



# Current Status of Climate Change Mitigation and Adaptation

MYANMAR, MINISTRY OF FORESTRY



# Contents

1

## Overview of climate change mitigation and adaptation

- National Policy & Plan
- Measures
- Institutional Structure

2

## Overview of GHG inventory development

3

## Other Issues

4

## Conclusion





1

## Overview of climate change mitigation and adaptation





## National Policy and Plan

- ❖ Myanmar has not issued particular climate policy statement, however, there are some provisions and ministerial policy statements which contain climate policy.





## National Policy and Plan

### ❖ Constitution of the Republic of the Union of Myanmar

- Adopted in May 2008 by referendum.
- S. 45 provides that the Union shall protect and conserve the natural environment.
- Schedule 1: Union *Hluttaw* may make laws for environmental protection and conservation including wildlife, natural plants and natural areas.
- Schedule 3: Leading Bodies of each Self-Administered Division or Area may make laws prevention of fire hazards, conservation and preservation of forest, preservation of natural environment in accord with law promulgated by the Union.
- Those are constitutional guarantees.





## National Policy and Plan

### ❖ National Environment Policy

- Issued by Government Notification No.26/94 dated 5 December 1994.
- Achieving harmony and balance between these through the integration of environmental considerations into the development process to enhance the quality of the life of all citizens...Environmental protection should always be the primary objective in seeking development





## National Policy and Plan

### ❖ Myanmar Forest Policy

- Issued by the Ministry of Forestry in 1996.
- Six Imperatives:
  1. Protection of soil, water, wildlife, biodiversity and environment;
  2. Sustainability of forest resources to ensure perpetual supply of both tangible benefits accrued from the forests of the present and future generations;
  3. To fulfill the Basic needs of the people
  4. Efficiency
  5. People participation
  6. Public awareness





## National Policy and Plan

### ❖ The National Health Policy

- to extend protection against air pollution and water pollution in carrying out work of environmental sanitation.







## National Policy and Plan

### ❖ The National Energy Policy

- to maintain the status of energy independence
- to promote wider use of new and renewable sources of energy
- to promote energy efficiency and conservation
- to promote use of alternative fuel in household





## National Policy and Plan

### ❖ Myanmar Agenda 21

- published in 1997
- aims at strengthening and promoting systematic environmental management in the country. The Myanmar Agenda 21 makes recommendations for the drafting and promulgation of National Framework Environmental Law, and Environmental Impact Assessment (EIA) law for systematic integration of environmental considerations in the development process of the country.





## National Policy and Plan

### ❖ National Sustainable Development Strategy (NSDS)

- Myanmar's NSDS vision is "Wellbeing and Happiness for Myanmar People".

#### ❖ Three goals:

Goal 1: Sustainable Management of Natural Resources;

Goal 2: Integrated Economic Development; and

Goal 3: Sustainable Social Development.





## National Policy and Plan

### ❖ National Environment and Health Action Plan (NEHAP)

- To deal effectively with the environmental health problems in Myanmar by increasing the capacity of Myanmar on environmental health management.
- Priority areas of environmental concern;
  - ❖ Air Quality
  - ❖ Water supply, Sanitation and Hygiene
  - ❖ Solid and Hazardous Waste
  - ❖ Toxic chemicals and hazardous substances
  - ❖ **Climates change, Ozone depletion and ecosystem charges.**
  - ❖ Contingency planning, preparedness and response in environmental health emergencies.



