e-Education for Creating Awareness & Sensitization in Disaster Management for the Masses
(An e-learning self study program in Disaster Management)

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Abstract: **Educating people about disasters is the most important measure to minimize the impact of damage advocated by disasters, by preparing them to act self reliantly during the crisis time. This requires development of targeted educational programmes covering practical and realistic aspects along with the theoretical aspects of disaster preparedness and training. Adopting new education technologies for providing this education needs to be a global endeavor. e-education has become one of the prominent methods of delivering education in the recent decade. e-learning mode of education is the most effective for educating and creating public awareness by providing anytime, anywhere, any place knowledge at user's own flexible time and pace. To achieve the above objective CDAC, Noida in collaboration with NIDM has initiated the first and foremost of its kind by introducing a Self Study Programme (SSP) in the area of Disaster Management (DM). This e-education initiative through Self study based e-learning programme is being very beneficial in creating mass level awareness about disaster risk reduction to various categories of users and is thus expected to provide long term benefits to the society.This paper provides the details of the development & delivery of the e-Learning Self Study Programme, the issues and challenges, impact of the programme and its usefulness in enhanced capacity building in the area of Disaster Management through e-education.**

Keywords: **SSP, e-learning, DM, NIDM, CDAC**

1. INTRODUCTION

Public awareness and sensitization on Disaster Management is important as simple Do's and Don'ts of disasters can save many lives during disaster. Disaster Management Education is the sharpest weapon of hope in our united, nonviolent, and long drawn, but seemingly winnable war against disasters. Education is needed to create greater public awareness about the threat, the scourge that the disasters pose. ICT's can be used for natural disaster prevention, preparedness and risk management .by offering tools for data analysis, satellite imaging and vulnerability assessment. Also they majorly act as Information Communication and empowerment tools through internet, mobile phones, internet based media and knowledge centers etc., which can be used for both mitigation and adaptation efforts in order to:

- Inform and raise awareness at all levels of society about the effects of disasters.

- Enable access to remote villages through dissemination hence enhancing the effectiveness of early warning systems for disaster prevention and risk reduction.

- Identifying, building, documenting and sharing locally rooted and contextualized adaptation strategies and solutions among communities.

- Facilitating local risk assessments and making communities part of the process to mobilize local knowledge and develop local coping mechanisms.

Thus, e-Learning as an ICT tool can facilitate systematic awareness raising and knowledge sharing about the effects of disaster management and possible coping strategies at all levels of the society particularly those who are working in the area and those who are pursuing their studies in this stream. APDIP-UNDP had identified e-Learning as a major ICT tool for creating Disaster Management Awareness & Training for having increased capacity building in the area. e-learning mode of education is thus the most effective for educating and creating public awareness by providing anytime , anywhere, any place knowledge at user's own flexible time and pace.

With the objective of capacity building and increasing human resource development and awareness about Disaster Management, CDAC in association with NIDM has developed the Self Study Programme on Disaster Management. The program consists of a series of e-learning courses with relevant real time case studies and presentations, key lessons learned, success factors and good practices which present the various aspects of disaster management activities like risk assessment, mitigation, preparedness, response and recovery. The main objective of these courses is not only to provide education to Disaster Management officers but also to create and raise mass awareness to students, social workers, community leaders, housewives especially those situated in critical Disaster prone areas and the public, in general. The courses are aimed to provide specialized information on

disaster do's and don'ts, preparedness and mitigation measures and also information about the various Statutory bodies and Government organizations that have been formulated at various levels –District, state and National level for Disaster Management. Thus this e-learning mode of providing e-education and training is useful for assisting in the mitigation and adaptation efforts for disasters, due to its ability to:

- Inform and raise awareness at all levels of society

- Enable access to remote areas

- Create a repository of information on Disaster Management and risk mitigation

- Facilitate sharing of local knowledge and develop local coping mechanisms

- Capacity building through e-Learning with both vertical learning & horizontal ,peer to peer learning

2. E-LEARNING SELF STUDY PROGRAMME ON DISASTER MANAGEMENT

The e-Learning Self Study Programme on Disaster Management consisted of design and development of Self Study based e-Learning courses on disaster management. The target users of the programme were government officials and other stakeholders who have a role and responsibility of managing disasters and also general public at large.

This e-learning program in Disaster Management is unique due to:

- Audience or Learners being different from that of audience of routine technical streams

- Less techno savvy

- No prior domain knowledge

- Mostly new to e-Learning style of Learning

- Being from different educational and other backgrounds

- Diverse personal motivations and approaches to learning

- Area, being a non-technical area comprising of more theoretical content

Thus, developing the contents in accordance with the end user's requirements and satisfaction was a big challenge due to the general aspects of the topics. This required inclusion of lot of numerous multimedia features like images, animations, video clips and expert video lectures. This was a tremendous challenge as searching for the above features and embedding the same in relevance with the contents was quite a tedious and time consuming task.

