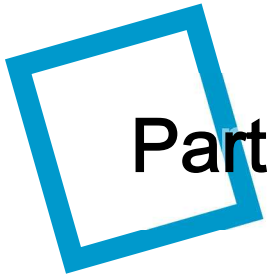
# Climate Change Adaptation and the Sustainable Development Goals : Challenges and Opportunities

KEI Soojeong Myeong
Korea Environment Institute

# Contents




# Sustainable Development and Climate Change

# Sustainable Development

## ❖ Sustainable Development

: "development that meets the needs of the present without compromising the ability of the future generations to meet their own needs" (WCED, 1987)

- a harmonious integration of a sound and viable economy
- responsible governance
- people's empowerment
- social cohesion and ecological integrity

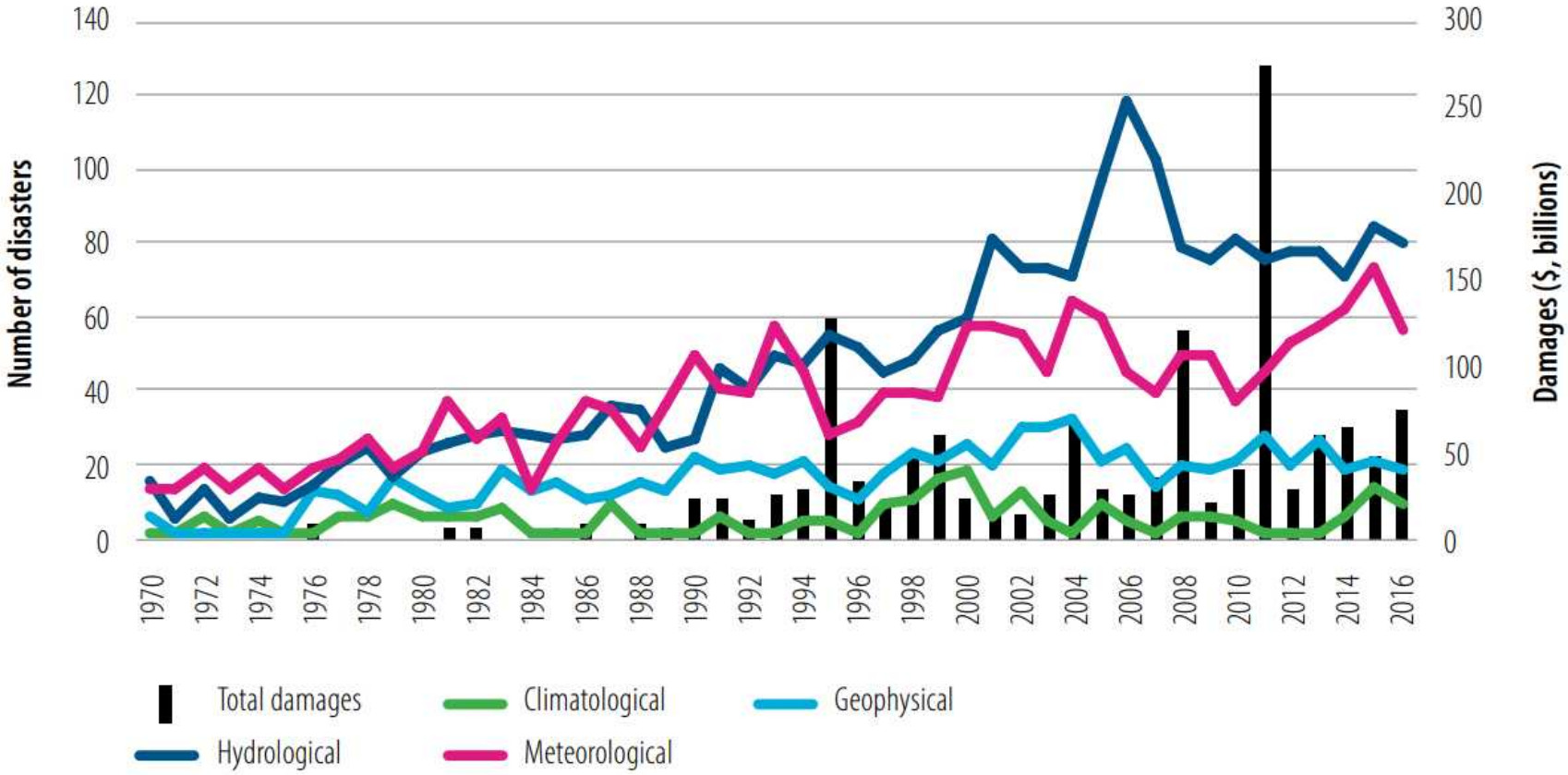
➢ Additional stress factor in achieving Sustainable Development: Climate Change

# Climate Change Impact

- Climate risk: both chronic and acute
- Slow onset event
  - Mean temperature rise
  - Soil erosion and land loss due to sea level rise
  - Salt water intrusion
  - Glacier melting, habitat movement, etc
- Extreme event
  - Super typhoon
  - Heavy flood and land slide
  - Great wild fire due to severe dryness
  - Heat wave and cold wave, dzud etc

