

INTERNATIONAL RECOVERY FORUM 2009

« Building back Better and Greener »

Lessons Learned from Madagascar



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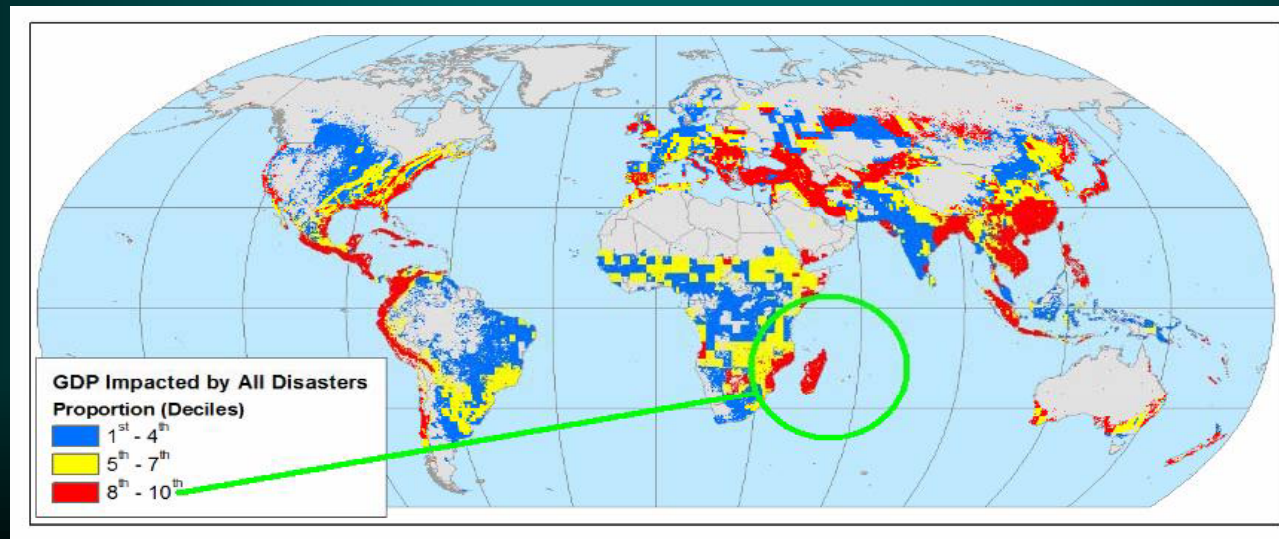


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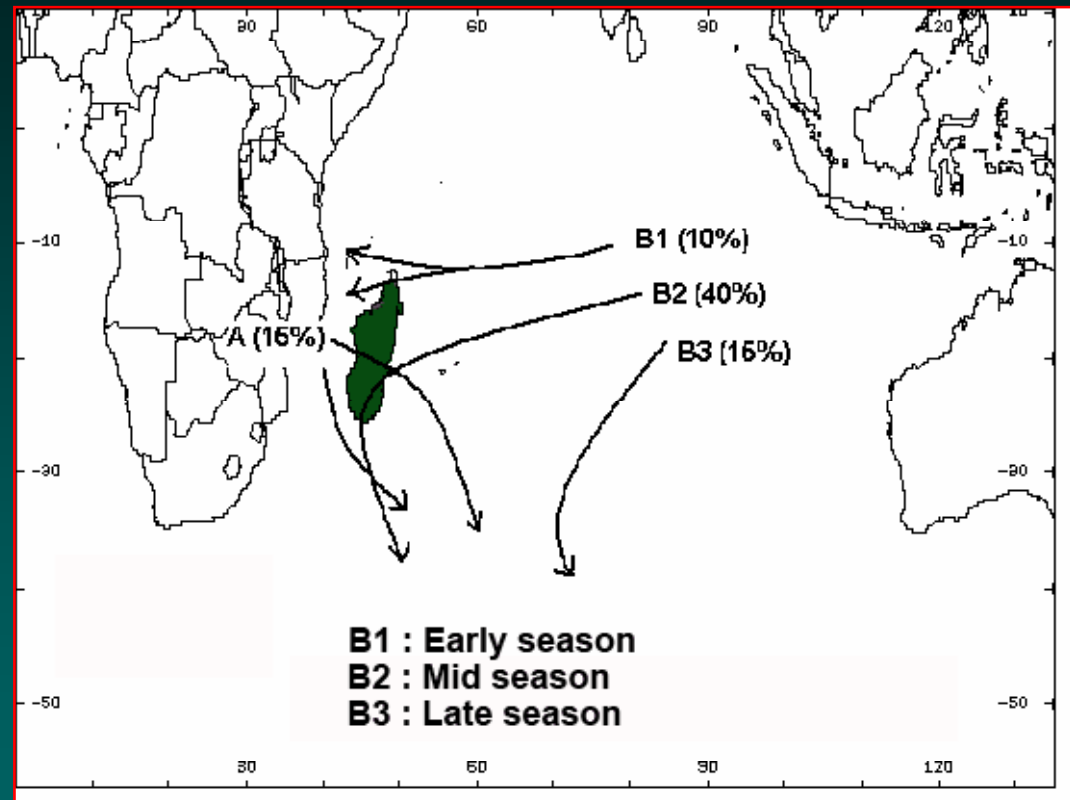
Madagascar: A Hot-Spot Multi-Risk Country

