



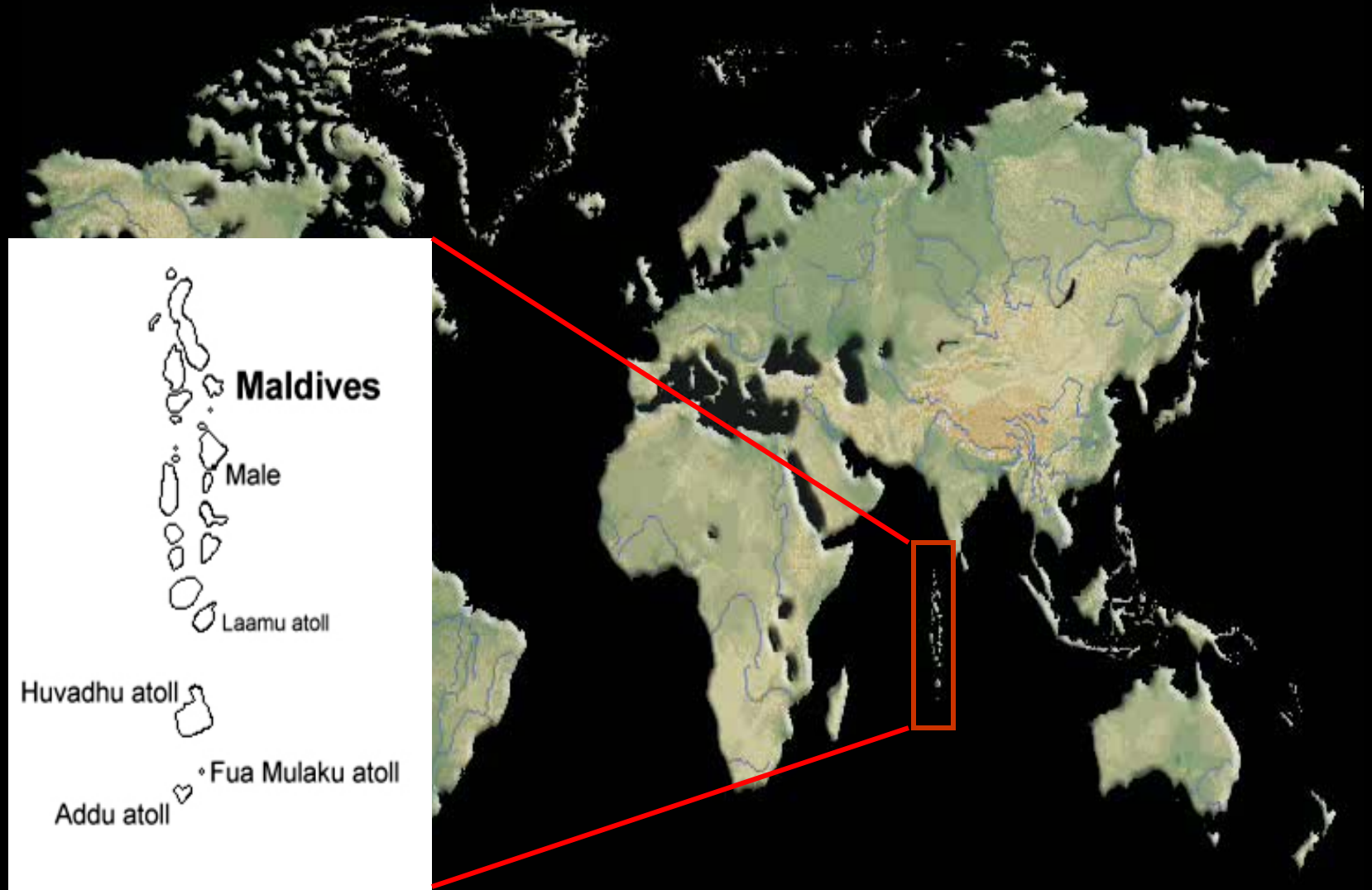
# CLIMATE CHANGE EFFECTS ON MALDIVES

**Brigadier Gen. Zakariyya Mansoor**  
**Maldives National Defense Force**

# OUTLINE

- **Introduction**
- **Geographical implications**
- **Tsunami 2004**
- **Actions Being Taken**

