

การจัดประชุมกลุ่มย่อย

โครงการศึกษาผลกระทบจากการเปลี่ยนแปลงและความแปรปรวนของสภาพภูมิอากาศใน
อนาคต ความล่าช้าและผลกระทบและการปรับตัวของภาคส่วนที่สำคัญ

Public health

วันศุกร์ที่ 14 กรกฎาคม 2558 เวลา 8.30-16.00 น.

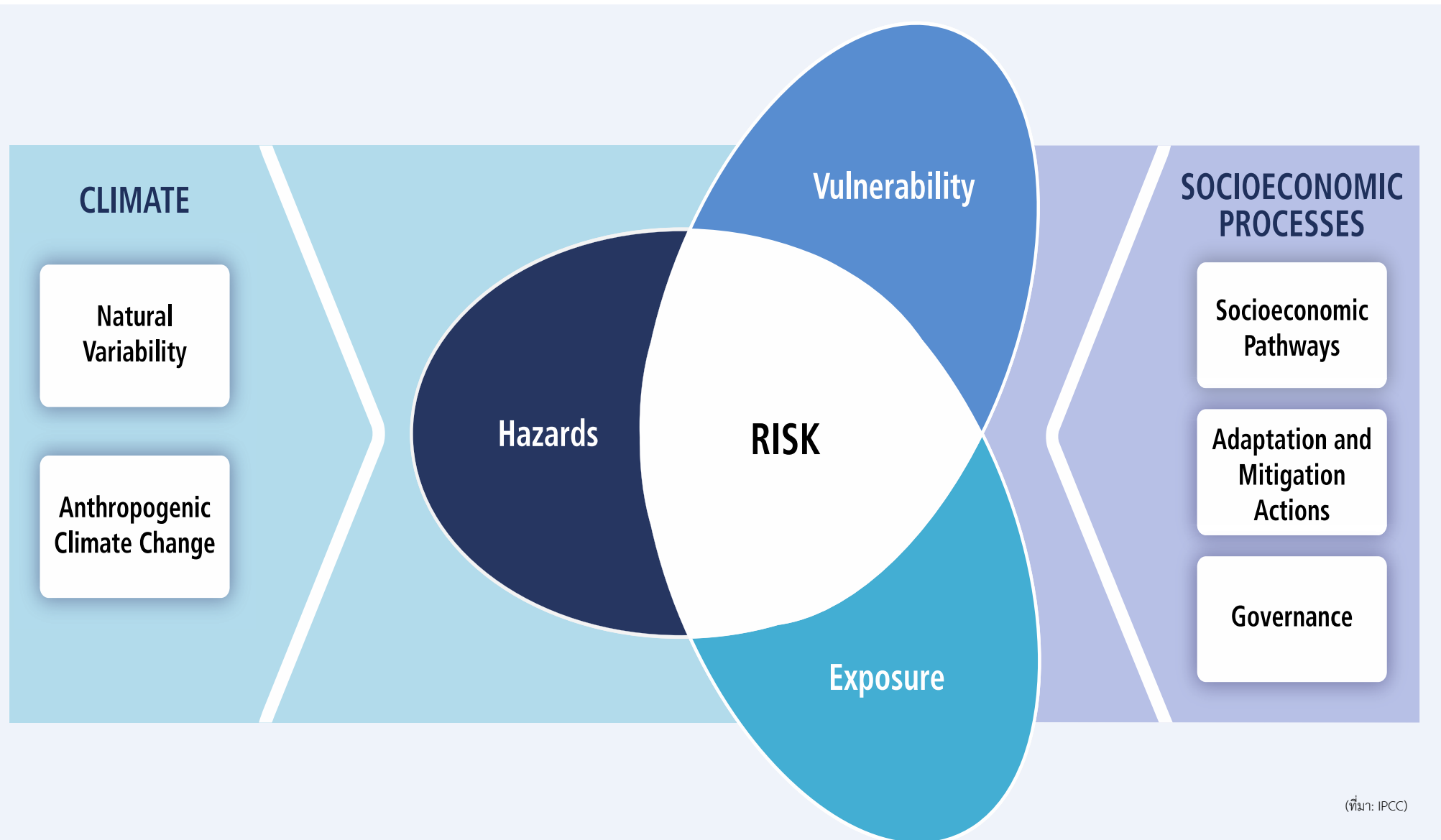
ณ ห้องประชุม Platinum 1 Lobby floor

INTERCONTINENTAL BANGKOK ถนนเพลินจิต

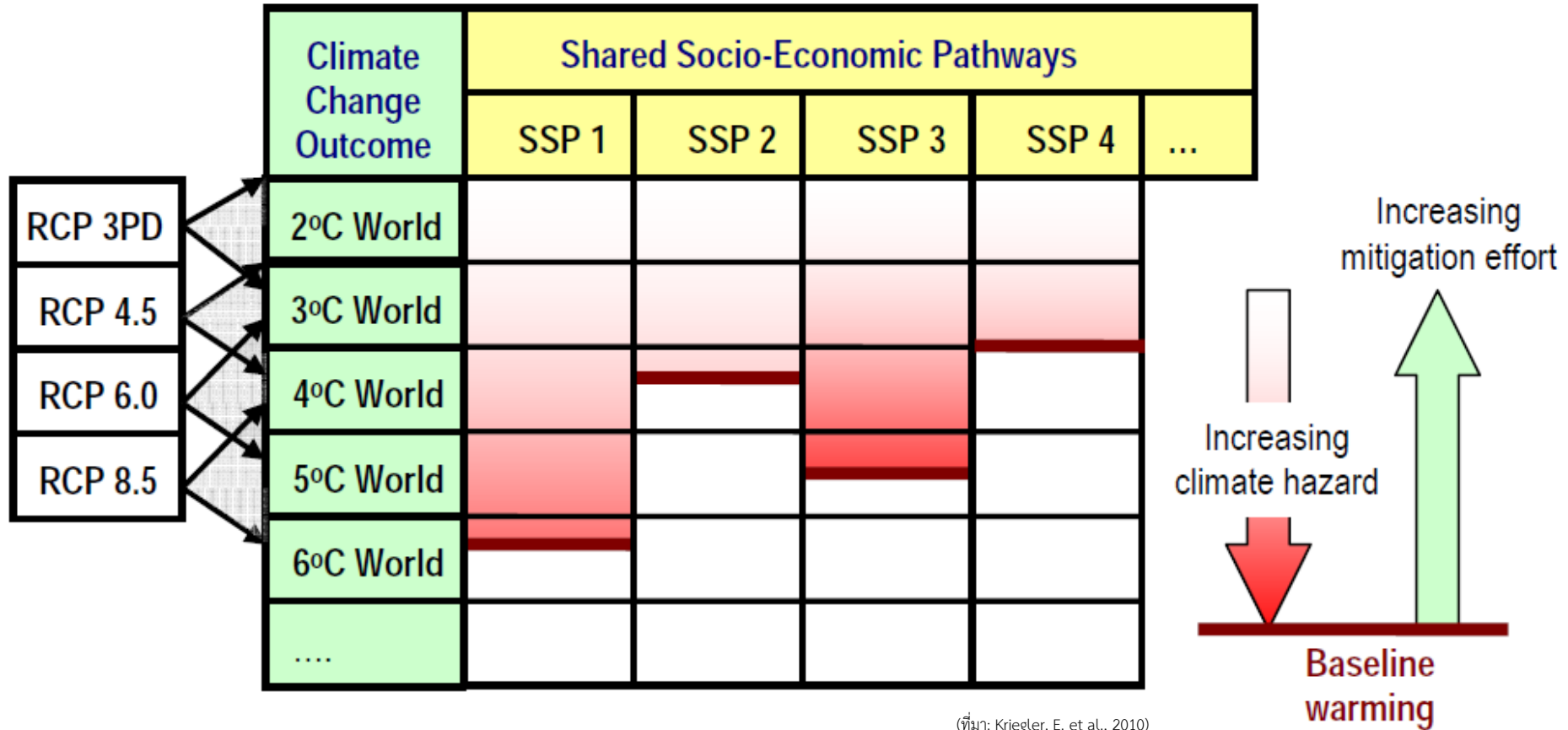
การปรับตัวต่อการเปลี่ยนแปลงภูมิอากาศกับยุทธศาสตร์การพัฒนา