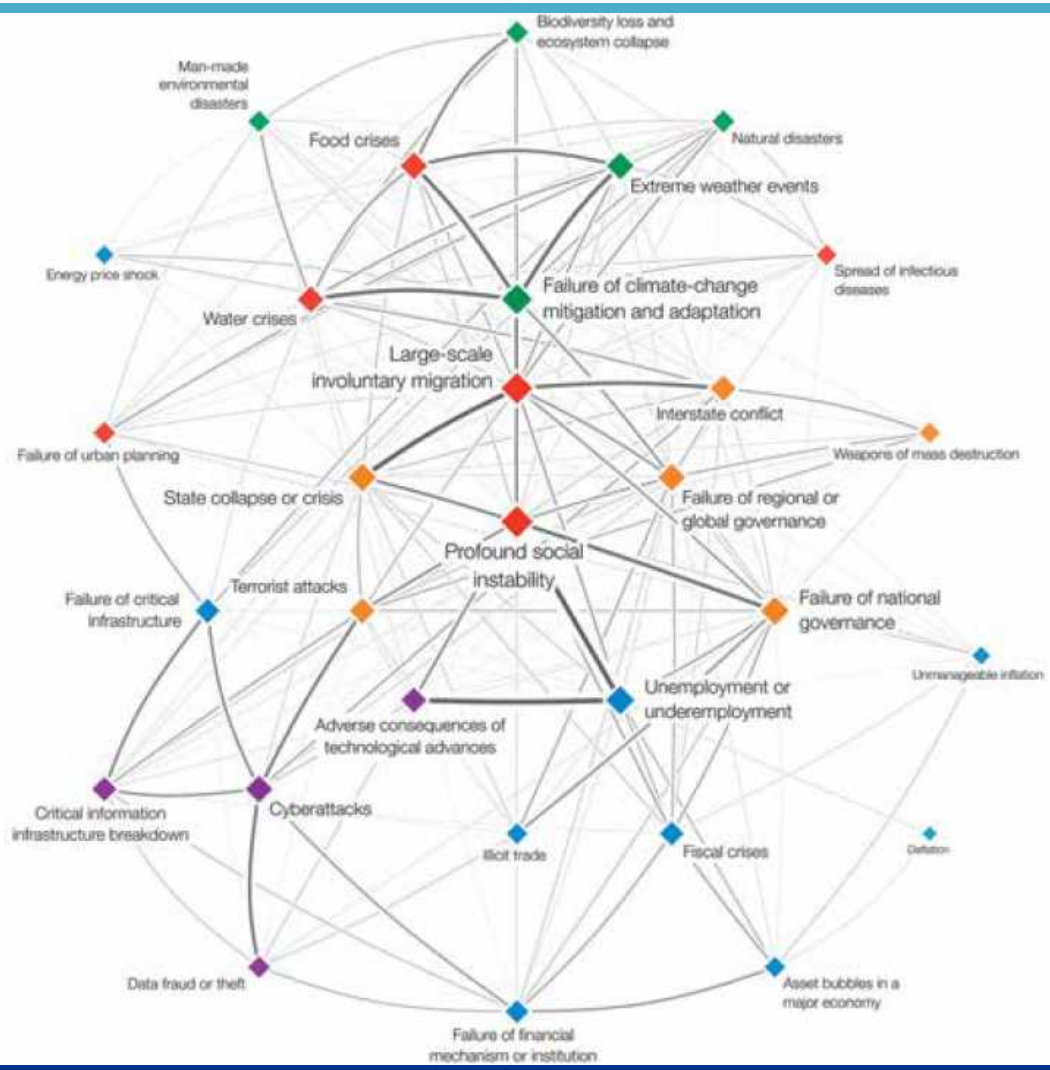
➢ **Disaster risk** is magnified by **climate change**

# The increasing frequency of, and damages from disasters in the Asia Pacific region (1970-2016)




EM-DAT, www.emdat.be

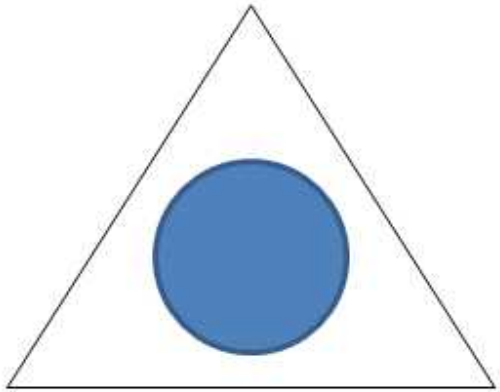
# Interconnected Risk including climate risk

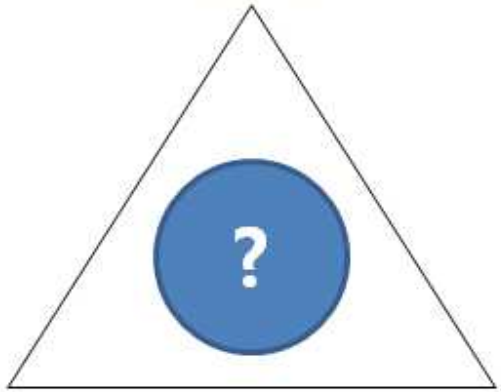




WEF(2018)

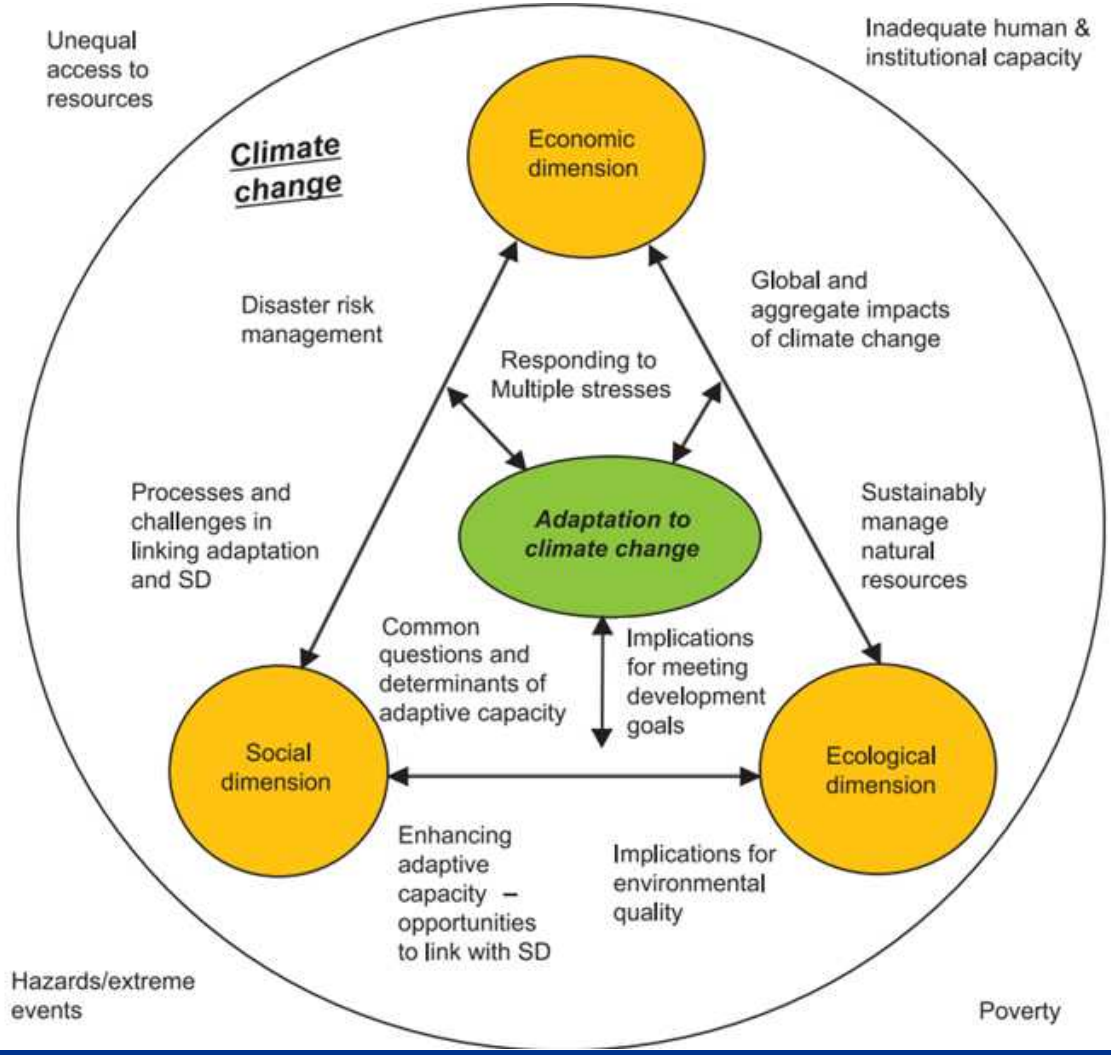
# The impact of climate change on Sustainable Development