- 3-4 cyclones a year
- 1 drought every 5 years (in south)
- Locust invasions (in southwest)
- 13th poorest country in world
- Revenue per capita US\$330 (2007)
- 25% population lives in areas at risk
- 20% of territory and coastal zones at risk
- Only 5% population completes secondary education
- Damages from 2008 events 4% of GDP



Madagascar is the most Exposed African Country to Cyclones

- ❑ *More than 60% of the Cyclones forming in the Indian Ocean basin touch Madagascar*
- ❑ *Most cyclones come from the East, but some hit Madagascar from the Mozambique channel*



Environment and Deforestation

-Deforestation caused by:

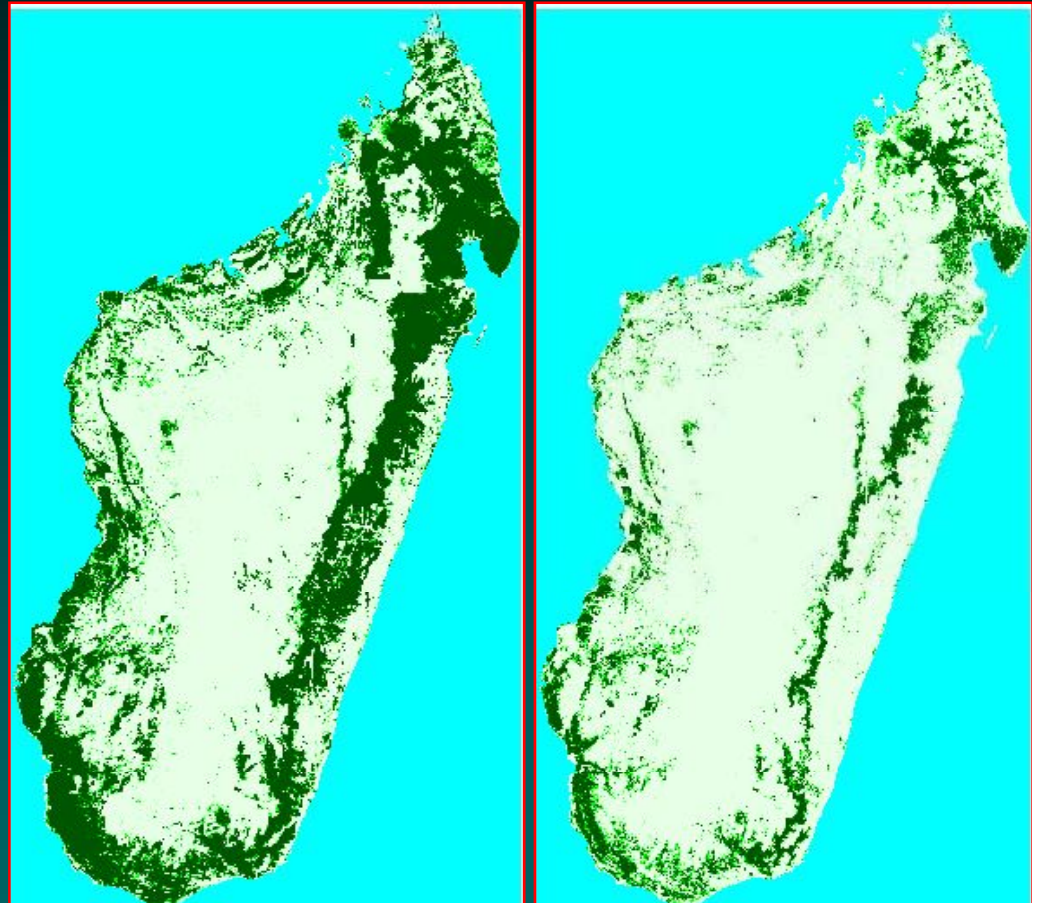
- Fuel wood and charcoal production
- Slash-and-burn agriculture

