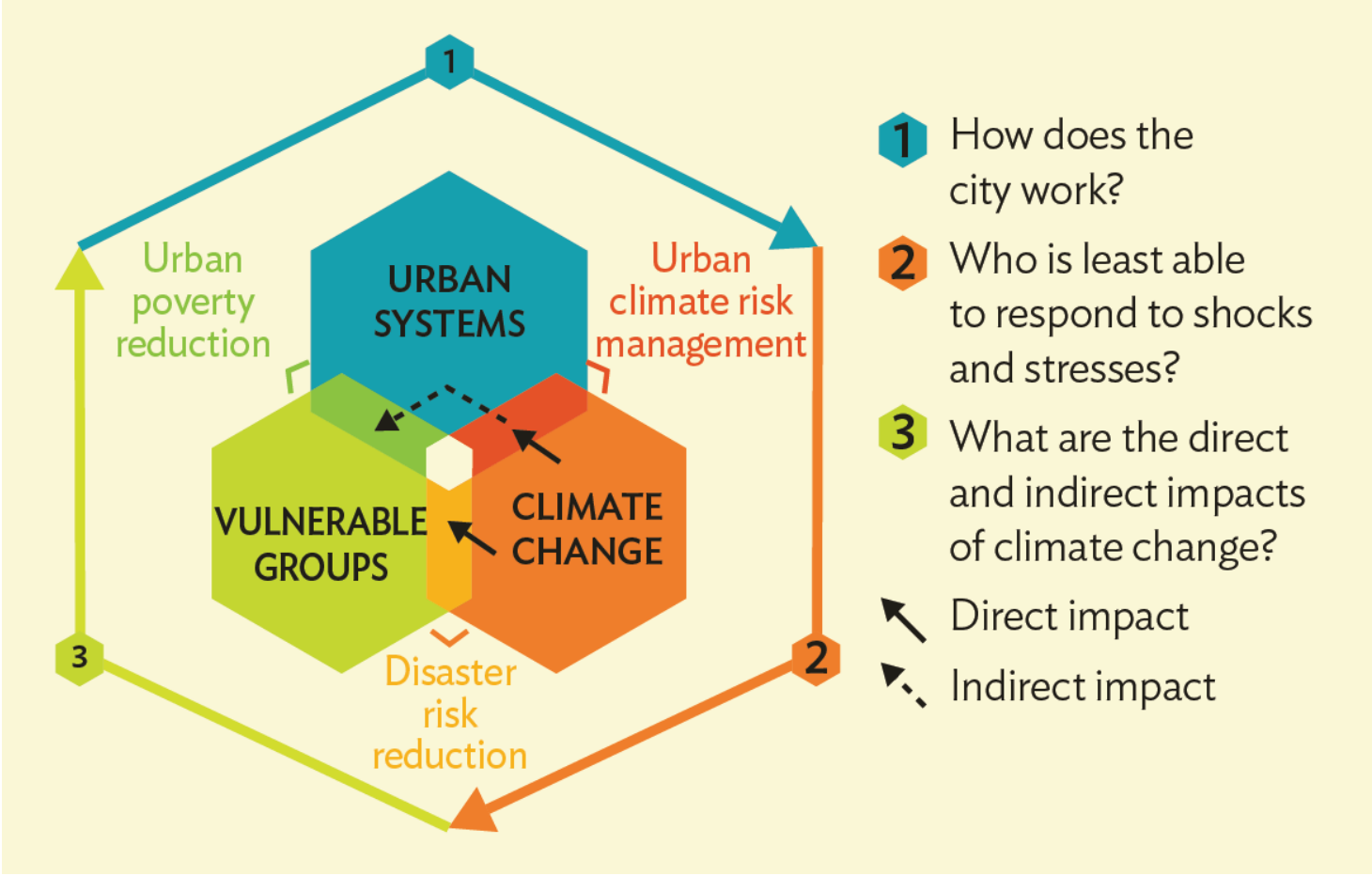
Urban Climate Resilience: Views from Thailand

Definition

"Urban Climate Change Resilience (UCCR): capacity of cities to function, so that the people living and working in cities – particularly the poor and vulnerable – survive and thrive in the face of shocks and stresses related to climate change."

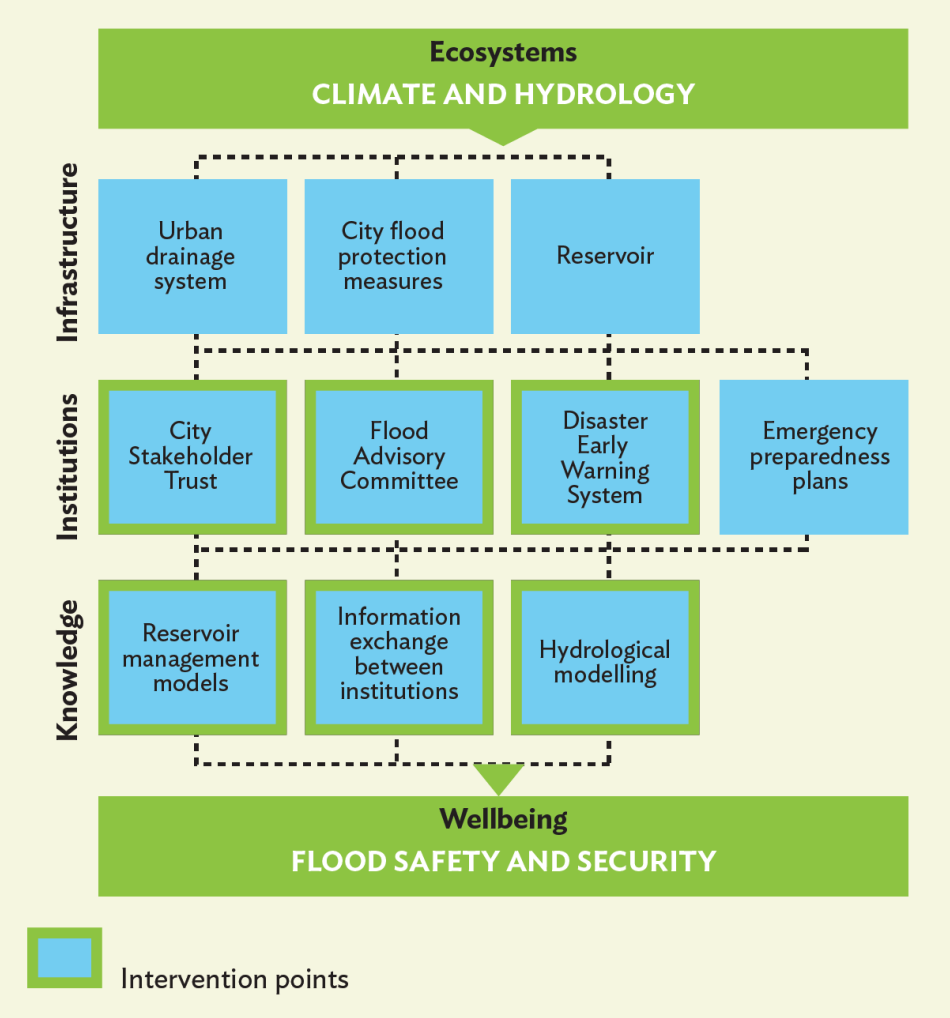
(Asian Development Bank, 2014)

