Workshop on “Analysis of water security, water productivity and water-related disaster for water recourses master plan

AWDO 2020 – Overview of update of AWDO methodology

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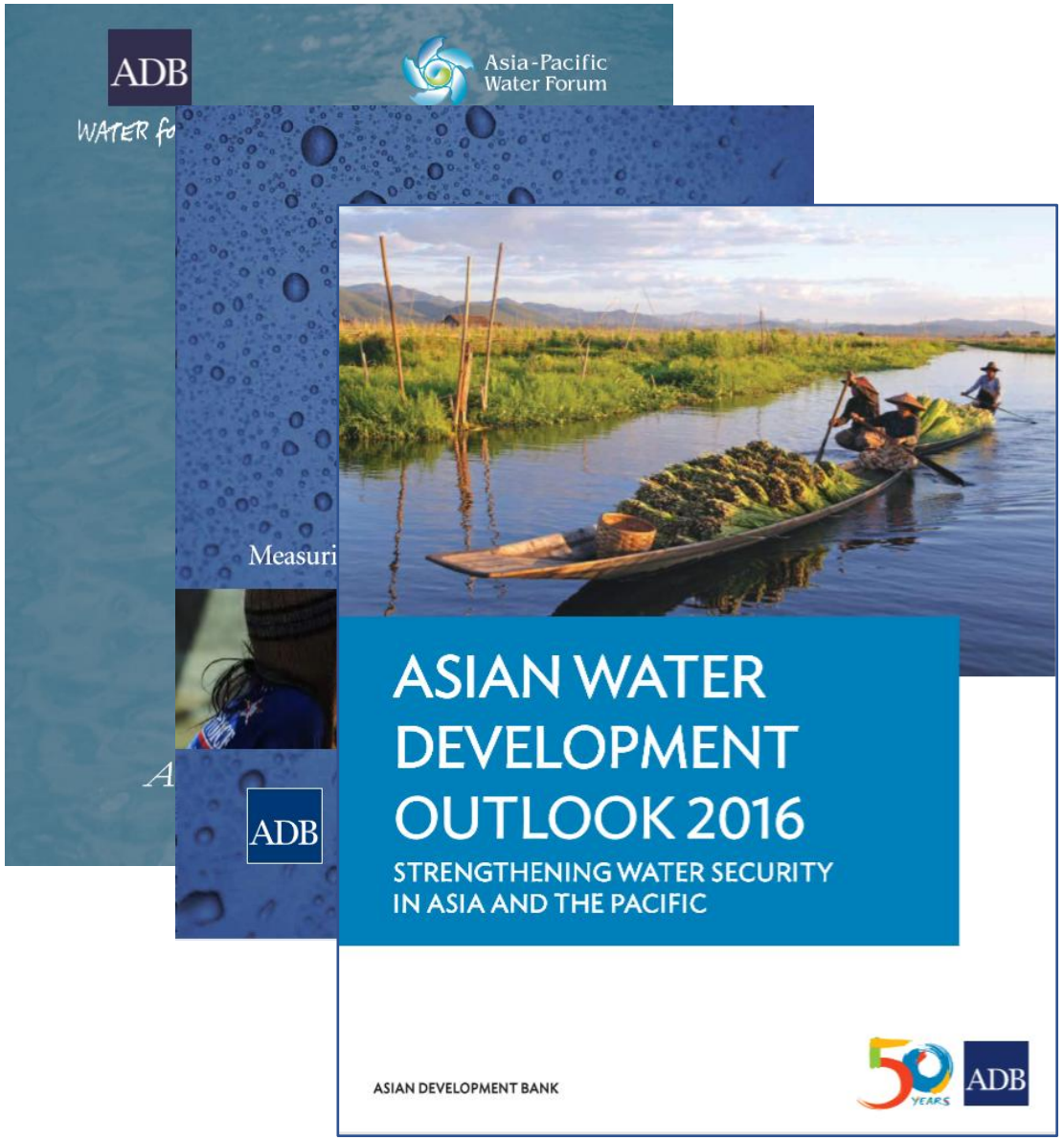
Bangkok
19 August2019