ความเสี่ยงในอนาคต



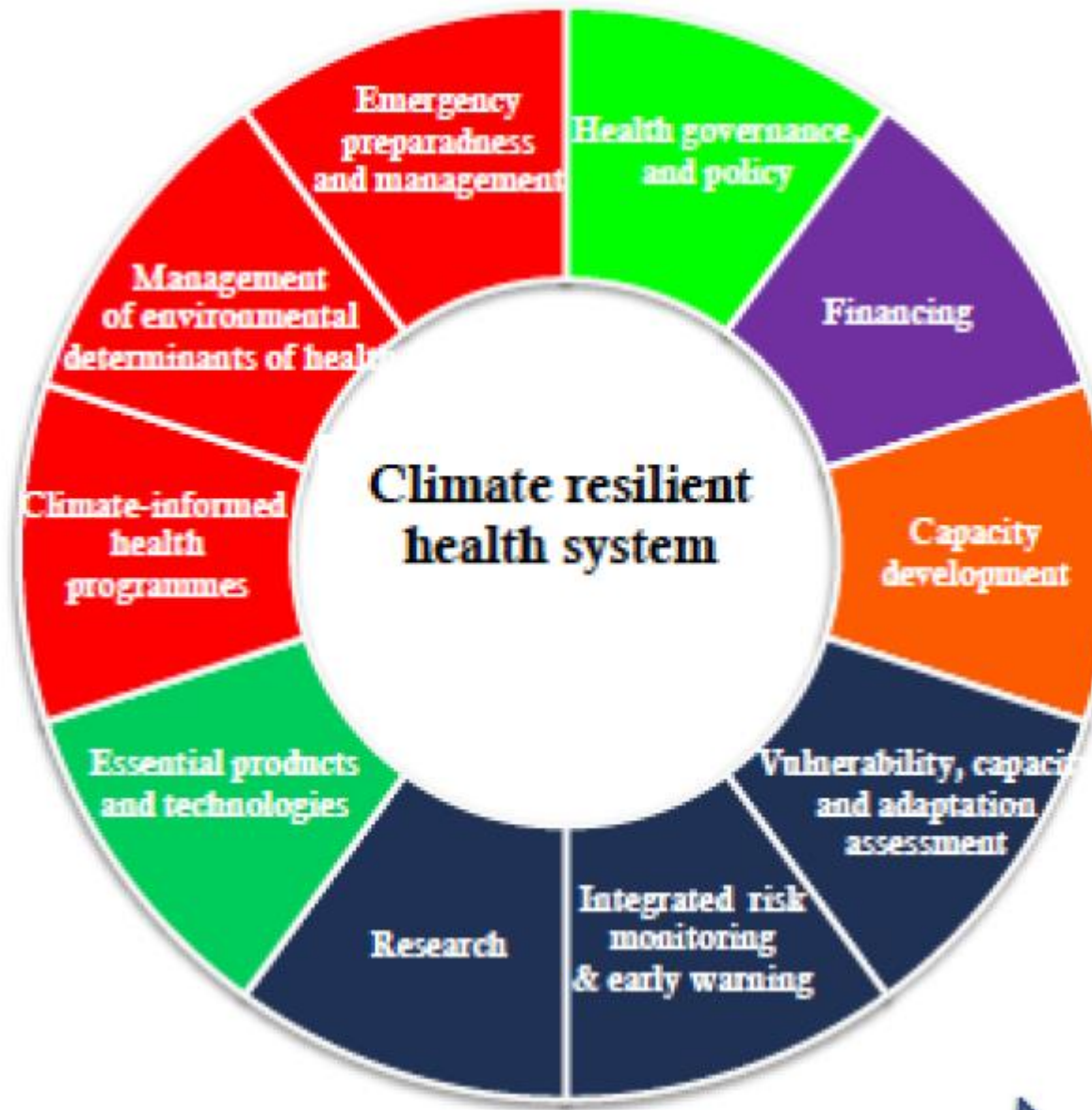
เมทริกซ์ของภาพฉายในอนาคต



(ที่มา: Kriegler, E. et al., 2010)

หมายเหตุ : RCP* (Representative Concentration Pathways) หรือภาพฉายการปล่อยก๊าซเรือนกระจกแบบใหม่ (New emission scenarios) ในรายงานฉบับที่ 5 กลุ่มที่ 2 ของคณะกรรมการระหว่างรัฐบาลว่าด้วยการเปลี่ยนแปลงสภาพภูมิอากาศ (IPCC AR4 WGII) รายละเอียดกรุณาดูใน <http://ipcc.ch/>

WHO operational framework for building climate resilient health systems

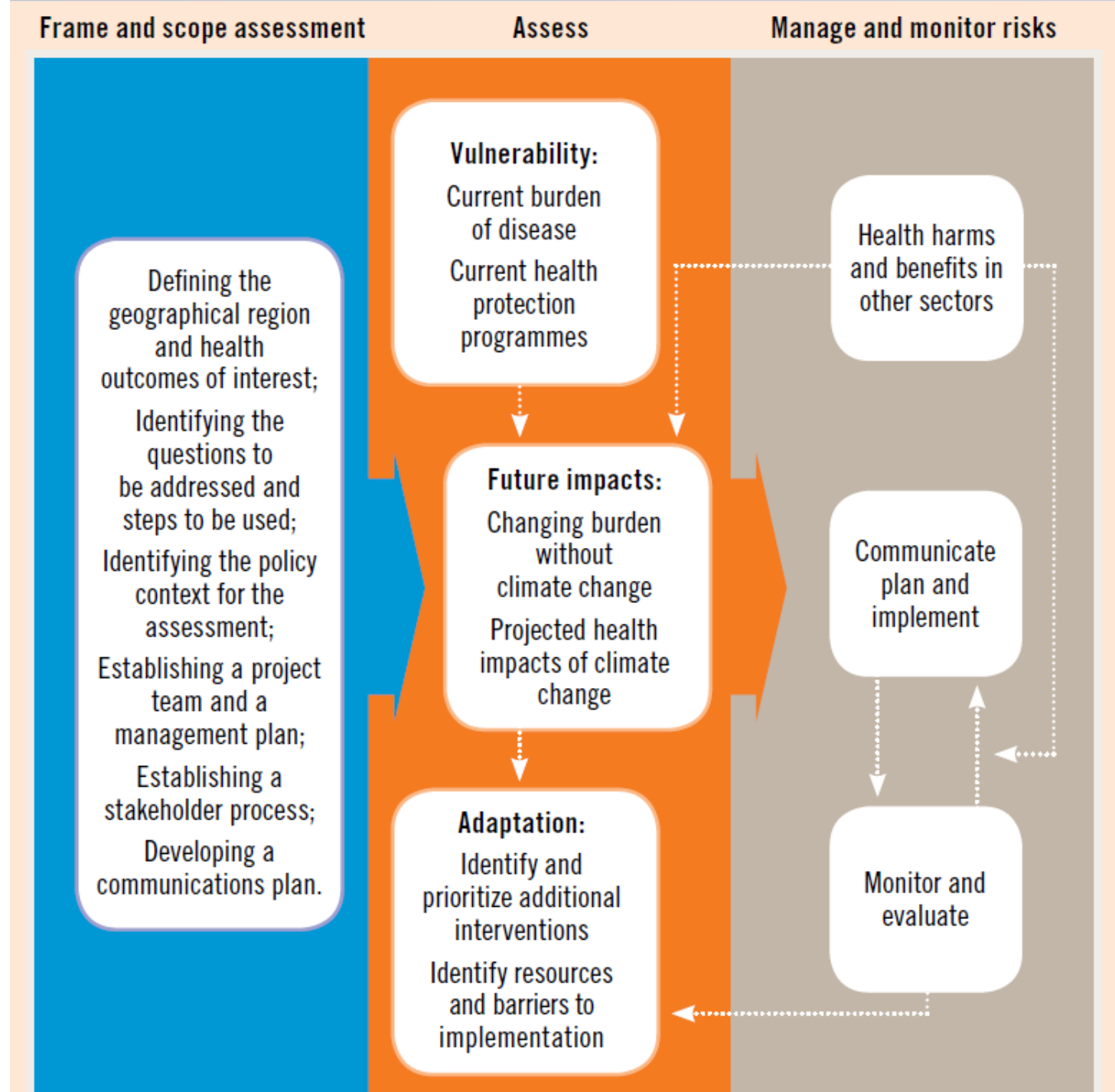


	Governance and Policy
	Capacity Development
	Information & EWS
	Service delivery
	Essential products & technologies
	Financing

ที่มา: WHO. In press. Operation Framework for Building Climate Resilient Health Systems. World Health Organization, Geneva, Switzerland. 38 pp.

