

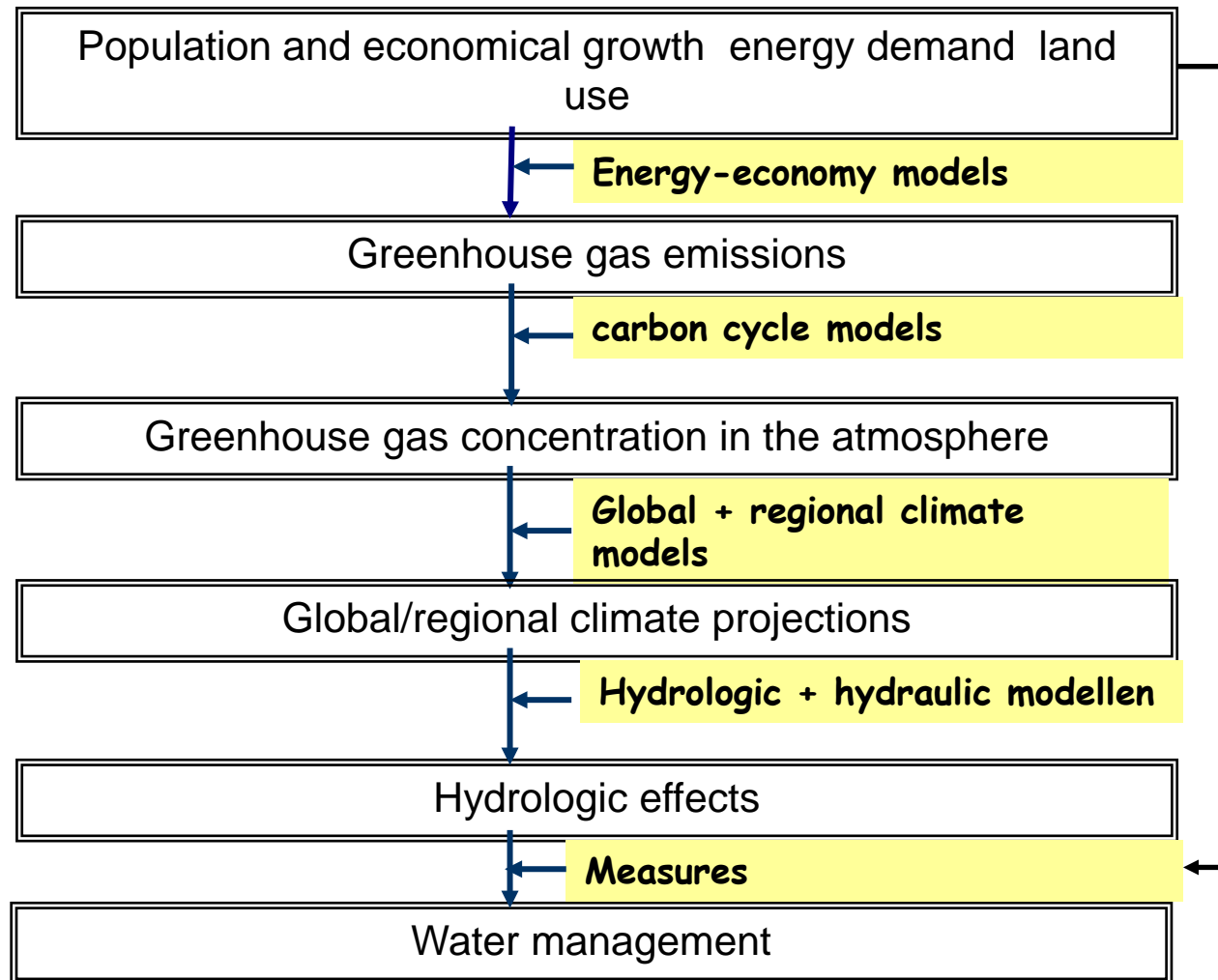
Adaptation Mainstreaming

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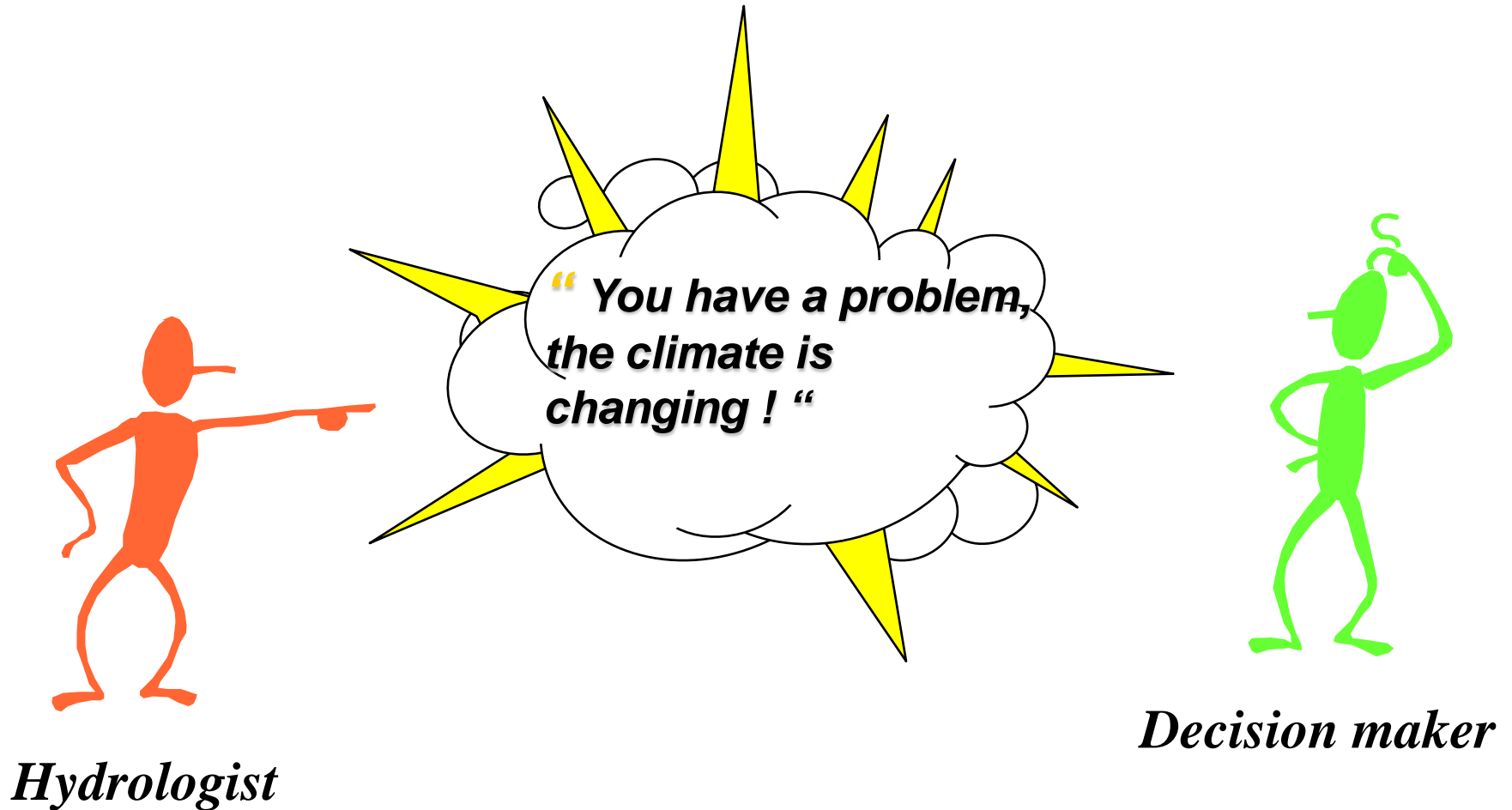
Learning objectives

1. Explain the concept of Adaptation Tipping Points (ATPs) and its use in flood and drought risk management
2. Analyse critical ATPs for a specific case study