So far: 3 editions of AWDO



2007 – Introducing the Concept

2013 – First quantification

2016 – Second quantification

Asia-Pacific Water Forum

ADB

AWDO

Household Water Security
Satisfy **household** water and sanitation needs in all communities

Resilience to Water-Related Disasters
Build resilient **communities** that can adapt to change

Economic Water Security
Support productive **economies** in agriculture and industry

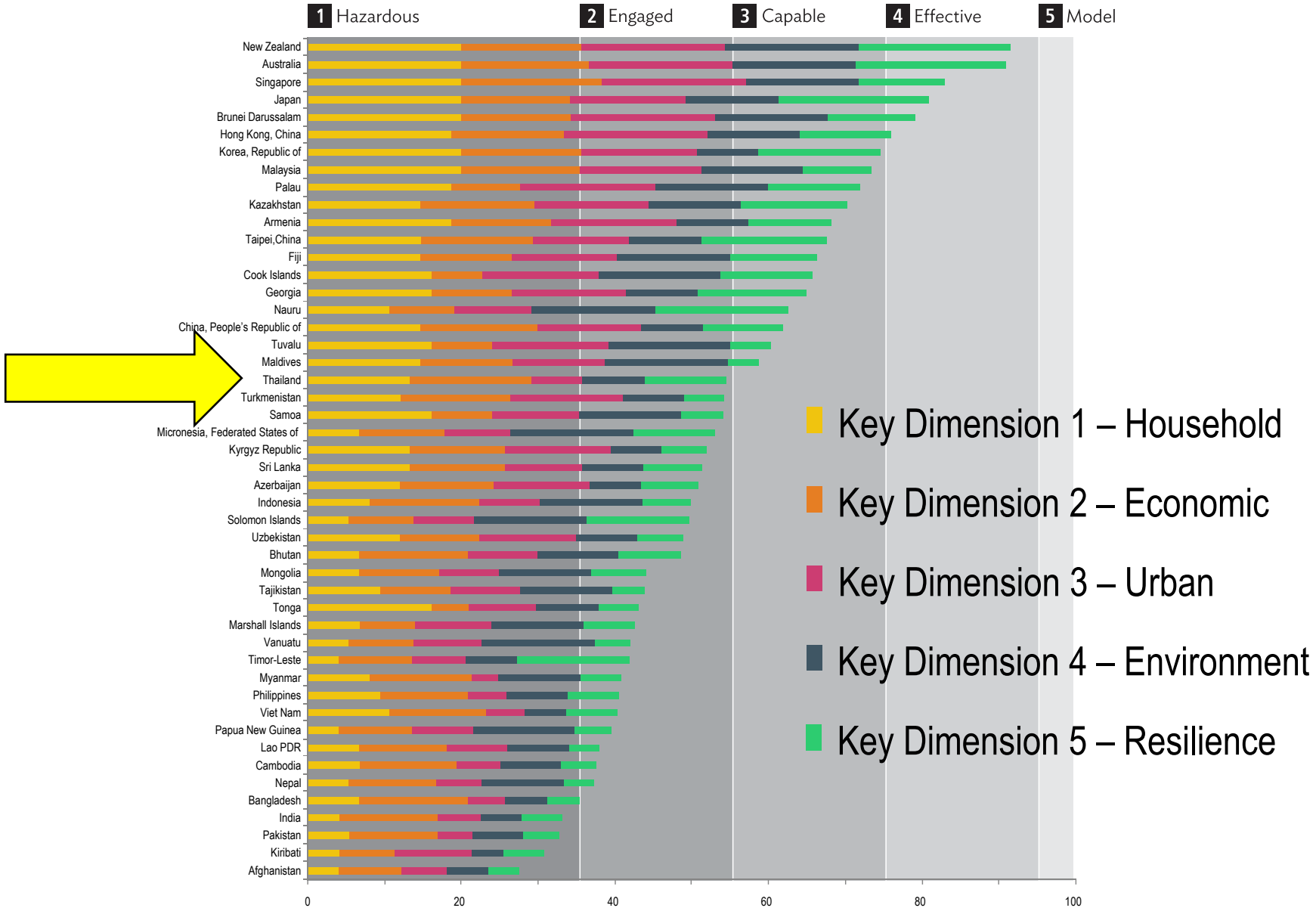
Environmental Water Security
Restore healthy **rivers** and ecosystems

