Consultancy Service for the Development of an Inundation, Flooding and Landslide National Risk Profile, Strategic Framework and Action Plans for Disaster Risk Management for the Republic of Mauritius

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Euro-Mediteranean Center for Cliimate Change

Capacity and validation workshop

Swami Vivekananda International Convention Centre, Pailles, Mauritius, August 22-24, 2012


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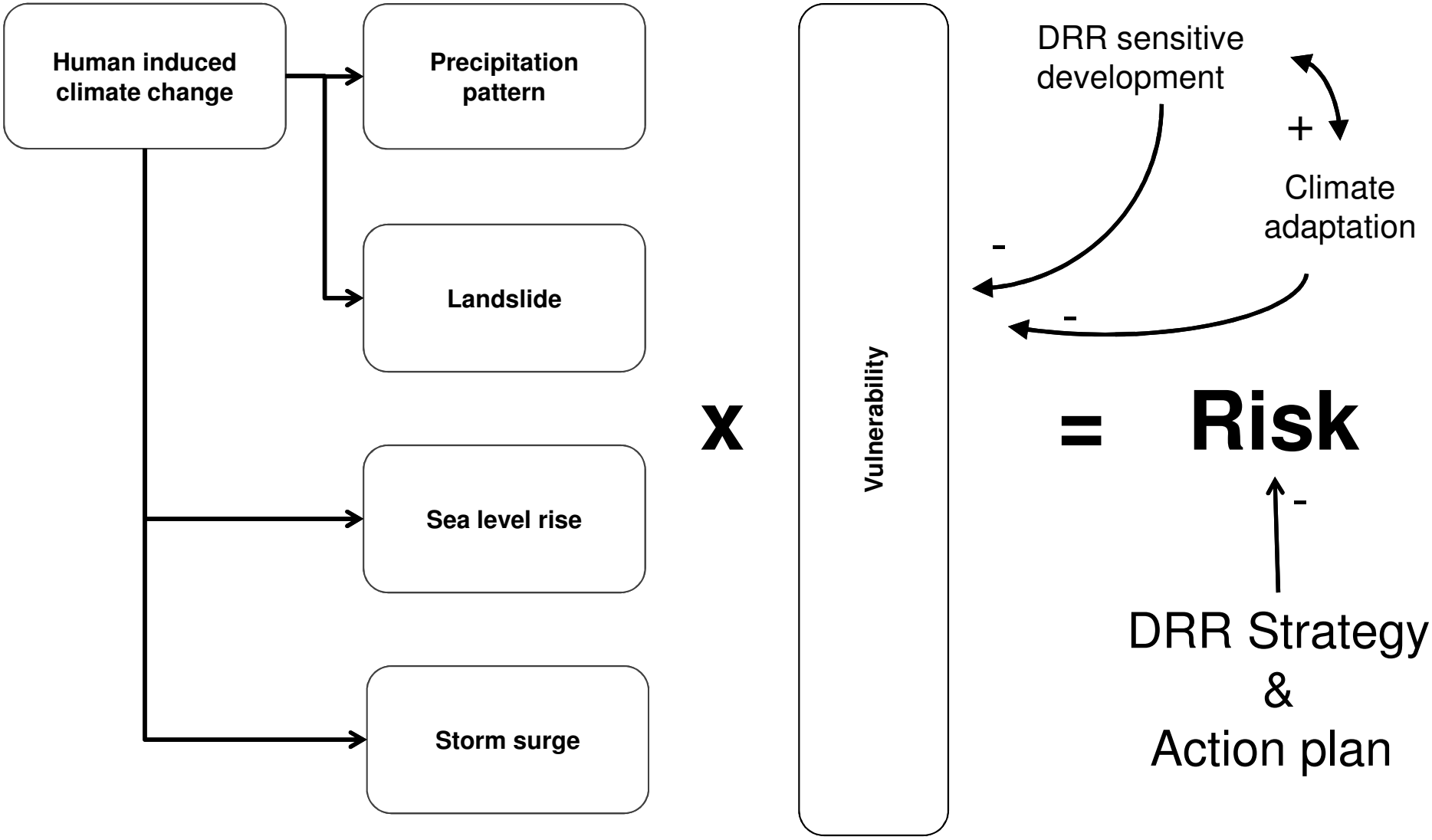
Introduction of the project and key results

