

Assessing health vulnerability



Key messages

- The health impacts of climate change will be inequitably distributed within & between countries

“The rich will find their world to be more expensive, inconvenient, uncomfortable, disrupted & colorless — in general, more unpleasant & unpredictable, perhaps greatly so. The poor will die.”

- Kirk R. Smith (2008)

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Key messages

- Vulnerability is the propensity to be adversely affected
- Causes of vulnerability include biological characteristics, the physical environment, social circumstances & national & international politics
- Vulnerability can be assessed using HIA & HNAP
- Many facets of vulnerability means many opportunities for intervention

Module 11 outline





1
Key terms
around health
vulnerability

2
Main causes
of
vulnerability

3
HNAP & HIA
assessment of
vulnerability

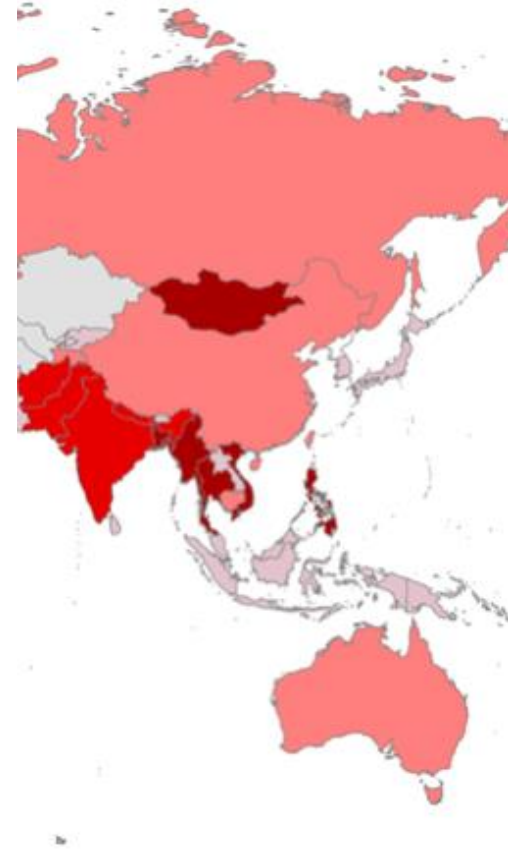
Legend

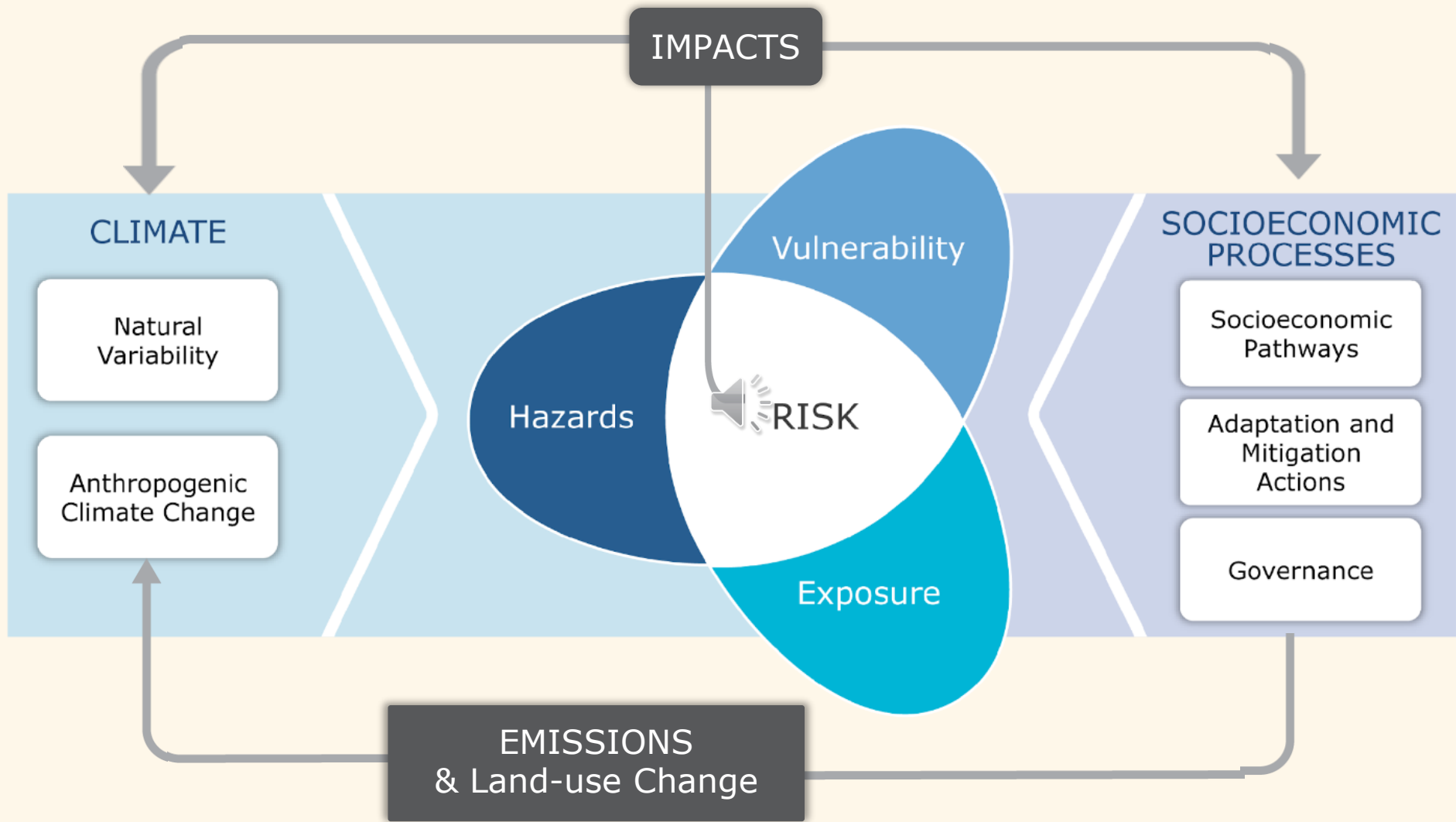
 western pacific region

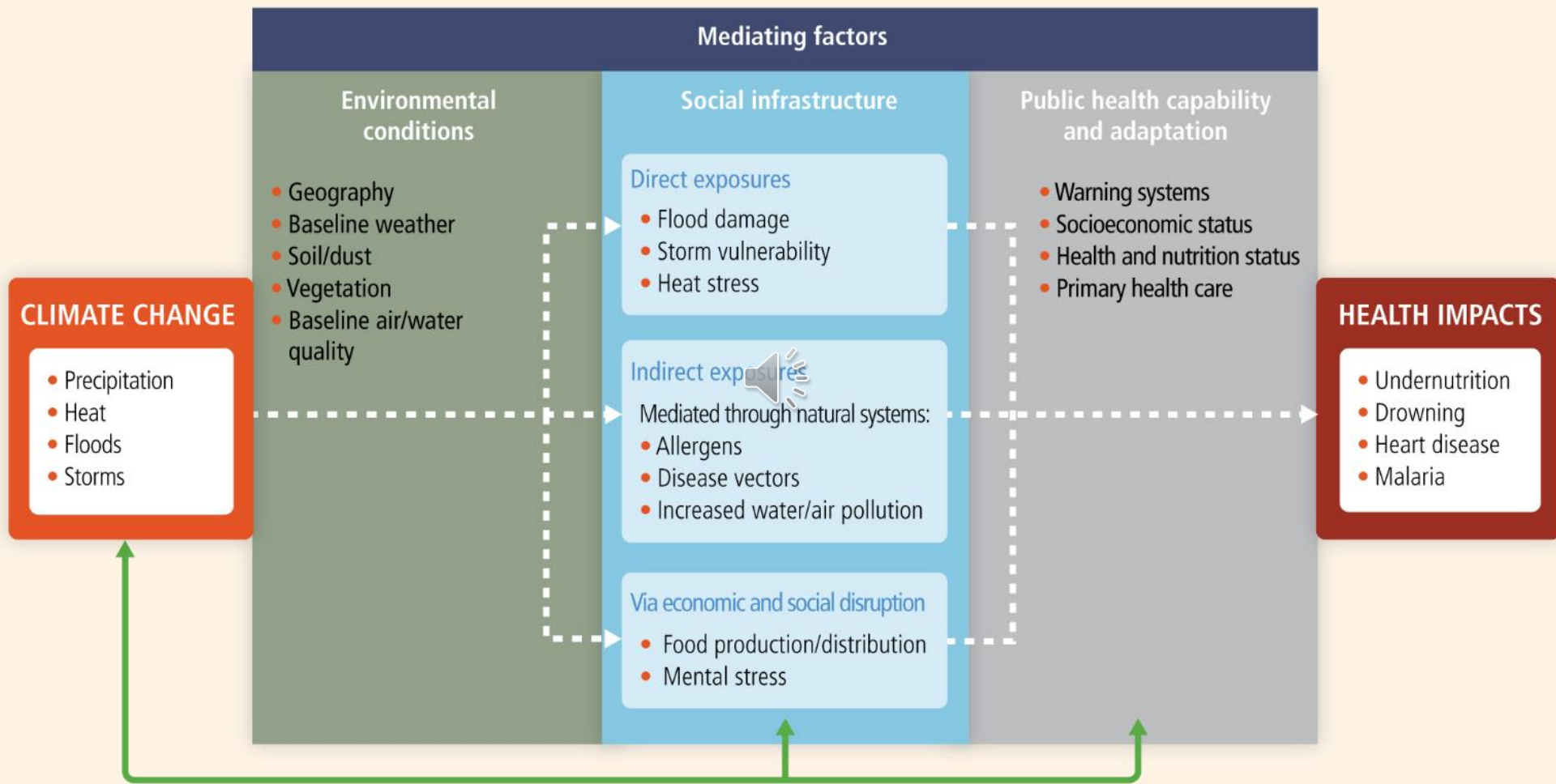
 Kilometers
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KEY CONCEPTS RELATED TO HEALTH VULNERABILITY TO CLIMATE CHANGE

