CONTENT MANAGEMENT SYSTEM:

ADMINISTRATION OF GOVERNMENT OF MIZORAM WEBSITES

A Dissertation Submitted to the Mizoram University in Partial Fulfilment for the award of the Degree of Master of Philosophy

in

Public Administration

BY

LALKHAWNGAIHA

MZU/M.Phil./389 of.22.5.2017

Supervisor

Dr. LALTANPUII RALTE

ASSISTANT PROFESSOR

DEPARTMENT OF PUBLIC ADMINISTRATION

SCHOOL OF SOCIAL SCIENCES

MIZORAM UNIVERSITY

AIZAWL, MIZORAM

2017

CHAPTER I

INTRODUCTION

Chapter 1

1.1   INTRODUCTION

The world today is changing hastily in relations to gathering, circulating and disseminating information; stirring in a worldwide revolution in Information and Communication Technologies (ICT). The Internet, the Personal Computer (PC), Tablets, Laptops and the Smartphone are fundamentally changing our lives - affecting the way we work, learn, acquire, interact and administer business.The Internet, sometimes called simply "the Net," is a worldwide system of computer networks - a network of networks in which users at any one computer can, if they have permission, get information from any other computer. It was conceived by the Advanced Research Projects Agency (ARPA) of the U.S. government in 1969 which was first known as the ARPANet. The original aim of the ARPANet was to create a network that would allow users of a research computer at one university to "talk to" research computers of other universities. A side benefit of ARPANet's design was that messages could be routed or rerouted in more than one direction and the network could continue to function even if parts of it were destroyed in the event of a military attack or other disaster.[1]

The Internet connects millions of computers together globally, forming a network in which any computer can communicate with other computer as long as they are both connected to the Internet. Media sharing, video calling and chatting, downloading files and unloading the same can be done easily from one end to the other through Internet. Online streaming, marketing, shopping, research etc. can easily be performed with the help of the Internet. The Internet has brought in a new dimension in the functioning of the world order. A thousand miles travel to parley with government institutions or a business venture can easily be performed with a more cost effective and convenient way from home through the Internet. The Internet has assisted men in numerous ways, giving him more time and space, assist in getting information efficiently and accountably.

---

[1]http://searchwindevelopment.techtarget.com/definition/Internet accessed on 06.11.2017

The World Wide Web (www) or simply Web is a way of accessing information over the medium of the Internet. It is an information-sharing model that is built on top of the Internet. The Web uses the Hypertext Transfer Protocol (HTTP) protocol, one of the only languages spoken over the Internet, to transmit data. Web services, which use HTTP to allow applications to communicate in order to exchange business logic, use the Web to share information. The Web also utilizes browsers, such as Internet Explorer or Firefox, to access web documents called 'Web Pages' that are linked to each other via hyperlinks. Web documents also contain graphics, sounds, text and video.

Some relevant points about the World Wide Web are highlighted below:

1. It is a system of Internet servers that support specially formatted documents.

2. Documents are formatted in a markup language that supports links to other documents.

3. You can jump from one document to another simply by clicking on hot spots (hyperlinks).

4. An application called 'web browsers' facilitates easy access the World Wide Web.

5. There are more than 1,275,000,000 Websites.[2]

The World Wide Web is a collection of different websites you can access through the Internet. A website is made up of related text, images, and other resources. Websites can resemble other forms of media—like newspaper articles or television programs—or they can be interactive in a way that's unique to computers. The purpose of a website can be almost anything: a news platform, an advertisement, an online library, a forum for sharing images, or an educational site.Before the World Wide Web, the Internet merely provided screens full of text (usually only in one font and font size). Despite the fact that the Internet was excellent for exchanging information, and indeed for accessing information such as the Catalogue of the US

---

[2]https://www.webopedia.com/DidYouKnow/Internet/Web_vs_Internet.aspaccessed on 06.11.2017

Library of Congress, it was visually very tedious. In an attempt to make this more aesthetic, companies like Compuserve and America Online (AOL) began developing what used to be called Graphical User Interface (GUI). GUIs added a bit of colour and a bit of layout, but were still very unexciting. Indeed International Business Machines (IBM) personal computers were only beginning to adopt Windows interfaces - before that with Microsoft disk operating system (MSDOS) interfaces they were pretty primitive. So the Internet might have been useful, but it was not good looking.[3]

With the advent of technology, different nations around the world are undergoing numerous changes in their governmental functioning, work culture, societal behavior and their day to day life interactions. A common phrase, "Global village" is being used widely with the impact of globalization, making it effortless for citizens and government around the world to connect instantaneously. All these are made possible via Internet and through the application of ICT in governance, or in other sense by the introduction of e-Government system.

E-Government can be referred to as the application of ICT in government administration and the delivery of government information and services through Internet or other digital means to citizens, businesses, government, semi or non-governmental agencies. E-Government facilitates provision of relevant government information in electronic form to the citizens in a timely manner; better service delivery to citizens; empowerment of the people through access to information; improved productivity and cost savings in conducting business with government; and participation in public policy decision-making. E-Government can improve efficiency in the delivery of government services, simplify compliance with government regulations, strengthen citizen participation and trust in government by providing transparency in administration. E-Governance refers to how managers and supervisors utilize ICT and Internet to execute their functions of planning, organizing, staffing, directing, and coordinating effectively. The World Bank, (2012) define e-Government as; "The use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to

---

[3]http://www.nethistory.info/History%20of%20the%20Internet/web.html accessed on 06.11.2017

citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions."In simple terms, e-Government is the use of technology to enhance the access to and delivery of government services to benefit citizens, business partners and employees. It is the use of information technology to support government operations, engage citizens, and provide public services in a more efficient and transparent manner.

E-Governance plays a significant role in society and towards nation building. Governments around the world are making it mandatory for each and every citizen to have access to Internet and its peripherals. Digitalization has changed government administration; making it feasible for citizens, political masters, businessmen, bureaucrats, entrepreneurs etc. to connect and interact with ease in terms of acquiring, accessing and delivery of information and other wishes. E-Governance is democratic in nature as it allows and ensures participation to each and every citizen. Two rights stand out in all open democratic societies: freedom of expression and access to information. E-governance-as in electronic, or technology-driven, governance-is about both of these.[4]

Efficient e-governance is an innovative and transparent way to deliver government services and exchange information with citizens in a convenient and transparent way, saving time and money. The mass digital migration from personal computers to mobile phone applications also brings new opportunities to boost e-governance. Over five billion people—around 77 percent of the global population own or have access to mobile phones worldwide. In regions with no electricity, computers or internet access, mobile phones are increasingly helping spread mobile government, banking or health.

According to the World Bank (2002) E-Governance has the following benefits;

1. It greatly simplifies the process of information accumulation for citizens and businesses.

---

[4]http://www.undp.org/content/undp/en/home/ourperspective/ourperspectivearticles/2012/07/18/e-governance-can-help-boost-democracy-in-developing-countries.html

2. It empowers people to gather information regarding any department of government and get involved in the process of decision making.

3. E-Governance strengthens the very fabric of democracy by ensuring greater citizen participation at all levels of governance

4. E-Governance leads to automation of services, ensuring that information regarding every work of public welfare is easily available to all citizens, eliminating corruption.

5. This revolutionizes the way governments function, ensuring much more transparency in the functioning, thereby eliminating corruption.

6. Since the information regarding every activity of government is easily available, it would make every government department responsible as they know that every action of theirs is closely monitored.

7. Proper implementation of e-Governance practices make it possible for people to get their work done online thereby sparing themselves of unnecessary hassles of traveling to the respective offices.

8. Successful implementation of e-Governance practices offer better delivery of services to citizens, improved interactions with business and industry, citizen empowerment through access to information, better management, greater convenience, revenue growth, cost reductions etc.

9. Furthermore, introduction of e-Governance brings governments closer to citizens. So much so that today it becomes extremely convenient to get in touch with a government agency. Indeed, citizen service centers are located closer to the citizens now. Such centers may consist of an unattended kiosk in the government agency, a service kiosk located close to the client, or the use of a personal computer in the home or office.

10. E-Governance practices help business access information that might be important for them at a click. [5]

In India, the main thrust for e-Governance was provided by the launching of National Informatics Centre Network (NICNET) in 1987 – the national satellite-based computer network. This was followed by the launching of District Information System of the National Informatics Centre (DISNIC) programme to computerize all district offices in the country for which free hardware and software was offered to the State Governments. NICNET was extended via the State capitals to all district headquarters by 1990. In the ensuing years, with ongoing computerization, tele-connectivity and internet connectivity a large number of e-Governance initiatives, both at the Union and State levels were established.[6]

The subsequent step pertaining to the growth, development and advancement of E-Governance in India was the launching of "National e-Governance Plan (NeGP)", a mandate given to the Second Administrative Reform Commission titled "Promoting e-Governance: The smart way forward". The 2[nd]ARC report was submitted to the Government of India on 20th December 2008. The report cited several prior initiatives as sources of inspiration, including references to the Singapore ONE programme. To pursue this goal, the National e-Governance Plan was formulated by the Department of Information Technology (DIT) and Department of Administrative Reforms & Public Grievances (DAR&PG).

The National e-Governance Plan (NeGP) is an initiative of the Government of India to make all government services available to the citizens of India via electronic media. NeGP was formulated by the former Department of Electronics and Information Technology (DeITY), which was recently changed to the 'Ministry of Electronic and Information Technology' and 'Department of Administrative Reforms and Public Grievances' (DARPG). The Government approved the National e-

---

[5]https://www.researchgate.net/file.PostFileLoader.html?id=564b965d6225ffe6e98b4595&assetKey=A
S%3A296884838125570%401447794269180.accessed on 06.09.2017
[6]http://www.insightsonindia.com/2014/11/23/e-governance-india-concept-initiatives issues/accessed
on 20.04.2017

Governance Plan, consisting of 27 "Mission Mode Projects" (MMPs) and 8 components, on 18th May 2006.[7]

To make government service available to the citizens, reaching from the cities to the remotest areas, a portal or a doorway is needed to make its availability a reality. Here, websites and its peripherals come to assist and facilitate its possibility. Website may simply mean a set of pages of information on the internet about a particular subject, published by a single person or organization. [8] According to Business dictionary, website can be put as a virtual location on World Wide Web (www), containing several subject or company related web pages and data files accessible through a browser. Each website has its own unique web address which can be reached through an internet connection. The opening page of a website is usually called homepage which contains hyperlinks to other pages on the same or other sites. A single web server may support multiple websites and a single website may reside on multiple web servers, sometimes thousands of miles apart[9]. Website can be one of the most essential tools for meeting the needs of the citizens. It is a service available 24 hours daily which can be accessed from anywhere unlike government offices that are located at a particular place, accessible during office hours only. Government website can also be used for direct civic engagement regarding citizens' experiences or even community issues. Easily and efficiently capturing feedback will only help in considering updating government engagement strategies – everything from enhancing the user experience to adding relevant topics to meeting agendas. Websites also allow officials to speak directly with their constituents about their most pressing demands. This helps create trust between local governments and the citizens they serve, because it shows residents that government leaders are listening closely and can help provide solutions for bolstering services and provisioning across the community[10].

Before the introduction of the Government of Mizoram-Content Management System (GoM-CMS), websites of various departments under the Government of Mizoram were developed through an Open Source CMS such as Drupal, Joomla, WordPress etc. By using those CMS many departments had faced security issues because there are high interdependency in web security between the User

[7]https://en.wikipedia.org/wiki/National_e-Governance_Plan#Criticism accessed on 20.4.2017
[8]http://dictionary.cambridge.org/dictionary/english/website accessed on 17.09.2017
[9]http://www.businessdictionary.com/definition/website.htmlaccessed on 17.09.2017
[10]https://granicus.com/blog/blog/importance-functional-government-website/accessed on 17.09.2017

Departmentand the Open Source CMS. Many were hacked and a number of defacements reports were recorded during that time. Since all of the Government departments had used different open source Content Management System, depending on the choice of their technical staff, departments developed their personal websites according to their own ideas creating problems of centralization and uniqueness of departmental websites under the Government of Mizoram in terms of the layout, looks, features, content, designs, column, profile etc. Moreover, common training could not be conducted for those departments because of the use of different CMS and software.

As such was the situation, the idea for development of a common template which could bring a common looks, layout, features, content, designs and uniqueness to departmental websites of Government of Mizoram was initiated by Pu.Vanhela Pachuau, IAS, the then 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 and the Government of Mizoram – Content Management System (GoM-CMS) was completed and launched on the 20th July 2012.

Content Management Systems or Web Content Management Systems (CMS or WCMS), are systems (usually web based) that facilitate the creation, management and delivery of information (content and documents), typically via corporate websites, portals, extranets or intranets.

Content Management Systems can be used for corporate websites, secure portals for trading partners or online communities and intranets. Content Management Systems in large organizations are often referred to as Enterprise Content Management Systems (ECMS). Web Content Management Systems are a subset of the Enterprise Content Management System.

The basic roles of a CMS include a content creator, reviewer and a publisher. This user security level enables the editor and reviewer to manage content via a web browser with the content stored in a database. In its simplest form, the CMS will allow a content creator to use an editor to create and edit content with an authorized user to approve the content to be published in a live environment. All of this interaction is controlled through security, workflow and audit trails and is stored and tracked in a database.In the pre and post years of the dot com (.com), what is now

described as Content Management Systems or CMS were custom website developed by internal programmers or external contractors.

Content Management System (CMS) is used for producing and running a website. It allows anyone, even without a formal technical background, to place content on a web site and keep track of it without much effort. Users are able to employ a range of document types and content on a website, and then modify and expand the information posted by themselves without the need of a Web programmer to setup the site and do the updates. Since CMS makes use of templates, no HTML knowledge is required. CMS software comes in handy for in-text editing or adding images. It also allows users to collaborate on content too. When wanting an operational, appealing website, one can rely on CMS to be able to store content online and allow direct communication with the intended audience.

Using CMS has its benefits; some of the most common advantages of its usage may be discussed as under:

1. It is a user-friendly program to upload text and images or edit files online. CMS also makes it easy to distribute content, do updates, deletions and alterations of Web content, and make content searchable, retrievable and reusable

2. It offers simple, flexible, scalable and cost-effective solution not only for small and medium businesses (SMBs) but individuals too, to place content on a website to draw-in more revenue or traffic to the site.

3. It allows users to control, manage and structure the content in real-time. There is no need to wait for a web administrator to make changes; content is always fresh and up-to-date.

4. It is useful for data automation, workflow, process management, and can improve communication by providing a collaborative environment for content sharing.

5. It allows website content to be accessible virtually from anywhere, using any computer device if connected to the Internet. This is a very convenient feature as the ability to work remotely and on-the-go is increasingly important nowadays.

6. It offers content integration through a web site quickly and easily. CMS sites integrated with dynamic web content, will allow information to be updated or repurposed as needed. Information, in fact, are not coded into Web pages but extracted from databases that can be easily maintained by authorized users.

7. It provide access controls to either assign user privileges to access different sections of the website, or restrict which websites and content users can access.

There are many benefits to using CMS, as listed, to suit one's needs. From being able to support content for different languages and providing business users with process automation capabilities to reducing IT resources and costs, it is the one application that can improve the usability of Web portal applications and make use of collaboration tools that enhance communication and productivity.

CMS applications abound on the market all have different features and levels of simplicity. It is important that users review their options to decide what software better fit his or her needs. Whether one decides to buy and use one of the CMS platforms on the market or subscribe to a CMS service, it is important to choose one vendor or provider that is trustworthy and will provide the right features for content management.

Today, having a company website is as crucial as having a shop, office or telephone number. Research has found that 6 out of 10 customers expect brands to have content online about their business.

Following are 10 reasons regarding the benefits of having and maintaining a website by an institution, corporations etc.:

1. Online Presence 24/7:

   Having a website means customers are always able to find an institution, corporations, company etc. – anytime, anywhere. Even outside of Government business hours, the website continues to find and secure new customers. It offers the user convenience as they can access the information they need in the comfort of their own home, with no added pressure to buy.

Plus, as most companies nowadays have their own website, losing customers to your competitors by staying offline is a probability.

2. Information Exchange:

     At its simplest, a website provides a quick and easy way of communicating information between buyers and sellers. Listing and showing opening hours, contact information, show images of location or products, and use contact forms to facilitate enquiries from potential customers or feedback from existing ones. A corporation, business firms, company etc. can upload promotional videos to engage customers and sell business in an effective and cost efficient way. This is also a good way to promote social media channels and build up a community with customers.

3. Credibility:

     In today's modern world, there is an expectation for any reputable company to have some kind of online presence. Potential customers would likely be distrusting of any business that does not have a telephone number or a physical address, and the same can be said for not having a website and email address. These are useful tools to share crucial information about the business with customers and answer all the 'Whats' and 'Whys' that they may have. Having a good quality, easy-to-use website makes customers feel comfortable using the services, as they will assume they can expect the same positive experience in all areas of the particular business.

4. It Cuts Costs:

     As well as simply displaying information, website can also be used to sell goods & services directly to consumers, in some cases removing the need to use "brick-and-mortar" stores which involve large operating costs (staff wages, rental, utilities, etc.). Eliminating these overheads will also enable the lowering of prices, giving the business that real competitive edge. It can also be used internally within the business which can save a lot of time as everything is place and can be accessed at any time.

5. Market Expansion:

   Website is accessible to anyone all over the world. The ability to break through geographical barriers has never been easier. Anyone, from any country, will be able to find any company and as such, is now a potential customer.

6. Consumer Insights:

   Analytic tools allow identifying who the customer is, how they found the website, what they like, and adapt business to maximise purchases through website. The diverse range of data available can also help better understand on how social media channels affect a company's brand, and can even highlight opportunities to change the offline aspects of business such as branch opening times, promotions and product ranges.

7. Advertising:

   Tools such as Google AdWords or advertising on Facebook (FB) provide the power to reach customers with much more accuracy and reliability than with traditional offline advertising methods. Search Engine Optimization and online advertising are a great way to help build up awareness, if it is done correctly traffic to business website can see an increase.

8. Competitors Online:

   If a company do not have a website it is highly likely that other competitor will, which can lead to loss of gaining new customers. It is crucial that no opportunities are missed.

9. Customer Service Online:

   Websites provide an easier way to handle customer service. Offering answers to regularly asked questions in a Frequently Asked Questions(FAQ) section can reduce customer service costs and save yourself time and money, as well as providing much more information. This also means that customers can receive a reply instantly and saves time, which helps to encourage positive customer relations in the long run. This could be a benefit for the company

asall positive feedback can be uploaded into a testimonial for customers' contentment.

10. Growth Opportunity:

Websites in general are great of providing a place that potential investors can referred to. It shows what the company is about, what it has achieved and what it can achieve in future.[11]

1.2   REVIEW OF LITERATURE

The following books, journals and articles which are presumed to be important for the current study are reviewed by the researcher.

B. Srinivas Raj (2008) in his book, *E-governance Techniques - Indian and Global Experiences 01 Edition* highlights different e-Governance techniques which are being experienced in India and abroad. The term E-governance implies an upgrading in efficiency and effectiveness of the administrative machinery through the combination of information technology (IT) and multimedia, to deliver better, cost-effective, and speedy services to the people. Over the last decade, India has emerged as the most preferred destination for outsourcing of IT services. The vibrant IT industry has contributed immensely by providing information for local and international business practices. Various sectors of the Indian economy i.e. industry, finance, insurance, communications, and transport have adopted IT in a big way. India's National E-governance Plan (2003-07) reflects the strategic intent of the central government. Many projects are earmarked under this plan, which is trying to address the digital divide. From a political perspective, after watching the performance of some IT-savvy states during India's recent elections, India recognizes the need to focus more on rural development. Political systems are keener to disseminating information faster to farmers, disburse loans, and improve education and health in villages, etc. There is a clear-cut incentive to do it, as 60% of voters still live in rural India. This book examines the practices, problems, and prospects of the

[11]https://www.thisisparachute.com/2014/03/10/top-10-benefits-of-having-a-website/accessed on 2.11.2017

E-governance, focusing on initiatives in India and recording the experiences of other countries in this regard.

Brian Williams and Stacey Sawyer (2005) in their book, *Using Information Technology: Practical Introduction to Computers and Communications 6th Edition* highlights the fundamental computing concepts that are part of the digital age, including software, hardware, data, people, and procedures along with expanded coverage on Security and ethics. The text centres on educating today's technology consumer, using themes of ethics, the Internet, and communications to demonstrate how the changing world of technology influences our lives and the decisions we make.