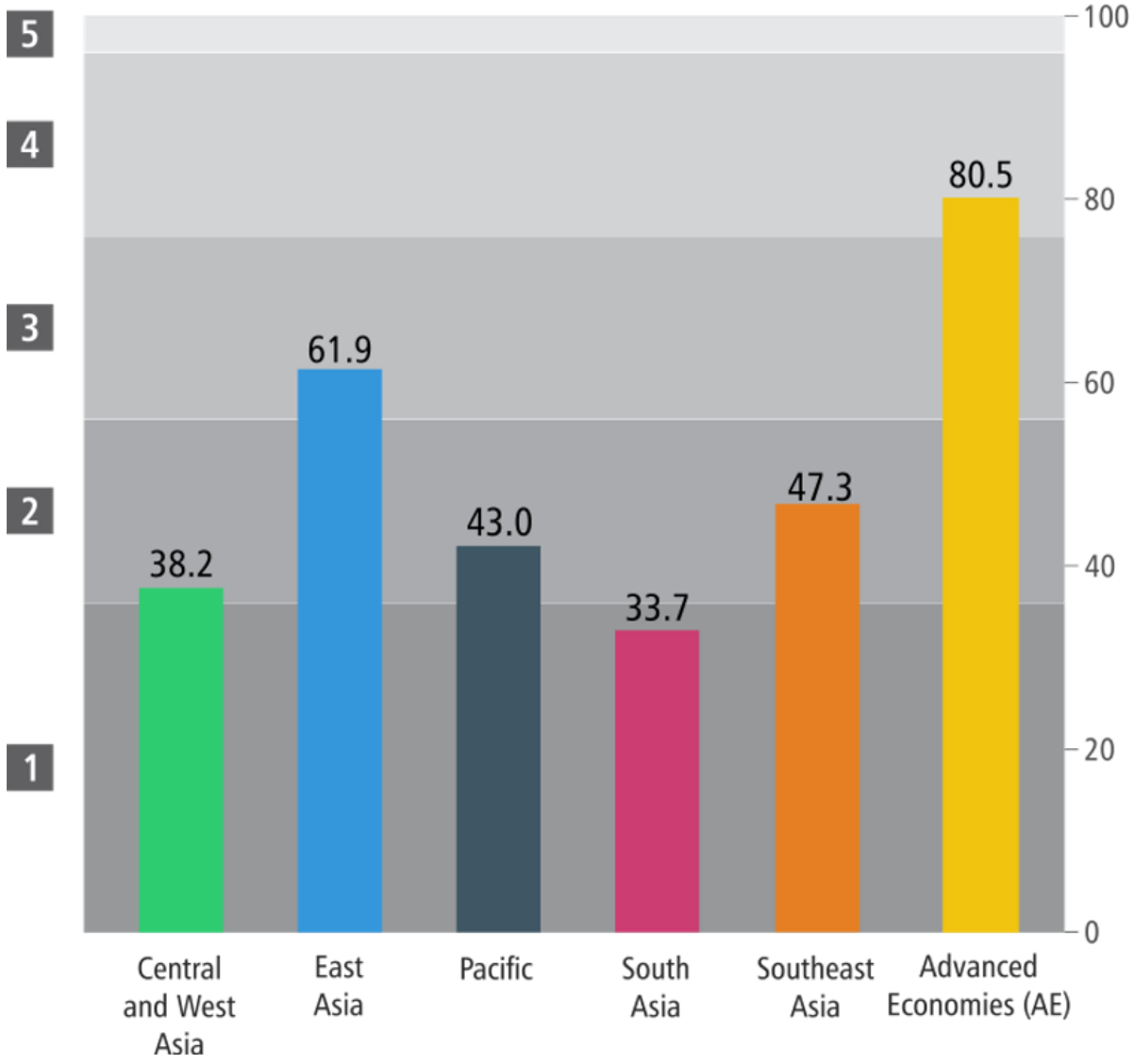
Urban Water Security
Develop vibrant, livable **cities** and towns