Steps in conducting a health vulnerability and adaptation assessment

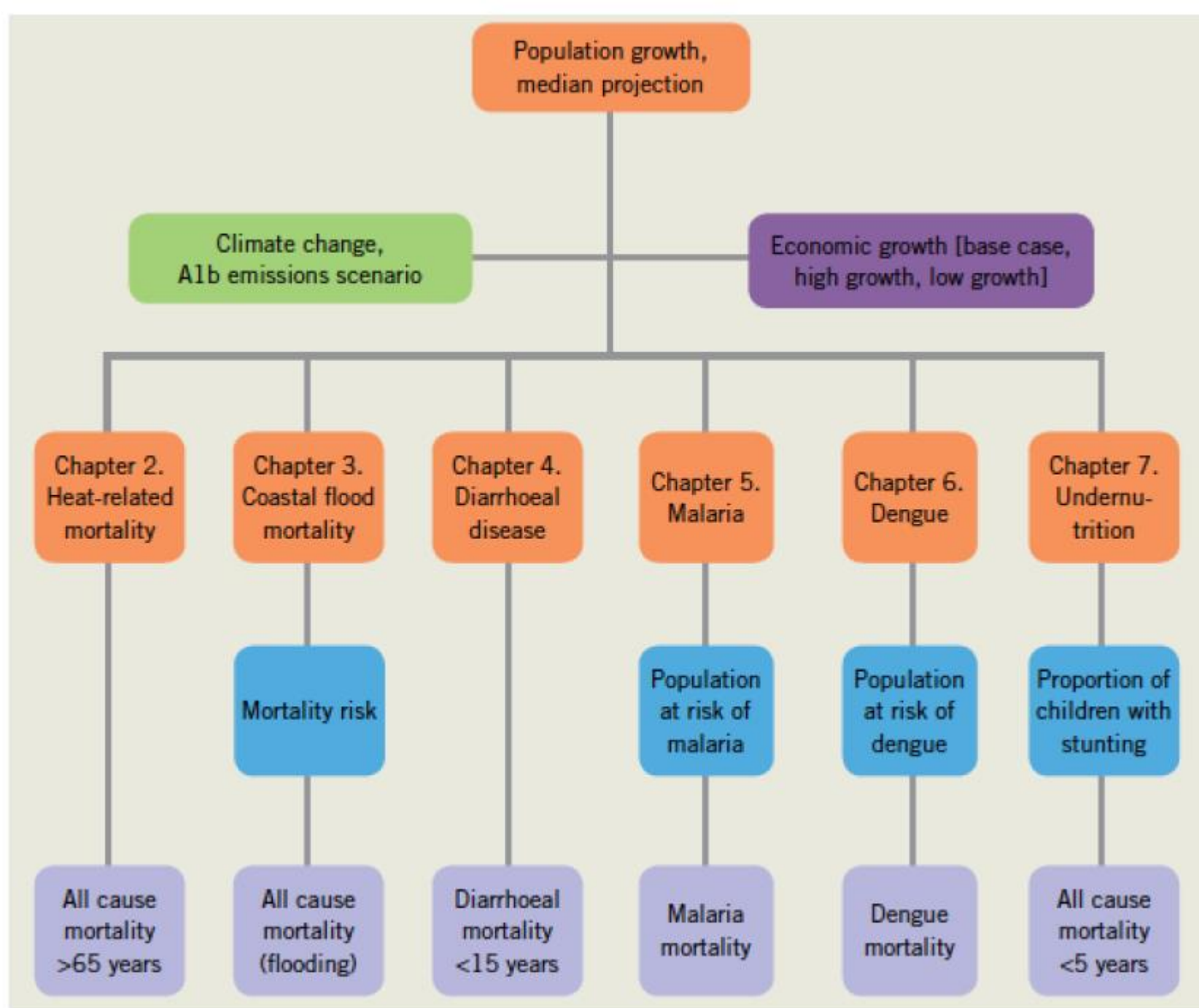
ที่มา: WHO. 2012. Protecting health from climate change: vulnerability and adaptation assessment. World Health Organization. Geneva, Switzerland. 72 pp.



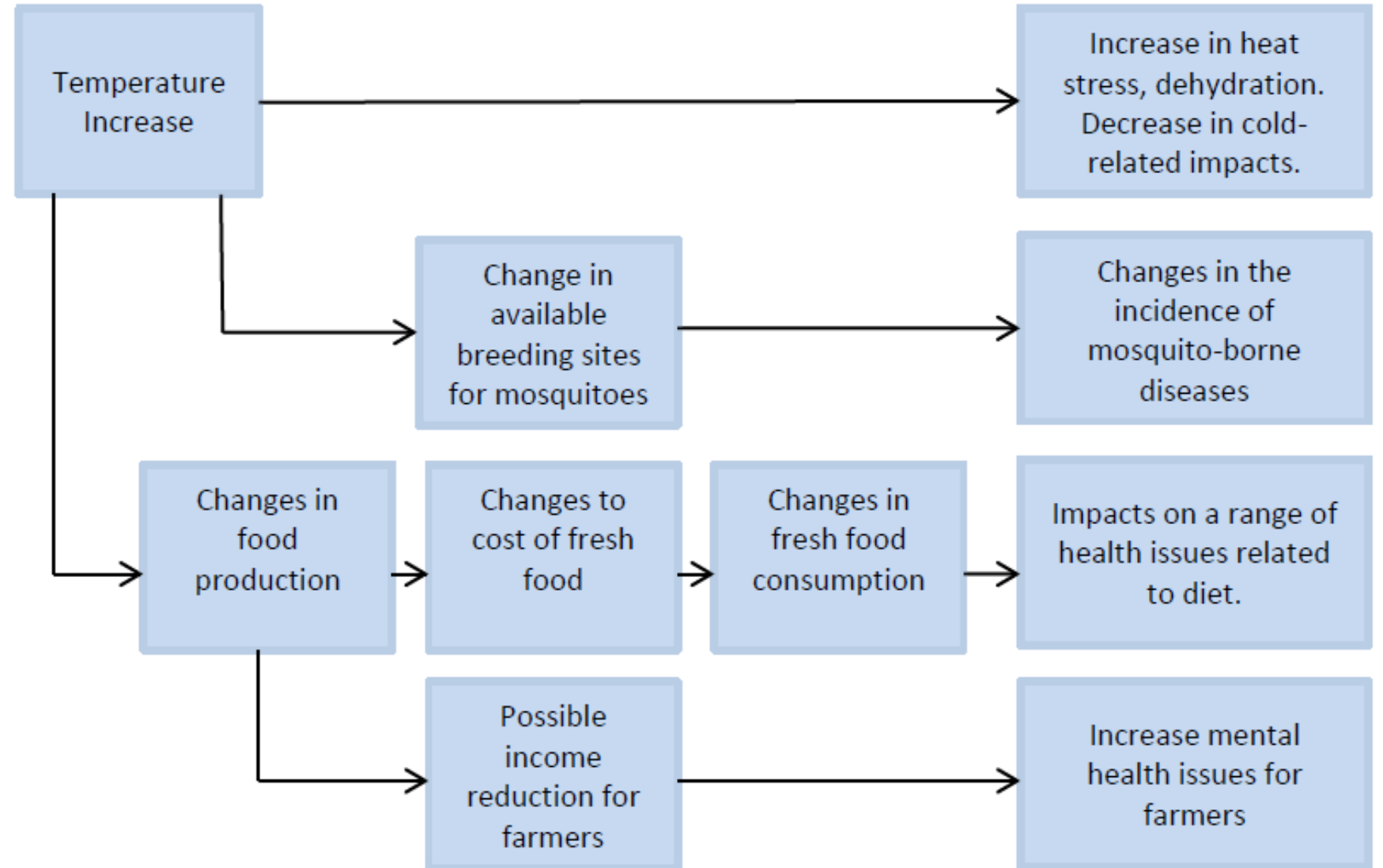
Models and output metrics used in the WHO quantitative risk assessment

ที่มา: WHO. 2014.