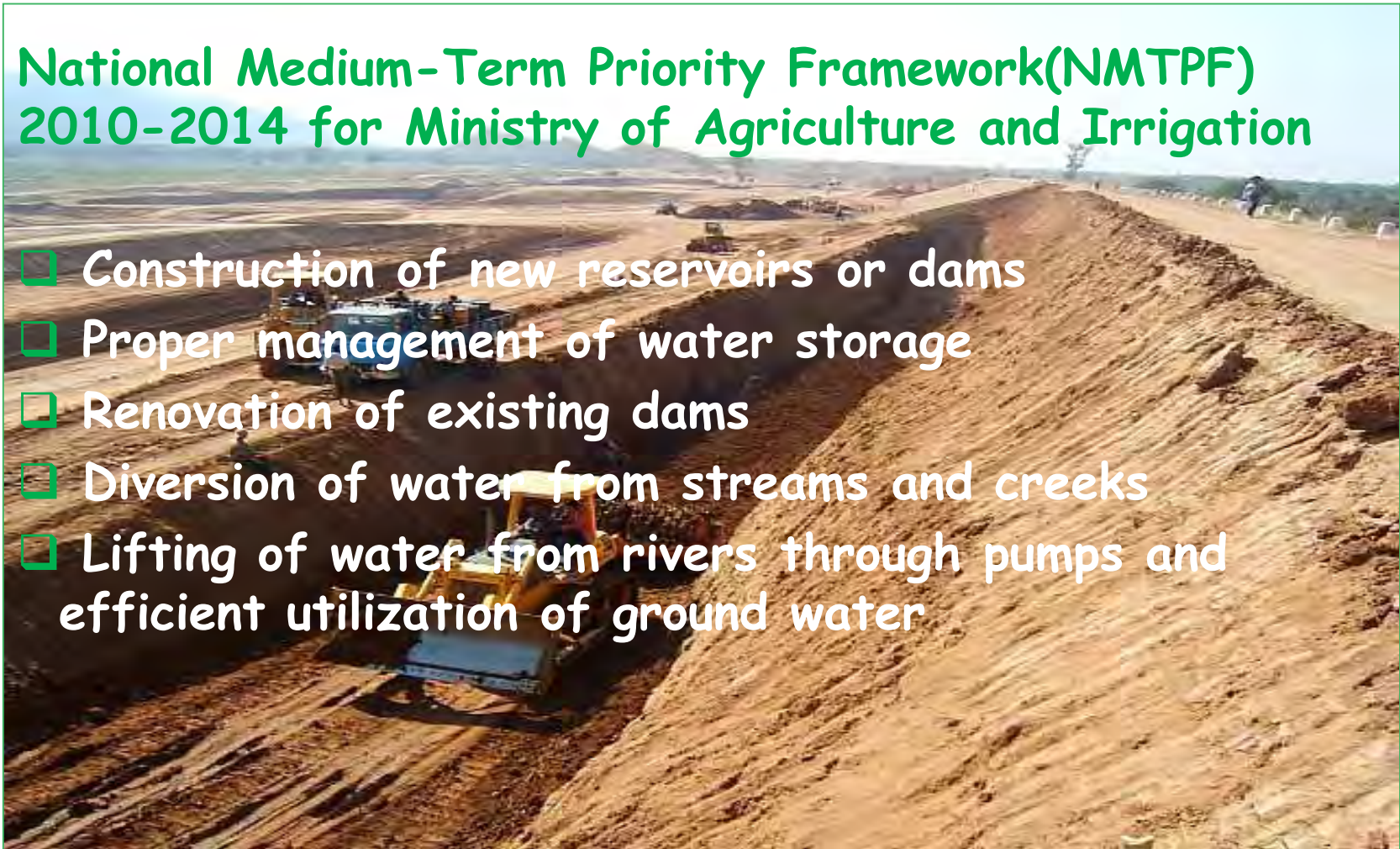




## National Policy and Plan

### ❖ National Medium-Term Priority Framework(NMTPF) 2010-2014 for Ministry of Agriculture and Irrigation

- ❑ Construction of new reservoirs or dams
- ❑ Proper management of water storage
- ❑ Renovation of existing dams
- ❑ Diversion of water from streams and creeks
- ❑ Lifting of water from rivers through pumps and efficient utilization of ground water





## Measures

- ❖ Promoting environmental education and awareness
  - **Article 6** of the UNFCCC provides for the development and implementation of education, training and public awareness on climate change and its effects.
  - In Myanmar, the importance of environmental management and deforestation are implemented by following activities:
    - ❖ discussion in editorial and article in daily newspaper
    - ❖ billboards' Slogan "climate depends on forest"
    - ❖ celebration of Environmental Day
    - ❖ Tree Plantation Ceremony
    - ❖ education in Schools and Universities
    - ❖ activities by MAAF





## Measures(Continued)

### ❖ Greening activities

- Myanmar forests cover about 47% of the total land area.
- Scientific forest management was initiated in 1856 and the concept of Sustainable Forest Management (SFM) has been employed since then.
- Until now a total of more than 500,000 hectares of forest plantations were established throughout the country and they are actually carbon sinks.