- Forest cover change

1950 -2000

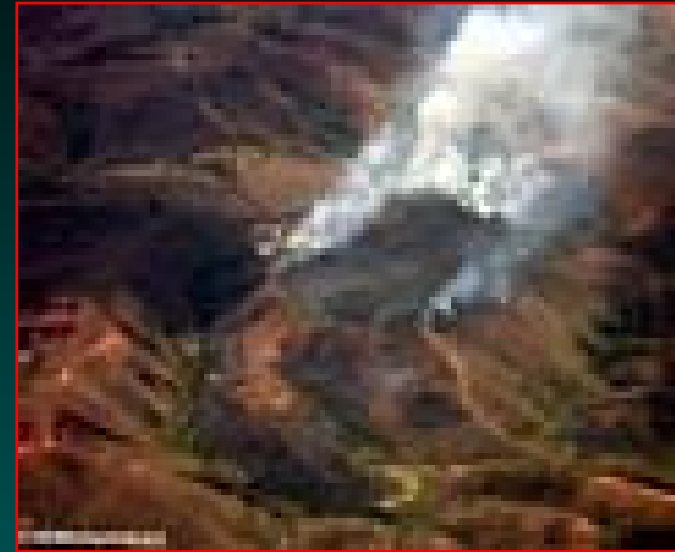
>80%

(although some recent improvement)



Environmental Degradation

- *Bush Fires :*
 - Set for land clearance, they spread into adjacent bushland
- *Catastrophic Erosion of Watersheds :*
 - Annual soil losses approaching 112 tons per acre (250 metric tons per ha) in some regions



Madagascar widely known as the Red Island...

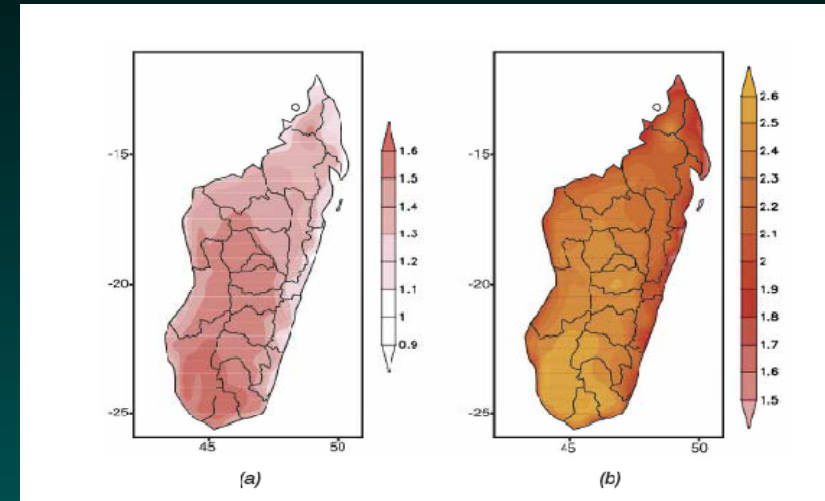
Combined Impact of Tropical Storms and Severe Rainfall