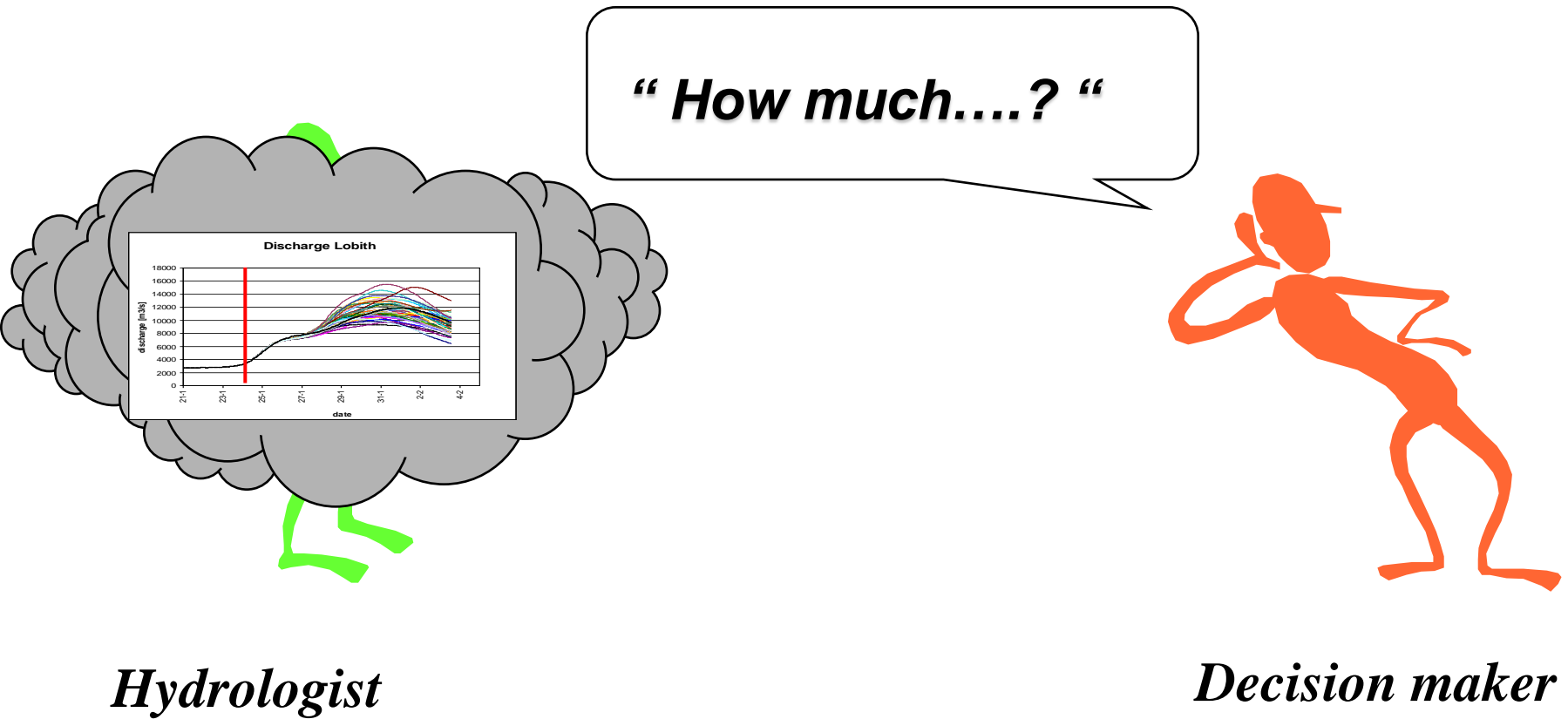
Exc. 1: Explain this figure



Exc. 2: Explain difficulty in communication



Exc. 2: Explain difficulty in communication



Status of climate change projections

- Reasonable agreement on trends
- Much less agreement on rate and magnitude
- Certainly too little agreement to design urban water systems according to standard method

Key points