# *THE NATION OF ISLANDS*



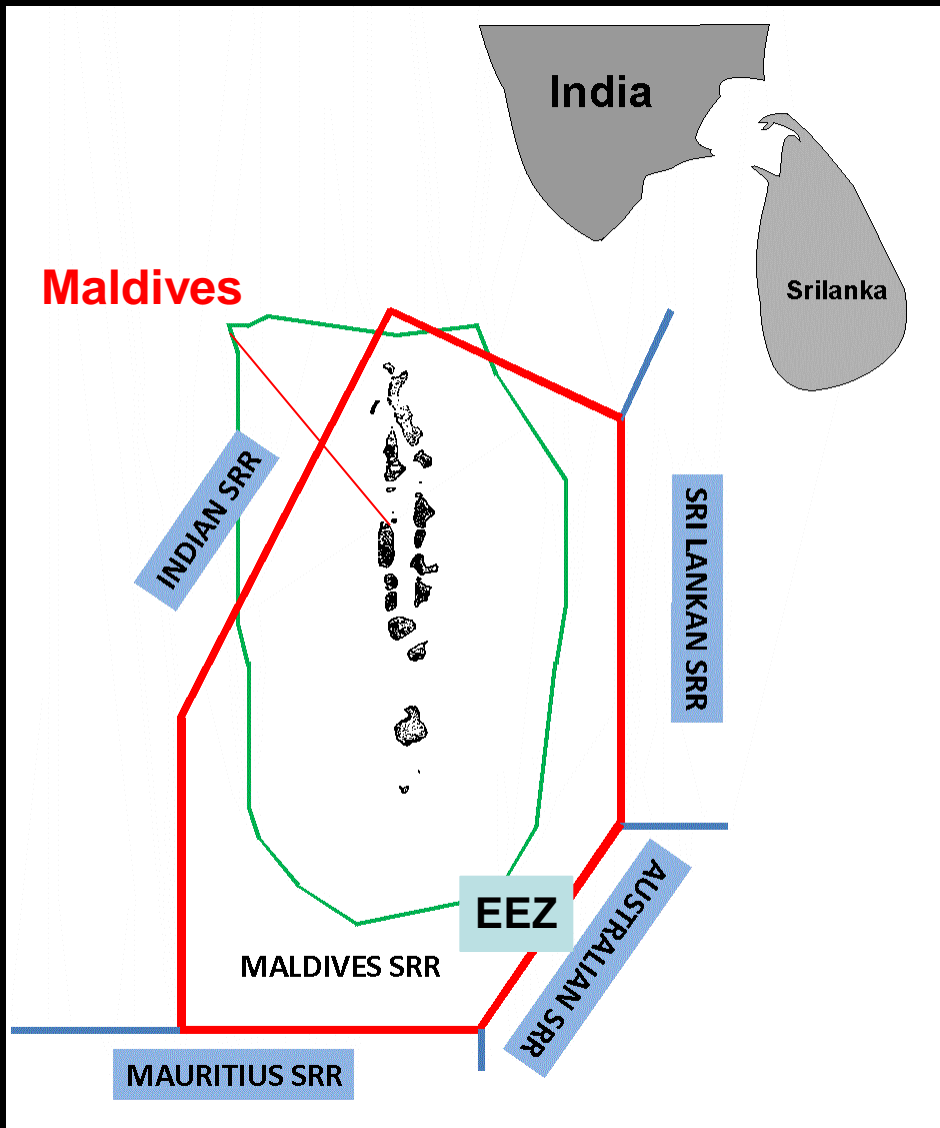
**Maldives**  
Male  
Laamu atoll

Huvadhu atoll  
Fua Mulaku atoll  
Addu atoll

# Maldives – a small island nation in the middle of Indian Ocean



- **Maldives is a 1192 island nation, with roughly 320,000 people.**
- **The population is thinly dispersed for over 200 inhabited islands**
- **Maldives is a very low lying nation which makes it very vulnerable to the effects of climate change from global warming.**
- **The Maldives is dependent on Tourism and Fisheries for economic livelihood**



EEZ: 974, 000Sqkm

CONTINENTAL SHELF:  
165,966Sqkm

SRR: 873,000SqKm

COASTLINE: 955.2Km

AREA WITHIN ATOLLS  
(incl. land, reefs & water)  
21,318 SqKm

ISLANDS: 1192

89 RESORTS (~30 on the way)

658 UNINHABITED ISLANDS

% of Sea Area : 97.7%

% of Land Area: 2.3%

# GEOGRAPHIC IMPACT

- The frequency of occurrence of natural disasters in the Maldives is low.
- The fact that disaster preparedness became a priority of the Maldivian government only after the tsunami of 2004.
- However, the vulnerability of the Maldives lies because of the low elevation (80% below 1 meter above sea level) and flat topography of the small islands and wide dispersion of its population in the atolls.

# GEOGRAPHIC IMPACT



- Climate change is expected to have severe impacts on the small, low-lying coral islands of the Maldives.
- The maximum sea level rise of 59cm by 2100 which is predicted by the UN due to global warming is expected to make flooding incidents more frequent and coastal erosion more prevalent.