## Measures(Continued)



### Conservation of Natural forest







## Measures (Continued)

### ❖ Greening Activities (continued)

- Environmental conservation plans are integrated in every 5- year economic plan
- Project under implementation to make Yangon and its surrounding within 30 miles green thorough tree planting
- Bago hills greening project (13 forestry activities are being made to rehabilitate the hills)
- Dry Zone Greening Activities in central Myanmar since 1954





## Measures (Continued)



**Bago Yoma and Dry Zone Greening Activities**





## Measures (Continued)

### ❖ Nationwide Cleaner Fuel Changes

**Policy**



to use CNG in place of petrol and diesel in short term and bio-fuel in the long term

**Plan**



to convert 100, 000 petrol and 150, 000 diesel vehicle to CNG vehicles

(Total Registered vehicles in the country - 1,00,000 in 2006)

to provide loan to the owner for the expanse of conversion kit

**Practice**



23,741 diesel and petrol cars have been converted to CNG vehicles in Yangon. Buses and taxies are given in first priority





## Measures (Continued)

### ❖ Clean Electricity Generation

**2009-2010**

- **HYDRO power stands at the top with the highest amount generated 75.6 %**
- **followed by natural gas at 16.7 %**
- **using coal and diesel are very small amount.**







## Measures (Continued)

### ❖ **Biofuel**

- ***Jatropha curcus* for cleaner fuel was initiated in 2004 with people participation**
- **1,190 plants/ha**
- **2 million-ha of *Jatropha* planting is completed**
- **Also sugarcane planting for fuel production has been initiated since 2005.**





## Measures (Continued)



**Jatropa plantation**





## Measures (Continued)

### ❖ *Waste Sector*

- Recycling of plastic wastes, reuse and recycling of wood and agricultural residues are being promoted in recent years.
- Recycling of waste papers, rubber goods, broken glass wares, steel and various metals, broken plastics and steel pipes, etc are being done in Myanmar long before 3Rs concepts has been introduced.