- *Accelerated erosion*
- *Increased river sedimentation*
- *Increased mud slides*
- *Changed river directions*
- *Broken infrastructure*
- *Damages to Madagascar unique ecosystems*



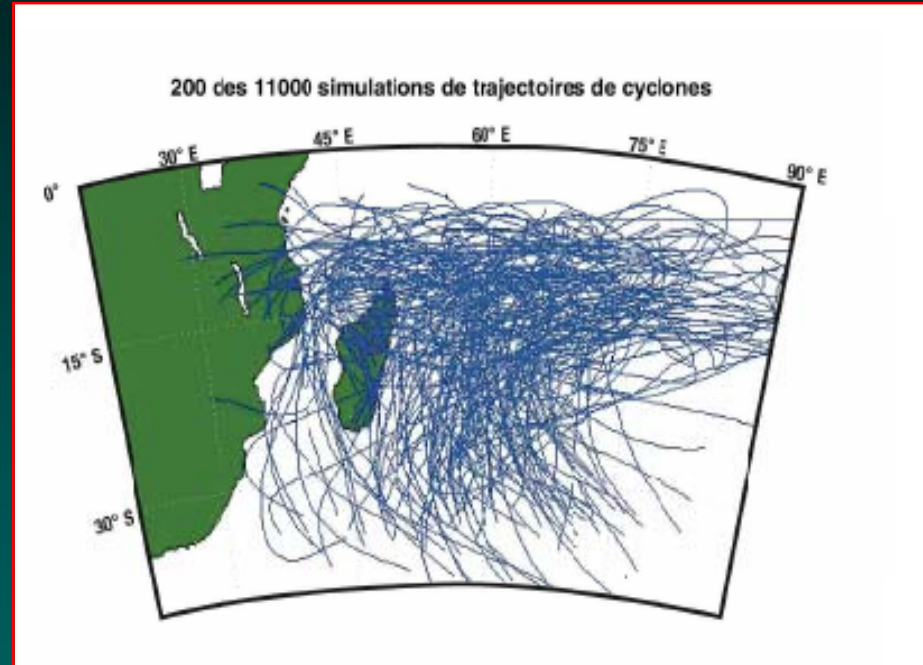
Climate Change Analysis

- *Temperature (2055)*
 - Increase of Average T
1.1 to 2.6° C
- *Rainfall :*
 - Projected to increase
except in extreme
Southeast



Cyclone Trends

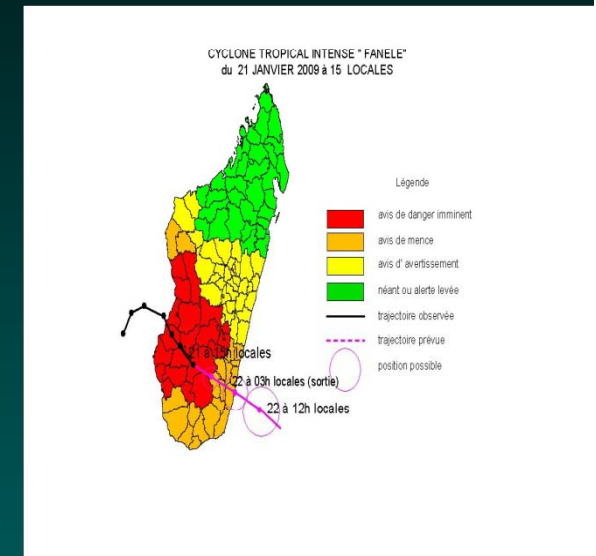
- *Global Circulation Models validated for Madagascar predict increase in landfall of Category 4-5 hurricanes, particularly affecting the North of the Island (thus, more intense cyclones)*



Cyclone impact is also increasing as a result of man-made forces (increased development in zones at risk and environment degradation)