Scope of the assessment



Climate risk analysis

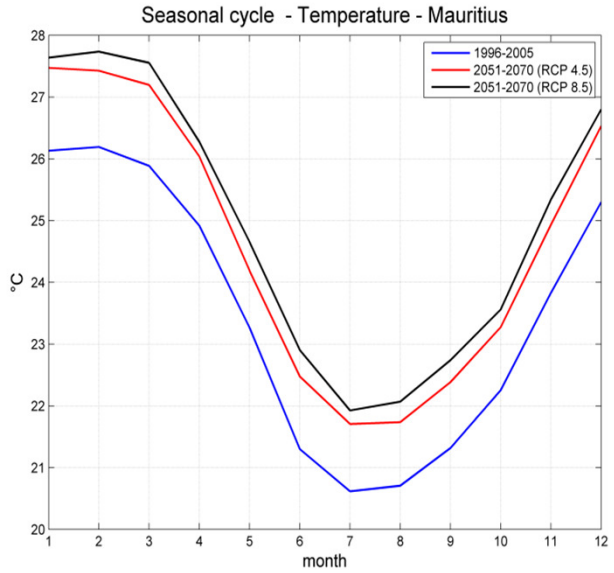
Temperature

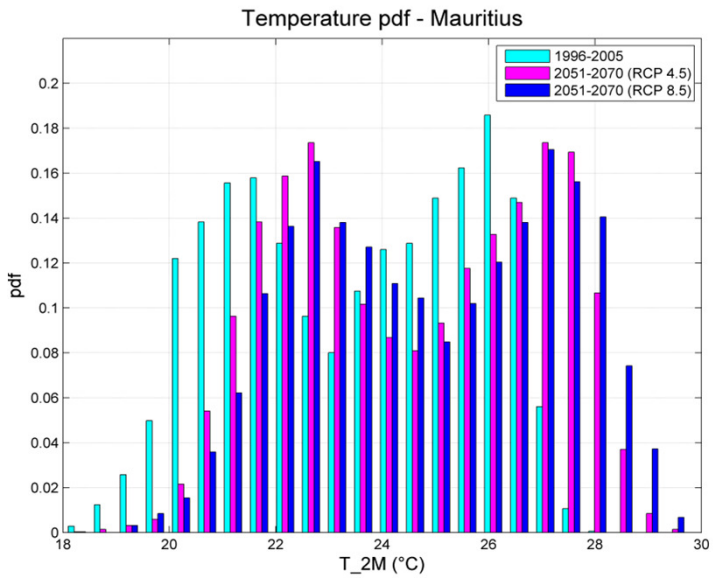
The IPCC 4th Assessment report (Solomon et al, 2007) projections for Indian Ocean and the medium emissions scenario SRES A1B scenario over the period 1980-1999 compared to 2080-2099 suggest about a 2.1˚ C increase in temperature (range between +1.4 and +3.8˚ C).