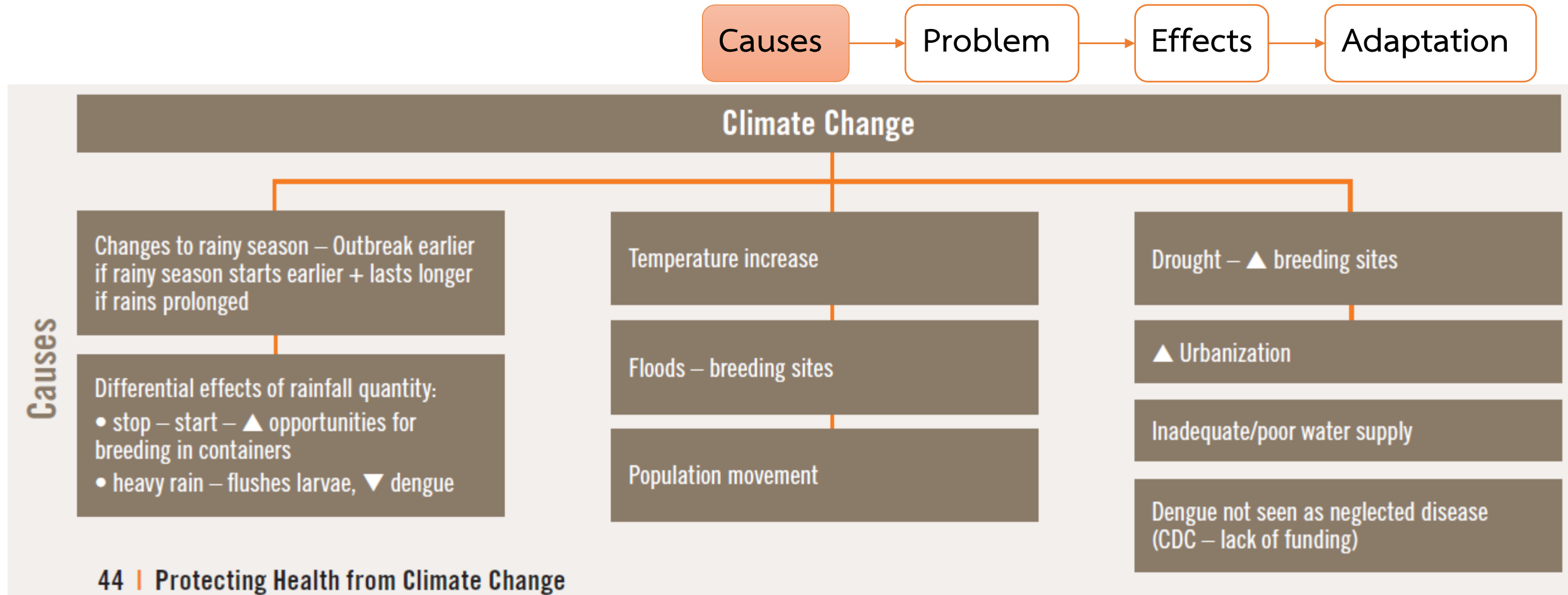
Quantitative risk assessment of the effects of climate change on selected causes of death, 2030s and 2050s. World Health Organization, Geneva, Switzerland. 128 pp.



Examples of Potential Health Impacts of Temperature Increase in 2030

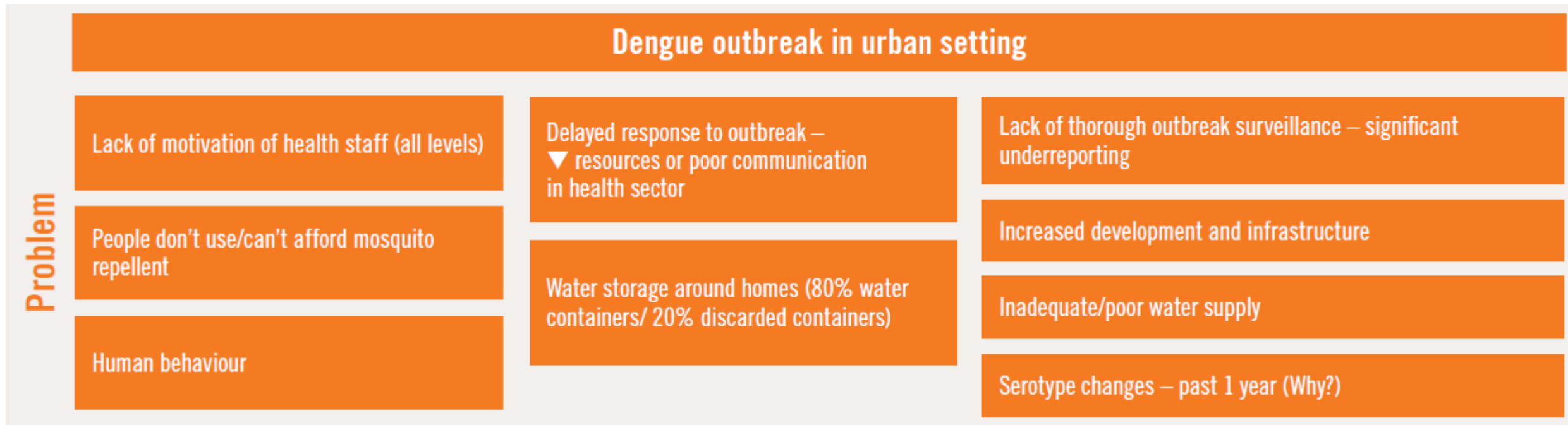
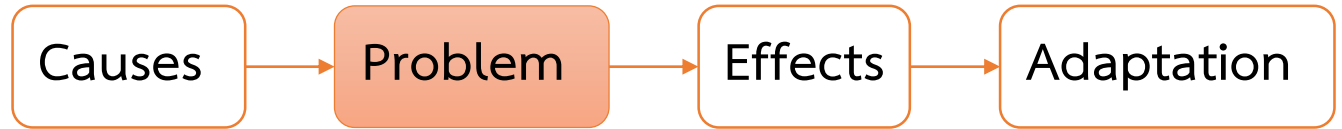


Cambodia assessment: Problem trees identifying different causal linkages and opportunities for health protection



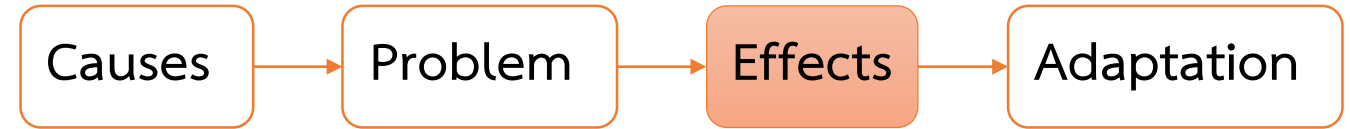
ที่มา: WHO. 2012. Protecting health from climate change: vulnerability and adaptation assessment. World Health Organization. Geneva, Switzerland. 72 pp.

Cambodia assessment: Problem trees identifying different causal linkages and opportunities for health protection



ที่มา: WHO. 2012. Protecting health from climate change: vulnerability and adaptation assessment. World Health Organization. Geneva, Switzerland. 72 pp.

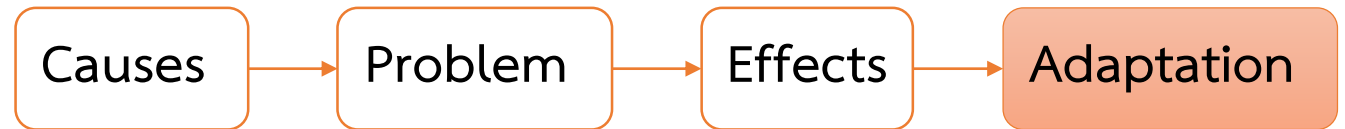
Cambodia assessment: Problem trees identifying different causal linkages and opportunities for health protection



Effects	Mortality in 0-5 years age groups (2 nd highest)	Mortality in 6-9 years age group (highest age group (last 1 year))	Poverty	▲ Government expenses
	Lack of blood products in hospital/health care setting	Difficult identifying poor for health equity fund	Financial stress: • Loss of income (parents off work to care for children) • Medical costs (especially private medical system)	
	Lack of appropriate medical attention/resources	Incorrect medical management – particularly with fluids (too much or not enough)	Delay in managing dengue : parents may take child to traditional healer first or doctor late due ▲ to costs or ▼ education	
	Confusion between dengue and malaria (in diagnosis)			

ที่มา: WHO. 2012. Protecting health from climate change: vulnerability and adaptation assessment. World Health Organization. Geneva, Switzerland. 72 pp.

Cambodia assessment: Problem trees identifying different causal linkages and opportunities for health protection



Box 20 Prioritizing adaptation options in Cambodia By Piseth Raingsey Prak, Ministry of Health of Cambodia

The Cambodian Vulnerability and Adaptation Assessment focused on addressing risks of vector-borne diseases (malaria, dengue fever), food security, waterborne and foodborne diseases, and the health consequences of extreme weather events. Once a list of potential actions had been identified, priority adaptation options were narrowed down using problem trees (see Figure 7) based on answers to the following questions:

Is, or does, the adaptation option:

- effectively address a current and future climate change-related public health issue?
- technically feasible given current resources and expertise?
- satisfy local community (and cultural) needs and preferences?
- integrate with, or complement, other programmes and national priorities?