## Measures (Continued)

Plastic Waste



Sorting

Washing



Extruding



Plastic Container



*Manufacturing Process of Reclaimed Molded Product*



Plastic shopping bags Pellet



Pressing

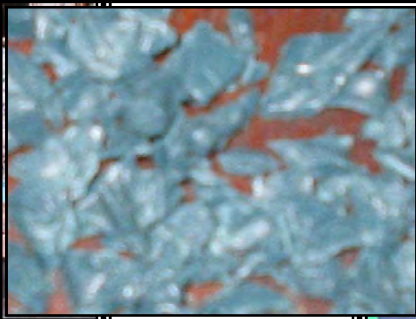




## Measures (Continued)



**Washing**



**Plastic shopping bags Pellet**



**Mayor Inspection at site.**

**Water Pipes**

$\frac{1}{2}''\phi, \frac{3}{4}''\phi, 1''\phi$



**Waste recycle pipe production**







## Measures (Continued)

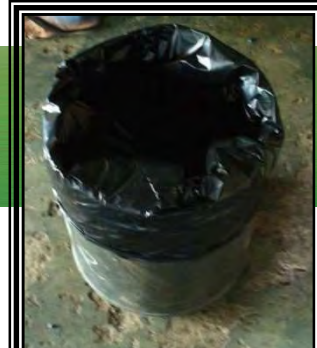


**Sorting**

**Washing**



**Scrutiny of Mayor**

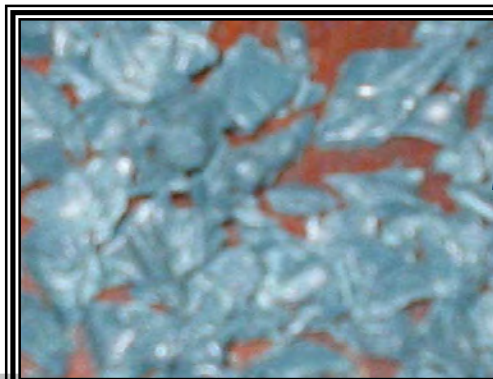


**Plastic Container**

**Plastic shopping bags melted blocks**



**Extruding**



**Pressing**





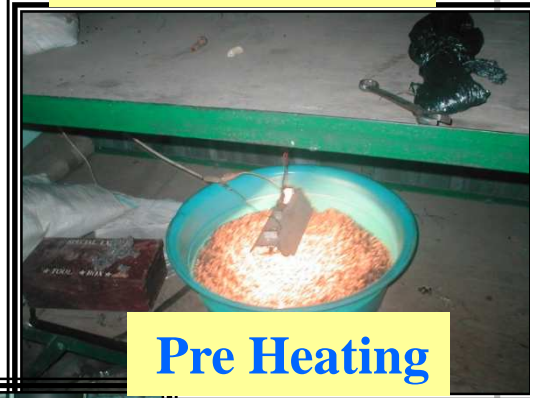
## Measures (Continued)



**Plastic Container**



**Plastic Resin**



**Pre Heating**



**Plastic Containers**



**Waste Containers production**





## Scrutiny of Mayor on recycling scheme

### Measures (Continued)



PVC waste



### PVC Pipes

6"Ø, 4"Ø, 3"Ø, 2"Ø,



PVC Pipe production







## Measures (Continued)



Mixing



Aerated



Chopping



Maturing



GREEN COMPOSTING ACTIVITY

Maturing







## Measures (Continued)



**Vermi-culture and vermi -composting,  
base from worms and market wastes .**





## Measures (Continued)

### *Thin Plastic Bag Free Zone*



**Production, trading, and even keeping thin plastic-bag were totally prohibited in Mandalay, Yangon and Nay Pyi Taw.**







## Measures (Continued)



### *Thin Plastic Bag Free Zone*

- ❑ In order to support the campaign, multiple-use bags, recyclable bags and paper bags were freely distributed to the shopkeepers in order to replace thin plastic-bags.







## Measures (Continued)

- ❖ As for used plastic-bags, MCDC bought back them as raw materials for recycle products such as rubbish bins and plastic pipes.
- ❖ Nowadays, Mandalay city becomes scale-model of plastic-bag free civilization in the country, and Yangon and Nay Pyi Taw are now going to adopt the success of MCDC.

### *Thin Plastic Bag Free Zone*





## Measures (Continued)

### ❖ *Water Resources*

Irrigation Facilities installed in the last 2 decades:

- 228 dams
  - 322 river water pumping stations
  - 7974 underground water tapping stations
  - 658 small rural dams
- Meiktila plain electric-powered water pumping project  
in 2008-2009
- Meiktila-Thazi Groundwater Irrigation Project

23.08.2008 14:06





## Measures (Continued)

### *Water Resources*



### *River water pumping station*





## Measures (Continued)

### *Water Resources*



**A gasifier used for groundwater extraction from a tube well  
Magyipinbu village, Meiktila township**

**Treadle pump to fetch the ground water from a tube well**







## Measures (Continued)

### *Water Resources*



**A gasifier used for groundwater extraction from a tube well  
Magyipinbu village, Meiktila township**



**Treadle pump to fetch the ground water from a tube well**





## Measures (Continued)

### ❖ *Food security*

- MOAI is also implementing some tasks for better soil and water conservation practices, more tolerant crop varieties, improved pest and weed control, and more use of irrigation to adapt to changes in the weather.





## Measures (Continued)

### ❖ *Food security (Continued)*

#### ■ **Conservation of Plant Genetic Resources**

- Diverse rice varieties grown in Ayeyarwady delta: rainfed lowland rice, deep water rice, coastal salinity resistant rice, quality rice.