Fraser Stephen R. G. Fraser (2012) in his book, *ASP.Net Content Management System Development Using C# 1*[st]*Edition* highlights how ASP.NET provides web developers with a cost-effective way to develop a content management system within Microsoft's .NET Framework. Unlike other .NET books on ASP.NET that teach technologies on a piecemeal basis, this book explains the underlying technologies and also shows how they are integrated into a complete ASP.NET application suitable for many organizations. Complete source code written in C# and ASP.NET is included, which will enable web developers to create a dynamic content site at a fraction of the cost of a commercial solution. You will learn about the following:

Content Management System: This system used to manage the content of a website consists of the content management, Metacontent management, and content delivery applications. **C# and ASP.NET: These** underlying technologies are introduced and then applied extensively. **ADO.NET:** All aspects relevant to dynamic content management are covered. **XML:** Extensible Markup Language (XML) is introduced and then applied in the programmatic updating of the config.web file. **Authentication, Authorization, and Encryption:** These topics are discussed in the book, especially with regard to protected content and system administration. Personalization: Many key technologies are used to make the CMS solution truly user-friendly.

David Garson (2006) in his book, *Public Information Technology and E-Governance: Managing the Virtual State1*[st] *Edition* highlights the importance of Information Technology and e-governance in society. The book is written by a leading scholar of public information systems, Public Information Technology and E-

Governance is a comprehensive, well-balanced and up-to-date resource on public information technology and e-government. Based on thousands of academic and practitioner studies and reports, this book provides policy information on e-democracy, access issues, privacy, security, regulatory, enforcement and taxation issues, as well as management information on business plans, public-private partnerships, strategic planning, project management, implementation factors, and evaluation. An excellent text or reference, this book features several chapter case studies, a glossary, discussion questions, and chapter summaries to maximize comprehension of the subject.

Gazi Zahirul Islam (2012) in his book, *E-governance: Implementation in Bangladesh* highlights that several developing countries including Bangladesh are realizing the role ICT can play in the governance sector, and are putting into practice innovative e-governance models that may be technologically simple but are drastically changing the way information is distributed in the society. This book depicts and implements a model of e-governance for rural and city areas in Bangladesh. The project deeply considered existing ICT infrastructure in Bangladesh and try to implement the project in a cost effective manner. A clear, comprehensive layout and network architecture for rural and city areas is given independently. We also describe complementary tasks such as database implementation, system development, web related task etc. for e-governance. We have developed sample database, forms and web pages which screenshots included in the book. The main objective of the project is to implement e-governance in an easy and cost effective manner to suit with current infrastructure in Bangladesh to provide better information and service delivery of government to the people.

Ismail Thamarasseri (2009) in his book*, Information and Communication Technology in Education* highlights the concept and knowledge of Computer and Information Technology. He pointed out that Information and Communication Technology is the most spectacular revolution of the present times. The book demonstrates how education via Internet is important in the changing world order, and how distance education is made possible with ICT. The book points out that ICT is affecting every segment of human life. In this book, effort is made to cater to the needs of the students and also a general reader. This book is prepared in an easily

comprehensible manner. The book is equipped with model questions in each unit to aid hands-on learning.

Lehnert Wendy G (2007) in his book, *Web 101: Making the Net Work for you*highlights tools that readers need to acquire a foundational understanding of the online resources available today and how to take full advantage of the Web's power. Lehnert and Kopec cover the fundamentals of the Internet's most popular features—communication tools, e-mail, searching, personal safety, and software—with new material on social networking and Web construction and design. Web 101 gives readers all the background information and tools they need to become proficient users and savvy content-providers of the Internet.

M. Alamgeer (2014) in his book, *ICT & e-Governance for Rural Development* focuses on how Information and Communication Technologies (ICTs) play a key role in development &economic growth of the developing countries of the world. He stresses that political, cultural, socio-economic developmental &behavioural decisions today rests on the ability to access, gather, analyse and utilize information and knowledge. The book highlights how ICT is the conduit that transmits information and knowledge to individuals to widen their choices for economic and social empowerment. The author envisions that people around the globe in a few years from now will be carrying a handheld computer connected to the web to get information about the world at their fingertips. The book talk about how the Government of India is having an ambitious objective of transforming the citizen-government interaction at all levels to the electronic mode (e-governance) by 2020. The book also suggests how a successful implementation in e-governance giving one step solutions for rural communities is the need of the hour as implementation of The Information Technology Act 2000 is yet in a nebulous stage though the Act was enacted 10 years back.

Alamgeer looked back on the initial attempts towards e-governance during the 1980s and the early 1990s where the focus was laid on networking government departments and developing in-house government applications in the area of defence, economic monitoring, planning and the deployment of IT to manage data-intensive functions related to elections, census, tax administration etc. These applications

focused on automation of internal government functions rather than improving service delivery to citizens.

Mukhopadhyay S. N. (2013) in his book, *E-Governance Service Quality Assessment* examines the opportunity for 'inclusion and empowerment' of the citizen in the governance process as the transformational stage of democratic governance in India while investigating the National e-Governance Plan (NeGP) and Right to Information Act (RTI) implementation objectives in India and the ground realities to understand the barriers, gaps and bridging strategies and the need for innovation in e-Governance services. The process of identification of transformational service quality attributes follows (i) literature review, (ii) focussed group discussions (FGD), interviews and workshops (iii) in-depth study on Right to Information (RTI). The research is carried out by studying the award winning innovative project Jankari-A RTI call centre in Bihar, India. Technology dissolves barriers but creates new challenges. Trust based civil society re-intermediation enhances adoption and satisfaction of Transformational e-Governance. Therefore, at Transformational stage the duality is 'dis-intermediation' Vs'R e-Intermediation'. The model suggested would be useful for evaluating any other national e-Governance Plan.

P. Panneervel (2005) in his book, *E-Governance- A Change Management Tool* marked that Gujarat is a state among few other states in the country that have successfully implemented e-governance projects. He emphasized in his book that Gujarat is the pioneer. He highlighted that the smart card-based driving licence, automation of inter-state border transport check-posts, city civic centres in Ahmedabad and other such e-applications in government departments were the first of their kind. The book presents the projects of e-governance that were successfully implemented in different departments of Gujarat covering contrastingly different types of functions and services e.g.- SWAGAT(State Wide Attention on Grievances by Application of Technology), e-City, e-Dhara, EGram, GSWAN(Gujarat State Wide Area Network), VAT (Value Added Tax), e-Procurement, IWDMS (Integrated Workflow & Document Management System) etc. The book shared the whole experience of managing the change in different government departments, its issues and potentials in Gujarat. The book is intended to serve as a useful guide to IT consultants, government officials, students, educationists, NGOs and the public in general.

R.P. Sinha (2009) in his book, *E-Governance in India: Initiatives and Issues,* discusses that the progress of e-governance in India has been slow and uneven. While intentions have been expressed and hypes have been created, often prematurely, the ground result is not commensurate with the expectations. The book presents a systematic description of the initiatives taken towards e-governance by the central government and some selected state governments and analyses the factors that hamper its growth in India. The scenarios in ICT advanced countries in the world have also been presented. The book is expected to provide information and stimulate technologists, planners and students of e-governance in general.

Radhakumari Challa (2013) in his book, *E-Governance in India- the Early Initiatives - A Research Study* highlights the early initiatives of e-governance in India and their development. The early models of e-governance in India were developed with a common goal of providing, under a single roof, government services to the citizens. This was carried out through network connectivity leading to increase in the comfort levels in the interaction of citizens with the government. Though these models vary in their scope of application, degree of network connectivity and the geographical area covered by each e-service center, through these initiatives, the governments in India have proved that Information and communication Technology (ICT) is a highly useful tool for improving the welfare of the society and bridging the digital divide. They were able to accomplish the electronic integration of government departments within a time frame of less than a year; a significant achievement in comparison with similar projects implemented in other developed and developing countries. The book describes in detail this process of implementation through scientific research coupled with practical experiences from the context of a developing country such as India. The book is anticipated to be a guide for integration of ICT application in Government administration.

Rafia Naz, Gurmeet Singh, Pathak Raghuvar Dutt (2010) in their book, *e-Governance, Service Delivery and Customer Satisfaction: Lessons for Developing Countries* highlights the delivery system and conveniences of e-Governance. The book stresses that today customers/citizens of any nation want effective, efficient and equitable services. The global problem is one where Public service delivery is in a state of dilemma and service quality appears to be deteriorating. With this, customers/citizens are demanding an answer. In Pacific island countries (Fiji,

Solomons and PNG) the area of public service delivery and service quality in particular appears to have received fairly modest attention. The main objectives of this book are to get deeper understanding of the public service dilemma and understand the relationships between quality of services and how this impacts the citizen's satisfaction level.

Sacks Matthew Sacks (2012) in his book, *Pro Website Development and Operations: Streamlining Devops for Large-Scale Websites* highlights the experience needed to create and operate a large-scale production website. Large-scale websites have their own unique set of problems regarding their design problems that can get worse when agile methodologies are adopted for rapid results. Managing large-scale websites, deploying applications, and ensuring they are performing well often requires a full scale team involving the development and operations sides of the company two departments that don't always see eye to eye.

When departments struggle with each other, it adds unnecessary complexity to the work, and that result shows in the customer experience. Pro Website Development and Operations shows you how to streamline the work of web development and operations - incorporating the latest insights and methodologies of DevOps - so that your large-scale website is up and running quickly, with little friction and extreme efficiency between divisions.

This book provides critical knowledge for any developer engaged in delivering the business and software engineering goals required to create and operate a large-scale production website. It addresses how developers can collaborate effectively with business and engineering teams to ensure applications are smoothly transitioned from product inception to implementation, and are properly deployed and managed. Pro Website Development and Operations provides unique insights into how systems, code, and process can all work together to make large-scale website development and operations ultra-efficient.

Santhosh Vallikkad (2009) in his book, *Information Communication Technology for Teacher Education* discusses how Universities in India are now including ICT as a subject of study in the field of education. The book is designed to be used as a standard text book in teacher training colleges and contains 21 chapters in the area of ICT and teacher education which includes helpful and encouraging

chapters that can meet the needs of the students and teachers in educational fields. Softwares, programming languages, operating systems (windows, UNIX etc), internet, internet applications, e-mail, networking, computer, multimedia and online teachings, media effectiveness etc. are highlighted in the book. Educational media such as, internet, broadcasting, mobile, magazines, newspaper, software publishing, video games, motion pictures, televisions, graphic presentation, tape recorder, radio, movie projector, folks etc are also highlighted.

Sean Geer (2003) in his book, *Essential Internet* highlights everything one needs to know about the internet - most accessibly presented and attractively packaged. Replacing the long-running pocket series, this new Economist essential A-Z series is launched in Spring 2003 in a strikingly attractive paper back format, with flaps and distinctive red end papers. Following an introduction on the huge differences the Internet has made to modern day life, the bulk of the book contains a much expanded A-Z with several hundred entries that explain the essentials of the Internet - as well as some of its more quirky and inconsequential aspects include: ActiveX , ADSL, Arpanet, Asynchronous transfer mode, B2B, B2C, Backbone, Cookie, Copyleft, Cracker, Cybrarian,, Digerati, Drop-dialling, Emoticon, Encyption, , Firewall, Flame, Frame relay, Groupware, HTML, Hypertext, Infomediary, ISDN, Java, Jini, Linkrot, Lurker, Moore's Law, Multicasting, Nerd, Netiquette, Object oriented, Open source, , Packet, PANS, PGP, Ping, Quicktime, Remailer, Router, RSA, Source code, Splinternet, Stickiness, TAG, Thin client, Tiger team, Unix, URL, Uuencode, Viewser, Vortal, Warez, Web ring, XML, Yahoo and Zmodem. Also included as appendices are: * A brief history of the Internet * Hundreds of recommended web sites.

Subhash Bhatnagar (2009) in his book, *Unlocking E-Government Potential First Edition* discuss how Unlocking E-Government Potential serves as a practical guide for conceptualizing and implementing e-government at the local, state and national levels and provides an overview of the global experience in implementing the same. This book is a sequel to the author's earlier book, E-Government: From Vision to Implementation. It describes the evolution of e-government applications over a period of four years through cases and illustrations and explores its potential impact on cost of access, quality of service and quality of governance for citizens and businesses, and on transparency and corruption. The book presents empirical results

from impact assessment studies done during 2006–08 for nearly 50 e-government projects. Among other issues, it discusses the strategy for making e-government work for the poor. The case studies of e-government applications cover a wide range—serving different types of clients, focusing on different purposes, and built by different tiers of government. These cases explain the application context, new approaches embodied in the e-government application, challenges faced during implementation, benefits delivered and costs incurred.

This book will be of interest to management professionals and those with a public administration background. It will also be very useful for students enrolled in university programmes dealing with ICT and development and international academic courses on e-governance.

Subhash Bhatnagar (2004) in his book, *E-Government: From vision to Implementation: A practical guide with case studies* illustrate how countries in the world are using e-governance as an enabling tool to increase efficiency, enhance transparency, collect more revenue and facilitate public sector reform. While e-governance is not a panacea that can improve the performance of the public sector, it is a powerful enabling tool that has aided governments to achieve some of their development and administrative reform goals. The author highlights that three factors are critical for the successful implementation of e-government. This includes willingness to reform, availability of ICT infrastructure, and the institutional capacity to absorb and manage change. The book is based on the analysis of two dozen cases from sixteen countries in the developing world where e-government has been implemented to address social and economic development challenges. A number of these case studies are included in the book. Countries that are featured in the case studies are considered pioneers in developing innovative e-applications. The book documents the benefits and impact of e-government on public sector reforms, poverty reduction and empowerment. Identification is made of critical success factors that must be present for e-government applications to have an impact on development and improving governance. Critical success factors such as defining project goals that are measurable and focused on governance reforms, institutional capacity and presence of reform-minded leadership are discussed in detail.

The book presents the material in 7 chapters. Chapter 1 provides a comprehensive definition of e-government. Chapter 2 provides an understanding of e-government, how it has emerged and for what purpose it has been used in developing countries. Chapter 3 explores the benefits and impact of e-government on good governance, empowerment and poverty reduction. This chapter also deals with the effects of e-government applications on enhancement of transparency, reduction of corruption, improvement of service delivery and empowerment. Chapter 4 describes the best practices in project design and managing change. Chapter 5 provides practical guidelines for the creation of a country-level strategy and implementation plan. Chapter 5 emphasizes the need for the evaluation of e-government projects, and proposes methodologies for evaluation and risk analysis for choosing appropriate pilots. Chapter 6 looks ahead and also summarizes some of the important learning's that emerged from the book. Chapter 7 present twelve case studies of e-government applications. The final section discusses key lessons that can be drawn from the case studies.

Tessa Blakeley Silver (2017) in her book, *Joomla! Template Design: Create your own professional-quality templates with this fast, friendly guide: A complete guide for web designers to all*covers template design workflow, debugging and validating code, creating drop-down menus, interactive and dynamic forms, and packaging templates for distribution, with advice on using multiple templates, replacing tables with CSS, using animation and other effects, and tricks to tweak existing templates. Readers need basic knowledge of Joomla (which can be gained from Packt's Building Websites with Joomla), of CSS and HTML, and of using Dreamweaver for coding. Written in PHP, free, award-winning Joomla CMS is easy to install, simple to manage, reliable, and allows easy publication of content to Web or intranet. From simple websites to complex corporate applications, it is used world-wide. A Joomla template controls the presentation of content; it provides the design for viewing a Joomla website and works with the content stored in databases to present a complete website.

U. K. Singh and K.N. Sudarshan (2002) in their book, *Computer Education* highlights the need for computer edification in the changing world scenario. They pointed out that the task of teaching students computer programming differs markedly from that of teaching them to address effectively the human, social, occupational and

civic problems created by microelectronic technologies. The book implied that these problems lie outside the rational world of computer programming and in the emotion-laden contexts of political organization, work settings, family milieu and other locales. The book is addressed to administrators, planners and educators working in the field of education and training with a view to stimulating interest and attention in the areas of education and its related fields. It is also addresses to the growing number of teachers and instructors who will be practitioners in education and who will need to be acquainted with the modern aspects of educational practice and development.

V.P. Ramanujan (2001) in his book, *Computer Education* talks about how computer programming is likely to become the literacy determinant of the third millennium A.D. The author pointed out that elementary schools may well be teaching it before long, and we might be well advised to gain at least a smattering of knowledge of computers and of programming competence, especially since computer languages and programming environments are becoming increasingly helpful and friendly to the uninitiated user. With the rapid introduction of computers into schools, routine access to multimedia and internet resources by teachers and students has become possible.

Vasu Deva (2003) in his book, *E-learning: Search for Excellence* highlighted e-learning as a universe comprises of three basic elements – content, services and technology. The book also talks about how policy-makers and business strategies worldwide reflect on ways to develop strategies around teaching and learning on-line which requires a great deal of certainty, trust, commitment and interest from business leaders to accelerate their attempt at creating and building institutions. The book suggested that for e-learning to be a success, stress should be given on understanding the client needs and suggested appropriate e-learning solutions, designing course material for e-learning products, applying instructional strategies, developing Computer Based Training (CBT), Web Based Training (WBT) and evaluating learning products and solutions for learning effectiveness. Search for e-learning from a practical view and designing cost effective systems which institutions and corporates can use for enhancing productivity and performance and learning in their organization should also be kept in mind. According to the author, in order to keep employees and customers constantly on the learning curve, organizations must

formulate a well-defined architecture to handle skill related learning and current business knowledge.

Vasu Deva (2005) in his book, *E-Governance in India: A Reality,* talks about e-governance initiatives in- USA, Bangladesh, Netherlands, Cameroon, Malaysia, South Africa and India. He highlighted how important 'ICT' is for developing and developed countries in delivering service to the citizens in a more convenient, citizen centric and cost effective manner. He also highlighted how good governance has become not only necessary but also essential in a set up where people are the biggest stakeholders. He strongly stressed that good governance supports digitization of government administration by using network technology to meet the needs of the people. The book also covers the role of women on e-governance, and how ICT can lend a hand to women in developing and realizing their social and political rights through internet.

Vishwas Tripathi (2007) in his book, *E-Governance: Perspective and Challenges* talks about learning the true potential of e-government. He mentioned that a re-evaluation of the processes is necessary for e-government to continue to be accepted in the mainstream and to be a more efficient system of governance accessible to all. He stresses that, if the models that were introduced earlier continue to be improved upon, e-government in our society will be an open and transparent institution that provides a maximum of services with a minimum of intrusion in the lives of the users. Instead of a broad-based program to seamlessly interweave government workings with information technology, nations around the world now are struggling to implement Internet access, e-government interests and most importantly, safe and effective programs that serve the society more efficiently. Vishwas Tripathi is of the view that good governance can somehow be achieved by implementing e-government. He is of the view that transparent, citizen centric, accountable, cost effective, time saving, and efficient government can be a result of a proficient e-government administration.

Arpita Sharma (2013) in her article, 'Rural E-Governance in India' from the journal *Yojana* stressed that India is a nation of villages and the rural mass in the nation comprises the core of Indian society and also represents the real India. According to the Census Data 2011, there are 638,387 villages in India that represent

more than 72 per cent of the total population. In a participatory democratic society, ICT can be used for good governance, enhance democratization and citizen empowerment. The digital governance creates better connections between citizens and government and encourages their participation in governance. The processes gives chance to open up the avenues for direct participation of women in government policy making process. It is very significant in rural areas where people deprived of getting benefit of the different integrated development programmes. The author highlights certain rural e-government initiatives and projects such as- Computerized Rural Information System Project [CRISP], National E-Government Action Plan [2003], State Wide Network Area Project [SWAN], e-Choupal, Drishtee, Akashganga, Gyaandoot, Tata Kisan Kendra (TKK), N-Logue, Kisan Call Centers etc. Cost reduction, transparency, accountability, efficiency, quality of service delivery to business and customers, improved quality of decision making are some benefits which can be accomplished through ICT.

G Rajitha (2010) in her article, 'E-Governance for Improving Rural Livelihood' from the journal *Yojana* draws attention towards success stories of e-government projects in different parts of India. She highlights how e-government projects help the rural masses and how ICTs can enable the downtrodden sections of the society to overcome traditional problems of development like poverty, illiteracy, malnutrition, unemployment and corruption. In her article, G. Rajitha talks about; *Akashganga*, a project in Gujarat designed to help milk producers; *eChoupal*-which provides farmers with information relating to farming equipments, weather, crop etc.; *TKS* (Tata KisanSansars) in Maharashtra; *TNCDW* (Tamil Nadu Corporation for Development of Women Limited.) which aims at social and economic empowerment of women in Tamil Nadu; *Drishtee*- a revenue generating platform for rural networking and marketing services that enable e-governance, education and health services; *Gyandoot*- an internet based G2C service delivery in Madhya Pradesh; *Jagriri E-Sewa*– e-governance service for rural people; *Lokmitra*- developed by the National Informatics Centre (NIC) for Himachal Pradesh; *Bellandur*-a project in Bangalore that enable Gram Panchayat e-government solutions; *Janmitra*- in Rajasthan and Uttaranchal; *eUttaranchal* in Uttarakhand state; *Telemedicine* – an initiative of Apollo Hospitals and *Lokvani*- in Uttar Pradesh.