- sustainable over time? Can it be scaled up?
- contribute to capacity building of the community, health sector or research capability?
- able to be monitored and evaluated?
- cost-effective? In the short-, medium- and long-term?
- have any potentially adverse public health outcome?

ที่มา: WHO. 2012. Protecting health from climate change: vulnerability and adaptation assessment. World Health Organization. Geneva, Switzerland. 72 pp.

Associations
between climate
drivers and the
global prevalence
and geographic
distribution of
selected
vectorborne
diseases

Disease	Area	Cases per year	Climate sensitivity and confidence in climate effect				Key references
Mosquito-borne diseases							
Malaria	Mainly Africa, SE Asia	About 220 million					WHO (2008); Kelly-Hope et al. (2009); Alonso et al. (2011); Omumbo et al. (2011)
Dengue	100 countries, esp. Asia Pacific	About 50 million					Beebe (2009); Pham et al. (2011); Astrom et al. (2012); Earnest et al. (2012); Descloux (2012)
Tick-borne diseases							
Tick-borne encephalitis	Europe, Russian Fed., Mongolia, China	About 10,000					Tokarevich et al. (2011)
Lyme	Temperate areas of Europe, Asia, North America	About 20,000 in USA					Bennet (2006); Ogden et al. (2008)
Other vector-borne diseases							
Hemorrhagic fever with renal syndrome (HFRS)	Global	0.15–0.2 million					Fang et al. (2010)
Plague	Endemic in many locations worldwide	About 40,000					Stenseth et al. (2006); Ari et al. (2010); Xu et al. (2011)

Climate drivers

Temperature

Precipitation

Humidity

Climate driver variables

Increase or decrease

of cases

Footnote

> Increased < Decreased

+ More - Fewer

1 Effects are specific to Anopheles spp

Confidence levels

High confidence in global effect

High confidence in local effect

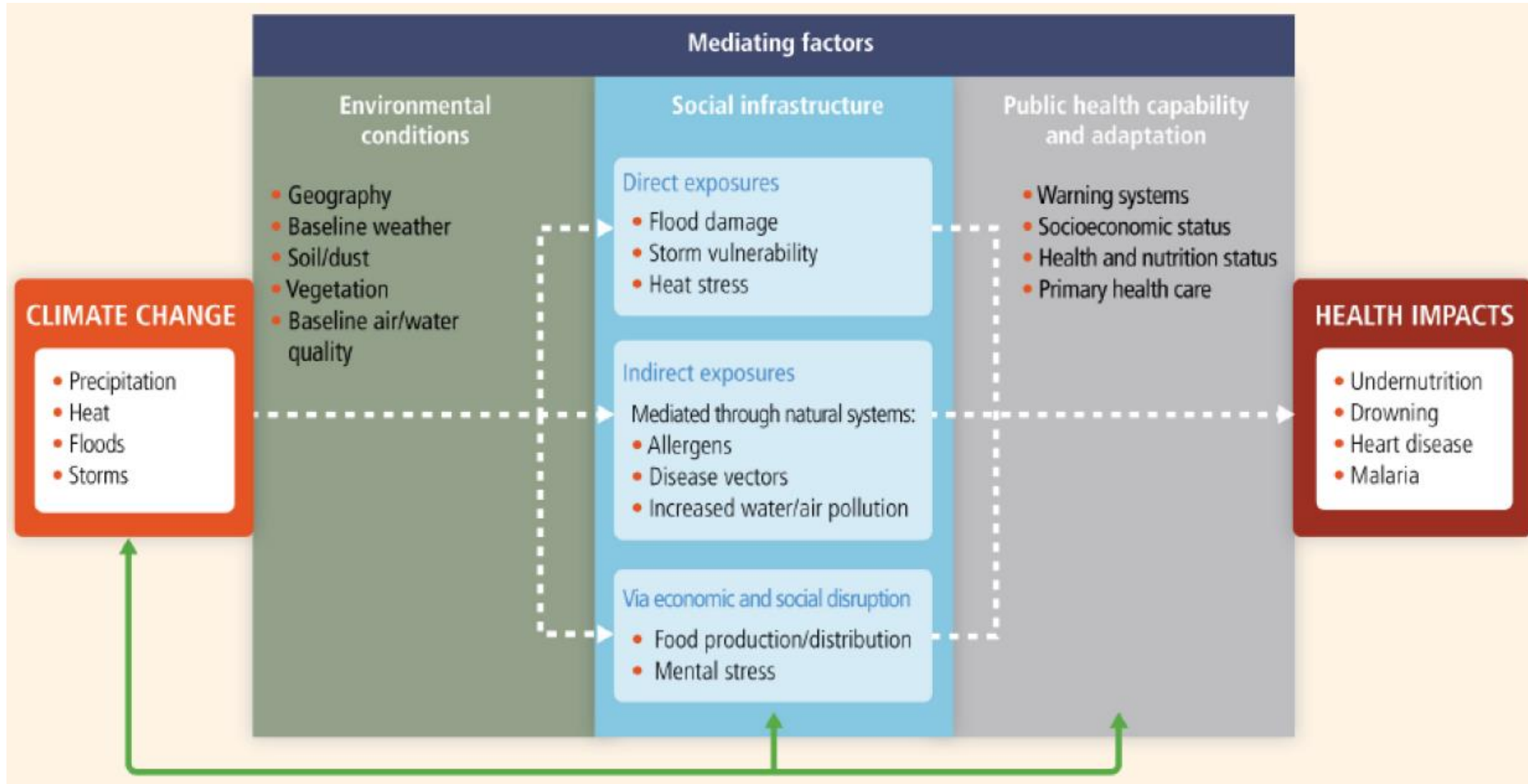
Low confidence in effect

ที่มา: Smith , K.R., A. Woodward, D. Campbell-Lendrum, D.D. Chadee, Y. Honda, Q. Liu, J.M. Olwoch, B. Revich, & R. Sauerborn, 2014: Human health: impacts, adaptation, and co-benefits. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. pp. 709-754.

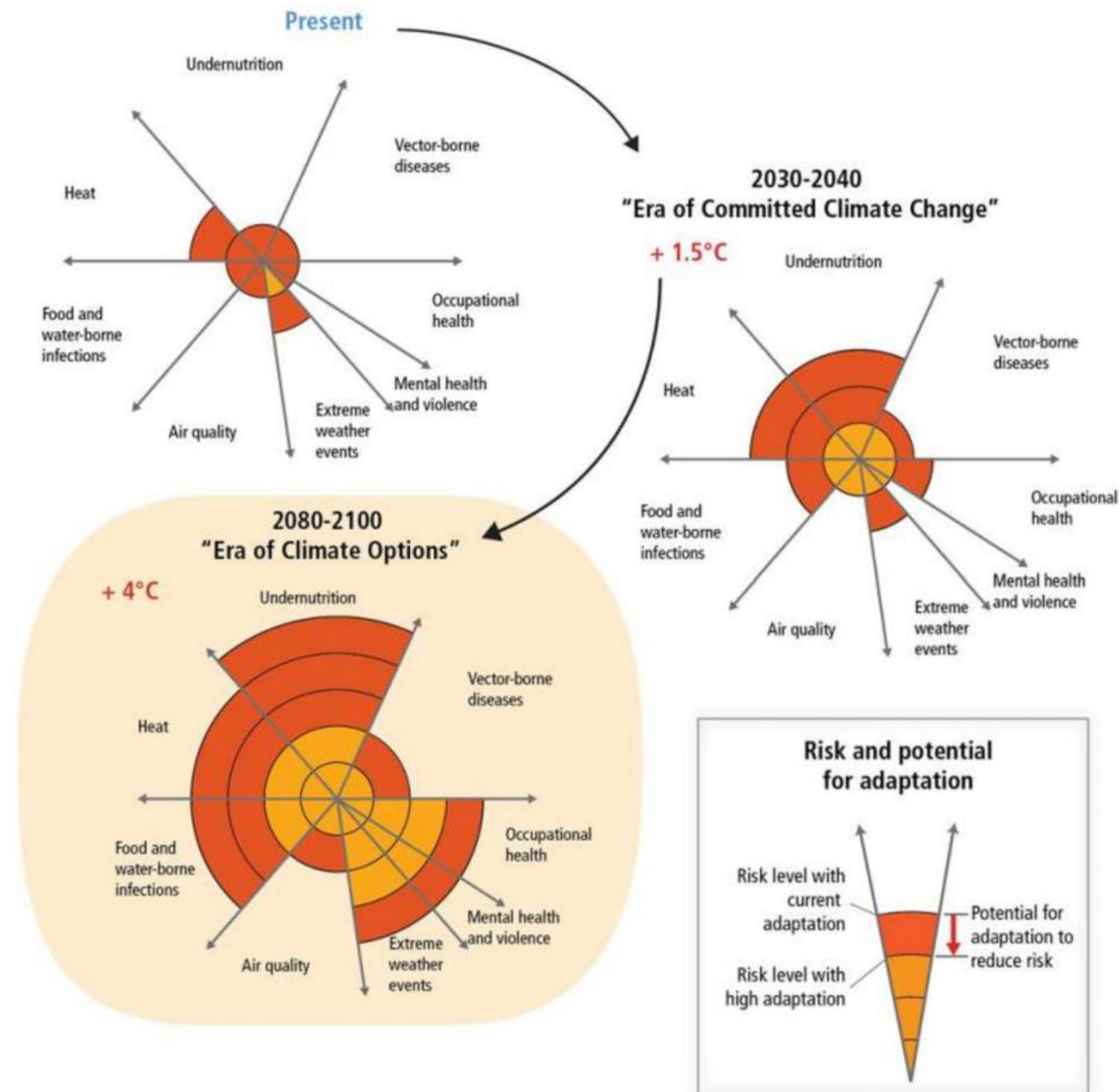
Mechanisms by which climate change could affect health outcomes