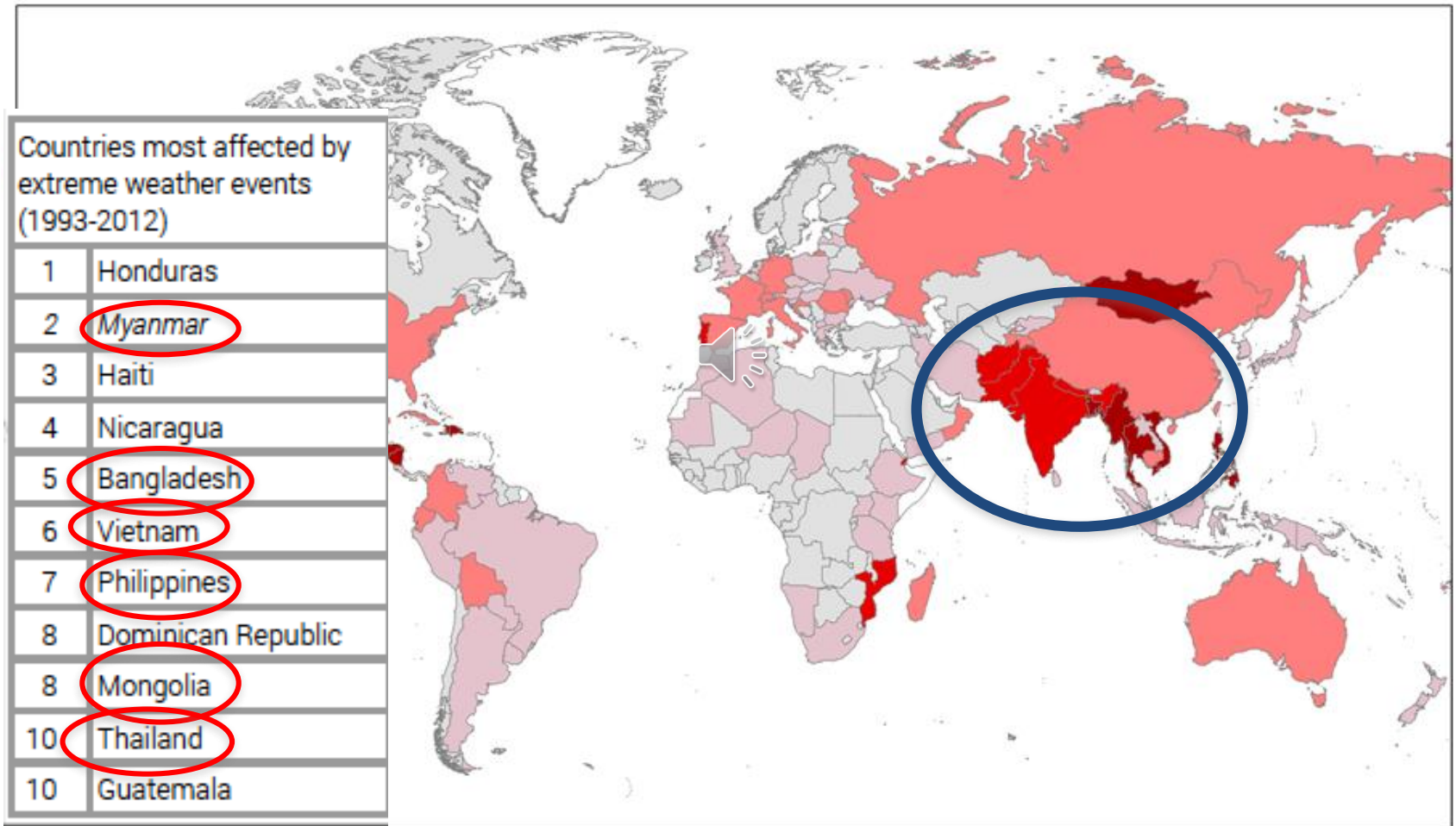






Global Climate Risk Index 2012

Source: Germanwatch (2014)