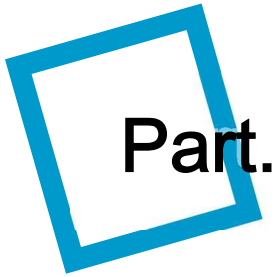




bacs.net

# Sustainable Development and CCA




Munasinghe and Swart(2005)

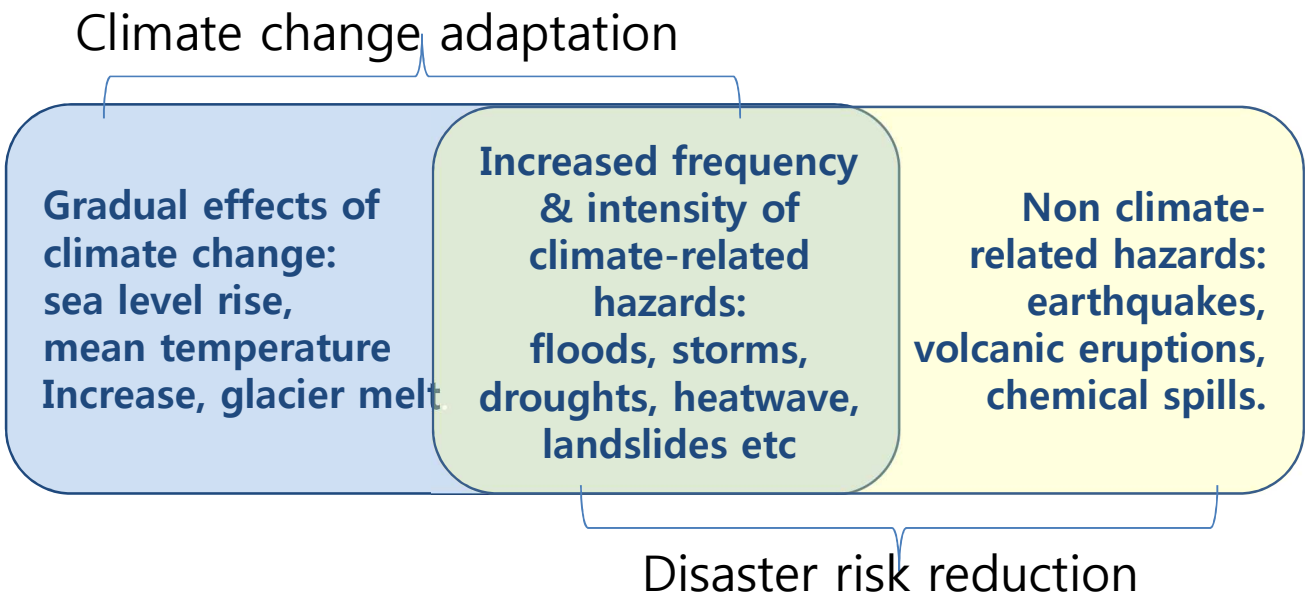



# Synergies between CCA and SDG

# Climate change Adaptation and Disaster Risks Reduction

## ❖ Common concerns and ground of CCA & DRR

- There are quite common concerns and ground between these two pillars which can generate synergies

