Participatory of Myanmar Engineering Society in Disaster Risk Reduction Activities of Myanmar

AFEO Mid Term Meeting

17-07-2017, Singapore

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Myanmar Hazard Profile

- Myanmar rank first as “most at risk” country in Asia
- Vulnerability to multiple natural hazards – (forest) Fire, earthquake, hydrometeorogical events, tsunami, landslide and drought
- 28 natural disasters between 1980 and 2015, causing the death of +140,000 people and affecting lives and livelihoods of more than 4 million people
- Annual economic losses due to disasters: 2+ billions USD
- Poverty and low infrastructures increase vulnerability and capability to recover from disasters
- Hazard/Vulnerability is increased by climate change and variability
- Probability for a large-scale disaster in the future is high (e.g. El Nino’s perspectives, Earthquake hazards)

Nargis Cyclone, May 2008

Floods, August 2015

Disaster risk in Myanmar

- Earthquake affected whole country especially in central Myanmar, Tsunami, Cyclone and storm surge affected all coastal areas. (2004 Indonesia Ocean Tsunami, 2006 Marlar Cyclone,2008 Nargis Cyclone, 2010 Giri Cyclone)
- Heavy rain, flood and fire affected whole country, landslide affected hilly regions and drought affected central Myanmar. (20015-2016 Catastrophic flooding with Landslide)
- Myanmar lies in one of the two main earthquake belts of the world known as Alpide Belt and bounded by Indian plate in the west and Myanmar platelet in the south.
- Seismologically, very active Sagaing Fault is the most prominent active fault in Myanmar, trending roughly north - south. It has been the major source of a large proportion of destructive earthquakes in Myanmar
- On 24th March,2011, a strong earthquake of 6.8 Richter has occurred with the center at 18 miles north from Tachileik township, eastern Shan State. Buildings and houses from Tarlay and Mailin sub-townships and from villages are damaged and 74 people lost lives. (2012- Thabikekyin Earthquake, 2016- Chauk Earthquake, 2017- Tikegyi Earthquake)

Cyclone Nargis in 2008

A house destroyed by Nargis in 2008

Earthquake in 2011

Flood in 2015

Flood in 2016 August

Flood in 2016 August

DRM Global and Regional Commitments by Myanmar

- Hyogo Action Framework (2005-2015)
- Sendai Framework (2015-2030)

- ASEAN Agreement on Disaster Management and Emergency Response (AADMER)

Myanmar is an active participant of the following:

- ASEAN Committee on Disaster Management (ACDM - 2003)
- ADPC (Asia Disaster Preparedness Committee) Regional Consultative Committee on Disaster Management (RCC – 2000)
- UNESCAP Committee on DRR (2009)

DRR Activities of Myanmar Engineering Society (MES)

with Government Departments, Academic and INGOs

- Myanmar Engineering Society, a key professional and technical body has been advising the government in different capacities to develop technical guidelines formation and human resource development.
- In recent days, the universities and research institutions have been increasingly taking interests in contributing to the disaster risk reduction field and MES provides them relevant trainings to the field.

Myanmar Engineering Society (MES)

Training provided by MES

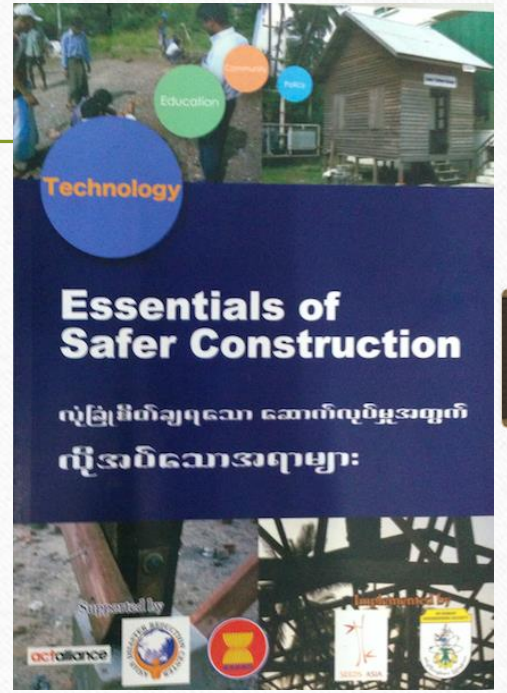
Seminars / Lectures
(e.g., DRR education)

Outside Activity
(e.g., town watching)

Group discussion/work
(e.g., hazard map)

Strengthening National Science Capacities through Research and Higher Education

- There is a newly formed National Spatial Data Infrastructure (NSDI) under the ministry of science and technology, which develops science based national level spatial planning. (e.g., drones to assess the conditions of landslides)
- MES Leads the Special Committee, which looks after the development and updating of the new building codes. The committee also looks on the design and permission process of high-rise buildings.