Objectives AWDO - **for ADB**

- Be a communication tool on Water Security for the Asia and Pacific region
  - by providing an overview of Water Security of DMCs in five key dimensions
  - highlighting the need for an integrated approach to water management
- Provide a basis for comparison with other DMCs
  - or, within a DMC, for comparison with other states, provinces or river basins
- Follow the progress over time that DMCs make in achieving water security (2013 - 2016 - 2020)
- Guide trailing DMCs to become water secure by guiding policy and institutional reforms
  - supporting Operational Departments of ADB in their communication with the DMCs

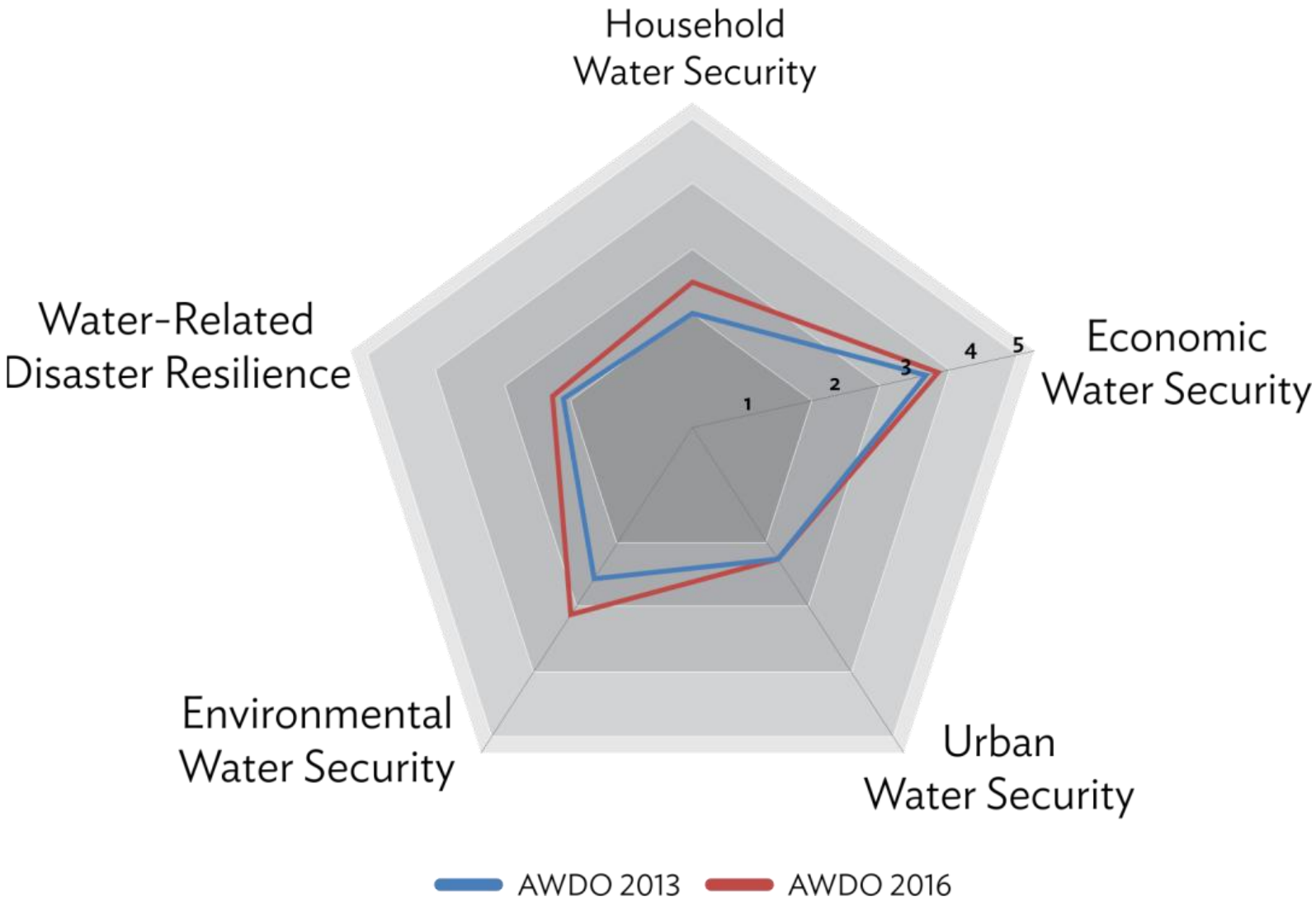
48 Countries of Asia-Pacific region, incl. Advanced Economies