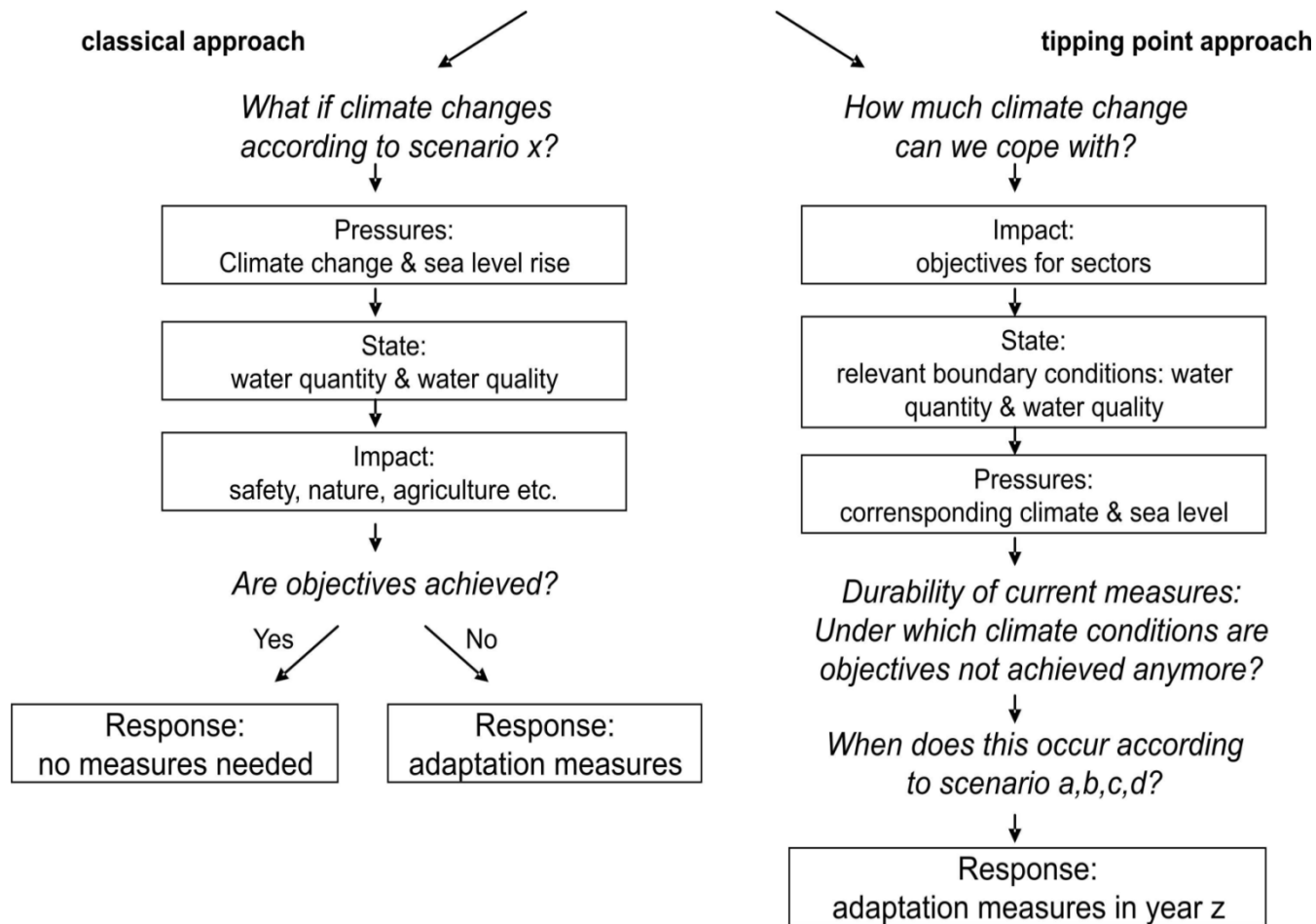
- Adaptation to climate change has no value in itself. We do this because we want to live, work etc. in an area
- We ask the question, how much should the climate change before we are in trouble (climate change = change in natural boundary conditions)
- This is an ATP (= a boundary condition where acceptable standards may be compromised)