Strengthening National Science Capacities through Research and Higher Education

- MES provides training to the government departments on different specialized subjects on disaster risk reduction. 14 regional offices of MES work closely with the General Administration Department (GAD) and other regional offices of national ministries.

- Under **M**yanmar **C**onsortium for **C**apacity **D**evelopment on **D**isaster **M**anagement (MCCDDM) project, **SEEDS Asia in cooperation with MES** conducted research of **C**oastal **C**ommunity **R**esilience **I**ndex (CCRI) and **C**limate **D**isaster **R**esilience **I**ndex (CDRI) together with universities and regional government office.

Field Survey of CCRI in Hinthada

Need to bring science to the people

- One of the key challenges of science and technology link to people is the open data availability. (e.g., different ministries have their own data set and strong barriers to hire the data)
- More problem based research or case study based analysis approach needs to be incorporated to bring the science & technology to the people (e.g., changing the mindset of the academicians and technical people who has little link to the actual ground situation.)
- There needs to be an interface of science-policy communication, and local non-government organizations or local universities who can play a role to address the barrier of communication between scientific community, government agencies and people.

Bringing science to the people

Training of Mobile Knowledge Resource Center (MKRC) and Water Knowledge Resource Center (WKRC) implemented by SEEDS Asia and MES

ToT

Training of Mobile Knowledge Resource Center (MKRC) and Water Knowledge Resource Center (WKRC) implemented by SEEDS Asia and MES

Sand Bag Protection Training

DRR Card Game

Students learning about mechanisms of hazards in MKRC

Town Watching Program

DRR Quiz

Capacity Building for local DRR leaders at DRR Activity Centre

Training on Disaster Management Course, RRD (Laputta, Apr., 2015)

Early Warning Training

Basic Fire Fighting training, by Fire Service Department

Search and Rescue training, by Fire Service Department

Safer Construction (concrete), by Myanmar Engineering Society

First aid and Water & Sanitation training

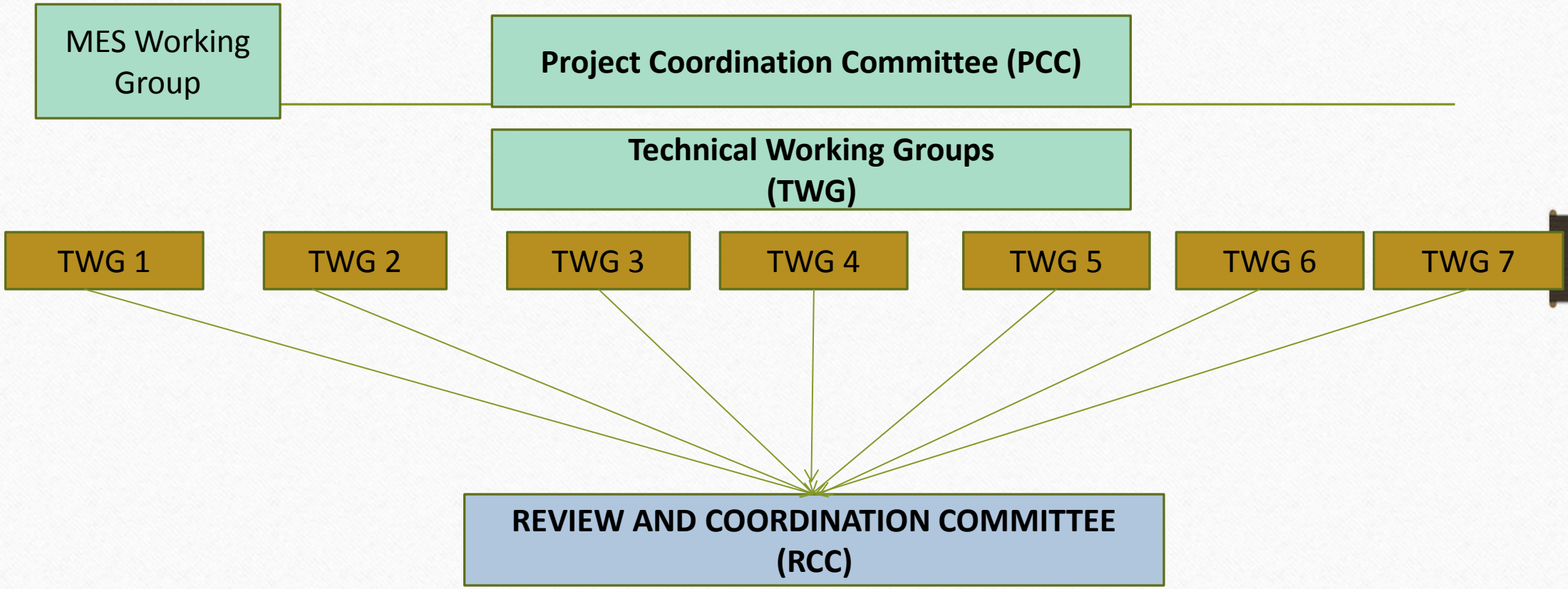
Ministry of Construction , MES and MEC Activities for