Climate-related health risks	Potential health impacts
<p>Extreme heat and thermal stress</p> <ul style="list-style-type: none">• Increased number of warm days and nights• Increased frequency and intensity of heatwaves• Increased fire risk in low rainfall conditions	<p>Greater risk of injury, disease, death due to more heatwaves and fires, including</p> <ul style="list-style-type: none">• Excess heat-related mortality• Increased incidence of heat exhaustion and heat stroke• Exacerbated circulatory, cardiovascular, respiratory, and kidney disease
<p>Storms and floods</p> <ul style="list-style-type: none">• Increased intensity of tropical storms and more intense rainfall events• Related damage to critical infrastructure, housing, contamination of water	<p>Morbidity and mortality associated with</p> <ul style="list-style-type: none">• Exposure to and recovery from storms and floods• Population displacement, disruption of lives including access to health services

Conceptual diagram of pathways by which climate and non-climate drivers could affect health

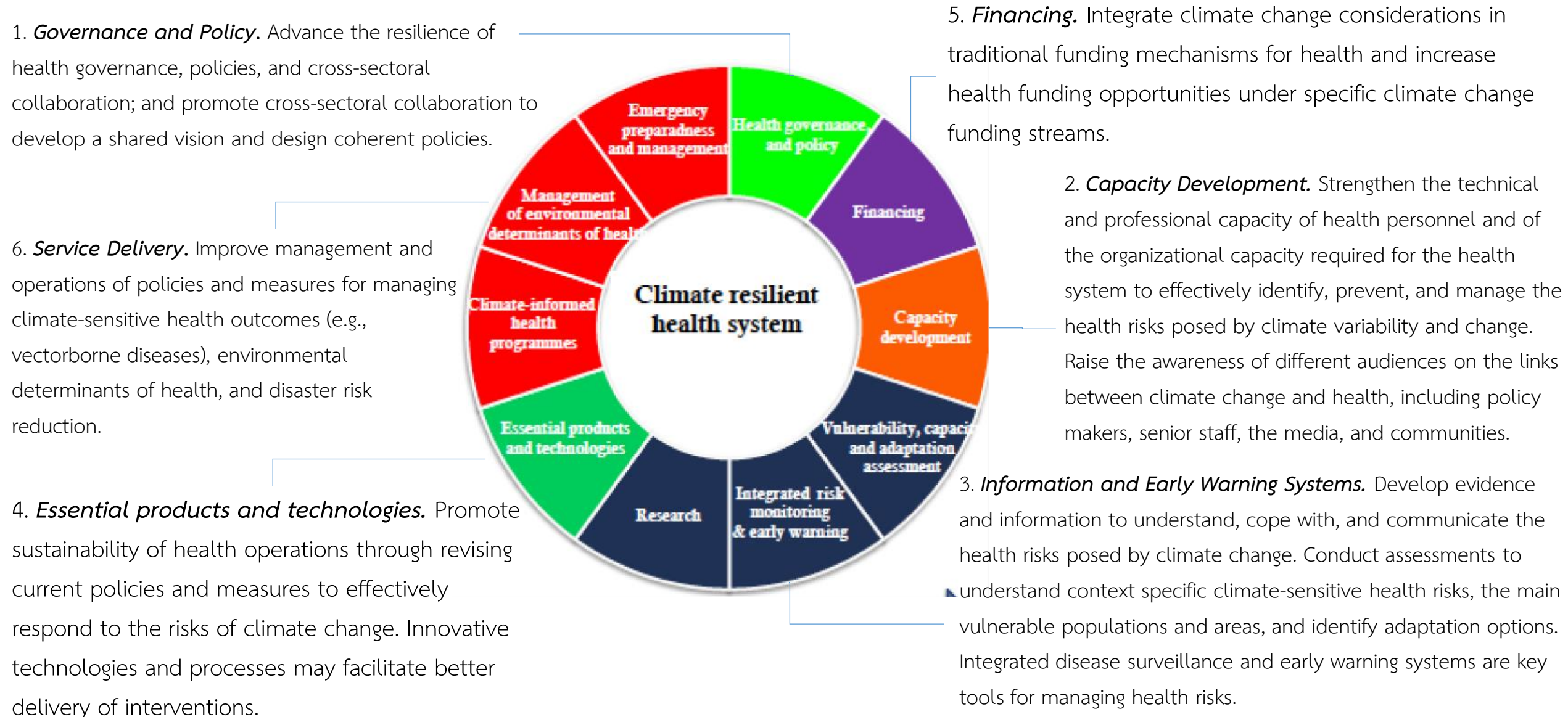


Conceptual presentation of the health impacts from climate change and the potential for impact reduction through adaptation



ที่มา: Smith, K.R., A. Woodward, D. Campbell-Lendrum, D.D. Chadee, Y. Honda, Q. Liu, J.M. Olwoch, B. Revich, & R. Sauerborn, 2014: Human health: impacts, adaptation, and co-benefits. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 709-754.