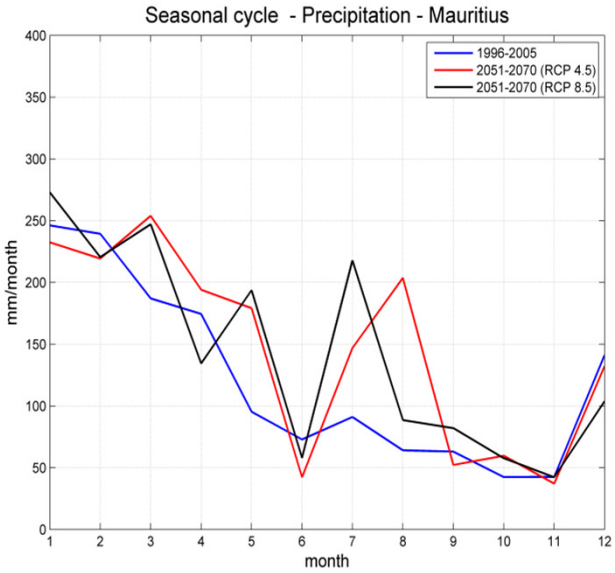
Precipitation

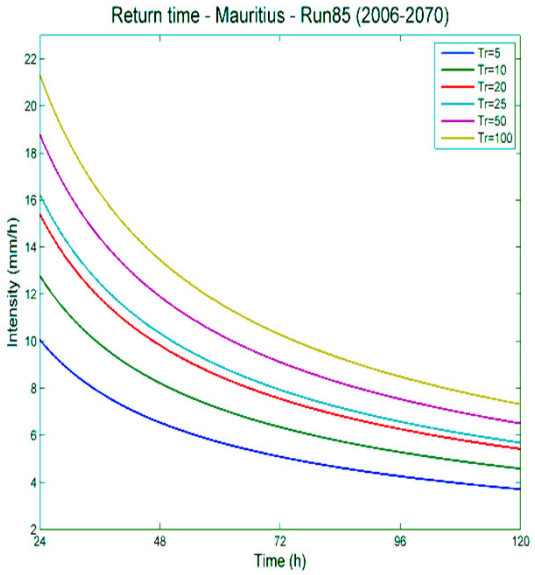
AR4 assumes a 4% increase in precipitation (range between -5% and +20%). Maunsell (2009) for the Australian territories the Cocos (Keeling) Islands and Christmas Island - rainfall changes are afflicted with uncertainty, open to different speculation except that the driest seasons may become drier Territories and that the wet season may become wetter on Christmas Island. Due to high uncertainty and contradictory evidence, the authors have not indicated any quantitative projections for precipitation