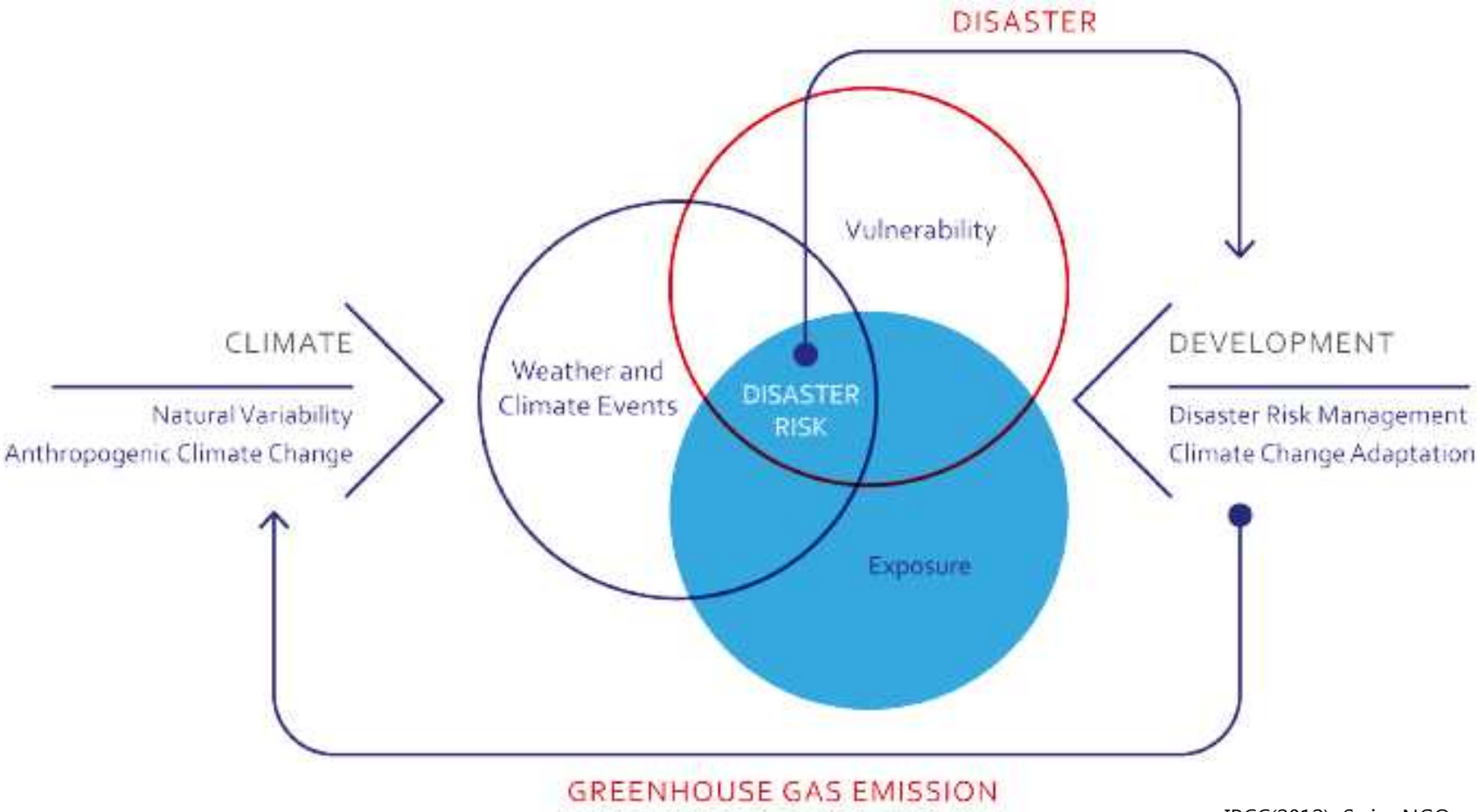



Modified from Turnbull et al.(2013)

# Synergies between DRR and CCA

- Most major natural disasters are linked to climate and weather related such as floods, storms, heatwaves and drought
  - Quite a lot of loss and damage are from disaster related events
- Major stakeholders and decision makers are overlapping
- The framework for DRR and CCA intends to reduce the damages from disasters
- The challenges of Disaster risk reduction, Climate Change Adaptation and Sustainable Development are strongly inter-linked

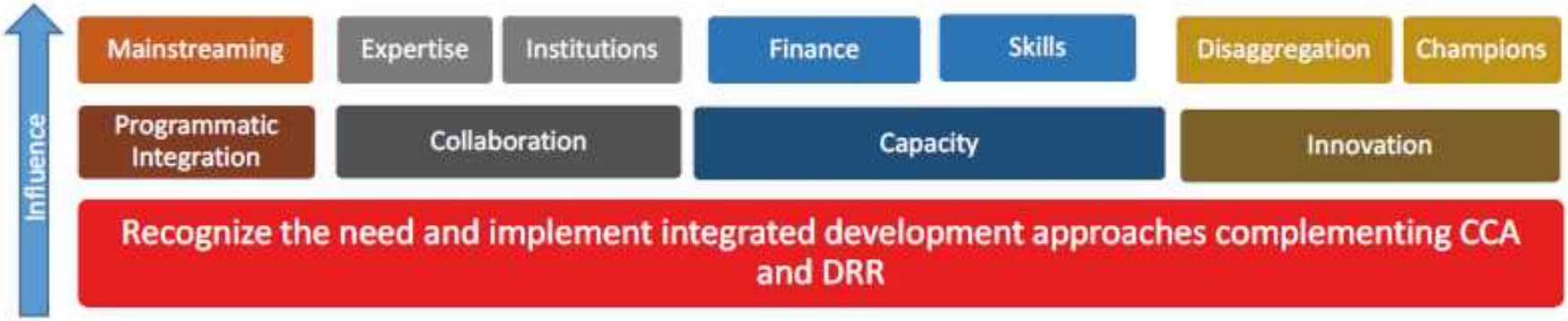
# Climate change, Disaster Risk, and Development



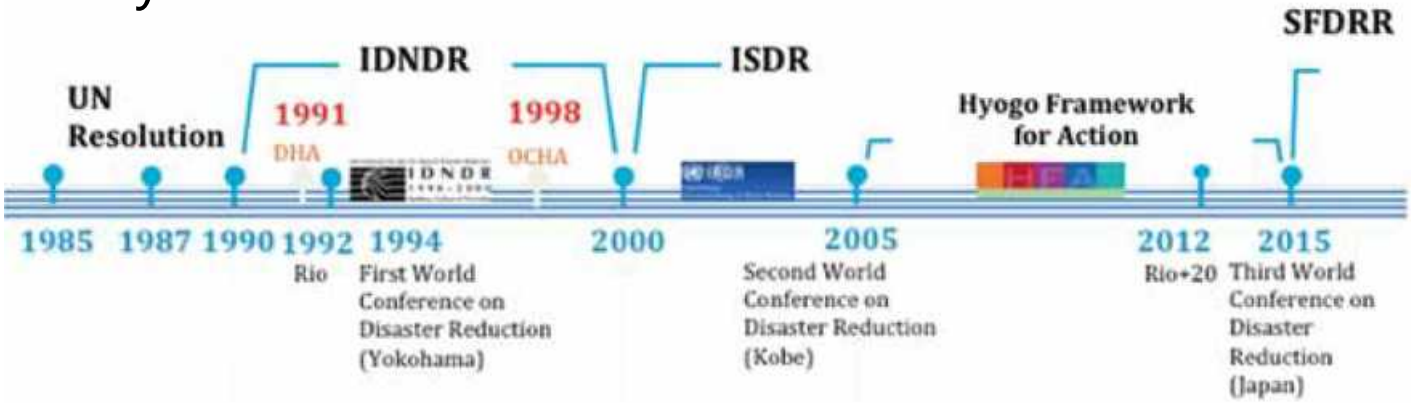

IPCC(2012), Swiss NGO

# Maximizing Synergy between CCA & DRR

❖ Maximizing synergy via programmatic integration, collaboration, capacity and innovation




➢ History of Global Efforts for Disaster Risk Reduction



# Examples of adaptation measures to address disaster risk

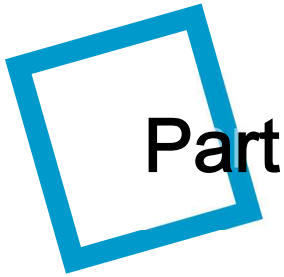
- LID Permeable pavement: absorb and store rainwater using penetrating material or penetrating structure
- Flood Resistant house: higher house height to prevent inundation
- Rooftop garden: vegetation on rooftops mitigate urban heat island impact and dryness of the urban areas
- Early warning system & Insurance

*A City Prepares for a Warm Long-Term Forecast*
a rooftop garden created to reduce energy use by Chicago's City Hall.