Short term (policy maker) perspective

- Question for a policy maker's time frame
 - Is there a risk that policy goals and requirements (acceptable standards) will not be achieved?
 - Is there a risk that additional measures will be needed soon (extra money needed)?
 - Is there a risk that too much measures are taken (too much money is spend)?
- Strategic questions
 - How long will the strategy be efficient over the time horizon (robustness)?
 - How easy is it to change in time to an alternative strategy (flexibility/no regret)?

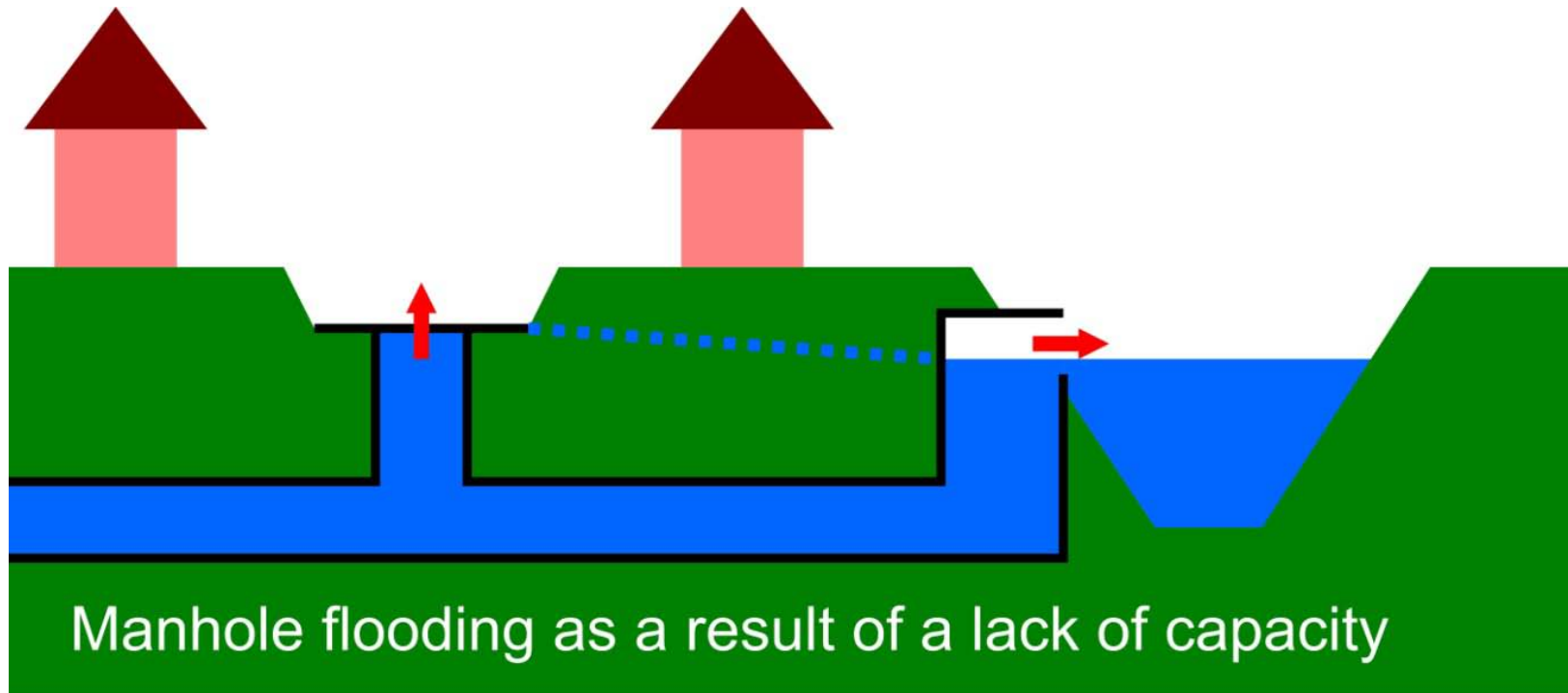
Adaptation tipping point method

How vulnerable are we for climate change and sea level rise and what adaptation measures should we take ?