Climate Risk Index: Ranking 1993 – 2012

■ 1 - 10 ■ 11 - 20 ■ 21 - 50 ■ 51 - 100 ■ > 100 □ No data

2



CLIMATE CHANGE VULNERABILITY & SOME OF ITS CAUSES

Vulnerability

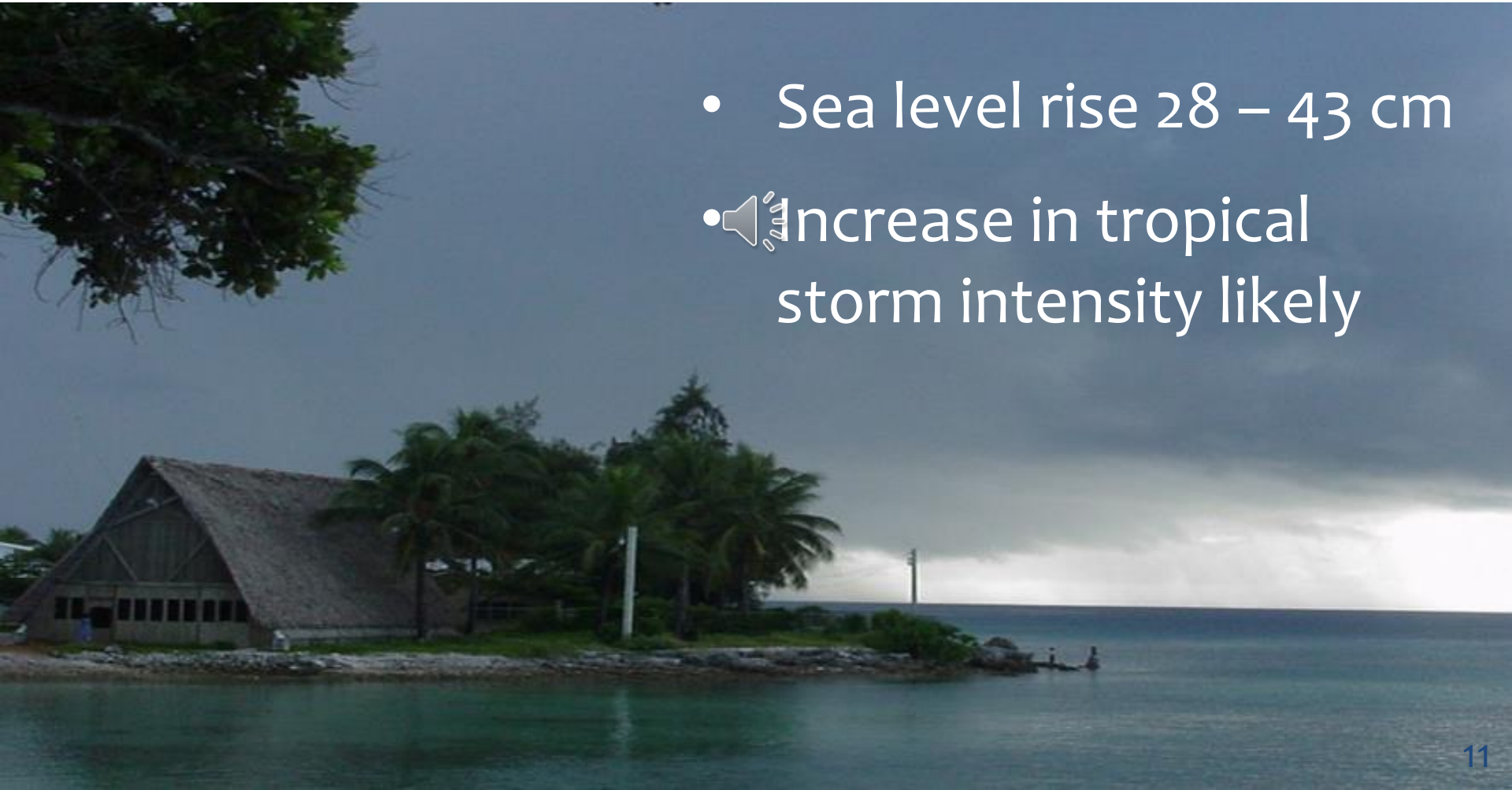
The propensity or predisposition to be adversely affected.

Vulnerability encompasses a variety of concepts including sensitivity or susceptibility to harm & lack of capacity to cope & adapt.

IPCC (2013)

