

Adaptation Through Education & Training

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Introduction

- A Five-year Work Programme on Article 6 of the UNFCCC was adopted at COP 8, New Delhi, 2002
- Parties agreed to list activities to be undertaken at national level to educate and understand the public in climate change issues
- SBSTA at 17th session reaffirmed,
- SBI at 18th session reiterated the need for regional workshop on article 6

Article 6 – Education, Training & Public Awareness

- Promote & facilitate at the national and, as appropriate, sub regional levels, and in accordance with national laws and regulations, and with in their respective capacities
 - The development and implementation of educational and public awareness programmes on climate change and its effects.....

Why Educate and Train for Adaptation?

- Most countries not all are Vulnerable to Climate Change
- SIDS and low lying coastal regions are most vulnerable
- Need to Understand the Vulnerability

Vulnerability

- Land loss and beach erosion
- Infrastructure damage and economic impacts
- Food security
- Damage to coral reefs
- Water resources
- Human health

Sea level rise

- Most susceptible – least defensible



Land loss and beach erosion

- 80% land area less than 1 m above MSL



Beach erosion

- Severe beach erosion in over 55% of islands



What have been done?

- Relocation Programme
- Incorporated adaptation in NEAP, NSDS, NDP
- Development of a Safer Island Concept
- Coastal Protection
- Training Locals to undertake basic assessments on coastal erosion

Climate Change – National

- Male' Breakwater
- Sea walls
- Coral Reef protection
 - Banned mining from house reefs and bait fishery areas
 - Reduce the duty on import of construction of materials
 - No coral in gov buildings and roads
- Protection of the airport



Coastal protection

- 134 million dollars for Male' seawall
- Over 50 billion dollars for inhabited islands



Other Adaptation Measures

- to develop a Coastal Erosion Management Strategy (CEMS)
- Reclamation programmes – need serious reconsideration



Building Capacity to Adapt

- **Human resource development in coastal engineering**
- **Topographical data collection**
- **Quantify the magnitude of erosion**
- **Determine the importance of natural vs human induced erosion**
- **Quantify changes in process mechanisms promoting erosion**
- **To raise awareness of all stakeholders**
- **strengthen the oceanographic and meteorological data collection and management**
- **Monitor and record the sea level and SST**

Education & Training

- **Government officials including policy level and operational level officials directly involved Climate Change issues**
- **National and sectoral experts including, corporate sector, social service providers and other key personnel**
- **Atoll and island level officials linked to climate change issues**
- **Public education on Vulnerability and Adaptation to Climate Change and**



Mitigation Measures

Safer Island Programme

- Regional development and Population consolidation
- Development of larger islands with better economic opportunities
- A market driven strategy providing incentives for voluntary migration to alternative islands
- Strengthen environmental resilience – safe islands programme

Safer Island Concept

- The Maldives is inherently vulnerable to Climate Change and Disasters
- Redesign the physical development features of islands including
 - wider environmental protection zones
 - elevated areas for vertical evacuation in event of floods
 - easy access in emergencies