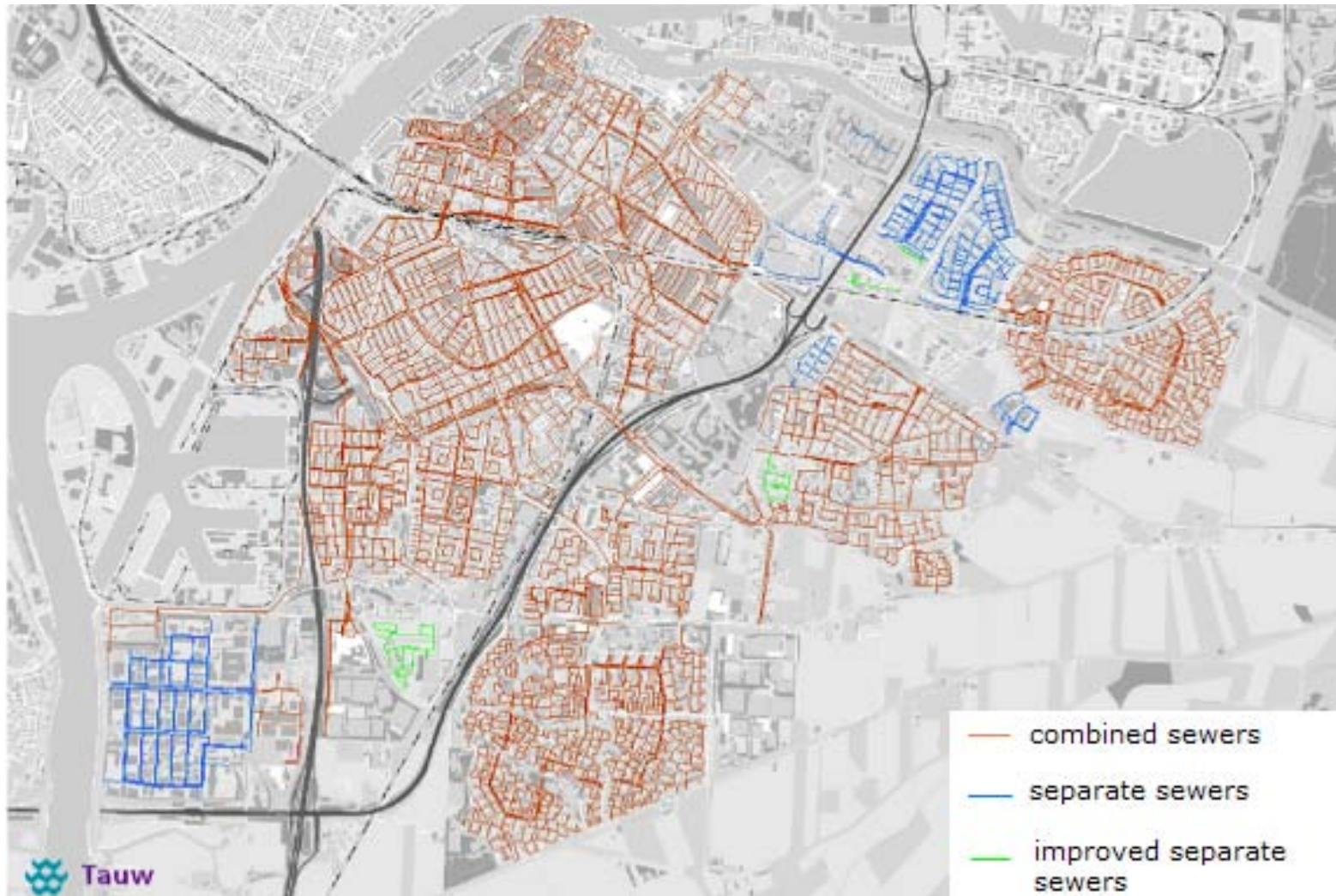


Objective for stormwater management

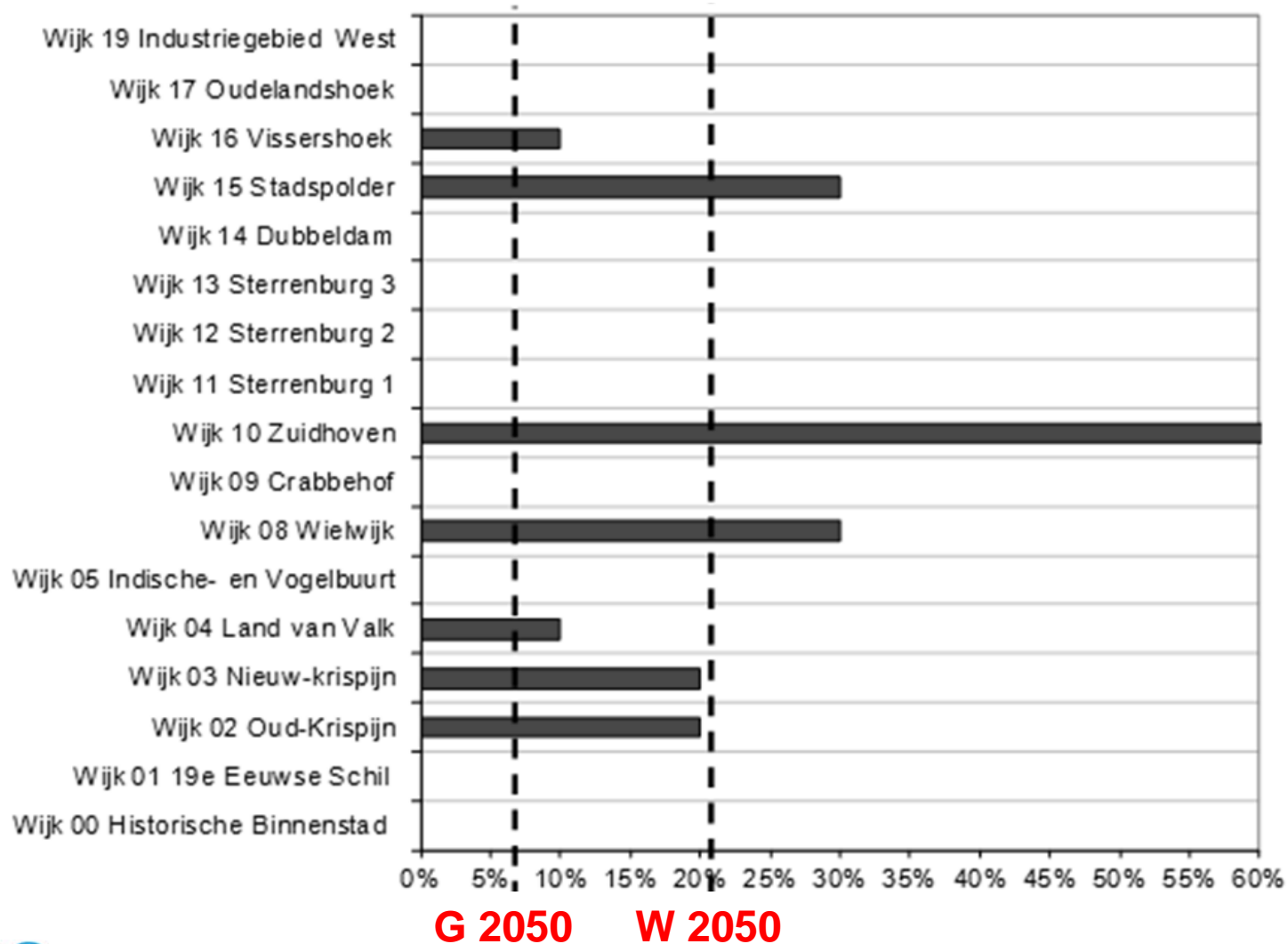
1 in 2 years event (20 mm / 2 hr)



Sewer system Dordrecht



ATPs for current situation



Current management strategy

- Current strategy involves disconnecting 40% of the publicly-owned buildings and paved areas from sewers