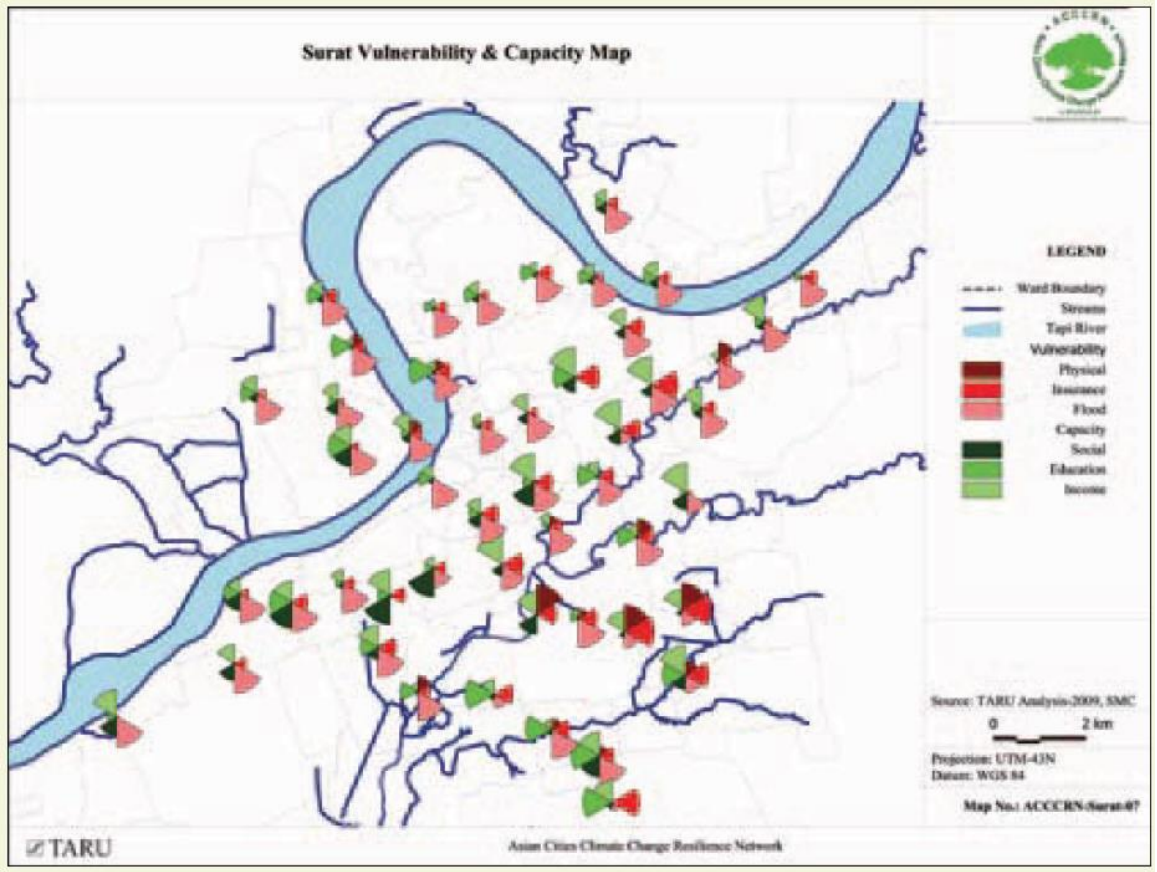
Concept of UCCR



(Asian Development Bank, 2014)

Urban Capacity and Vulnerability Analysis



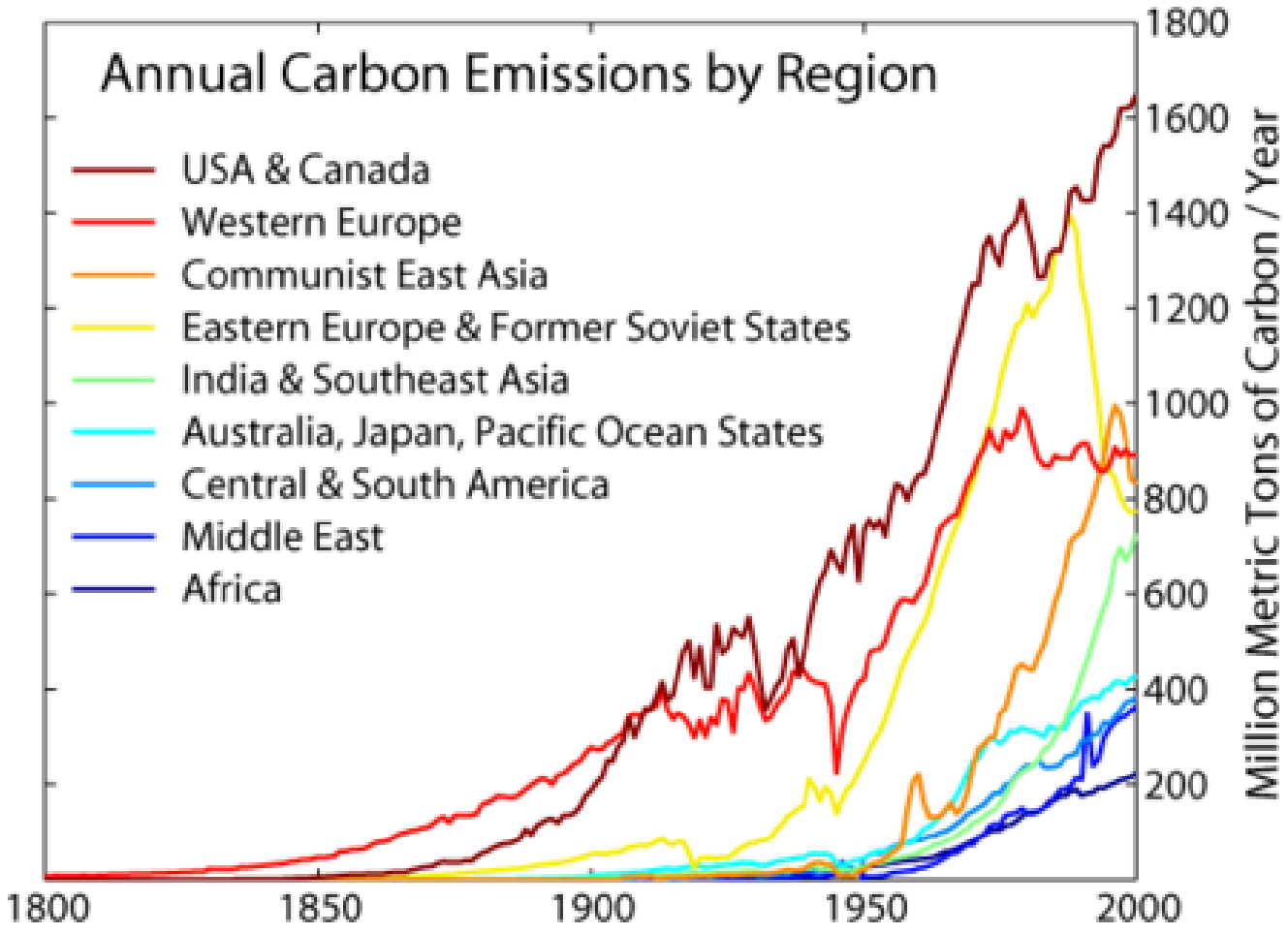


(Asian Development Bank, 2014)

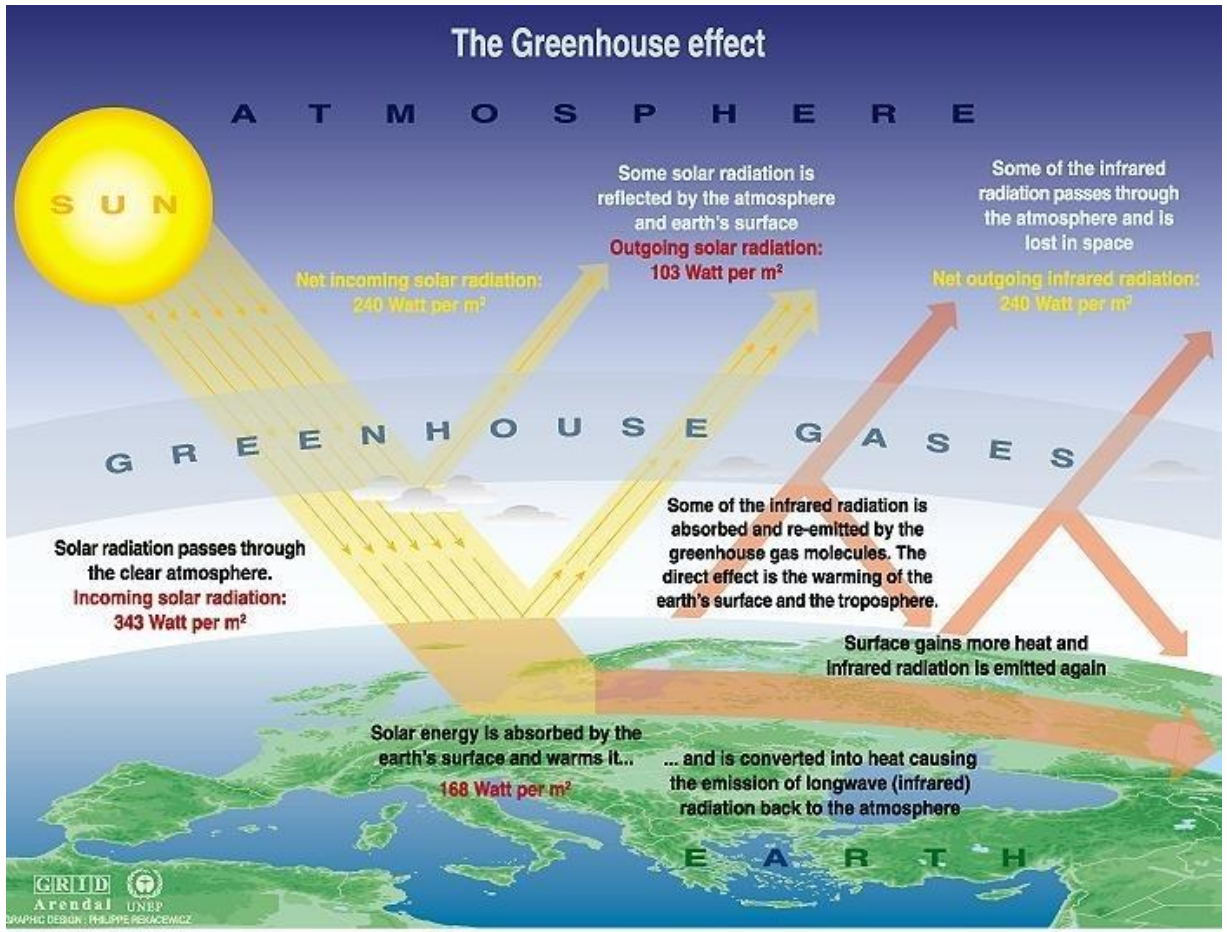
Key Indicators of Climate Resilient City

(Asian Development Bank, 2014)

