP	Request for Proposal
RIK	Rural Information Kiosk
SCA	Service Centre Agency

SDC	State Data Centre
SDHQ	Sub- Divisional Headquarters
SHQ	State Headquarters
SP	State Portal
SSDG	State Service Delivery Gateways
STPI	Software Technology Park of India
STQC	Software Testing and Quality Certificate
SWAN	State Wide Area Network
UNDP	United Nations Development Plan
VSAT	Very Small Aperture Terminal
ZENICS	Zoram Electronics and Industrial Corporation
ZIDCO	Zoram Industrial Development Corporation Limited

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PREFACE

Information and Communication Technology (ICT) is the tool for promoting e-governance today, ICT provides an opportunity for the governmental structures, personnel and processes to come closer to the citizens which infact promotes their participation in governance. It is also cost effective, affordable and user friendly considering the traditional methods and processes that have been the feature of government.

The first chapter starts with the conceptual framework of ICT and e-governance, how it has influenced the evolution of a society and as a consequences, and nature of the government. And we have discussed how Information and Communication Technology shaped and redefine the government processes in general and in particular delivery of government services. It also stressed on how ICT can be an effective instruments to enhance the capacity of the government and other stakeholders.

The second chapter focussed on the application of ICT at the international level, mainly under the United Nation, and few countries where ICT has taken its root such as New Zealand, UK and USA. It brings out the United Nation's e-Governance Plan for India, and how the Government of India took the initiatives to direct its attention on e-governance and good governance with the use of ICT as the major instrument. National e-Governance Plan has been highlighted along with its progress of implementation and observations.

The third chapter discusses the organisation and functions of Department of Information and Communication Technology, Government of Mizoram. It also highlighted the major projects which have been implemented by the Department under NeGP, such as, Common Service Centre, Mizoram State Wide Area Network (MSWAN), e-District, State Portal & State Service Delivery Gateway, Capacity Building, State Data Centre, Mizoram State e-Governance Society, etc.

The fourth chapter contained the results and discussion on the projects being implemented by the Department. It discuss mainly on the outcomes of the project and its impact on the people at large. It also focuses on several government departments under the Government of Mizoram, which has been under the process of transforming from a traditional mode of service delivery to digitalised or computerised mode of delivering services. In addition to the projects, the challenges and problems faced by the Department has been discussed.

The final chapter is divided into two parts- Part-I and Part-II. The first part contained a brief summary of all the previous chapters. It explained the importance of ICT and the role played by ICT in transforming the nature of government services form a traditional mode to a more responsive mode that empowered all the stakeholders such as the citizens, the government, and business sectors. And the role of Department of ICT in providing accessible, responsive, transparent and reliable information to the stakeholders has been the major trusts.

The second part contained the major findings of the study. It tries to give answers to the research questions. It also makes suggestions for future development and progress of the working of the Department of Information and Communication Technology, Government of Mizoram in the process of implementing the projects of National e-Governance Plan.

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CHAPTER I

INTRODUCTION

Information and Communication Technologies (ICTs) have influenced the evolution of society and, as a consequence, the nature of government. Historically, they have enhanced existing social, economic and political interaction, and even introduced new forms of interactivity. This interactivity is, in both social and technical sense leads to the emergence of new relationship, connections and expectations that are difficult to control or predict, and which can bring about fundamental, even revolutionary changes.

The aspects of Information and Communication Technology is reshaping and redefining the world constantly. It serves as a powerful medium in propagating and promoting the concept and culture of globalization in the developing countries. The adoption of new technologies in governance can drastically change the way of public administration systems delivery of public services through electronic means, and incorporation of ICT in administrative structures are commonly termed as electronic governance or e-governance. It tries to bring transparency and accountability in the government and also empowers the citizens to have active participation in the governance processes. ICT stretches itself to restructuring traditional administrative system to be in tune with the requirements of market economy.

Traditionally, the interaction between a citizen and a government agency takes place in a government office. With the emerging information and

communication technologies, it is possible to locate service centre closer to the client. In all the cases, citizens traditionally look for information and services addressing his or her needs and in both cases relevance, quality and efficiency are of paramount importance. Therefore, the application of e-governance requires a good knowledge of the needs that exist in the society and which can be offered using ICT. The effectiveness of ICT in government is closely related to the capacity of government to induce a culture of change by placing networking within its institutions as instruments of transparency and knowledge exchange and creation.

E-governance is a form of good governance mechanism which comprises of processes and structures involved in deliverance of electronic services to public, viz., citizens. It also involves collaborating with business partners of the government by conducting electronic transactions with them. Besides, it entails enabling the general public to interact with the government, through electronic means, for getting the desired services. It also enables SMART governance, i.e., Simple, Moral, Accountable, Responsive and Transparent. Furthermore it means the interaction between Government(G) and citizens(C), both ways (i.e,G2C&C2G); Government to business, both ways (i.e. G2B& B2G); and Internal government operation (G2G).The aim ultimately, is to simplify and improve governance and enable people's participation in governance through internet services like e-mails.

It is to be noted that e-governance is different from e-government. E-government is an institutional superstructure that state uses to translate politics into policies and legislation with the use of ICT, whereas e-governance is the

outcome of the interaction which facilitates government-citizens interactions, service delivery and problem solving activities.

Conventionally, the Departments and the officials of the government interacted with the citizens indirectly and with the help of one-way communication method. The citizens in most cases were at the receiving end. With the development of ICT and the adoption of e-governance practices the nature of interaction has changed to interactive mode, in which both the government functionaries and the citizens participate as partners. Again, two-way communication has replaced the traditional one-way communication system that defines the relationship between the government and the citizens. It was considered that the citizens are the beneficiaries of the programme or schemes of the government which provide very little scope for the citizens either to present their demands or to communicate their feedback or grievances. But with the advent of ICT and use of e-governance the citizens are now considered to be the participants or partners who can actively interact before, during and after the conceptualisation and implementation of any developmental or welfare programme of the government.

Review of Literature

The topics like governance, good governance, e-governance and ICT are widely used by writers, experts and scholars in Public Administration. As such a number of books and articles are found in relation to these topics. However, with a view to facilitating the proposed study, we have chosen a few books and articles that are relevant to the context, which is presented in the subsequent paragraph.

J.Ghosh et al, (2001)[1] in their article, *ICT and Health in Low Income Countries: The Potential and the Constraints* analysed the constraints on realizing the potential of ICTs for improving health condition, suggest there is a need for a careful and nuanced approach to the development of ICTs in poor countries. On the one hand, it is true that ICTs offer developing countries an opportunity to introduce many improvements in health service delivery, as well as overall developmental goals which have an impact on health. On the other hand, however, despite its rapid growth, the information technology sector in most developing countries is small and the effect of its growth on the rest of the economy is limited. In addition, there is the prospect of a sharply widening digital divide within developing economies. All this makes it difficult for the governments of developing countries to determine their investment priorities. However, due to the special nature of the interaction between ICTs and the health sector, specific public investment in ICTs and related projects may yield more than proportionate benefits. Based on the examples from India, they suggested that use of ICTs in enhancing delivery and providing better information to health service professionals is both viable and important as a means of improving public health conditions in many situations.

U.K Varma et al, (2004)[2]in their article *ITC and Decent Work: A study of India's Experience* have highlighted that the ICT sector has grown strongly in the last ten years in India. This has been spurred by the growth of software

[1]J.Ghosh et.al (2001), *ICT and Health in Low Income Countries: The Potential and the Constraints*, Bulletin of the WHO, Vol.79 (9)
[2]U.K Varma et al (2004), ' ITC and Decent Work: A Study of India's Experience', *Research Report*, VV Giri National Labor Institute, India

exports and more recently by the expansion of the IT enabled services sector. In terms of regional spread of ICT industries there are certain enclaves where the ICT industry proliferates. This has led to asymmetric regional development in terms of ICT growth performance. Employment is growing rapidly in the sector though there are differential growths in different industry segments. Hardware industry employment growth is the least impressive while both software and ITES segments have witnessed fast growth. The demographic profile of the workforce is predominantly urban, male and young. The gender divide in employment patterns seen in the traditional industries has not been bridged in the fast growing ICT sector.

Jiantong Cao (2007)[3] in their article *Applications of lCT Services for E-Government* stated that in order to provide better service for the citizens and businesses, more and more governments take advantage of lCT to complete the e-government strategies, so that eliminate existing bureaucracy and therefore achieve significant economic and operational efficiencies. This article suggested that the governments should rethink the former impression of telecom operators. Under heavy financial pressure and shortage of experienced ICT staff, outsourcing should be regarded as an invaluable method for government, so that they can concentrate on the core-business, and build an efficient and cost-effective e-government. For the telecom operators, as newcomers in IT field, are expected to offer integrated IT service to the total ICT solution. Firstly Partnership, merger are both important path to improve operators' IT strength. Secondly the operators have served government for

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[3] Jiantong Cao (2007), 'Applications of lCT Services for E-Government', in *Research and Practical Issues of Enterprise Information System,* Springer International Publishing AG, Boston, pp 689-694

many years; however, they are required to explore government deeply, especially comparing with IBM, SAP and other big IT companies.

Mrinalini Shah (2007)[4] in her article *E-Governance in India: Dream or Reality?*composed that e-governance is an evolutionary phenomenon, and requires a change in the mindset of one and all – citizen, executives or the government. With the support of the Internet, the government processes defined by specializations can be made efficient, effective, and citizen friendly. There are many challenging issues lying ahead. Security is the main concern for the citizen, and redefining rules and procedures, information transparency, legal issues, infrastructure, access to right information, inter-departmental collaboration, tendency to resist the change in work culture, are the main concerns for the government to address. Other then all these factors, the government needs to make significant investments in areas such as government process re-engineering, capacity building, training, assessment and awareness. The beneficial impact of ICT and of e-governance on the rural economy and quality of life is now widely recognized. Security issues need to be tackled very carefully supported by technical security. Most important is the strong political will power and the social acceptability of e-governance not only in urban areas but rural areas as well.

Arjan de Jager (2008)[5]in his article *E-Governance in the Developing World in Action: The Case of DistrictNet in Uganda* examined that DistrictNet has created a wealth of experiences and provides a rich model of reference for

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[4] Mrinalini Shah (2007), 'E-Governance in India: Dream or Reality?', *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, Vol. 3, Issue 2, pp. 125-137
[5] Arjan de Jager (2008), 'E-Governance in the Developing World in Action: The Case of DistrictNet in Uganda', *The Journal of Community Infomatics,* Vol.4, No.2

other e-governance programmes in Africa. The programme is a showcase of what e-governance in rural areas can look like. New technologies have been introduced and tested, and the programme has provided evidence that the introduction of ICT at the local government level can lead to major improvements in performance. At the same time, the programme shows that the low penetration of ICT skills and equipment limits the way such initiatives can move into e-administration and e-services, and makes e-society unreachable for the moment. Governments need to continue their efforts to develop ICT infrastructure and to increase the penetration of ICT skills among their citizens, especially concentrating their efforts on the rural areas, while development partners should establish more research programmes to ensure the successful implementation and support of ICT.

Devex Impact Editor (2013)[6] in the International Development Headlines *The Five Key Challenges in Implementing ICT for Development* highlighted that Information and communications technology (ICT) represents an enormous opportunity to introduce significant and lasting positive change across the developing world. Evidence suggests that this trend is going to continue, as the availability expands and the cost of access continues to decline. However, this new potential and opportunity is accompanied by significant challenges and possible threats such as sustainability of scale, lack of knowledge, pace of change, funding, changing roles and norms. While some of these gaps still exist, they are, arguably, not as clear or compelling as they once were. We can see that developments and possibilities created through

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[6] Devex Impact Editor (2013), 'The Five Key Challenges in Implementing ICT for Development',The International Development Headlines www.devex.com Accessed on 20.08.16

ICT, directly and indirectly, materially change the landscape in relation to many of these gaps.

John Sunday (2014)[7] in his article *E-governance: An Imperative for Sustainable Grass root Development in Nigeria* put forward the importance of e-governance in achieving sustainable grassroots development in Nigeria. The emergence of ICT has provided opportunities for border-less and de-territorialisation of government policies and programmes within the global village. ICT is a necessary political tool set out to reconcile traditional barrier of distance in the management of public affairs.. This paper argues that e-governance promotes participatory and inclusive democracy to enhance grassroots development. It recommends that federal government should make policy that will facilitate and fast-track the adaption of ICT and training of local government personnel in the art of e-governance through which sustainable grassroots development could be accomplished.

RK Sapru et al, (2014)[8], in the article *E-Governance with Special Reference to India* have stated how e-governance becomes the distinct dimension of new public administration which has gain momentum since the early 1990's. Government have hurriedly adopted e-governance technologies and ideas from simple, online communication of government information to real time, secure transaction for various processes and payments. And highlighted the initiatives taken by the government to improve IT performances and productivity- from the launching of National e-governance

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[7] John Sunday (2014), 'E-governance: An Imperative for Sustainable Grass root Development in Nigeria', *Journal of Public Administration and Policy Research,* Vol.6.No.4, pp 77-89.

[8] R.K Sapru et.al (2014),'E-governance with Special Reference to India', *Indian Journal of Public Administration,* Vol-LX, No.2.

Plan (NeGP), which seek to improve service delivery of government to citizen's and business establishment with a vision to make all government services accessible to common man in his locality, through common service delivery outlets and ensure efficient, transparent and reliable services with affordable cost. The author mentioned the framework of ministry and department that acts as a mechanism to implement ITC in the country. It also focuses attention to the National e-governance strategy and approaches, and the challenges / limitation due to some fundamental issues.

F.L. Kwaku Ohemeng et al, (2014)[9] in their article *Overcoming the Digital Divide in developing India: An Examination of Ghana's strategies to Promote universal Access to Information and Communication Technologies* have emphasized that, in spite of the overwhelming acceptance of ICT to transform economies and social inequalities and political problems of developing countries, the major concern remains; information inequality or digital divide. The article mainly focuses its attention to internal divide between urban and rural centres. The literature , therefore discuss a number of factors that make obvious the need to seriously examine the issues of digital divide in developing countries with special reference to Ghana and its initiative to transform the country into information rich knowledge based society and economy through the development, deployment and exploitation of ICT's. Also to fight against digital divide the authors stressed on digital transmission migration-switching from inefficient analogue signal to more efficient digital broadcasting. They advocate the introduction of mobile-

[9]F.L Kwaku Ohemang et al (2014), 'Overcoming the Digital Divide in Developing Countries: An Examination of Ghana's Strategies to Promote Universal Access to Information and Communication Technologies'. *Journals of Developing Societies*, Vol-30,No.3.September.

governance as a better option to service delivery because of the extensive use of mobile phones.

Kiran Prasad ed. (2004)[10] in his edited book *Information and Communication Technology* sets out to illustrate the application of ICTs for recasting development in India and several other developing societies. This path-breaking book explores the applications of ICTs in the core sectors of agriculture, healthcare, geographic information system, networking, rural and industrial development. Another major focus of the book is the implication of communication convergence, the development of cyber journalism, electronic organizational communication, e-public relations, e-governance and e-democracy in the era of globalization. The book raises several fundamental questions on development policy and communication research and responds to the polemic issue of bridging the digital divide in India that can inspire the development efforts of several developing countries.

Vasu Deva (2005)[11] in the book *E-Governance* has explores the importance of e-governance in different aspects such as e-governance in private and public sector, citizen centric, e-commerce and development work. Priority was given on the transformation that can be achieved through e-governance. He opines that since majority of the people in India is based in rural and semi-urban areas there is a lot of inconvenience and harassment in terms of time, money and the inability to actually have their problems redressed. In such a scenario, the citizen seeks timely and hassle free services.

[10] Kiran Prasad ed. (2004), *'Information and Communication Technology :Recasting Development'*, New Delhi: B.R. Publishing Corporation.

[11] Vasu Deva (2005), *'E- Governance'*, New Delhi: Commonwealth Publishers.

This is where IT comes in the use of ITC can ensure that citizen's needs are met in time and their problems redressed speedily. At the same time, he was of the view that e-governance is more an administrative issue rather than a technology issue. Therefore, only when the administrative reform happens then the momentum of the digital world will take things forward at the right speed.

V.M. Rao (2007)[12] in his book *e-governance* has examined the enhancement of ITC for transforming the work culture by serving a variety of ends. Delivery of government services and information to the public with the use of information and communication technologies facilitates an efficient, speedy and transparent service to the public and other agencies. It brings about changes in the mind-set and work culture in order to integrate government processes and functions to serve the citizens better. The book makes an endeavour to explain all the basic concepts, terms, means and tools concerning e-governance. It also describe in details the practical experiences of various countries in the world; role of e-governance in e-democracy; vision, strategy and implementation of e-governance in India; and development of tools, software's and techniques of e-governance. In addition, complete Modified Information Technology Act is also explained in lucid way.

Viswas Tripathi (2007)[13] in his book *E-Governance Perspective and Challenges* has highlighted the status of e-governance in the world in respect of cultural dimensions and the challenges face therein, and also stress on the future trends of e-governance in respect of rural health care and education. The

[12]V.M Rao (2007), *'e-Governance'*, Jaipur Rajasthan: ABD Publishers.
[13] Viswas Tripathi (2007), *'E-Governance Perspective and Challenges'*, New Delhi: Anmol Publications Pvt.ltd

book provides a series of recommendation based on good practices, backed up by a set of conceptual frameworks and statistical findings. Checklist is provided for those planning and for evaluating e-government benchmarking studies. E-democracy, which is referred to as the important aspect to look into the issues of public realm is also observed to analyse the impact of new technologies, to elevate possibilities for greater participation in the context of informational politics, to admit the great potential of ITC for enhancing democracy. Most importantly public networking that represents the strategic use of ICT's to better implement established public policy goals and programs through direct and diverse stakeholders' involvement online. Finally, the author observed that to be involved in defining the future of democracy, government and public work at dawn of the information age is an incredible opportunity and responsibility. With the intelligent and effective application of ICT's, combined with democratic intent, we can make government more responsive to meet the challenges and ultimately build more sustainable future for the benefit of the whole society.

Amrita Singh (2009)[14] in her book *ICT and Sustainable Development* has stated that information is not a magic cure for hunger or poverty. However, the right information at the right time can help in finding a solution.   ICT have proven that they can be of help when used appropriately, with the full participation of all stakeholders, especially the poor. The intrinsic value of ICT lies not in easing communications and information but rather in enabling growth and development. In a country like India, where a vast section of the

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[14]   Amrita Singh (2009), 'ITC *and Sustainable Development'*,   New Delhi : Development Alternatives India.

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population is below the poverty line, ICT offer a chance to empower these people and transform them into productive human capital.

Y. Pardhasaradhi et al, (2009)[15] in their book *E-Governance and Indian Society* represent a well-researched study in the realm of technological impact on society, equal access to ICT's on the part of men and women and several sections of different communities, ICT's in education, agriculture (marketing), health, land records administration, property registration and automation of district administration. It has also identified further areas of e-governance research like institutional/personnel adaptation of technology in administration, technical competency among the staff, leadership in e-governance and the notion of ownership of e-governance systems. Major finding in this book includes the growing bottom-up demands for electronic delivery of public services in urban areas, though different models of electronic services are in operation, there is still a wide demand for inclusion of more and more services. Besides he highlighted the importance of successfully implementing e-governance in the rural areas with innovation and productive modules. Adapting e-governance in institutions and personnel should be done so as to maximize their capabilities in tune with the new technologies. Improving trustworthiness by providing broader access to government information, assuring information systems security, user privacy and system availability is necessary for better service delivery.

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[15]Y.Pardhasaradhi et al (2009), '*E Governance and Indian Society'*, New Delhi Kanishka Publishers Distributor.