# Synergies in monitoring the implementation of the Paris Agreement, the SDGs and the Sendai Framework

❖ Comparison of Monitoring frameworks of the three agreement

| | SDGs (Agenda 2030) | Sendai | Paris Agreement |
|---|---|---|---|
| **Objective of the agreement** | Contributing to the achievement of sustainable development and serving as a driver for implementation and mainstreaming. | A substantial reduction of disaster risk and losses in lives, livelihoods and health and in economic, physical, social, cultural and environmental assets. | Holding the increase in the global average temperature to well below 2°C and pursuing efforts to limit it to 1.5°C (mitigation); increasing the ability to adapt to the adverse impacts of climate change (adaptation); making finance flows consistent with a pathway towards low GHG emissions and climate-resilient development (Art. 2). |
| **Quantitative goals or targets at global level** | Yes, 17 global goals with several targets each. Countries may define additional national targets. | Yes, seven global targets. Countries may define additional national targets. | Yes, for mitigation (well below 2°C and pursuing efforts to 1.5°C). The global goal on adaptation is qualitative. Countries define their own targets (NDCs). |
| **Purpose of monitoring** | Measure global progress towards achievement of the SDG goals and targets. | Measure global progress in implementation of the seven Sendai targets. | Global Stocktake: 'assess the collective progress towards achieving the purpose of this Agreement' (Art. 14). Transparency framework: 'Clarity and tracking of progress towards achieving Parties' individual NDCs and Parties' adaptation actions' (Art. 13). |
| **Development of global M&E framework or stocktake** | By an 'Inter-Agency and Expert Group on Sustainable Development Goal Indicators', adopted by UN General Assembly. | By an 'open-ended intergovernmental expert working group' comprising experts nominated by States and supported by the UNISDR; adopted by UN General Assembly. | Details of the Global Stocktake are still being negotiated (Art. 14). 'Modalities, procedures and guidelines' for national reporting under the transparency framework (Art. 13) and details of the Adaptation Communications (Art. 7) are still to be agreed upon by the COP; Parties may develop country-specific adaptation M&E systems (Art. 7).[vii] |