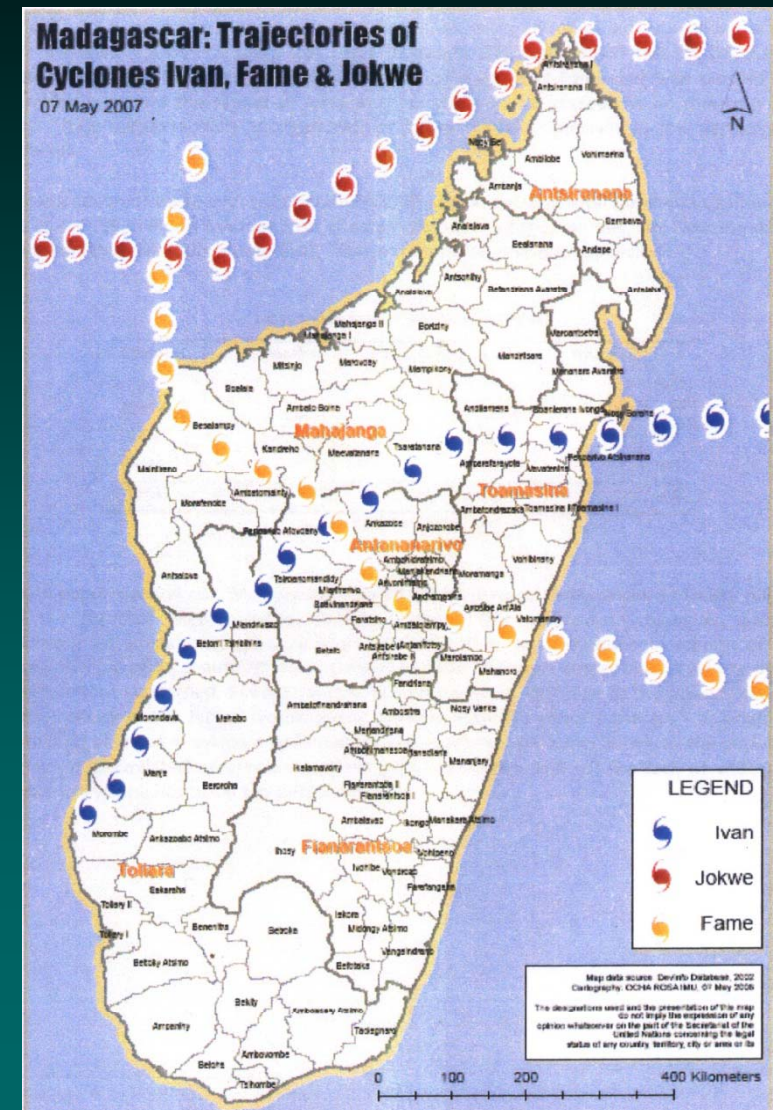
Cyclone Eric and Fanele 2009

- 09 Dead
- 33 Wonder
- 4004 homeless
- 1646 dwellings destroyed
- 2235 ha agriculture flooded



The Case of 2007 - 2009

- 14 cyclones formed in the Indian ocean
- Madagascar was hit by 3 cyclones :
 - FAME from north west
 - IVAN from East
 - JOKWE from north west
- 17 of 22 regions affected



Economic Impacts – 2007 and 2008 Seasons Compared

2007

- 6 cyclones, with floods
 - 187 dead or missing persons
 - 226,202 wounded and homeless
 - 64,530 dwellings destroyed
- Damage estimates :
US\$ 243 millions

2008

- 3 major cyclones
 - 106 dead
 - 342,923 displaced persons
 - 191,404 homeless
 - 54,000 dwellings destroyed
 - Damage and loss Estimates:
US\$ 333 millions (4% of GDP)
- Decrease of 38% of the balance of payments
Loss in treasury revenues : 118 milliards Ar



Disasters affected mainly productive and social sectors ...

Summary of Damage and Losses from 2008 Cyclone Season

	Disaster Effects, USD million		
	Damage	Losses	Total
Social Sectors	128.60	14.80	143.41
Education	3.20	0.64	3.84
Health	6.81	3.45	10.25
Nutrition	0.80	0.95	1.75
Housing and Public Administration buildings	117.80	9.76	127.56
Productive Sectors	8.47	128.62	137.09
Agriculture, livestock and fisheries	6.34	96.71	103.05
Industry and Commerce	1.73	16.62	18.35
Tourism	0.40	15.29	15.69
Infrastructure	36.84	15.12	51.97
Electricity	2.12	1.79	3.92
Water and Sanitation	0.37	1.05	1.42
Transport	33.57	12.17	45.74
Telecommunications	0.78	0.11	0.89
Cross-Sectoral	0.22	0.29	0.50
Environment	0.22	0.29	0.50
TOTAL	174.13	158.83	333.00