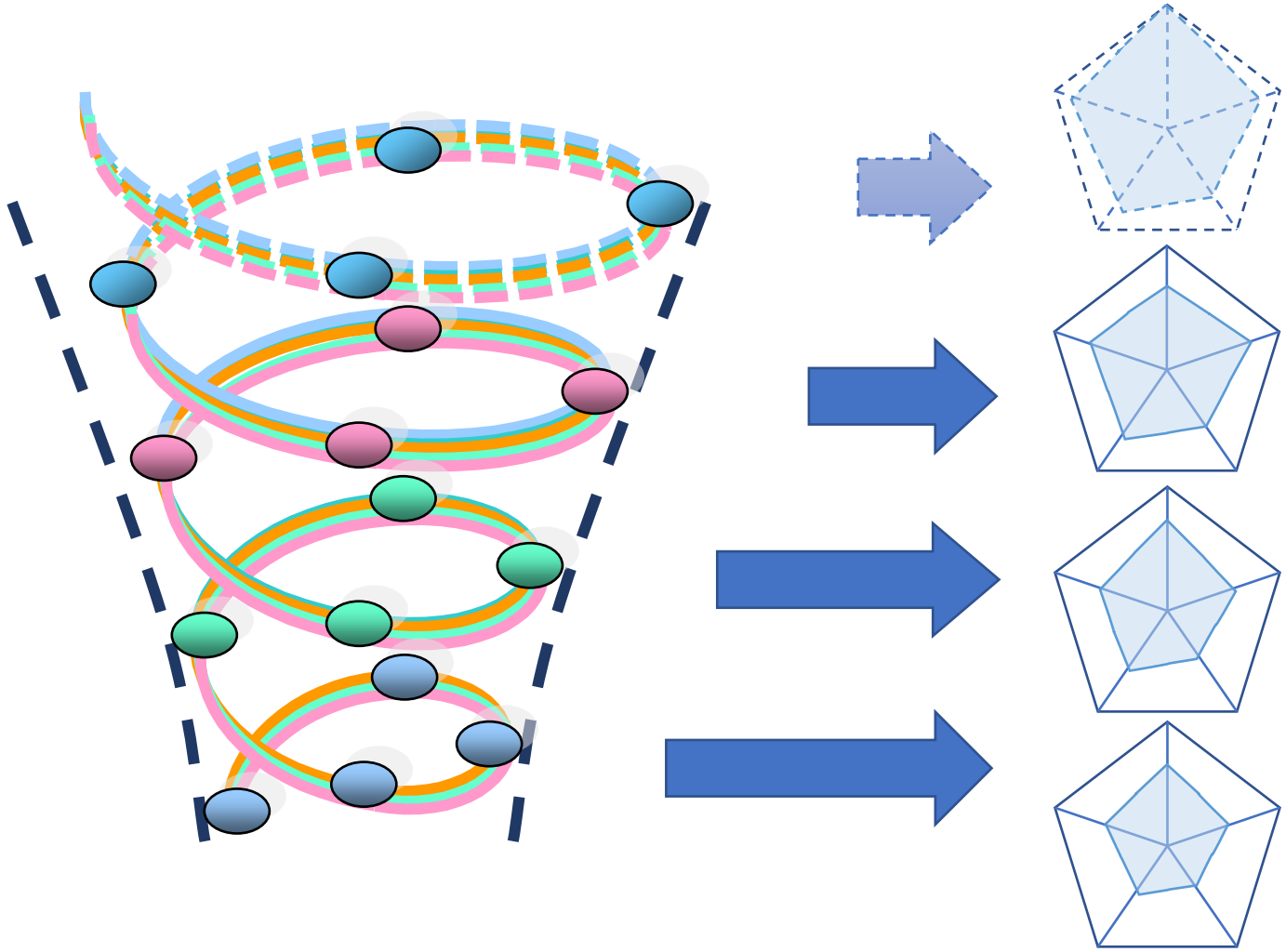
Regional Water Security Index

Southeast Asia



Water Security Assessments

How far is water security improved in IWRM process?