Climate risk analysis

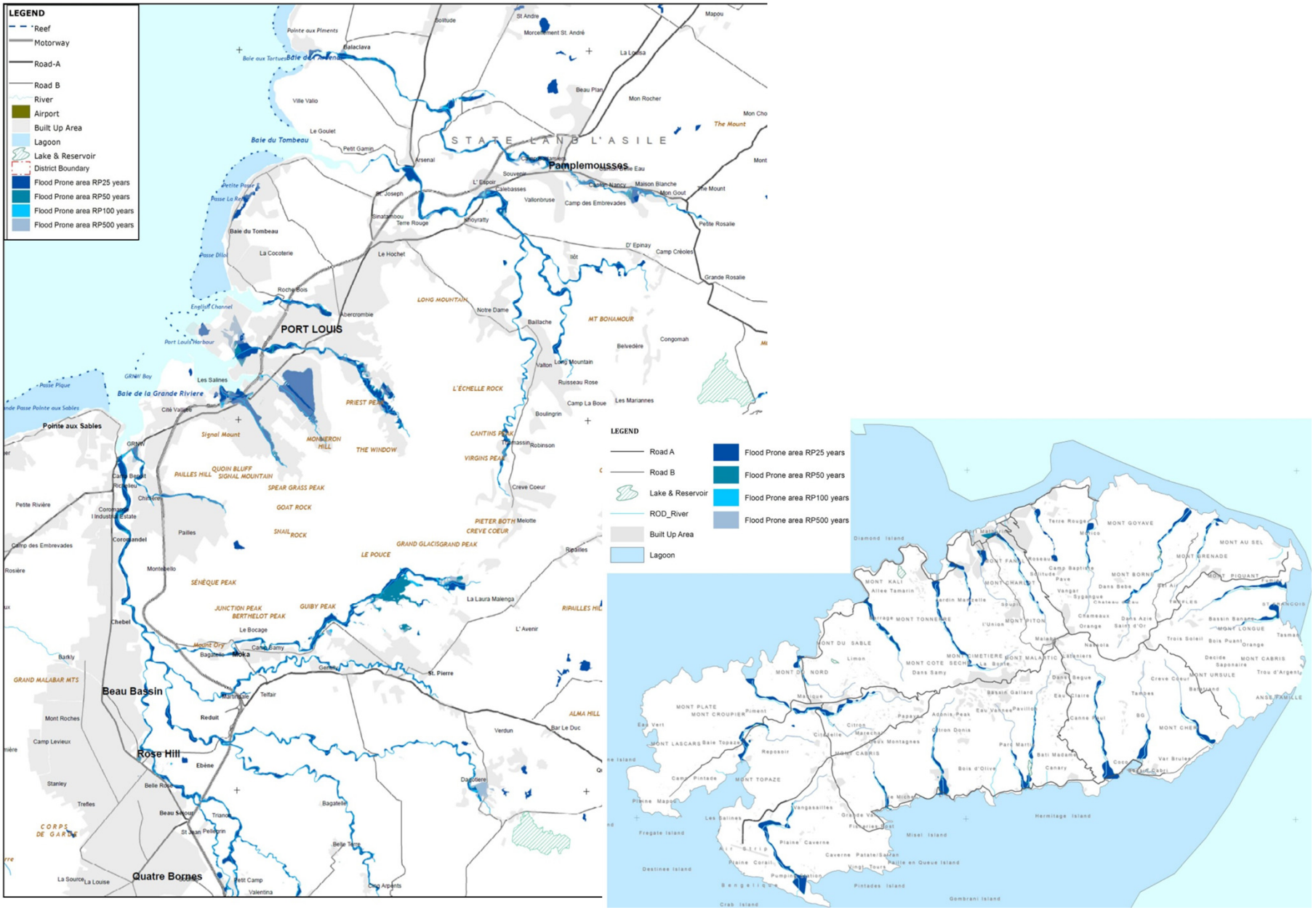




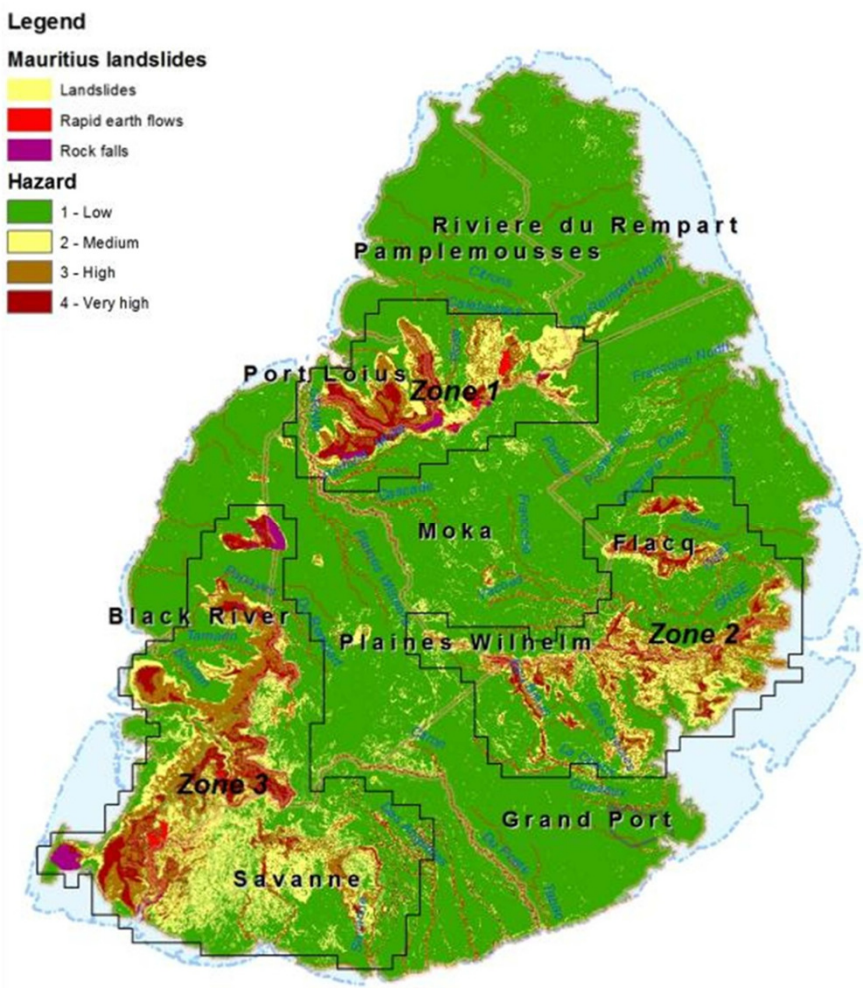


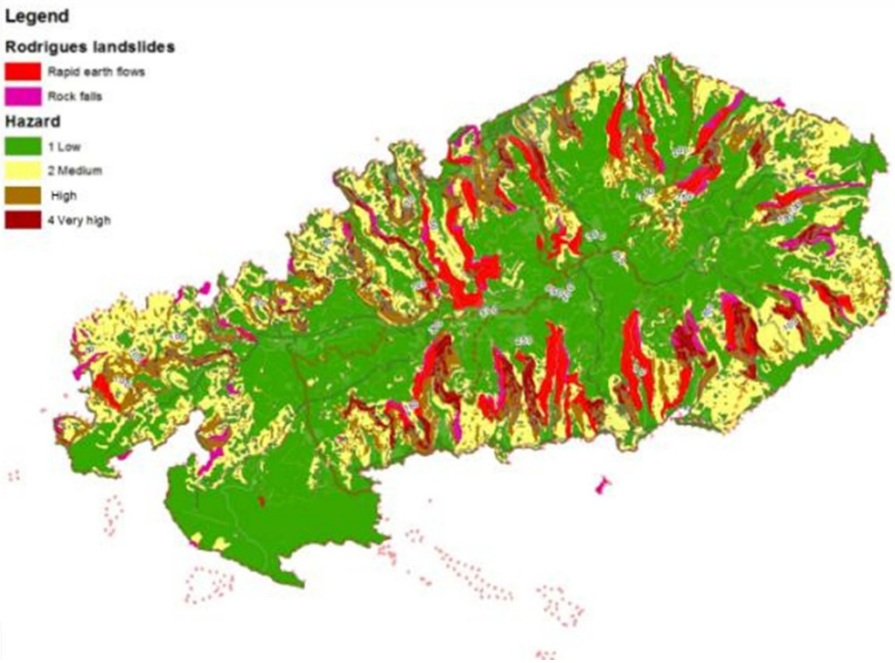


Flood hazard



Landslides


Legend
Mauritius landslides
Landslides
Rapid earth flows
Rock falls
Hazard
1 - Low
2 - Medium
3 - High
4 - Very high
Riviere du Rempart
Pamplemousses
Port Louis
Zone 1
Moka
Flacq
Black River
Plaines Wilhelm
Zone 2
Zone 3
Grand Port
Savanne


Legend
Rodrigues landslides
Rapid earth flows
Rock falls
Hazard
1 Low
2 Medium
High
4 Very high

Risk classes

Feature	Demanded level of protection (RP)	RP 25 years	RP 50 years	RP 100 years	RP 500 years
Natural features	none	none	none	none	none
Agricultural fields	RP 25	low	very low	very low	very low
Built up area	RP 500	very high	very high	high	medium
Expansion area	RP 500	very high	very high	high	medium
Motorway	RP 500	very high	very high	high	medium
Main road	RP 100	high	medium	low	very low
Secondary road	RP 50	medium	low	very low	very low

Risk classes

Feature	Hazard Level 4 [very high]	Hazard Level 3 [high]	Hazard Level 2 [medium]	Hazard Level 1 [low]
Natural features	none	none	none	none
Agricultural fields	low	low	very low	none