Saravanan, R**.,** (2010)[16] in his book *ICTs for Agricultural Extension: Global Experiments, Innovations and Experiences* stated that integration of new Information and Communication Technologies (ICTs) are rapidly transforming the agricultural extension. The ICT enabled extension systems are acting as a key agent for changing agrarian situation and farmers' lives by improving access to information and sharing knowledge. ICT based agricultural extension brings incredible opportunities and has the potential of enabling the empowerment of farming communities. Extension practitioners are excited to experiment innovative ICT initiatives. At the same time, it is also a challenge to place rural ICT infrastructure, developing appropriate content, ensuring sustainability and scaling-up. This book is an attempt to document the National Policy on ICTs in agricultural extension, ICT infrastructure scenario and other related issues.

CSR Prabhu (2012)[17] in his book *E-Governance: Concept and Case Study* provides a comprehensive text to deliver the entire spectrum of e-governance from definition to its history, evaluation, e-governance models, infrastructure and manpower facilities, data warehousing possibilities in implementation of e-governance projects, and strategies of success of such projects. One of the most useful aspects of the book is a collection of case studies from of the Indian initiatives and some initiatives abroad. The book contains a total of 22 case studies. Some of the key projects covered from

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[16] Saravanan, R., (2010), *'ICTs for Agricultural Extension: Global Experiments, Innovations and Experiences'*, New Delhi: New India Publishing Agency (NIPA).

[17] CSR Prabhu (2012), *'E-Governance: Concept and Case Study'*, New Delhi: PHI Learning Pvt.Ltd.

India are Bhoomi, CARD, SachivalayaVahini, e-Khazana and E-panchayat. While on the case studies from abroad includes project from UAS, China, Brazil and Sri Lanka. The case studies provide with information on the projects already implemented and can help replication of some good practices thus saving time and money for reinvention of this similar initiatives planned in other parts. However, the case studies are more focused on reporting the modules of the system as a software developer will do. The sections on evaluation, lesson learned from the positive and negative points and benchmarking are missing which makes the case studies merely references than a learning tools. Besides as a whole the author has missed some important issues such as, Business Process Reengineering Techniques, benchmarking and evaluation methods for government projects, knowledge management, need assessment of citizen's services, etc. which are vital components of any e-governance strategy and are areas of interest for serious readers of e-governance literature.

William J Kramer et al (2007)[18]in their report *The Role of ICT Sector in Expanding Economic Opportunity* are of the view that ITC help expand economic opportunity by enabling people to enhance their knowledge and skills; identify, apply and qualify for better paid jobs; manage their own business efficiently and tap into broader markets for their goods and services. ITC enhanced capacity in industries and institutions of all kinds. The most important way ITC can expand economic opportunity is to get those technologies which will drive the development and diversification of relevant content and services. At the same time, ITC companies can also create

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[18]William.J Kramer et.al (2007), 'The Role of ICT Sector in Expanding Economic Opportunity', *Corporate Social Responsibility Initiative Report* No.22, Cambridge. Harvard University.

additional economic opportunity impact by bringing small workers and local firms into their business ITC ecosystems. Large ITC companies are also engaging in human capital development and are investing in institutional capacity building on a significant scale. This enhances the commercial viability and development impact of inclusive business models, in addition to improving the economic opportunity environment in general.

The above books and articles that have been reviewed give clear concept and rationale of Information and Communication Technologies and its implication to the present governance system, and in particular, the role played by ICT in ensuring e-governance for good governance. However, we have not come across any literature pertaining to the study of the Department of Information and Communication Technology, Government of Mizoram. Hence, the present study is taken up which focuses on the organisation and functions of the Department of Information and Communication Technology, Government of Mizoram.

Objectives of the Study

The proposed study has the following objectives:

1.   To study the origin of ICT in Mizoram

2.   To study the concept and policy of e-Governance in India

3.   To examine the structure and functions of Department of ICT, Government of Mizoram, and

4.   To find out the problems and challenges and to suggest measures for effective working of the Department in Mizoram.

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Scope of the Study

The study provides a conceptual overview on ICT and analyse its implications in governance. Effort will be made to study the growth and development of the Department of Information and Communication and Technology, Government of Mizoram.

Special focus is given to the organisational and structural aspect along with the functions and role of the Department of ICT, Government of Mizoram.

The study further give attention to the activities undertaken by the department in the field of ICT; highlight the issues and challenges concerning the day to day working as well as special programme of the Department and possible suggestions arising out of the study.

Research Questions

The following research questions have been formulated for the purpose of the study:

1.   What are the rationale behind the use of ICT and e-Governance?

2.   What are the functions, processes and role of the Department of Information and Communication Technology, Government of Mizoram?

3.   What are the challenges and problems of Department of ICT and the possible solutions?

Methodology

The methodology of the study is based on both primary data and secondary data. Primary data has been collected from personal interview with the Chief Informatics Officer, officials and functionaries associated with the Department of Information and Communication Technology, Government of Mizoram. Various issues confronting the Department have been discussed and many observations is drawn from these interviews. The department has undertaken many projects under the auspice of National e-Governance Plan, which includes, Common Service Centres, Mizoram State Wide Area Network, State Service Delivery Network, e-District, Rural Information Kiosk,, Web Hosting services with Content Management System and School Mapping, etc. Various training programme has also been organised by the Department to enhance the capacity of the government. The researcher visited the office and also participated in five days workshop organised by the Department in multiple courses provided. Functionaries of were asked about the workings and problem faced by the Department.

The secondary data have been collected from the relevant books, journals, newspaper, government documents and citizen's charter of Information and Communication Technology Department. Further, majority of the important sources of data and information is collected from, handbooks, official records, leaflets and annual reports of the Department of Information and Communication Technology, Government of Mizoram. Besides, related websites and articles available to the study from internet supplements the sources for collecting secondary data.

Chapterization

The present research work is divided into five chapters. The first chapter is introduction. The second chapter is titled Information and Communication Technology and e-Governance in India. The third chapter is Department of Information and Communication Technology, Government of Mizoram: Organisation and Functions. The fourth chapter contains Results and Discussion. And the final chapter is the Conclusion.

The first chapter starts with the conceptual framework of ICT and e-governance, how it has influenced the evolution of a society and as a consequences, and nature of the government. And we have discussed how Information and Communication Technology shaped and redefine the government processes in general and in particular delivery of government services. It also stressed on how ICT can be an effective instruments to enhance the capacity of the government and other stakeholders.

The second chapter focussed on the application of ICT at the international level, mainly under the United Nation, and few countries where ICT has taken its root such as USA, UK and New Zealand. It brings out the United Nation's e-Governance Plan for India, and how the Government of India took the initiatives to direct its attention on e-governance and good governance with the use of ICT as the major instrument. National e-Governance Plan has been highlighted along with its progress of implementation and observations.

The third chapter discusses the organisation and functions of Department of Information and Communication Technology, Government of Mizoram. It also highlighted the major projects which have been implemented by the

Department under NeGP, such as, Common Service Centre, Mizoram State Wide Area Network (MSWAN), e-District, State Portal & State Service Delivery Gateway, Capacity Building, State Data Centre, Mizoram State e-Governance Society, etc.

The fourth chapter contained the results and discussion on the projects being implemented by the Department. It discuss mainly on the outcomes of the project and its impact on the people at large. It also focuses on several government departments under the Government of Mizoram, which has been under the process of transforming from a traditional mode of service delivery to digitalised or computerised mode of delivering services. In addition to the projects, the challenges and problems faced by the Department has been discussed.

The final chapter is divided into two parts- Part-I and Part-II. The first part contained a brief summary of all the previous chapters. It explained the importance of ICT and the role played by ICT in transforming the nature of government services form a traditional mode to a more responsive mode that empowered all the stakeholders such as the citizens, the government, and business sectors. And the role of Department of ICT in providing accessible, responsive, transparent and reliable information to the stakeholders has been the major trusts.

The second part contains the major findings of the study. It tries to give answers to the research questions. It also makes suggestions for better performance of Department of Information and Communication Technology,

Government of Mizoram, in order to achieve the vision and policy framed under NeGP.

To sum up, the present chapter has dealt with the brief backdrops and rationale of Information and Communication Technology and e-governance, followed by review of related literature, objectives of the study, scope of the study and the research problems that focus on the need to study the organisation and functions of Department of Information and Communication Technology, Government of Mizoram, methodology that has been used in the study for collection of data and chapterization.

CHAPTER- II

INFORMATION AND COMMUNICATION TECHNOLOGY
AND E-GOVERNANCE IN INDIA

The previous chapter has introduced how Information and Communication Technology has brought about changes in the governance system and how it has shaped and redefined the world in a positive way. It also stresses on the purpose of adoption of technologies for transparent, accountable, responsive and accessible government. It has also introduced statement of the problem, objectives of the study, scope of the study and methodology that is followed for the study. In this chapter, we will discuss Information and Communication Technology and e-Governance in India. And also a brief international profile on e-governance.

2.1 BACKDROP

Many countries have initiated e-Governance programmes in order to make government and its agencies efficient, more responsive and transparent. Realising the importance of opportunities offered by ICT, the New Zealand Government came out with its e-government vision document in May 2000 and an E-Government Unit was established by the State Services Commission (SSC) in July 2000. In April 2001, the government came out with E-Government Strategy. This strategy had a simple operational vision: 'New Zealand will be a world leader in e-government'. This vision was supported

by a time-bound mission: "By 2004, the Internet will be the dominant means of enabling ready access to government information, services and processes." Basically, this strategy was in the nature of a programme for action for the State Services Commission's E-government Unit (EGU) and government agencies working alongside the Unit, aimed at making the most of e-technology in government. The overall objective was to create public sector including the public service, Crown entities, State Owned Enterprises and local government that is: structured, resourced and managed to perform in a manner which meets the needs of New Zealanders in the information age and which increasingly delivers information and services using online capabilities.

In April 2000, the Cabinet Office in the UK came out with the document 'E-Government: A Strategic Framework for Public Services in the Information Age'. It provided a strategic direction to the public sector for transforming itself by exploiting the possibilities of new technology. This strategy focuses on using e-business methods as a means of meeting the government's targets for electronic service delivery, electronic procurement and e-commerce. The strategy has four guiding principles: • Building services around citizens' choices • Making Government and its services more accessible over the internet and through mobile phones, digital TV, call centres and personal computers • Social inclusion • Using information better.

In July, 2001, the government of USA started an initiative known as 'Expanding Electronic Government' as a part of the President's Management Agenda. The objective was to make use of information technology to eliminate wasteful federal spending, reduce governmental paperwork and improve government response time to citizens. This expansion of e-government had three guiding principles: firstly, it should be citizen-cantered and not bureaucracy or agency-cantered. Secondly, it should produce measurable improvements for citizens. Thirdly, it should be market-based, aimed at promoting innovation[1].

The approach of the Federal Government was aimed first at modernizing the use of information technology within its agencies through using the principles of e-business; secondly, it aimed at integrating information technology applications across different agencies with a focus on different groups of citizens including individuals, businesses, Federal Government employees, etc. The importance of e-Governance was also recognized by the US Congress which resulted in the passage of the E-Government Act of 2002 which was signed by the President on December 17, 2002.

Based on the e-Governance preparedness levels internationally, the United Nations brings out an annual survey report - The United Nations E-Government Survey. The UN Survey (2008) used a comprehensive 'e-government index to assess the preparedness of various countries for e-Governance. The components of this composite index include the web

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[1] arc.gov.in/11threp/ARC-11th Report accessed on 24.10.2016

measure index, the telecommunication infrastructure index and the human capital index.

The United Nations e-Government Survey has laid stress on the march from 'e-government to connected government'. It states that many governments are moving towards 'e-government-as-a-whole concept' which focuses on the provision of services at the front-end, supported by integration, consolidation and innovation in backend processes and systems to achieve maximum cost savings and improved service delivery. The UN document mentions that 'connected or networked governance' involves the 'governmental promotion of collective action to advance the public good, by engaging the creative efforts of all of society'. Thus, in this case, ICT-based connected governance efforts are aimed at improved cooperation between governmental agencies, allowing for an enhanced, active and effective consultation and engagement with citizens, and greater involvement with multi-stakeholders regionally and internationally. It concludes that "An effective connected government is about a 'bigger and better' front-end with a 'smaller and smarter' back-end."[2]

2.2 MAINSTREAMING ICTs AND e-GOVERNANCE

Since 2005, UNDP has shifted from a thematic approach to Information and Communication Technology development, to a mainstreaming approach. UNDP has identified three focus areas under the 'governance' theme, and is working on framing outcomes and outputs under each theme. With a

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[2] http://www.unapcict.org/ecohub/resources/browse-resources/e-governance accessed on 25.10.2016

commitment to prioritize innovative use of ICTs, it is expected that effort will made to encourage projects under each focus area that explore innovative use of ICTs. Such encouragement can be made at different levels of use of ICTs, and with different project objectives. Various frameworks is suggested, which can help develop a common understanding among all the involved actors *vis-a-vis* the manner and objectives of mainstreaming ICTs in different projects. Such mutual understanding enables configuring of appropriate hopes and expectations from projects with ICT mainstreaming components, and, thereupon, most effectively employs the outcomes of these projects for large-scale systemic change. These two – mutual expectation management and up scaling – are often the greatest challenges in projects that seek to employ ICTs in innovative manners.

ICT an Agent of Change

Generally, the ICT element that is being employed is relatively mature with regard to the demonstrated social/ developmental outcomes, for instance, use of sms-es to send automatic messages at defined process points, or use of locally-made instructional videos. The challenge is to integrate it with other (social) processes being employed or developed by the project. It involves shifts in personal and social habits around technology use, and appropriate initiatives have to be taken in this regard. However, the cost of such changes should not be disproportionate to the direct benefits from employing ICTs.

Prior to taking up such possible innovations, it may be required to enhance the capacity of project leaders through exposure, training and

developing best practice kits. New projects that are funded can be asked to choose at least some such uses of ICTs, in a manner that fits contextually with their overall plans. However, the final choice and commitment must come from within, by project proponents themselves, with a high enough level of confidence of applicability and plausibility of the concerned ICT element or ICT based process to their project. It is important to assert that use of ICTs is not at all the central objective of the projects under this category, and they remain rather incidental to the complex of general objectives and activities.

Even within mainstreaming strategies, such is the newness and the fast-changing nature of ICTs, that a certain degree of experimentation remains necessary, especially to understand the implications of new ICTs in specific conditions of development projects or governance activity. At least some of the projects that will be supported by UNDP must be allowed such experimentation, as an express feature of the project. In conditions of experimenting, costs of using ICTs may significantly out-weigh any immediate or even short-term benefits. The real benefit is in the terms of overall learning for that specific kind of developmental activity, or generally for the field of development. Even failures may contribute valuable learning, and are therefore accounted for in any experiment. However, experimentation should be done *vis-a-vis* a set of techno-social processes, i.e. ICT-mediated new development processes that bear a seamless continuity with non-ICT processes, and not just about new ICTs by themselves. These techno-social

processes should be completely embedded in a larger 'development situation', and be conducted with regard to broader development/ governance objectives, whose successful achievement concomitantly would certainly require other, non-ICT, process innovations.

Development of Information and Communication Technology (ICT) has been taking place at a rapid pace in India. E-literate resource is fast emerging as a major initiator in e-governance adoption. Despite the challenges arising out of the conditions related to awareness, literacy, infrastructure, multilingual and cultural issues, in addition to enabling members of the public service to make a giant transition from the traditional practices to a new and evolving environment that is defined by ICT. To keep pace with the changing mode of development, government need mechanism to response for which the discipline of knowledge management and change management provides important tools for public administrators. With increasing awareness about ICT, information systems continue to proliferate all around. ICT has made a profound impact on our lives and times. The emergence of web-based delivery system has increased the relevance of these tools in the collection, storing and sharing of information at a low cost. Above all, technology holds out the promise of transforming societies in the developing countries. It also makes significant contributions towards achievements of good governance goals. However, the strategies and

implementation task of using ICT in government sector demands advanced vision, skill at higher authority level and cooperation from all.

Among developing countries, India has been an early adopter of e-governance. The first wave can be considered to have evolved bottom-up. Some social entrepreneurs convinced district level officials of the wonders of new ICTs, especially in providing convergent services to remote areas, and improving transparency and oversight in this regard. The *Gyandoot* project in Dhar district, which begun in 2000, is considered the forerunner of what was to be a rash of projects that built a front-end in many village communities which was supposed to be serviced by a back-end mostly in the district collectorate. The idea and the effort were to create pressure from the community front-end for digitization of back-end departmental processes. The latter was largely a localized effort, mostly dependent on the initiative and energy of the concerned district collector, often with some very spirited support of the district National Informatics Centre (NIC) staff. Perhaps the most organised and successful effort in this first phase of e-governance in India, roughly between 2000-05, was Rural *e-Seva* in West Godavari district of Andhra Pradesh. As for community level front end development two initiatives, N-logue and *Drishti* stand out, each of which at one time claimed to be running thousands of community tele-centres across the country that could deliver e-governance services.

There is a generally tendency to classify these early efforts as failures. Indeed, around 2005-06, N-logue closed down and *Drishti* moved

out of e-governance services. Rural e-Seva also was never scaled up. However, what is noteworthy is that in a relatively short time, these early projects created a lasting impression of new ICTs as a possible means to bring governance close to the people, and perhaps, also make it more transparent and accountable. To that extent, they had a very significant impact, even if these initiatives themselves could not survive. They created the context for the very ambitious National E-Governance Plan (NeGP), especially its flagship project, the Common Service Centres, which was inaugurated by the Government of India in 2006.

Meanwhile, many independent department level digitization and automation projects were taking shape. Digitization of records of land ownership and transactions has been one of the key areas with considerable impact, since it a very important and vexatious area for rural India. In many cases, end to end digitization was facilitated by significant changes in government rules, which provide some early instances of full-scale e-governance process re-engineering. Some other automation activities like computerization of government treasuries and financial transactions also have had considerable impact on the efficiency of governmental functioning, and represent largely successful and sustaining e-governance efforts. From very early days, efforts were also make to computerize work flow in government offices, like e-Secretariat initiatives in a few states. However, such initiatives failed to sustain because they seemed to conflict with formal and informal ways of functioning of the Indian bureaucracy. Any progress on such basic

areas of governmental activity requiring significant behavioral changes, and also having very significant implications for greater transparency and accountability, would require strong legislative push.

2.3 NATIONAL E-GOVERNANCE PLAN

The second phase of e-governance in India can be said to have begun with inauguration of the National E-Governance Plan (NeGP) in 2006. It has been formulated by the Department of Electronics and Information Technology (DeitY) and Department of Administrative Reforms and Public Grievances (DARPG). The Union Government approved the NeGP, comprising of 27 Mission Mode Projects (MMPs) largely for back-end computerization of different areas of governance activity and 10 components on May 18, 2006. NeGP's flagship project sought to set up about 100,000 Common Service Centres (CSCs) across India, one for every six villages. Recently, the Department of IT declared that they have achieved this target. In addition, it seeks creation of a national e-governance infrastructure of State Wide Area Networks, State Data Centres, and National Service Delivery Gateways[3].

The NeGP aims at improving delivery of Government services to citizens and businesses with the following vision:

"Make all Government services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency,

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[3] https://india.gov.in/e-governance/national-e-governance-plan accessed on 25.10.2016

transparency & reliability of such services at affordable costs to realize the basic needs of the common man."

Some of the key elements of NeGP are:

*Rapid deployment and scale –up pf select "Mission Mode projects" with significant citizens interface.

* Creation of a national IT backbone for fast, reliable and efficient connectivity, data storage and access.

*Integrated citizen service centers for delivery of citizens services.

* Creation of web portals for 24x7 accesses to government information and services.