Annual Carbon Emissions by Region 1800-2000

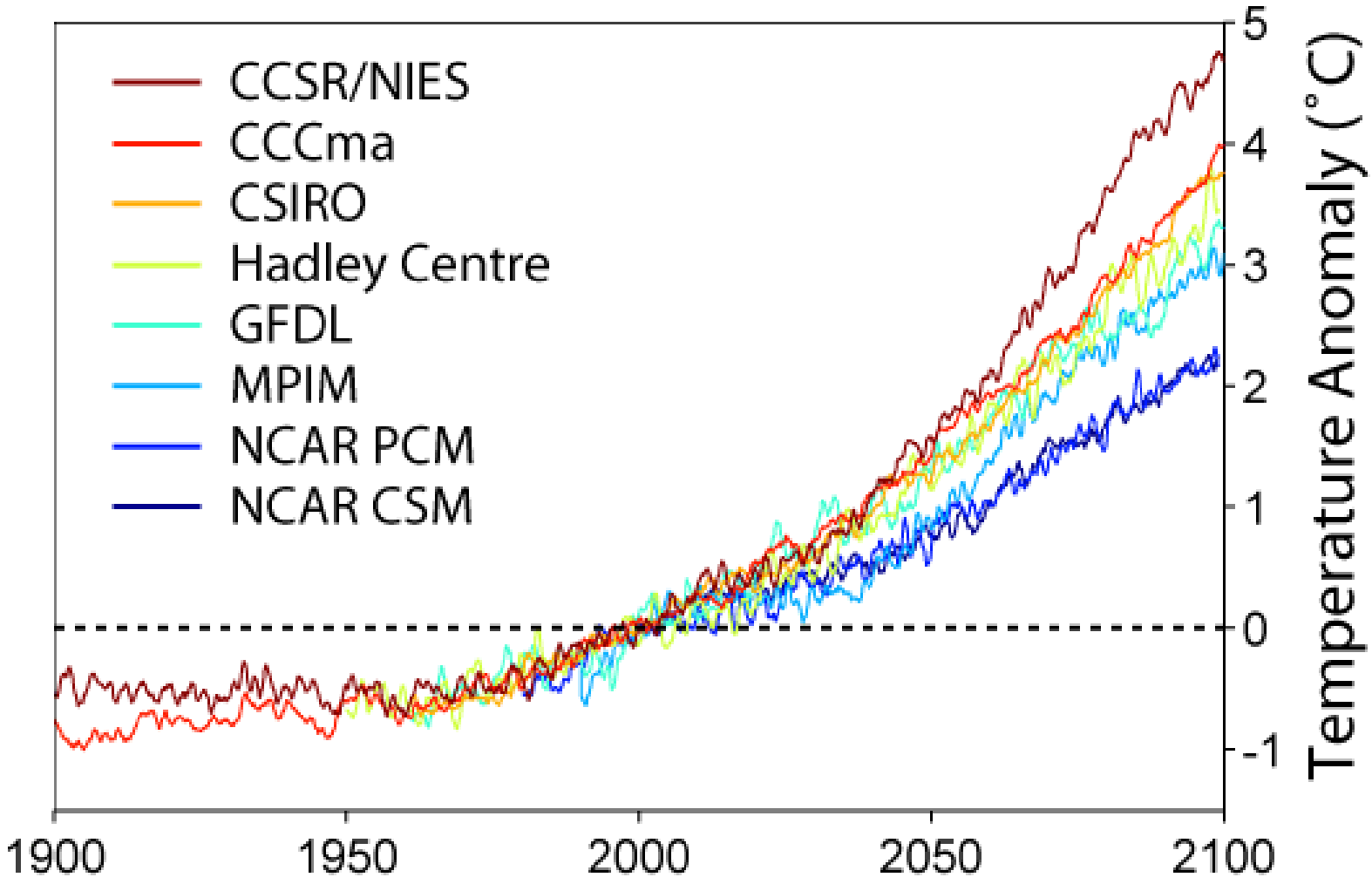


Greenhouse Effect

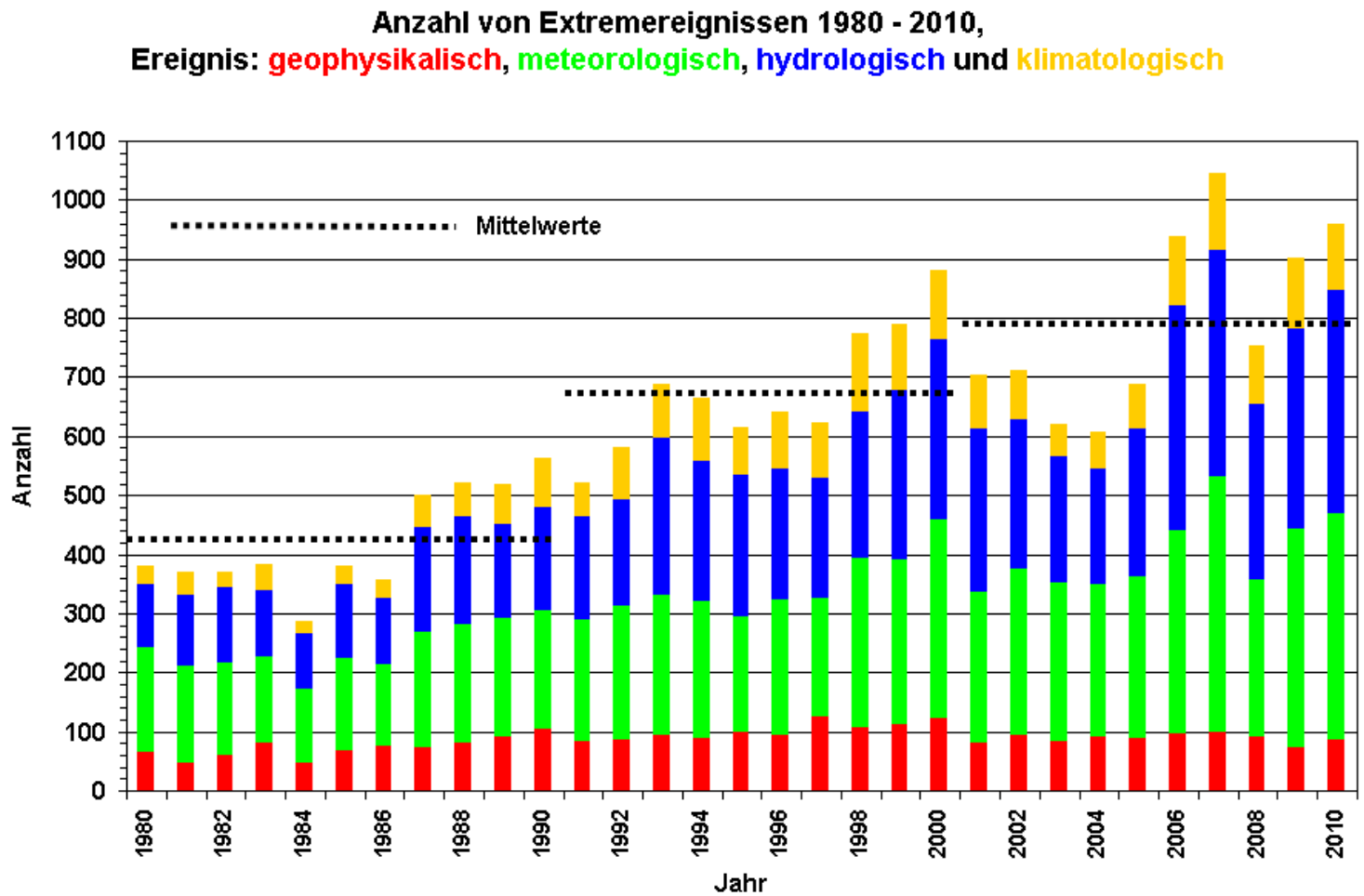


Sources: Okanagan university college in Canada, Department of geography, University of Oxford, school of geography; United States Environmental Protection Agency (EPA), Washington; Climate change 1995, The science of climate change, contribution of working group 1 to the second assessment report of the intergovernmental panel on climate change, UNEP and WMO, Cambridge university press, 1996.