Gopal Sharma (2014) in his article, 'Kisaan SMS Portal: ICT tool for Agricultural Extension' from the journal *Kurukshetra* emphasized that ICTs are changing all the spheres of human lives and agriculture cannot be an exception. ICTs now may act as an agent for changing agrarian and farmers' life by improving access to information and sharing of knowledge. *Kisaan SMS Portal* can improve the productivity in agriculture by adopting different measures. This ICT tool can change the ideas, activities and knowledge of the farmers. In India the following ICT measures are adopted for agriculture extension: aAQUA, Kissan Kerala, TNAU AGRITECH Portal, e-krishi, Indian Development Gateway (InDG Portal), Rice Knowledge Management Portal (RKMP), ITC-e-Choupal, EID ParryIndiagriline, Indiancommodities.com, Mahindra KisanMitra, IFFCO Agri-Portal, iKissan, Village Knowledge Centres (VKCs) -M.S. Swaminathan Research Foundation (MSSRF), Village Resource Centres (VRCs), Community Information Centres (CICs), Common Service Centres (CSCs), Farmers Call Centre (Kissan Call Centre), IFFCO Kisan Sanchar Limited (IKSL), Fisher Friend, Reuters Market Light (RML), Digital Green, Knowledge Share Centres etc. The author states that the generation and application of agricultural knowledge is increasingly important, especially for small and marginal farmers, who need relevant information in order to improve, sustain and diversify their farm enterprises. The Indian farmers are not much aware of the latest technologies developed for the improvement of agricultural products. In order to solve this problem in 2013, aShort Message Service (SMS) Portal for Farmers was created by the Department of Agriculture & Cooperation, Government of India for dissemination of relevant information, giving topical and seasonal advisories and providing services through SMSs in the language of the state.

Guda Van Noort, Rens Vliegenthart & Kruikemeir Sanne (2016) in their article, 'Return on interactivity? The characteristics and effectiveness of Websites during the 2010 Dutch local elections' from *Journal of Information Technology& Politics* examines the use of interactive features (i.e., discussion and participation features) on the websites of Dutch political parties during the 2010 local elections campaigns and investigates whether a relationship exists between interactivity and election results. A manual content analysis of 2,135 party websites demonstrates that websites of national parties that compete in local elections are more interactive than those of independent local parties. Furthermore, for elections in larger municipalities,

the parties' websites use more interactivity. The article highlights how political campaigns in the western countries have undergone fundamental changes, witnessing the rise of a postmodern election campaign that has given public opinion a central place in the political process by increasing the length, intensity and competition of campaigns. Interactive media, including social networks and websites, are now widely adopted by political parties and politicians, especially during election campaigns.

Based on the literature under review, it can be stated that no research has been executed on the current topic, which expresses the need for a research in the present study.

1.3   STATEMENT OF THE PROBLEM

E-Governance has played a significant role in bringing about efficiency, transparency, accountability, service orientation, reliability and availability in delivering services to the people from cities to the remotest and isolated areas. Websites have helped in the dissemination and delivering process. Websites act as a doorway which enables individuals to explore and search into something via Internet and its peripherals.

In today's world, websites has become one of the most important components of e-governance as it is one of the means for accomplishing good governance. India under the NeGP has adopted initiatives for making and bringing public services available and closer to the citizens through electronic media. Based on this, each department under the states and Union government were urged to have a functioning website so that citizens may have the possibility to look through what is going on, share their grievances and correspond on matters related to governmental functioning. The Government of Mizoram and its departments have started using websites from 2005. Websites of various departments under the Government of Mizoram were developed through an Open Source CMS such as Drupal, Joomla and WordPress etc., and it was difficult to recognize the difference between government websites and private company websites. Some departments had developed nifty and exclusive looking websites while others were very simple, because no uniform layout and guidelines for the websites of government departments were made. The websites were maintained by different departments according to their own choice of system. Due to non-availability of Content Management System (CMS) for the State government

many departments are forced to spend a huge amount of money for engaging private firms to develop their websites by using funds allotted to them. Keeping abreast of the issue, the Government of Mizoram launched Government of Mizoram- Content Management System (GoM-CMS) in 2012 which was projected to be used by all departments under the Government of Mizoram. Currently 141 departments out of the existing 162 are using GoM-CMS.

1.4   SCOPE OF THE STUDY

The study focuses on the utilization of websites, specifically on Content Management system which was developed by Mizoram State e-Governance Society (MSeGS) under ICT Department, Government of Mizoram. Although websites can be developed by private web developers, our study mainly focuses on the websites developed and administered by the Government of Mizoram under ICT Department.

In Mizoram, 141 government department and itsunits (Departments, Institutions, Sections, Blocks and Corporations) are currently using GoM-CMS, and it is proposed and planned to be used and developed for each and every government department, academic institutions and corporations shortly. Websites have been used by most departments under the Government of Mizoram, academic institutions, corporations etc., and the study will be centred on such aforementioned areas.

1.5   OBJECTIVES OF THE STUDY

The main objectives of the research study can be highlighted as under:

1. To examine the working and importance of websites for disseminating information and in bringing about efficiency in delivering services to the citizens.
2. To study the problems faced by government departments/institutions before deployment of GoM-CMS project.
3. To explore the pre deployment scenario of the GoM-CMS project and assess the post development status.

1.6   RESEARCH QUESTIONS

The following research questions are formulated for the study:

1.   How did CMS evolved and function under the Government of Mizoram?

2.   What were the problems and challenges faced by government departments in Mizoram before the introduction of GoM-CMS?

3.   Does GoM-CMS meet the requirements of government departments, corporations and institutions in Mizoram?

4.   What are the measures that can be taken to make the government websites more user friendly and citizen-centric?

1.7   METHODOLOGY

Primary and secondary data were used to undertake the study. Primary data are obtained through unstructured interview schedule, surveys and observations. Interviews is carried out with the functionaries in government departments, institutions, corporations and beneficiaries of the project, which includes students, prominent citizens etc.

Secondary data was acquired through books, journals, articles, newspapers and printed records. Internet sources were also used for collecting secondary data.

1.8   CHAPTERIZATION

Chapter I   :   Introduction.

Chapter II   :   Government of Mizoram – Content Management System –
                      Brief overview of the project

Chapter III   :   Problems and challenges faced by GoM-CMS before its
                      deployment.

Chapter IV   :   Comparison of pre deployment scenario and post
                      development benefits

Chapter V   :   Conclusion

CHAPTER II

GOVERNMENT OF MIZORAM – CONTENT MANAGEMENT SYSTEM-

BRIEF OVERVIEW OF THE PROJECT

Chapter2

2.1   MEANING OF CONTENT MANAGEMENT SYSTEM

A Content Management System (CMS) is a software tool that allows you to create, edit, and publish content. While early CMS software was used to manage documents and local computer files, most CMS systems are now designed exclusively to manage content on the Web.CMS is a software that keeps track of every piece of content on your Website; much like the local public library keeps track of books and stores them. Content can be simple text, photos, music, video, documents, or just about anything. A major advantage of using a CMS is that it requires almost no technical skill or knowledge to manage as the CMS manages all the content.[12]

The goal of a CMS is to provide an intuitive user for building and modifying webpage content. Each CMS also provides a web publishing tool that allows one or more users to publish updates live on the Web. The editing component is called the Content Management Application (CMA), while the publishing tool is called the Content Delivery Application (CDA). These two components are integrated together in a CMS to streamline the web development process.

Content Management Systems are available as installable applications and web-based user interfaces. While CMS software programs, such as Adobe Contribute, were popular for a few years, they have largely been replaced by web-based CMS. Most people prefer a web interface, since it simplifies the website updating process. Additionally, most web-based CMS are updated automatically, ensuring that all users have the latest tools to manage their content.

Several web-based CMS tools are available. The following are some of the most popular ones:

1. WordPress - free web software designed for creating template-based websites or blogs

2. Blogger - Google's blogging tool designed specifically for maintaining a blog

---

[12]https://www.joomla.org/about-joomla.html accessed on 29.10.2017

3. Joomla - a flexible web publishing tool that supports custom databases and extensions

4. Drupal - an open source platform often used for developing community-based sites

5. Weebly - a web-based platform for building simple personal and business websites

6. Wix - a collection of web publishing tools for creating a highly customizable website

Some CMS tools are free to use, while others require a monthly fee. Many CMSes provide free basic components, but charge for high-quality templates, web hosting, custom domain names, or other features. Before deciding on a CMS, it is a good idea to review multiple options so that the one that best fits the website goals can be selected.[13]

Most organisations recognise that a content management system (CMS) is a necessity when maintaining a large corporate website or intranet. It is important to ensure however, that beyond a general 'need', CMS solutions should be made to meet specific business goals. Without a clear vision of the business goals of the system, it is impossible to track the success of the project, or ensure that the benefits are maximised.

The most common CMS goals envisioned by different corporations, enterprise or organisations:

1. **Increase flexibility of site:**

   Websites must quickly adapt to match new products, services, or corporate strategies. The CMS should support easy and trouble-free restructures and interface redesigns. This includes updating all pages to reflect a new corporate brand or image.

---

[13]https://techterms.com/definition/cmsaccessed on 29.10.2017

35

2. Improve information accuracy:

The overall quality of the information is to be improved, on both the website and intranet. All pages should be:

- Accurate
- up-to-date
- comprehensive

3. Support marketing:

Websites have become a key marketing channel. The CMS should facilitate the delivery of marketing material, as well as supporting current brands.

4. Reduce duplication of information:

Duplication of information across business units and platforms increases maintenance costs and error rates. Wherever possible, information should be stored once, and reused multiple times.

5. Improve customer experience:

The CMS should enhance the ability to provide a full-featured, rich environment for website visitors. This will include enhancements to the quality of the site, and the ease of use.

6. Support sales:

E-commerce sales are growing steadily, and the CMS should provide further sales material to enhance the sales impact of the website. It should also complement current e-commerce infrastructure.

7. Streamline information updates:

The current manual process for updating website information is slow and inefficient. This should be streamlined to support rapid and simple updates to information across the site.

8. **Support website growth:**

There is a strategic need to substantially increase the amount of information published on corporate websites. The CMS should deliver efficiency and management benefits to support the goal of website growth.

9. **Improve responsiveness:**

The CMS should support the development of new products and services, as well as other changes in corporate direction. This is achieved by providing a rapid and efficient mechanism to update internal corporate information and resources.

10. **Improve publishing process:**

Ad-hoc publishing processes prevent effective management and tracking. The CMS should improve on this, as well as providing greater transparency and accountability.

11. **Reduce legal exposure:**

All information presented on the corporate website exposes the business to legal liability. This should be reduced by establishing greater control and accountability over the review and publishing processes.

12. **Capture business knowledge:**

It is recognised that the loss of key staff reduces the knowledge available within an organisation. The CMS should support the capture of this information in a documented form.

13. **Improve knowledge sharing:**

Direct staff communication, and 'peer-to-peer' sharing of information are two of the most effective ways of spreading knowledge. The CMS should provide both an environment and the tools to facilitate these processes.

14. Support knowledge discovery:

Many staff are confronted with 'information overload'. By providing powerful searching, browsing and filtering, the CMS should allow staff to find and track key information.

15. Improve staff efficiency:

Staff efficiency can be improved by supporting key business processes with sufficient information. The CMS must aim to provide staff with the information they need, when they need it. This will translate into direct time savings by avoiding fruitless searches for required information.

16. Reduce customer support costs:

Customer support requirements should be reduced, by providing more accurate and comprehensive information to customers.

17. Reduce publishing costs:

Many business manuals are still produced in paper form. Direct cost savings would be realised by replacing these with online resources.

18. Reduce website maintenance costs:

By replacing the current labour-intensive maintenance activities, the CMS should reduce the need for website administration staff, and other associated costs.

19. Increase website audience:

The CMS should allow a wide audience to access the website. All clients of the government will then benefit from the site.[14]

---

[14]http://www.providersedge.com/docs/km_articles/What_Are_The_Goals_of_a_CMS.pdf accessed on 2.11.2017

2.2 DEPARTMENT OF INFORAMTION & COMMUNICATION TECHNOLOGY:

The Department of Information and Communication Technology was, in its nascent stage, functioning under the Department of Industry and the Industry Department acted as a Nodal Department till the month of October, 2004 with Deputy Secretary on deputation. The Nodal Department was changed to Planning & Programme Implementation Department and on 8th November, 2004 a new post of PIO (Principal Informatics Officer) was created for the department and the Deputy Secretary held the newly created post and worked as PIO-cum-Deputy Secretary of the department. On 10th July, 2008 a separate Directorate of Information & Communication Technology (ICT), again on 20th November 2012 the Principal Informatics Officer was promoted to Chief Informatics Officer and held the position of head of this Department, and till to-day, the Department has been actively working to make Mizoram one of the most IT literate state in the country and providing ICT-enabled citizen-centric services for the welfare and development of the society.

The department has undertaken various projects since its inception to materialize the objective and vision set forth by the Government of Mizoram to bring about economic growth and sustainable development in the State through the adoption of ICT tools. The Department of ICT has been established as a separate Directorate from October 2008 for framing policy, planning, implementation and monitoring of Information & Communication Technologies and e-Governance projects. The Department has a 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 throughout their lives through minimum procedural formalities thereby pursuing economic development.[15]

The main vision of DoICT is to act as a transformational tool for the State of Mizoram. Its Mission is to develop the state through creation of e-Infrastructure for delivery of e-Services, promote Information &Communication Technology, facilitate Research Development, Capacity building and empowerment of Government employees and Citizen, provide awareness on Cyber Crime and Security.

---

[15]https://dict.mizoram.gov.in/page/profile accessed on 3.12.2017

Development of Content Management System is also one of the most significant projects undertaken by the DoICT. The Government of Mizoram-Content Management System has been commentated for being the best e-governance delivery project in India.

The Department of Information & Communication Technology (DoICT) is among leading ICT enhancer within the country. Its development and advancement are noticed by the Central Government and societies in the field of e-governance. The Department of Information & Communication Technology (DoICT) is awarded one of the highest National e-Governance awards titled, 'Skoch Smart Governance Award' on 8th September 2016 for the development of Content Management System, E-District and Inventory Management System (IMS). In 2014 the State of Mizoram is declared as "Emerging ICT State of the Year", and a study conducted by Skoch Group in 2016 stated that among all Indian States and UT's, Mizoram is ranked at 14th position in terms of IT development.[16]

2.3   GOVERNMENT OF MIZORAM – CONTENT MANAGEMENT SYSTEM

To maintain uniformity and enhance the usability of government's websites, Department of Information &Communication Technology (DoICT) took the initiative of developing a common template and Content Management System (CMS) exclusively for departments under the Government of Mizoram. Before the setting up of the project, websites maintained by Government departments are not uniform in content as well as in its usability. The location of links and information in websites are not same across all the websites, making it exhausting and demanding for visitors/citizen to find the targeted information. Also, the content available on some of the government's websites is not in conformity with the guideline approved by DoICT.

Using open source Content Management System (CMS) for website development is very common all over the world and Government's websites are no exception to this. Though the cost of development of website using Open Source CMS is less and can be easily done by the staff with lesser technical

---

[16] https://msegs.mizoram.gov.in

knowledge, using open source CMS itself poses security risk to government websites.

To tackle all the above mentioned issues, DoICT develop Common Template and a Content Management System (CMS) which can be adopted by all departments under the Government of Mizoram, which is now currently being in used by Government departments, PSUs, Boards, Societies and Organisations under Government of Mizoram.[17]

Government of Mizoram - Content Management System (GoM-CMS) is a state initiative project taken up by the Department of Information & Communication Technology. The cost of the development of the CMS is Rs. 2.5 lakh, which is a one-time payment. Due to effective and reliable procedure, the developers do not charge the maintenance. It is estimated that for the development of more than 160 different website, government would have spent more than Rs. 150 lakh approximately, but with the CMS, different department do not need to develop their own websites which could help in cost-reduction and unnecessary usage of funds.

The GoM-CMS is developed as per the guidelines of Government of India. Due to government centric design, departments need not recruit new employees specialized in information technology. Government departments do not have a specific post for website programmer. The Government of Mizoram has removed the post of Computer Operator for departments. Data Entry Operator (DEO) with basic computer knowledge is assigned to the post of website programmer or IT operator. 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 issue letters to all website owning departments for further actions. It is envisaged as coherent with the Digital India programme; a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy[18]. This project is of paramount importance to the

---

[17]https://dict.mizoram.gov.in/page/common-template-for-departmentaccessed on 30.09.17
[18]http://digitalindia.gov.in/content/about-programmeaccessed on 30.09.17

state as it would help in creating an automated workflow system for the web administration for all departments of Government of Mizoram and help in providing efficient and valuable services through their websites which would be their primary objective.

After the approval of the GoM-CMS project, responsibility for the initiative was given to the Department of ICT, Government of Mizoram. 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 (CMS) for Government of Mizoram Version-1 was then developed.

The Department of ICT engaged Dumde Inc. for development of the Content Management System with a financial support of Rupees 2.5 Lakhs only (Rs. 2,50,000) from ZENICS Ltd. a 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 CMS was completed and launched on 20th July 2012. In the beginning it was used for 60 departmental websites and it has been continued to be used for 141 Websites under the Government of Mizoram till date without any additional expenditure for supporting the GoM-CMS. It may be mentioned that the CMS is said to be a hack free System, because defacement of websites from various user departments have not been reported till date from the date of implementation. Moreover, centralization of security of CMS is done by ICT Department.

The Content Management System is designed as department centric, the features and modules integrated in the CMS focused on the needs of various departments of Government of Mizoram. It is also user friendly for the citizen as well as the technical staff of the user department. Furthermore, the allotment of domain, hosting and deployment of CMS has been done free of cost. At present, 141 websites out of 169 of government and its subordinate offices websites are using the GoM - CMS free of cost.

The GoM-CMS complies with the Government of India Website Guidelines which was developed as an initiative under the National Portal of India Project adopted by the Department of Administrative Reforms and Public Grievances,

Government of India. The GoM-CMS also complies with a Web 2.0 standard that allows users to interact and collaborate with each other in a Social Media dialogue as creators of user-generated content in a virtual community, in contrast to websites where people are limited to the passive viewing of content.

GoM-CMS is also in compliance with a Web Content Accessibility Guidelines (WCAG) 2.0, which covers a wide range of recommendations for making Web content more accessible. The guidelines makes a content accessible to a wider range of people with disabilities, including blindness and low vision, deafness and hearing loss, learning disabilities, cognitive limitations, limited movement, speech disabilities, photosensitivity etc., through a Screen Reader Access software etc. A screen reader is a kind of assistive technological software programme that allows visually impaired and blind users able to read the text displayed on a computer screen with a speech synthesizer or Braille display. It is a interface between the computer's operating system, its applications and its users. The user sends command by pressing different combination of keys on the computer keyboard or Braille display to instruct speech synthesizer what to say and to speak automatically when changes occur on the computer screen.[19]

A few website developed by ICT department using GoM-CMS is presented below:

*Figure No. 2.3.1 DoICT website, developed using GoM-CMS*

Source: ICT Department, Government of Mizoram (https://dict.mizoram.gov.in)

---

[19] www.afb.org/probBrowseCatResults.aspx?CatID=49

Figure-1 demonstrates the website design and layout of DoICT, which is developed through GoM-CMS. As highlighted, different navigation menu bars such as **Home page, About Us, Programme & Scheme, Documents, Forms, Act & Rules, PSU & Societies, QMS** can be seen and understood easily. On top of menu bar '–A''A''+A' are highlighted on the top left and on the top right corner are small menu bar such as 'Screen Reader Access', 'Contact us', 'feedback' and 'Abbreviations'. Social menu shortcut such as 'Facebook' and 'YouTube' are also added on the top right corner of the homepage. All these are the main content in the department webpage. The above mention menu bar such as Home, About Us, Documents, Forms etc., are a responsive pre-designed webpage, or set of HTML webpage that contains zip files or file documents, or drop down navigation menu which contains files, documents, videos, pictures etc. Besides these menus, features such as News, Events, OM/Notifications, Circular & Orders, Press Release, Citizen Charter, Notice Board, Public Grievance menus are also placed in the website.

All the above mentions points relating to navigation menu, sub menu, documents, homepage, sub-features etc., can be assembled as preferred by the department.