Besides, the NEGP also provides for significant investment in areas such as Government Process Reengineering, Capacity Building, Training, Assessment and Awareness. Another important aspect of NeGP is that it envisaged initiative with decentralized implementation i.e. the overall monitoring, administration and standard setting would be performed at the centre. Whereas the responsibility for implementation would rest with the coordinating line ministry/department at the centre or the state .NeGP is a radical new approach aimed at substantially accelerating the speed of e-Governance[4].

2.3.1 *Implementation of NeGP*

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[4] Department of Public Administration,MZU (2005), ' A Reader', Orientation Course for Under Graduate Teachers in Public Administration, October 28

Implementation of e-Governance is a highly complex process requiring provisioning of hardware & software, networking, process re-engineering and change management. Based on lessons learnt from the past and the experience from successful e-Governance applications, the approach and methodology adopted for NeGP contains the following elements[5]:

i. *Common Support Infrastructure*

NeGP implementation involves setting up of common and support IT infrastructure such as: State Wide Area Networks (SWANs), State Data Centres (SDCs), Common Services Centres (CSCs) and Electronic Service Delivery Gateways.

ii. *Governance*

Suitable arrangements for monitoring and coordinating the implementation of NeGP under the direction of the competent authorities have also been substantially put in place. The programme also involves evolving/ laying down standards and policy guidelines, providing technical support, undertaking capacity building, R&D, etc. DEITY is required to adequately strengthen itself and various institutions like NIC, STQC, CDAC, NISG, etc. to play these roles effectively.

iii. *Centralised Initiative, Decentralised Implementation*

e-Governance is being promoted through a centralised initiative to the extent necessary to ensure citizen-centric orientation, to realise the objective of inter-operability of various e-Governance applications and to ensure

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[5] Saaransh (2011), ' A Compendium of Mission Mode Projects under NeGP', https://india.gov.in/e-governance/national-e-governance-plan, accessed on 26.10.2016

optimal utilisation of ICT infrastructure and resources while allowing for a decentralised implementation model. It also aims at identifying successful projects and replicating them with required customisation wherever needed.

iv. *Public-Private Partnerships (PPP)*

PPP model is to be adopted wherever feasible to enlarge the resource pool without compromising on the security aspects.

v. *Integrative Elements*

Adoption of unique identification codes for citizens, businesses and property is to be promoted to facilitate integration and avoid ambiguity.

vi. *Programme Approach at the National and State Levels*

For implementation of the NeGP, various Union Ministries/Departments and State Governments are involved. Considering the multiplicity of agencies involved and the need for overall aggregation and integration at the national level, NeGP is being implemented as a programme, with well-defined roles and responsibilities of each agency involved. For facilitating this, appropriate programme management structures have also been put in place.

vii. *Facilitator role of DeitY*

DeitY is the facilitator and catalyst for the implementation of NeGP by various Ministries and State Governments and also provides technical assistance. It serves as a secretariat to the Apex Committee and assists it in managing the programme. In addition, DeitY is also implementing pilot/ infrastructure/ technical/ special projects and support components. DARPG's

responsibility is towards Government Process Re-engineering and Change Management, which are desired to be realised across all government departments. Planning Commission and Ministry of Finance allocate funds for NeGP through Plan and Non-plan budgetary provisions and lay down appropriate procedures in this regard.

viii. *Ownership of Ministries*

Under the NeGP, various MMPs are owned and spearheaded by the concerned line Ministries. In case there are any ongoing projects which fall in the MMP category, they would be suitably enhanced to align them with the objectives of NeGP. For major projects like Bharat Nirman, Rural Employment Guarantee Schemes, etc. the line ministries concerned are advised to make use of e-Governance as also automation techniques from the inception stage. States have been given the flexibility to identify a few additional state-specific projects, which are relevant for the economic development of the State.

Over the years, a large number of initiatives have been undertaken by various State Governments and Central Ministries to usher in an era of e-Government. Sustained efforts have been made at multiple levels to improve the delivery of public services and simplify the process of accessing them.

E-Governance in India has steadily evolved from computerization of Government Departments to initiatives that summarize the finer points of Governance, such as citizen centricity, service orientation and transparency. Lessons from previous e-Governance initiatives have played an important

role in shaping the progressive e-Governance strategy of the country. Due cognizance has been taken of the notion that to speed up e-Governance implementation across the various arms of Government at National, State, and Local levels, a programme approach needs to be adopted, guided by common vision and strategy. This approach has the potential of enabling huge savings in costs through sharing of core and support infrastructure, enabling interoperability through standards, and of presenting a seamless view of Government to citizens.

The National e-Governance Plan (NeGP), takes a holistic view of e-Governance initiatives across the country, integrating them into a collective vision, a shared cause. Around this idea, a massive countrywide infrastructure reaching down to the remotest of villages is evolving, and large-scale digitization of records is taking place to enable easy, reliable access over the internet. The ultimate objective is to bring public services closer home to citizens, as articulated in the Vision Statement of NeGP.

"Make all Government services accessible to the common man in his locality, through common service delivery outlets, and ensure efficiency, transparency, and reliability of such services at affordable costs to realise the basic needs of the common man"[6].

Districts are the de facto front-end of government where most Government-to-Consume (G2C) interaction takes place, the e-District project

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[6] https://india.gov.in/e-governance/national-e-governance-plan accessed on 25.10.2016

was conceptualized to improve this experience and enhance the efficiencies of the various departments at the district-level to enable seamless service delivery to the citizen. Front-ends under the scheme, in the form of citizen facilitation centres, are envisioned to be built at District, Tehsil, Sub-division and Block levels. Village-level front-ends would be established through Common Services Centres (CSCs) for delivery of services[7]. It was intended to bring a number of services online. Most of these services are provided at the district level and they serve as the primary interface between citizens and the Government. The objective is computerize the backend workflows at the District level with appropriate Business Process Reengineering (BPR), to reduce the work load at the district level, ensure fast processing of cases/grievances, enable better monitoring of various government schemes. It was also envisage enabling efficient delivery of government services and to proactively provide a system of spreading information on the Government schemes, planned developmental activities and status of current activities.

The infrastructural and technical support projects have mostly been working well. NeGP has been able to provide a common sense of urgency, mechanism and some funding support for large-scale adoption of e-governance by various departments of the central and state governments. Department of IT gives technical support to e-governance initiatives of various departments at the central and state levels, including through listed consultants. They also ensure some degree of common architecture which is

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[7] http://www.meity.gov.in/content/e-District accessed on 27.10.2016

very important for interoperability, especially required when, at a later stage, across-the-government integration of operations and services may be sought.

One however notes that projects that focus on targeting the better-off sections, e.g. those related to passports and income tax, have produced the best results to date. On the other hand, Mission Mode Projects in areas like agriculture and *panchayat* computerization, that most directly concern relatively marginalized sections, have been the slowest to take off. This may requires re-assessment of NeGP with regard to considerations of inclusion, equity and social justice.

The Unique ID project, listed as a Mission Mode Project under NeGP, is also well underway. Recently Department of IT has come up with a 'Framework for Mobile Governance', which lay out the vision and strategy for mobile governance. It envisions setting up a Mobile Service Delivery Gateway, Mobile AppStore for governance applications, mobile authentication and payment gateway, and APIs for different service providers. Department of IT has also notified a 'Policy on Open Standards for E-governance', and the work of notifications of open standards in various areas is underway, guidelines for use of social media by government agencies were issued by the Department of IT. Internal and stakeholder consultations on the opportunity and challenges for e-governance in a cloud computing environment are also underway[8].

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[8] http://meity.gov.in/

NeGP has done very well in providing infrastructural and technical support for widespread adoption of e-governance in India. However, there seems to be a significant gap on the non-technical side, *vis a vis* governance process re-engineering architectures and the broad socio-political principles that need to be addressed. Due to the NeGP that large-scale digitization is taking place in most departments in the central and state governments. As the process of digitization and automation (the early stage of e-governance) has proceeded at a steady pace across government agencies, it has produced substantial efficiency gains and some improvements on the transparency front. If greater gains in the area of transparency, accountability and community participation have not been attained, it is largely because e-governance in India has still mostly been conceived and implemented in a techno-managerial mode and without sufficient socio-political vision.

The Departments have mostly used an internal logic and considerations of internal 'interests' and objectives rather than primarily employ an external logic, of (1) the point of view of basic objectives of governance, and the specific role of their department in it, (2) need and possibility of government-wide responses to governance needs, and, mostly importantly, (3) needs and perspectives of the citizens. Mature models of e-governance have to be formulated before actual implementation takes place at various levels.

e-Governance in India has made no clear linkages with other areas of governance reform like decentralization, right to information and

community monitoring, while the fact is that process re-engineering through e-governance should primarily have been serving these substantive objectives of governance reform in India. This anomaly needs to be corrected through a national e-governance policy that casts e-governance within larger socio-political objectives and then proceeds to establishing such principles that should guide systemic process re-engineering through e-governance.

2.4 E-GOVERNANCE AT COMMUNITY LEVEL

In many ways, the Community Service Centers (CSCs) constitute the central component of NeGP. It was evident to India's e-governance planners that government departments will only begin to take the e-governance opportunity seriously if there indeed was an outreach infrastructure available that can service all parts of India, however remote. This is especially true with regard to governance services that are most pertinent to rural areas, certainly a priority for the Indian governments. It was further expected that once such an infrastructure was in place, and the opportunity demonstrated, a demand-side pressure from the community will accelerate, as well as help design, the most appropriate e-governance changes upstream, at the level of the internal functioning of the line departments(or at the backend). The convergent service delivery platform was facilitated by a service agency that connected to various government and non-government service providers[9].

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[9] Ashok Jhunjhunwala et.al (2004), 'n-Logue: The Story of a Rural Service Provider in India', The Journal of Community Informatics, Vol. 1, Issue 1, pp. 30-38

For obtaining the full potential of e-governance to bring about 'governance systems that are more inclusive, accountable, decentralized, and make programme implementation more effective for the realization of rights of marginalized groups, it may be required to formulate a new community-owned/oriented ICT based infrastructure at the community level which is different from, and complements, the CSC infrastructure. CSCs should focus on providing such governance services that can easily and adequately be provided on a fee-per-transaction basis and also making various commercial products and services available to rural India through aggregation and online facilitation. Another programme, probably rooted in the departments of rural development, is needed to develop community-owned, non-commercial ICT based infrastructural systems that will attend to the needs of wider governance activity, as for instance, pertaining to (1) citizen's rights and entitlements (2) citizen's participation, including through community monitoring and social audits, and (3) community's knowledge and media processes.

2.5 NGOs AND DONOR AGENCIES

NGOs and social enterprises were keys in the initial phase of e-governance in India, especially at the community end. In fact, agencies also tried to drive back-end computerization, at least at the district level. Many NGOS like DHAN Foundation in Tamil Nadu, Abhiyan in Gujurat and Alternatives for Development (AID) in Jharkhand have been doing pioneering and very impactful work. These NGOs have worked on generic

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community level ICT infrastructure and systems (AID in partnership with the CSC scheme, the only NGO directly involved in the same). There are other NGOs that have done very significant work in specific sectors like health, development communication, women's empowerment etc.

However, in the absence of a larger systemic vision and e-governance policy framework these efforts have often not been successfully up scaled and/or integrated with mainstream governance systems. It is important to note that one of the most significant generic impacts of ICT-based systems is through larger networking and up scaling of different efforts. However, such integration, networking and upscaling of governmental and non- governmental efforts requires a very new kind of policy approach with the right mix of standardization and flexibility, and with appropriate co-ownership of different government agencies.

Integration and Convergence

When any e-governance or development project has shown successful outcomes using ICTs, the challenge remains to integrate such new techno-social processes with the activities of partners locally, within a particular development/ governance sector. Development processes do show considerable inertia even in face of demonstrated benefits of innovations, and with regard to use of ICT based processes there can be significant discontinuity beyond project and/or organizational boundaries.

ICTs also enable convergence across sectors, and most ICT based innovative processes can fruitfully be employed by different sectors of

governance/ development sectors, giving huge network or convergence gains. This can make the ICT based innovations quite cost effective with respect to the huge multiplier effect across different sectors, since ICT based processes typically have relatively high initial costs but very low marginal costs. Projects may be planned that extend proven and working ICT-based processes developed in one sector for convergence across sectors, especially at the community level[10]. However, such convergence is also possible upstream (e.g. common smart cards, payment gateways, mobile applications, etc).

Up scaling of ICT-based Innovations

For an e-governance or ICT development innovation to be up scaled across a large area of application, geographically and/or population-wise, it requires considerable standardization, economies of financial and other resources, and integration across a very broad set or processes and activities. It also often requires processes of quick capacity building and considerable initial hand-holding. Very often the up scaling process requires stripping down of some features of the innovation, in order to accomplish the necessary integration with existing processes, which may seem to considerably change the original innovation, and along with it, the expected outcomes. Comparative costs and benefits of possible alternative up scaling avenues have to be taken into consideration. Also innovations may need to ride on large-scale government programmes, which may have a different focus.

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[10] http://www.itforchange.net/E-governance_in_India, accessed on 27.10.2016

2.6 CONVERGENT APPROACHED TO e-GOVERNANCE

An exclusive mainstreaming approach can result in losing sight of the big picture. ICT based changes often impact at a systemic level. Over time, they can significantly transform the whole architecture of governance. Such a systemic change can work for what may be the highest, politically articulated, objectives of governance reform – like decentralization, a rights based approach, right to information, community monitoring etc. – or can work in the opposite direction. Community may find services available at their doorstep, but, at the same time, processes of participation and monitoring may vanish or become even more remote.

E-governance is as political a process as any other area of governance reform, its techno-managerial 'neutral' projections notwithstanding. At every step, it may involve political trade-offs and therefore e-governance decisions should be guided by clear principles and policies, and subject to wide stakeholder consultations, and community monitoring and social audits at every stage. Decisions that have a very far-reaching impact on our governance systems are currently being taken, which can largely get hardwired in the near future. This will greatly constrain subsequent maneuverability with regard to our governance architecture and systems. Avoiding such an eventuality requires articulation of a clear e-governance policy, which is lacking at present.

ICTs enable convergence and can serve as a networking platform. Also, any such networking and convergence possibility has often to be first experimented with, in a cross-sectoral manner. However, a mainstreaming approach leaves such cross-sectoral experiments, whereby some most important e-governance opportunities can get missed. This is another area of very significant gap with regard to e-governance in India which may be attempted to be addressed by UNDP's efforts[11].

With regard to its e-governance efforts for the 2013-17 program periods, UNDP should consider developing an appropriate convergent approach to support and compliment its mainstreaming efforts, in the following two areas:

Broad principles and policy level coherence for e-governance in India, and Programmatic level networking and convergence opportunities.

2.6.1   Principles and Policy Level Coherence for e-Governance

In the Approach Paper for the XIIth Five Year Plan, the Planning Commission avers that "government programmes need a new architecture: greater localization, break-down of silos, feedback from citizens, and mechanisms for learning and sharing of best practices" It also highlights the need for "greater devolution and empowerment" in face of "a strong demand

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[11] Baishakhi Nag (2011), 'Mass Media and ICT in Development Communication: Comparison & Convergence', Global Media Journal – Indian Edition/ISSN 2249-5835 Winter Issue / December, Vol. 2/No.2

from all sectors of society to improve implementation, accountability and service delivery".

E-governance is a potent means to provide a new architecture for government programmes, and in general, for governance, in India. However, any change of architecture requires an articulation of foundational principles for such a changeover. The goals of major thrust areas of governance reform in India like, decentralization, right to information, community monitoring, a rights-based approach, etc. Process objectives like 'greater localization', 'breakdown of silos' and 'mechanisms of learning and sharing' can also not be met without convergent and broad principles-based approaches to governance reform, which include e-governance.

It is important to develop an overall e-governance policy, at central government and state government levels. Such a policy should primarily cast the objectives of e-governance in India in terms of general objectives and directions of overall governance reform. These objectives should then further be seen from the prism of generic new process re-engineering possibilities that ICTs can enable. Since, the e-governance policy framework is not meant to be technology-centric, and will focus on objectives and areas of reform and architectural change, it would not constrain experimenting with new ICTs as they evolve around us. At appropriate time, however, the policy may need necessary amendments as rapid technology progress continues.

2.6.2 Opportunities for Convergence and Level Networking

The greatest gap in terms of convergence and networking is at the community level, how the Common Service Centres scheme addresses only one part of the need for community level convergent e-governance infrastructure. There is a great need to undertake projects for community-level convergent e-governance infrastructures that can support decentralization, community monitoring, and rights based approaches, people's right to information, social audits, empowerment projects etc. These can initially be in the form of pilot projects linked to large-scale government programmes. There is already a growing awareness among, and activity by, governments in this area; like the MNERGA *Seva Kendras,* the proposed Information Centres under PMO's Public Information Infrastructure initiative, state level initiatives like *Akshaya* in Kerala and Mission Convergence in New Delhi, information and service centres proposed under various legislations like the Unorganised Workers Social Security Act.

The current United Nation Development Action Framework (UNDAF) document lays great stress on 'empowering communities' with the aim that "vulnerable and excluded women, children, adolescents and men are empowered as active agents of change". The document proposes that "strategies for empowering local communities, especially the marginalized and vulnerable, both in rural and urban areas of India, need to be continuously designed, applied and evaluated for their effectiveness"[12].

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[12] in.one.un.org/img/uploads/India_UNDAF 2013-17 accessed on 25.10.2016

UNDP specifically seeks to "work with organisations of marginalized groups and equip them with capacities to claim their rights and entitlements".

ICT-based local social processes can provide a cost-effective convergent support for most of the above desired community based activities. What is needed is to build an ICT-based infrastructure of local information centres, community ICT hubs, community radio, participatory video, GIS capabilities, sms and social-media-based local people to people (p2p) networks. However, while initial costs (of funds, human resources, skills, habit change, system resistance, etc) are very high, the marginal costs of running community ICT infrastructures are rather low. Therefore, such community-level ICT possibilities are best applied in a convergent manner.

To build convergent ICT infrastructures that are community owned and seek to empower communities UNDP should support pilots that are independent, as well those working with some of the government programmes. Through well designed projects, by focusing energies in a few project areas, considerable impact can be seen across many areas of governance work, and in domains of development like health, livelihood support, women's empowerment etc. these can then be offered for up scaling especially to government agencies that focus on convergence like departments of rural development, directorates of social audit and agencies dealing with women's empowerment, youth mobilization etc.

2.7   RECOMMENDATIONS   OF   UNDP   FOR   PROJECT
DEVELOPMENT OVER 2013-17

For the programme period 2013-17, United Nation Development Plan (UNDP) sets its overall objective in its 'democratic governance' line of work as follows;

"Governance systems are more inclusive, accountable, decentralized and programme implementation more effective for realization of rights of marginalized groups, especially women and children."[13]

It has chosen to focus on three broad areas of (1) decentralized governance, (2) accountability and transparency, and (3) implementing rights based programmes and access to entitlements. UNDP also specifically plans to give great importance to innovative uses of ICTs in its various programmatic activities, as a cross-cutting thematic focus. UNDP sees its comparative advantage, inter alia, in supporting "innovations that promote inclusion of marginalized communities, especially those that have been persistently excluded from development processes". It sees itself as "an impartial convener to ensure participation of all stakeholders, particularly those belonging to SCs, STs, Muslims and other disadvantaged groups".

E-governance in India has, in general, grown at a steady pace. However it is still struggling to form clear connections with overall governance reform objectives of the kind listed as UNDP priority areas in 2013-17. It also has, for the most part, not done much headway to directly impact social inclusion

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[13] in.one.un.org/img/uploads/India_**UNDAF** 2013-17 accessed on 25.10.2016

and articulate a rights-based approach. There is a need to focus on use of ICTs specifically to improve accountability to, and participation of, marginalized groups. At present, e-governance efforts in India seem to take a trickle down approach, hoping that finally, the marginalized sections too will be benefited substantially. To some extent, this may require bringing a different perspective to the very thinking and architecture of e-governance in India today, from a higher political/ policy level.