## Measures (Continued)



### *Food security (Continued)*

**Water Harvesting Technology in Central Myanmar, Dry Zone**

**Frequent Ploughing and Harrowing while waiting for the sufficient rain**



**Traditional Adaptation Strategies for Climate Change**





## Measures (Continued)

### *Food security (Continued)*



**Groundnut with chili**



**Groundnut with sesame**

**Mixed or intercropping not to lose the entire crops**



**Sunflower, corn and sesame**

**Adaptation for drought: Mix-cropping (crop diversification) is common with low input technology**



**Traditional Adaptation Strategies for Climate Change**



## Measures (Continued)

### *Food security (Continued)*

**Crop Rotation in Central Myanmar: Black gram after rice**



**Zero tillage or incomplete tillage for conservation of residual soil moisture: Post monsoon season black gram and field drying of rice**



**Traditional Adaptation Strategies for Climate Change**



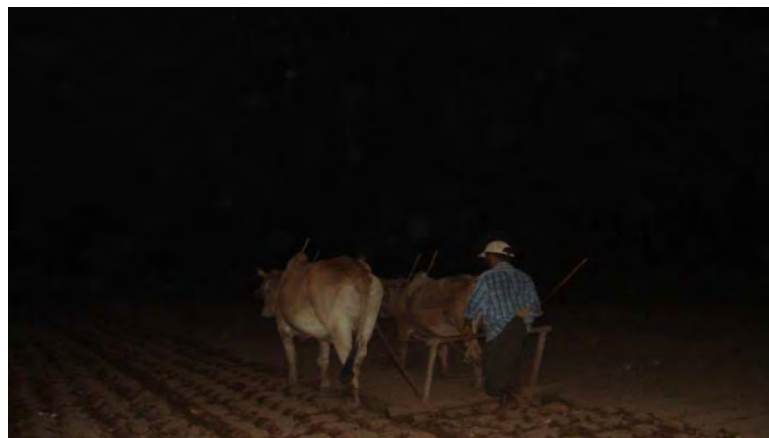


## Measures (Continued)

### *Food security (Continued)*



**Traditional water harvesting practice in Magwe Division, Central Myanmar**



**Land Preparation at very early morning for timely seeding of peanut and sesame**

**Traditional Adaptation Strategies for Climate Change**



## Measures (Continued)



**Magwe Division, April 2009**

**When the stream dries up, some vegetables like onion are grown in pre-monsoon season**



**Traditional Adaptation Strategies for Climate Change**





## Measures (Continued)

### ❖ Project implementation Under the UNFCCC

- ❑ Myanmar has implemented the Initial National Communication (INC) project by the assistance of Global Environment Facility (GEF) and it is now just need to submit the report to UNFCCC.
- ❑ The Project of the National Adaptation Programme of Actions (NAPA) which is funded by UNEP-GEF has been started. Project Executing Agency is Department of Metrological and Hydrology, Ministry of Transport, in cooperation with Ministry of Forestry.





## Institutional Structure

- ❖ National Disaster Preparedness Committee
- ❖ National Environment Conservation Committee





2

## Overview of GHG inventory development





## Overview of GHG inventory development

- ❖ **As required by all parties to the UNFCCC, Myanmar conducted its first GHG inventory with the assistance of ADB in 1997 under the Asian Least Cost Greenhouse Gas Abatement Strategy (ALGAS) Project.**
- ❖ **According to the party of the UNFCCC, the effort toward making necessary preparation for initial communications gave GHG inventory for the base year 2000.**
- ❖ **Need to develop GHG inventory policy and Plan if necessary.**







