

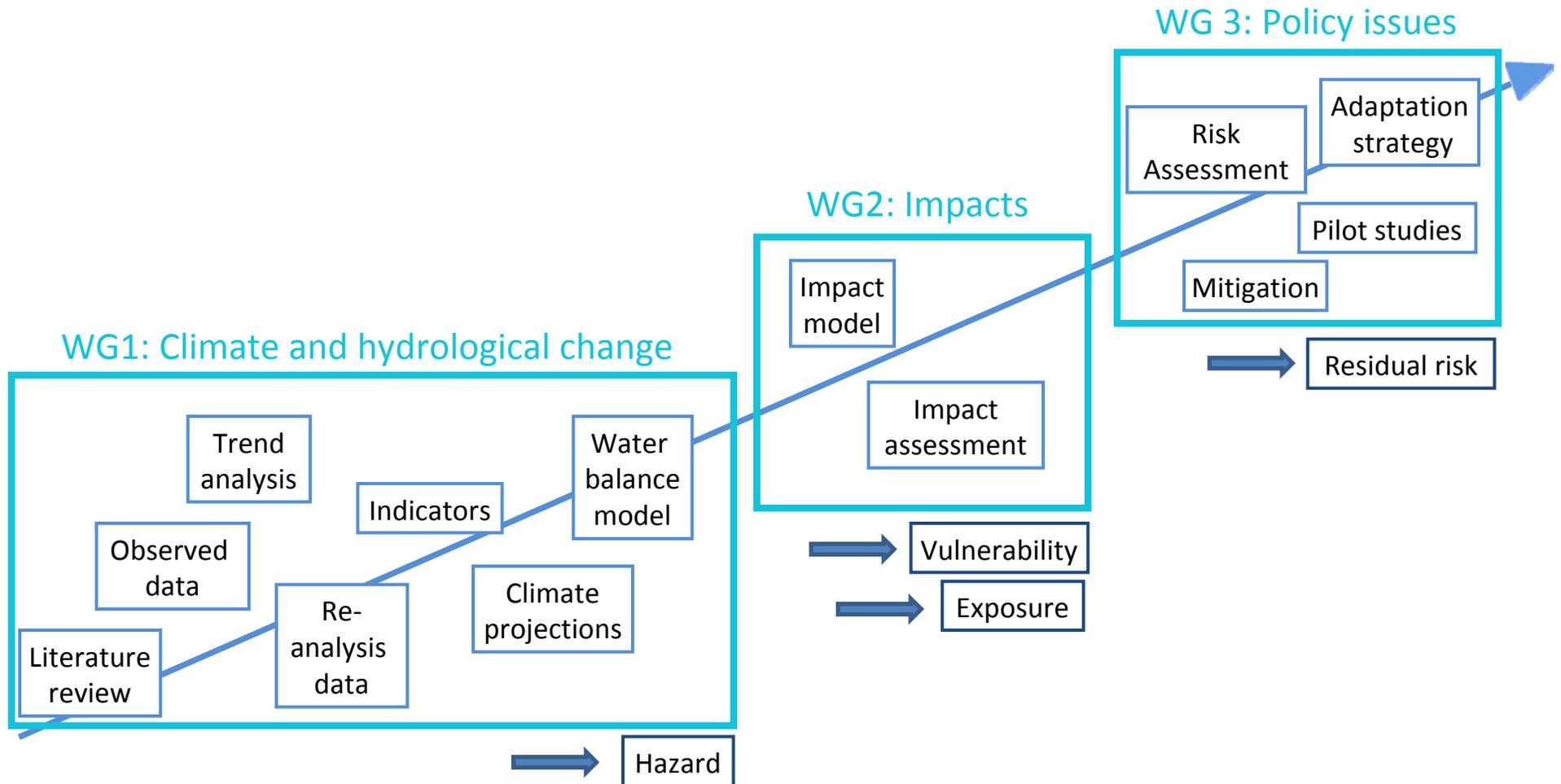
# Introduction to group discussions

Dr. Kai Gerlinger

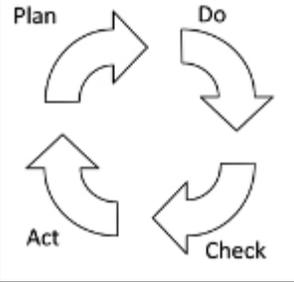
HYDRON Consulting Engineers (Karlsruhe, Germany)