Six categories where adaptation actions are needed to promote climate resilience



End of part I



Climate Change Vulnerability Mapping for Southeast Asia

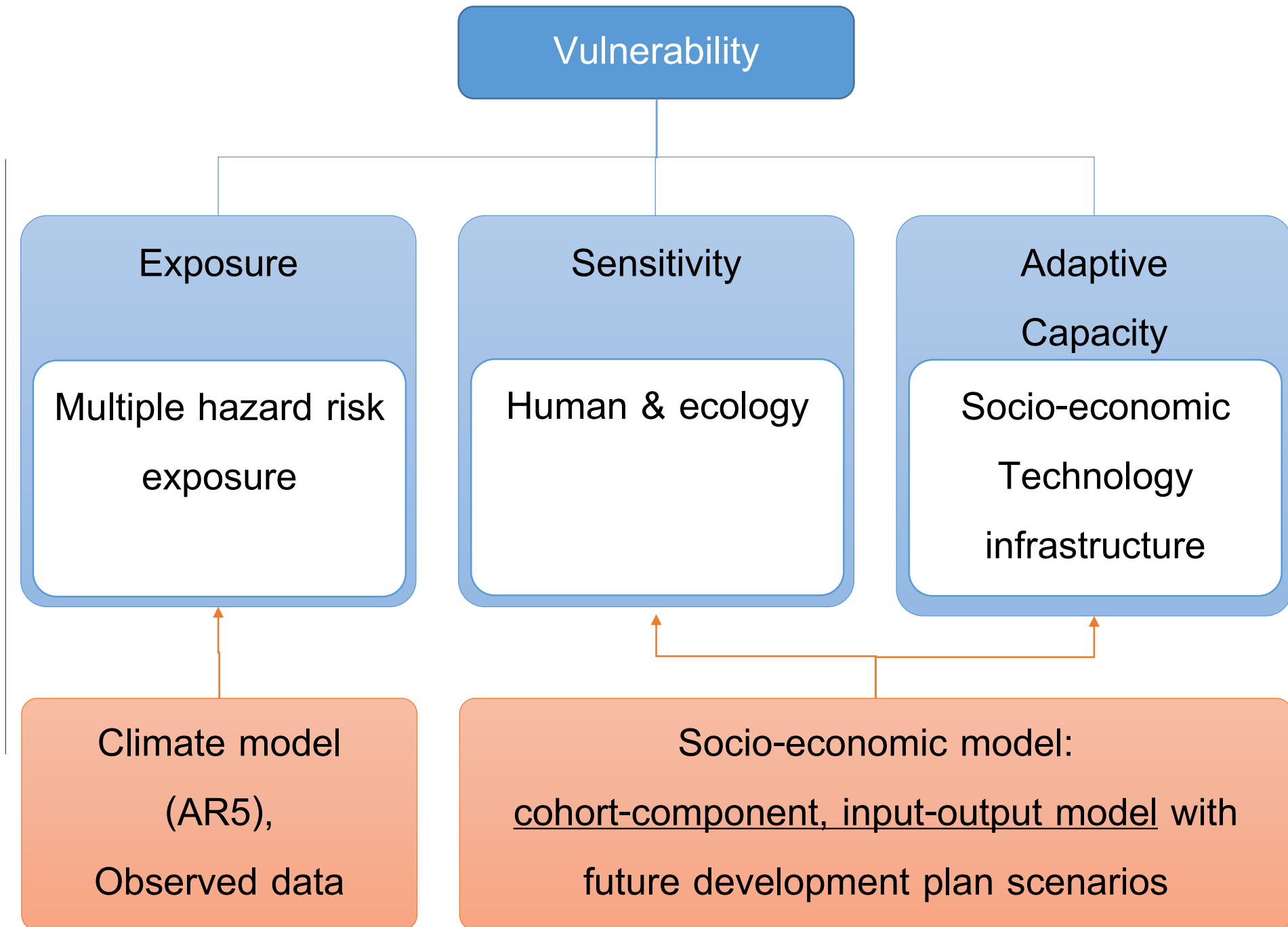
Arief Anshory Yusuf & Herminia Francisco

IDRC CRDI

Sida SWEDISH INTERNATIONAL DEVELOPMENT COOPERATION AGENCY



Canadian International Development Agency
Agence Canadienne de Développement International

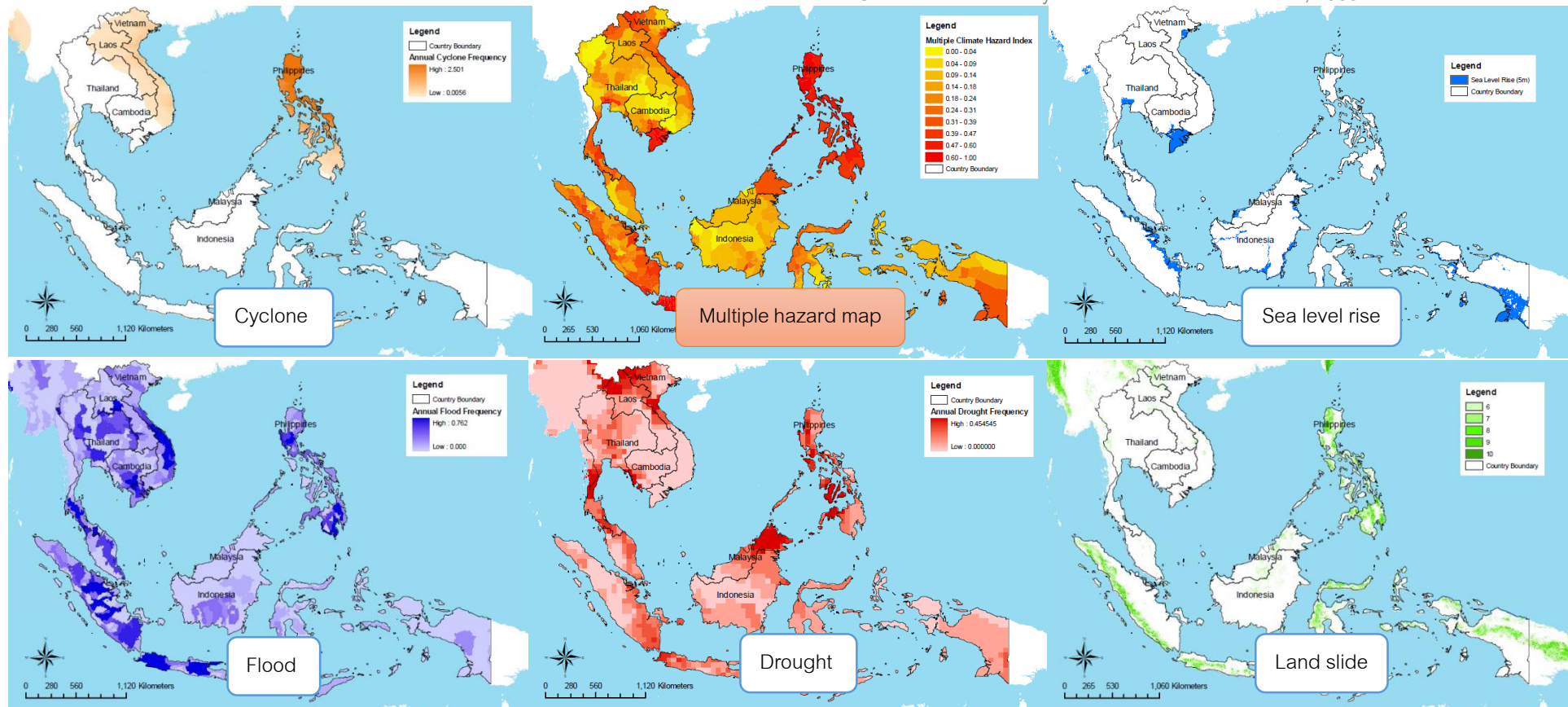


Exposure

Exposure is defined by IPCC as “the nature and degree to which a system is exposed to significant climatic variations”

Multiple hazard = f (Cyclone, Flood, Drought, Land slide, Sea level rise), weight = 0.2

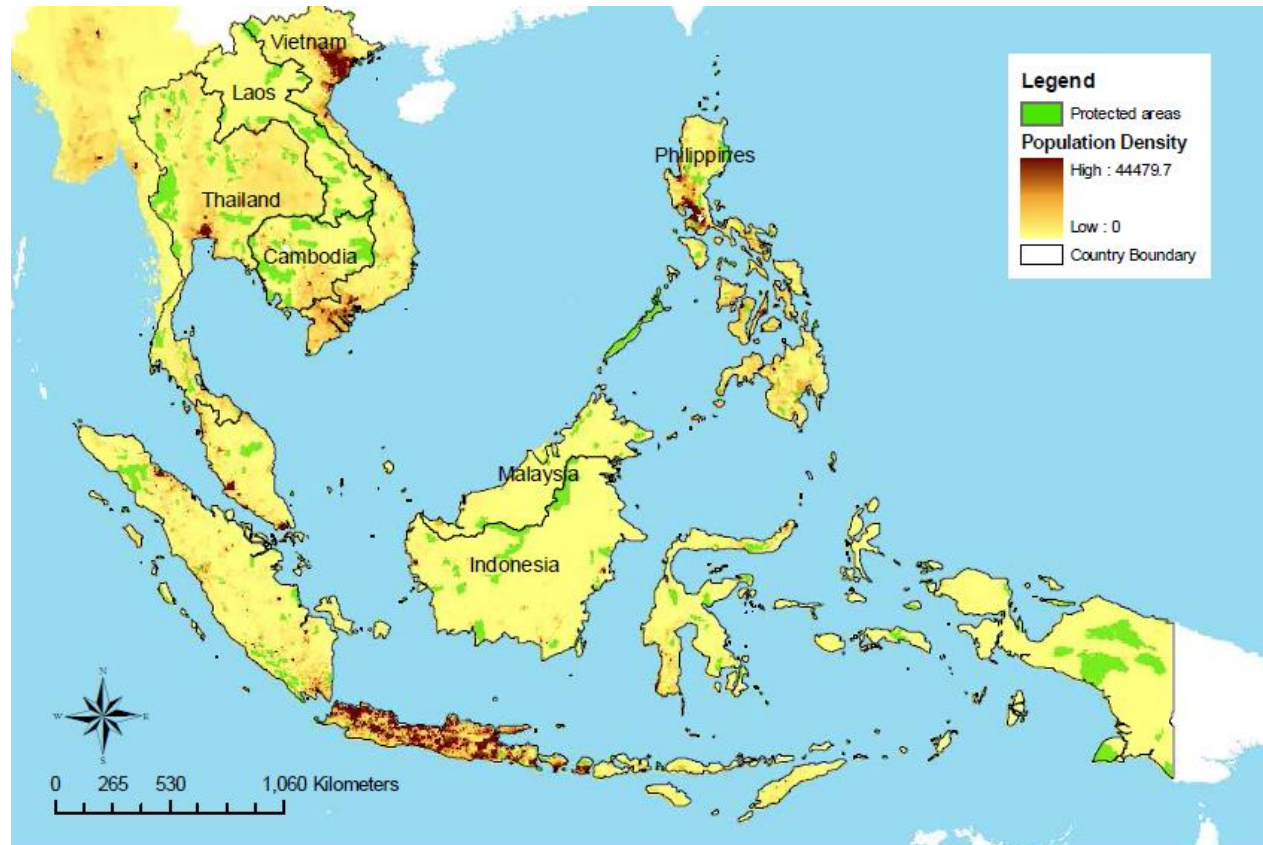
Source: Arief Anshory Yusuf & Herminia Francisco, 2009