Figure No. 2.3.2Social Welfare Department Website, developed using GoM-CMS

Source: https//socialwelfare.mizoram.gov.in
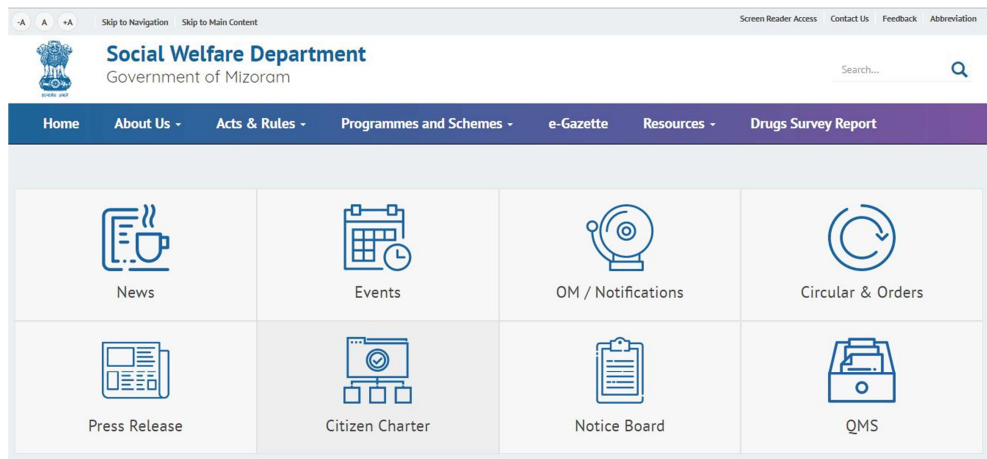
As shown in fig. 2, the content placements are different from that of fig.1. While fig.1 show menu bars such as**Home page, About Us, Programme & Scheme, Documents, Forms, Act & Rules, PSU &Societies, QMS,** fig.2 altered the contents, adding **e-Gazette, Resources and Drugs Survey Reports**, as preferred by Social Welfare department.

Although the content placement may not be the same, the appearances, the layout and the features are similar. This is the goal of the government regarding website management. The domain name for each website are also similar, representing the nomenclature of each department in the beginning, followed by '***mizoram.gov.in***', e.g., *socialwelfare.mizoram.gov.in, dict.mizoram.gov.in, mpsc.mizoram.gov.in etc.*

Figure No.2.3.3 Mizoram Public Service Commission Website, developed using GoM-CMS, Version 1

Source: https://mpsc.mizoram.gov.in

Figure No.3 shows the GoM-CMS version-1 website of Mizoram Public Service Commission.

2.4   THE OBJECTIVES OF THE PROJECT:

Government of Mizoram - Content Management System is designed so as to make all government website have a single domain, with a similar templates and layout. CMS enables each department users to easily upload and change the content of their websites. CMS Version-1 was projected to be upgraded to version-2 and some departments have already used the version-2. The main objective of the GOM-CMS can be highlighted as follows:

1) The main objective of GoM-CMS project is to create an efficient system to disseminate information to the citizens by implementation of efficient

electronic workflow to create transparency and accountability in the information dissemination process and reduction of workload of the departments.

2) Departments would develop their websites in uniform layout by using the Government of Mizoram CMS, so that the citizens would be able to recognize the difference between government websites and other websites.

3) Provision of user friendly website for departments which is exclusively used by various sectors of the Government of Mizoram including departments, PSUs, Block Development Offices, Government Institutions and others.

4) In the GoM-CMS, the front end design and its back end system are intended to maximize the efficiency and simplicity in managing a full-fledged website/portal which could serve the government employees as well as the citizen.

5) GoM-CMS is a model technology for creating, maintaining and managing the official websites. All departments are anticipated to provide better information and other electronic services to the public.

6) More specifically, the CMS would allow the administrator to control all facets of the website including posting of information and documents as well as media management. This consent on the part of CMS makes it user friendly for the technical in-charge in the department and update of data could also be done easily with the CMS.

7) A facility for communication between the users and the administrators will also be provided by using a grievance system/feedback form in the CMS and all the websites using the GoM-CMS will have those facilities.

8) The CMS has a modular design so that a new functionality could be added as and when required without breaking the integrity of the existing system.

9) Provision of secure CMS is one of the important objectives. It may be mentioned that the defacement of websites from various user Departments are not reported till date from the implementation of this CMS.

10) The Content Management System has been developed based on the e-Governance Maturity Model (e-GMM) Stage-1 and Stage-2 with an objective to provide department websites to implement the following *e-GMM Stage1 & 2*:

Stage 1 - Information: It is about web presence, providing the external public Government to Citizen (G2C), Government to Business (G2B) and Govt. to Govt. (G2G)] with relevant information. Government's information is publicly accessible to the common man; and

Stage 2 - Interaction: In the second level the interaction between government and the public via e-mail, forms and documents to download all sorts of information, which could be done online 24/7. Normally this would have only been possible at a counter during opening hours in the information phase.

11) The Content Management System is designed with an objective to encourage all departments and its subordinate offices to have their own website for providing information to the public.

12) In order to comply with the Government of India Website Guidelines, the Department advised all departments to make use of CMS for provision of information to the public through Primary Content (Compulsory), Secondary Content (Advised), and Tertiary (Content)- Optional.

The Generic List of Primary and Secondary Content are:

- *About the Department/State*

- *Mission/Vision*

- *Organizational Structure*

- *Who's who of the Department*

- *List of Staff*

- *Act & Rules*

- *Programme& Scheme*

- *Documents/Reports*

- *Forms*

- *Services Offered by department*

- *Contact Information*

- *News*

- *Press Release*

- *Events/Announcement*

- *Related Links*

- *Media Gallery*

- *Sitemap, Search*

- *Terms & Condition*

- *FAQ*

- *Feedback*

- *Circular/Notification*

- *Tender/link*

- *Recruitment of Police*

2.5 DETAILS OF COVERAGE OF THE TARGETTED POPULATION:

The GoM-CMS is a project created by the Department of Information Communication Technology, Aizawl, to be used and run by departments within the state. Urban and Local bodies, corporations and institutions funded, wholly and partially by the government of Mizoram; PSUs, Boards, Societies and Organisations under Government of Mizoram are also mandated to have a functioning website.

1) The targeted populations at large are the citizens of India and the people of Mizoram in particular. Due to rapid advancement in the field of Information & Communication Technology and availability of Internet facility at the door step, government website has become a vital interface between the government and its citizens. As part of an effort to provide information to citizens on 24 X 7 basis and promotion of good governance and transparency, at present 141 websites out of 169 has been developed through this CMS.

2) The project covers employees of the entire state department & its subordinate offices and PSUs/Societies undertaken by the Government of Mizoram. As on 6th March 2009, there are approximately 46 government departments in Mizoram. All these are within the coverage area of the CMS project. Besides, academic institutions, local administrative institutions/corporations such as Pachhunga University College, Government Aizawl College, Aizawl Municipal Corporations etc. are also within the coverage area.

3) The CMS provides a capability of developing bilingual websites which could display information both in English and Mizo. The built-in text editor supports both English and Mizo characters. Therefore the website may be useful for all the local people living in urban areas and rural areas. The literacy rate within the state accounts to more than 90% of the entire state population but only with regards to reading and writing alphabetical figures. Comprehension of English word content is a challenge, so displaying information in mizo language enlarged the covered area.

4) Urban digitisations are also achieved with the CMS. Rich data are included in departmental websites though this CMS and it empowers the public with insights that serve government and citizens alike effectively towards Good Governance. Rich data is used to predict consumer behaviour. It is a process of assembling data to determine when and where a person is most likely to buy something or answer government tenders. It is a form of business intelligence that helps businessmen answer specific questions about their market, simply by linking the data available from various departments. Rich data utilises additional department within a company, such as finance, IT, human resources and customer service. Rich data allows a business to see all the factors that influence the sales made, both internally and externally.[20]

5) The CMS provides Digital Communication between the government and its citizen for the general public through Citizen Interaction module which is provided using feedback forms, grievance systems and links to other social media pages.

6) The CMS Provides and support the Digital Access for the society toward equal digital rights and supporting electronic access through Government Websites.

7) Digital Security is also provided to the Citizen through the CMS, since the core template is made highly secured by implementing with the use of Secure Socket Layer (SSL). Therefore all the Government Websites under this CMS are secured.

8) The Government department's websites developed through the CMS act as a hub for all the interactions between the citizen and various service providers under the Government Departments and even among employees of Government Departments.

9) In Mizoram there are 8 District viz. Aizawl District, Champhai District, Kolasib District, Lawngtlai District, Lunglei District, Mamit District, Saiha District, Serchhip District and all the District Administration have

---

[20]https://www.digitalthing.com.au accessed on 4.12.2017

their own website, citizens under those district administration may utilize their website.

10) Moreover there are 26 Rural Development Blocks viz. Tlangnuam R.D. Block, Darlawn R.D. Block, Phullen R.D. Block, Aibawk R.D. Block, Thingsulthliah R.D. Block, Lunglei R.D. Block, Lungsen R.D. Block, Hnahthial R.D. Block, Bunghmun R.D. Block, Saiha R.D. Block, Tuipang R.D. Block, Thingdawl R.D. Block, Bilkhawthlir R.D. Block, Zawlnuam R.D. Block, West.Phaileng R.D. Block, Reiek R.D. Block, Champhai R.D. Block, Khawzawl R.D. Block, NgopaR.D. Block, Khawbung R.D. Block, Serchhip R.D. Block, E.Lungdar R.D. Block, Lawngtlai R.D. Block, Bungtlang 'South' R.D. Block, Chawngte R.D. Block, Sangau R.D. Block. Out of these 26 RD Blocks, 15 Blocks have their own websites, therefore the coverage population may use utilize these websites.

CHAPTER III

PROBLEMS AND CHALLENGES FACED BY GOVERNMENT WEBSITES BEFORE DEPLOYMENT OF GOM-CMS

Chapter 3

Website has become one of the most important components for promoting transparency in governance, maintaining its accountability and sustaining availability. To parley with government, to visit its departments and enquire its functioning can easily be accomplished using website. Access to internet and owning its peripherals is a necessity for men in the 21stcentury.Different government felt the need to utilize e-governance system in their functioning for easy access 24/7wherewebsiteisthe facet to make this access possible. By accessing government website, any queries, questions and information made available are within reach anytime anywhere. Modernisation steer in new innovations and cutting edge technology and government of the world are trying to outdo one another to be at the pinnacle. At this juncture owning a good and reliable website has become one of the countenances of an advanced government.

3.1   GUIDELINES ON WEBSITE MANAGEMENT FOR DEPARTMENTS UNDER THE GOVERNMENT OF MIZORAM

Realising the need and importance of owning a website, the Government of Mizoram develop guidelines on website management for departments under the Government of Mizoram. The guidelines are to be used and followed by every department and government subdivisions within the state. The guidelines developed by Government of Mizoram are corresponding with the Guideline of Indian Government Websites, formulated by the Department of Administrative Reforms and Public Grievances in association with the National Informatics Centre (NIC).

Brief guidelines on website management for departments under the Government of Mizoram may be highlighted as under:

3.1.1   FORMATION OF WEBSITE MANAGEMENT TEAM:

To make Government services and information accessible to citizens ready for 24 hours 7days a week, Office Memorandum (OM) was issued on 7th October, 2010

instructing every Department under the Government of Mizoram to have department's official website.

It was also found that some departments were not maintaining and updating their website properly. Therefore, in order to bring uniformity and enhancing the quality of government website, the OM also stated that every department should constitute Website Management Team headed by Web Information Manager to look after their own department's website. Web Information Manager should be appointed from officer not below the rank of Deputy Director.

3.1.2. GOVERNMENT WEBSITE GUIDELINES

Government website Guidelines:

To maintain standard and uniformity in websites under the Government of India, 'Guidelines for Indian Government Website' prepared by NIC Headquarter was adopted by Department of Administrative Reforms & Public Grievances, Ministry of Personnel, Public Grievance and Pension, Govt of India.

All Departments are expected to follow the said guideline while maintaining department website. This Guideline is available for download in the following website:

        a) http://dict.mizoram.gov.in

        b) http://darpg.nic.in

        c) http://web.guidelines.gov.in

Domain Name:

In compliance to the Government's Domain Name Policy, all Indian Government websites must use '.gov.in' or '.nic.in' domain exclusively allotted and restricted to Government websites. For Departments under the Government of Mizoram, website can be hosted in Government of Mizoram domain i.e. '.mizoram.gov.in' or registered as '.gov. in 'or'.nic.in'. Educational institution/academy may use either '.edu.in' or '.ac.in' domain.

Web Hosting

Department of Information & Communication Technology (ICT), Government of Mizoram is providing hosting services and domain registration services free of charge for Departments under the Government of Mizoram.

ICT Department is also providing hosting services for educational institution with '.edu.in' and '.ac.in' domain.

Process of getting domain, website template and CMS from ICT Department:

If department wants to set up new website with domain under mizoram.gov.in, the following steps to be followed:

i) Download Domain Registration Form from DoICT website dict.mizoram.gov.in. (See Annexure I)

ii) Fill up the required fields with the correct information and submit it to Department of Information & Technology along with application requesting ICT Department to create domain and/or website template and CMS.

iii) After creating domain and/or CMS for the department, account detail information will be sent to email(s) provided in the form.

iv) Department will then have to upload content from their end using login id and password provided to them.

v) Assistance can be sought from ICT Department for maintaining and uploading the content of website.

3.1.3 EXPECTED INFORMATION FROM DEPARTMENT'S OFFICIAL WEBSITE:

State Government Departments should display the State Emblem or National Emblem in case the State has adopted the National Emblem as its official State Emblem as per the 'State Emblem of India (Prohibition of improper use) Act 2005'. The Public Sector Organizations and Autonomous body should display their official logo on the Homepage of the website to re-enforce their identity.

All Indian Government websites must provide a prominent link to the National Portal Home (india.gov.in) from the homepage.

NOTE: - Commercial Banner Advertisement should be avoided on Government websites. Banner advertisements that promote and link to other Government agencies as well as social messages are permissible.

3.1.4. TENDER WEBSITE FOR GOVERNMENT OF MIZORAM

Department of ICT is maintaining centralized tender website www.tender.mizoram.gov.in through which all registered departments/users can publish their tender notice directly from their own system.

Some of the features of this tender system are:

a) Registration of Department/User

b) Subscription by supplier

c) SMS alert to registered supplier. If supplier is registered in the website and subscribe to tender of the department he/she is interested in, sms and e-mail alert will be sent automatically to him/ her as soon as a new tender is uploaded in the website.

d) Automatic removal of tender from the main page after expiry of the tender. The expired tender is "automatically sent to Archive Section for future reference.

e) User-friendly url/link for tender of department.

Steps to be taken by department:

a)   Register online through e-tender website.

b)   After getting approved by e-tender administrator confirmation message will be sent to email of newly registered user/department.

c)   After receiving confirmation message, department will have to update tender link in department's website with the following url:

tender.mizoram.gov.in/d/<deptt_id>

(do not include "<>" symbol)

NOTE: Department id can be seen by checking the url: tender.mizoram.gov. in/get-id

3.1.5. OFFICIAL STATE PORTAL OF MIZORAM

www.mizoram.gov.in is the official State Portal of Mizoram and is maintained by Department of ICT, Government of Mizoram. State portal serve as a single window access to information and services provided by the Government of Mizoram. It also provides general information about Mizoram and other important information useful to citizen.

Since the content in the State Portal is diverse in nature and needs a collaborative effort from multiple departments under the Government of Mizoram, Departments should inform ICT Department about changes in the information pertaining to their department published in the Portal and send all documents and information intended to be published in the Portal to ICT Department.

3.1.6. WEB ACCESSIBILITY GUIDELINE

Department should try to make their website comply with International Accessibility Standard like W3C Web Content Accessibility Guidelines (WCAG) as far as possible. This Guideline is intended to make website accessible to all irrespective of technology, platforms, devices and disabilities of any kind.

3.1.7. SECURITY

Hackers all over the world are targeting websites owned by Government. There are many instances of defacement of websites owned by the State Government and the Central Government. Therefore, utmost care has to be taken to make website as safe as possible. A number of Guidelines on Security related issues are available for download in the official website of CERT-ln (Computer emergency Response Team-India) www.cert-in.org.in. Departments are advised to follow security guidelines given in the said document.

Note: Apart from departments all Commissioners, PSUs, Boards, Societies and Organisations under Government of Mizoram are expected to follow these guidelines.

The guidelines of Government website are to be followed by each government departments, PSU's, Institutions and Corporations owning a website within the state of Mizoram. These guidelines were formulated to ensure that websites are reliable, accountable and efficient for government and its employees, the citizens and other beneficiaries. Before the formulation of these guidelines, different problems and challenges were encountered by the government which may be highlighted as under.

3.2 PROBLEMS AND CHALLENGES FACED BY GOVERNEMENT WEBSITES BEFORE DEPLOYMENT OF GoM-CMS:

Before the above mentioned guidelines were framed, different websites under the Mizoram government, viz., government department, PSU's, Institutions, and Corporations etc. were managed by each establishment/institutions according to their own choice and preference. Defacement problems such as unauthorised change made in the appearance of websites, attack by hackers injecting codes, odd images, inappropriate pop up links etc. were a huge problems and difficulties faced in website maintenance. As has been stated earlier, the GoM-CMS was instigated with a vision that all the Government departments have websites with a unified platform whereby citizens could have accountable and easy access to information. The major challenges before development of Government of Mizoram-Content Management System were:

1. The need for a common layout of Government websites is a prerequisite as web developers and designers were employed by Government departments where a unique and distinctive website for different departments are developed, making it complicated to determine which website is governmental and which is not.

2. Maintenance and development of websites requires time, money and technical expertise in the field. Employment of open source web developers by the Government led to a huge financial loss. In Mizoram, a total of more than 200 lakhs rupees is used by Government for employment of open source web developers before deployment of CMS.

3. According to the guidelines for Indian Government Websites, each department under the Government of India must appoint a Web Information Manager whose role will be to ensure that there is a proper flow of content to the site and that the content quality and user satisfaction issues are taken care of. However, in the case of Mizoram, not every department has a Web Information Manager to check on the functioning of department websites or even on maintenance and development.

4. Websites of various departments under the Government of Mizoram were developed through an Open Source CMS. Some departments had developed their nifty looking website while others were very simple, because no uniform layout and guidelines for the websites of government departments were made. Uniformity cannot be maintained in government websites as the content positioning is done as per the wishes of each department. The font size on each department website is not similar as well; while some are big some are undersized. Some were designed with a colourful outlay and some with simple and straightforward.

5. Some departments did not acknowledge the importance of website for disseminating information to the public even with the issue of Office Memorandum. Website can assist government employees and citizens in transferring files and important document speedily which reduce time load. In addition, unavailability of personnel for maintaining website may be an issue in this scenario. Government and its departments are unaware that websites assist in transforming government process; for maintaining transparency, accountability and promoting e-governance.

6. The interface used for development and maintenance of Government websites were different from one another as it depends on the developer of the websites. This resulted in an unattended websites of many departments when concerned technical staff was transferred from one place to another. As stated previously, before CMS was introduced, government department websites are developed through open source web developers where each department has a unique website with different features,

contents, outlook and appearance. Dissimilar website leads to dissimilar user method and processes, so when staff from one government department is transferred to another department the process in operating becomes a huge challenge.

7. Departmental websites were maintained by the concerned departments with their own choice of system, Officers and staff looks upon the maintenance of websites as an extra work which resulted in irregular updating and maintenance of departmental websites.

8. Some departments do not have officers and staff with the required technical expertise to develop and maintain their own website. Moreover, the Government did not create a specific post for maintenance of website. This creates complexity when it comes to administration as the maintenance of websites is done by lower grade office worker who are unacquainted with office administrative system.

9. ICT Department had only provided Sub-Domain and C-Panel from http://mizoram.gov.in before CMS was developed. C-Panel is a web based hosting control panel provided by many hosting providers to website owners allowing them to manage their websites from a web based interface.[21]

10. Before the GoM-CMS was implemented, many departments had expected that their website should be created and maintained by ICT Department. This gave them excuses which resulted in negligence on creation and updating of website.

---

[21]http://www.wpbeginner.com/glossary/cpanel/ accessed on 20/11/2017

11. Before the implementation of the GoM-CMS, the state had no Data Centre of its own, and all the applications were hosted and backup at different locations by purchasing servers from other states of the country.

12. One of the deterrents to the development of reliable departments' website was that no pressure was exerted by the public for want of reliable departmental website. This had resulted in negligence and tediousness of officials in creation and maintaining of websites.

13. Another major challenge within the ICT Department itself is the lack of adequate man power for the development and maintenance of Websites for the Government departments in Mizoram. Only three (3) technical officials were engaged for maintenance of websites.

14. No officials were trained for advance web technologies. This is one of the challenges in creation and maintenance of government websites. Political masters, bureaucrats and higher officials are becoming less competent concerning to Information and Communication Technology. Many maintain their status quo without realizing the need to upgrade their credentials with the changing world order in terms of Information and Technology.