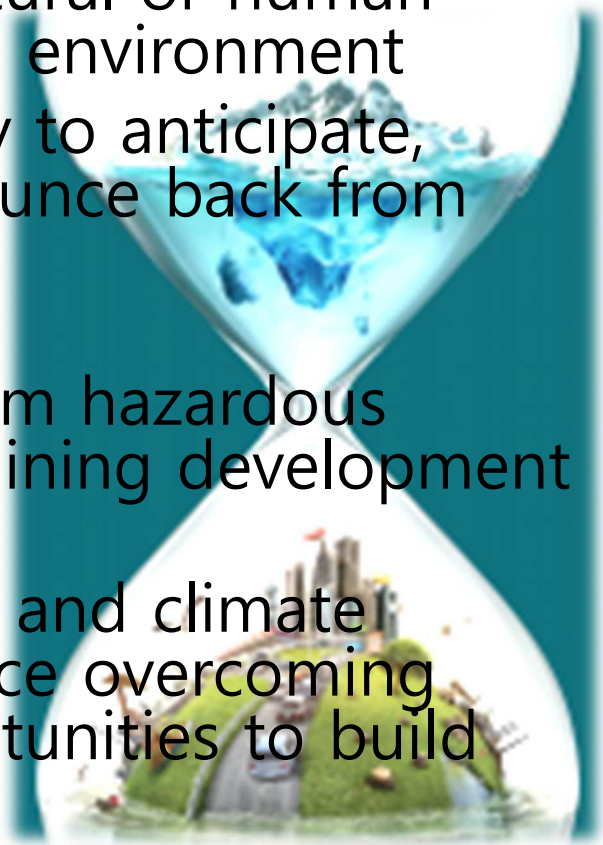
# Part. III

## Towards Resilient Society

# Climate Change and Resilience

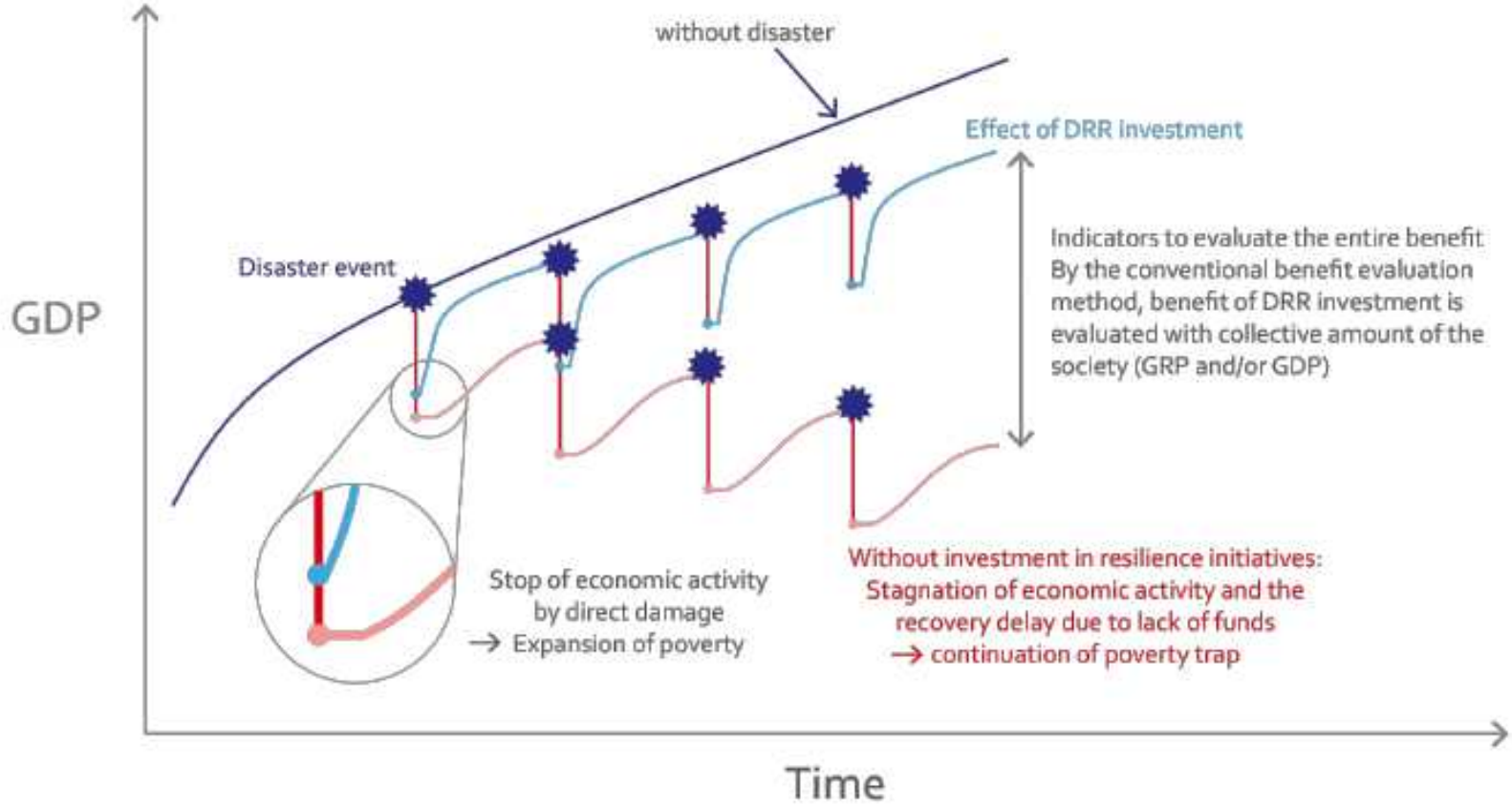
- Adaptation: Adjustment in natural or human systems to a new or changing environment
- Resilience: Covering the ability to anticipate, reduce, accommodate and bounce back from climate impacts

- Resilience ensures stresses from hazardous events do not lead to undermining development and growth.
- Linking disaster risk reduction and climate change adaptation can enhance overcoming challenges and provide opportunities to build more resilience society