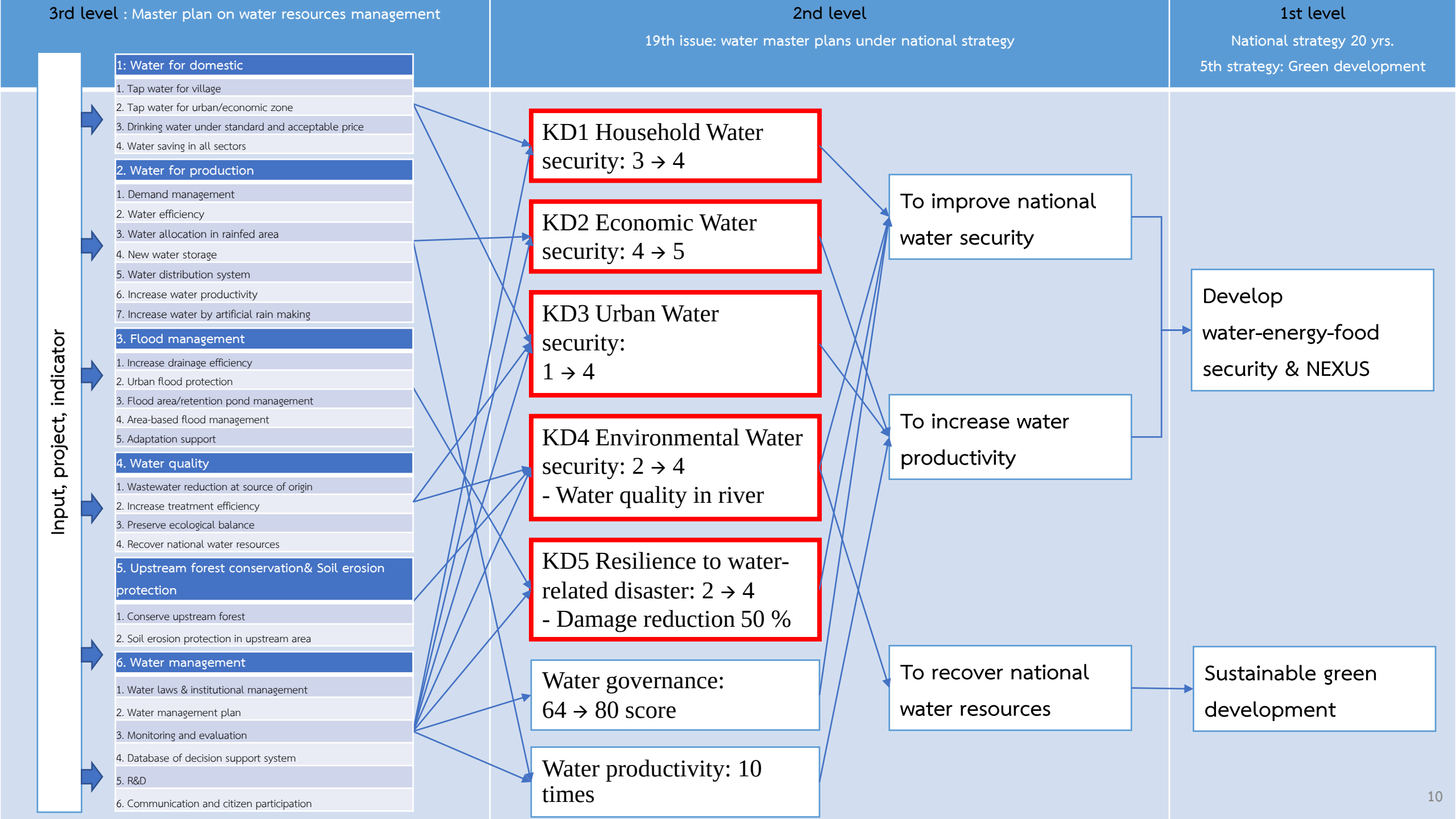


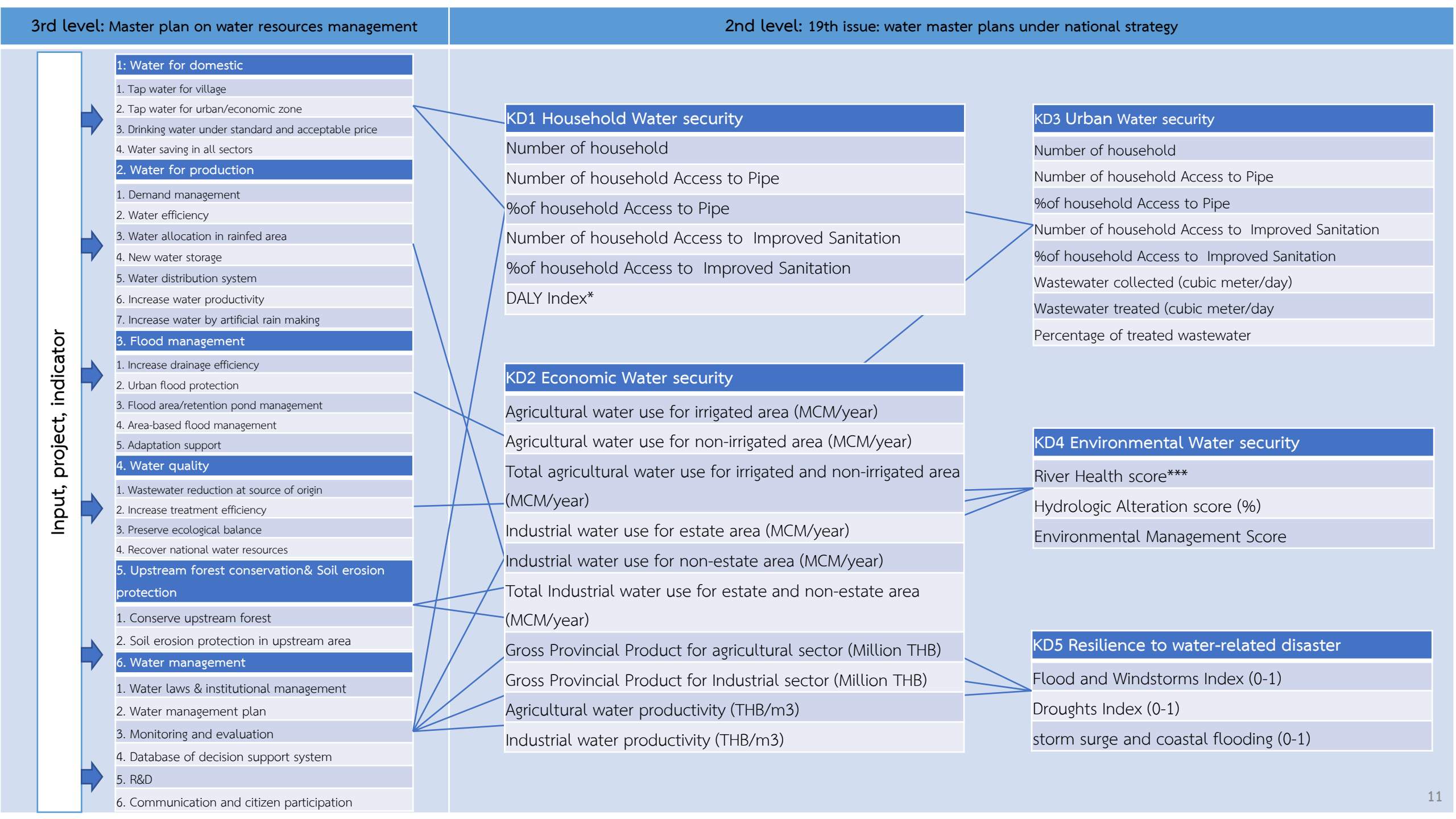
IWRM Spiral Model

AWDO
Water Security Indices

Objectives AWDO - for DMCs (Thailand)

- Be a communication tool on Water Security in their country
  - by providing an overview of Water Security of DMCs in five key dimensions
  - highlighting the need for an integrated approach to water management
  - and linking and quantifying these dimensions with higher governmental objectives (such as food security and sustainable green development)


3rd level : Master plan on water resources management
2nd level
19th issue: water master plans under national strategy
1st level
National strategy 20 yrs.
5th strategy: Green development
Input, project, indicator
1: Water for domestic
1. Tap water for village
2. Tap water for urban/economic zone
3. Drinking water under standard and acceptable price
4. Water saving in all sectors
2. Water for production
1. Demand management
2. Water efficiency
3. Water allocation in rainfed area
4. New water storage
5. Water distribution system
6. Increase water productivity
7. Increase water by artificial rain making