May 9, 2014

# Working groups

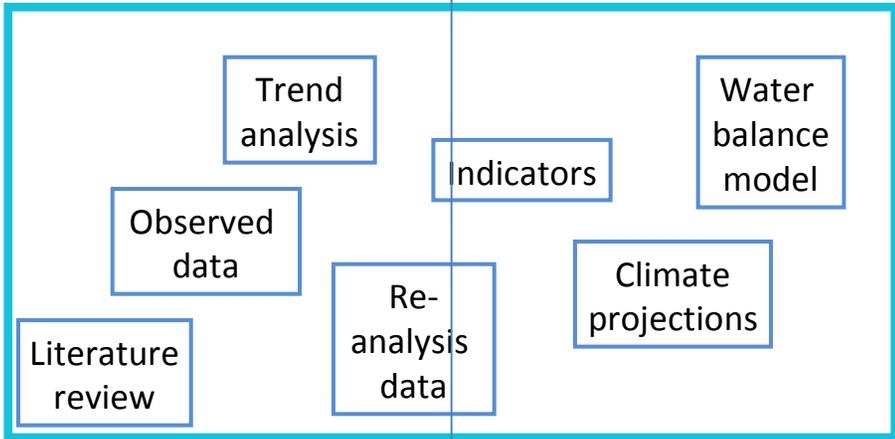


# Workshops

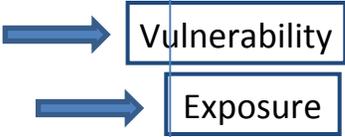
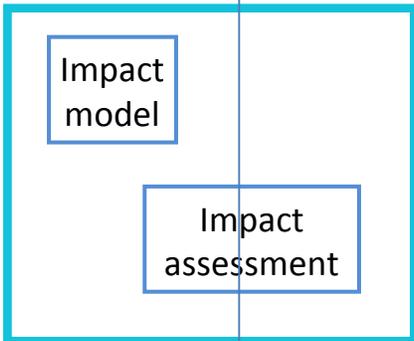


iterative process

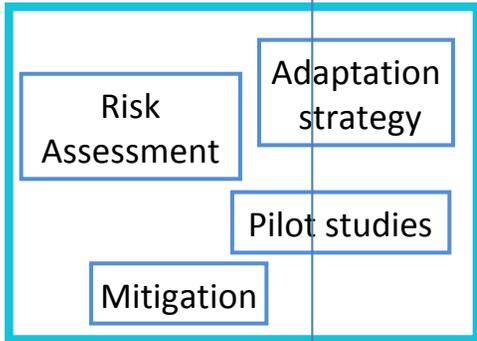
## WG1: Climate and hydrological change



## WG2: Impacts



## WG 3: Policy issues



# Working groups

- WG1: Climate and hydrological changes and assessment including flood and drought
- WG2: Addressing climate change impacts and assessment in water related sectors
- WG3: Transboundary and policy issues in climate change adaptation

# WG1: Climate and hydrological changes

Climate and hydrological changes and assessment including flood and drought

- What has been done so far?
- What is currently happening?
- Which starting points/ideas exist for cooperation?

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**Purpose:** reduce the geographical scope so that resolution can be improved

## 1. Statistical

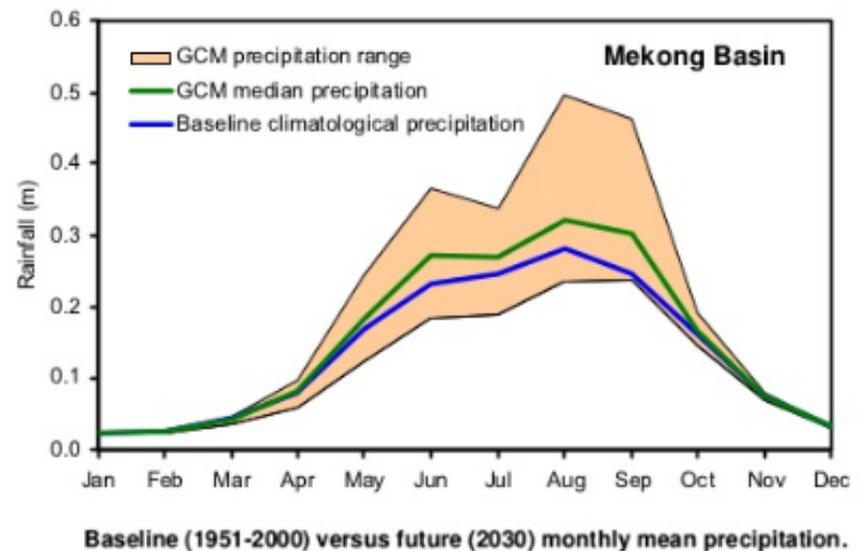
- Assumes local climate is conditioned by large-scale (global) climate but does not try to understand physical causality
- GCM output is compared to observed information for a reference period to calculate period factors
- Period factors are then used to adjust GCM time-series

## 2. RCM (Regional Circulation Models)

- most sophisticated way to downscale GCM data
- Physically based
- 25-50km resolution
- Computationally intensive
- Requires detailed understanding of regional atmospheric and ocean processes

## 3. Pattern-scaling

- Uses high resolution observation data to scale GCM data to small areas or monitoring points
- Suitable when there is extensive observation data
- Cannot correct for statistical bias so should only be used to assess relative changes



Eastham et al. 2008

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# WG1: Climate and hydrological changes

Climate and hydrological changes and assessment including flood and drought

- What has been done so far?
- What is currently happening?
- Which starting points/ideas exist for cooperation?
  - How can SRES and RCP scenarios be jointly assessed?
  - How should challenges of climate projections be handled?
    - Downscaling? Bias-Correction? Reliable observed data?
    - Selection of suitable ensemble members? Usage of ensemble mean projection?
    - Consideration of outliers?
  - Which hydrological models are suitable? How can uncertainties of hydrological models/basin development be taken into account?
  - Which indicators are meaningful and basin-wide obtainable?