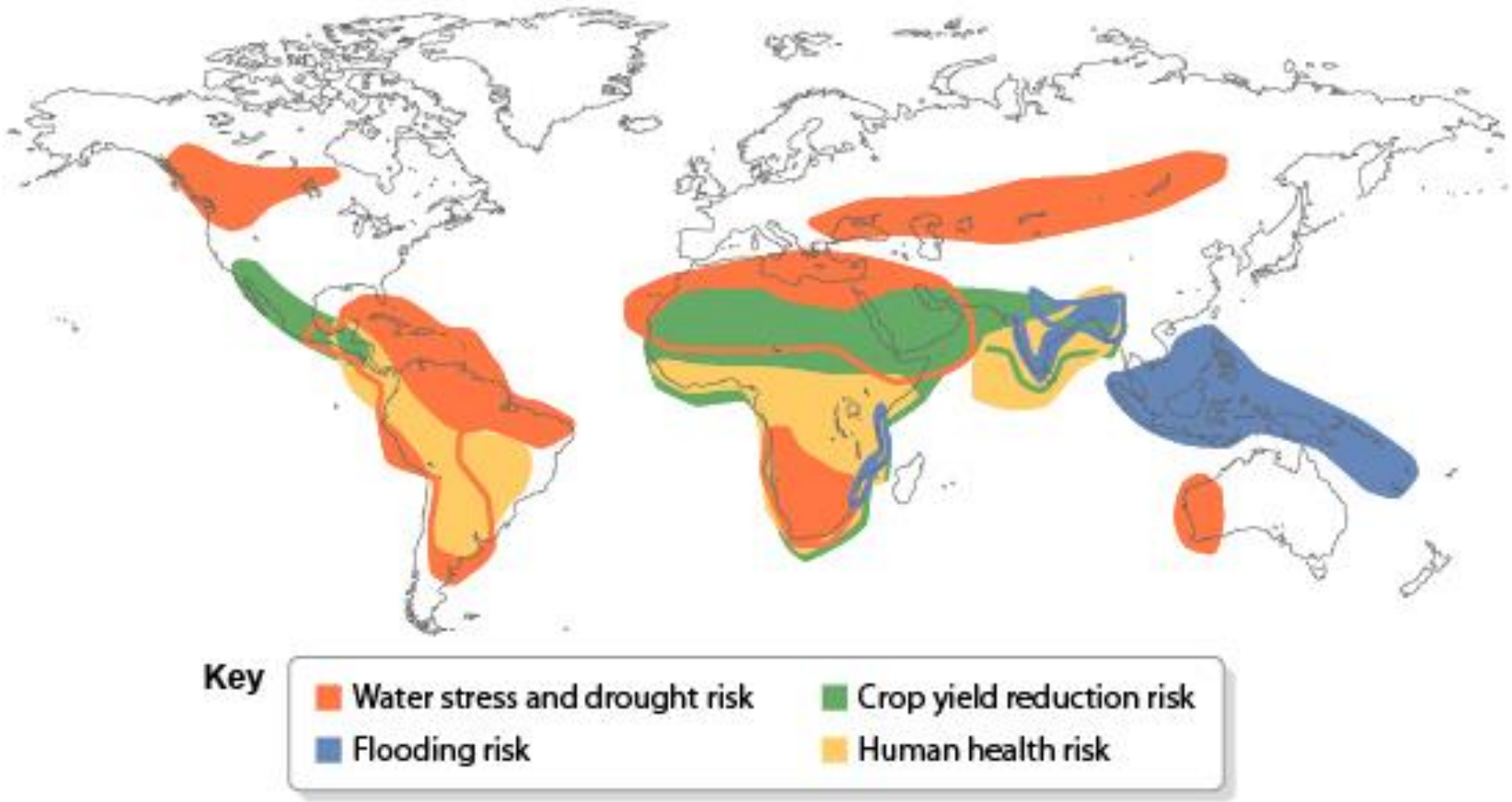
Global Warming Projections 2000-2100



Natural Disasters 1980-2010

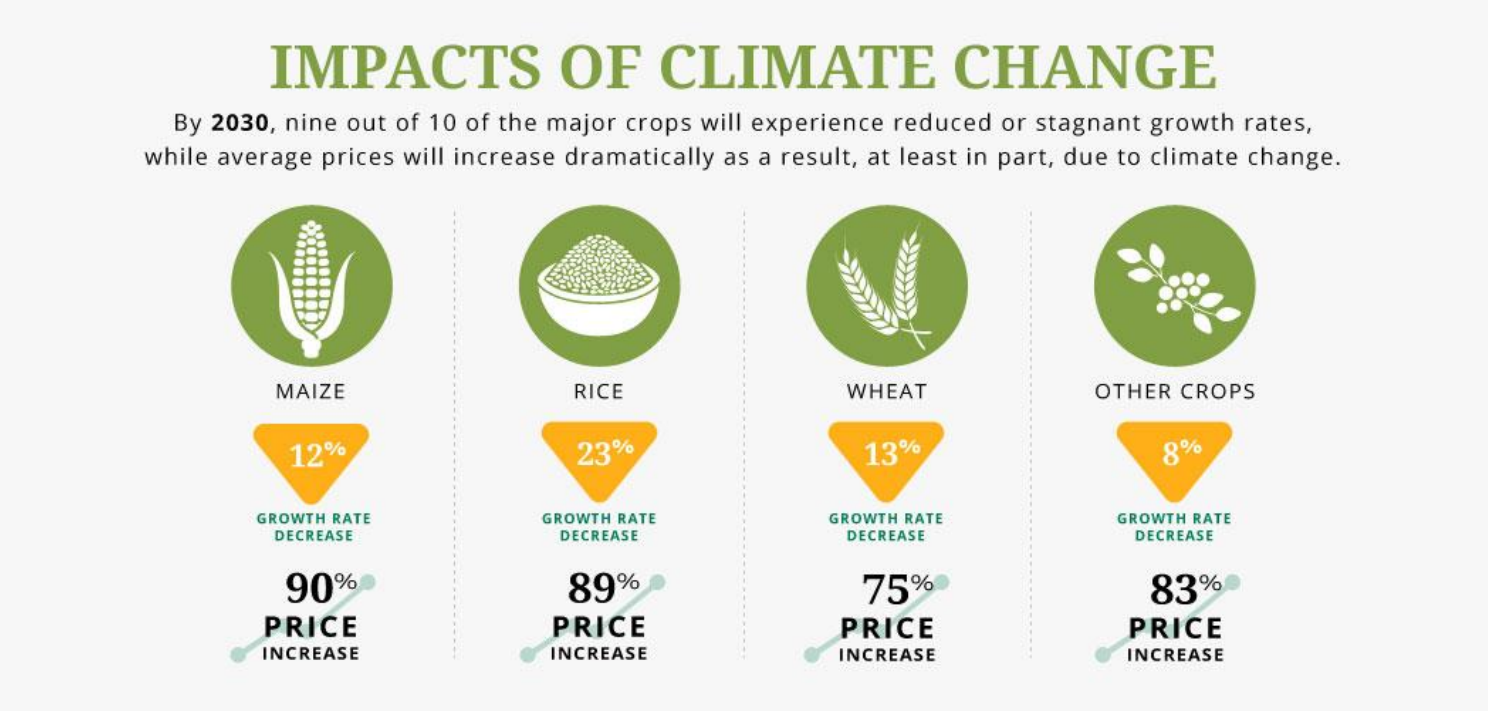


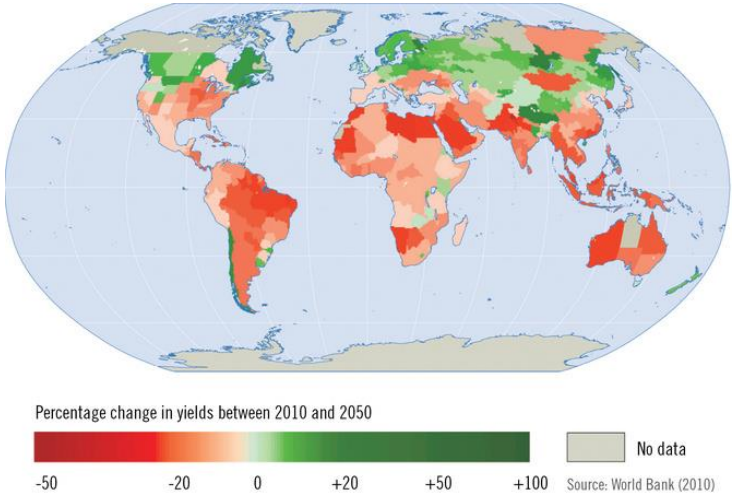
Effects of Climate Change



Flood and Drought

Agriculture and Food Security



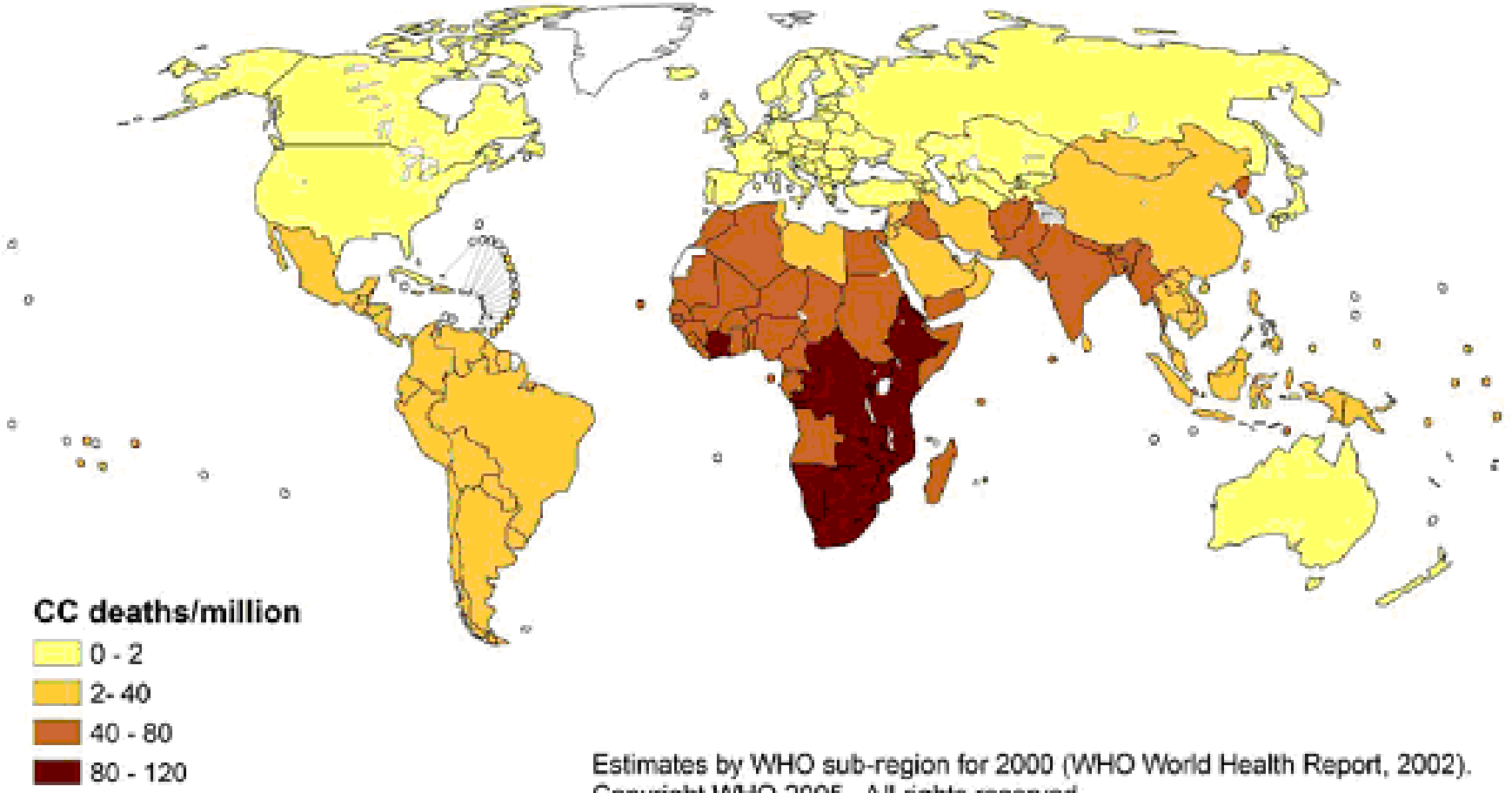