The courses provide training in various functional areas related to Disaster Management. Figure 1 gives the high level decomposition of the system, consisting of the following functional modules:

User Modules: these included development of Portal, registration module and administrative module

Technical Modules: these included the e-Learning management system (LMS) module, the Content Module and the self assessment module
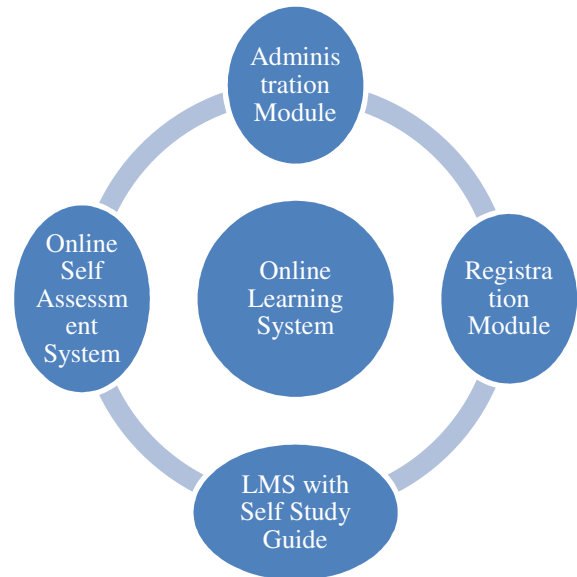

Figure 1: Functional modules of the e-Learning Self Study Programme

2.1 User Modules:

2.1.1 Web Portal: The first phase of the programme [2] consisted of development and implementation of a dedicated portal for the SSP in line with requirements of the end user. The portal was developed using HTML , PHP,CSS, JavaScript and flash technologies with linkages to the registration and administrative module.

The web portal has been developed in compliance with Government's web guidelines with the aim to provide easy navigation and user friendly interface to the users .The portal consists the features like List of courses, How to apply, Demo Course, Frequently Asked Questions (FAQ's), Guidelines and Announcements for providing easy accessibility and navigability and for providing effective interface to the users.

The portal is presently hosted in C-DAC's data centre and takes care of administrative services like taking back up, tuning the database and bandwidth management. The end user

would register for the e-Learning courses through the web portal hosted at CDAC.

Figure 2: Portal of the e-Learning Self Study Programme

2.1.2 Registration module: The registration module consists of registering users into the e-Learning programme and storing the login details of the users. It has been developed using MYSQL as backend database. The login link is linked with the moodle login page. Whosoever, wishes to join the e-Learning courses may register for their required course and obtain the login details.

2.1.3 Administrative module: This module consists of the administrative features of the Learning Management System especially user management functions which include creation of registered users, assigning accessibility roles to users, assigning access privileges to users and grouping users. It also includes assigning users their selected courses and providing enrollment keys to the users for their respective courses, user tracking and report generation.

2.2 Technical Modules:

2.2.1 Learning Management System (LMS): The moodle content management system was used as the LMS which was customized according to the programme's requirements. The moodle LMS was installed using Apache application server, MYSQL database at the backend and PHP as the frontend technology.

The LMS was installed initially in both Linux and Windows operating systems, and is presently hosted in the Linux version. The customization of the moodle included tasks of creating discussion forums & glossary, enabling online users display, linking of registration page to the web portal. It also

included customization of self registration page, front page customization and theme customization.
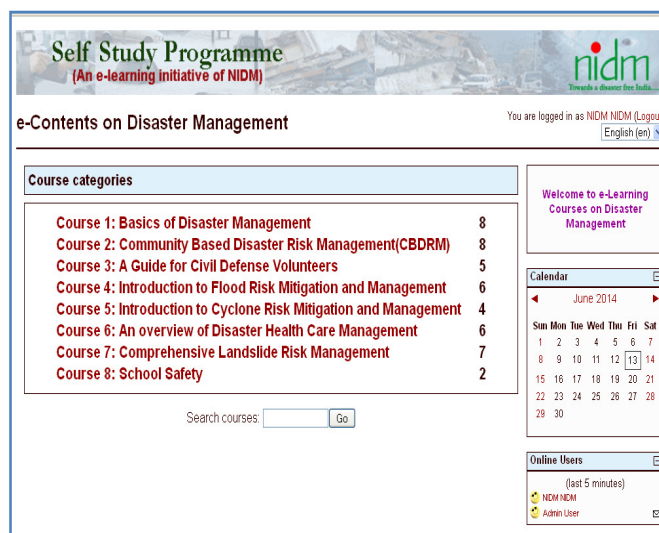

Figure 3: e-contents accessible from LMS (moodle)

2.2.2 Content Module:

The content module consisted of creation of course categories, defining format of courses and publishing the courses with tracking and other content specific features on the LMS. There are various types of course format options such as topics format, weekly format, SCORM format, social, page format and LAMS course format. The present courses are published in the SCORM format for better reusability of the learning objects.