The trait of a techno-managerial approach and concerns like inclusion, participation, decentralization, rights, marginalization, community monitoring etc., which otherwise dominate the discourse of governance in India, are not clearly and strongly articulated in the e-governance arena. UNDP's involvement and efforts seek to correct this imbalance, seeking to make these objectives and concerns express central to e-governance. Such an approach should suitably inform the e-governance activity currently underway in India. It can thus positively influence the emerging architecture of e-governance. Such an approach will also help shape and focus UNDP's direct efforts in various programmatic areas which may involve innovative uses of ICTs[14].

All 'innovative projects' recommendations for project development by UNDP for the period 2013-17 consist of approaching the community-owned ICT infrastructure imperative from different angles; providing resource support to elected representatives (for the 'decentralization' theme), village

[14] Parminder Jeet Singh (2012), ' E-Governance in India: Existing Context and Possible Scope for UNDP Programming over 2013-18', www.itforchange.net/E-governance_in_India accessed on 25.10.2016

level complete process transparency and accountability in MNERGA and other programmes (for the 'accountability and transparency' theme) and mobilizing youth to employ ICTs for 'community empowerment' (for the 'rights and entitlements' theme). This is the power of convergence and 'network effect', and the huge economies of cross-sector implementation, that a convergent community-owned ICT infrastructure brings about. For this, however, effort has to be put into building viable models from the scratch, something that UNDP may want to address in the forthcoming programming cycle.

To sum up, this chapter deals with the application of ICT to enhance the capacity of the government. It is not just transfer of the processes but transformation of the entire governance system. It also discusses the evolution of ICT in the world, focusing briefly on New Zealand, USA and UK, and the United Nation. The chapter mainly focuses on National e-Governance Plan of India, its objectives and vision. It also brings out the overall observation and suggestion on the implementation of NeGP and UNDP framework on e-governance in India.

CHAPTER-III

DEPARTMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY, GOVERNMENT OF MIZORAM: ORGANISATION, FUNCTIONS AND ROLE

The previous chapter deals with the application of ICT in general and its implication at three countries along with the initiative taken by the United Nation, and in particular the United Nation Development Plan for e-governance. It also explained the steps taken by the Government of India in the making its National e-Governance Plan instrumental. It also highlighted the some observations on the impact of ICT and suggestion made for making ICT as change agent in the process of development in various sectors. The present chapter will focus mainly on the Department of Information and Communication Technology, Government of Mizoram, its organization, functions and role from its initiation till date, and the progress made in the application of ICT in Mizoram.

3.1 SETTING UP OF ICT IN MIZORAM

National e-Governance Programme was in full swing at the central level, but no legal documents was available for its implementation within the State of Mizoram. The idea of ICT remains untouched under the Government of Mizoram. However, Directorate of Industry, Electronic Wings started Computer Training Centre on Hardware Maintenance way back in 21st July

1999. The idea of starting a separate department of ICT was formed only in July 2000, and to pursue the idea one scientist form the Central Government was deputed to Mizoram on 19th July 2000. Under his supervision and expertise the first IT Policy of Mizoram was drafted in April 2001. Again, during 2002-2003 various IT projects was drafted and submitted to the central government for approval. The central government promptly acknowledges the proposal and sanctioned Rs. 380 lakhs to purchase 360 computers and 400 IP note (internet excess point) through North Eastern Council. To supervise the implementation of the proposed project, the term of deputed scientist was extended for another one year. Later, in 2004, the Government of Mizoram issued order for the creation of post in relation to the ongoing ICT programme. The following post were created, Principal Informatics Officer (1no.), Assistant (1no), Computer operator (1 no.), L.D.C (1no.), Peon (1no.).

However, the Department of Industry continues to remain the main implementing department till the formation of a new and separate Department of ICT in 2008. Between this times, Mizoram State e-Governance Society was constituted in 2005, under the Societies Registration Act (Act no.XXI of 1860) to act as a premier provider of e-Governance solution to the Government Departments and Public Sector Undertakings. It is governed by the Board of Governors consisting of, Chief Secretary (Chairman), and the members includes Secretary ICTD, Secretary Finance Department, Advisor/Join Secretary Planning Department, Principal Scientific Officer Directorate of Science and Technology and Chief Informatics Officer ICTD.

It has undertaken various projects under the NeGP which is presented in Appendix No.I.

On 10th,July,2008, as per the notification of the Government of Mizoram, in exercise of the power conferred by Rule 3 of the Government of Mizoram(Allocation of Business) Rules,1987 the Governor of Mizoram issued order to create the Department of Information and Communication Technology, Government of Mizoram, with immediate effect.

The Department, under this notification is assigned the following subjects;

- Policy matters relating to Information and Communication technology,

- Information Technology Acts and Rules,

- Matters relating to Information Technology Enabled Services(ITES) and Internet,

- Information Technology Infrastructure, Development like Software Technology Park of India(STPI),State Wide Area Network(SWAN), Common Service Centre(CSC), State Data Centre(SDC), Community Information Centre(CIC),etc,

- Promotion and standardization of Information Technology education,

- Matters relating to e-governance, e-commerce, e-medicines, e-infrastructure, etc,

- Matters relating top-security and cyber laws,

- Coordination of Information Technology related matters with national and international agencies and bodies, and

- Telecommunication and its related matters.

Notwithstanding the above, projects and schemes which were by nature Information Technology or Information technology Enabled Services, but have already being implemented by other Departments or agencies such as SWAN which is entrusted to Zoram Electronic and Industrial Corporation (ZENICS), Software Technology Park of India (STPI) which is being implemented by Industry Department, Call Centre Projects being set up through Zoram Industrial Development Corporation Limited (ZIDCO), etc, prior to the creation of this new Department continue to remain as it is.

The Department of Information and Communication Technology (ICT) has been established for framing policy, planning, implementation and monitoring of Information & Communication Technologies and e-Governance projects. The Department has vision to use Information & Communication technology to make available information and government services related to basic needs of common persons, accessible to them near their locality through minimum procedural formalities thereby pursuing economic development.

Vision

The Department has a vision 'to enable Mizoram one of the most preferred IT investment destination in the North Eastern State of India and ensure the efficiency, transparency and accountability of Government services accessible by the common people through minimum procedural formalities thereby pushing economic development.'[1]

Mission

The vision is translated into mission, the State Government plays the role of pro-active facilitator, motivator and promoter to accomplish its vision for promotion of IT Industry, IT Software, IT Products and IT Services within the State and improvement of Government's administrative processes and quality of service delivery mechanism for the state of Mizoram.

As approved by the Council of Ministers the Governor of Mizoram issued notification in 2008 for the creation of various categories of 26(twenty six) temporary posts under the Directorate of Information and Communication Technology. The present organization chart of the Department of Information and Communication Technology, Government of Mizoram is presented below:

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[1] https://dict.mizoram.gov.in/ accessed on 27.10.2016

ORGANIZATION CHART OF ICT DEPARTMENT
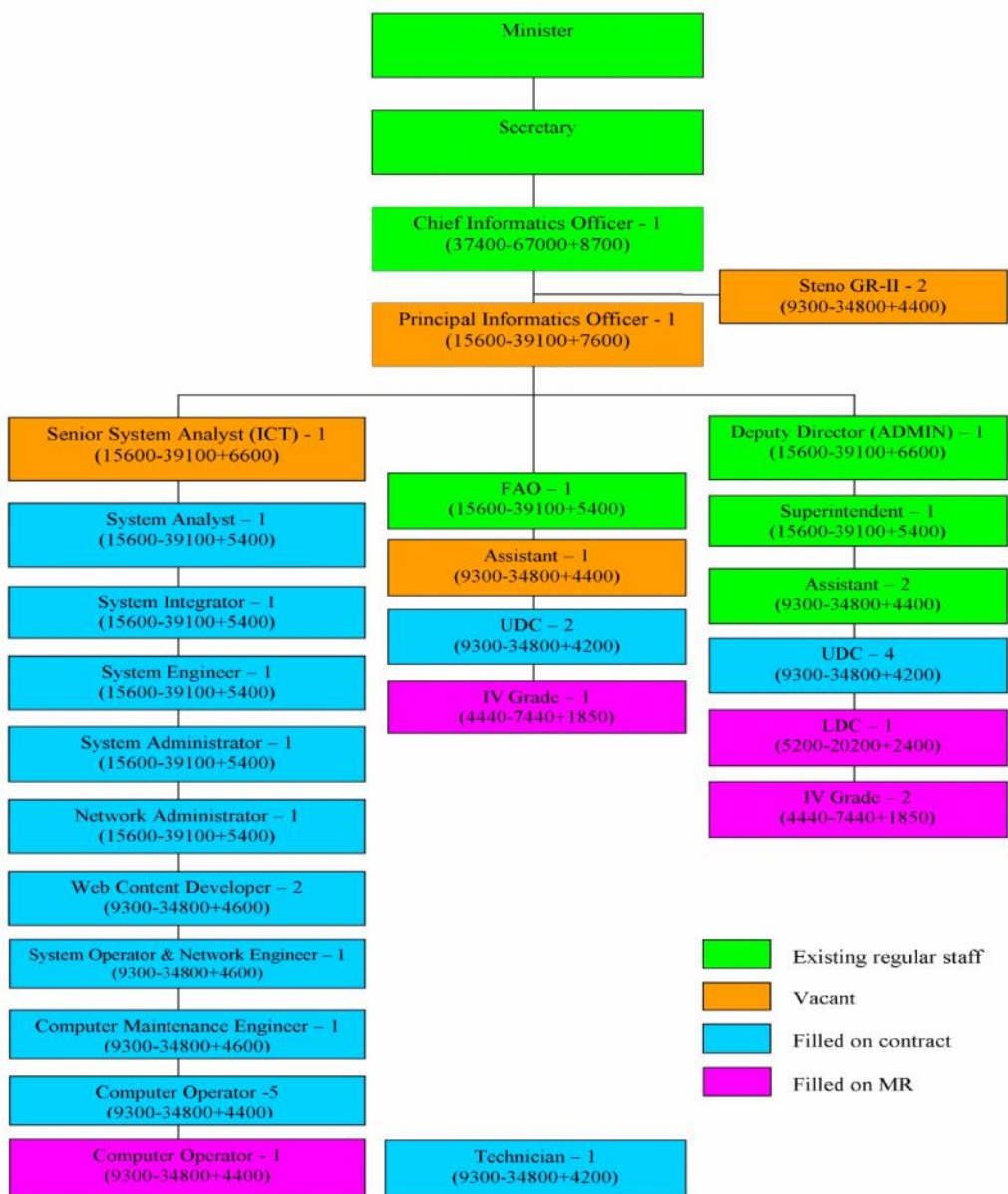
Source: Department of ICT, Government of Mizoram, 2016

3.1.1   PSU & Societies undertaken by the Department

Since its inception till date, the Department has been looking after several e-governance societies, such as Zoram Electronics Development Corporation Ltd. (ZENICS, now closed down), Mizoram State e-Governance Society (MSeGS) and e-Governance Societies at Aizawl, Lunglei, Saiha, Champhai, Kolasib, Serchhip, Lawngtlai and Mamit Districts respectively.

3.1.2   Functions

The Department is entrusted to undertake the following functions;

a) To prepare and implement State e-Governance Roadmap, Capacity Building Roadmap and e-Readiness Documents for the state of Mizoram.

b) To establish state-of-the-art IT Resource Centre for developing highly skilled manpower in the field of ICT.

c) To provide free IT Education to women & rural youths.

d) To provide employment opportunities to students and help them get IT jobs within the state and outside the state.

e) To provide technical assistance for the students to set-up IT related firm or IT training institute for sustainable self-employment.

f) To set up e-Governance Infrastructure for Mizoram Government Secretariat.

g) To framed Mizoram IT Policy 2001.

h) To set up of Mizoram State Wide Area Network under National e-Governance Plan (NeGP i) Set up State Data Centre (SDC).

j) To set up e-District Center in 8 Districts.

k) To establish 136 Common Service Center (CSC) for delivery point between Government and citizen.

l) To established Rural Information Kiosks (RIK) in 153 Villages and 147 numbers are being established.

3.1.3 Programmes and Schemes

The Scheme-wise programme of the Department of ICT for the development of Information and Communication Technologies in Mizoram are classified into the different categories, such as, Capacity Building, E-Governance, IT Training for Govt.'s Employees, State Wide Area Network, State Data Centre, Common Service Centre , State Service Delivery Gateway/ State Portal, IT Education Programme, Rural Information Kiosk, E-District, Land Resource Information System, Land Record, Property Registration, K-Yan for 50 Govt. Schools, Women Empowerment Secretariat Networks, Braille Computer Systems for Blind Schools, IT Economic Development Programme for educated unemployed youths in Mizoram, IT based Communication System for Spastic Society.

3.2   e-Governance Vision for Mizoram

The Vision of the Government of Mizoram is articulated below;

"To use Information & Communication technology to make available information and government service related to basic needs of common persons accessible to them near their locality throughout their lives through minimum procedural formalities thereby pursuing economic development.**"[2]**

The vision statement clearly articulates the key themes of the government's e-Governance direction, which are:

3.2.1   Information and Government Services — while the common person may have a variety of needs, many of these could be improved by use of ICT. Delivery of these would require the government to focus on more convenient and reliable options rather than the standard option of citizen making visits to the Government Offices. The services should be measured on the following criteria

Accessibility: Customers require a reliable access window through e-Governance to all Government information and services. Citizens expect that e-governance initiatives will minimize the time spent on repeated visits to government offices.. The citizens should be provided with easier access to information. This would require the transformation of the government making it more transparent, accountable and efficient. Accountability for delivering the services and information should be clearly defined and communicated

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[2] Ibid.

internally within the departments and externally to citizens. It would lead to greater participation by people in government by making it easier for those who wish to contribute. Mechanisms like citizen feedback, grievance handling systems, provision for citizen forums on the web portal and increasing the number and breadth of access channels are some means of attaining this objective

Flexibility: Customer should be able to access the service through a variety of channels of his/her choice.

Quality: The service should be timely and efficient

Security: The service and service delivery should be trustworthy, both objectively and in citizen perception.

Minimum Procedural Formalities – This indicates the intent of the Government to look at streamlining its procedures such that the number of visits a citizen has to make to the Government office to obtain any one service is reduced. It may necessitate the use of databases extensively so that the data once stored can be reused for the citizen the next time.

Economic Development: The government wants to use e-governance as a tool for generation of employment. e-Governance shall be used by government for creating better awareness and delivery of the development schemes. The government aims to project Mizoram as a favored destination— by building an image of Mizoram as a modern state, which is caring for its citizens and also promotion of investor friendly environment,

making it an attractive location for people and business. Therefore this is a critical factor influencing the vision of the Government in its e-Governance initiatives. . e-Governance blue print is shown in Appendix No.II.

3.3   SCHEME-WISE UNDERTAKEN BY ICT DEPARTMENT

3.3.1 COMMON SERVICE CENTRE (CSC)

The CSC Scheme, as approved by the Government of India, envisions CSCs as the front-end delivery points for Government, private and social sector services to rural citizens of India, in an integrated manner. The CSC is positioned as a Change Agent - that would promote rural entrepreneurship, build rural capacities and livelihoods, enable community participation and collective action for social change - through a bottom-up model with focus on the rural citizen. The department of ICT has set up 136 CSCs across the state and it is a front-end service delivery points for Government-to-Citizen, Business-to-Citizen and Business-to-Business. CSCs are front-end service delivery points for Government, private and social sector services to urban and rural citizens of Mizoram. All the CSCs is operated by VLE (Village Level Entrepreneurs)**.** The Government has appointed M/s ZENICS as Service Centre Agency (SCA) on 7th March, 2011. Tripartite Master Service Agreement (MSA) was signed between DoICT (GoM), MSeGS (SDA) and ZENICS (SCA) on 31st March, 2011.

Objectives: The objectives is to develop a platform that can enable Government, private and social sector organizations to align their social and commercial goals for the benefit of the rural population in the remotest corners of the country through a combination of IT-based as well as non-IT-based services. The project cost is shown in Appendix No.III.

3.3.2   MIZORAM STATE WIDE AREA NETWORK (MSWAN)

MSWAN is a network that connects all the district headquarters and block headquarters with the state capital. The network carries data, video and voice communications throughout the State, for all Government Operations. There is a Point of Presence (PoP) in each District Headquarters and Block headquarters. The total number of PoPs (Point of Presences) is 42 within the State. Mizoram SWAN is inaugurated by the Chief Minister on 19th July, 2012.   1 State Headquarter and all 8 District Headquarters has been commissioned. All e-Governance projects rely on SWAN for their bandwidth requirement.

 Objectives: SWAN is envisaged as the backbone network for data, video and voice communications throughout the state, for all Government Operations. MSWAN is required to be open standard based, scalable, high capacity network to carry data, voice and video traffic between the designated levels and offices of Government of Mizoram at State/District/Block or Sub-Division levels. The vertical connectivity of MSWAN will connect the SHQ

level to the DHQ level and subsequently DHQ level to BHQ/SDHQ level. The project cost is shown in Appendix No.IV.

3.3.3   e- DISTRICT

To make instrumental to the NeGP vision, 27 Central, State and Integrated Mission Mode projects (MMPs) along with 8 support components were identified and approved under NeGP. States have been given flexibility to identify up to 5 additional state-specific projects, which are particularly relevant for the economic development of the State. NeGP also envisages creation of the core IT infrastructure in the form of State wide Area Networks (SWANs), State Data Centers (SDCs), e-District and Common Service Centers (CSCs) in rural areas across the country to deliver public services electronically. **e- District** is one of the 27 Mission Mode Projects (MMPs) under NeGP, with the Department of Electronics Information Technology (DeitY), Government of India (GoI) as the nodal Department, to be implemented by State Government or their designated agencies. The Central Government has appointed Mizoram State e- Governance Society (MSeGS) as implementing Agency for this project in Mizoram.

Objectives: The objectives of the project are:

-To provide easy, anywhere and anytime access to government services to ensure reliability, efficiency, transparency and accountability.

-To reduced the number of visits of citizens to a government office / department for availing the services and thereby eliminating harassment.

-To reduced administrative burden and service fulfillment time and costs for the government, citizens & businesses.

-To reduced direct interaction of citizen with the government and encourage 'e'-interaction and efficient communication through portal.

-To undertake backend computerization of District and Block level offices to ensure electronic delivery of high volume citizen centric services at the district level.

-To enhance efficient delivery of services with improved service levels by undertaking extensive Business Process Re-engineering (BPR) of identified services.

-To deliver services through CSCs by leveraging the common infrastructure of SWAN, SDC, and SSDG.

The project cost is shown in Appendix No.V.

3.3.4 STATE PORTAL & STATE SERVICE DELIVERY GATEWAY

The emergence of many e-governance applications for different departments to provide online services to citizens, businesses and government require increasing interactions amongst departments and with external agencies at various levels in State Government. Departments need to develop connectors/adaptors for point to point connections between departments creating a mesh and also tight coupling between applications. This leads to applications which are difficult to maintain and upgrade in case of version change and change in government policies and business rules. The State e-Governance Service Delivery Gateway (SSDG) is a project initiated to reduce

such point to point connections between departments, and provide a standardized interfacing, messaging and routing switch through which various players such as departments, front-end service access providers and back-end service providers can make their applications and data inter-operable. The State e-Governance Service Delivery Gateway (SSDG) aims to achieve a high order of interoperability among autonomous and heterogeneous entities of the states based on a framework of e-Governance Standards.

Objectives

The objectives are:

-To reduce the number of visits of citizens to a Government office/department for availing the services.