During the 2008 season, 6% of health facilities and 4% of schools in Madagascar were destroyed

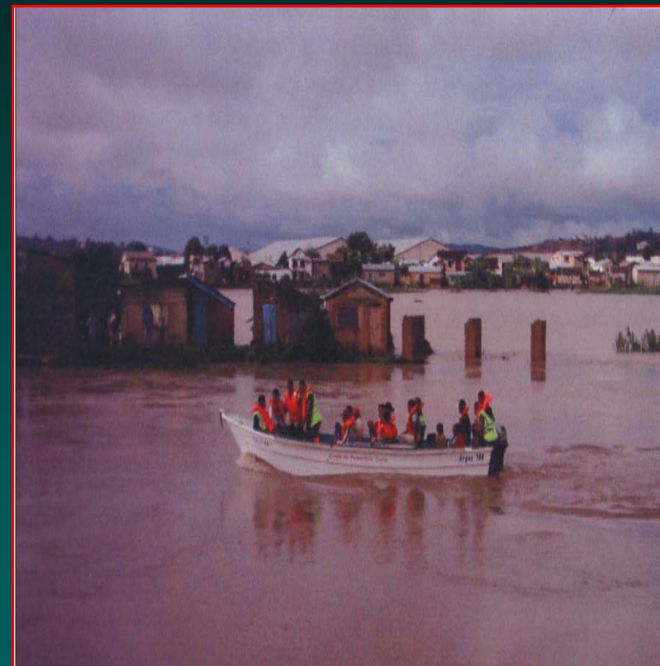


2008 was a typical cyclonic season.

No country can support such a very high rate of destruction

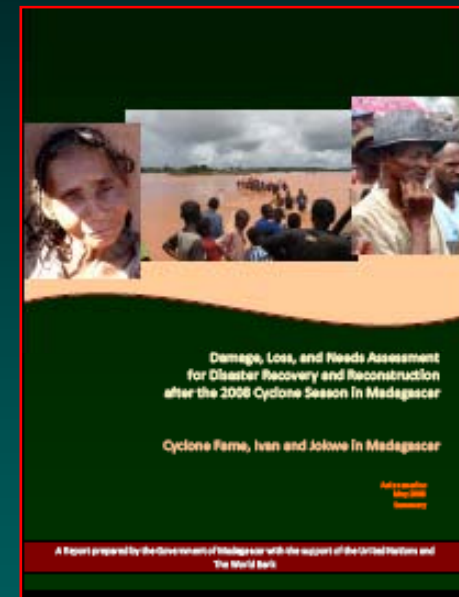
The 2008 Efforts

- *A major simulation exercise*
- *Stockpiling food and supplies*
- *Adoption of a Contingency Plan*
- *DRM School Manual*
- *Rapid Response Training in Regions*
- *Widespread Diffusion of Early Warnings*
- *Establishing of a Contingency Fund*



2008 Joint Damage , Loss and Needs Assessment (JDLNA)

- *Financed by GFDRR*
- *Joint Team from Government, UN, World Bank/GFDRR*
- *First time Damage and Loss method (DALA) applied to an African country*
- *Followed by a Call for Funds under Track III*



The report can be downloaded at

<http://gfdr.org/index.cfm?Page=Track%20III:%20DRR%20in%20Recovery&ItemID=14>

GFDRR

GLOBAL FACILITY FOR DISASTER
REDUCTION AND RECOVERY

Reducing Vulnerability to Natural Hazards

A partnership of Australia, Canada, Denmark, European Commission, Finland, France, Germany, Italy, Japan, Luxembourg, Norway, OFDA/USAID, Spain, Sweden, Switzerland, UK, UNISDR and The World Bank