3

## Other Issues

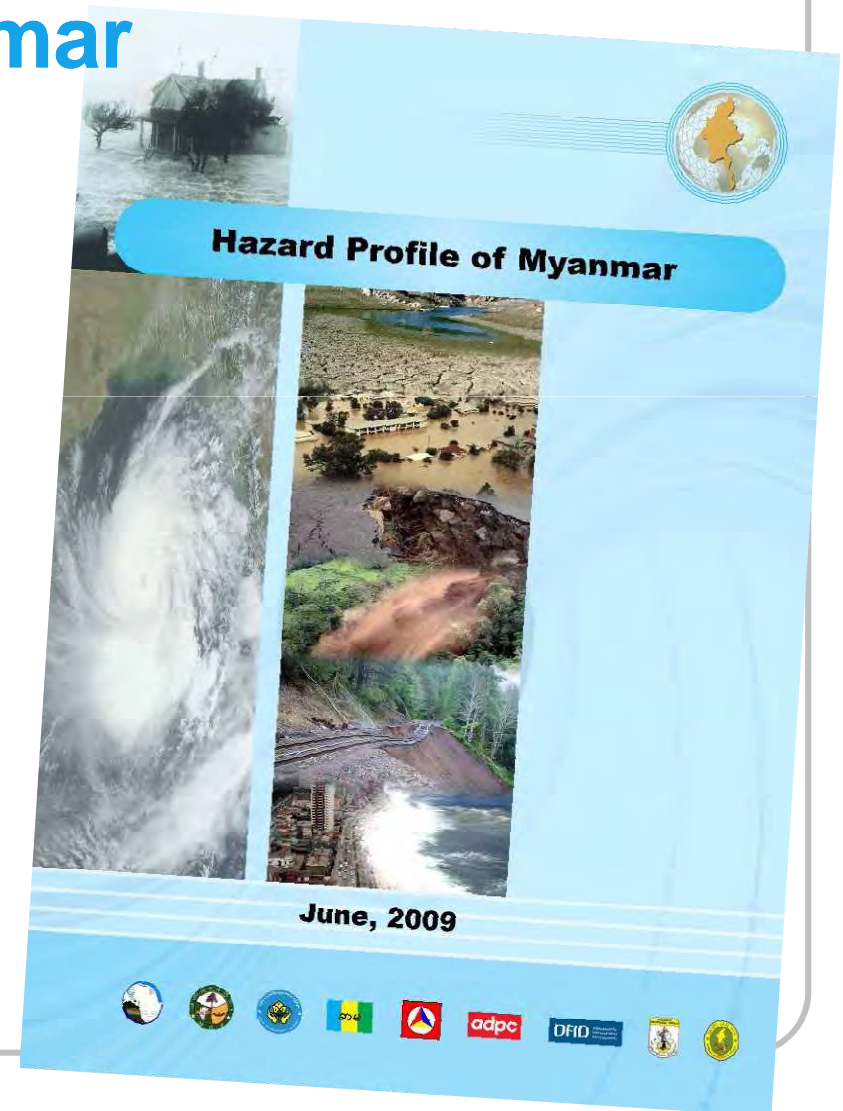




❖ Includes 9 hazards

- Fire
  - Floods
  - Tsunami
  - Storm Surge
  - Landslide
- Forest Fire
  - Earthquakes
  - Cyclone
  - Drought

- ❖ Prepared by Fire Services  
Dept, DMH, MES , Irrigation  
Dept, Forest Dept, RRD,  
MGS, MIMU and ADPC