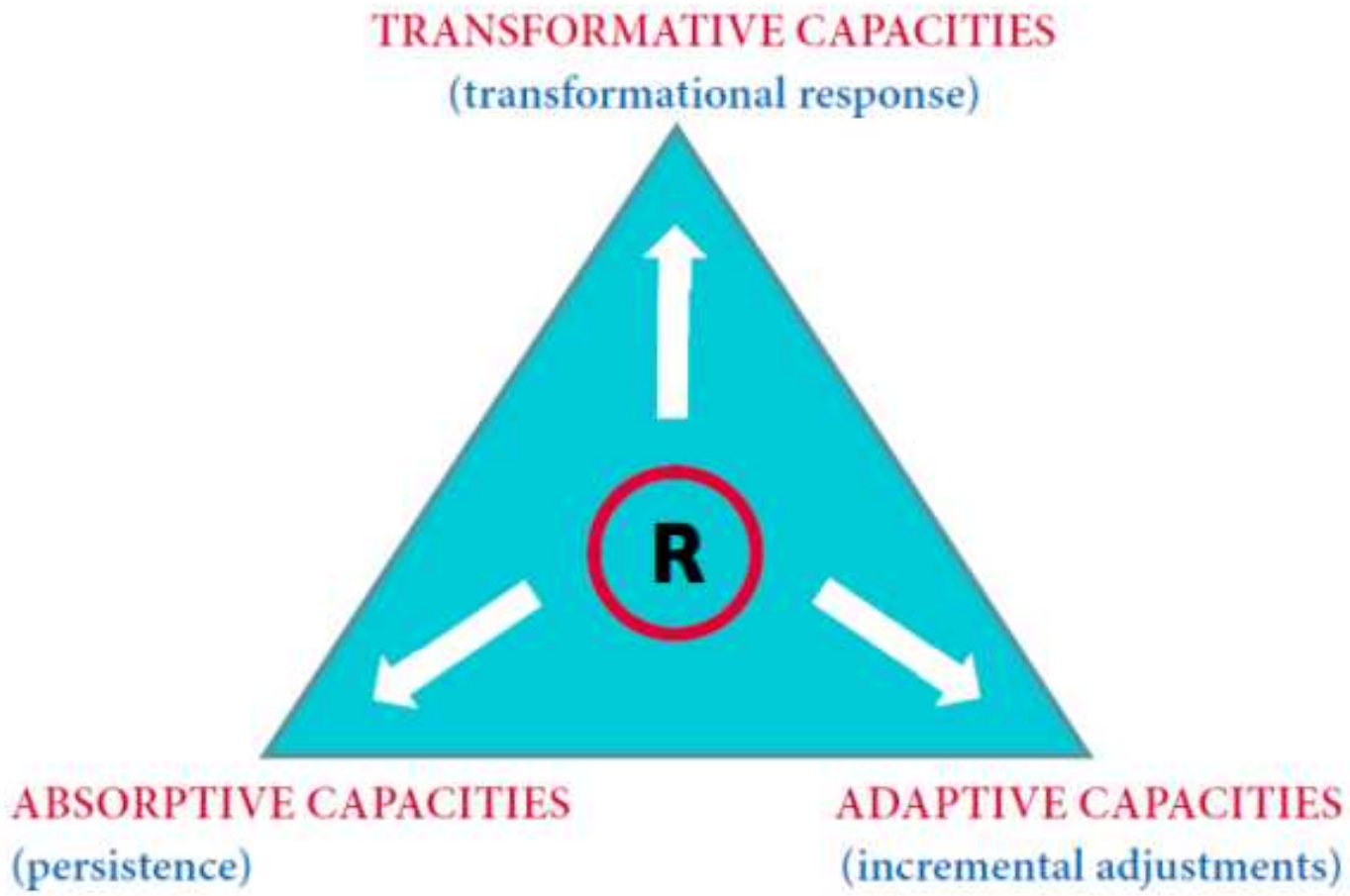
# What can we do about Resilience

❖ Effect of DRR Investment



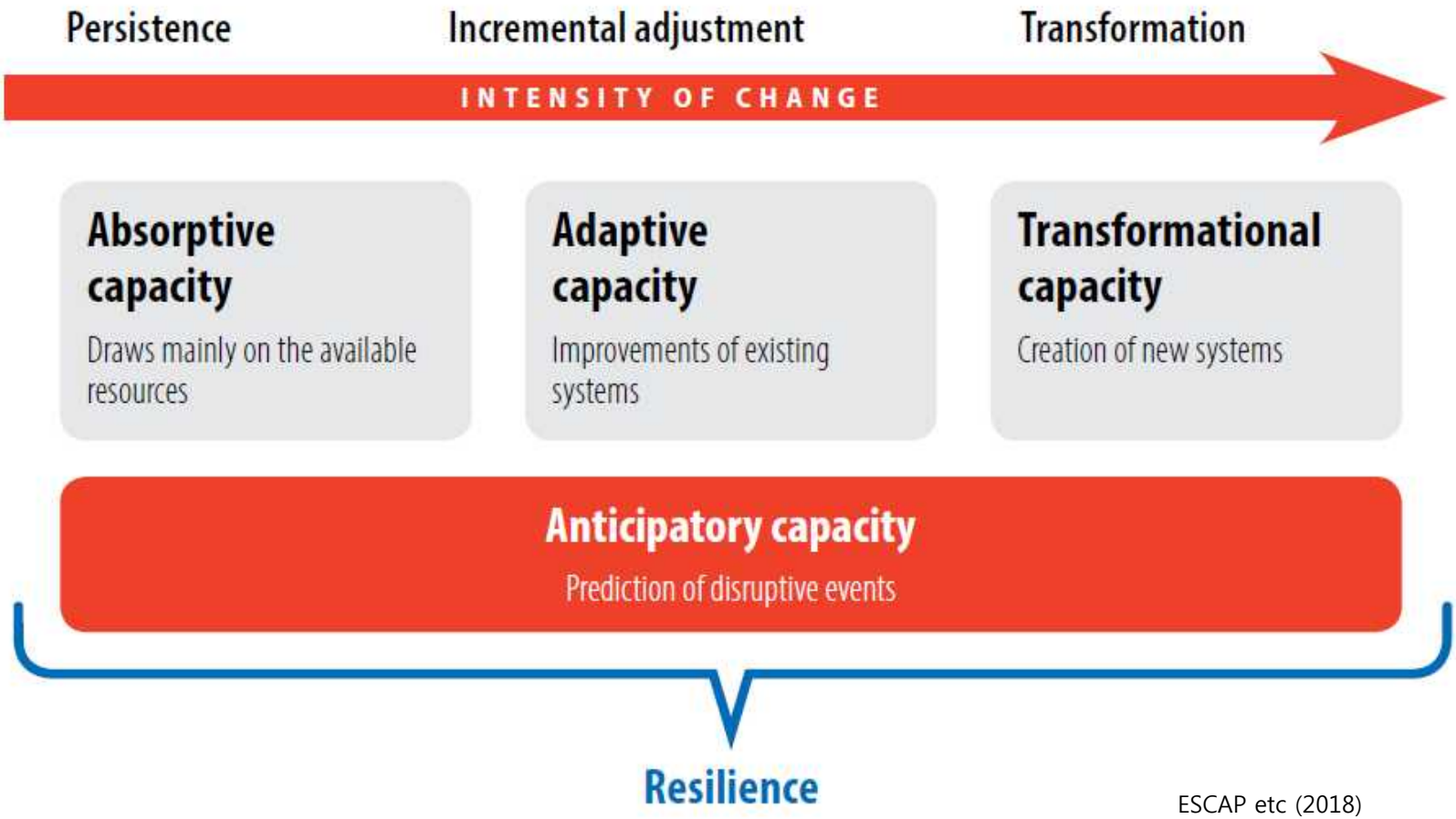

JICA

# The Three Elements of Resilience



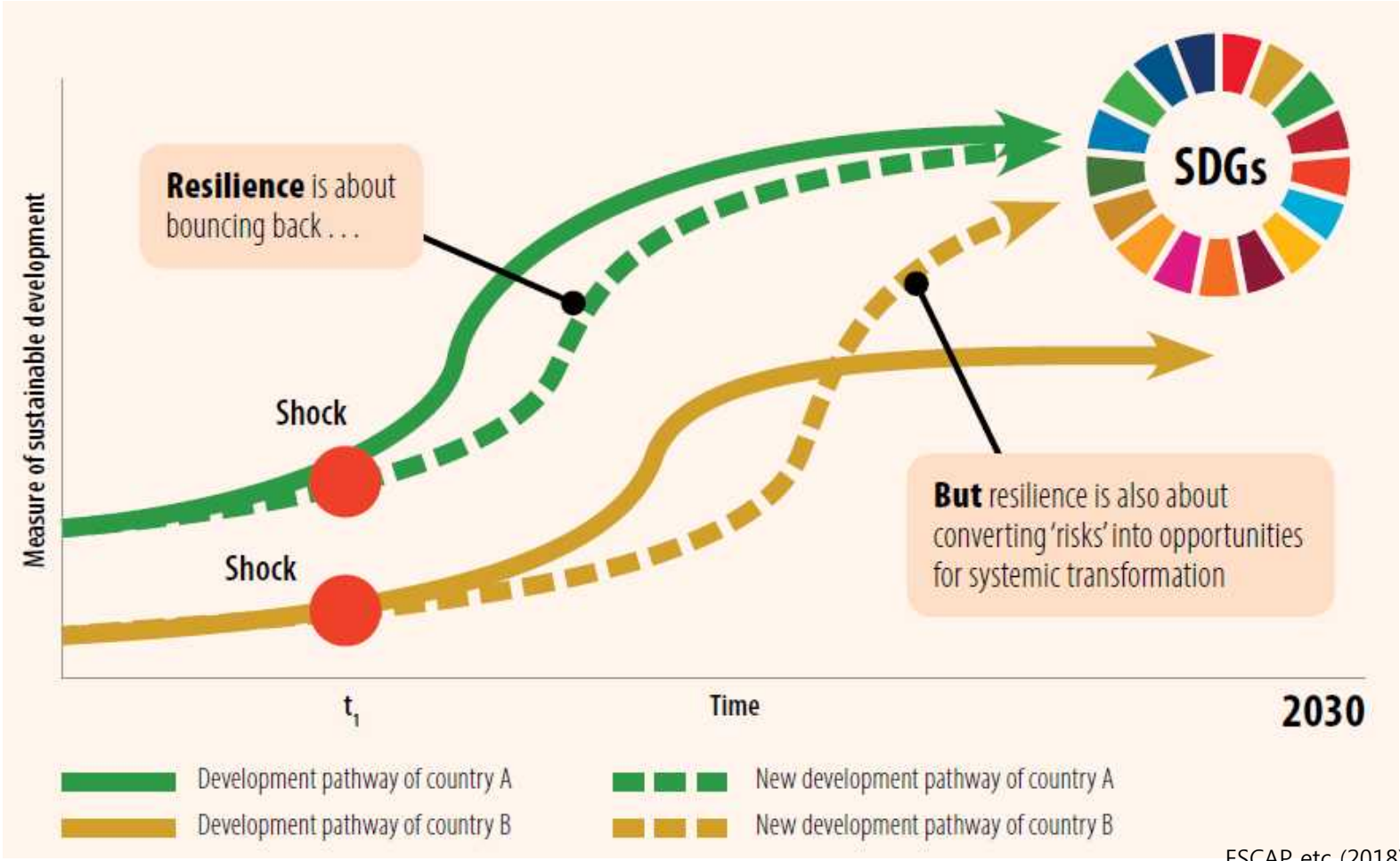

Swiss NGO DRR Platform

# The continuum of resilience capacities




ESCAP etc (2018)

# Sustainable Development Pathways and Resilience




ESCAP etc (2018)

# Resilient City

## ❖ Qualities for a resilient city

- **Reflective**: People and institutions reflect and learn from past experiences and leverage this learning to inform future decision making.
- **Robustness**: Urban physical assets are designed, constructed and maintained in anticipation of high-impact climate events.
- **Redundancy**: Spare capacity is built into the system to account for disruptions and surges in demand. It also involves multiple ways of fulfilling a need or function.
- **Flexible**: Refers to the willingness and ability to adopt alternative strategies in response to changing circumstances or sudden crises. This can be achieved through new knowledge and technologies.

Prairie Climate Centre

# Resilient City

- **Resourcefulness**: Citizens and institutions are aware of climate risks, able to adapt to shocks and stresses and can quickly respond to a changing environment.
- **Inclusive**: Inclusive processes emphasize the need for broad consultation and many views to create a sense of shared ownership or a joint vision to build city resilience.
- **Integrated**: Integrated processes bring together and align city systems to promote consistency in decision making and investments. Exchange of information between components of the system enables them to function collectively and respond rapidly.

Prairie Climate Centre

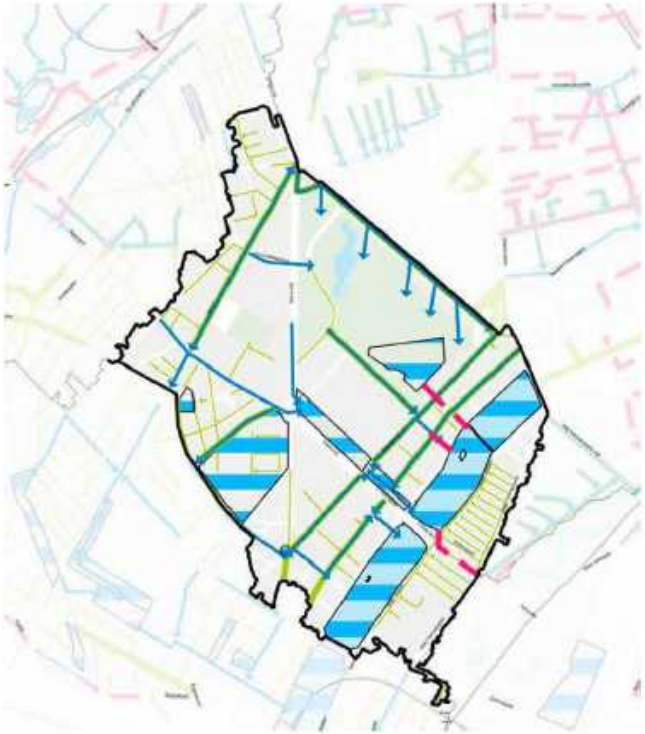