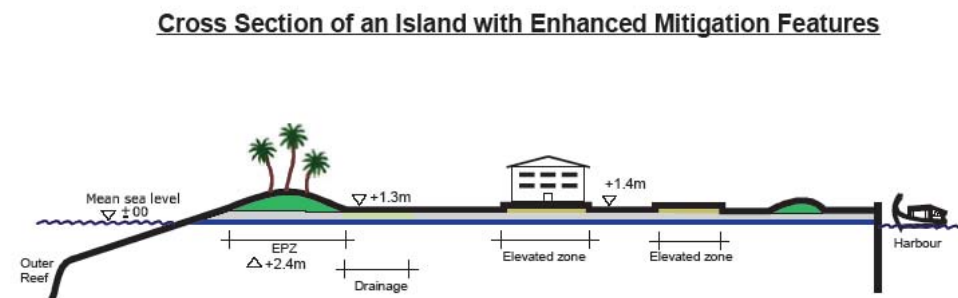
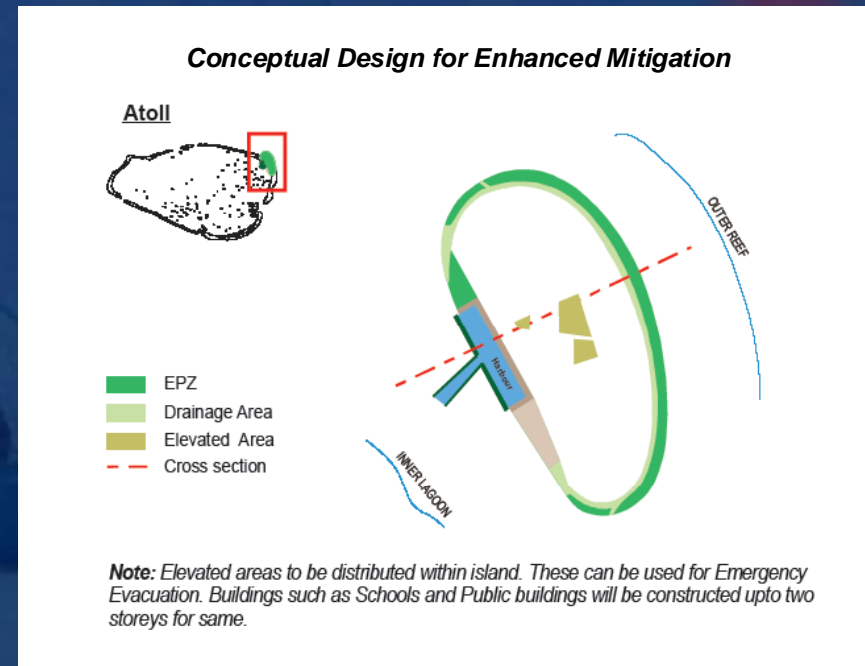


Figure 4: Cross Section of EPZ

Infrastructure damage and economic impacts

- Airport is extremely vulnerable
- Ground level of airport does not exceed 1.7m
- Runway of airport partly flooded during high wave incidence of 1987 & 2004



Infrastructure damage and economic impacts

- structures are made near to the shoreline
- Less than 1.5 m above sea level



Infrastructure damage and economic impacts

- Tourism – major source of revenue
- Marine dive sites at risk
- Infrastructure damage – investment risks



Adaptation Measures

- **Appropriate coastal defense for the International Airport**
- **Proper insurance**
- **Increasing the elevation of the airport**
- **Developing an effective sea plane transportation network**

Tourism Adaptation

- Proper insurance
- Reduce dependency on diving by presenting as a premium destination
- Reduce dependency on tourism through economy diversification

Fisheries

- Tuna main source of protein
- 85kg/yr/capita consumption
- Main export
- Tuna affected by seasonal monsoon as well as ENSO events

Fisheries Adaptation

- **Research and observation of climatic variation on tuna**



Food security

- Agriculture
- Heavy import dependency
- Food storage and distribution

Damage to coral reefs

- Bleaching
- 80% in shallow water
- 30-45% at depths of 10-30m



Adaptation Measures



Water resources

- 25% groundwater
- 25% desalinated water
- 50% rainwater



Water Resources Adaptation

- Increasing the rainwater storage capacity
- Allocation of ground water recharging basins in each island
- Treatment of ground and rainwater using solar technologies
- Use of cost effective desalination technologies
- Monitoring of precipitation for
 - Spatial variation
 - chemistry



Human health

- Health statistics not very helpful
- Dengue fever epidemics on increase
- Malaria risk
- Physical injury due to extreme weather events

Adaptation

- **Research oriented health statistics**
- **Better awareness among the health sector about climate related health problems.**

What is next?

- Long term Adaptation plan
- Continue Awareness, Training & Education
- Advocate at local, national, regional and international level
- Commitment from all!!!!



Thank you