Tourism

Natural Resources

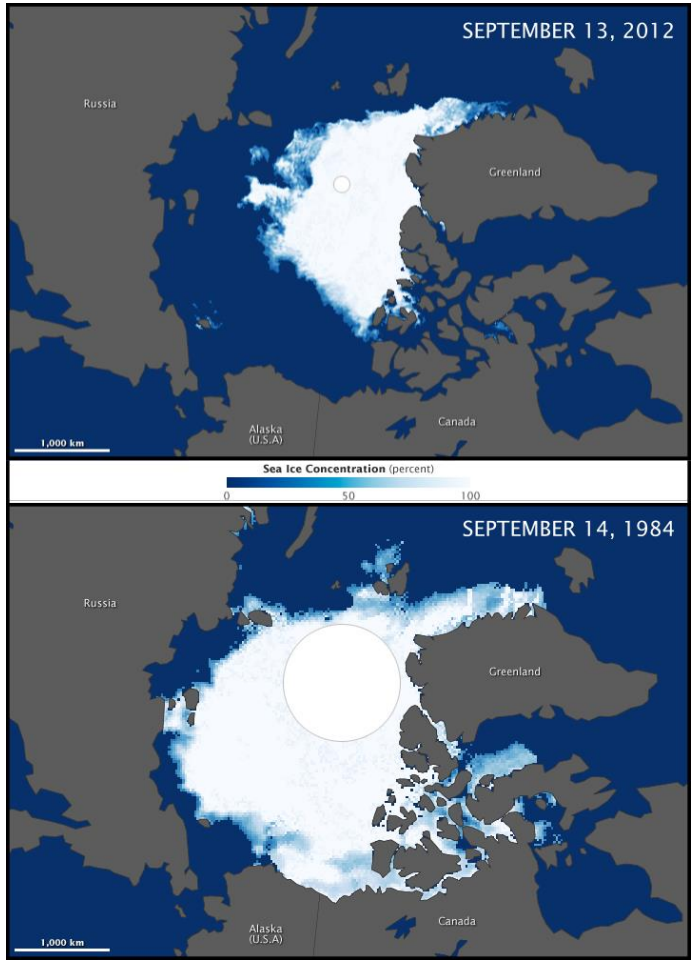
Settlement and Human Security

Deaths from Climate Change

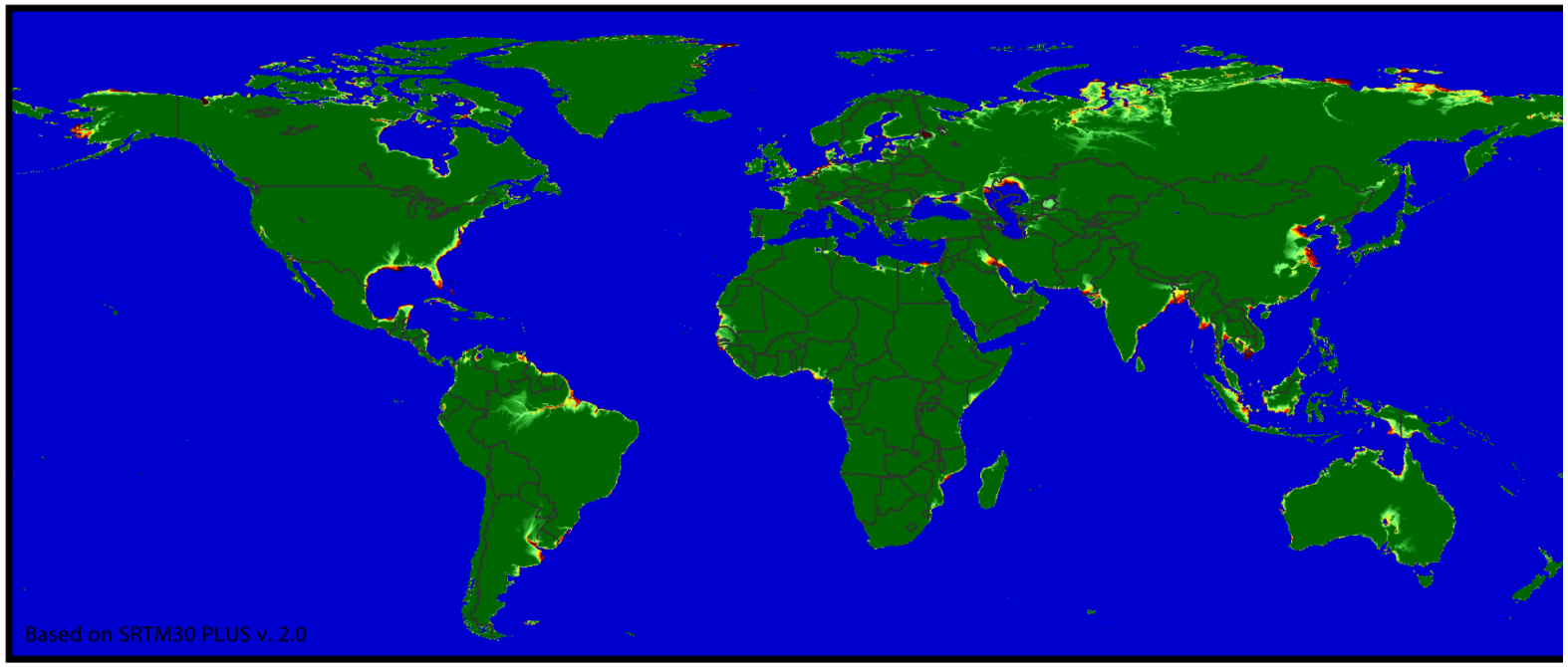


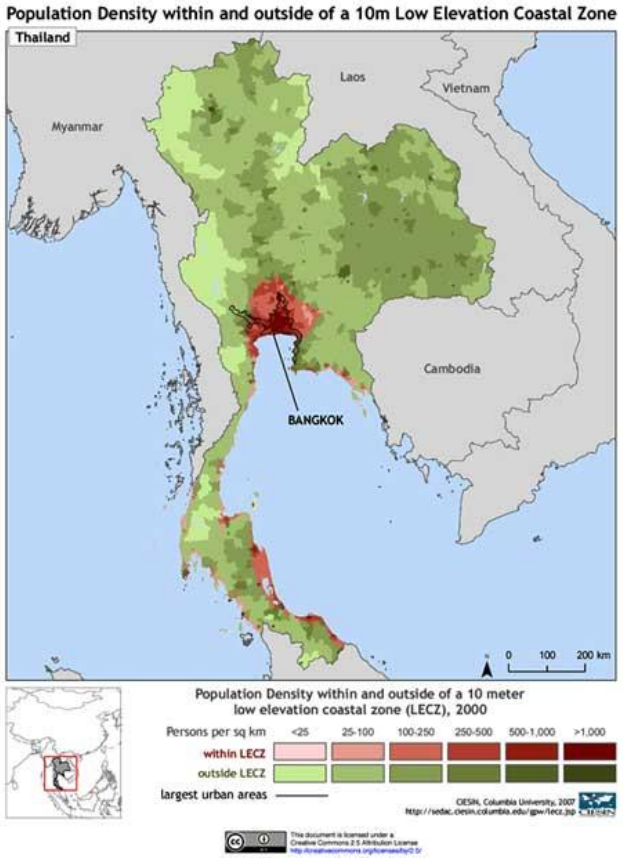
Estimates by WHO sub-region for 2000 (WHO World Health Report, 2002).