-To reduce administrative burden and service fulfillment time & costs for the Government, Citizens & Businesses.

-To reduce direct interaction of citizen with the Government and encourage 'e'- interaction and more efficient communication through portal.

-To enhance perception & image of the Government and its constituent Departments.

-To promote uniform web interfaces across Government and build in synergies with the National Portal of India (NPI) using the National Service Delivery Gateway.

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-To deliver services through Common Service Centers (CSCs) by leveraging the common infrastructure (SWAN, SDC, etc.) and development of the applications and infrastructure required for deployment of State Portal and State Service Delivery Gateway (SSDG) for the State.

-To published the static data and all information of the State in line with guidelines for necessary integration with NPI.

The project cost is presented in Appendix No.VI.

3.3.5   DIGITAL LAND RESOURCE INFORMATION SYSTEM (DLRIS)

The Department of ICT, Government of Mizoram in collaboration with C-DAC, Kolkata is executing GIS based DLRIS under the financial assistance of Department of IT, Government of India with the total estimated cost of Rs. 220.00 lakhs. M/s Mizoram State e-Governance Society (MSeGS) is State Designated Agency for implementation of this project. The project duration is 24 months. The objective of the project is to generate and create comprehensive resource information relating to transport network, power distribution line, school education, drainage & water distribution pipeline, Agriculture information, Village information and town planning, etc. integrated with Geographical Maps obtained from Satellite imagery

3.3.6   CAPACITY BUIDING PROJECT

Capacity building refers to the need to adjust policies and regulations, to reform institutions, to modify working procedures and coordination mechanisms, to increase the skills and qualifications of people, to change value systems and attitudes in a way that meets the demands and prerequisites of implementing the e-Governance Roadmap for Mizoram. It may be defined as an approach to the development of sustainable skills, organizational structures, resources and commitment to improvement in available skill sets and institutional structures and its major forms of expression in e-Governance are greater skills and abilities of people, organizations and communities. The Department of ICT (DICT) has prepared Detailed Project Report (DPR) for Capacity Building and was approved by DeitY (formerly known as DIT), Government of India amounting to Rs. 428.60 lakhs; out of which Grant-in-Aid from DIT, GoI is Rs. 208.20 lakhs and ACA is Rs. 220.40 lakhs. This project has been implemented through Mizoram State e-Governance Society (MSeGS).

Objectives: The objectives for the e-Governance initiatives can be grouped by the customer segment served:

Government to Citizen (G2C)

-To provide one-stop, easier access to information and services to individuals

-To reduce the average waiting for the citizens to avail the services.

-To provide the citizens with a transparent view of the government processes and timely response to applications

Government to Business (G2B):

-To reduce burden on business, provide one-stop access to information on rules and regulations and clearances

-To reduce the cost of compliance by reducing the instance on the business to report the same data, multiple times to multiple agencies.

-To provide facility for online reporting and self-certification.

Government to Government (G2G)

e-Governance must achieve the following for the internal functioning amongst the departments / its interactions with its employees:

-To assist the state and local governments to more easily work together to better serve citizens within key lines of business.

-To provide administrative savings for the government departments.

-To improve the way that information is shared among all levels of government.

-To reduce the non-value added work for the workers in the government department by Providing enhanced access to high quality training and competency development for state employees through capacity building across departments .The State recognizes that the choice of an appropriate strategy is imperative to effectively build capacity. There are three distinctive dimensions to capacity building that the Government of Mizoram recognizes:

-Infrastructure or Service Development

Capacity to deliver particular program responses to particular service delivery needs. Usually refers to the establishment of minimum requirements in structures, organizations, skills and resources in the Government sector. In this dimension, the key components of capacity building are Technology, Program Management and Process Tools.

Program Maintenance and Sustainability

Capacity to continue to deliver a particular program, by the Government agencies or through a network of agencies is nominated by the Government. Change Management, Program Management and Financial Management are the key capacity components.

Problem Solving Capability of Organizations and Communities

The capacity of a more generic kind to identify issues and develop appropriate mechanisms to address them, either building on the experience with a particular program or as an activity in its own right. This dimension particularly needs Process tools, Knowledge Management and Technology as key components.

The State has set forth strategies that span the three key action areas of human resources, systems and infrastructure and organization structure. It also proposes the strategies work through "partnerships" at a number of levels such as with service providers, their managers and program partners.

Capacity building at the Project Level

Departmental capacity refers to the ability to relate and respond continuously to the emerging trends and changing contexts in an effective and proactive manner. The Government of Mizoram appreciates the need to build capacities in various departments from an early stage. The Department plans to depute experts from the ICT industry in various departments to spearhead the computerization and e-Governance initiatives of the department.

Capacity Building Targets:

The state took a planned and structured approach to developing the required capacities, to map progress of the State in achieving the capacity building vision, the State has set forth clearly defined targets – in line with the overall State e-Governance roadmap. Capacity Building Targets for Mizoram is presented in Appendix No. VII and the Project Cost Summary for the same is presented in Appendix No.VIII.

3.3.7 STATE DATA CENTER (SDC)

State Data Centre (SDC) is one of the key infrastructure pillars that are being set up at every State / UT to consolidate citizen services, e-Governance applications and supporting infrastructure to provide efficient electronic delivery of G2G, G2C and G2B services. These services shall be rendered by the States through a common delivery platform supported by other core infrastructure elements i.e. SWAN and CSC with connectivity extended up to the block level. Thus, different line department would get a seamless, highly

reliable/robust, shared, secured Data Centre infrastructure with reasonable/scalable capacity for their e-Governance application hosting requirements. The Government of Mizoram has awarded the contract to M/s Prithvi Information Solution Ltd. in consortium partnership with Payoda Technologies Pvt Ltd. and MSeGS. The work has commenced from 18th June, 2012 in the Secretariat Building Annex-I and has gone live on 06.06.2015. . The MSDC connected to the Mizoram State Wide Area Network (MSWAN) provides access to the e-Governance applications and services to the Government employees and to the citizens through public internet or Common Service Centers (CSCs), etc. It is continuously monitored by surveillance mechanisms and administered by 24×7 operations and management staff.

Objectives

Under National e-Governance Plan (NeGP) of the Government of India, State Data Centers (SDCs) were proposed to be established to provide shared, reliable and secured infrastructure for hosting and managing the e-Governance applications of the State and its constituent departments. It would provide better operations and management control and thus minimize overall cost of data management, IT management, deployment, etc. SDCs help the State Government, State Line Ministries and Departments in providing Central Repository (database consolidation) of the State, provide Secure Data Storage, Online Delivery of Services, Citizen Information/Services Portal, State Intranet Portal, Disaster Recovery, Remote Management and Service

Integration needed for G2G, G2C and G2B services. The various Mission Mode Projects (MMPs), both at the Central level, State level and also the integrated services of the NeGP are expected to use SDCs to deliver their services. The project cost of SDC is presented in Appendix No. IX.

3.3.8 COMMUNITY INFORMATION CENTRES (CICs)

26 Communication Information Centres are in place in the state of Mizoram with a vision to extend the benefits of global connectivity through Internet and to bring the region closer to the national mainstream by enabling more efficient and faster information flow amongst the people. CICs also help the State Government in implementing IT-based citizen-centric applications. The CICs are equipped with Computers, VSAT, TV, web cameras, printers, UPS, etc. The State has plans to roll out 10 more CICs in the nearby future. Also, efforts to network all the Community Information Centres are going on.

3.3.9 DEPARTMENTAL SERVICE CENTERS

All Departments have Service Delivery Channels. However, only few of the Departments have established Computerized Citizen Facilitation counters for providing Computerized Counter Services. Eg: Computerized 'Electrical Billing System' in Power and Electricity Department.

3.4   NEC FUNDED PROJECTS

IT Education Programme for 100 Schools

For the development IT Education in Mizoram, Computer sets and printer is distributed to 100 Schools as sanctioned by NEC at the total project cost of Rs. 457, 01,100 out of this, Rs. 409, 00,000 have already released by NEC. Out of 100 Schools, materials were distributed to 92 schools and the remaining schools will be provided during this financial year. The funding pattern is 100% grant from NEC.

Rural Information Kiosk in 300 Villages

The NEC approved for Establishment of Rural Information Kiosks in 300 villages at a total cost of Rs 489.85 lakhs for promotion and development of IT in rural areas. Under this project, IT equipment like computer, printer, Scanner, Digital Camera, Photo Printer and V-SAT equipment were provided to RIKs- VLEs (Village Level Entrepreneur). The project is smoothly functioning at present and funding pattern is 90:10 ratios.

3.5EXISTING TELECOMMUNICATION INFRASTRUCTURE

A few Public as well as Private Players have established their presence in the field of Tele communications in the State of Mizoram, the major player being BSNL. The BSNL has laid down adequate infrastructural facilities in almost all the districts to facilitate the Tele communication facilities within the State of Mizoram are presented in Appendix No. X.

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3.6   EXISTING TRAINING INFRASTRUCTURE

The State of Mizoram has established a State-of-the-art e-Governance Training centre for conducting in-service training programmes for officers and staff of State Government Departments/PSUs including MLAs, IAS and MCS. The training centre, established at Aizawl will serve for conducting IT awareness, short-term courses in Computer application, office automation, Internet application etc.

Government of Mizoram is undertaking IT Professional development programme for educated unemployed youths of Mizoram for the upliftment of 200 educated unemployed youths for Mizoram for sustainable self-employment generation through IT professional development programme with giving special emphasis on Software engineering, Software project management, Networking engineering, Database engineering and Business communication skills. One of the other objectives of this training programme is to produce more and more certified software engineering with the help of international reputed companies to be able to undertake software development activities during implementation of computerization of all the Government Departments. The training programme also aims to develop highly qualified IT professional through State-of-the-art training to enable young Mizo educated unemployed youths to acquire industry standards of skills appropriate to the jobs available in the IT market.

The other amenities for IT education include District School Children Computer Training Centre in 8 Districts under 11th Finance commission,

Mizoram computer education networks using EDNET connectivity for the benefit of all the educational institution in the state, Braille Computing Systems in two Mizoram blind schools-(1)Integrated Blind School-Kolasib and (2)Samaritan Blind School, Durtlang, IT based Education and Communication Centre at Spastic Society, Aizawl for people affected with Cerebral Palsy and Multimedia Content Creation Centre for educated unemployed youths of Mizoram for their sustainable Self-Employment generation.

Also the state has completed the e-Governance roadmap and Capacity Building Road map, which provides with a strategic road map for the Govt. of Mizoram to enhance the capacities in the State government and its nodal agencies to enable issues dealt with in a competent manner, with a holistic prospective and speed. At the same time it provides a Governance structure and institutional framework to implement and monitor the e-Governance initiatives, undertaken by the State.

3.7 CURRENT DEVELOPMENT IN THE AREA OF E-GOVERNANCE

The current development in the area of e-governance is presented in Appendix No. XI. Some of the successful software initiatives by the ICT Cell include Development of Office Procedure Automation (OPA) software for file tracking of Government Departments, intranet software using Linux, Apache, DNS, FTP, LDAP, Proxy and Myself, Computerization of on-line

Tender information System, Computerization of On-line Employment Exchange, Mizoram State Portal, Web mail Server, ICT Website, Mizoram State e-Governance web site, Right to information website etc.

3.8 PROJECT MANAGEMENT

For effective management of the ongoing projects, the Government of Mizoram formed various committees, such as;

E-Governance Steering Committee

The Steering Committee headed by the Chief Minister, responsible for defining the vision, laying down overall policy guidelines, setting the guidelines and periodically reviewing the progress of the implementation process. Minister (IT), Chief Secretary, Secretary (Finance), and Commissioner (Planning) are proposed to be included as members. Other IT expert members can be co-opted by the Committee.

Technical Evaluation Committee

The Technical evaluation committee is constituted under the chairman-ship of Chief Secretary. Other members could be Commissioner (Planning), Deputy Secretary (IT), State Informatics Officer (Mizoram State Unit) etc. who will evaluate the vendors for the products and services offered by them.

Financial Evaluation Committee

The FEC is constituted under the Chairmanship of Secretary (Finance) with Commissioner (Planning), Deputy Secretary (IT) and the concerned nodal officers for evaluating the commercial aspects.

Departmental Acceptance Committee (DAC)

All the implementing departments is required to constitute a DAC with the Departmental Secretary as the chairperson, concerned IT nodal Officer, representative deputed by local NIC State Unit and Director (IT) as members to further oversee the progress of various activities executed by the vendor under the agreed contract. The committee will report the progress of the project on regular basis to Project Review Committee.

Project Review Committee

Project Review Committee headed by the Chief Secretary monitors the performance of various DACs. Other proposed members are Deputy Secretary (IT), Secretary Finance, Deputy Commissioners of the Districts and SIO (NIC) Mizoram State Unit.

3.8.1 Project Consultants

Apart from the Government committees, there is a project consultant, as the third party monitoring agency for the successful implementation and maintenance of MSWAN, who monitors all performances on regular basis and submit periodical reviews to the Project Review Committee.

3.8 .2   Proposed Course of Action

Once the Network design & architecture and the RFP is finalized and approved, Government of Mizoram/MSEGS shall proceed with the Bid process to select the Operator to establish and maintain the MSWAN for the next five years. Government of Mizoram shall also select a third party monitoring agency to monitor and maintain MSWAN for the next five years.

3.9   CONTENT MANAGEMENT SYSTEM

The Government of Mizoram - Content Management System (GoM-CMS) is a state initiative project taken up by the Department of Information & Communication Technology. Due to government centric design, department need not recruit new employees specialized in information technology. Employees without technical know-how are trained by ICT to update and monitor the status of their respective websites.

Website reports for all websites under the Government of Mizoram are usually created three (3) times a year, which is submitted to the Chief Secretary. The Chief Secretary then issued letters to all website owning departments for further actions.

The Initiative

The idea for development of common template which could bring a common looks, layout, features and uniqueness to departmental websites of Government of Mizoram was initiated by Pu Vanhela Pachuau, IAS, the then former Chief Secretary of Mizoram, during his tenure in the year 2012. Thereafter responsibility for the initiative was given to the Department of ICT, Government of Mizoram.

The Development

After the approval of the Government of Mizoram - CMS project, the department started designing the common template which was proposed to be used by all the departments and its offices. Accordingly, a Content management system (GOM-CMS) for Government of Mizoram Version-1 was then developed.

The Department engaged Dumde Inc. for development of Content Management System with a financial support of Rupees 2.5 Lakhs only (Rs. 2,50,000) from ZENICS Ltd. erstwhile the Public Sector Undertakings of Department of Information & Communication Technology (ICT) and a support from Website Management team of ICT were also provided during the development.

The Implementation

The CMS was completed and launch on 20th July 2012. At the beginning it was used for 60 departmental websites and it has been continued to use for 141 Websites under the Government of Mizoram till date without any additional expenditure for supporting the GoM-CMS. It may also be mentioned that the CMS is a hack free System, because defacement of websites from various user departments are not reported till date from the date of implementation. Centralization of security of CMS is also done by ICT Department. MseGS have been awarded 'Scotch Award' in 2016, which is the highest award in the field of IT sector in India, for successful implementation of CMS.

3.10 COMPLAINT/GRIEVANCE REDRESSAL SYSTEM

Courteous and helpful service is being extended by all staff of DICT. If there are any complaints in the delivery of the service provided by this department or any suggestion/feedback, the complainant can contact directly to the Chief Informatics Officer. Also centralized system is available for citizen complaint/ Grievance/ Suggestion/ Feedback redressal service through department website www.dict.mizoram.gov.in.

3.11 PRESENT ICT INFRASTRUCTURE

During the last five years, Mizoram state has made tremendous progress for the development of Information & Communication Technologies and now one of the best ICT infrastructures in the entire NE States. The present

infrastructures of ICT at different layers such as State level, District level and Block level are presented at Appendix No. XII.

To sum up, this chapter deals mainly with the origin, organization and functions and role of the Department of Information and Communication Technology, Government of Mizoram. It also discusses the major projects undertaken by the Department under the auspice of National e-Governance Plan, such as, Common Service Centre, Mizoram Stare Wide Area Network, e-District, State Portal & State Service Delivery Gateway, Digital Land Resource Information System, Capacity Building, State Data Centre and other projects funded by the North Eastern Council along with the existing training infrastructure and current area of development. It also highlighted project monitoring mechanism formed at various levels under the Department of Information and Communication Technology, Government of Mizoram.

CHAPTER-IV

RESULTS AND DISCUSSIONS

In the previous chapter we have discussed the organization, functions and role of the Department of Information and Communication Technology, Government of Mizoram. It has stressed on the implementation of IT projects for making Mizoram Information Technology hub among the North Eastern State of India. And focussed on evolving the government from mere computerization to initiative that summarize the finer points of e-governance, such as citizen's centricity, service orientation and transparency and accountability. The practical approach which has a huge financial savings in cost through core and support infrastructure is the major trust. In this chapter, we will discuss the results on the application of ICT in general and also the projects outcomes and benefits of the Department of Information and Communication Technology, Government of Mizoram, in particular.

The basis of Governance is strongly rooted in the power of strategic information and knowledge. Information and knowledge forms the basis of decision making and action. Informed and judicious decision making depends on the quality and timeliness of information. Citizens are demanding the government to be more open in their interaction with the civil society. They seek access to information and knowledge about the political process, about services and about choices available. The

aspirations and the demands of the citizens in the contemporary governance becomes the primary duty of the government, which can be met with the applications of ICT. The new Information and Communication Technologies and the emerging "information society' are changing the way governments handle information in the policy making process and these changes raise issues for the conduct of democratic government.

The new information and communication technologies have much strength: Speed or compression of time and distance; Informality; Relative ease of access; Targetability and Relative low cost.

As a result of these changes, more information is available affecting the major players in the process of policy making in different ways. The media and interest groups are better informed, political parties become more accountable. And the bureaucracy appears to be increasing its influence as it has the resources to enhance its synthesising and advising role.

The study, however finds out that the ICT has not improved the link to decision –makers or the democratic quality of policy and governance. The IT and the new technologies have done little to enhance democratic values such as frequency and quality of participation or the transparency of policy making and governance. Nor have they improved government credibility. The growth of a confrontational media has done little to advance these values. On the other hand, in positive way, the purposeful use of ICT has the potentials to advance some important issues of

democracy-accountability, political equality, freedom of speech and association, and the treatment and the role of minority.

There are various barriers in the implementation of ICT programme and e-governance in India, such as; technical barriers, such as difficulties of networking, resource barriers, particularly human resources, absence of skilled manpower to handle the latest technology, political & legal barriers, such as lack of adequate legal infrastructure to deal with electronic commerce, trans-border data flows, electronic records keeping etc. Structural barriers- the capacity of the government to introduce and implement various IT project and programme under rigid structural arrangement, data and information barriers, rules and practices that prevent data being shared between different governments departments. Socio-cultural barriers, such as the bureaucratic mindset that may see IT as a tool for government automation, but not as government transformation, lack of understanding about technology and its potentials and the high cost of setting up of IT infrastructure.

However, the biggest challenge in the implementation of e governance solution is not the technology, but the employees and the awareness of the user. The process to involve the employee's right from the design stage to operational stage may be lengthy and cumbersome but essential.

4.1 Projects Outcomes and Benefits

Department of Information and Communication Technology, Government of Mizoram has taken a keen interest from day one in

implementing the policies and programme undertaken under the auspice of NeGP. The result obtained and the working, so far is worth praising.

CSC has benefited the process of government service delivery system and the manner in which people at different locations reap these benefits throughout the state. Now citizens can access public services from their doorstep without having to travel long distances thus, saves time, money and energy. Secondly, CSC was operated by selected Village Level Entrepreneurs'' (VLEs) thus, giving job opportunities to a large number of youths and entrepreneurs at a time when unemployment is one of the problems faced by the state.