# WG2: Climate change impacts

Addressing climate change impacts and assessment in water related sectors

- What has been done so far?
- What is currently happening?
- Which starting points/ideas exist for cooperation?



# WG2: Climate change impacts

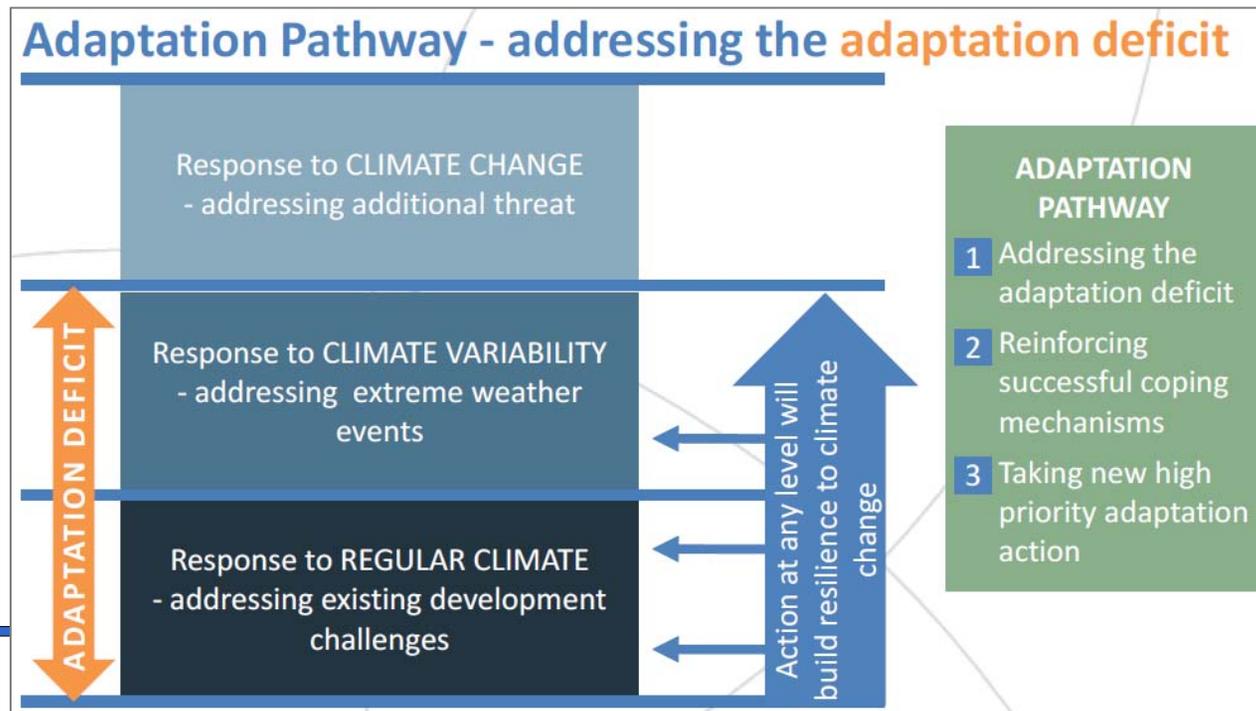
Addressing climate change impacts and assessment in water related sectors

- What has been done so far?
- What is currently happening?
- Which starting points/ideas exist for cooperation?
  - What kind of impact modelling is necessary? Do we have to wait until water balance models perform better?
  - How are most relevant impacts identified?
  - How are uncertainties considered?
  - How to integrate the water-food-energy nexus under climate change?
  - Does climate change also have positive impacts?

# WG3: Climate change adaptation

Transboundary and policy issues in climate change adaptation

- What has been done so far?
- What is currently happening?
- Which starting points/ideas exist for cooperation?



Carew-Reid et al. 2011

# WG3: Climate change adaptation

Transboundary and policy issues in climate change adaptation

- What has been done so far?
- What is currently happening?
- Which starting points/ideas exist for cooperation?
  - How is adaptive capacity assessed?
  - How can effective adaptation occur despite large uncertainties?
  - How are different assets “traded off” against each other?
  - What are examples of successful adaptation?
  - How to come to a flexible and no regret strategy?
  - How can the river commissions effectively communicate their adaptation strategies to the member countries? How to mainstream adaptation into basin development?

# Bibliography

- Carew-Reid, J., Ketelsen, T., Kingsborough, A., and Porter, S. (2011): Climate Change Adaptation and Mitigation (CAM) Methodology Brief. ICEM – International Centre for Environmental Management. Hanoi, Vietnam.
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- ICEM (2013): USAID Mekong ARCC Climate Change Impact and Adaptation: Main Report. Prepared for the United States Agency for International Development by ICEM - International Centre for Environmental Management
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