

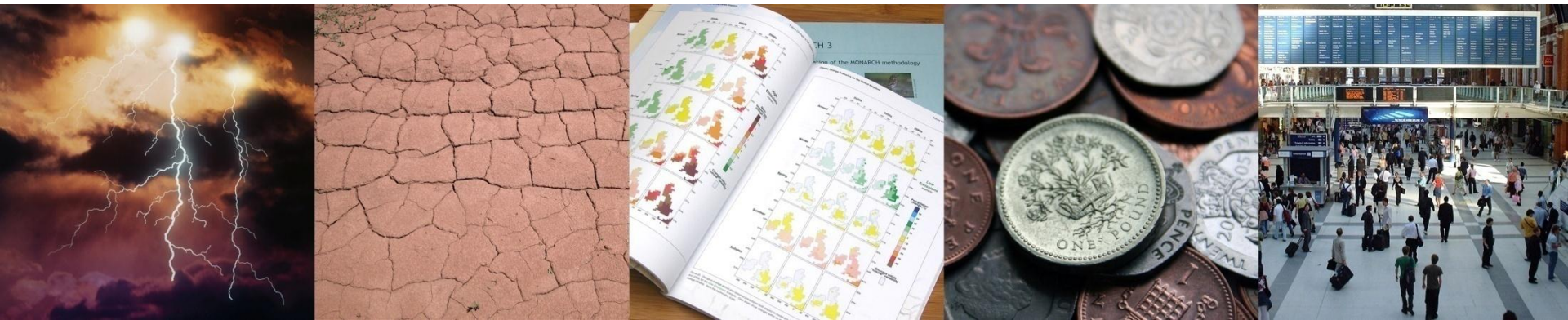
# From Vulnerability to Risk

## 从脆弱性到风险

# Risk Assessment Methodology:

## 风险评估方法学介绍

# An Introduction



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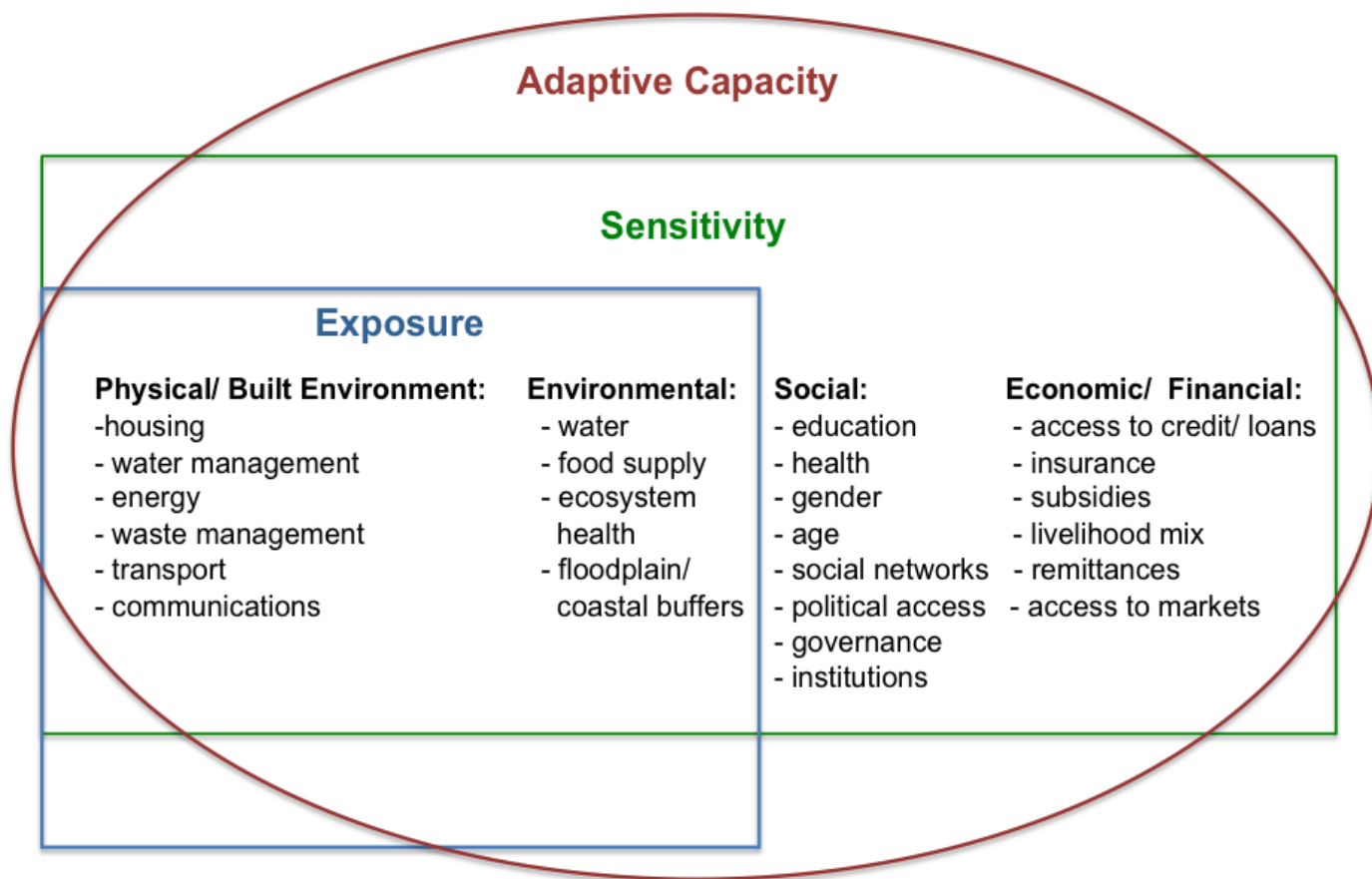
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# Vulnerability