Great Benefits from the JDLNA

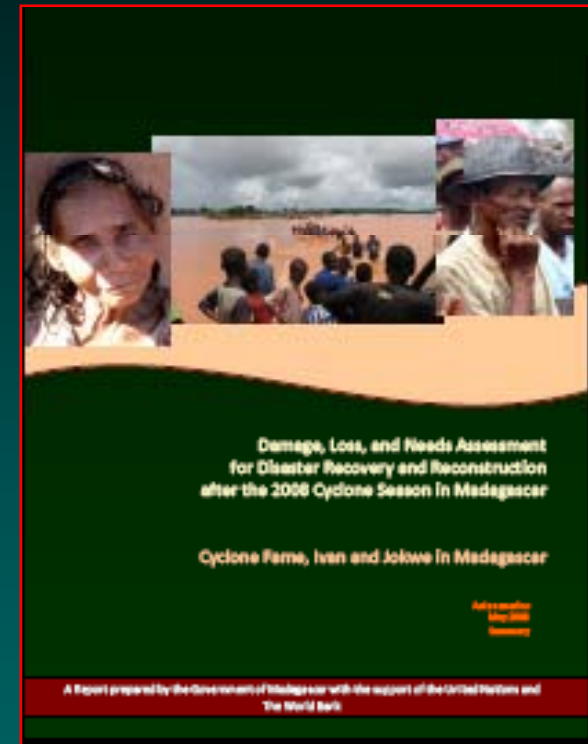
- **Increasing credibility of Assessment Methods**
- **Allowed for more accurate estimate of damage, loss, impact and needs**
- **Formulated strategies, action plan and projects involving early recovery, medium term rehabilitation and long term reconstruction**
- **Identified priorities for recovery and reconstruction requirement**
- **Unfortunately, Call for Funds was not successful due to conflicting crises (Burma, China, financial crisis)**



Recommendation from JDLNA

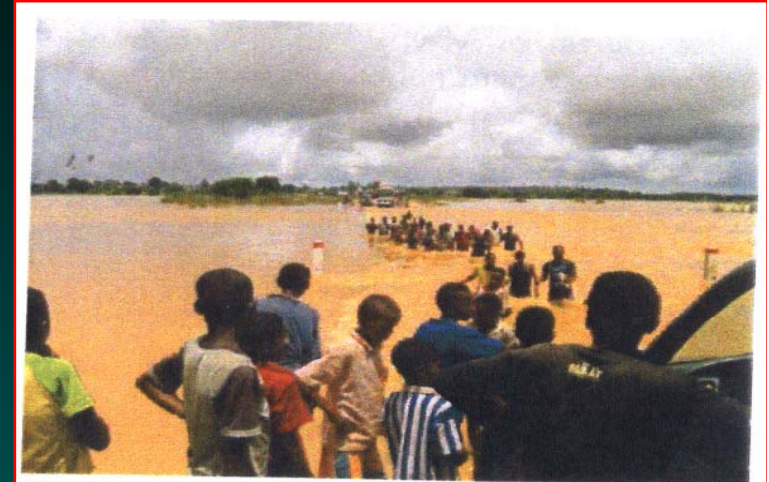
Five priorities identified to reduce risk and vulnerability:

- *National plan for disaster risk reduction*
- *Strengthened risk assessment*
- *Strengthened early warning system*
- *Developed cyclone norms and standards*
- *Catastrophe risk financing and transfer*



Recovery and Rehabilitation

- *Immediate response*
 - **Rapid multisectoral assessments**
 - **Deploy risk management committees**
- *Early recovery:*
 - **Humanitarian response assisted by partners**
 - **Government international appeal**
 - **UN Flash Appeal (response 46%)**
- *Medium and long-term recovery:*
 - **Sectoral program or project**



Passage risqué pendant l'inondation au PK 100 de la RN6



Summary Results of the Effort

- *Lower Damages*
- *Quicker interventions*
- *Improved coordination*
- *Implication of all sector in response*



A Change towards Prevention

- *Adoption of cyclone-proof standards for infrastructures and buildings*
- *A New National Contingency fund*
- *Improving risk assessment : a National Risk Atlas*
- *Integration of disaster risk reduction into sectoral programm (especially environnement)*
- *Reforestation*





**Thank you for your attention !
Misaotra tompoko !**