Climate change & Pacific Ocean sea level rise

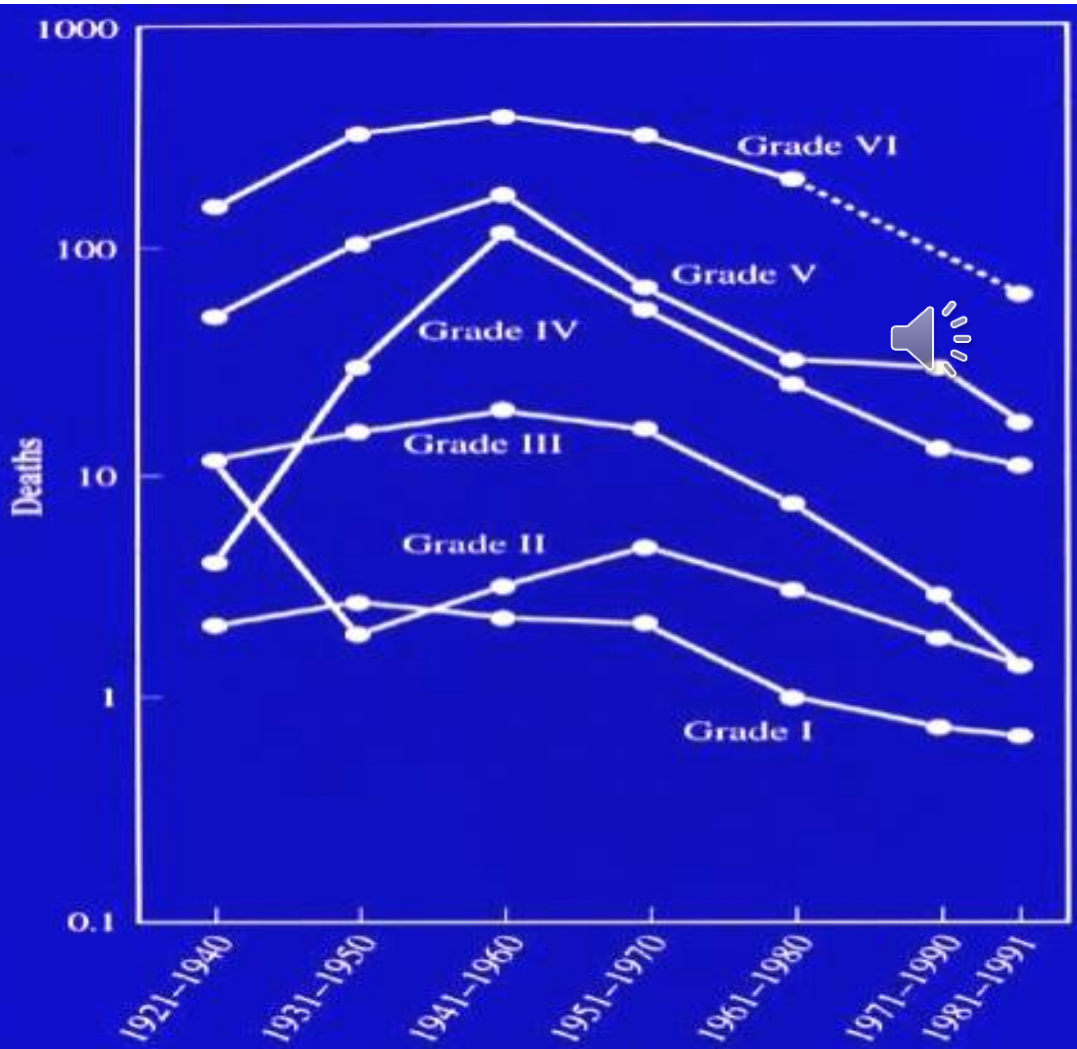
- Sea level rise 28 – 43 cm
-  Increase in tropical storm intensity likely