15. Personnel employed for data entry and other publications like public notification, advertisement, recruitment form, government tenders etc., are mainly typist with a type writer back ground. The shifting from type-writer to Computer and to publication of the above stated points into websites requires a new range of knowledge. This is a great challenge for government website in its accountability and efficiency.

3.4   DESCRIPTION OF SOLUTION IMPLEMENTED:

The Government of Mizoram-Content Management System is expected to bring massive changes in the way government administer its websites. It is projected that the CMS will steer in a new, improved and accountable government websites so that people may understand the importance to use its existence. Different methods and means are used for the development of the CMS project with a vision for a better website administration. Some of the solutions solved by GoM-CMS concerning the problems or issues in maintenance of government websites are highlighted as under.

1) The DoICT spent Rs. 2.5 Lakh (Rs. 2,50,000) only for the development of Government of Mizoram-Content Management System. The main objective of the GoM-CMS is for providing common valuable assets to all the departments and its subordinate offices. With the previous system, it is estimated that the government would spent more than 40 Lakhs annually for development of various department websites. This is one of the most important affect the GoM-CMS offers to the government as there is much less involvement of financial capitals.

2) The CMS complies with the Accessible India Campaign *(Sugamya Bharat Abhiyan),* a Nation-wide Flagship Campaign for achieving universal accessibility which will enable persons with disabilities to gain access for equal opportunity and live independently and participate fully in all aspects of life in an inclusive society through a Screen Reader access software. The aim of the campaign is to make a barrier free and conducive environment for Divyangjans all over the country. It was launched by the Prime Minister Shri Narendra Modi on International Day of persons with Disabilities on 3rd December, 2015.

3) The testing of GoM-CMS (as per STQC standards) are provided free of cost by the certified personnel from Mizoram State e-Governance Society (A Society under the Government of Mizoram). This enhances the security of the Content Management System.

4) The CMS has a common Graphical User Interface for different sectors of the departments and its offices under the Government of Mizoram. This

gives the user confidence that the website was created and owned by government. This common graphical user interface gives a similar visual identity in department web design.

Design in the broad sense is a process that achieves the end result of enhancing the user experience by presenting the content in a form that is easily understandable, navigable and searchable by the user, in addition to being visually appealing. Interface design is the design and layout of the websites graphic and textual elements. The branding of a website can be established by incorporating common design elements such as colours, logos, styles, etc., into every page. This presents a professional and consistent visual identity as well as an important signpost that tells visitors where they are. Therefore, visual/textual identity elements highlighting the Government's ownership of the site must prominently stand out on the page.[22]

5) Government and departmental news are prominently highlighted and updated in all the front pages through online information provided by the Information & Public Relation (I&PR) Department, Government of Mizoram. News and notifications, relevant for government personnel and the citizens, official work of government, current condition of the state etc., are broadcasted. The main purpose of this is to provide transparency in the working of the government.

6) There is a 100% compatibility with Hypertext Markup Language (HTML) and Cascading Style Sheets (CSS) standards specified by W3C. W3C or World Wide Web Consortium is an international community where Member organisations, a full-time staff, and the public work together to developed Web standards. HTML is the language for describing the structure of Web pages. It helps authors to publish online documents with heading, photos, texts, etc. HTML also enables retrieve of online information via hypertext links at the click of a button. CSS is the

[22]Neeta Verma, Lokesh Joshi, SonalKalra, *Guidelines for Indian Government Websites-An Integral Part of Central Secretariat Manual of Office Procedure,* Data Centre and Web Services Division, National Informatics Centre, A- Block, CGO Complex,Lodhi Road, New Delhi, 2009, p.63

language for describing the presentation of a web pages, including colours, layout, and fonts. It allows one to adapt the presentation to different types of devices, such as large screens, small screens, or printers. In simple terms, HTML provides the structure of the page, CSS provides layout, for a variety of devices.[23]

7) The GoM-CMS is mobile device compatible. Mobile users have different graphical user interface designed solely for mobile devices which gives them better access and user friendly information design. Compatibility with mobile devices is important because majority of website visitors' access government websites more often from their Smartphone's than from computers. Mobile phones are convenient, easy to carry and are relevant in times of emergency as each citizen has a mobile device today. To download documents, to submit online forms, to convey grievances, and to receive and seek information, Mobile phones are becoming a very reliable gadget.

8) The citizen Interaction module is also provided using feedback forms, grievance systems and links to other social media pages. This module assists citizens and website viewers to express their thought and ideas about the respective department. Online submission for citizens grievances such as complaint, difficulty in accessing department websites or any other related issues are enabled with the citizen's grievance system. Links for social media pages such as whatsapp, Facebook, Twitter etc., are provided. In fact, feedback, complaint and other grievances are received in a much greater number from these social media pages because of its conveniences. General public have account in Facebook, Instagram, and Whatsapp and these social media sites/apps act as a forum by creating different groups, whereby users post and express their criticism and commendation.

9) There is a media manager for uploading and displaying images, videos etc. on the back end of the system. These contents can be displayed as photo gallery, image sliders and also in the pages and links at the front-

---

[23]https://www.w3.orgaccessed on 30.11.2017

end. The main purpose for this is to provide for an attractive and remarkable website home page. Having an attractive and prominently good looking website may result in the increase of website viewers.

Though images add life to a website, they also increase downloading time. Images should only be used when it adds value to the content. Images should not be used to present text in an alternative style as those using text only browsers shall not be able to access the information thus rendering the site inaccessible to many. The use of text, rather than images, should be considered for headings and website navigation.

Commonly used images, such as those for website identity and navigation, should be re-used to decrease download time. Images stored in the browser's cache will not need to be re-loaded and will display faster.[24]

10) The GoM-CMS is made to support bilingual display of information both in English and Mizo language. The built-in text editor supports both English and Mizo characters. In Mizoram, based on the 'Mizoram Literacy Rate 2011', more than 91% of the entire state population are literate which means that a larger number of populations are capable to read and write. Although the figure seems remarkable, it can be exaggerated that not more than half the population will comprehend to the writings and meaning of English language. Therefore, publishing information, news and reports both in Mizo and English will help website viewers from within and outside the state of Mizoram in gathering the information they required and seek.

The language used in a Government website is very important for ensuring effective communication with the target audiences. If the language on the website is complex and uses terminology which a common visitor is unfamiliar with, the very purpose of having the website will be lost.

Departments must ensure that homepage, all major entry points, and navigational elements of Government websites are written in the clear

[24]Neeta Verma, Lokesh Joshi, SonalKalra, Op. Cit., 2009, p.65

and simple language appropriate for the sites content. Indian Government websites normally have diverse target audience with diverse demographic profiles and educational background. Therefore it is highly desirable that the language used in the Government website is understood easily and correctly by all sections of the audiences.

Departments should realise the need to test and check the language and its comprehension with a sample set of typical visitors before making the site live for all audiences.

Writing for the web is very different from writing for the Print medium. One of the best ways of making the language web friendly is to keep the sentences short and simple. Long, convoluted sentences seem forbidding on screen and can distract the visitors. There are tools available which can help a Department evaluate how easy to understand and comprehend the language used on their website is. Departments are using such language tools, including language software, to evaluate the readability of the website's content.

The language used in a Government website must be free from any spelling or grammatical errors of any kind. Further, there should be uniformity across the site when it comes to using British/American English. Abbreviations/Acronyms, which may be typical in Government parlance and may not be commonplace with citizens of diverse backgrounds are avoided and expanded at all possible places. At the same time, if a short form or abbreviation of a term is more popularly known and understood by the citizens than even its full form, the short form should be mentioned.

11) The CMS provides Government identity in the front-end and back-end as it follows the Government of India Website Guidelines. Visitors to a Government website are very particular about ensuring the veracity and authenticity of the official status of the website before trusting its contents. Hence, it is important to convey in some way to the visitors that Indian Government officially sponsors and owns the information and services being provided in the concerned website. All websites and Portals

belonging to the Government Domain at any hierarchical level (Apex Offices, Constitutional Bodies, Ministries, Departments, Organisations, District Administrations, and Village Panchayats et al) display a strong Indian Identity and ownership of Indian Government.[25]

12) The links of mandatory and other relevant important portal are also provided by default, such as National Portal, State Portal, National Voter Service Portal, etc. Other relevant link could also be provided on need basis.

The National Portal of India (India.gov.in) is a single window source for access to all information and services being provided by the various constituents of the Indian Government to its citizens and other stakeholders. The Portal is an aggregator of all Indian Government websites belonging to different entities of the Government. National Portal is a Mission Mode Project under the National E-Governance Plan of the Department of IT, Ministry of Communications & IT. The Portal has been designed, developed and hosted by National Informatics Centre (NIC), the premier ICT organisation of the Government with a nationwide presence.

India.gov.in has a unified interface and seamless access to a wide variety of services for citizens from all walks of life and from varied demography. This official Portal for the Government of India acts as a gateway to a plethora of information and services provided electronically by the different departments of Indian Government. It acts as an escort to the visitors and guides them through varied web sites of Indian Government constituents and also presents a lot of value added information like their association/status in terms of sectors, ministries, departments etc. in a unique and unified manner.

There are exclusive sections on Citizens, Business, Overseas, Government, Know India, Sectors etc. catering to the information needs. Sections targeting special interest groups such as Government Employees,

[25]Neeta Verma, Lokesh Joshi, SonalKalra, Op. Cit., 2009, p. 28

Students, Senior Citizens, Kids etc. are also present. A variety of citizen services being provided by the government across sectors and States/UTs can also be accessed from the Portal. The Portal also provides comprehensive information& access to Government News, Press Releases, Documents, Policies, Forms and Tender Notifications etc. The Portal combines the best of technology with the best of content. The content of the Portal is also available in Hindi. Further, the content can be personalised for each viewer based on his/her demographic profile and area of interest.[26]

13) Quality Management System (QMS) for easy storing and retrieval of important documents and letters pertaining to department are also provided in the front end and backend.

The crucial element of an effective presence of Government on the Web is the way its content is written and packaged. Government websites should be oriented towards their prospective audience. Intended audience to the Government website could be Citizens, Businesses, Government Departments as well as Government employees. Following are the guidelines towards the same. The content must be selected keeping the audience in mind, not from the Government's perspective. Apart from the selection of the content, equal emphasis should be given to the way it is written and presented on the web. Content aimed at the common public should be written in simple language so that people from diverse professional, educational and demographic backgrounds can easily comprehend the same. Homepage of the website should be designed carefully and effectively to provide a good interface for the citizen. Homepages should ideally not feature photos of individuals and office bearers of the Department. Those photos may be appropriate on the "About Us" or "News" page.

In order to gauge the content requirements of the citizens, who are the prime target audience of any Government website. Government

---

[26]Neeta Verma, Lokesh Joshi, SonalKalra, Op. Cit., 2009, p. 15

Departments use following means to determine the best way to identify and package information for citizens and other stakeholders.

- Discussion Forums.

- Customer satisfaction surveys.

- Online feedback from citizens.

- Analysing website usage reports, including search terms and statistics.

- Usability testing and research.[27]

14) The CMS provides streamlining the theme for the State Government Departments website such as displaying the State Emblem or National Emblem in case the State has adopted the National Emblem as its official State Emblem as per the 'State Emblem of India (Prohibition of improper use) Act 2005'. The Public Sector Organizations and Autonomous body should display their official logo on the Homepage of the website to show their identity.

15) Hackers all over the world are targeting websites owned by Government and many instances of defacement of websites owned by the State Government and the Central Government are recently found. Therefore, utmost care has been taken to make website as safe as possible. A number of Guidelines on Security related issues available for download in the official website of CERT-In (Computer emergency Response Team-India) www.cert-in.org.in are followed and compliant with the GoM-CMS and no hacked report is made since the implementation of this CMS.

---

[27]Neeta Verma, Lokesh Joshi, SonalKalra, Op. Cit., 2009, p. 53

CHAPTER IV

COMPARISON OF PRE DEPLOYMENT SCENARIO AND POST DEPLOYMENT BENEFITS:

Chapter 4

4.1   IMPORTANCE OF WEBSITE

The internet has become an integral part of everyday life. More than 3 billion people are using the internet today and the number is likely to increase. Running a company, managing a corporation/organisation without owning or having a website may result in losing large opportunities for production growth.. A website is a massive means for publishing an organisation's identity to the world, as it provides a platform to represent oneself using Internet and World Wide Web. Government, Companys', Corporations', and Organisations' around the world are endowed with the possibility to publicize themselves, broadcast and expose their organisational set up, their functions and role, such that it may create awareness which results in the possibility escalation.

Few reasons on the importance of website is summarised in the following:

1. **Website promotes accountability and availability:**

    Website runs 24 hours 7days a week without any supervision, thus it is continuously working on promoting efficiency and accountability without having to pay employees all 24 hours. It also makes government accessible so that citizens can interact at any time and in the way that is best suited to them. Customers from any part of the world can reach website at any suitable time. Company, organisation and Government department are always accessible using website.

2. **Having a website enhances credibility:**

    Today, most people use the internet to know more about the products and services they want. They also search for government websites before they start dealing with them. Having a professional website with helpful information about the functioning or services it provides will have a powerful impact on the potential customer's confidence in the same. Website will also have an opportunity to clarify

why Government deserve citizen's trust. Well designed, informative and updated website adds credibility to an organisation and strengthens its functioning.

3. **Website is a good way to increase transactions:**

    Government can increase its operation by doing transactions online. This will make government available throughout the day giving it the possibility to deal more. This can be of good use by giving full details of services because websites are accessible 24X7. Transaction of files, uploading and dissemination information, searching government departments, locating sites areas for planning etc., can easily be performed through website.

4. **Targeting a wider market:**

    Website can reach local, national, or even international potential clients at no extra cost. So, exposing products and services to totally new markets become a possibility. A corporation is no longer limited only to the passing by or nearby clients to render services. Since information is always available, people from all over the world can visit website at any time and get to know more about supplies and services. Thus, government can expand its potential clients and no longer stuck to one geographical area. What need to be done is providing full information through website to attract more consumers.[28]

4.2   COMPARISON OF PRE DEPLOYMENT SCENARIO AND POST DEPLOYMENT BENEFITS:

A comparative study of Pre-Deployment and Post-Deployment of GoM-CMS is discussed below:

1) During the pre-deployment of the Government of Mizoram-Content Management System, websites of various departments under the Government of Mizoram developed their websites through a local

---

[28]http://www.aurorasolutions.ca/blog/5-reasons-need-website/ accessed on 1.11.2017

developer by using an Open Source CMS. Therefore, the financial involvements for development of websites were very high. To engage open source web developers, Government departments have to spend at least a minimum of 20 lakhs annually.

2) Dissimilar features and outlook of government websites creates a predicament between viewers and browsers. As there were no uniform guidelines regarding the maintenance of website, the features and appearance of Government websites and its undertakings varied. Website theme colour, fonts type and size differ from one department to another. The menu bar contents and placement of information/news are dissimilar which becomes tricky when it comes to collecting information from different government websites.

3) After the deployment of CMS, websites of many departments under the Government of Mizoram are developed through the GoM-CMS, therefore expenditure and financial involvements for development of websites were reduced drastically as the CMS was deployed to various department free of cost. The Government of Mizoram entrusted the Department of Information & Communication Technology to set up a devise, whereby all government and its divisions, PSU, Societies, etc., websites have a common look, features, appearance and navigation buttons. The DoICT, in 2012, with the assistance of MSeGS created Content Management System (CMS). The CMS is a government project, funded and held up by the Government of Mizoram. As such, the software was developed by the Government, to be used by Government Departments, and all other government undertakings. To utilize this software each department does not require purchasing, as the software is owned by the government. Therefore, the previous ways of buying and developing websites through open sources developers were restructured. Hence, the financial involvement regarding the cost of maintenance of government websites lessens.

4) The GoM-CMS brings a single graphical user interface for websites of government departments, and is designed as department centric. Most of

the modules integrated in the CMS focus on the requirements of various departments of Government of Mizoram. The functions and role Government department differs from one another. Their purpose in serving the needs of the people and delivering services are diverging. For instance, Mizoram Public Service Commission (MPSC) and Power & Electricity Department (P&E) are two important Government department, rendering service to the people in paramount ways. MPSC on its website integrated notification for Recruitment process, time and vacant posts, etc. P& E on the other hand integrated online payment of electricity bill on its website. Hence, their website menu bar and contents placement needs to be incorporated with their needs and requirements.

5) The chronological allotment of domain, hosting and deployment GoM-CMS are as follows:

TableNo.4.2.1 Websites under GoM-CMS and other open CMS

Year	GoM CMS	Other System	Total Websites
2012 – 13	60	11	71
2013 – 14	93 (60 old + 33 new)	17 (11 old + 6 new)	110
2014 – 15	109 (93 old + 16 new)	19 (17 old + 2 new)	128
2015 – 16	126 (109 old + 17 new)	25 (19 old + 6 new)	151
2016 – 17	141 (126 old + 15 new)	28 (25 old + 3 new)	169

Source : ICT Department, Government of Mizoram

At present out of 169 websites 141 sites of Government Departments and its subordinate offices are using the CMS free of cost.

2012 - 2013: During this year all the websites hosted and maintained under the Government of Mizoram totalled to 71, at the beginning of the year,

most of the departmental websites were using Open Source CMS. But since the inception of the GoM-CMS on 20th July 2012, deployment of new CMS was done to 60 Websites and the remaining 11 continued to use their own developed websites with the permission of ICT Department.

2013 - 2014: The number of websites developed, hosted and maintained under the Government of Mizoram in 2013 - 2014 was 110. There was good progress in implementation of GoM-CMS. Deployment of the CMS was done to 93 (60 old + 33 new) websites while 17 government and its bodies (11 old + 6 new) were using their own developed websites with the permission of ICT Department.

2014 - 2015: During this year, all the websites hosted and maintained under the Government of Mizoram was 128. Development and implementation of GoM-CMS was in continuation, and deployment of the CMS was done to 109 (93 old + 16 new) websites and 19 others, with the permission of ICT Department continued to used their own developed websites.

2015 - 2016: During this year, the websites hosted and maintained under the Government of Mizoram was 151. Progress continued in implementation of GoM- CMS. Deployment of the CMS was done to 126 (109 old + 17 new) websites and 25 others (19 old + 6 new) were using their own developed websites with the permission of ICT Department.

2015 - 2016: From the year 2015 to July 2016, all the websites hosted and maintain under the Government of Mizoram are 169. Deployment of the CMS was done to 141 (126 old + 15 new) websites and are count as cumulative progress. With the permission of ICT Department, the remaining 28 (25 old + 3 new) were using their own developed websites.

6) In the post deployment of CMS, all websites falling under the GoM-CMS strictly followed the Guidelines for Indian Government websites which was prepared by National Informatics Centre (NIC) headquarters and adopted by Department of Administrative Reforms & Public Grievances, Ministry of Personnel, Public Grievance and Pension, Govt. of India, in

order to maintain standard and uniformity in websites under the Government of India. The primary objective of these guidelines is to ensure that Indian Government websites, belonging to any constituent of the Government, at any level, are citizen centric and visitor friendly. It is advised that these guidelines be followed while developing or managing any Government website, portal or web based application.

7) In the post deployment of CMS, technical support for various Department websites such as security and back-end maintenance etc. could be done centrally from the Department of Information & Communication Technology, Government of Mizoram.

8) The post deployment of CMS enables a single training for all user departments of CMS under the Government of Mizoram and also brings a single training course and materials for different departments at once, this reflect economical control of expenditure on website training of the Departments as well as the Government as a whole.

9) Since the backend features and modules integrated in the CMS focus on the needs of departments of Government of Mizoram, the system is user friendly for technical staff or in-charge of websites. This resulted in more regular updates in the post deployment of CMS.

10) After the deployment of CMS, DoICT acts as a nodal department for centralizing and maintaining the CMS, and all the updates of features and module are done by the Website Management team of the Department. The DoICT created Mizoram State e-Governance Society (MSeGS) to administer the implementation of e-Governance project within the State of Mizoram, and website management is also within its ambit.

11) Since 2013, ICT Department has been performing 'Observation and Monitoring of Websites under the Government of Mizoram' at least thrice a year and therefore findings and comments from the observations have proved very useful for the Departments (Annexure 6). The monitoring sheet comprise of a sets of column which includes Department name, Website domain name, date of observation and remarks. Based on the

remarks given, DoICT make improvement on the requirements of the respective government departments.

4.3   COST EFFECTIVENESS OF THE PROJECT:

Development of websites in general, requires a huge amount of financial involvement, be it Governmental or Private/Corporations website. The maintenance, the features integrated for a full-fledged website requires lot of manpower and expertise.

The cost effectiveness of the GoM-CMS project can be highlighted as under:

1) The Content Management System (CMS) of Government of Mizoram has brought in cost effectiveness after its implementation in the year 2012. It was developed with a financial support of Rupees Two Lakhs Five Thousand only (Rs. 2,50,000) from ZENICS Ltd, and is used by 141 Websites of Government of Mizoram till date. The amount was paid in 2012 and it needs to be paid for one time only, which indicates that there is no recurring expenditure required for the development and maintenance of the CMS.