Built up area	very high	very high	medium	low
Expansion area	very high	very high	medium	low
Motorway	very high	very high	medium	low
Main road	high	medium	low	very low
Secondary road	medium	low	very low	very low

Risk classes

Feature	Hazard Level & Return Period of Event				
	Level 5	Level 4 [RP 25 years]	Level 3 [RP 50 years]	Level 2 [RP 100 years]	Level 1 [Extreme]
Natural features	low	low	low	very low	none
Agricultural fields	medium	medium	low	very low	none
Built up area	very high	high	medium	low	very low
Expansion area	very high	high	medium	low	very low
Motorway	very high	high	medium	low	very low
Main road	very high	high	medium	low	very low
Secondary road	high	medium	low	very low	none
	Risk classes				

Risk classes

Vulnerability

LANDUSE	RP 25		RP 50		RP 100		RP 500	
	%	km²	%	km²	%	km²	%	km²
Built up area	20%	5.1	19%	5.8	20%	6.6	71%	78.1
Expansion area	4%	1.0	3%	1.0	4%	1.4	1%	1.6
Agricutural fields	76%	19.2	78%	24.0	76%	24.9	28%	30.4
TOTAL		**25.3**		**30.9**		**32.9**		**110.1**

LANDUSE	RP 25		RP 50		RP 100		RP 500	
	%	km	%	km	%	km	%	km
Motorway	3%	2.4	2%	3	3%	3	2%	3
Main road	20%	18	19%	20	20%	24	20%	29
Secondary road	77%	68	78%	80	77%	90	77%	109
TOTAL		**88**		**103**		**117**		**141**