Vulnerability of Pacific Islands to sea level rise

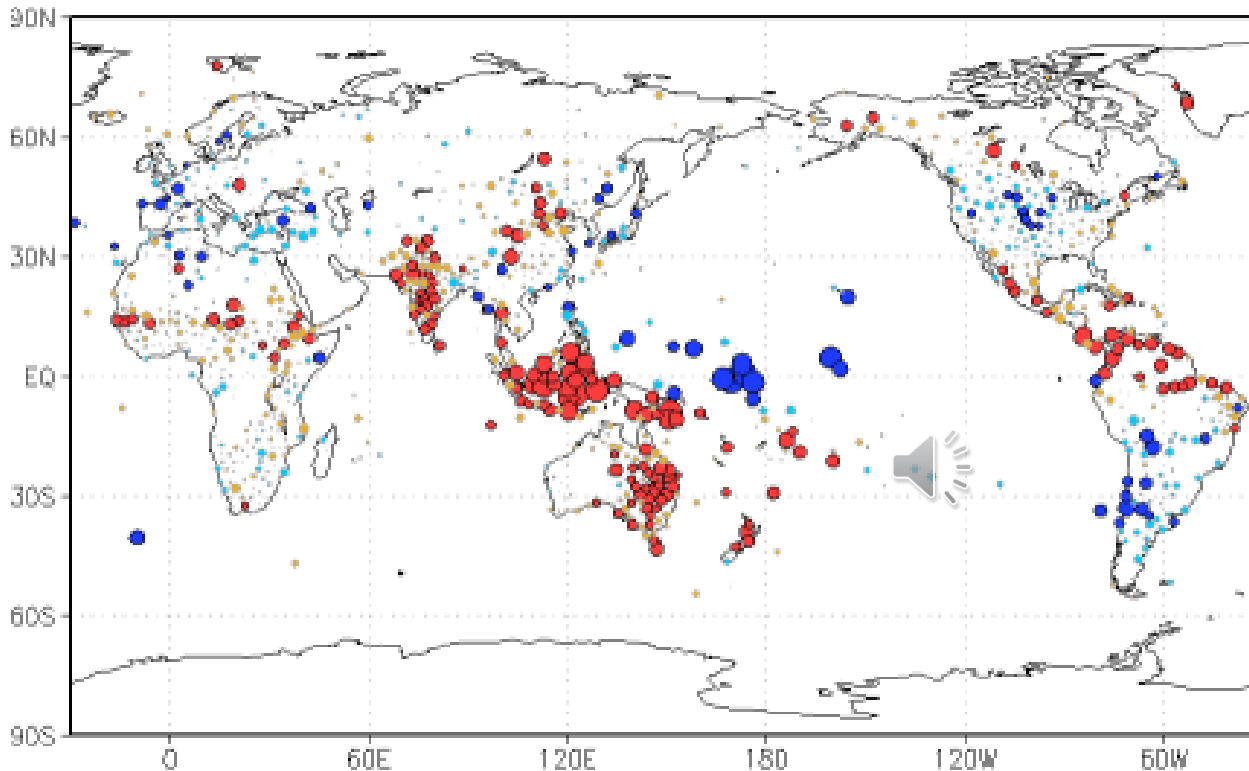
Nation	Major island type	GNP per capita 1994 (US \$)	Population (1995)	Maximum altitude (m)	Susceptibility to sea level rise
Tokelau	Atoll	4000	1500	4	Extreme
Marshall Islands	Atoll	2500	54700	4	
Tuvalu	Atoll, raised coral	-	9500	4	
Line Islands	Raised coral	-		8	Severe
Kiribati	coral, atoll	730	78400	81	
Micronesia	Various	1890	105700	791	
Palau	Coral	3250	16500	207	
Pitcairn	Coral, atoll	12000	50	304	
Nauru		10500	10500	71	
French Polynesia	Volcanic, atoll	7000	218000	2237	
Cook Islands	Volcanic, varied	2750	19100	652	
Niue	Coral	2250	2500	67	
Tonga	Various	1640	98200	1125	
American Samoa	Volcanic	8000	54800	931	Moderate
Fiji	Mixed	2220	774800	1323	
New Caledonia	Mixed	11000	182200	1628	Modest
N Marianas	Volcanic	-	56700	965	
Solomon Islands	Mixed, volcanic	1200	367800	2446	
Vanuatu	Mixed	1300	164100	1979	
Wallis and Fatuna	Volcanic	3000	14400	769	
Easter Island	Volcanic	-	2811	600	
Papua New Guinea	Mixed	1120	4302000	4694	
Guam	Mixed	11800	149300	393	
Western Samoa	Volcanic	900	163400	1857	

Typhoon impacts by classification: a preparedness evaluation



Loss of life due to typhoons is decreasing owing to better preparedness

Effect of El Niño on rainfall



Data:

June – August over 40 years, to 2000

Red dots: drier than usual during El Niño

Blue dots: more rainfall

Size of circle: size of effect

Source: KNMI (2009)

El Niño events associated with weakening easterlies, warming of the western Pacific, & shift in rainfall patterns

Pacific: Does modern agriculture reduce vulnerability to climate variability?

Traditional agriculture

- Crop diversity
- Drought-resistant staples (e.g. taro, yam)
- Robust methods of food preservation
- Strong social networks
- Inter-island trade systems



Modern agriculture

- Cash cropping
- Reliance on imported staples (e.g. rice)
- Unreliable methods of food preservation (e.g. refrigerators)
- Attenuated social networks
- Trade systems global, not local

3

HNAP & HIA approaches to assessing vulnerability



HNAP – a systematic process to:

- Engage in the overall NAP process at the national level
- Identify national strategic goals for building health resilience to climate change (if countries have not done so through, for e.g., a National Health Adaptation Strategy)
- Develop a national plan with prioritized activities to achieve these goals, within a specific time period & given available resources



Frame and scope assessment

Assess

Manage and monitor risks

Defining the geographical region and health outcomes of interest;
Identifying the questions to be addressed and steps to be used;
Identifying the policy context for the assessment;
Establishing a project team and a management plan;
Establishing a stakeholder process;
Developing a communications plan.