Thirdly, internet connection is made available throughout the state which gave opportunities to see the outside world to the people living in villages and remote areas.

Fourthly, different government services can be given out through CSC without opening or establishing various centers which relief the burden of administration, thus, strengthened government to concentrate on policy matters.

Fifthly, it provides opportunity for economic access to information and services to rural citizens. And also it continue to offer a multitude of services ranging in the areas of e-Government, education, health, agriculture, commercial, retail, etc.

At present, the services given out varies with the VLEs accordingly including scholarship, mobile recharge, pan card, financial inclusion, adhaar   services, recruitment etc. ration cards, Photocopy, DTP,

Email/Chats, CD Burning, Printing, Utility/Telephone Bills, Forms downloads/Estimates etc

MSWAN provides better connectivity to government departments and established the require connectivity to government operations in the form of High Speed WAN connectivity. MizoSWAN provides 4Mbps connectivity through WAN to 08 DHQ's and 2Mbps to 25 BHQ/SDHQ's either through BSNL Leased lines. This connection has been utilized by government departments to communicate internally without the requirement of internet facility.

Besides, it provides High Speed Internet connectivity, NIC currently provides 100Mbps to the State headquarter (SHQ) at Aizawl which has been distributed throughout the SWAN. Each District headquarters (DHQ) receives 4Mbps of bandwidth and each Block Headquarters (BHQ)/Sub-Division headquarters (SDHQ) receives 2Mbps internet bandwidth. The total bandwidth provided by NIC can be upgraded if the utilization increases through Horizontal Connectivity, provided the existing infrastructure is capable of handling such bandwidth. Video conferencing has also been established in all the District Headquarters (DHQ's) for which operation can be decentralized at each location. SWAN connects to Horizontal Offices to provide high speed connectivity to government offices.

Departments such as Apex Bank and ZENICS have been provided horizontal connectivity from SHQ and DHQ's. These departments utilize the internet and WAN facility to connect to government applications such as e-District and send reports through email to perform their daily work.

19 BDO and SDO offices in the block level are also provided connectivity through BHQ/SDHQ's to cater to their internet requirements.

SWAN also provides connectivity to e-District which further distributes the connection to line departments that utilize their application. E-District has provided 110 horizontal connections to line departments from the network which they receive from SWAN.

Currently, offices have their own broadband connections which are being paid separately. SWAN provides high speed horizontal connectivity to these departments which can reduce expenditure of departments.

CSC and RIK operators can benefit from SWAN connectivity to enable quick online transactions, especially in villages and remote areas. Further, additional BSNL broadband charges for these locations can be reduced.

e-District already utilizes SWAN to provide connectivity to their line departments. This is expanded to CSC and RIK operators to provide them with low cost high bandwidth connection to enable more services they can provide to citizens utilizing the facility.

Departmental applications hosted in the SDC can be accessed through SWAN internal network which increases the security of transactions made to and from the applications.

Departmental application hosted in the SDC and their private server benefits from SWAN connection in providing users quick access and transactions to their applications. Internal departmental transactions through WAN happen at a much quicker rate further decreasing the turnaround time for every process routed through SWAN.

As SWAN has already covered 42 locations across Mizoram, upcoming e-governance projects can utilize this infrastructure to receive connectivity instead of creating a new network for their operations. This will drastically reduce expenditure in the procurement of new equipment and in establishing new, expensive broadband connections.

Data security is a major concern at present. All departments and outlets that require secured transactions can be routed through SWAN. Since it is a closed network, external threats from hackers are greatly reduced.

One of the goals of the State Government is to cooperate, collaborate and integrate information across different departments in the State. To simplify this task, the concept of e-Governance Service Delivery Gateways has been conceptualized that will act as standards-based messaging switches and provide seamless interoperability and exchange of data across the departments. The portal provides information about Government departments, line ministries, and web links of these departments. It provides information about Government structure in the state, service offerings and key notifications to the business and citizen community. Content Architecture of the Portal is in accordance with State Portal Framework (SPF). The portal is available 24 hours a day, 7 days a week, and accessible from anywhere in the world via the internet. The portal can be accessed via a variety of established channels, including Individual users (through PCs), Common Service Centres, Government Service delivery counters, mobile phones etc. It also exchanges information & services seamlessly across State Government departments.

The State Portal also hosts all the electronic forms for various Government Services accessible to citizens in the State. A citizen can fill the form electronically, both online and offline, through internet services including Common Service Centre (CSCs) outlets and submit his or her application electronically. A citizen can track the status of their application or request at any point of time.

Under Capacity Building Scheme, Mizoram State e-Governance Society(MSeGS) has conducted various training for junior officers, middle level officers and other employees under the Government of Mizoram in the application and dissemination of ICT in the government processes and e-governance in collaboration with national and state level institutions and Organizations, such as NISG/IIPA ,ATI, etc. It also organized national workshop, seminars on administrative effectiveness and e-governance, project management, government re-engineering, Business model, public –private partnership, good governance and other topic relevance to enhance capacity of government employees at various levels.

The SDC is fully equipped to host/co-locate systems e.g. Web Servers, Application Servers, Database Servers, SAN, and NAS etc applications and services of various departments. The centralized servers is used to host multiple applications, repository, provide Secure Data Storage, Online Delivery of Services, Citizen Information and Services Portal, State Intranet Portal, Remote Management and Service Integration, etc., Mizoram State Wide Area Network is adequately and optimally used with

an uptime of 99.97%. Presently, there are eleven applications hosted in SDC viz.

- Crime and Criminal Tracking Network System (CCTNS),

- e-District,

- State Service Delivery Gateway (SSDG) & State Portal (SP),

- C hief Ministers Office interaction web application,

- e-Plan Progressive Application,

- SAD Inventory Management System,

- Zimbra Mail Server 8.X,

- Aizawl Municipal Corporation Property Tax Web Portal,

- CMS (Content Management System), and

- Vigilance Department "Online Property Return Software" Application.

Community Information Centres has two qualified operator to manage these CICs, which provide the following services to the people in the far-flung and remote areas of the state –

- E-mail, web browsing and document printing,

- Imparting IT training to the villagers, school students, staff of BDOs, etc on computer fundamentals and IGNOU/DOECC courses,

- ICT support to district and block administration for office automation,

- G2C services such as support for BPL Survey, Village Council Elections, publication of tenders, notifications, etc,

- Providing entertainment to the local people through telecast of TV programs, and Information services such as online news paper reading, railway reservation enquiry, airline enquiry, hospital enquiry, etc.

National Informatics Centres (NIC), Mizoram has implemented a number of successful Software Projects for Government of Mizoram, especially in respect to portal development for various Govt. departments under the State Government. Some of the important portals developed by NIC include Mizoram Official Website, Website for Transport Department, PWD, Health Department, PIB website, Investment in Mizoram Website etc. NIC has also developed some important websites for Election Office, Bamboo agency, Mizoram House, Mizoram University and for Mizoram Assembly. Certain District websites for Aizawl, Lawngtlai and Saiha Districts are also worthy of mention. Some of the other successful software Projects of NIC includes the Computerization of Mizoram Vehicle Registration 'VAHAN' and the Computerization of Mizoram inner Line permits. Also, a number of software initiatives are underway by NIC, Mizoram.

Some other Computerization initiatives in the State of Mizoram include computerization of Planning Department, Payroll processing system, Personal Information System, E-Learning for Government employees, libraries in Mizoram, General Administration Department Management Information System, and Vehicle Information System, PHE Department, City Civil Court, Citizen Integrated Certificates

Application, Vehicle Statistics Information Systems, Computerization of Treasuries GPF Account. And also the computerization of Police Stations using the Common Integrated Police Application etc. had also kick started to improve the service efficiency with the application of e-Governance.

Key infrastructural projects are also being implemented by the State Government. The State is planning to set up 10 more Community Information Centres in Thenzawl, Zokhawthar, Tlabung, Tawipui, Kanhmun, Zobawk, Kawnpui, Bairabi, Bilkhawthlir and Vairengte in addition to the existing 26 CICs. One amongst the other important infrastructural Projects is the IT professional Development Project to provide International Vendor Certification courses to 400 educated unemployed youths of Mizoram. Mizoram State Government is also planning to implement certain Core infrastructure Projects under the National e-Governance Plan(NeGP), which includes upgrading the State Data centre consisting of Secured Network Infrastructure and Storage Area Network, which will serve as the Data repository at the State Level, Setting up of Common Service Delivery Centres, to enable the common man to interact with the Government and also Back-end Office Computerization for easy and efficient Office administration.

Further, the State has identified and is well geared up to implement around 40 Special projects under Agriculture, Commercial Taxes, Finance and Planning, Food & Civil Supplies, General Administration, Health & Family Welfare, Home, Information and Public Relations, Labour &

Employment, Local Administration, Rural Development, Account and Treasuries, Transport, and Power and Electricity Departments in the coming three years(2006-2009) under NEGP of Govt. of India for promotion of e-Governance on a massive scale. Certain Departments like Agriculture, Revenue, Registration, Commercial Taxes, Finance and Planning, General Administration, Health & Family Welfare, Home, Education, Labour and Employment, etc. are moving ahead with various e-Governance initiatives and are in the process of rolling out various initiatives across the State in the forth coming years.

Besides it is also worth mentioning the projects undertaken by MseGS with the initiatives and supervision of DICT, for facilitating e-governance, such as, Chief Minister Online, this is a project by Chief Ministers Office, Government of Mizoram. The project aims to simplify the interactions by the public and undertake back end computerization to enable IT for the approval or rejection of these grievance reports. This project aims to create an integrated IT platform for Chief Minister Online; citizens can interact with Chief Minister Office by sending query through SMS and by filling up web form wherein a unique tracking code will be given. Status of query can be tracked from the website using tracking code. This application is hosted in Mizoram SDC. It is found very useful and convenient for the public in participating in the governance process as well as for the government to have responsiveness and transparency. Also, it enables the public to interact with the Chief Minister's Office via social networking sites such as Facebook, Twitter, and YouTube for the activities like-

- to know the Chief Ministers Programme;

- to view recent news about the Chief Minister;

- to avail Online grievance redressal system; and

- for Information dissemination.

Besides, Endnet project developed by MSeGS for Excise and Narcotics Department under Government of Mizoram, is primarily used for logging new cases and new accused information, wherein all important information is entered and stored in the database, and viewed on demand and when required. It also provides features for fingerprint scanner and camera for capturing pictures of accused. Endnet allows an option for entering and viewing different States, along with different districts, different Acts, case I/O list, Magistrate list and unique Articles. It also provides cost-efficient and effective utilization of IT saves time in searching huge records and safe keeping of records in digital format. This application is hosted in Mizoram SDC, which provides information and knowledge to the general public immensely.

To assist Forensic Department for better operational efficiency, MSeGS has developed a case tracking system. The case tracking system is a module for the government CMS developed for tracking evidence submitted to the Forensic Department. The system tracks evidence submitted to the Forensic Department and its status can be easily viewed when needed by the officer concerned.

Mizoram House Reservation System is Government CMS Module developed to enable online application of booking rooms in Mizoram Houses. The public accessible area has a form for submitting the details of the applicant and uploading necessary documents. The applicant, after submitting the form, is given an ID to track his booking status. In the backend, the application has to be approved by the GAD Department after which the corresponding Liaisons Officer can approve or reject the applications.

Online Water Billing System is used on all PHE billing counters within Aizawl and has been proposed to be extended to other districts and merged later on. Connectivity will be provided thought broadband depending on the location feasibility. Citizens can pay water bills through PHE website using Credit Card or Debit Card or Net banking anytime and receive confirmation SMS and emails respectively. This eliminates the time spend on having to stand in long queues in billing counters and provides flexibility of time in paying bills. SMS notification is also integrated with this system to notify citizens the time of water distribution in their areas.

Inventory Management System (IMS) is a project initiated by Mizoram State e-Governance Society for Secretariat Administration Department (SAD), Government of Mizoram. The project envisaged to provide better inventory system and enable the approval of certain indent items to the concerned department's officer through appropriate automated system. It also aims to create an integrated IT platform for all government departments, to use IT primarily to maximize the efficiency in

management and requisition of inventory by providing tools to assist in automating the process, which would otherwise have to be performed manually. The focus of the project is mainly monitoring and maintenance of the inventory within the department. It is important to reiterate that emphasis of this initiative by the department is on the services and not on mere computerization. The program helps the concerned officer in overseeing the management of inventory from a back end. It also provides a means of eliminating uncontrolled indents and keep track of items so that frequent losses are reduced. This application is hosted in Mizoram SDC.

The Mizoram Government Content Management System (CMS) is an online platform for all government department websites. A content management system (CMS) is a web application that allows publishing, editing and modifying content, organizing, deleting as well as maintenance from a central interface. CMS can be bundled or stand-alone application to create, deploy, manage and store content on Web pages. Additional features can be added to the existing CMS which makes it versatile for all types of web pages. Such systems of content management provide procedures to manage workflow in a collaborative environment for all government department websites. CMSs typically aim to avoid the need for hand coding for varied websites. A CMS serves as a digital asset management system containing documents, videos, pictures, phone numbers, and personal data. CMSs can be used for storing, controlling, revising, semantically enriching and publishing documentation. A Web CMS can catalog and index content, select or assemble content at runtime,

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or deliver content to specific visitors in a requested way, such as other languages. Web Content Management System's usually allow client control over Hypertext Markup Language - based content, files, documents, and Web hosting plans based on the system depth and the niche it serves.

The content management system (CMS) has two elements:

- Content management application (CMA) is the front-end user interface that allows a user, even with limited expertise, to add, modify and remove content from a Web site without the intervention of a Webmaster or Admin.

- Content display application (CDA) compiles that information and updates the Web site.

Revenue Tax Calculation and Surveyor Detailing , is initiated by Mizoram State e-Governance Society (MSeGS) for Land Revenue and Settlement Department, Government of Mizoram. This application is hosted in Mizoram SDC. Revenue tax calculation is done by entering Document information of Category (Agriculture Land LSC or House Side LSC) along with Grade (1, 2 and 3) and Land Information of Area and Unit (Square meter or hectare). Surveyor detailing provides internal schedule time table for each surveyor.

The MSeGS has taken up Zonal Tank Water Level Detection System, the main goal of this project is to measure, record and monitor water level of each zonal tank. A tool for statistical analysis of water resource distribution is available on the website Siktui.mizoram.gov.in. A central

monitoring system for which necessary input & output signals, sensors and transmitters is provided along with suitable monitoring system based on Ultrasonic Range Finder and Arduino technology. This equipment is powered by solar panel through a charge controller with a 12v 7ah battery backup. Zonal Tank Water Level Detection System provides 24X7 real time monitoring of each tank water level and volume through a central monitoring base control room. This project minimizes water losses from an un-monitored tank by developing the water level detection technology which will prevent an over-flow of water. It also enables uniform distribution of water resource to all zonal tanks. The ultimate objective is to make processes and information more transparent within the concerned Government's Department by providing tools for statistical analysis of water resource distribution.

The Department initiated e-Plan which is a project by Planning and Program Implementation Department, Government of Mizoram, hosted by State Data Center. The project simplifies the submission of Quality Project Report (QPR) by various departments, and undertakes back end computerization to enable the approval or rejection of these reports. e-Plan provides enabling IT for internal processes of the Department to increase functional efficiency. It helps to automate workflow and internal processes of the Department. It also provides seamless integration of various departments with the Planning department-by using a single database for all QPR submission. Moreover e-plan also provides easy access to the Department services to other government departments.

Facilities for generation of reports both manually and automatically are an important feature of e-plan.

Tourism website project is also initiated, to revamps and redesigns the current Tourism website with more aesthetic, responsive, easy-to-use, appealing user interface and adding functionalities for online bookings for Tourist Lodge and Guest House. The website provides list of Places of Interest, Events and Festivals inside Mizoram, Adventure activities and Tour packages.

Property Return Online System (PROS) is a project initiated by Mizoram State e-Governance Society for the Vigilance Department under The Government of Mizoram. This system is designed to maximize the efficiency in keeping record of property of all the gazette officers by providing tools to assist in automating the process, which would otherwise have to be performed manually. By maximizing the work efficiency and production the system will meet the department's needs while remaining easy to understand and use. The home page of the website enables the user to view property returns statement upon filtering the department name, office name and year. A list of all Departments, Officers and submissions can be viewed. It also provides a convenient way for filing annual property returns and as a result promotes transparency and efficiency within the Government.

School mapping is a project that maps the location of all schools under the Government of Mizoram and provides the exact latitude-longitude location of each school on Google Maps. It also shows the number of teachers and students in a specific school, detailed information of all the

teachers and students is available to be viewed from the administration account. It developed application for School Education Department www.cleanmizoram.com that won 'North East Social Impact Award' on 28.08.2015 organised by North Eastern Development Finance Corporation (NEDFI) Guwahati.

Detailed Project Reports(DPR's) for certain other key initiatives like Mizoram Capacity Building, Computerization of Employment Exchange, Treasuries and Accounts Department, Labour and Employment Department, Department of Rural Development etc. have also been submitted by the ICT Cell of the State Planning Department to the DIT, Govt. of India for due consideration and appropriate funding for implementation of the same. Also, the DPRs for certain other key Departments are under preparation.

Recently, with the initiative of the ICT Department, Urban Development and Poverty Elevation Department, Government of Mizoram has opened e-Office, to be the first e-Office under the Government of Mizoram where all the transactions of UD&PA can be accessed online. The Department has faced few challenges and problems in regard to the following issues.

Personnel Problems

The Department of Information & Communication Technology was upgraded to full fledge Directorate in 2008. The Department is headed by a Chief Informatics Officer, initially; it was the only permanent post. The rest of the posts in the department were filled up either by Contract or

Muster Roll basis only. The projects entrusted to the Department has been increasing, it has taken up several IT enabled services and e-Governance projects, besides day to day administration, the department is also looking after viz- Mizoram State e-Governance Society (MSeGS) which is an Autonomous Society under the Govt. of Mizoram to support and implement the various project undertaken by the Department. There is shortage of human resources from the technical as well as establishment section, which hampers the working of the Department. Proposal has been made to the Government of Mizoram in this regards for regularization of Contract/Muster Roll employees who are eligible under the respective *Regularization of Contract/Muster Roll Employees Mizoram Schemes,* subject to availability of vacant post. However, the Government is slow in responding to the proposal till date.

Funding Problems

The Department of ICT has been taken up various NeGP projects for promotion and implementation of IT enable services and e-Governance by using ICT infrastructures for better and quicker delivery of services to the citizens. All projects were smoothly functioning when the Department is receiving funds from Department of Electronic and Information Technology (DeitY), Government of India. However, information was received from DeitY, Government of India, stating that NeGP schemes has been delinked from the current financial year 2015-2016 and all funds have been stopped from Central Government. The Govt. of India,

Department of Electronics and Information Technology (DeitY)[1] stated that fund has not been allocated for projects under NeGP schemes like SWAN, SDC, CSC, e-District, SSDG during 2015-16 and advised necessary budgetary allocation will be made from State Government for smooth functioning of these schemes. The Department is in dilemma and tried to receive funds from the State Government for continuity of these projects and submitted various letters to Planning & Programme Implementation Department for allocation of fund.

Recently, the Government of India, Department of Electronics and Information Technology (DeitY) informed the State Government that for continuation of NeGAP schemes, the funding pattern shall be shared 80:20 between Central and State as per the decision of Department of Expenditure, Ministry of Finance and requested to exercise option of the proposal offered and send confirmation[2]. If information is not received in time, then it is natural that the ongoing projects work may not be completed as per schedule.