**Vulnerability** is a function of the character, magnitude and rate of climate variation to which a system is *exposed*, its *sensitivity* to those variations and its *adaptive capacity*. 脆弱性: 用来描述系统暴露于气候变化下的特性,尺度和概率, 也包括系统对于气候变化的敏感度和适应能力。

**System** 系统- 个人, 户, 社区, 市区, 基础设施, 经济部门, 生态系统, 省, 国家. individual, household, neighbourhood, urban area / city, *infrastructure, economic sector, ecological system, province, or nation.*

- Can be linked and are often dependent on each other 相互依赖



# Vulnerability 脆弱性

**Exposure** – *nature and degree to which a system may be exposed to climate variability and change (largely dependent on location)* 暴露率: 系统暴露于气候变化和变异的特性和程度 (受所在地影响很大)

**Sensitivity** – *degree to which a system is affected (adversely or beneficially) by changes in climate (including variability and extremes)* 敏感度: 系统受气候变化(变异和极端事件)影响的程度(正面/负面影响)

**Adaptive Capacity** – **ability of a system to:** 适应能力:

- *adjust to climate - including climate variability and extremes, to moderate potential damages, to take advantage of opportunities, or to cope with the consequences* 系统适应气候变化(变异和极端事件)的能力,也包括降低未来受损程度,抓住机遇,处理好气候变化后果的能力
- *shift strategies, make choices and respond to opportunities in order to manage both direct and indirect climate impacts.* 改变战略,做出选择,抓住

# Vulnerability

**Current vulnerability** – function of the current state of the system – the exposure, sensitivity and adaptive capacity now. 目前的脆弱性：系统目前的功能—暴露率,敏感度和适应能力

***Considers current climate (including variability and trends) and current socio-economic and environmental drivers*** 考虑目前的气候(包括变异和趋势) 以及目前的社会经济和环境驱动因素

**Future vulnerability** – established by developing scenarios of how current exposure, sensitivity and adaptive capacity might change 未来的脆弱性：通过建立预测目前的暴露率,敏感度和适应能力将如何变化的情景来确立

- Can also introduce consider implementation of various adaptation strategies and/or various social, environmental, economic, infrastructure and land-use development pathways are chosen. 可以考虑实施不同的适应战略/社会,环境,经济, 基础设施和选择不同的土地使用路线.