# NATURE OF THE ISLANDS





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# TSUNAMI 2004

- Tsunami hit the Maldives in the early hours of 26<sup>th</sup> December 2004
- 88 lost their lives where 24 went missing



# **TSUNAMI 2004**

- **Coast Guard vessels were scrambled throughout the country**
- **Warships from France, Pakistan, India and Bangladesh were used in the relief operation**
- **Foreign supply aircrafts were also utilised for the operation**

# **RELIEF OPERATION**

- **The Government established a National Disaster Management Center, to coordinate and address immediate disaster response operations**
- **The established NDMC facilitated transport of food, water, medical supplies and both MEDEVAC and CASEVAC**
- **Military vessels were supplemented with acquired local vessels**
- **Disaster relief is still under-going with some remote populations living in temporary shelters**

# **RELIEF OPERATION cont...**

- **Two Pakistani War Ships on a good-will visit at the time was initially used to assess the impact**
- **They were supplemented by War-ships from other nations on relief and rescue operations**
- **Six Coast Guard vessels and a Landing Craft was the only operationally active vessels dispatched - all of them less than 24m in length**
- **A Maritime Operation Centre was established in CGHQ to coordinate relief operation On December 28<sup>th</sup>**

# **RELIEF LIMITATIONS**

- **The islands' communication were cut-off as the communication establishments were destroyed**
- **Limited capability of CG Vessels hindered the relief operation due to decreased endurance and reachability**
- **Lack of a Disaster Management body with trained staff**
- **Lack of a practicable National level Disaster Management Plan**
- **Absence of an early warning mechanism**
- **Nature of the low-lying islands**



# ACTIONS TAKEN

- **Legal framework for Disaster Management**
- **Acquired larger military vessels to enhance reachability**
- **Affiliate with an established Indian Ocean Early warning system**
- **Establishment of National Disaster Management Center**
- **Conduct drills and aware local citizens**

# **Inter-Agency Cooperation**

- **NDMC has established and planned mechanisms to incorporate NGOs and potential government agencies during disaster response, management and relief**
- **Table-top exercises are frequently conducted by the NDMC to enhance inter-agency operability**

# RELIEF OPERATION

**CG vessels were used for  
CASEVAC and MEDEVAC**



**Military personnel worked  
relentlessly to provide relief to  
affected islands**

# RELIEF OPERATION

**Foreign Military Personnel  
Worked alongside MNDF  
personnel**



**The locals supported its military  
through moral and active  
assistance**

# RELIEF OPERATION

**Affected islanders were evacuated  
by the military to temporary  
shelters in capital Male'**



**The Tsunami Relief Operation  
was the largest disaster operation  
in the history of Maldives**

# **PROTECTING THE ENVIRONMENT**

- **To make Maldives a Carbon neutral nation in 2020**
- **Establishment of UNESCO BIOSPHERE in B.Atoll**
- **ECO Tourism.**
- **Continuation of Pole and line fishing**

# PROTECTING THE ENVIRONMENT



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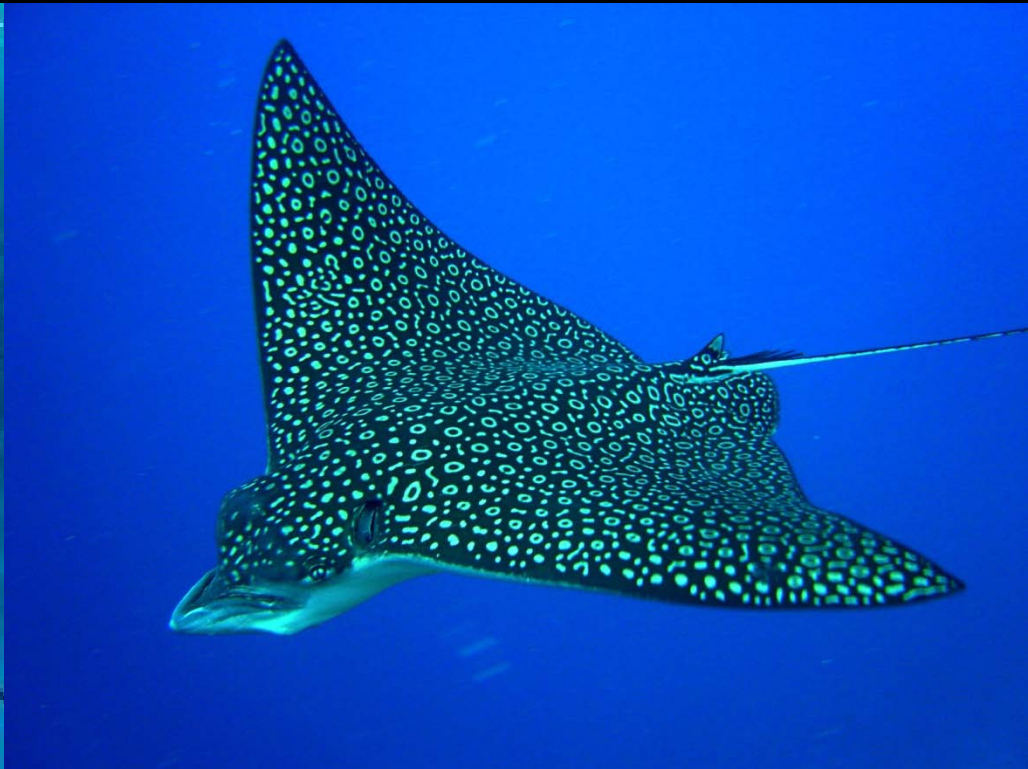
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# ARE WE DOING ENOUGH?

➤ **National?**

➤ **Regional?**

➤ **International?**

**THANK YOU!**

**Welcome to Maldives  
for the PESF 2014**