Myanmar National Building Codes

National Building Code Development

- As it is initial step up for development of National Code, adaptation of international codes have to follow.
- The review of existing building codes and by-laws are carried out in consultation with relevant departments and institutions.

MNBC Development Organization Set-up



TECHNICAL WORKING GROUPS (TWGs)

- TWG 1- Planning, Environment, Administration and Legislation
- TWG 2- Architecture and Urban Design
- TWG 3- Structural Design
- TWG 4- Soil and Foundation
- TWG 5- Building Services
- TWG 6-Material
- TWG 7-Constructional Practices and Safety

CQHP

Committee for Quality Control of High-Rise Building Construction Projects (CQHP)

Background of the Committee for Quality Control of High-Rise Building Construction Projects (CQHP)

- CQHP was commissioned in 2003 by government aiming :
  - To check the designs of High–rise buildings and give advice where necessary
  - To get high – rise buildings of good quality with seismic resistant design , to solve some technical problems in building construction
- Committee defines that high – rise buildings are buildings having Thirteen stories & up.
- The committee is constituted of twenty seven senior professional engineers who are from Ministries, from Myanmar Engineering Society and from Yangon Technological University : Architect, Civil , Geotechnical, Water Supply & Sanitation, Electrical, Mechanical Experts are in the committee . CQHP also has Technical Consultative Groups.

Responsibilities of CQHP

The CQHP members are empowered to carry out the following responsibilities:

- Defining guidelines regarding the design of High-Rise Building in Myanmar.
- Drawing up guidelines for Quality Control of the High-Rise Building Projects which must be duly observed by Project Supervisors and Site Engineer.
- Evaluating Proposed Project Designs, as submitted by designers, whether relevant guidelines and current international Codes of Practice are followed or not. Where correction, amendment or redress is required, appropriate advice shall be rendered.
- Conducting on-site inspection, either on a regular or need-to basis, of Construction projects to monitor whether relevant guidelines are observed or not. Advisory service on Quality Control shall be given when or where required.
- Collaborations with all concerned departments and organizations towards the achievement in constructing High-Rise Buildings of high quality standard.

CQHP Guidelines for High-Rise Construction Projects

(1) Guidelines for High- Rise Building Construction Projects (Architecture)

(2) Guidelines for High- Rise Building Construction Projects (Structure)

(3) Guidelines for High- Rise Building Construction Projects (Sanitation)

(4) Guidelines for High- Rise Building Construction Projects (Mechanical)

(5) Quick Guide to Guidelines for High- Rise Building Construction Projects (Mechanical)

(6) Guidelines for High- Rise Building Construction Projects (Electrical)

(7) Electrical Installation Design Guide for High- Rise Building Construction Projects

(8) Guidelines for High- Rise Building Construction Projects (Safety)

(9) Inspector Guideline

Concluding Remarks

- Policymakers and the disaster risk reduction community will readily accept scientific and Technical information
- Other barrier to the use of science and technology for disaster risk reduction include lack of political and public awareness, inadequate institutional mechanisms and technical capacities and an absence of reliable sustained funding.
- Most countries allocate public funds to support scientific academies, universities and research institutes.
- DRI and MES provide advice on scientific and technical issues related to the reduction of disaster risks and implementation and also to assist the coordination of scientific and technical activities
- Myanmar is planning to establish more earthquake monitoring stations that can immediately detect the location and magnitude of an earthquake with help from Asian Disaster Preparedness Center (ADPC) and the University of Bergen in Norway .

Concluding Remarks

- We need more upgrades for instruments, human resources and the capacity building of staffs
- Ministry of Education is also paramount to increasing knowledge levels of the general population on DRR.
- DRR Education should be in school curriculum in Basic Education.
- There needs to be greater focus on research-based higher education in the universities. Some universities can do research on national issues. Some local universities can do research on local issues, especially focusing on local hazards.
- The universities in Myanmar are undergoing restricting for becoming semi- autonomous bodies. Although a full transition would take more time, it would provide better opportunities for the universities to undertake partnership with private sectors, external donor agencies for seeking research investments.


Thank you very much for your kind cooperation!!!