***Considers both climate and socio-economic scenarios*** 考虑气候和社会经济情景

# Determinates of Biophysical and Social Vulnerability

## 生物物理和社会脆弱性的决定因素

### Biophysical Vulnerability 生物物理脆弱性

- Climate variability, extremes and change (thresholds / sensitivities) 气候变异, 极端气候和变化(临界点/敏感度)
- Elevation / topography 海拔/地形
- Land use 土地使用
- Ecosystem, habitat quality 生态系统/居住地质量
- Water availability and quality 水源质量/可获得性
- Physical infrastructure 物理设施
- Health (animal / human) 健康(动物/人)

UK Climate  
Impacts Programme

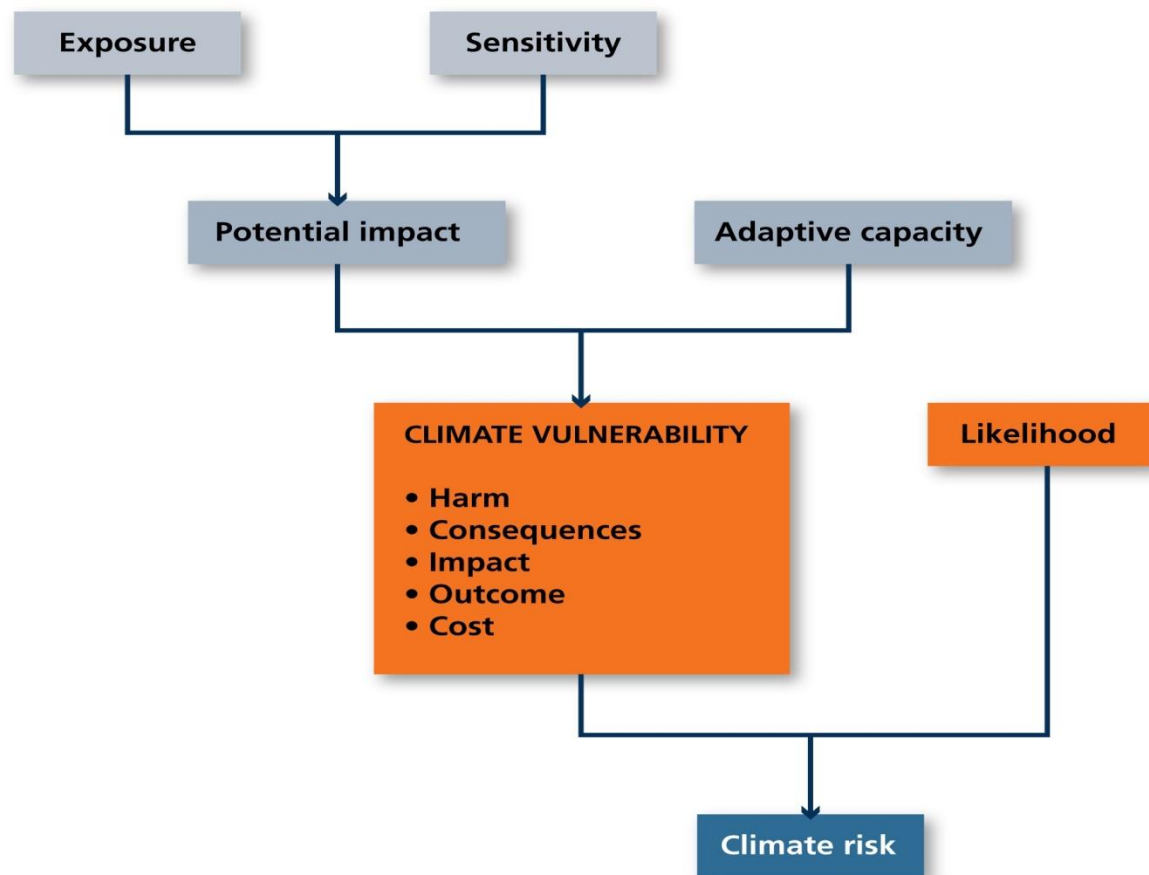
### Social Vulnerability 社会脆弱性

- Economic diversity, wealth / poverty 经济多样性, 财富/贫穷
- Public health system 公共健康体系
- Institutions, governance 制度, 治理
- Knowledge, information and technology 知识, 信息和科技
- Planning, policy making and perspectives 规划, 政策制定和方案
- Social cohesion / capital 社会凝聚力/社会资本
- Equity 公平
- Political stability 政治稳定
- Connectivity 连接性