2) Before implementation of the GoM-CMS, websites of various Departments under the Government of Mizoram have developed their websites through local developers. Therefore, the financial involvements for development of websites were very high. It was estimated that Rupees 1 Lakh (Rs 1, 00,000) is needed for development and maintenance of Website per annum at that time.

Table No. 4.2.2: Illustration of cost effectiveness on implementation of GoM CMS)

Year	GoM CMS	Other CMS	Websites	Estt. Exp. without GOM CMS (in Lakh)	Exp. With GoM CMS (in Lakh)	Estt. Cost Benefit (in Lakh)
2012 - 13	60	11	71	70	2.5	67.5
2013 – 14	93 (60 old+33 new)	17 (11 old+6 new)	110	39	0	39
2014 – 15	109 (93 old+16 new)	19 (17 old+2 new)	128	18	0	18
2015 – 16	126 (109 old+17 new)	25 (19 old+6 new)	151	23	0	23
2016 - 17	141 (126 old+15 new)	28 (25 old+3 new)	169	18	0	18

Source:ICT Department, Government of Mizoram

Illustration 1: From the above table, in 2012 the Government of Mizoram was estimated to have spent Rs 70 Lakhs approximately for development of websites if GoM-CMS has not been introduce in Mizoram. But, in the year 2012, the CMS was developed with Rs. 2.5 Lakhs and other charges were not levied on the Departments. The cost benefit was estimated at Rs. 67.5 Lakhs *(i.eRs 70 Lakhs – Rs 2.5 Lakhs)* for that year alone.

Illustration 2: From the above table, had the previous system been still introduced in Mizoram in 2013, the Government of Mizoram was estimated to spend Rs 39 Lakhs approximately for development of new websites other than the existing 70 websites in 2012. On the other hand, as the CMS was implemented in 2013 with no recurring expenditure, the cost benefit is estimated at Rs. 39 Lakhs *(i.eRs 39 Lakhs – Rs 0 Lakhs)* for that year.

Further, at present, if the previous system is still introduced in Mizoram, the Government of Mizoram was estimated to spend Rs 18 Lakhs approximately for development of new website other than the existing 151 websites in the previous years. On the other hand, due to the utilization of

CMS till date with no recurring expenditure, the cost benefit may be estimated at Rs. 18 Lakhs *(i.eRs 18Lakhs – Rs 0 Lakhs)* for this year.

3) With regards to hosting server of website, all the Websites of Government of Mizoram were hosted under Palcom Ltd. Uttar Pradesh, India till 2014, but due to the requirements of advance server technology, the server of Government of Mizoram was upgraded and shifted to Tier-IV - *CTRL-S Data Centre Ltd. Hi-Tech City, Hyderabad,* in 2015. Tier-IV - *CTRL-S Data Centre Ltd.* has a 99.99 % server uptime and advanced technical configurations for hosting websites with strong technical man power to support 24x7. A regular weekly backup of all data at 12:00 am are made on every Saturday. A standard security perimeter of server as per CERT-In, Govt. of India is also maintained by the server and is a favorable environment for GoM-CMS

The expenditure incurred for the Server is Rs 2.6 lakhs approximately per annum. Since the introduction of a common and centralized GoM-CMS; the web hosting expenditure incurred per website started declining.

TableNo.4.2.3 : Illustration of hosting expenditure on implementation of GoM CMS

Year	GoM-CMS	Other CMS	Web sites	Total Exp. on hosting (in Lakh)	Exp. For 1 Website (in Lakh)
2012 - 13	60	11	71	1.5	0.21
2013 – 14	93 (60 old + 33 new)	17 (11 old + 6 new)	110	1.5	0.13
2014 – 15	109 (93 old + 16 new)	19 (17 old + 2 new)	128	1.5	0.11
2015 – 16	126 (109 old + 17 new)	25 (19 old + 6 new)	151	2.6	0.17
2016 - 17	141 (126 old + 15 new)	28 (25 old + 3 new)	169	2.6	0.15

Source : ICT Department, Government of Mizoram

From the above table, in 2012 the Government of Mizoram spent Rs. 1.5 Lakhs approximately and Rs 0.21 (Rs. 21000) for hosting of one Departmental website for one year.

In 2013, the Government of Mizoram spent Rs. 1.5 Lakhs approximately and Rs 0.13 lakhs (Rs. 13000) for hosting of 1 (one) Department website for one year.

In 2014 the Government of Mizoram spent Rs. 1.5 Lakhs approximately and Rs 0.11 lakhs (Rs. 11000) for hosting of 1 (one) Department website for one year.

In 2015 the Government of Mizoram spent Rs. 2.6 Lakhs approximately and Rs 0.17 lakhs (Rs. 17000) for hosting of 1 (one) Department website for one year.

In 2016 the Government of Mizoram is spending Rs. 2.6 Lakhs approximately and Rs 0.15 lakhs (Rs. 15000) for hosting of 1 (one) Department website for one year.

It is found that if various Departments' websites are developed and maintained by their own, the expenditure on hosting will be around 20 lakhs every year. But after the introduction GoM-CMS, a single common system is deployed to 84% of the total Websites of Government of Mizoram. The expenditure for hosting of Websites started declining as shown in the above table. This in turn is beneficial for the State Government and the concern department as financial involvement is less, which results in less expenditure from the public exchequer. Training of personnel for the maintenance and operation of CMS by departments is also conducted free of cost by DoICT. This is proved to be beneficial for the concerned department and the Government as a whole. Thus, the introduction of GoM-CMS has led to a savings of approximately Rs. 20 Lakhs per annum.

CHAPTER V

CONCLUSION

Chapter 5

The final chapter is divided into three parts: The first part deals with the summary of the previous chapters. The second part deals with major findings and learnings of the research. Suggestions and conclusions are cited in the third and final part.

PART 1

4.1   Summary of the previous chapters:

The Internet, World Wide Web, and Websites have played an important part in the current global setting. Globalisation and digitalisation makes services of the government accessible in an easy and convenient way. Different nations are adopting e-governance in their government administration. Technology has now become a part and parcel of the world culture.

The need for uniformity of government websites is a prerequisite in the ever trending and changing technological world. To pursue the goal of better efficiency and a smarter way forward, the National e-Governance Plan (NeGP) was formulated by the Department of Information Technology (DIT). The NeGP on its Mission Mode Project included the setting up of a National Portal of India, which is a single point access to government and information and services. Subsequently, Guidelines for Indian Government Websites was developed in accordance with the international standards to ensure that the website belonging to any constituent of the Government at any level: State as well as National are user friendly, secure and easy to maintain. Based on these guidelines, the Government of Mizoram-Content Management System was developed for the state of Mizoram in 2012 on the advice of the then Chief Secretary of the State Government. The project is undertaken by the MSeGS under the Department of Information & Communication Technology, Government of Mizoram.

The Government of Mizoram - Content Management System is designed such that all government websites have single domain, with a similar features, layout, colours, themes, fonts. CMS enables each department users to easily upload and change the content of their websites. The main objective of GoM-CMS project is to create an efficient system to disseminate information to the citizens through the implementation of an efficient electronic workflow to create transparency and accountability in the information dissemination process and reduction of workload of the departments. In the GoM-CMS, the front end design and the back end system are intended to maximize the efficiency and simplicity in managing a full-fledged website/portal which could serve the government employees as well as the citizens. The CMS is a model technology for creating, maintaining and managing official websites of the government. It is expected that all departments will provide better information and other electronic services to the public. The CMS allows the administrator to control all facets of the website including posting of information, document and media management. This results in a comprehensive and a more user friendly software for the technical in-charge in the department. In addition, update of data could also be done easily with the CMS.

During the pre-deployment of the GoM-CMS, websites of government departments were developed from open source CMS. This resulted in un-uniform and dissimilar government websites, which created a big challenge in determining which website is governmental and which is not. Before the introduction of the GoM-CMS, the interface used for development and maintenance of Government websites were different from one another as it depended on the website developers. This resulted in unattended websites of many departments when concerned technical staff were transferred from one place to another. In the meantime, due to non-availability of Content Management System for the state government many departments engaged Private firms for developing their websites, which had incurred heavy financial losses for the State government.

Lack of technically skilled staff/personnel is one of the drawbacks for maintaining government department websites. Due to shortage of manpower, employee such as Data Entry Operator (DEO) with computer knowhow is placed for maintaining department websites which may result in incompetence and inefficiency. In the State of Mizoram, proficient person in terms of knowledge and background in

websites may not be employed or recruited always. Further, the State government did not create a particular post for the area currently stated.

During the course of the study it was found that some of the departments did not accept and recognize the importance of website for dissemination of information to the public even with the issue of Office Memorandum. Website can assist in the transfer of files quickly and simplify communication as it functions in a digital form. This possibility of speedy workflow and a system of quick disposal and transfer of files needs to be realised by personnel and their executives in Government departments.

After the implementation of the GoM-CMS project, the DoICT developed websites free of cost for the government department that opted for the GoM-CMS. The post deployment of CMS enables single training for all CMS user departments under the Government of Mizoram. A single training for website operators of different departments facilitates control of expenditure on the part of DoICT and other concerned departments.

Monitoring of websites is carried out by each GoM-CMS user department as requested by DoICT. The monitoring process reflects the significance and stature of the CMS, its desirability and benefits along with its inefficiency and inadequacies. Problems detected regarding the inefficiency and inadequacies of CMS are highlighted by each department in the monitoring sheet, in order to enable DoICT to make improvement to the context.

The GoM-CMS has brought in a new aspect in delivering website service to the citizens and other beneficiaries. An attractive and user friendly website is essential to convey information and required documents to the citizens. Striking and remarkable features, color style, theme, display of department picture attracts an individual to visit government website.

E-Government and e-Services are new dimensions in the governance system of government around the world. E-Government has developed into an important tool in developing countries. It can help tackle challenges like poor public services, education, health, unemployment, crimes, corruptions etc. Democratic ideas of the nation are also served by website because every citizen, irrespective of caste, color,

and creed can have a voice and check on the functioning of the government. E-Governance and ICT are necessary facilitators of reforms in government functioning. Accountability, transparency, efficiency, etc., of the government; participation of citizens in governance system can be achieved and checked through them. Websites enable citizens to interact with the government directly. Citizens can assert their grievances, problems and wants through this system without visiting government offices. This ensures conveniences, simplicity in the process accountability on the part of the government, and time and money saver on the part of the citizen while receiving essential services.

PART 2

5.2   Major findings and learning of the Project:

Thousands of websites belonging to different Government bodies have been published on the internet to facilitate access to government information and service by the citizens. However, varied classifications of names, diverse layout, different navigation strategies, and dissimilar menu icons and bar as well as different technology have trampled the purpose of websites.

The present study centered on GoM-CMS-Administration of Government of Mizoram Websites. During the course of study, the researcher found out that GoM-CMS is developed as per the advice of the then Chief Secretary of Mizoram, Pu. Vanhela Pachuau. An interview conducted with the aforementioned official articulate that in 2012, a conference was summoned by the Government of India, inviting each Chief Secretary of provincial states of India to participate. The Conference discussed the importance of having similar website features for government departments. Thereafter, responsibility for the initiative was given to the Department of Information & Communication Technology, Government of Mizoram. After the approval of the GoM- CMS project, the department started designing a common template which was proposed to be used by all the government departments, and government institutions, Corporations, PSU's etc. within the State of Mizoram.

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., the erstwhile Public Sector Undertaking of Department of Information & Communication Technology (ICT). The GoM-CMS Version-1 was completed and launched on 20th July 2012.

The GoM-CMS function under the Department of Information & Communication Technology and MSeGS, Problems faced by departments regarding maintenance of CMS are attended by MSeGS and DoICT.

In due course of the study, the DoICT have upgraded the CMS Version-1 to CMS Version-2. The domain name, the content placement, the positioning of national emblem and the user interface were still the same but the fonts size, colours and themes were upgraded in Version-2. Further, features such as display of departments' photos in the Home page were incorporated in the Version-2.81 Government Departments and its bodies are still using CMS Version-1, and other 79 Government Departments and its bodies are using the CMS Version-2. A list of CMS Version-1 and Version-2 user departments is given in Annexure 4&5.

The Researcher, while studying the problems and challenges faced by the government departments of Mizoram before the introduction of GoM-CMS found out that the major challenge was no officials were trained for advance web technologies for the creation and maintenance of government websites. Before deployment of GoM-CMS, the researcher found out that no uniform layout and guidelines for websites of government departments were made. This results in development of department's websites through an Open Source CMS which incurred huge amount of financial involvement. It is estimated that at least 20 lakhs rupees is used for engaging open website developers annually. During the pre-deployment of GoM-CMS, departmental websites were maintained by the concerned departments according to their choice of system. Officers and staff look upon the maintenance of websites as extra work which resulted in irregular update and maintenance of departmental websites. This becomes a burden on the part of the government when it comes to dissemination of obsolete information, and a trouble for the citizens and other beneficiaries in terms of collecting reliable information.

Figure No. 5.2.1 Website of SIPMIU, developed through open CMS

Source: https://aizawl.sipmiu.org
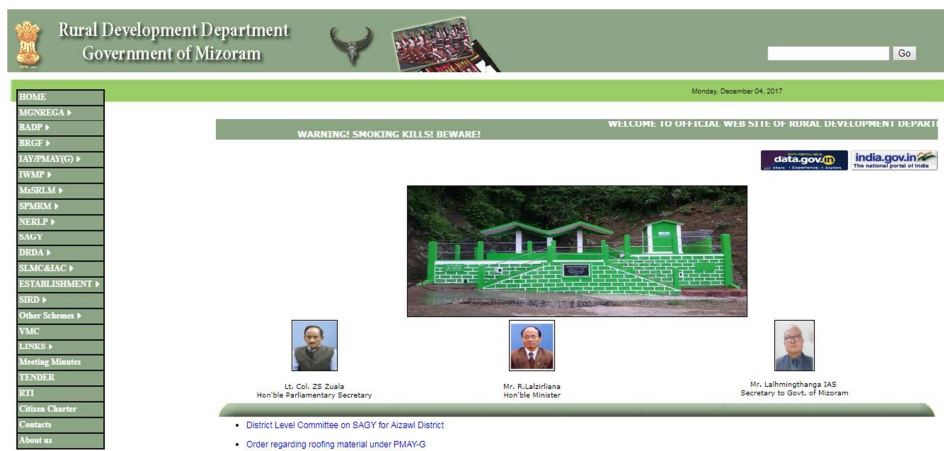
Figure No. 5.2.2. Website of Rural Development, developed through open CMS

Source: https://mizorural.nic.in
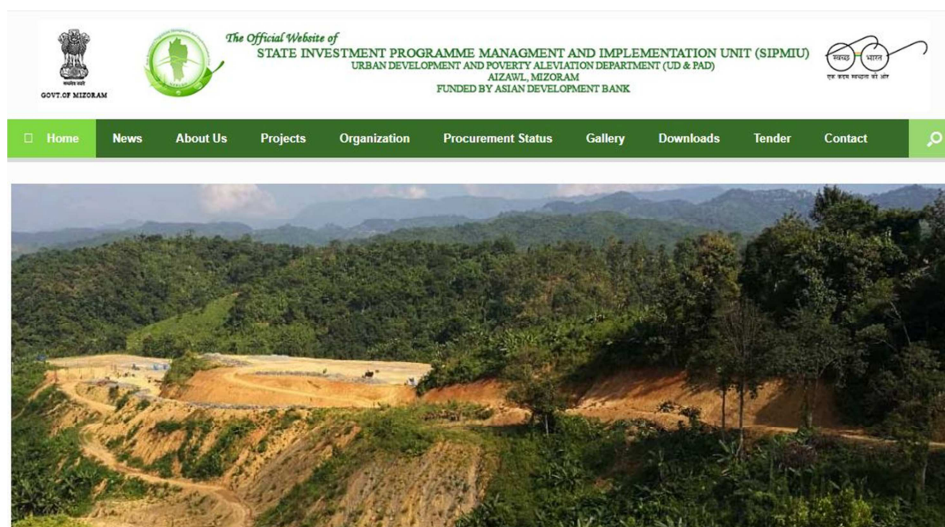
Figure No. 5.2.1 and 5.2.2 shows the website of State Investment Programme Management and Implementation Unit (SIPMIU) and Rural Development Department (RD) which have been developed through open CMS and not GoM-CMS. As highlighted, the layout, features, appearance and contents are diverse and as compared to GoM-CMS. The domain names of these particular department websites also differ as compared to GoM-CMS websites. SIPMIU has a domain name of

'*aizawl.sipmiu.org*', RD Departments has '*mizorural.nic.in*' while website under the GoM-CMS has a similar domain name, '*mizoram.gov.in*'.

Out of the prevailing 161 government departments and its governing bodies using GoM-CMS website, a study is conducted on 15 Government departments, 3 Government Institutions (College), 1 Corporation and 1 Government Society. The researcher found that a larger number of Government department and its unit update their website regularly, while 5% of the studied departments have not published information on their website for months and years. Some department websites are viewable only through computers and laptops while the general masses browse websites using their mobile phones. This results in unattainable of some documents and notifications which is problematic in times of emergency.

In an attempt to answer the question whether GoM-CMS meet the requirement of the Government Department and Institutions in Mizoram, the researcher found that the CMS has met certain requirements. However, there are still rooms for improvement.

The GoM- CMS allows dynamic page creation and management, dynamic menu and sub-menu creation and management for all the Websites. This becomes handy for departments as the functioning of Government Departments are not the same. Departments such as Institutional Finance & Lottery needs to have a menu for downloading government tender forms, while Colleges and institutions are required to have a menu where students could look for results, syllabus etc. All these menu and sub-menu are created based on the desirability of each concern department.

SMS (Short Message Service) gateway for sending SMS to individuals and group members among the user departments is integrated with the GoM-CMS. This gateway proved to be useful for departments and convenient on the part of the citizens. Government Departments could select multiple contacts and send SMS to thousands at once. Departments use these SMS gateway to disseminate information, which is beneficial for both parties-Government and Citizens. Declaration of results, call for interviews, distribution of water by Public Health Engineering Department, etc., are circulated through SMS.

The GoM-CMS reduces time and task for maintenance and other technical support such as Security and backend maintenance. The backend features and modules integrated in the CMS focuses on the technical user and in-charge of websites. A mass update of the Core template for the Content Management System of Government of Mizoram could be done at once by the Website Management Teams of DoICT.

The User interface of the GoM-CMS brings similar designs for all departments and offices of Government. It has also been specifically designed with efficient simplicity and confidence in mind to show the identity of the Government Websites. Similar themes and fonts are used for each government department. The navigation pattern, Menu bar and sub-Menu bar are positioned in such a way that uniformity is maintained. Following images shows the similar design, colour and layout of the Social Welfare Department and Department of Transport, Government of Mizoram. The 'contents' differ based on the preference of each department.

Figure No. 5.2.3   Social Welfare Department Website

Source: https://socialwelfare.mizoram.gov.in
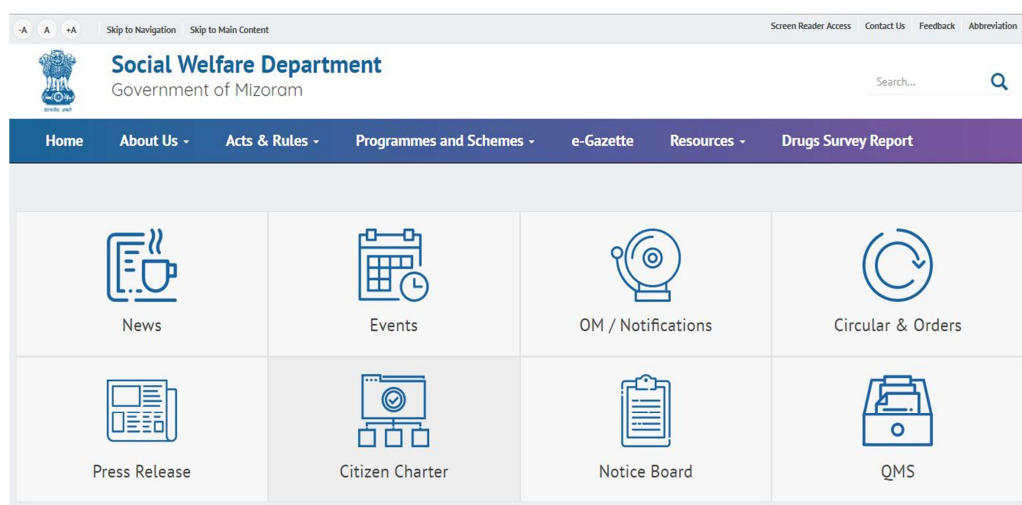
Figure No. 5.2.4   Department of Transport Website

Source: https://transport.mizoram.gov.in

Online Chat Facility for instant communication is provided in the GoM-CMS, which is useful for many departments for interacting with the public. Questions from the user, regarding the functioning of department can be answered through this system.