There are primarily ten e-learning courses covering from the introduction to in depth explanation of the various disasters, these are:

- Basics of Disaster Management
- Community based disaster risk management(CBDRM)
- A guide for civil defense volunteers
- Introduction to flood risk mitigation & management
- Introduction to cyclone risk mitigation & management
- An overview of Disaster health care management
- Comprehensive landslide risk management
- Introduction to earthquake risk mitigation & management
- School safety
- Introduction to chemical risk mitigation & management

The contents are hosted in the content server where the contents include various types like images (jpeg, gif),

animations (gif, flash), video clips and lectures, and textual content. The contents are then published and hosted on the LMS for providing access to the users.

Further for better interactivity and participation of the learners during the course access- interactive features like self based activities, and self assessments like quizzes are included in between the courses, where the learner can assess himself about his or her understanding of the concepts. Also, supportive features like glossary, discussion forum, feedback etc are incorporated in the courses for additional support, discussions and regular updations.

2.2.3 Self Assessment Module: This module consisted of creation of self assessments and activities. These were created using various tools like Articulate Quiz maker, Hot potatoes, etc. with various objective types of questions namely fill in the blanks, multiple choice questions, match the following etc. These assessments are hosted at the end of each course for self assessing the knowledge acquired from the course At the end of each self assessment, the result can be seen with the percentage of marks obtained and whether the user has passed the self assessment test or not. The recap of the quiz is also made available for re-viewing the attempted quiz and noting the correct answers. These assessments are also included in between the courses in the form of flash based activities and simulative exercises.

3. USAGE & IMPACT OF THE SELF STUDY COURSES

The e-Learning Self Study Programme on Disaster Management was launched by Honorable Minister of State, Home Affairs Shri Mullapalli Ramachandran on the occasion of Disaster Reduction Day, celebrated by NIDM on the 12th October, 2011 at New Delhi on the lines of International Day for Disaster Reduction which is observed in October every year.

This self study programme on disaster management are being offered freely for the public and can be accessed by anyone from anywhere in the world as per user's convenience in their own flexi time. These courses are accessible from the portal http://nidmssp.in on 24*7 basis, free of cost. From the day of launch of the Self study courses the amount of users accessing the courses has been on the increase each passing day.

Presently, there are 1, 50, 000 number of hits in the portal. Also, faculty from NIDM are using these online courses during their various training programs for showcasing the real time videos of the disasters, guidelines and tips for preparing oneself during both pre and post disaster phases etc.

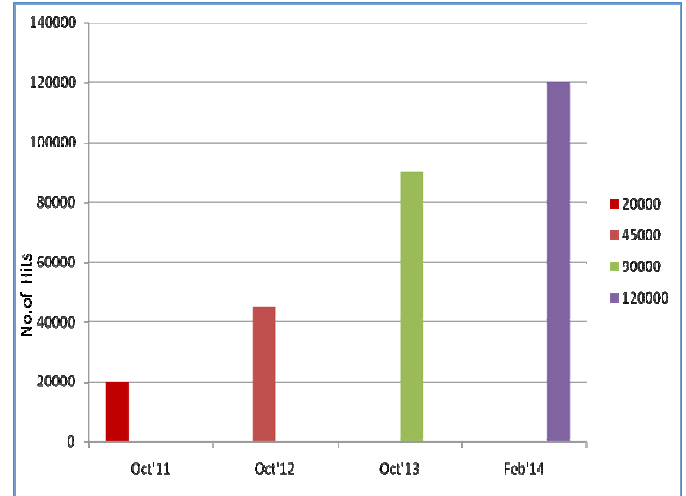Given below are some of the usage statistics of the courses, as on February 2014:

**Figure 4: Programme usage statistics
of the SSP e-learning courses**

The above figure clearly indicates the amount of user awareness that has been created through the courses towards different aspects of disasters and their management. Users have been regularly providing their inputs through the feedback and discussion forums and also through the e-mail id: support@nidmssp.in created especially for specific course related and other queries.

4. CONCLUSION & FUTURE SCOPE

This self study programme initiated jointly by NIDM and CDAC is the first and foremost of its kind by introducing a Self Study Programme in the area of Disaster Management. The various e-Learning courses covering Basic concepts of Disaster Management, Types of Disasters, Civil Defense, Role of community in and after Disaster Management etc. are very useful for getting a firsthand information about the different aspects of Disasters and their management.

The e-contents being self explanatory, have introductory videos of the concerned faculties which not only creates interest in the courses but also provides a brief about the courses. The courses provide clear knowledge about pre and post disaster aspects for different types of Disasters and also information about the different organizations that exist in providing support during and after Disasters.

Presently, these courses are accessible from the e-Learning server, hosted in CDAC data centre. After the development and launch of the remaining courses, they would be migrated to NIDM server and would also be accessible from there. Due to increasing demand with each passing day, in future, it is planned to provide certification to the users of the programme. The idea is to conduct simple online exams and whoever successfully completes the courses and passes the exams, will

be charged minimum nominal fees and will be provided online certificate

Thus, this initiative of e-education with self paced e-learning is proving to be very beneficial in creating mass level user awareness to various categories of users and providing benefit to the society in turn. The contents are being used very effectively by different level of users ranging from students, teachers, governmental organizations, non-governmental organization, private corporate sector, public sector, working professionals and the common people.

5. ACKNOWLEDGMENT

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