Policy Constraints

The Department has also faced problem regarding the closure of ZENICS with effect from 31st December, 2015. ZENICS is PSU under the Department of ICT and the Govt. of Mizoram entrusted this Corporation to look after e-Governance projects under National e-Governance Plan such as Mizoram State Wide Area Network (MSWAN) & Common

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[1] Letter No.4(5)/2014-EG-II dated 8.5.2015   and   D.O No.11(2)/2014-EG-II(pt.II) dated 31.7.2015
[2] Letter No.4 (5)/2014-EG-II dated 20.11.2015

Service Centre (CSC) and also NEC funded schemes like Rural Information Kiosks (RIK) and IT Education Programme for 100 Schools. These NeGP projects and NEC funded schemes are time-bound schemes to be completed within a specific period. ZENICS plays an important role for smooth running and implementation of various projects. The Govt. of Mizoram takes necessary action for appointment of implementing agency from another corporation/society so as to run the on-going projects smoothly. This kind of action causes delay in implementation of the projects.

Connectivity Constraints

The application of ICTs requires efficient power supply. Lack of consistent and affordable electricity is the single greatest challenge in designing a computing infrastructure for rural services relating to informatics and other applications. Power supply is usually extremely unreliable or so unstable that it poses a threat to unprotected electronic equipment. In many cases, generators are used for uninterrupted services. However, increasing fuel costs and on-going maintenance problems mean that generators are seldom run for more than a few hours a day are prone to abrupt and unannounced failure. Alternatives such as solar panels are simply cost prohibitive when deployed to support standard computing hardware.

Besides, the climatic condition of Mizoram poses a lot of connectivity problems. During rainy seasons the state often faced unforeseen natural calamities particularly landslide, which disrupted the Internet facilities.

And also due to constant power failure and load shedding added the problem.

The major service providers, namely, BSNL, area of connectivity concentrated mostly in the urban areas and some nearby semi urban areas, which creates a problem of connectivity for many rural populations.

e-Readiness Problem

The application of technology bombarded the Government, and also the people who are engaged mostly in agricultural sector with the latest technologies. The level of e-readiness was almost nil at the time when the government was forced to adopt these new challenges. Neither the Government nor the people are ready to handle such challenging transformation.

Digital Divide

Digital divide that exists between the rural and urban areas and between the rich and the poor brings a sharp digital divide in the level of awareness of technology and its application.

In this chapter, we have discussed in details, the positive and negative impact of ICT in general, such as digital divide, e-readiness, infrastructure problems. We have also discussed the positive outcomes of various projects undertaken and problems and challenges faced by the Department of Information and Communication Technology, Government of Mizoram.

CHAPTER-V

CONCLUSION

The present chapter is divided into two parts. The first part contains a brief summary of all the previous chapters. The second part discusses the research questions and general conclusion. It highlights the major findings of the study. And it also contains possible solutions and measures to be taken for effective implementation of ICT in the governance system under the Department of Information and Communication Technology, Government of Mizoram.

PART-I

The dissertation has been divided into five chapters. The first chapter starts with the conceptual framework of ICT and e-governance, how it has influenced the evolution of a society and as a consequences; nature of the government. And we have also discussed how Information and Communication Technology shaped and redefine the government processes in general and in particular delivery of government services. It has also stressed on how ICT can be an effective instruments to enhance the capacity of the government and other stakeholders.

The second chapter has focussed on the application of ICT at the international level, mainly under the United Nation, and few countries where ICT has taken its root such as USA, UK and New Zealand. It brings out the United Nations e-Governance Plan for India, and how the

Government of India took the initiatives to direct its attention on e-governance and good governance, with the use of ICT as the major instrument. National e-Governance Plan has been highlighted along with its progress of implementation and observations.

The third chapter discusses the organisation and functions and role of Department of Information and Communication Technology, Government of Mizoram. It has also highlighted the major projects which have been implemented by the Department under NeGP, such as, Common Service Centre, Mizoram State Wide Area Network (MSWAN), e-District, State Portal & State Service Delivery Gateway, Capacity Building, State Data Centre, Mizoram State e-Governance Society, etc, along with their objectives and financial conditions which are shown at the appendices.

The fourth chapter contains the results and discussion on the projects being implemented and facilitated by the Department. It discuss mainly on the outcomes of the project and its impact on the people at large. It also focuses on several government departments under the Government of Mizoram, which has been under the process of transforming from a traditional mode of service delivery to digitalised or computerised mode of delivering services. In addition to the projects, we have also discussed the general observation of the application of ICT and e-governance and the barriers that occurred in the process of actual implementation.

PART-II

From the light of the present study, it may be ascertained that no reliable study has been done relating to the organization and functions of the Department of Information and Communication Technology, Government of Mizoram. The present study has articulated that the Department has undertaken various projects under the auspice of the National e-Governance Plan (NeGP), funded by the Department of Electronic and Information Technology (DeitY), Government of India. It also takes up projects in collaboration with other public and private companies, such as BSNL, and at the same time looking after and working with Mizoram State e-Governance Society (MSeGS) for the implementation of various projects.

The Department of Information and Communication Technology, Government of Mizoram came into being as a separate Department in the year 2008. The administrative set up of the Department was not defined at the time of inception. Initially, one gazetted officer on deputation looks after the whole administration, who was assisted by an assistant, LDC, and a peon. The size of the Department was small. All matters relating to the Department was handled mostly by the Principal Informatics Officer, now designated as Chief Informatics Officer (CIO).

At present, the Chief Informatics Officer is assisted by, Principal Informatics Officer, System Analyst, System Integrator, System Engineer, System Administrator, Network Administrator, Web Content Developer,

System Operator & Network Engineer, Computer Maintenance Engineer one incumbent in each post. They are supported by five Computer Operators, one Technician along with establishment officer namely Deputy Director (admn), and other management staff such as FAO, Superintendent, Assistant, UDC, LDC and IV grade staff. The Department have 44 posts, out of which only 11 posts are occupied by permanent staff and the rest of the staff are appointed on temporary basis. Besides, there are four posts lying vacant, out of which three posts is a gazetted post and one post is group B post.

We have tried to give answers to the first research question: what is the rationale behind the use of ICT and e- Governance? We see governments, businesses and NGOs working together to bring about e-governance. e-governance inevitably embraces and is driven by new models of policy formulation, new forms of citizenship, new pattern of relationship and power, new option for economic development , and the search of new ways to connect people with the political process. Accountability of the government towards the citizens in providing reliable information continues more effectively with the use of ICT. Public managers are increasingly attends to these system to enable the government and empower the people. Despite the extensive use of ICT in dissemination of information to the general public , public organizations use ICT to be more accountable to the central government or to aid donors and less accountable to the general public. Electronic accountability therefore starts with stakeholder values, culture and self reliance.

The progress of a country depends on the quality of its governance. While the democratic government may lay the foundation for good governance, vigilant and active citizens are required for its sustenance. The quality of governance is enhanced when government as a whole and public agency in particular becomes open to new ideas and responsive to citizens. Responsiveness in turn is improved when citizens are well informed and collectively seek better performance from these agencies. ICT becomes the most important tool for change management in responding to the needs of citizens in the contemporary world.

However, it is true that e-governance in India was initiated in an environment where new ICTs were adopted by different countries. It was therefore required to go through a period of intense experimentation. It is the credit of the early leaders of e-governance in India that they did not shy away from this imperative of investing into what were mostly time and resource-intensive experiments. However, it is time now to consolidate our experiences and begin to take a more strategic and systemic view of governance reforms in India in general and that of Mizoram in particular. A clear vision and policy for this purpose is a prerequisite. Such a policy should also assign relevant role to government agencies and departments that provide technical lead and support, and that provides governance reform vision, generic process principles and guidelines, and the departments that actually undertake e-governance activities in their respective areas of competence and work. It has also aligned e-governance with overall thrusts of governance reform in India,

like, decentralization, right to information, and community monitoring and social audits.

The second research question is: what are the functions, processes and role of the Department of Information and Communication Technology, Government of Mizoram? The study reveals that the Department has undertaken many projects under the NeGP, such as, Common Service Centres (CSC), Mizoram State Area Wide Network (MSWAN), e-District, State Portal & State Service Delivery Gateway, State Data Centres (CDC), Digital Land Resource Information System (DLRIS), Capacity Building at the project level and targets; Community Information Centres (CIC's), and Departmental Service Centres, along with North Eastern Council's funded projects. The main function of the Department is to create an environment of transparent, accountable, accessible governance for good governance. And it also tries to enhance the capabilities of the government to work in line with good governance. It has taken a number of steps to make the vision of e-governance a reality.

The creation of SDC consolidated services, application of ICT to provide efficient electronic delivery of G2C, G2G and G2B services. It provides a world class Data Centres with adequate space for storing the information and services provide by the government in a secured environment. The Centre acts as a mediator and convergence point between unsecure public domain and sensitive government environment. It has transformed governance system since it is fully equipped to host or co-locate systems e.g. Web Servers, Application Servers, Database

Servers, SAN, and NAS etc. The centralized computers or servers are used to host multiple applications, repository, provide Secure Data Storage, Online Delivery of Services, Citizen Information and Services Portal, State Intranet Portal, Remote Management and Service Integration etc.

Mizoram State Wide Area Network is adequately used with an uptime of 99.97 p.c. to connect the State Headquarters Network Operating Centre (NoC) at Aizawl, the state capital, 8 Districts and 33 Block Headquarters. It aims at designing and implementing the Information Highway for e-Governance applications. It uses the latest technology to improve administrative efficiency. MSWAN is envisaged as the backbone network for Data, Video, and Voice Communication throughout the state and for all Government Operations. It enhances connectivity capacity of the government.

One hundred and thirty six Common Service Centres have been set up across the state. They act as the front-end delivery points for government, private and social sector services. They have been developed as platforms that enable all stakeholders to align their social and commercial goals for the benefit of the rural population through a combination of IT based as well as non-IT-based services. Documents like Caste and Tribal Certificates, Residential Certificate, Income Certificates and Inner Line Permit etc. can be easily obtained from these CSC which facilitate the interface between the citizens and the Government.

Rural Information Kiosk (RIK) enabled service delivery outlets for three hundred villages provide wide range of government services at the rural areas. The equipment available in the outlets promotes awareness and education of the people in the villages about the facilities and services provided at their doorsteps.

Both State Service and Delivery Gateway and State Portal enable the citizens to download forms and submit their applications electronically with the help of Electronic Forms hosted by the State Portal and routed by SS&DG. Such facilities provide significant benefits to the citizens and form a single gateway to citizens for service delivery. Projects such as e-District for automation of workflow and internal process of district administration and integration of various government departments have enabled the district level with appropriate Business Process Reengineering mechanism.

The Department of ICT, Government of Mizoram provides Website hosting and consulting services for Government Departments within the State with Content Management System. More than one hundred and twenty five Government website are hosted till November 2016. These web services are provided without any extra costs which significantly save the financial resources of the state government. An Interactive Digital Class Room for the progress of science and mathematics education in the state is created for interactive digital learning at twenty schools, three class rooms in each school. It is found to be beneficial to the students for inculcating interests in the subjects. The training programmes organised by the Department for officers and staff of state government and Public

Sectors Undertakings, and MLAs and Central and State government officials in the art of computer application, office automation and Internet applications has enhanced the capacity of the government in the application of ICT.

Portals and Software developed by NIC such as, Mizoram Official Website, Website for Transport Department, PWD, Health Department, PIB website, Investment in Mizoram Website, Computerization of Mizoram Vehicle Registration 'VAHAN' and the Computerization of Mizoram inner Line permits etc, contribute much to the efficiency of government services.

The Government of Mizoram is committed to capacity building for the implementation of e-governance projects and services. Accordingly the state has set forth strategies that cover three key action areas of human resources, system management and infrastructure development. It also proposes the strategies that can be carried out through partnerships at a number of levels like service providers, their field workers and local programme partners. It is a promising move towards e-governance.

The twenty six Community Information Centres (CIC) available within the state of Mizoram has extended the benefits of global connectivity through Internet. They also bring the region closer to the national mainstream by enabling more efficient and faster information flow among the citizens. CICs also help the state government in implementing IT-based citizen-centric applications that empower the citizens in many ways.

The Department of ICT, Government of Mizoram has implemented Online Water Billing System which has been used in all PHE billing counters within Aizawl. It has been proposed by the state government to be extends this facilities to other districts. Connectivity will be provided through broadband or GSM depending on the location and feasibility much to the advantage of the citizens.

The state has identified around forty special projects for promotion of e-Governance on a massive scale. A number of departments are moving ahead with various e-governance initiatives and are in the process of rolling out the schemes by the year 2017 across the state. Among all the departments utilising ICT under the Government of Mizoram, the Taxation Department is frontrunner in utilising ICT in their work procedures. This Department operates an Online Portal where e-registration, e-way bill, e-payment e-return etc can be filed and complied with.

A few public as well as private players have established their presence in the field of telecommunications in the state of Mizoram. The major player among them is BSNL. It has laid down infrastructural facilities in almost all the districts to facilitate the telecommunication services.

The state has also established IT Entrepreneur Development Training Centre for giving intensive training to two hundred educated unemployed youth within the state. This has contributed to IT- skill development among the youth of Mizoram for sustainable self employment. Facilities like CM *Online* initiative promote the use of IT

for transparency and active people's participation in the governance system. All the e-services like are facilitated and monitored by the State Data Centre, but the citizens take the initiatives available under MSeGS with the help of the ICT infrastructure.

Before the introduction of the Government of Mizoram-Content Management System, websites of various departments under the Government of Mizoram were developed through an Open Source CMS like Drupal, Joomla or WordPress etc. However, by using those CMSs many of department faced security issues because of the high interdependency in web security between the User Department and the Open Source CMS. Many of the website was hacked and defacement reports were recorded during that time. Since all of the departments had used different Open Source Content Management Systems, depending on the choice of their technical staff in the department, they were developed differently according to their own ideas. It resulted in problems regarding centralization and uniqueness of departmental websites under the Government of Mizoram in terms of the layout, features, contents and many other aspects. Moreover, common training could not be conducted for those departments because of the use of different CMSs and software. GOM-CMS is coherent with the Digital India programme of the central government. This project is of paramount importance to the state as it helps in creating an automated workflow system for the web administration for all the departments of Government of Mizoram. It helps in providing efficient and valuable services through these websites

The state has completed the e-Governance Road Map and Capacity Building Road Map which provide a strategic plan for the Government of Mizoram to enhance the capacity of the government departments and other nodal agencies. It would facilitate competent, holistic, cost-effective and citizen-friendly e-governance services.

The last research question is: what are the challenges and problems of Department of ICT and the possible solutions? The Department faces administrative problems due to the shortage of adequate and appropriate manpower. The present requirement of staff is mostly filled by recruiting temporary personnel. This results in less attachment of the staff to the Department and less accountability towards project implementation. It clearly reduces the effectiveness of the Department. Secondly, information was received from DeitY, Government of India, stating the delinking of NeGP schemes from the financial year 2015-2016 and stoppage of funds in this respect. It would cause constraints for the Department in delivering services.

Thirdly, the central government has also informed that all NeGP projects will be receiving the funds on 80:20 ratios between centre and state governments beyond the financial year 2015-16. Prior to the notification all such projects have received 100 p.c. funding from the Central Government. This situation would contribute to dislocation of e-governance facilities and services in the state.

Fourthly, the closure of ZENICS with effect from 31st December, 2015, has resulted in slow progress of the projects. NeGP projects and NEC funded schemes are time-bound activities to be completed within a

specific period. Decision like this affects the smooth functioning of the Department of ICT. Fifthly, the Department encounters connectivity problems in regard to shortage of power supply. Unreliable and unstable power poses a threat to electronic equipment. Besides, the climatic condition of Mizoram poses a lot of connectivity problems, particularly during the monsoon season.

After discussing some of the major problems and challenges face by the Department of Information and Communication Technology, Government of Mizoram. We may discuss some of the suggestion emanating from the present study which might facilitate effective and efficient e-governance services.

The Department of ICT, Government of Mizoram needs to have regular and permanent employees to enhance accountability and service provisions. The vacant posts may be filled up either through direct recruitment or regularization of the present contract or muster roll employees. Regularization of the present muster roll employees may be preferable as they have experience in the Departmental projects and procedures. However, new recruitment may also be made, as per government rules, where the expertise and qualifications of the existing employees are found to be inadequate. The government of India may be requested to reconsider the funding pattern of NeGP and NEC funded projects by looking into the financial position of the state government.

It is also suggested that the infrastructure and the technologies which are available at the Department need optimum utilization. Many types of equipment have been lying unutilised or underutilized. The Department

may be train the employees in more effective way to handle the assigned tasks. Even though new version of technology have come up, the present infrastructure is sufficient enough to manage the required changes without much problem or dislocation of the services. Besides, the road-map for e-governance in Mizoram may be implemented with the help of realistic schemes or steps.

It may also be suggested that the Department may take a more active role in creating People-Process Technology (PPT), for which people's awareness about technology has to be increased. They have to be prepared and trained to make use of the available technology in getting services from the government. At the same time the government process needs to be transformed and adjusted to a desirable extent to adapt to technological innovations. Moreover, the public need to be trained for using the ICT resources and at the same time they should be motivated and educated with regard to the importance of using e-government techniques. The basic fear regarding the data security, personal information security and other resource security needs to be removed from the public mind.

For a wider publicity of the importance of the use of ICT and e-governance, radio and television talks, print media, citizens' charter and workshops on ICT may be useful. It is also suggested that the Department may prepare documentary films that cover the entire activities and projects undertaken. Wide publicity of their schemes and projects may be made by the Department.

Some of the ongoing projects funded by the central government will be discontinued in the coming years begins with 2016-17,, such as MSWAN,

SDC, SSDG in 4 years and e-District in 3 years. The Department and the State Government have to sustain themselves from that time onward. In order to maintain stability and continuity of the Department, the decision making authorities and the engineers in particular may have a vision plan and projects that would sustain the Department. They may have to create a Business Model which, simultaneously, may have time line and cost evaluation. Such a business model has to have a win-win situation for the stakeholder's including the Government and the citizens.

Besides, to handle the problem of connectivity due to unreliable power supply, the logical immediate answer lies in low-power-consuming hardware. Hardware now exists that is cost-effective to run on solar or other renewable energy or in partial-grid power.

The basic requirement for successful e-governance is the best possible internet service. However, there is a need to expand these facilities to all the districts within the state. The BSNL, the major service provider of broadband connections may extend the facilities to all areas. The dial up and fixed broadband lines need to be increased by providing sufficient technical support. The authorities may also have to collaborate and outsource its services using other service providers such as Airtel and Reliance to an optimum level.

To enhance the capacity of the Government in dealing with the connectivity problems, the mobile services may be utilized for dissemination of information about services available. Again, mobile services may be upgraded to meet the required high standards.

Authorities are required to take proper steps to improve administration. There may be facilitation for a wide range of government services. The constraints in using e-governance due to a number of legal, social, organizational, technological problems and challenges need to be addressed properly. Also another the major concern for e-governance is the security issue. It involves issues like cyber security, cyber crime and safety of the individual data and personal information.

The government needs to consider various basic factors suggested by the United Nations and other benchmarking agencies. The most important issue in implementing successful e-governance is the citizens' acceptance and usage. The awareness related to e-governance strategies and methods should be created among the citizens. And at the same time, the government needs to develop the system that reflects the stakeholders' requirements and values.

The Department of Information and Communication Technology, Government of Mizoram has achieved a number of objectives and vision despite various challenges and problems. It has gone a long way in the implementation of the projects under NeGP, and in providing transparent, reliable, accountable and accessible services to the citizens. It has also enhanced the capacity of the government from a mere computerization of work procedure to more responsive and transformed processes, which save time, energy and capital of the citizens as well as the government agencies. However, there are certain areas where the Department of Information and Communication Technology, Government of Mizoram needs to improve its working for effective implementation of the projects.