Vulnerability:

Current burden of disease
Current health protection programmes

Future impacts:

Changing burden ~~without~~ climate change
Projected health impacts of climate change

Adaptation:

Identify and prioritize additional interventions
Identify resources and barriers to implementation

Health harms and benefits in other sectors

Communicate plan and implement

Monitor and evaluate

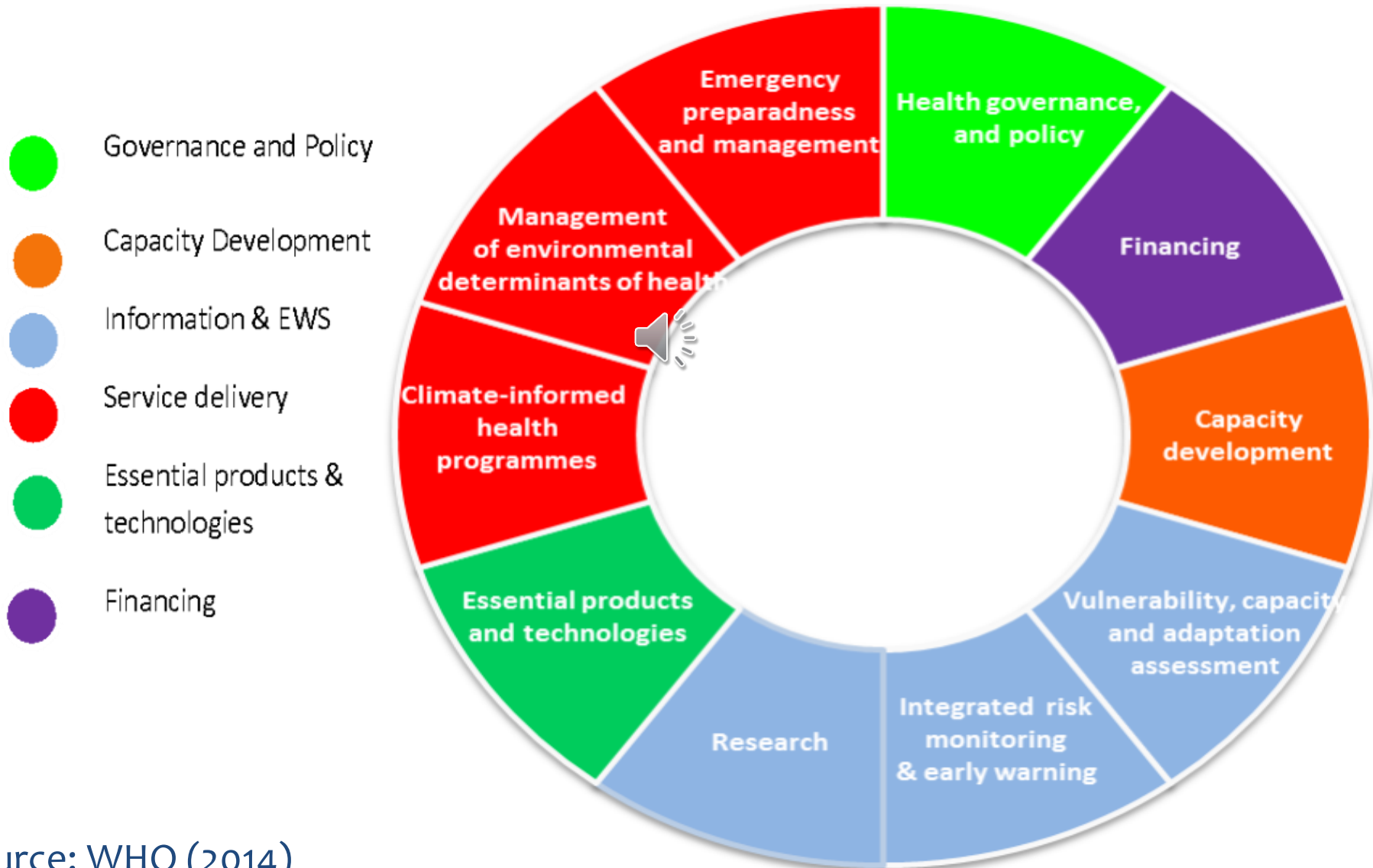
Box 5: Conducting a health V&A in Mongolia

Mongolia conducted a health V&A in 2009 with the goal of determining the associations between weather and climate and health, and to use that information to make recommendations for further action.¹⁶ The specific objectives were to analyse associations between weather and climate and the health impacts of air quality, water availability and quality, extreme weather events, and infectious diseases. Associations were analysed to understand morbidity and mortality trends in relation to weather patterns, to identify key vulnerabilities, and to develop recommendations for adaptation and mitigation strategies to manage the health risks of climate change.