# Vulnerability is not the same as Risk

## 脆弱性不能等同于风险

- **Risk** – *likelihood that particular consequences might happen based on the state of the system (i.e. vulnerability).* 风险—基于系统特性未来会发生某种特定后果的可能性



# Why a Risk Assessment? 为什么要做风险评估?

**Faced with an uncertain future 面临不确定的未来**

- **Risk-based approach to managing in the context of these changes (climate and other drivers) – a rationale approach 一个理性的应对方式: 在气候与其它变化的背景下使用基于风险的管理方式**

**Risk assessment 风险评估**

- **Used to identify risks – necessary but insufficient 用来确定风险—必要但是不充分**
- **Used to concentrate adaptation efforts (investments, policies and practices) on those risks deemed priorities 用来指导针对风险的优先适应手段(投资,政策和实施)**

**Adaptation assessment – identifying “appropriate” adaptation options and strategies and evaluating them in terms of criteria such as effectiveness, efficiency, costs, flexibility, robustness and legitimacy. 适应评估—确定“合适的”适应对策/战略,以有效性,效率,成本,灵活性,健全性,合法性等标准进行评估**

# Vulnerability and risk can and will change

## 脆弱性和风险能够并且会发生改变

**Risk can change** as a result of changes in likelihood and/or changes in vulnerability. 风险会因为本身的不确定性和脆弱性发生改变而改变.

**Vulnerability can change** 脆弱性会发生改变

- if proactive measures to reduce sensitivity and exposure and/or increase adaptive capacity are taken because risk is recognised. 如果认知风险后, 预先采取措施减少敏感性和暴露程度/增强适应能力的话
- after something has happened and the system responds to the consequences. 当事件发生后, 系统做出响应的话

**Note: When conducting vulnerability and risk assessments, start with establishing the current, baseline conditions BEFORE moving onto developing future scenarios of vulnerability and risk.** 注意: 在进行脆弱性和风险评估的时候, 要先着手建立当前的基线条件, 然后再搭建脆弱性和风险的未来情景

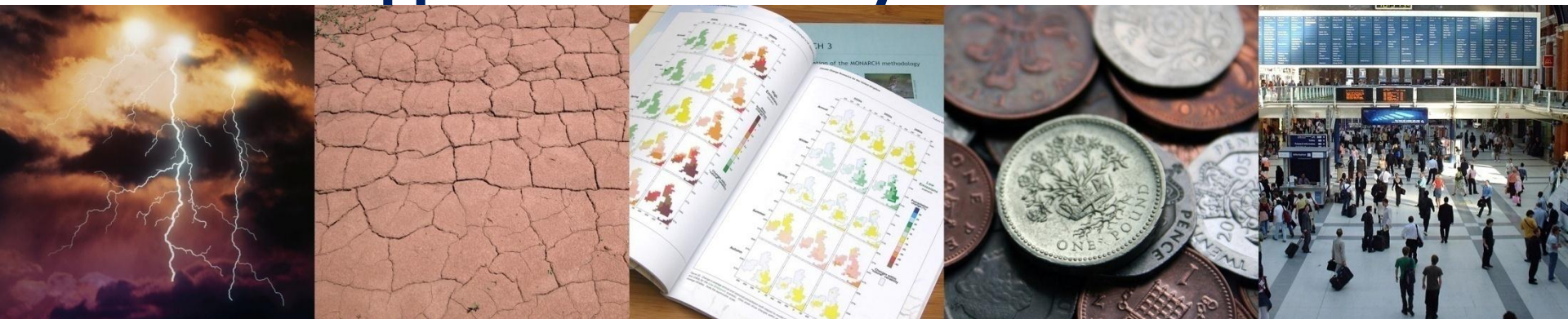


## Learning from experience and sharing

**Information needed is that to support decision and policy making**

**Sustained and informed engagement of users and providers**

**Access and support are necessary**



# THANK YOU!

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