Sensitivity

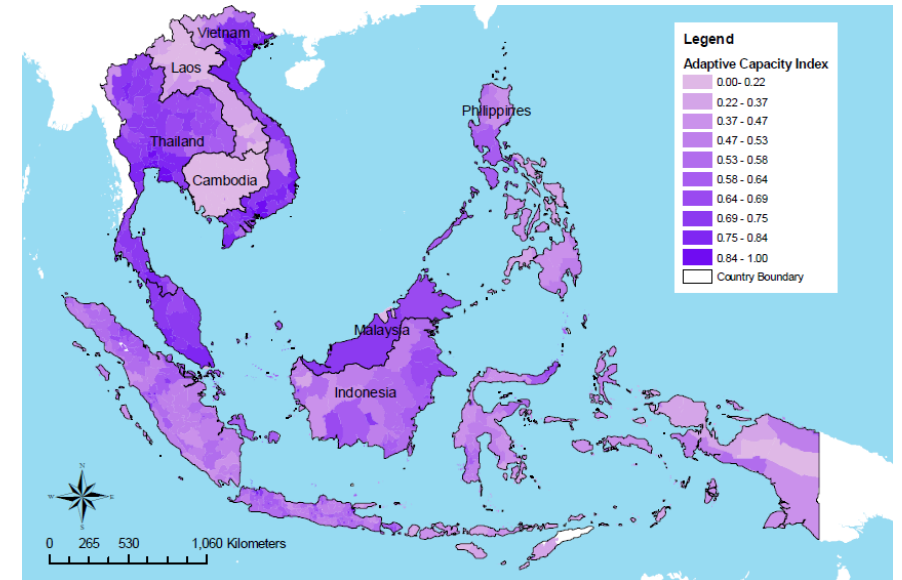
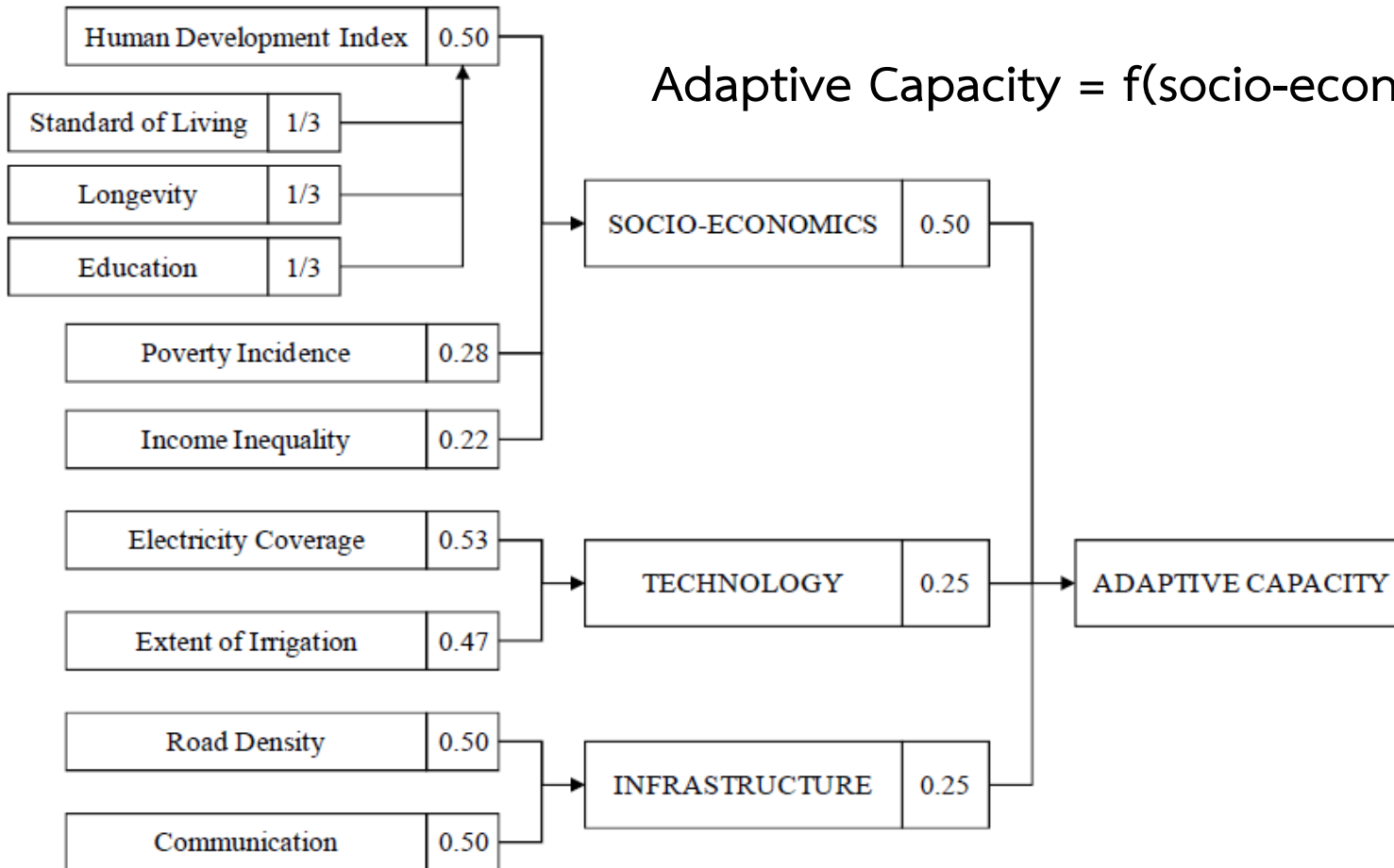
Sensitivity is defined as “the degree to which a system is affected, either adversely or beneficially, by climate-related stimuli” (IPCC)

$$\text{Sensitivity} = f(\text{Human \& ecology}), \text{weight} = 0.7, 0.3$$



Adaptive capacity

Adaptive capacity is defined as “the ability of a system to adjust to climate change (including climate variability and extremes), to moderate the potential damage from it, to take advantage of its opportunities, or to cope with its consequences”. (IPCC)

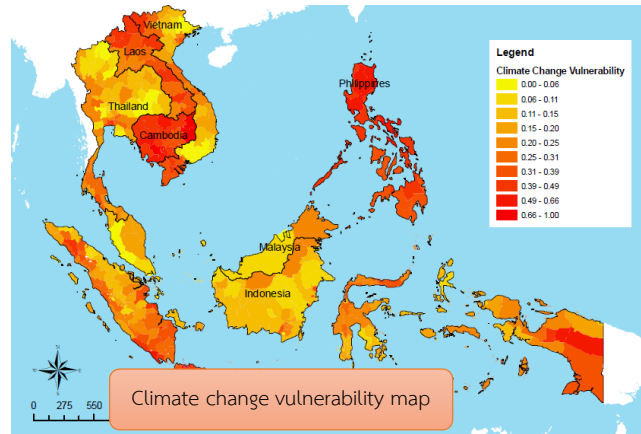


Source: Arief Anshory Yusuf & Herminia Francisco, 2009

Vulnerability

Vulnerability is defined as: “The degree to which a system is susceptible to, or unable to cope with the adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity” (IPCC)

$$\text{Vulnerability} = f(\text{exposure, sensitivity, adaptive capacity}), \text{ weight} = 1/3$$



Source: Arief Anshory Yusuf &
Herminia Francisco, 2009