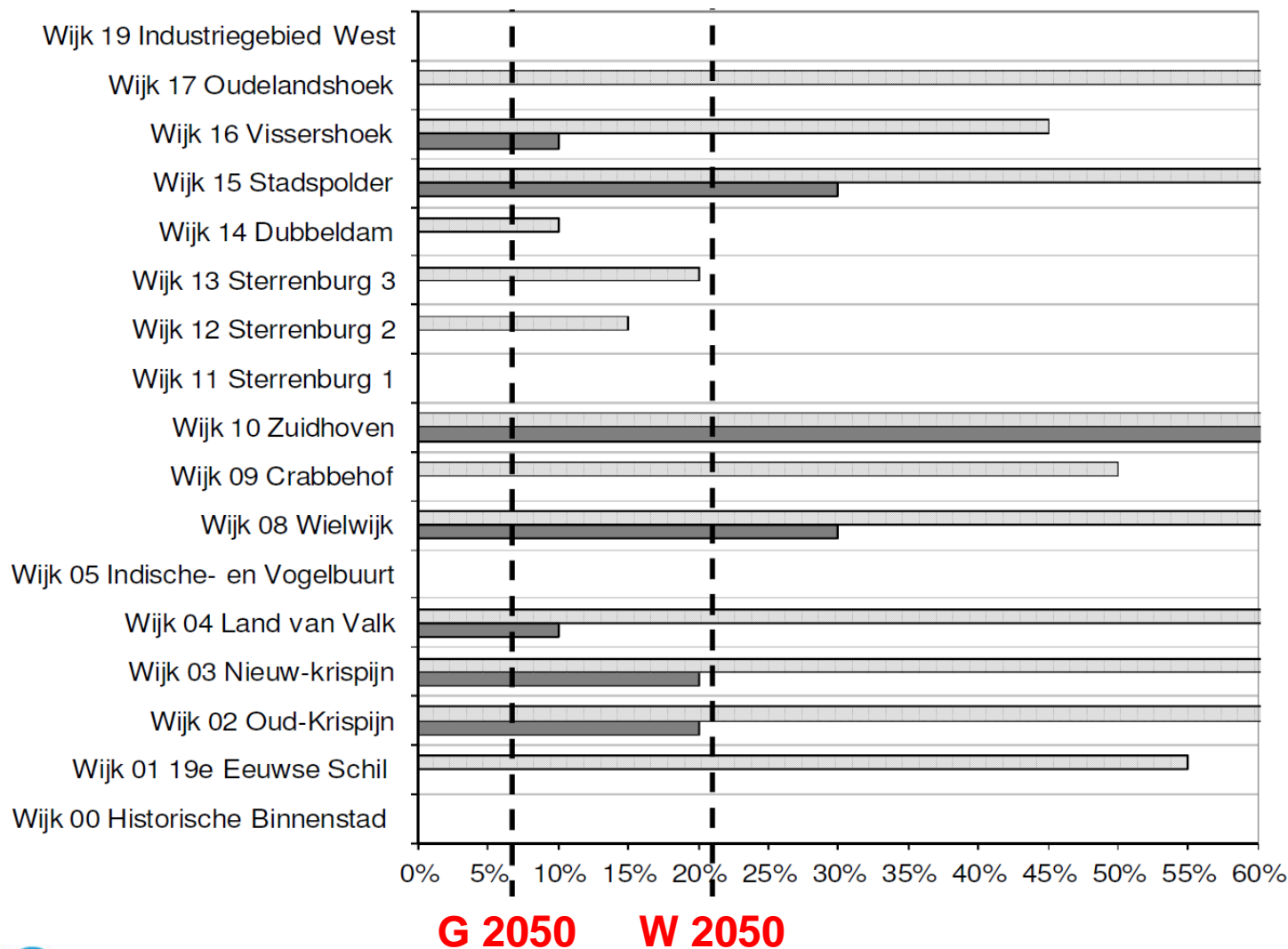
Example: Urban Vision Wielwijk



Mainstreaming disconnection from sewers



Shift in ATPs by disconnection from sewers



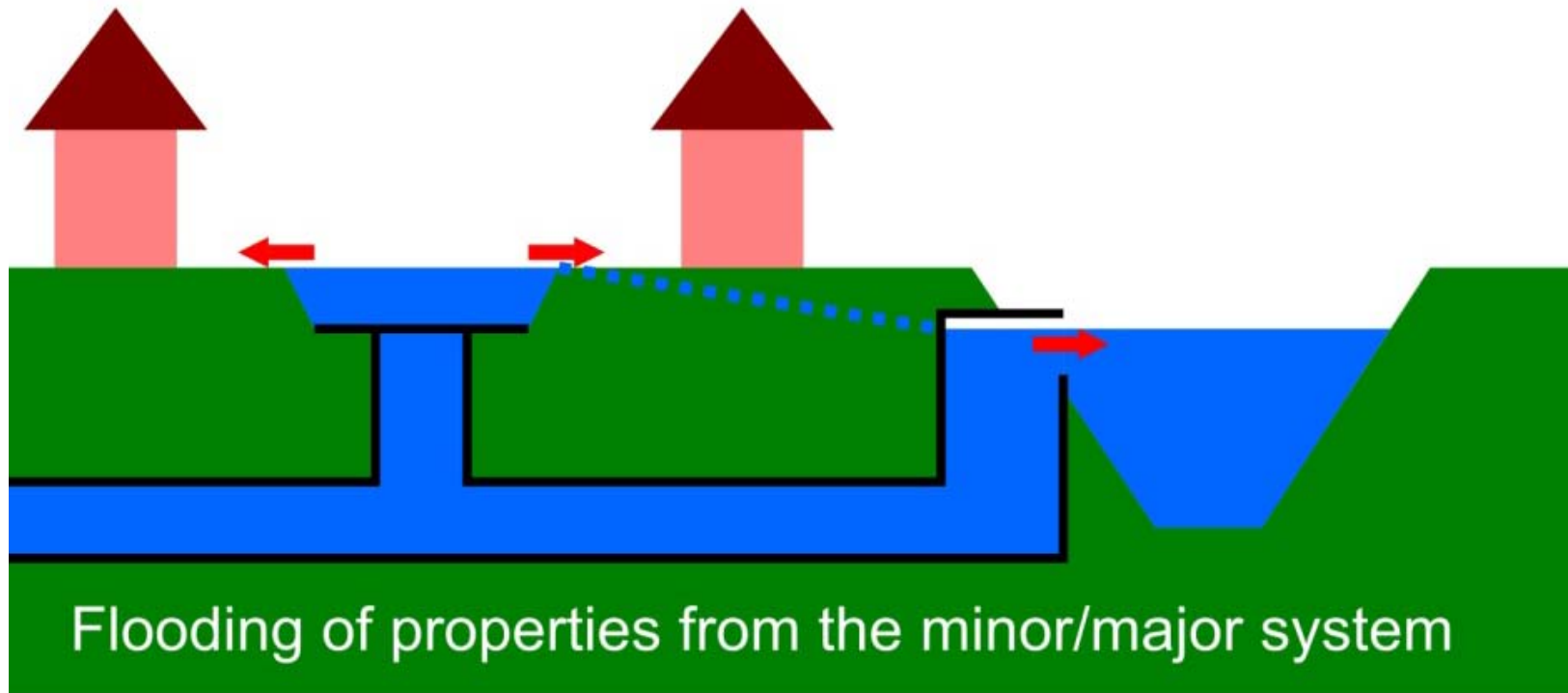


Need for alternative management strategy

- The current strategy is effective in postponing ATPs (until 2050) in 76% of the districts
- 4 Out of 17 (24%) districts fail to meet the objective with the current strategy
- An alternative strategy aimed at the use of the overland drainage system was developed and analysed with ATP