There are also problems that need to be addressed by the Government of Mizoram to strengthen the Department in order to make Mizoram an Information and Communication Technology Hub in the North Eastern Region of India.

After studying the origin, development, functions and the role of the Department of Information and Communication Technology, Government of Mizoram, it may be concluded that with a view to facilitating e-governance services, the State Government may concentrate on regular and optimum utilization of the available ICT infrastructure, capacity building and skill development of the personnel: intra-governmental e-governance interactions; use of more and more user friendly and citizen-centric e-governance services and facilities which would go a long way in ensuring good governance as well as effective participation and empowerment of the citizens.

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APPENDICES

Projects Under MSeG   **Appendix No. I**

S/N	Description	Owner of the Department	Beneficiaries	Status	Software Cost in Rupees
1	Forensic Department Case Tracking System	Forensic Dept.	Forensic Dept.	Completed	7,50,000.00
2	Mizoram House Reservation System	GAD	Citizen	On going	19,50,000.00
3	Rectification of Water Billing System	PHE	PHE & Citizen	Completed	27,00,000.00
4	Inventory Management System	SAD	SAD	Completed	2,41,20,000.00
5	CM Online	CM Office	Citizen	Completed	1,48,50,000.00
6	Content Management System	ICT Dept.	All Govt. Dept.	Completed	4,65,00,000.00
7	Revenue Tax Calculation of Surveyor Detailing	Revenue	Revenue	Completed	33,15,000.00

8	Zonal Tank Water Level Detection System (Siktui)	PHE	PHE	On going	52,60,000.00
9	e-plan	Planning	All Govt. Dept.	Completed	1,63,20,000.00
10	ENDNET	Excise and Narcotics	Excise and Narcotics	Completed	70,50,000.00
11	Tourism	Department of Tourism	Citizen	On going	80,00,000.00
12	Property Returns Online	Vigilance Department	Government Officers	Completed	54,77,500.00
13	School Mapping	Directorate of School Edn.	Teachers and citizens	Completed	90,35,000.00
14	Leave Application	Dept. of ICT	Employees	Completed	20,40,000.00
				Grand Total	**14,73,67,500.00**

Source: www.dict.mizoram.gov.in accessed on 10.09.2016
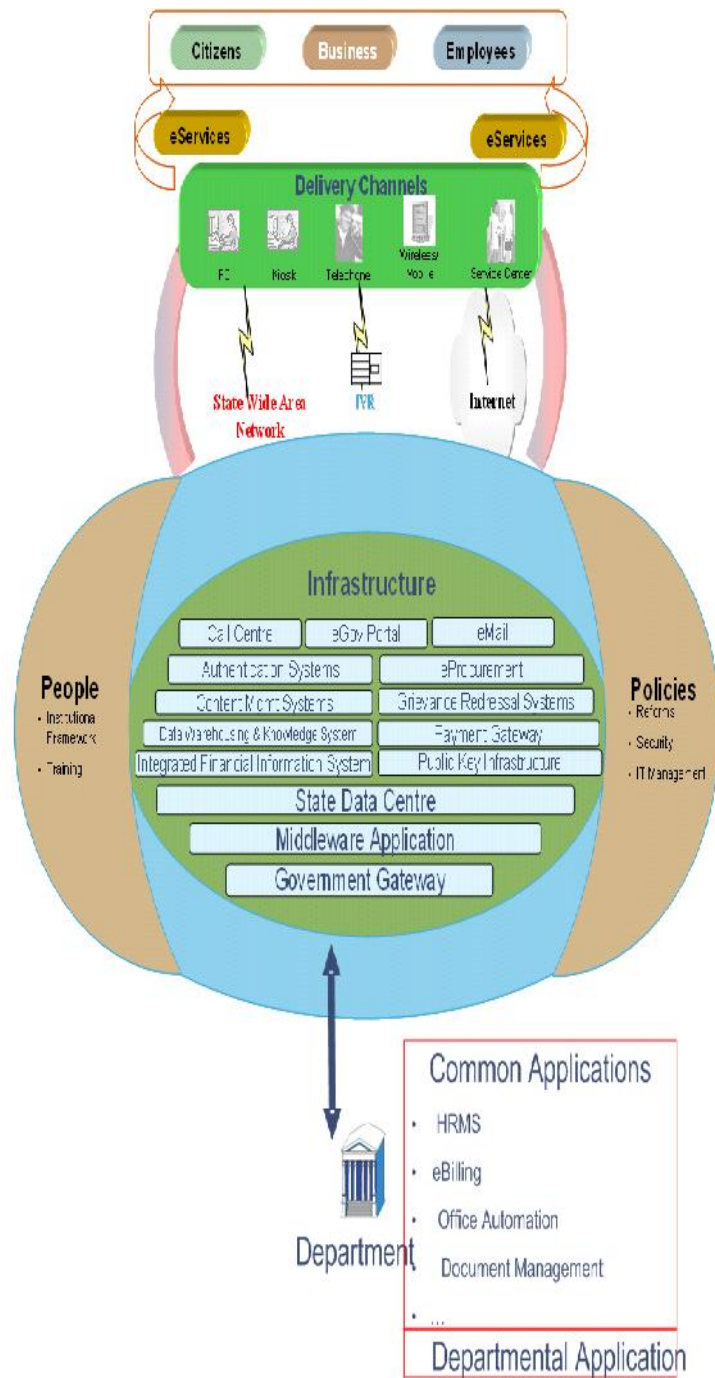
Source: e-Governance Roadmap for the State of Mizoram, DICT, GoM, 2016

Project Cost Summary for CSC   **Appendix No. III**

Sl.No	Components	Amount (in Lakhs)
1	Total Budget Outlay	Rs.494.00
2	ACA component	Rs. 247.00
3	GIA component	Rs.247.00
4	Fund already released (as on August, 2015)	Rs.330.69
5	Balance to be released by DeitY	Rs.163.31

Source: ICT Document, Mizoram 2016

Project Cost Summary for MSWAN   **Appendix No.IV**

Sl.No	Components	Amount (in Lakhs)
1	Total Budget Outlay	Rs. 2059.00
2	ACA component	Rs. 1463.00
3	GIA component	Rs. 596.00
4	Fund already released (as on August, 2015)	Rs. 1188.91
5	Balance to be released by DeitY	Rs. 870.09

Source: ICT Document, Mizoram 2016

Project Cost Summary for E-District   **Appendix No.V**

Sl.No	Components	Amount (in Lakhs)
1	Total Budget Outlay	Rs.1923.57
2	ACA component	Rs. 479.50
3	GIA component	Rs. 1444.07
4	Fund already released (as on August, 2015)	Rs. 1564.61
5	Balance to be released by DeitY	Rs. 358.96

Source: ICT Document, Mizoram 2016

Project Cost Summary for SSD   **Appendix No.VI**

Sl.No	Components	Amount (in Lakhs)
1	Total Budget Outlay	Rs. 883.62
2	ACA component	Rs. 441.81
3	GIA component	Rs. 441.81
4	Fund already released (as on August, 2015)	Rs. 576.83
5	Balance to be released by DeitY	Rs. 306.79

Source: ICT Document, Mizoram 2016

CAPACITY BUILDING TARGETS FOR MIZORAM   Appendix No.VII

Phase I (Year1) – As per Phasing Proposed in the State e-Governance Roadmap

- Issue of a Capacity Building Handbook by the SeMT to all State Government Departments including mandatory allocation of 1% of the departmental budget on IT/e-Governance Training
- Finalization of the Training Calendar and Finalization of the State Budget for Training
- Institutionalization of the position of CIOs and CTOs across the departments offering services in the first phase.
- Finalization of all the strategic partners for implementing the capacity building programme
- Hiring of the people for the SeMT
- Creation of the Project e-Governance Mission Team for all the phase 1 services
- Training and Placement of CIOs and Dy. CIOs across 13 participating departments
- Appointment of Chief Technology Officer as part of PeMT (either from within the department or by hiring from outside) in the departments offering phase 1 services
- At-least One training/orientation programme /study tour for all the members of the State e-Governance Council
- 2 Day Orientation Programme for all the members of the State Apex Committee
- Minimum 5 Day Training programme for the Project Leaders across the departments whose services fall in the first phase.
- 2 Week mandatory training programme for all the members of the Project Implementation Team for the Phase I departments across the State – in case they have not gone through Premier I and II Training.
- One week orientation / study tour for the Minister In-charge and Head of Department of the Phase I departments in case they are not covered under the State e-Governance Council or State Apex Committee
- 15% of all the employees of the Phase I Department to undergo basic Computer Training
- Appointment of at east one IT Assistant (as part of PeMT) to the Head of Department of all the Twenty four priority departments for providing on the job "IT Support".

Phase II (Year2) – As per Phasing Proposed in the State e-Governance Roadmap

- Creation of the full fledged Project e-Governance Mission Team in the departments offering services in phase 2.
- Training and Placement of CIOs and Dy. CIOs across all the departments
- Appointment of Chief Technology Officer as part of PeMT (either from within the department or by hiring from outside) in the departments offering Phase II services
- Minimum of 5 Day Training programme for the Project Leader across the departments whose services fall in the second phase.
- 2 Week mandatory training programme for all the members of the Project Implementation Team for the departments offering Phase II services.
- One week orientation / study tour for the Minister In-charge and Head of Department of the departments offering services in the first phase, in case they are not covered under the State e-Governance Council or State Apex Committee
- 50% of all the employees of the participating Departments to undergo basic computer training

Phase III (Year2/3) – As per Phasing Proposed in the State e-Governance Roadmap

- Creation of the full fledged project e-Governance Mission Team in any of the participating department left untouched after 2 years.
- Appointment of Chief Technology Officer as part of PeMT (either from within the department or by hiring from outside) in the departments offering services in phase 3 and 4.
- Minimum of 5 Day Training programme for the Project Leader across the departments offering services in phase 3 and 4.
- 2 Week mandatory training programme for all the members of the Project Implementation Team for the departments offering phase 3 and phase 4 services
- One week orientation / study tour for the Minister In-charge and Head of Department of the 40 participating departments in case they are not covered under the State e-Governance Council or State Apex Committee and have not been able to avail training in the previous year.
- 90% of all the employees of the participating departments to undergo basic Computer Training

Source: www.dict.mizoram.gov.in accessed on 3.09.2016

Project Cost Summary for Capacity Building   **Appendix No.VIII**

Sl.No	Components	Amount (in Lakhs)
1	Total Budget Outlay	Rs. 428.60
2	ACA component	Rs.208.20
3	GIA component	Rs 220.40
4	Fund already released (as on August, 2015)	Rs. 348.75
5	Balance to be released by DeitY	Rs. 79.85

Source: DICT Document, Mizoram 2016

NOTE: Since the project was came to an end in January, 2015, further fund may not be released from DeitY

Project Cost Summary for SDC   **Appendix No.IX**

Sl.No	Components	Amount (in Lakhs)
1	Total Budget Outlay	Rs. 3088.00
2	ACA component	Rs. 1913.00
3	GIA component	Rs. 1175.00
4	Fund already released (as on August, 2015)	Rs. 1069.00
5	Balance to be released by DeitY	Rs. 2019.00

Source: DICT Document, Mizoram 2016

S.N	Item	Urban	Rural	Total
1	No. of exchanges	31	48	79
2	Capacity of exchanges(Landline)	60396	13072	74008
3	DEL(Landline)	41807	7115	48922
4	No. of WLL BTS	–	7	7
5	Capacity of WLL	–	5750	5750
6	No. of WLL Connection	–	2335	2335
7	GSM capacity	–	–	57864
8	GSM Connection			46653
9	TAX Capacity	–	–	5000
10	No. of Local STD/ISD PCOs	–	–	1005
11	No. of VPT	–	–	612
12	Total Microwave Route	–	–	225.05 Km
13	Total OFC Route	–	–	139.65
14	Total No. of Dial-up Internet connection	–	–	2443
15	Total No. of broadband Internet connection	–	–	68

Source: DICT Document, GOM, 2016

State level core e-Governance Projects		
Project	**Description**	**Status**
Mizoram State e-Governance Road Map	A strategic roadmap for the GoM to enhance the capacities in the State Government and its nodal agencies to enable issues dealt with in a competent manner, with a holistic perspective and speed	Draft report completed
Mizoram State Capacity building Road Map	It provides a Governance structure and institutional framework to implement and monitor the e-Governance initiatives undertaken by the State	Draft report completed
Mizoram State Wide Area Network (MSWAN)	Nature of the project is to implement SWAN across four-tiers model of administrative setup for the purpose by establishing MSWAN GoM intends to transform Mizoram into an IT driven economy and society with a view to help common man to take more informed decisions.	Feasibility study is underway
Mizoram e-Governance Training Centre	This project targeted to train 18,000 Government's employees within a span of 5 years by establishing State-of-the-art IT Training Centre with no loss no profit basis.	Detailed Project Report has been submitted to GoI

Contd.

Project	Description	Status
e-District	E-District envisages the implementation of an efficient electronic workflow system for District Administration and the creation of an efficient delivery mechanism from the Government that brings citizens to the district administration	Detailed Project Report has been submitted to GoI
Sectoral e-Governance projects		
Project	**Description**	**Status**
Computerization of Land Records	Phase I involves the "As-is" study, Target Envisioning & Gap Assessment and Development of Project Plan, Pilot Architecture and Rollout plan (including estimated project budget, timelines, technology architecture etc.) Phase II involves Project Management for all the activities relating to pilot implementation such as software customization, data preparation, hardware and software procurement, site preparation in the Revenue office of Serchhip District etc. resulting in Computerization of Land Records Process in the pilot location in Serchhip.	As-Is study, Envisioning & Gap Assessment and the Pilot Roll out Plan is over. Pilot implementation is underway and roll out is also being planned.

Source: DICT Annual Report, 2007

State Level Infrastructures:

Government Internet Backbone Infrastructure:

o State-of-the-art Internet backbone infrastructure in Aizawl to provide Internet connectivity to all the Departments which is 2 MBPS through VSAT and 2 MBPS through Leased line

State Data Centre:

o State Data Centre with the capacity of 2x2 Tetra Bytes of SAN; each has 3 x 73 GB FC & 11 x 146.8 GB FC. Rack Mountable LTO Ultrium 2 Autoloader with a pack of 20 cartridge of 200/400 GB each

Network Operating Centre:

|	
o State-of-the-art Network Operating Centre with high-end CISCO aggregation router, backbone router, PIX firewall, Proxy Server, WWW Server, E-Mail Server, etc.	

Secretariat LAN:

|	
o Secretariat LAN with Fibre Optics between Secretariat Building to Building and structured cabling inside the building. The Secretariat Building has 500 points for Internet connection & Data Connection	
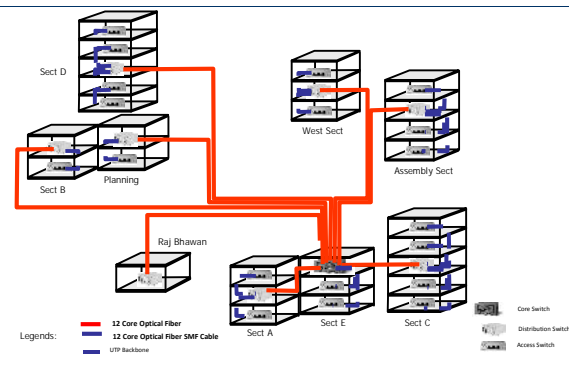
Contd.

Wireless LANs in 57 Departments:

o In 57 Govt.'s buildings, wireless LAN has been provided for accessing Internet and Data Centre. There are 44 Receivers (9102), 6 Transceivers (9103) and one base station.	
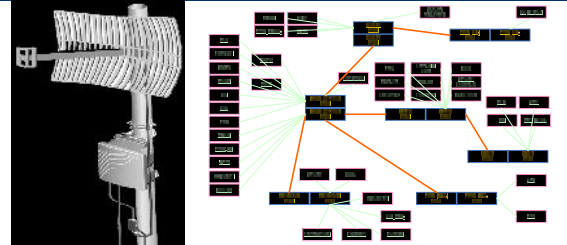
*Structured LANs in 37 Govt.Buildings:*

o Structured LANs in 37 Govt.'s Buildings which is integrated with wireless LAN. In every buildings there are wall rack mounted device with switch and access points and transceiver.	
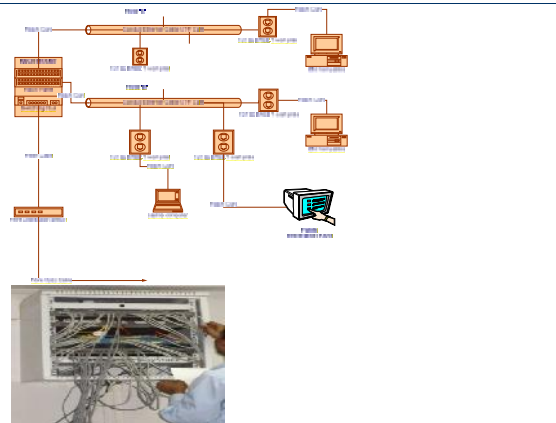
Contd.

CM Secretariat LAN:

|	
o Structured Cabling with UTP CAT 5E through which 2 MBPS Internet Connection has been provided. 15 nos of Computer has been installed with wireless network.	
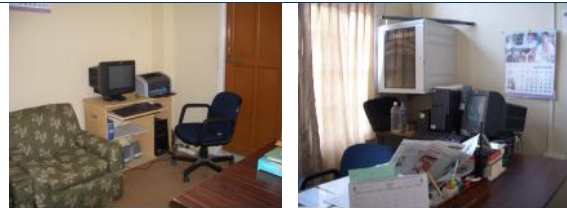
IT Training Centre:

o State-of-the-art technology IT training centre has recently set up with 100 capacities. All the classrooms are Air-conditioned with LCD project and whiteboard.	

Contd.

Video Conferencing Centre:

o Video conferencing centre is equipped with state-of-the-art technology. This can be used to interact with central Govt.	
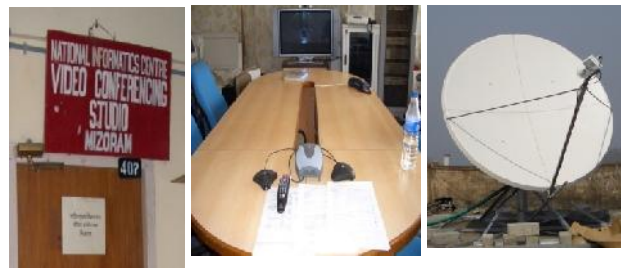
DOEACC "CCC" & "O" Level Training Centres:

o Electronics & IT Wing, Industries Deptt. have training centres for DOEACC "CCC" & "O" level courses at GRITC, Aizawl & AC&EC, Lunglei.	

Contd.

ZENICS Computer Learning Academy (ZCLA):

o ZENICS has IT training centre with 50 trainees at a time and conduct various IT courses. ZENICS also has consumer electronics training centre with 15 trainees at a time.	

District Level Infrastructure:

Video Conference Centre:

o In every Districts Video Conferencing Centre has been set up to easily access District Administration. Sophisticated IT equipments have been installed.	

Contd.

District Computer Training Centre:

Internet Backbone Connectivity has been provided though NICNET Services. 2 MBPS VSAT with other equipments has been installed to provide Internet connection to District's offices	

Internet Backbone Infrastructure:

In every District, Computer Training Centre has been set up with training capacity of 50 trainees at a time. This has been implemented under EFC.	

Contd.

Block Level Infrastructure

Community Information Centre:

o In Block level, we have also state-of-the-art IT infrastructure known as "Community Information Centre" in 26 RD Blocks. Additional 10 CICs will also coming up for providing IT education, Internet facilities at Block level.	

Source: DICT Annual Report 2015-2016