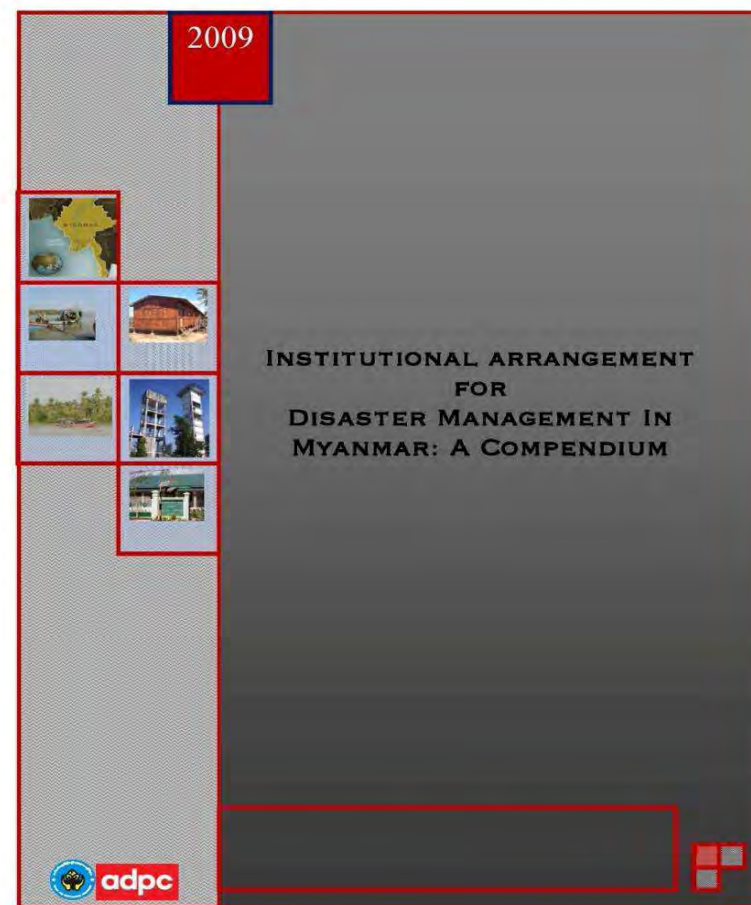




## Other issues

### Institutional Arrangements for DM in Myanmar

- ❖ Chapter : 1 *Overview of Union of Myanmar*
- ❖ Chapter : 2 *Hazard profile of Myanmar*
- ❖ Chapter : 3 *Global and Regional Commitment of Myanmar*
- ❖ Chapter : 4 *Existing Institutional arrangement at National level*
- ❖ Chapter : 5 *Study of Key DRR related Departments*
- ❖ Chapter : 6 *Existing Institutional arrangement at Division/State*
- ❖ Chapter : 7 *Existing Institutional arrangement at District level*
- ❖ Chapter : 8 *Existing Institutional arrangement at Township level*
- ❖ Chapter: 9 *Concluding remark*



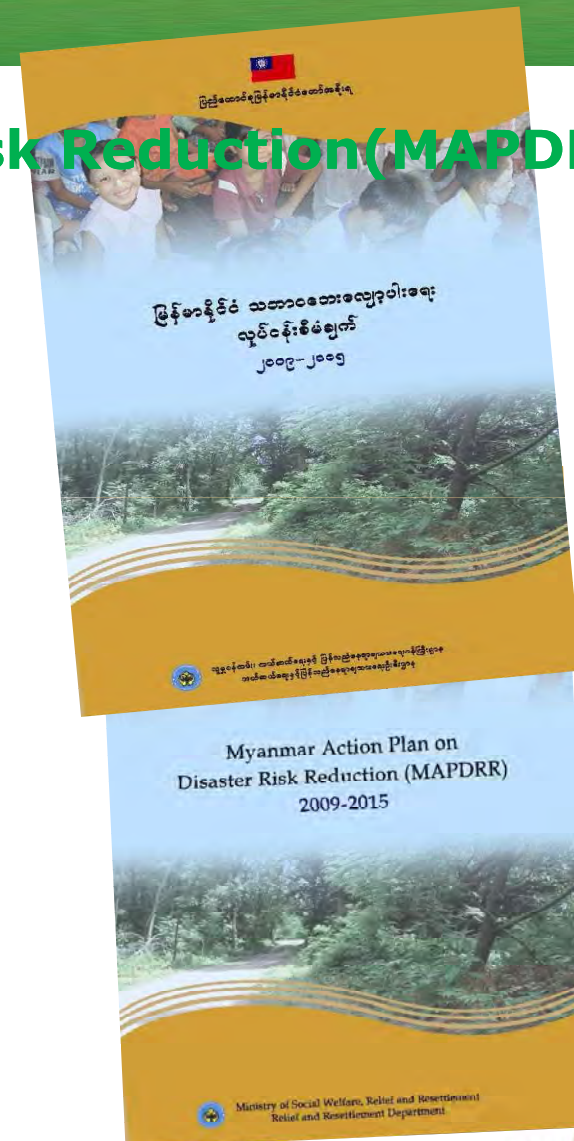




## Other issues

### Myanmar Action Plan on Disaster Risk Reduction (MAPDRR) 2009-15

- ❖ Chapter 1 : *Disaster Management in Myanmar*
- ❖ Chapter 2 : *MAPDRR components and future Disaster Risk Reduction projects (2009-2015)*
- ❖ Chapter 3: *Implementing MAPDRR: Actions to be taken & Proposed Next Steps*