Feedback/Grievance Redressal through Social Networking site such as Facebook, Whatsapp, Twitter. Centralised Public Grievance Redress and Monitoring System (CPGRAM) are also integrated into the CMS and are optional to the Departments. These Social Networking sites have proved to be useful, especially Facebook and Whatsapp. Department can easily acknowledge and look into the grievance faced by the public by reading their online posts.

The GoM-CMS complies with standard Web Accessibility Guideline for Person with Disability and achieving the 'Sugamya Bharat Abhiyan', a nation-wide flagship campaign for achieving universal accessibility that will enable persons with disabilities to gain access for equal opportunity. The CMS also complies with Web Content Accessibility Guidelines (WCAG) 2.0, which covers a wider range of recommendations. It is found that by following WCAG 2.0, the GoM-CMS has allow web content more accessible to a wider range of people with disabilities, including blindness and low vision, deafness and hearing loss, learning disabilities, cognitive limitations, limited movement, speech disabilities, photosensitivity and combinations of these.

The 'Sugamya Bharat Abhiyan' (Accessible India Campaign) is a campaign launched by the Department of Empowerment of Persons with Disabilities to enable universal accessibility of Government offices, institutions, organisations and websites, etc., for People with Disabilities (PwDs). The GoM-CMS complies with this campaign and adds an interface called 'Screen Reader Access' in the CMS software. Using this Screen Reader Access, information of the website is accessible with different screen readers, where user can interact with computer in a verbal manner.

Figure No. 5.2.5 Screen Reader Access Menu on GoM-CMS

Source: https//transport.mizoram.gov.in

Quality Management System (QMS) for easy storing and retrieval of important documents and letters pertaining to department is also integrated with the GoM-CMS by default, which is very useful for internal communication and efficient Office management of the user Department. QMS allows department personnel, citizens and other user full access to the website anytime, anywhere. Providing download forms, uploading documents, pictures and videos, etc., to be retrieved by citizens or other user are service it provides. Through this QMS, users are provided the information they seek with minimal effort by government departments.

For allotment of GoM-CMS, there is no user charge for using the System and it is deployed at first come first serve basis. The GoM-CMS is deployed only to Government Websites which is in compliance to the Government's Domain Name Policy. All Indian Government websites must use '.gov.in' or '.nic.in' domain exclusively allotted and restricted to Government websites. For Departments under the Government of Mizoram, website can be hosted in Government of Mizoram domain i.e. '.mizoram.gov.in' or registered as '.gov.in' or '.nic.in'. Educational institution/academy may use either '.edu.in' or '.ac.in' domain. Departments such as Urban Development and Poverty Alleviation (UD&PA) did not use GoM-CMS as it was found that changing the domain name from '.nic.in' to '.gov.in' tender the department to re-advertise themselves to website visitors. Another factor found is that NIC can perform as accountable as DoICT in terms of website management.

Monitoring of website status for all Government departments could be performed more easily because of the incorporation of a common user interface for Government websites. A report "Observation and Monitoring of Websites under the Government of Mizoram" was made at least thrice a year. Based on these reports, the DoICT make changes and improvement as reported by departments. ()

The GoM-CMS is also a Mobile compatible. This has proved to be an important feature of the GoM-CMS. A study and interview conducted with students and the general public shows that most user visit website through their mobile devices. The reason being that mobile phones are convenient, simple and can be accessed anywhere. Filling up forms, downloading files and documents are also enabled through mobile device as well. Contrastingly, some departments website are not viewable through mobile phones and users convey that the information seek cannot be absolute. Slow internet connectivity and using a cheaper mobile device can be a factor in this context.

Concerning to the measures that can be taken to make website more user friendly and citizen centric, the researcher found out that employing and creating a specific posts for website administrator is vital. In the present scenario, as highlighted in the previous chapters, DEO and other lower division workers are placed to work as a computer operator. It is found that no specific post for website operator is available in current government personnel set up. Lack of funds for development of e-infrastructure is a problem in this factor. Government to render accountable service to the citizens did not have enough e-kiosk. The researcher found that websites importance and its availability in providing government service are not realised by a number of citizens. Website in another sense is democratic in nature. Through website anyone could have a say, plead his needs and criticize the wrongs of government and bureaucrats.

To make website more citizens centric, it is found that Citizens, Processionals, Government Officials, Political Masters etc., needs to be enlightened and divulge about the potential and endless possibility of website in delivering and proving services on the part of the citizens, and serving its very existence on the part of the Government.

PART 3

5.3   Suggestions and Conclusion:

The GoM– CMS is a project undertaken by MSeGS under the DoICT to make all government websites fall in a single domain name with a common outlook and features. This is essential as globalisation has changed the way government of the world runs. The GoM-CMS was launched in 2012. The programming and back end processes are administered by MSeGS.

The GoM-CMS version-1 was being in used in the beginning of the study. The ICT Department has updated and upgraded the version-1 with the new CMS Version-2 recently. 161 governments departments and its bodies are currently using the CMS developed by the DoICT.

From the findings of the study, it can be concluded that the GoM-CMS meet certain requirements of government departments and the needs of the people, although room for improvement are evident. In Mizoram, due to poor Internet connectivity and electric power supply issues, rural masses and even town and cities areas are having problems in the delivery and usage of e-services. Based on the interview conducted with personnel from different government department, Institutions, Corporations and Staff and Officers of DoICT in particular, the following suggestions are developed by the researcher.

1. The GoM-CMS version-1 was upgraded to Version-2 in 2016. On completion of the study, 81 Government departments and its bodies are still using Version-1 till date. As highlighted and mentioned in the previous chapters and as shown in Figure No.2.3.2 and Figure No. 2.3.3, the appearance between the CMS Version-1 and CMS Version-2 are quite diverse. The researcher found that CMS Version-1 user departments were not notified regarding the upgrade of CMS Version-1 to Version-2. Inspite of the claims, notification had been given by the DoICT to all GoM-CMS user departments to contact the DoICT and make necessary arrangement on upgrading the software. Necessary steps have to be taken on this account from both GoM-CMS user department and the DoICT so that

93

communication gap between DoICT and CMS user departments can be checked.

2. As per the study conducted in different government institutions and departments, awareness campaigns for using and browsing government website to search for information needs to be conducted. Citizens have to be enlightened to harness the capability and usefulness of website. Personnel of the government, students, proficient citizens and a greater number of rural people are unaware of the capability of website; its role in providing transparency, its usefulness in checking corruption, its part in providing and disseminating information and documents, etc.

3. Improper update of website is another issue. Some department updates their websites regularly while some lack behind in this aspect. The MPSC, Directorate of Finance and Lottery are updating their website regularly as required by their. Directorate of Finance and Lottery update their website almost daily for declaration of results. MPSC, update their website for posting latest government posts available for recruitment. Institutions and colleges are deficient in this matter. Regular update of website is necessary to enable publishing of recent news and documents. Today, technology has enabled men to perform a task smoothly and easily in a more convenient and cost effective way. The old ways of visiting institutions and government department for retrieving documents can now be performed easily from home. Update of website and posting Student study materials, Exams time table, holidays, vacations, admission brochure etc., are vital for both the Institution and Students.

4. Although the CMS is mobile friendly, based on the findings of the researcher, an improvement is required. Mobile phones differ and so do the software's and systems it uses. The DoICT has to make sure that departments website are viewable using any mobile device, not only the high end Smartphones but also the cheap and less expensive gadgets. Network connectivity can be a challenge in this aspect, therefore it is

suggested that the contents in website be minimized so that even poor connectivity loads the desired webpage.

5. Some staff of department maintaining website are themselves unaware of the existence of their website. This brings to the fore the need to create awareness within the department as well as the public to enhance the utilization of the websites and to serve the very purpose of its establishment.

6. Some institutions and departments claim that update of the software is a problem for website being down due to bandwidth shortage and poor Internet Connectivity. Steps needs to be taken in this aspect by DoICT, Government departments and Institution to have a better internet facility because up-to-date websites needs to be available 24 hours 7 days a week.

7. Several website managers of Government departments, PSU's and other institutions informed the researcher that the features of GoM-CMS are difficult to get used to. Being familiar with Wordpress, Blogspots, Joomla etc. posting content, especially combinations of images and texts, drawing charts, figures and shapes is often time consuming. The researcher found that editing contents, drawing shapes and figures, uploading high resolution images are more convenient through Wordpress. DoICT are suggested to check on the existence of problems faced by GoM-CMS user departments.

8. There is no viewers count on the GoM-CMS version-2. When personnel with regards to website operators are questioned on how much visitor the department encounter, it becomes challenging because they have to look through download counts. Questions on website visitors have been raised by higher bureaucrats, Executives and Political Masters. DoICT has to take steps and achieve required means to include viewers count on the CMS Version-2. Viewers count is essential to realize how much a department website has performed its role in dissemination and circulating information. Moreover, the performance of a department can be checked

using viewers count. A well maintained and regularly updated department website is sure to have thousands of visitors. Consequently, it can be summed up that a department is playing its part as providing service to the citizens in a digital form.

9. Pertaining to the Police departments in Mizoram, other states Police department have a websites operator in each district. The Supreme Court ordered that whenever First Information Report (FIR) is received at the Police Station, the Department must upload the particulars within 24 hours. In Mizoram, Aizawl district alone maintains website of the police department. Therefore, when FIR is received in other district, uploading becomes a huge challenge. It is thus suggested to make improvement by creating a network where investigated and checking of crimes and criminals within the states be enhanced.

10. The researcher found out that, the GoM-CMS as it sits today is user friendly and citizen-centric, but the measures needed to taken regarding its accountability lies with the higher officials of the government. Development and advancement in Information Technology is not only for the new generations. Top officials, big bureaucrats and Political masters must be aware of the changes and advancement in technology and must try to adapt and find a means for harnessing its influence, without maintaining their Status Quo. More attention has to be given by the government to e-Governance and e-services because we are living in a world where Information Technologies has transformed the world order and the functioning of governments.

11. No particular post and recruitment for website managers are conducted by the Government of Mizoram. The State Government are required to ensure that websites are operated not by personnel with computer knowledge. Government has to be aware that Government websites are an important features, countenance and visage of how advanced and developed the state government is. Government websites are online and are accessible 24X7, from any nook and corner of the world. Maintaining and owning atrocious

websites can become a failure of Government Administration. Consequently, Government should come up with a notion that Government department websites should be operated and maintained by a proficient professional.

The government has to take much more inventiveness to make website creditable. Although the layout, features and contents could be highlighted in any preferred language the Government and the DoICT department must take steps to create awareness on the need and importance to use government websites. Citizens from the more rural and backward areas have not been enlightened about the effectiveness and efficiency of websites. Even the general public from urban areas are not aware of the usefulness of website which may include students, marginal workers etc. In spite of the negativity and positives in existence, the State Government has to take a major step because Internet becomes the easiest and fastest way for redressing our grievances. In today's world, with the availability of e-governance system, the internet has become an important link between the people and the government.

The results of the study shows that website have played an important part in the present day. Government and the public have benefitted from its existence but are yet to harness its true potential. We are living in a world where modernity and a race in technology are a topic of our everyday life. Based on the study, website has proven beneficial for government departments, Corporations and Institutions in disseminating and circulating informations. Websites are being developed for every government departments to provide services to the citizens 24 hours, 7 days a week. Qualitative research is still lacking and research on whether government websites are helpful in fighting corruption & providing transparency are areas on which studies may be conducted.

BIBLIOGRAPHY

BOOKS

Alamgeer, M. (2014). *ICT & e-Governance for Rural Development.* New Delhi: Axis Books Pvt. Ltd.

Bhatnagar, Subhash. (2004). *E-government: From vision to implementation: a practical guide with case studies,* New Delhi: Sage Publications India Pvt. Ltd.

Bhatnagar, Subhash. (2009). *Unlocking E-Government Potential First Edition,* New Delhi: Sage Publications India Pvt. Ltd

Deva, Vasu. (2005). *E-Governance in India-A Reality*, New Delhi: Ajay Verma for Commonwealth Publications

Deva, Vasu. (2003). *E-learning Search for Excellence,* New Delhi: Ajay Verma for Commonwealth Publishers

Fraser, R. G, Stephen. (2012). *ASP.Net Content Management System Development Using C# 1ˢᵗ Edition,* New York: Apress Publications

Geer, Sean. (2003), *Essential Internet,*London, United Kingdom: Profile Books Ltd

Lehnert, G, Wendy. Kopec, L, Richard. (2007). *Web 101: Making the Net Work for You.* Addison Wesley Publishing Company

Naz Rafia, Singh Gurmeet, Dutt Raghuvar Pathak (2010), *e-Governance, Service Delivery and Customer Satisfaction: Lessons for Developing Countries,* Germany: LAP Lambert Academic publishing.

Panneerel, P. (2005). *E-Governance: A Change Management Tool,* Jawahar Nagar, Jaipur: Prem Rawat for Rawat Publications

Ramanujan, V.P. (2001). *Computer Education,* New Delhi: Mittal Publications

Raj, Srinivas, B. (2008).E-governance Techniques - Indian and Global Experiences 01 Edition, New Delhi: New Century Publications

Sacks, Matthew. (2012). Pro Website Development and Operations: StreamliningDevOps for Large-Scale Website, New York: Apress Publications

Silver, Blakeley, Tessa. (2017). Joomla! Template Design: Create your own professional-quality templates with this fast, friendly guide: A complete guide for web designers to all, Birmingham, United Kingdom: Packt Publishing

Singh, U.K., Sudarshan K.N. (1996).Computer Education, New Delhi: Discovery Pulishing House

Sinha, R.P. (2006). E-governance in India: initiatives and issues, New Delhi: Ashok Kumal Mittal Concept Publishing Company

Thamarasseri, Ismail. (2009). Information and Communication Technology in Education, New Delhi: Kanishka Publishers

Tripathi, Vishwas. (2007). E-Governance: Perspective and Challenges, New Delhi: Anmol Pubications Pvt. Ltd.

Vallikkad, Santhosh. (2009). Information and Communication Technology for Teacher Education, New Delhi: Kanishka Publishers

Williams, Brian. Sawyer, Stacey. (2009). Using Information Technology: Practical Introduction to Computers and Communications 6th Edition, New York: Mcgraw Hill Education Publications

Zahirul, Islam, Gazi, (2012), E-governance: Implementation in Bangladesh, Germany: LAPLambert Academic publishing

JOURNALS/ARTICLES

Rajitha, G. (2010). E-Government for Rural Livelihood, Yojana, Vol. 54, pp.43-47.

Sharma, Arpita (2013). Rural E-Governance in India, Yojana, Vol. 57, pp.29-32.

Sharma, Gopal. (2014). Kisaan SMS Portal: ICT tool for Agricultural Extension, Kurukshetra, Vol. 62 (8), pp.31-36.

Van, Guda, Noort. Vliegenthart, Rens. & Kruikemeir, Sanne. (2016). Return on interactivity?The characteristics and effectiveness of Websites during the 2010 Dutch local elections, Journal of Information Technology & Politics, Vol.13 (4), pp.352-364.

GOVERNMENT DOCUMENTS

Guidelines for Indian Government Websites- An Integral Part ofCentral Secretariat Manual of Office Procedure 2009

Brief Guidelines on Website Management for Departments under the Government of Mizoram 2013

WEBSITES

10 Tips Before You Buy a Domain Name. (2015, July 16). Retrieved November 23, 2017, from http://mediatemple.net/resources/web-hosting-101/10-tips-before-you-buy-a-domain-name/

3 Simple (Yet Effective) Tips for Focusing Your WordPress Writing Efforts. (2015, April 6). Retrieved November 23, 2017, from http://mediatemple.net/resources/web-hosting-101/3-simple-yet-effective-tips-for-focusing-your-wordpress-writing-efforts/

5 Most Common Web Hosting Problems. (2015, November 11). Retrieved November 23, 2017, from http://mediatemple.net/resources/web-hosting-101/5-most-common-web-hosting-problems/

Aaurora Solutions, (2017), Retreived November 1, 2017 from http://www.aurorasolutions.ca/blog/5-reasons-need-website/

Best Practices to address the issue of Web Defacement (2016, March 24). Retrieved November 26, 2017, from https://www.banffcyber.com/best-practices-to-address-the-issue-of-web-defacement/

Bracewell, B, David (2010). Automatic Creation of Daily News Digest from Internet New Sites.Retireved November 22,2017, from https://books.google.co.in/books/about/Technological_Developments_in_Networking.html?id=WJtekD1ToagC&redir_esc=y

Building an Animated Web Project Using a JavaScript Timeline. (2015, April 2). Retrieved November 23, 2017, from http://mediatemple.net/resources/web-hosting-101/building-an-animated-web-project-using-a-javascript-timeline/

Business Dictionary, Website Definition, Retrieved October 17, 2017 from http://www.businessdictionary.com/definition/website.html

Cambridge Dictionary, Meaning of 'Website' in English Dictionary, Retrieved October 17, 2017 from http://dictionary.cambridge.org/dictionary/english/website

Change your home page template style. (2013). Retrieved November 23, 2017, fromhttp://kb.ucdavis.edu/?id=0253

Chouhan, J.S. Prospects of e-Governance. Retrieved November 23, 2017, fromhttp://www.indianjournals.com/glogift2k6/glogift2k6-1-1/theme_5/Article%208.html

Colman Michael. Rich date vs. Big data. Retrieved December 4, 2017, from https://www.digitalthing.com.au

Cord, Curtis, Mc. (2017, July 1). Canada in 150 years: People power will shake up society. Retrieved November 23, 2017, from https://theconversation.com/canada-in-150-years-people-power-will-shake-up-society-80184

Crane, Anastasia,(2017), The Importance of Having a Functional Government Website, Retrieved October 17, 2017 https://granicus.com/blog/blog/importance-functional-government-website/

Creating a Secure WordPress Website with Htaccess and Wordfence. (2015, April 7). Retrieved November 23, 2017, from http://mediatemple.net/resources/web-hosting-101/creating-a-secure-wordpress-website-with-htaccess-and-wordfence/

Department of Information & Communication Technology, Government of Mizoram, Common Template for Department, Retrieved October 30, 2017 fromhttps://dict.mizoram.gov.in/page/common-template-for-department

Developing WordPress for the Future. (2015, April 6). Retrieved November 23, 2017, from http://mediatemple.net/resources/web-hosting-101/developing-wordpress-for-the-future/

Doyle, Matt. (2012, January 21). Build a CMS in an Afternoon with PHP and MySQL. Retrieved November 23, 2017, from https://www.elated.com/articles/cms-in-an-afternoon-php-mysql/

Doyle, Matt. (2012, January 25). How to Add Article Categories to Your CMS. Retrieved November 23, 2017, from https://www.elated.com/articles/add-article-categories-to-your-cms/

E-governance in India: Concept, Initiatives and Issues (2014, November 24). Retrieved November 26, 2017, from http://www.insightsonindia.com/2014/11/23/e-governance-india-concept-initiatives-issues/

EuanEadie, E. (2012). The advantages and disadvantages of implementing an e Government service. Retrieved November 23, 2017, Fromhttp://homepages.abdn.ac.uk/f.guerin/pages/teaching/CS5038/ assessment/essays/ essays_from_ 2006/ groupB/eeadie-1.html

Fix Web CMS publishing errors. (2013). Retrieved November 23, 2017, fromhttp://kb.ucdavis.edu/?id=0259

Grozeva, Lily (2013, March 5). What is website management? Retrieved November 26, 2017, from https://www.websitepulse.com/blog/what-is-website-defacement

Hollie, Top 10 benefits of having a website, Retrieved November 2, 2017 from https://www.thisisparachute.com/2014/03/10/top-10-benefits-of-having-a-website/

Joomla, What's a Content Management System (CMS)? Retrieved October 29, 2017 from https://www.joomla.org/about-joomla.html accessed on 29.10.2017

K.M. Articles, (2002), What are the goals of a Content Management System, Retrieved November 2, 2017, From http://www.providersedge.com/docs/km_articles/What_Are_The_Goals_of_a_CMS.pdf

Livingstone, Rob. (2014, May 5). Digital by default'- efficient e-Government or costly flop? Retrieved November 23, 2017, from https://theconversation.com/digital-by-default-efficient-egovernment-or-costly-flop-26182

Meinrath, Sascha. (2017, july 25). A bold, bipartisan plan to return the US to the vanguard of 21st-century technological innovation. Retrieved November 23, 2017 from http://theconversation.com/us/topics/e-government-21067