Vulnerability

Landuse	RP 25		RP 50		RP 100		RP 500	
	%	km²	%	km²	%	km²	%	km²
Built up area	22.0%	0.38	21.9%	0.40	21.3%	0.41	20.7%	0.4
Agricutural fields	27.7%	0.48	28.6%	0.52	27.2%	0.53	27.5%	0.6
Forest	50.3%	0.87	49.5%	0.91	51.5%	0.99	51.8%	1.1
Total		**1.7**		**1.8**		**1.9**		**2.1**

Landuse	RP 25		RP 50		RP 100		RP 500	
	%	km	%	km	%	km	%	km
Primary road	23.2%	4.17	22.9%	4.58	23.7%	4.67	24.3%	5.1
Secondary road	76.8%	13.77	77.1%	15.42	76.3%	15.05	75.7%	16.0
Total		**17,938**		**20,006**		**19,715**		**21,184**

Value at risk

	Value of exposed elements for flood (millions MUR)			
Zone	**Tr 25 year**	**Tr 50 year**	**Tr 100 year**	**Tr 500 year**
MAURITIUS	57,098	57,097	69,732	78,007
RODRIGUES	902	955	985	1,000

	Potential damage to buildings and infrastructures for flood (millions MUR)				
Zone	**Tr 25 year**	**Tr 50 year**	**Tr 100 year**	**Tr 500 year**	**Annual (statistical average)**
MAURITIUS	2,232	2,818	2,947	3,259	1,175
RODRIGUES	98	2.0	1.1	0.9	51

Value at risk

	Value of exposed elements for inundation (millions MUR)				
Zone	**Level 5**	**Level 4**	**Level 3**	**Level 2**	**Level 1**
MAURITIUS	31,520	59,375	59,478	75,588	88,168
RODRIGUES	216	531	658	935	1,207

	Potential damage to buildings and infrastructures for inundation (millions MUR)					
Zone	**Level 5**	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Annual (statistical average)**
MAURITIUS	970	2,553	3,805	6,864	10,054	466
RODRIGUES	65	159	197	281	362	26

DRR Strategy for RoM

1) Defining the DRR strategic framework of action as envisaged by the Hyogo Framework for Action;

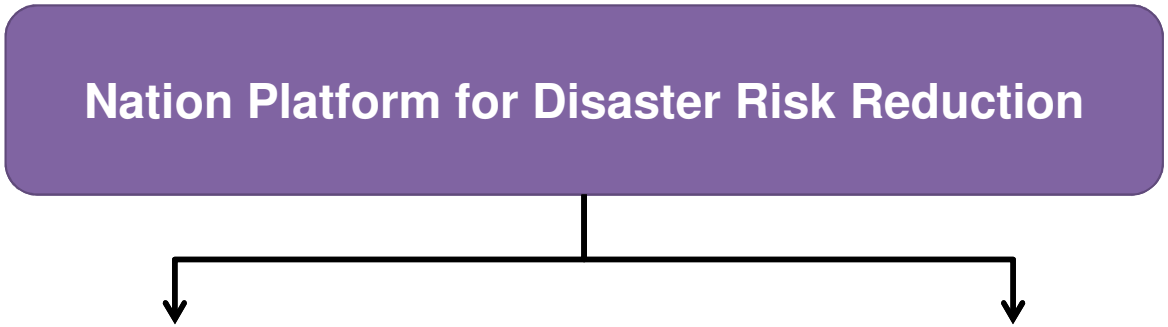
2) Building a strong institutional basis for DRR;

3) Integrate DRR into national planning policies;

4) Enable and support DRR through improved national legislation;

5) Empower relevant stakeholders and local communities

DRR Strategy for RoM



Cyclone & other natural disasters committee

coordination and supervision, policies and programmes for DRR prevention and response

National disaster & operations coordination centre

executive role in emergency management – civil protection mechanism

Action plan

Action 1: Reduce risk in areas prone to very high and high risk

Action 2: Implement a DRR National Platform along the principles of Hyogo Framework for Action

Action 3: Adopt a sound development strategy

Action 4: Preserve healthy natural environment

Action 5: Embrace the culture of risk

Action 6: Sound (spatial) data infrastructure

Action 7: Early warning and alerting system

Action 8: Emergency response

Action 9: Emergency fund and insurance scheme

Thank you for your attention