# PHALEN Wetland Restoration Project
## (St. Pual Minnesota, US)

- The City of St. Paul in Minnesota replaced a crumbling shopping centre site with its original wetlands to create the Phalen Wetland Park. With the assistance of the City of St. Paul, Phalen neighbourhood residents explored a range of design alternatives for the deteriorating and financially bankrupt shopping centre. The residents embraced a plan to restore the original wetlands and redevelop the area, including a park to revitalize for the community. The shopping centre was demolished and a new urban ecosystem was constructed to mimic the original natural system.
- This urban ecological restoration project resulted in multiple benefits for the City of St. Paul. The restored wetlands have become a cost-effective part of the area's stormwater retention system, as they serve as natural holding tanks for rainwater and prevent sewer overflow. In addition, they created an attractive natural landscape and studies have documented how the wetlands park has increased biodiversity and become a popular part of the cultural life of the community. In addition, the neighbourhood around the park has seen new investments in its immediate area in the form of new housing and commercial development in a previously low-income neighbourhood.

Prairie Climate Centre

# Cloudburst Plan
## (Copenhagen, Denmark)

Copenhagen **Cloudburst Plan as backbone for physical development** in the City



**Copenhagen** (Denmark) implements the next decades a cloudburst plan with 300 projects, **combining green, blue and grey solutions** costing 1.5 billion Euro

Adding more urban nature, increasing biodiversity and creating a liveable city

Storm water storage space at Tåsingeplads in Copenhagen, Denmark

European Environment Agency

# Concluding Remarks

- Climate action is critical to achieving all the Sustainable Development Goals
- Climate change and disaster risk management should be integrated into development policies
- Climate change impact should be considered when assessing development baseline
- Climate action under the Paris Agreement may enhance adaptation and SDGs implementation


# Thank You!

sustainabledevelopment.un.org

This drawing illustrates Diplo's approach to training and research on climate change