Global Warming

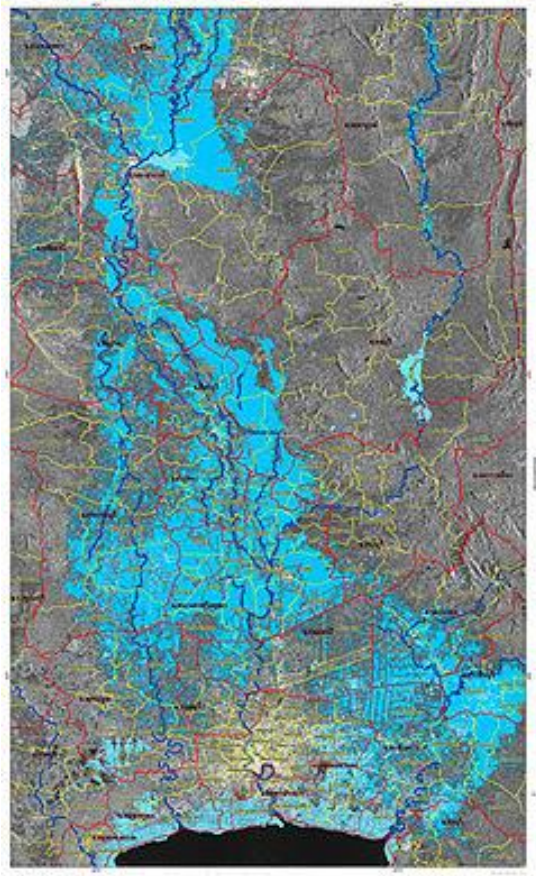


Regions Vulnerable to Sea Level Rise

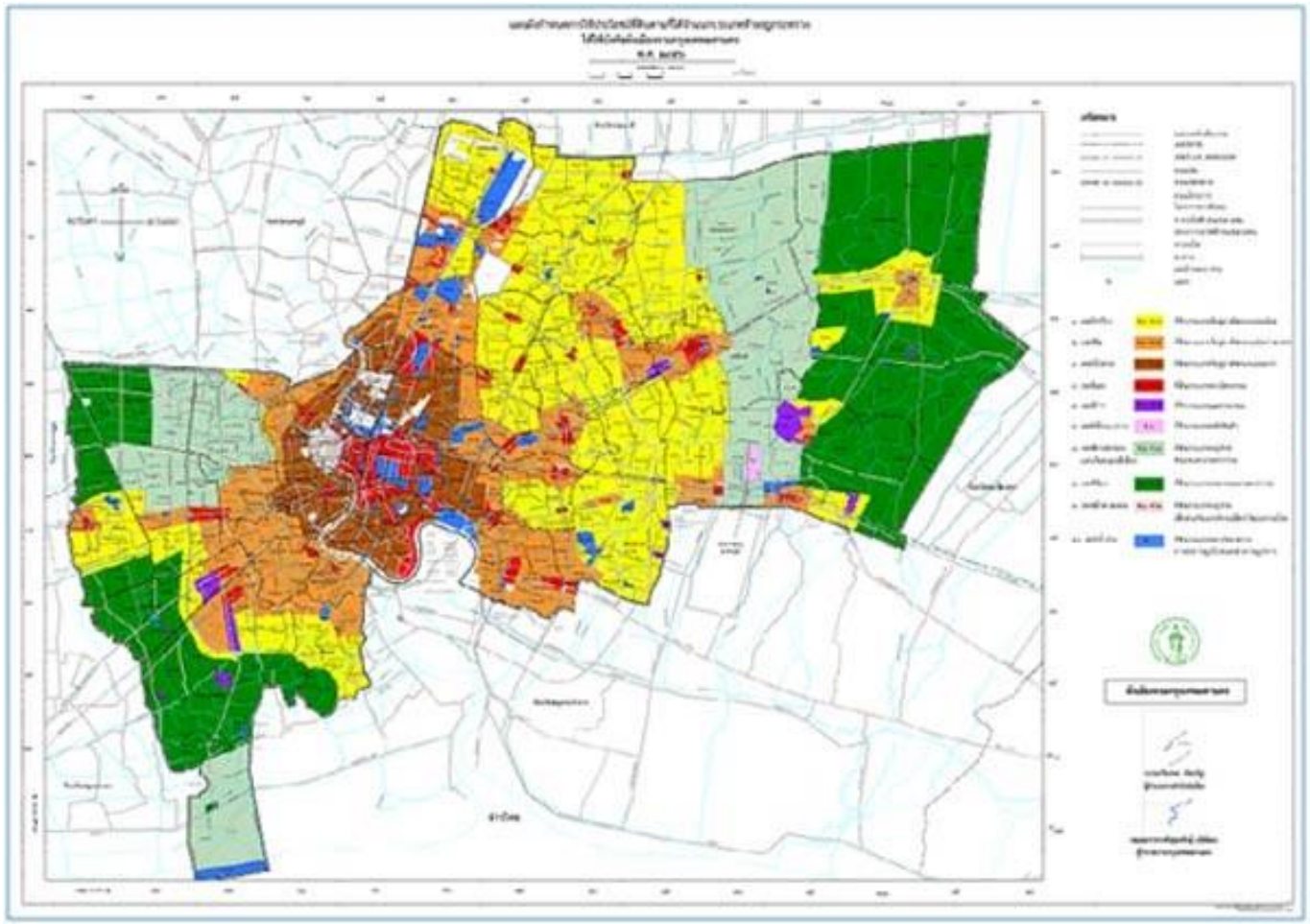




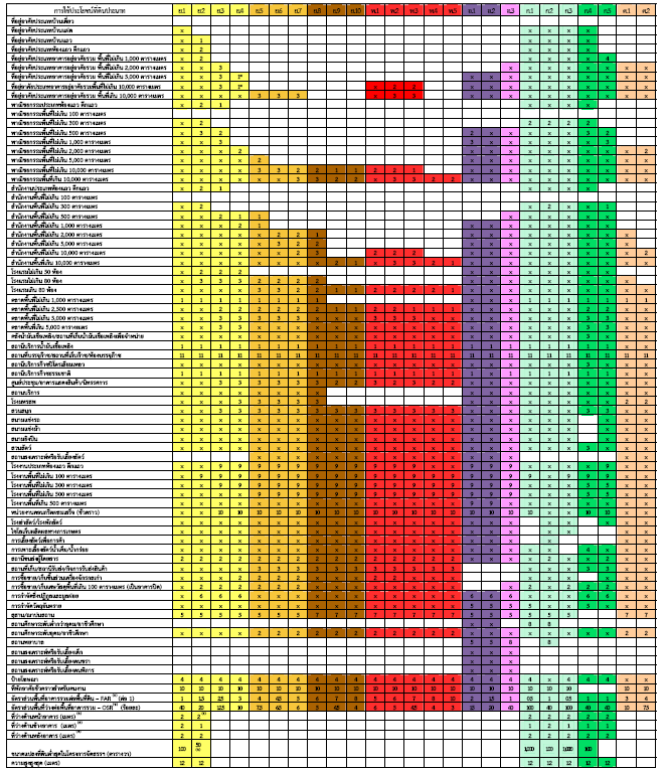
2011 Great Flood of Thailand



Bangkok Comprehensive Plan 2013

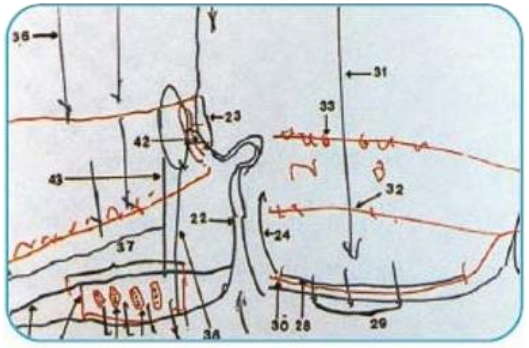


สรุปข้อกำหนดการใช้ประโยชน์ที่ดินตามกฎกระทรวงให้ใช้บังคับผังเมืองรวมกรุงเทพมหานคร พ.ศ. 2556

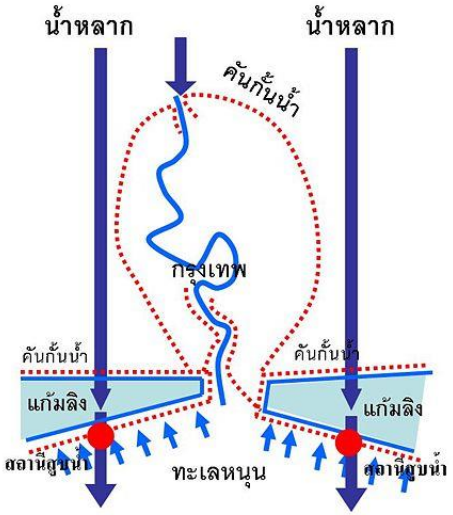


กฎกระทรวงดังกล่าวประกาศในราชกิจจานุเบกษา ฉบับกฤษฎีกา เล่ม ๑๓๐ ตอนที่ ๔๑ ก ลงวันที่ ๑๖ พฤษภาคม ๒๕๕๖