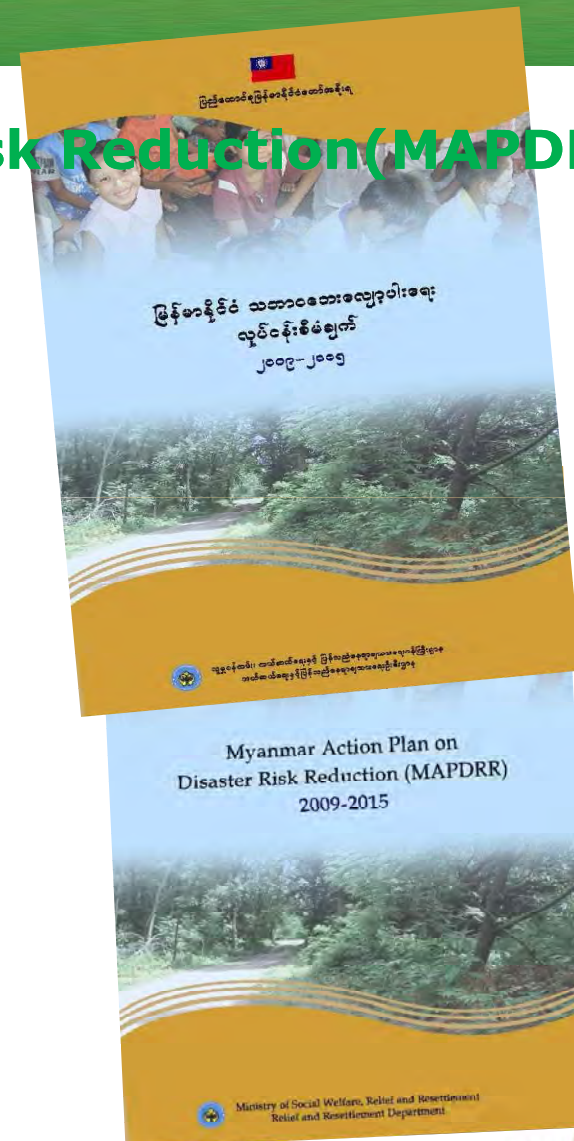




## Other issues

### Myanmar Action Plan on Disaster Risk Reduction (MAPDRR) 2009-15

- ❖ Chapter 1 : *Disaster Management in Myanmar*
- ❖ Chapter 2 : *MAPDRR components and future Disaster Risk Reduction projects (2009-2015)*
- ❖ Chapter 3: *Implementing MAPDRR: Actions to be taken & Proposed Next Steps*





## Other issues

### Ozone Layer Protection

- ❖ As a developing country Party to the Vienna Convention and Montreal protocol , Myanmar has an obligation to phase out ODS as set in the phase out schedule of ODS for developing countries.
- ❖ Ministry of Forestry, in collaboration with ministries concerned and with the assistance of UNEP, formulated the country programme to phase out ODS especially CFC in Myanmar.
- ❖ The Institutional Strengthening (IS) Project for National Ozone Unit Team consisting representative from various respective ministries have been formed.
- ❖ A Refrigerant Management Plan (RMP) had also been developed in April 2005.
- ❖ Ozone regulation Law has been drafted.







## Other issues

### Air Quality Measuring

- ❖ With the support of JICA, Myanmar has carried out Air Quality Monitoring for Urban Centres in Myanmar from 15 February 1999 to 7 March 2000.
- ❖ National Air Quality Monitoring Project funded by UNEP has also been carried out in the year 2007, 2008, and 2009 in Yangon, Mandalay, and Nay Pyi Taw respectively.
- ❖ Moreover, with the assistance of Thai government, air quality measuring was carried out in Tachileik, near Thai-Myanmar border area, in 2010 and 2011.





4

## Conclusion





## Conclusion

- Need to develop country specific emission factor.
- Myanmar National Climate Change Policy is necessary.
- An Organ or Committee on Climate Change to coordinate the country's climate change is also necessary.
- To understand the country's vulnerability to climate change and to implement mitigation and adaptation measures, it has to promote public awareness of the impacts of climate change.
- Joint study coordinately neighboring countries on different climate change characteristic needed to be considered.
- Human behaviour and industrial behaviour are also necessary to change from individual benefit to the behaviour which reduces the emission of greenhouse gases and maintenance of carbon sinks.







# Thank You !

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