Ntulo, Getrude. Otike, Japhet. E-Government: Its Role, Importance and Challenges. Retrieved November 23, 2017 from
https://www.researchgate.net/file.PostFileLoader.html?id=564b 965d6225ffe6e98b45 95&assetKey=AS%3A296884838125570%401447794269180

Removing gold bars in Web CMS. (2013). Retrieved November 23, 2017, fromhttp://kb.ucdavis.edu/?id=0268

Rosemann, Michael. (2015, October 9). What a 'digital first' government would look like. Retrieved November 23, 2017, from https://theconversation.com/what-a-digital-first-government-would-look-like-48005

Rosenstiel, Tom. Mitchell, Amy. Purcell, Kristen. & Rainie, Lee. (2011, September 26). The Role of Internet. *Pew Research Centre.* Retrieved November 23, 2011 from http://www.pewinternet.org/2011/09/26/part-5-the-role-of-the-internet/

Rouse, Margaret (2005 April). Retrieved November 26, 2017, from http://searchmicroservices. techtarget.com/ definition/Web-site

Scheduling Web CMS pages for publishing. (2013). Retrieved November 23, 2017, from
https://ucdavisit.servicenow.com/servicehub/?id=ucd_kb_article&sys_id=6ee741bf6f e8a900bc4f8a20af3ee430

Taylor, Robin. (2012, Sept 28). How to create a social media marketing plan. Retrieved November 23, 2017, from http://www.selfgrowth.com/articles/how-to-create-a-social-media-marketing-plan

Taylor, Robin. (2013, April 16). Importance of Website in Today's World. Retrieved November 22, 2017, from http://www.selfgrowth.com/articles/importance-of-internet-in-today-s-world

TechTerms, (2013), CMS Definition, Retrieved October 29, 2017 from https://techterms.com/definition/cms

Using special characters with Web CMS. (2013). Retrieved November 23, 2017, fromhttp://kb.ucdavis.edu/?id=0265

Web CMS roles. (2013). Retrieved November 23, 2017, from http://kb.ucdavis.edu/?id=0261

Why the Internet has So Much Importance in Everyday Life. (2016, October 16). Retrieved November 22, 2017, from https://www.aussiebroadband.com.au/blog/internet-much-importance-everyday-life/

ABSTRACT

DISSERTATION FOR M. Phil

CONTENT MANAGEMENT SYSTEM:

ADMINISTRATION OF GOVERNMENT OF MIZORAM WEBSITES

By

LALKHAWNGAIHA

Registration No. MZU/M. Phil/890 of Dt.22.5.2017

Supervisor

Dr. LALTANPUII RALTE

Asst. Professor of Public Administration, M.Z.U

DEPARTMENT OF PUBLIC ADMINISTRATION

SCHOOL OF SOCIAL SCIENCES

MIZORAM UNIVERSITY

AIZAWL, MIZORAM

2017

INTRODUCTION

With the advent of technology, different nations around the world are undergoing numerous changes in their governmental functioning, work culture, societal behaviour and their day to day life interactions. A common phrase, "Global village" is being used widely with the impact of globalization, making it effortless for citizens and government around the world to connect instantaneously. All these are made possible via Internet and through the application of Information and Communication Technology (ICT) in governance. The internet has been in development since the 1960's and is a way to allow different computers around the world to connect to one another. Whether it is downloading a file from a website, or chatting to a friend over skype-it is the internet that connects the computer together. The internet is not actually a single physical network; rather it is just a set of rules (Internet Protocol., IP) that allow different networks to communicate. The World Wide Web (the Web or www) on the other hand is a system of web page and sites that uses the internet to pass files across. It was developed in the late 1980's by Tim Berners-Lee. The web is just one of the many services that use the internet; other services include e-mail, internet telephony, live video streaming etc. The www is a way of accessing information through Internet. It is an information-sharing medium that is built on top of the Internet. The World Wide Web is a collection of different websites that can be accessed through the Internet. A website is made up of related text, images, and other resources. Websites can resemble other forms of media-like newspaper articles or television programs. The purpose of a website can be almost anything: a news platform, an advertisement, an online library, a forum for sharing images, or an educational site. All the above stated topics and areas such as ICT, Internet, www, Websites are pre-requisite in the working and functioning of e-governance.

In India, the main thrust for e-Governance was provided by the launching of National Informatics Centre Network (NICNET) in 1987-the national satellite-based computer network. This was followed by the launching of District Information System of the National Informatics Centre (DISNIC) programme to computerize all district offices in the country for which free hardware and software was offered to the State Governments. NICNET was extended via the State capitals to all district headquarters by 1990. In the ensuing years, with ongoing computerization, tele-

connectivity and internet connectivity a large number of e-Governance initiatives, both at the Union and State levels were established.

A significant step pertaining to the growth, development and advancement of E-Governance in India was the launching of "National e-Governance Plan (NeGP)", a mandate given to the Second Administrative Reform Commission (ARC) titled "Promoting e-Governance: The smart way forward". The National e-Governance Plan (NeGP) is an initiative of the Government of India to make all government services available to the citizens of India via electronic media. To make government service available to the citizens, reaching from the cities to the remotest areas, a portal or a doorway is needed to make its availability a reality. Here, websites and its peripherals come to assist and facilitate its possibility. Website may simply mean a set of pages of information on the internet about a particular subject, published by a single person or organization.

The Mizoram government as per the recommendation of the ARC and the guidelines provided by the National Information Centre (NIC) and the NeGP, adopted the establishment of websites for various government departments. The Department of Information& Communication Technology, Government of Mizoram were handed the task for development of websites.

Before the introduction of the Government of Mizoram-Content Management System (GoM-CMS), departments websites under the Government of Mizoram were developed through an Open Source CMS such as Drupal, Joomla, WordPress etc., which resulted in a different unique website for different departments which generates problems in identifying which website is governmental and which is not. Moreover, common training could not be conducted for those departments not using GoM-CMS because of the use of different CMS and software.

As such was the situation, the idea for development of common template which could bring a common look, layout, feature, content, design and uniqueness to departmental websites of Government of Mizoram was initiated in the year 2012. Thereafter responsibility for the initiative was given to the Department of Information and Communication Technology (DoICT), Government of Mizoram and the Government of Mizoram – Content Management System (GoM-CMS) was completed and launched on the 20th July 2012.

SCOPE OF THE STUDY

The study focuses on the utilization of websites, specifically on Content Management system which was developed by Mizoram State e-Governance Society (MSeGS) under DoICT, Government of Mizoram. Although websites can be developed by private web developers, our study mainly focuses on the websites developed and administered by the Government of Mizoram under ICT Department.

In Mizoram, 141 government departments and its bodies are currently using GoM-CMS, and it is proposed and planned to be used and developed for each and every government department, academic institution and corporation shortly. Websites have been used by most departments under the Government of Mizoram, academic institutions, corporations etc., and our study will be centered on such aforementioned area.

OBJECTIVES OF THE STUDY

The main objectives of the research study can be highlighted as under:

1. To examine the working and importance of websites for disseminating information and in bringing about efficiency in delivering services to the citizens.
2. To study the problems faced by government departments/institutions before deployment of GoM-CMS project.
3. To explore the pre deployment scenario of the GoM-CMS project and assess the post development status.

RESEARCH QUESTIONS

The following research questions are formulated for the study:

1.   How did CMS evolve and function under the Government of Mizoram?
2.   What were the problems and challenges faced by government departments in Mizoram before the introduction of GoM-CMS?
3.   Does GoM-CMS meet the requirements of the needs for government departments, corporations and institutions in Mizoram?
4.   What are the measures that can be taken to make the government websites more user friendly and citizen-centric?

METHODOLOGY

Primary and secondary data were used to undertake the study. Primary data are obtained through unstructured interview schedule, surveys and observations. Interviews is carried out with the functionaries in government departments, institutions, corporations and beneficiaries of the project, which includes students, prominent citizens etc.

Secondary data was acquired through books, journals, articles, newspapers and printed records. Internet sources were also used for collecting secondary data.

CHAPTERIZATION

Chapter I   :   Introduction.

Chapter II   :   Government of Mizoram – Content Management System – Brief overview of the project

Chapter III   :   Problems and challenges faced by GoM-CMS before its deployment.

Chapter IV   :   Comparison of pre deployment scenario and post development benefits

Chapter V   :   Conclusion

MAIN CONTENTS AND FINDINGS OF THE STUDY

The first chapter is the introductory part of the study. A brief outline on the Internet and World Wide Web are cited. It also highlights the meaning, definition, importance and relevance in today's world. This chapter includes the introduction on Government of Mizoram-Content Management System (GoM-CMS), Review of Literature, Scope of the Study, Objective of the Study, Research Question, Statement of the Problem and Method of Data Collection. The chapter also features the meaning, uses and importance of website.

The Second chapter focuses mainly on CMS, its meaning and relevance. The objectives of GoM-CMS are also presented in this chapter. Details of the targeted areas covered by the project are highlighted including the goals envisioned by different corporations and institutions using CMS.

The third chapter gives a brief outline on the guidelines on Website management for departments under the Government of Mizoram. It also highlights the problems and challenges faced by Government of Mizoram websites before deployment of GoM-CMS. Solutions implemented by the Department of Information &Communication Technology (DoICT) are also discussed in this chapter.

The fourth chapter consists of pre-deployment scenario and post development benefits of the GoM-CMS project. The chapter begins with the utility of websites followed by a comparative study on pre-deployment and post-development benefit of the project.

The fifth chapter is the concluding chapter which is divided into three parts. The first part of the chapter cites the summary of all the preceding chapters and the second part highlight the research findings. Future road map of the GoM-CMS project is also highlighted in the final chapter.

The following are the findings of the researcher while conducting the study:

The researcher found out that websites played an important role in disseminating information and providing services to the public. Government departments of Mizoram are directed to have an up and running websites so as to

make government services available and accountable to citizens when needed.Major uses of websites by government departments can be summed up as follows:

1. Advertisements
2. Request for Tender (RFT)
3. Dissemination of information
4. Employment news
5. Providing download materials in PDF format
6. Declaration of results (recruitment)
7. Online bill payments
8. Application for various services, pan cards, passports etc.
9. Booking tickets online
10. Publication of various routine for examination
11. Publication of office orders
12. Press Release
13. News
14. Media Gallery
15. Circular/Notification
16. Contact Information
17. FAQ (Frequently asked questions)
18. Feedback and Complaint

Before the deployment of the GoM-CMS, websites of various departments under the Government of Mizoram were developed through an Open Source CMS such as Drupal, Joomla and WordPress etc., and it was difficult to recognize the difference between Government Websites and Private Company websites. Some departments had developed modish and elaborate website while others were very simple, because no uniform layout and guidelines for the websites of government departments were made. Some of the departments did not accept and recognize the importance of website for dissemination of information to the public even with the issue of Office Memorandum. The interface used for development and maintenance of Government websites before the institution of CMS were different from one another as it depends on the developer of the websites. This resulted in unattended websites of many departments when concerned technical staff was transferred from one place to another.

The Present study centered on GoM-CMS. During the course of study, the researcher found that the GoM-CMS is developed as per the advice of the then Chief Secretary of Mizoram, Pu. Vanhela Pachuau. An interview conducted with the aforementioned official articulate that in 2012, a meeting was summoned by the Government of India, inviting each Chief Secretary of provincial states of India to participate. The meeting discussed the importance of having similar website features for government departments. Thereafter, responsibility for the initiative was given to the Department of Information & Communication Technology, Government of Mizoram. After the approval of the GoM- CMS project, the Department started designing common template which was proposed to be used by all the government departments, and government institutions, Corporations, PSU's etc. within the State of Mizoram. Accordingly a Content Management System (GOM-CMS) for Government of Mizoram Version-1 was then developed.

The Department of Information & Communication Technology 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. the erstwhile Public Sector Undertakings of Department of Information & Communication Technology (ICT). The GoM-CMS was completed and launched on 20th July 2012.

The domain name, the content placement, the positioning of national emblem and the user interface were still the same but the fonts size, colours and themes were upgraded in Version-2. Features such as display of Departments' photos in the Home page were incorporated in Version-2.

The GoM-CMS was made available to all government departments, Institutions & Public Sector Undertakings under the Government of Mizoram. As of 2017, 161 government departments and its undertakings have opted for the GoM-CMS. After the deployment of CMS, expenditure and financial involvements for development of websites were reduce drastically as the CMS was deployed to various departments free of cost.

The GoM-CMS introduced a single graphical user interface for websites of government departments. Websites are developed as department centric and are

designed based on the requirement of each department. Most of the modules integrated in the CMS focused on the requirements of various departments of Government of Mizoram. The User interface of the GoM-CMS brings similar design for all departments and offices of Government. It has also been specifically designed with efficient simplicity to show the identity of the Government Websites. The GoM - CMS has World Wide Web Consortium (W3C); the main international standards organization for www validation on Hypertext Markup Language (HTML) and Cascading Style Sheet (CSS). The GoM-CMS follows Web Content Accessible Guideline (WCAG) guidelines on screen reader accessibility, Contrast ratio and adjustable text for all websites under this CMS. The CMS complies with 'Guidelines for Indian Government Websites' and accessibility for visual impaired using Screen Reader Access is also possible with the CMS. A Short Message Service (SMS) Gateway for sending SMS to individuals and group members among the user departments is integrated with the GoM-CMS. Online Chat Facility for instant communication is provided by default in the GoM-CMS, which is useful for many departments for interacting with the citizens. Feedback/Grievance Redressal through Social Networking sites such as Facebook, Twitter and Central Public Grievance Redressal and Monitoring System (CPGRAM) are also integrated with the CMS and are optional to the Departments. The GoM-CMS is deployed only to Government Websites which is in compliance with the Government's Domain Name Policy. All Indian Government websites must use '.gov.in' or '.nic.in' domain which is exclusively allotted and restricted to Government websites.

The GoM-CMS version-1 is being in used in the beginning of the study. In due course of the study, the DoICT have upgraded the CMS Version-1 to CMS Version-2. The GoM-CMS user department and government units have also increased from 141 to 161, as on Nov. 17, 2017 and the number is likely to increase in the near future.

As per the study conducted in different government institutions and departments, awareness campaign for using and browsing government website to search for the information is a requisite. Some departments' websites are viewable only through Computers and Laptops while the general masses browse websites using their smartphones. This results in unobtainability of some documents and

notifications. Admittance or entrances to some government websites are only possible through Computers which is problematic in times of emergency. Although the CMS is mobile friendly, the aforementioned points needs enhancements so as to acquire more accountability. Some Departments are unaware whether they maintain website or not, this creates a problem in gathering information. The reason being negligence and also no particular post for website administration is in existence in the departments. As mandated by the Government of India, government departments of the Union and State are required to have a working website so as to ensure transparency, efficiency and accountability. Consequently, DoICT should check on this account.

Update of website is another problem. Some departments update their websites regularly while some lack behind in this aspect. The Mizoram Public Service Commission, Directorate of Finance and Lottery, Mizoram Police Radio Organisation (MPRO) are required by their functioning to update their CMS almost daily. In the course of the study, Institutions and colleges have been found to be deficient in this matter.

From the findings of the study, it can be concluded that the GoM-CMS meet certain requirements of government departments and the needs of the people, although room for improvement are evident. Based on the interview conducted with personnel from different government department, Institutions, Corporations and Staff and Officers of DoICT in particular, the following suggestions are provided.

1. The GoM-CMS version-1 was upgraded to Version-2 in 2016. On completion of the study, 81 Government departments and its bodies are still using Version-1 till date. As highlighted and mentioned in the previous chapters and as shown in Figure No.2.3.2 and Figure No. 2.3.3, the appearance between the CMS Version-1 and CMS Version-2 are quite diverse. The researcher found that CMS Version-1 user departments were not notified regarding the upgrade of CMS Version-1 to Version-2. Inspite of the claims, notification had been given by the DoICT to all GoM-CMS user departments to contact the DoICT and make necessary arrangement on upgrading the software. Necessary steps have to be taken on this account from both GoM-CMS user department and the DoICT so that

communication gap between DoICT and CMS user departments can be checked.

2. As per the study conducted in different government institutions and departments, awareness campaigns for using and browsing government website to search for information needs to be conducted. Citizens have to be enlightened to harness the capability and usefulness of website. Personnel of the government, students, proficient citizens and a greater number of rural people are unaware of the capability of website.

3. Improper update of website is another issue. Some department updates their websites regularly while some lack behind in this aspect. The MPSC, Directorate of Finance and Lottery are updating their website regularly as required by their. Directorate of Finance and Lottery update their website almost daily for declaration of results. MPSC, update their website for posting latest government posts available for recruitment. Institutions and colleges are deficient in this matter. Regular update of website is necessary to enable publishing of recent news and documents.

4. Although the CMS is mobile friendly, based on the findings of the researcher, an improvement is required. Mobile phones differ and so do the software's and systems it uses. The DoICT has to make sure that departments website are viewable using any mobile device, not only the high end Smartphones but also the cheap and less expensive gadgets. Network connectivity can be a challenge in this aspect, therefore it is suggested that the contents in website be minimized so that even poor connectivity loads the desired webpage.

5. Some staff of department maintaining website are themselves unaware of the existence of their website. This brings to the fore the need to create awareness within the department as well as the public to enhance the utilization of the websites and to serve the very purpose of its establishment.

6. Some institutions and departments claim that update of the software is a problem for website being down due to bandwidth shortage and poor

Internet Connectivity. Steps needs to be taken in this aspect by DoICT, Government departments and Institution to have a better internet facility because up-to-date websites needs to be available 24 hours 7 days a week.

7. Several website managers of Government departments, PSU's and other institutions informed the researcher that the features of GoM-CMS are difficult to get used to. Being familiar with Wordpress, Blogspots, Joomla etc. posting content, especially combinations of images and texts, drawing charts, figures and shapes is often time consuming. The researcher found that editing contents, drawing shapes and figures, uploading high resolution images are more convenient through Wordpress. DoICT are suggested to check on the existence of problems faced by GoM-CMS user departments.

8. There is no viewers count on the GoM-CMS version-2. When personnel with regards to website operators are questioned on how much visitor the department encounter, it becomes challenging because they have to look through download counts. Questions on website visitors have been raised by higher bureaucrats, Executives and Political Masters. DoICT has to take steps and achieve required means to include viewers count on the CMS Version-2. The performance of a department can be checked using viewers count. A well maintained and regularly updated department website is sure to have thousands of visitors. Consequently, it can be summed up that a department is playing its part as providing service to the citizens in a digital form.

9. Pertaining to the Police departments in Mizoram, other states Police Department have a websites operator in each district. The Supreme Court ordered that whenever First Information Report (FIR) is received at the Police Station, the Department must upload the particulars within 24 hours. In Mizoram, Aizawl district alone maintains website of the police department. Therefore, when FIR is received in other district, uploading becomes a huge challenge. It is thus suggested to make improvement by creating a network where investigated and checking of crimes and criminals within the states be enhanced.

10. The researcher found out that the GoM-CMS as it sits today is user friendly and citizen-centric, but the measures needed to taken regarding its accountability lies with the higher officials of the government. Development and advancement in Information Technology is not only for the new generations. Top officials, big bureaucrats and Political masters must be aware of the changes and advancement in technology and must try to adapt and find a means for harnessing its influence, without maintaining their Status Quo. More attention has to be given by the government to e-Governance and e-services because we are living in a world where Information Technologies has transformed the world order and the functioning of governments.

11. No particular post and recruitment for website managers are conducted by the Government of Mizoram. The State Government are required to ensure that websites are operated not by personnel with computer knowledge. Government has to be aware that Government websites are an important features, countenance and visage of how advanced and developed the state government is. Government websites are online and are accessible 24X7, from any nook and corner of the world. Maintaining and owning atrocious websites can become a failure of Government Administration. Consequently, Government should come up with a notion that Government department websites should be operated and maintained by a proficient professional.

The government has to take much more inventiveness to make website creditable. Although the layout, features and contents could be highlighted in any preferred language the Government and the DoICT department must take steps to create awareness on the need and importance to use government websites. Citizens from the more rural and backward areas have not been enlightened about the effectiveness and efficiency of websites. Even the general public from urban areas are not aware of the usefulness of website which may include students, marginal workers etc. In spite of the negativity and positives in existence, the State Government has to take a major step because Internet becomes the easiest and fastest way for redressing our grievances. In today's world, with the availability of e-governance system, the internet has become an important link between the people and the government.

The results of the study shows that website have played an important part in the present day. Government and the public have benefitted from its existence but are yet to harness its true potential. We are living in a world where modernity and a race in technology are a topic of our everyday life. Based on the study, website has proven beneficial for government departments, Corporations and Institutions in disseminating and circulating informations. Websites are being developed for every government departments to provide services to the citizens 24 hours, 7 days a week. Qualitative research is still lacking and research on whether government websites are helpful in fighting corruption & providing transparency are areas on which studies may be conducted.