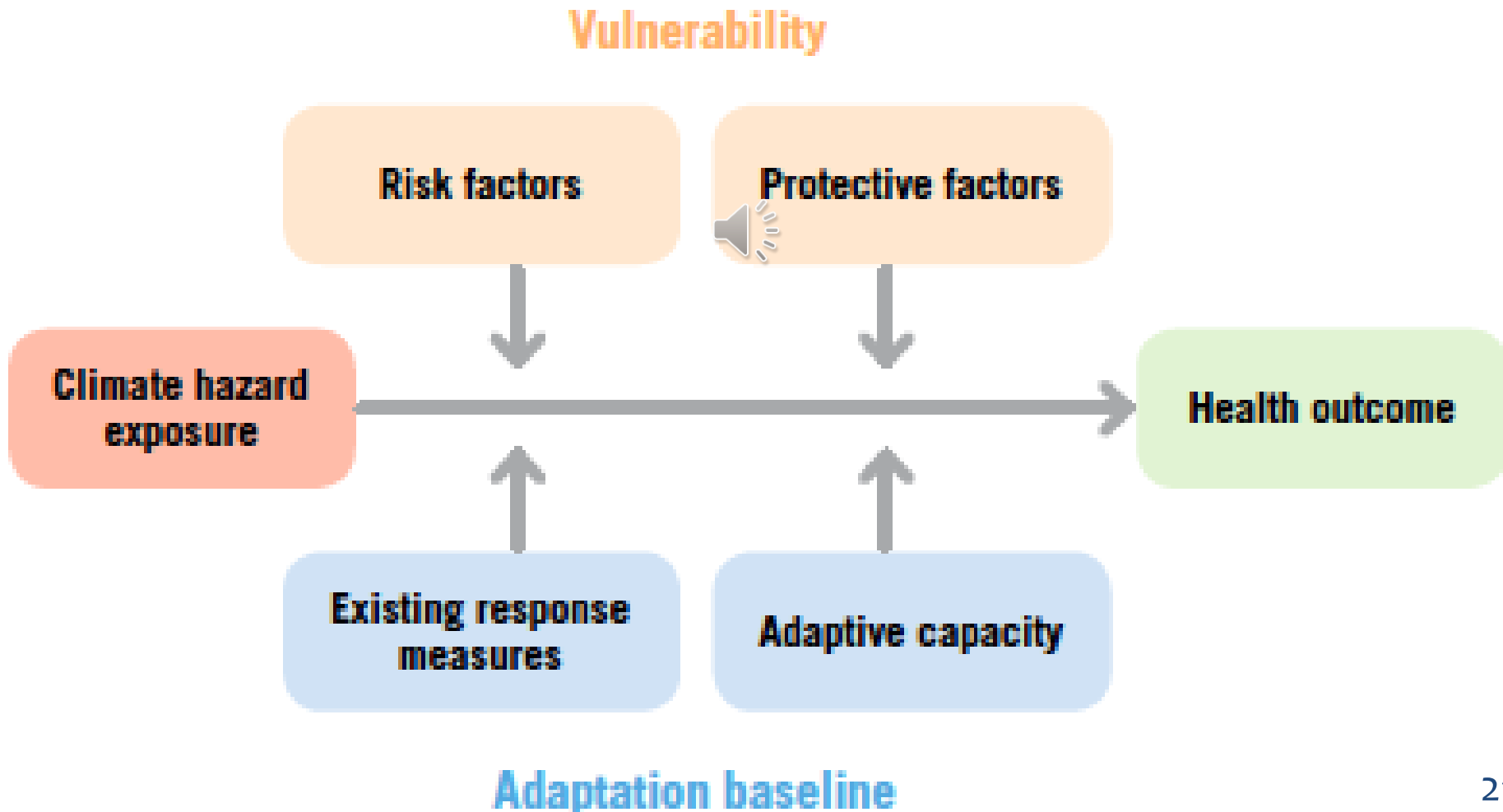
Extensive data sets were collected from relevant ministries and analysed for each topic, quantifying exposure-response relationships, identifying vulnerable groups, and recommending policies and measures to increase resilience to climate change. For example, the recommendations for air quality were as follows.

1. Revision and improvement of legislative environment:
 - a. review and change relevant laws;
 - b. add the issue of climate change and health to the national security concept;
 - c. develop and implement strategy and programme.
2. Improvement of air quality monitoring to:
 - a. measure O₃, PM₁₀, PM_{2.5}, CO;
 - b. increase number of monitoring stations.
3. Expansion of cooperation to improve research capacity.
4. Health sector strengthening on health data reporting system (to provide daily morbidity and mortality data).
5. Early warning system on climate change and air pollution.
6. Training and education on climate change and air pollution.

10 key components for building climate resilience



Monitoring the effectiveness of implemented adaptation options





Health Impact Assessment (HIA)

A combination of procedures, methods & tools by which a policy, project or hazard may be judged as to its potential effects on the health of a population, & the distribution of those effects within the population

Elements in a HIA

- Quantification of the expected health burden due to an environmental exposure in a specific population
- Integrated assessment of impacts, i.e. not concentrating on single risk factors & disease outcomes (a holistic view of health)
- Relates to policies & projects outside the health sector
- Provides information for decision-makers, designed with needs of decision-makers in mind
- Multidisciplinary process




What we covered in Module 11

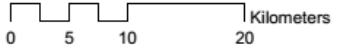
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Learning from Module 11

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What **action** will you
take in your work,
given what you learnt

in Module 11?