ATPs for overland drainage system

1 in 50 years event (41 mm / 2 hr)



Identifying and designing flood pathways

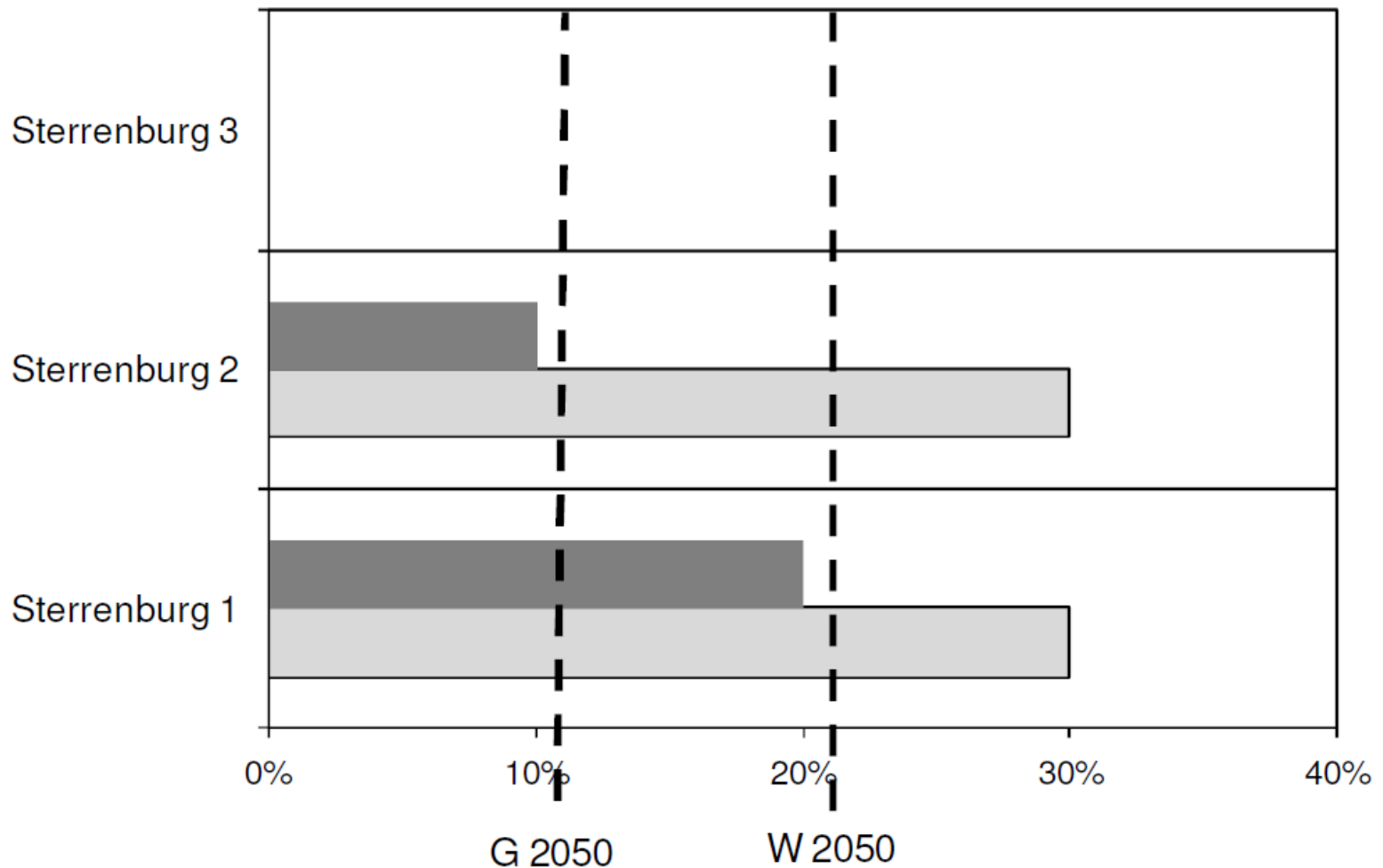


Sterrenburg 1



Sterrenburg 2

Shift in ATPs by using overland pathways



Findings about Dordrecht case study

- Disconnection strategy is effective 76% of the districts
- The use of the overland drainage system is effective in postponing ATPs where the disconnection strategy fails to meet its objective
- Both strategies can be timed with normal projects to keep costs low

Findings about ATP method

- It gives insight in most urgent problems and in opportunities
- It gives insight in the earliest and latest date that a strategy is no longer effective
- It stimulates discussion between public and private stakeholders on performance objectives, policy development, investment strategies, risk management and urban development

Exc. 3: Apply ATPs for other themes

- Explain how the ATP method can be applied to another theme than flooding (e.g. water security, water quality)
 1. Describe policy goal
 2. Identify requirement (acceptable standard)
 3. Describe possible impacts of climate change on state variables
 4. Identify possible adaptation measures to postpone ATPs, and opportunities for mainstreaming