BMA Flood Protection Plan

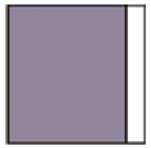
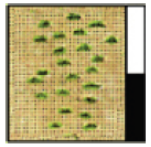


ภาพร่างฝีพระหัตถ์โครงการแก้มลิง

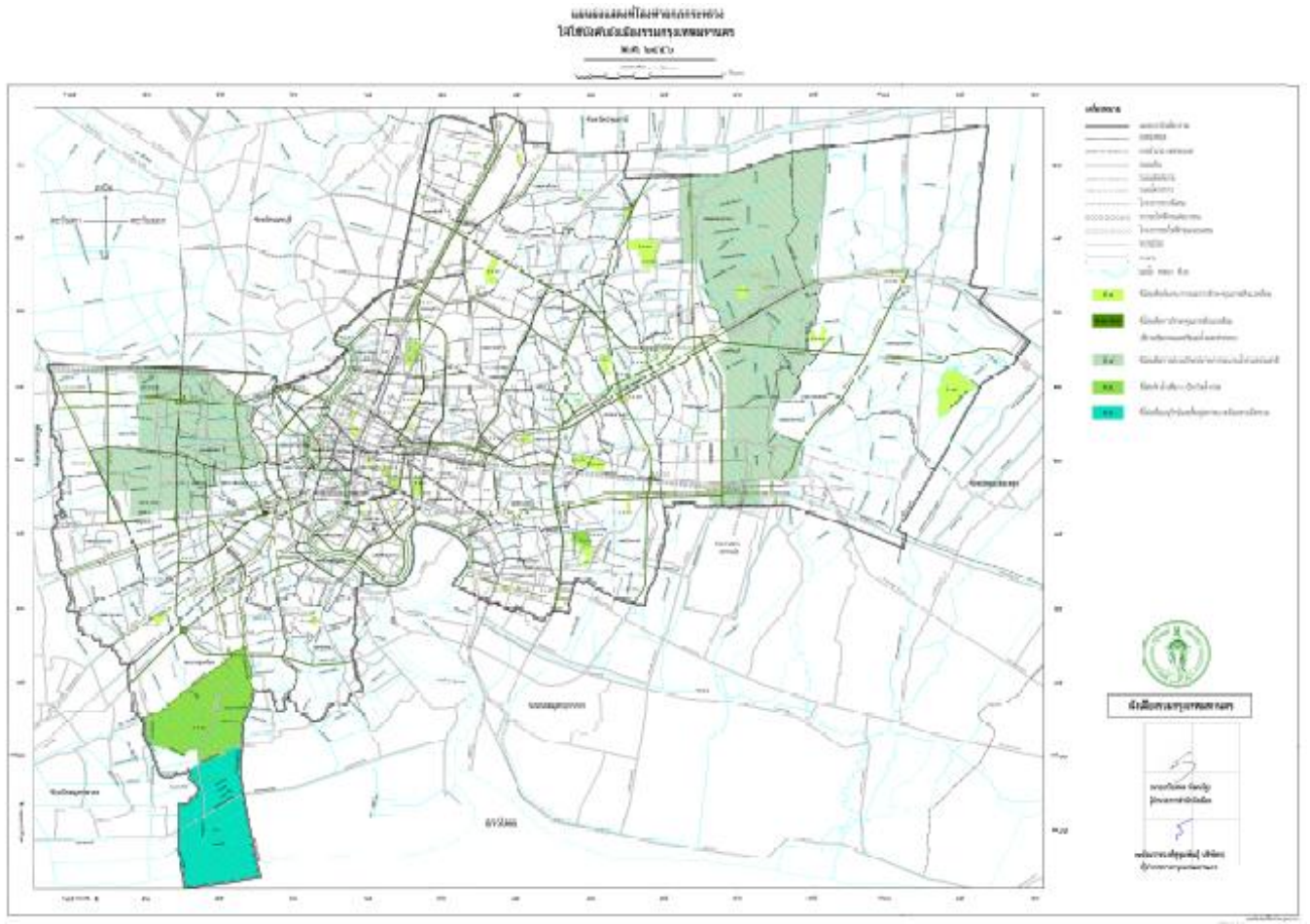


Biotope Area Factor (BAF)

$$\text{BAF} = \frac{\text{ecologically-effective surface areas}}{\text{total land area}}$$

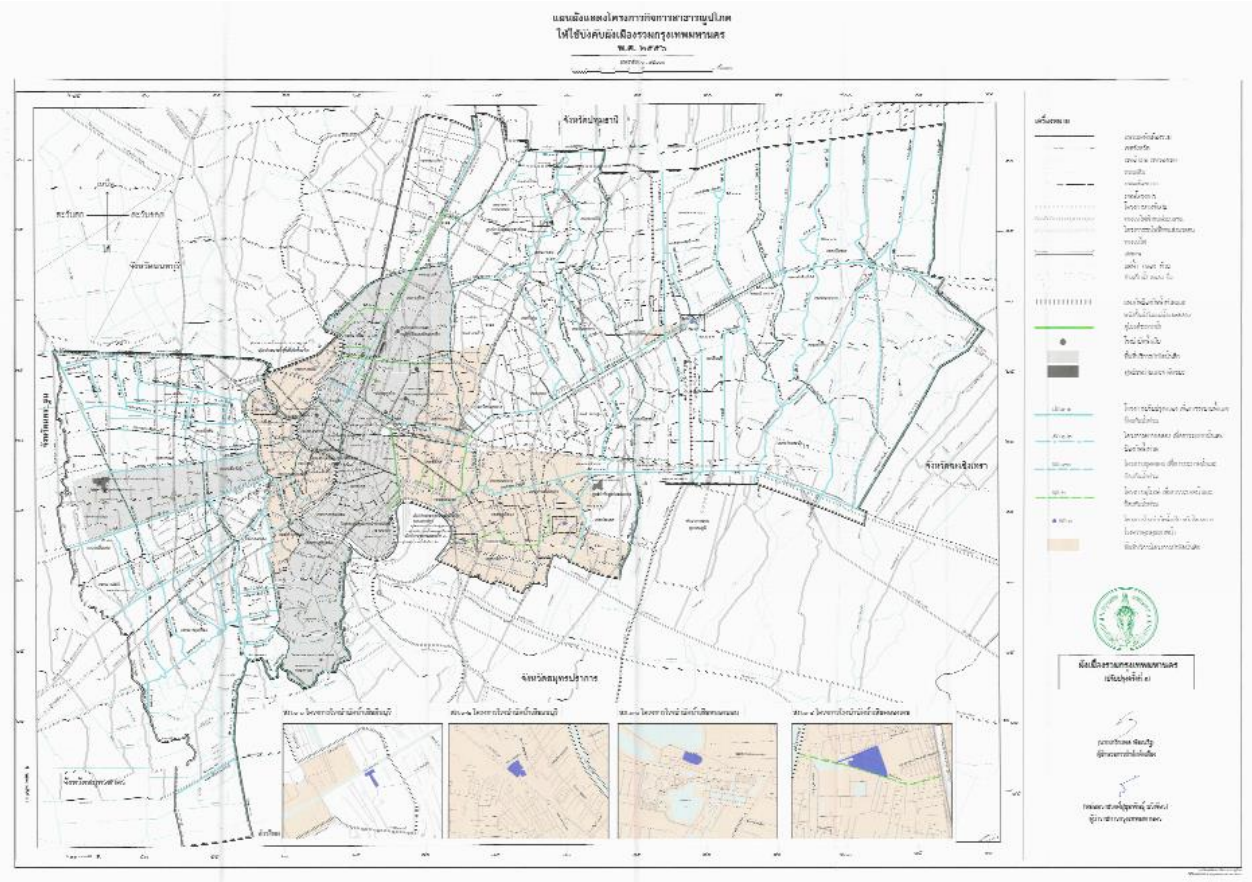
Weighting factor / per m² of surface type		Description of surface types
	Sealed surfaces **0.0**	Surface is impermeable to air and water and has no plant growth (e.g., concrete, asphalt, slabs with a solid subbase)
	Partially sealed surfaces **0.3**	Surface is permeable to water and air; as a rule, no plant growth (e.g., clinker brick, mosaic paving, slabs with a sand or gravel subbase)
	Semi-open surfaces **0.5**	Surface is permeable to water and air; infiltration; plant growth (e.g., gravel with grass coverage, wood-block paving, honeycomb brick with grass)
	Surfaces with vegetation, unconnected to soil below **0.5**	Surfaces with vegetation on cellar covers or underground garages with less than 80 cm of soil covering
	Surfaces with vegetation, unconnected to soil below **0.7**	Surfaces with vegetation that have no connection to soil below but with more than 80 cm of soil covering
	Surfaces with vegetation, connected to soil below **1.0**	Vegetation connected to soil below, available for development of flora and fauna
	Rainwater infiltration per m² of roof area **0.2**	Rainwater infiltration for replenishment of groundwater; infiltration over surfaces with existing vegetation
	Vertical greenery up to a maximum of 10 m in height **0.5**	Greenery covering walls and outer walls with no windows; the actual height, up to 10 m, is taken into account
	Greenery on rooftop **0.7**	Extensive and intensive coverage of rooftop with greenery

Bangkok Comprehensive Plan 2013



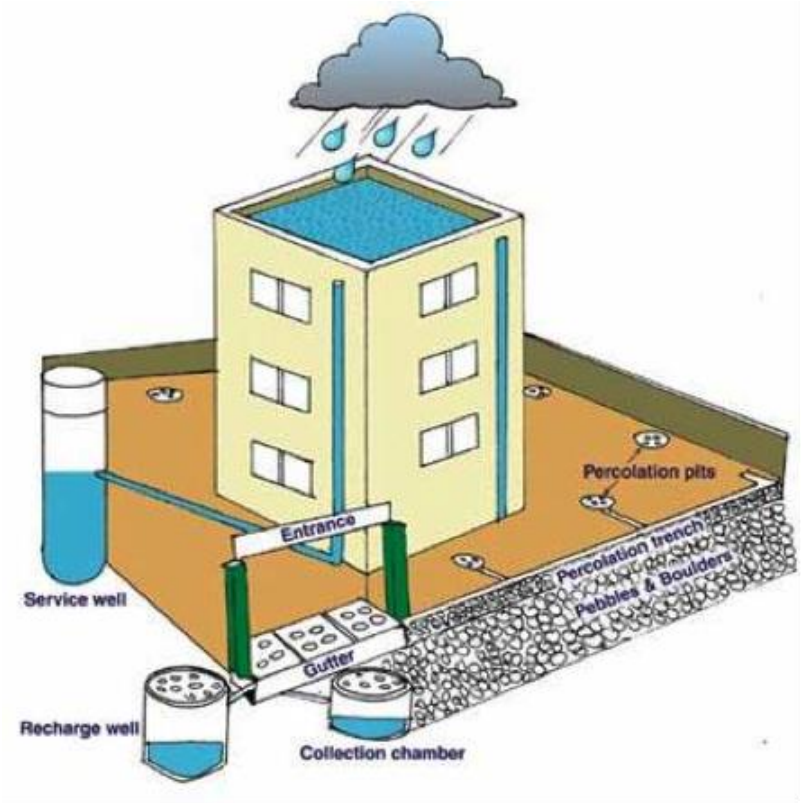
Open Space Plan

Bangkok Comprehensive Plan 2013



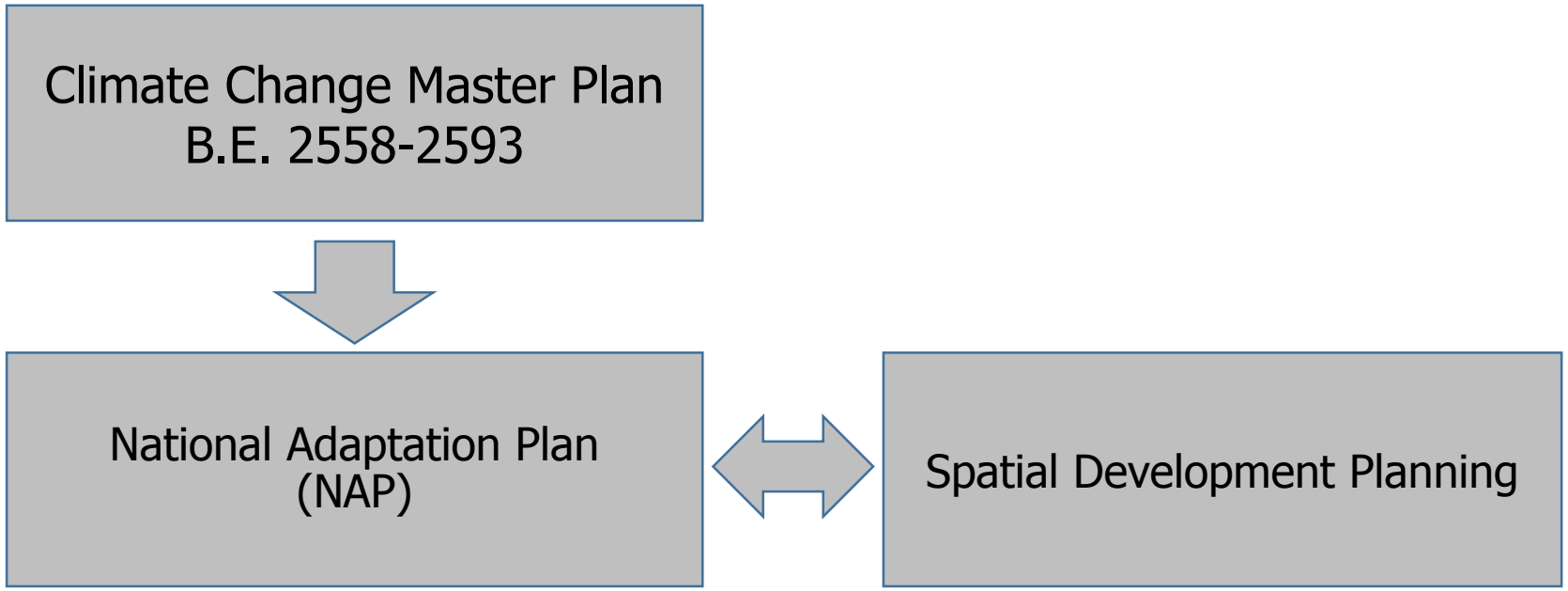
Public Utility Plan: Drainage System

Bangkok Comprehensive Plan 2013



FAR Bonus: Rain Water Harvesting

Role of Spatial Planning on Urban Climate Resilience



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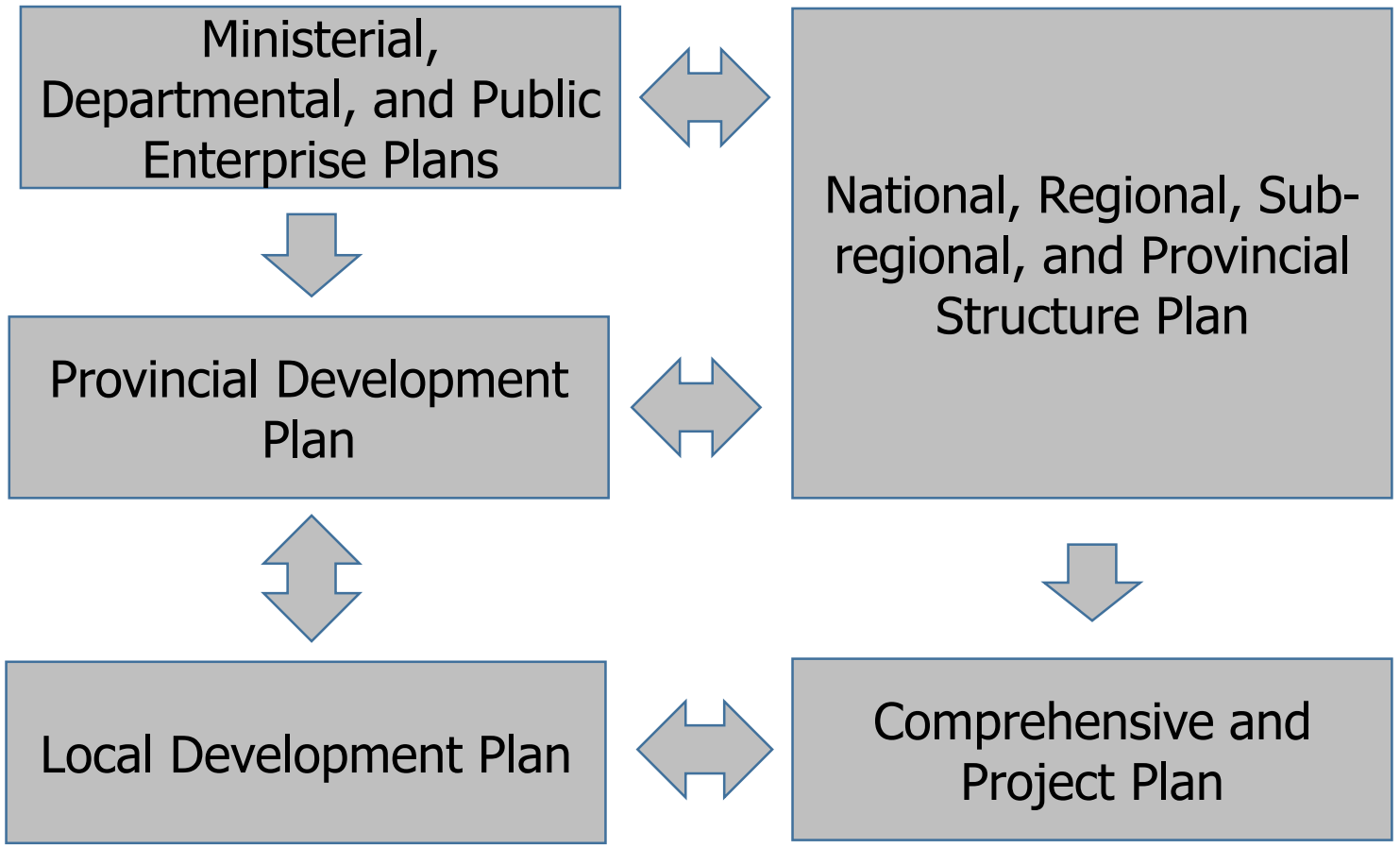

Thank You