3. Flood management
1. Increase drainage efficiency
2. Urban flood protection
3. Flood area/retention pond management
4. Area-based flood management
5. Adaptation support
4. Water quality
1. Wastewater reduction at source of origin
2. Increase treatment efficiency
3. Preserve ecological balance
4. Recover national water resources
5. Upstream forest conservation& Soil erosion protection
1. Conserve upstream forest
2. Soil erosion protection in upstream area
6. Water management
1. Water laws & institutional management
2. Water management plan
3. Monitoring and evaluation
4. Database of decision support system
5. R&D
6. Communication and citizen participation
KD1 Household Water security: 3 → 4
KD2 Economic Water security: 4 → 5
KD3 Urban Water security: 1 → 4
KD4 Environmental Water security: 2 → 4
- Water quality in river
KD5 Resilience to water-related disaster: 2 → 4
- Damage reduction 50 %
Water governance: 64 → 80 score
Water productivity: 10 times
To improve national water security
To increase water productivity
To recover national water resources
Develop water-energy-food security & NEXUS
Sustainable green development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KD1 Household Water security
Number of household
Number of household Access to Pipe
%of household Access to Pipe
Number of household Access to Improved Sanitation
%of household Access to Improved Sanitation
DALY Index*
KD2 Economic Water security
Agricultural water use for irrigated area (MCM/year)
Agricultural water use for non-irrigated area (MCM/year)
Total agricultural water use for irrigated and non-irrigated area (MCM/year)
Industrial water use for estate area (MCM/year)
Industrial water use for non-estate area (MCM/year)
Total Industrial water use for estate and non-estate area (MCM/year)
Gross Provincial Product for agricultural sector (Million THB)
Gross Provincial Product for Industrial sector (Million THB)
Agricultural water productivity (THB/m3)
Industrial water productivity (THB/m3)
KD3 Urban Water security
Number of household
Number of household Access to Pipe
%of household Access to Pipe
Number of household Access to Improved Sanitation
%of household Access to Improved Sanitation
Wastewater collected (cubic meter/day)
Wastewater treated (cubic meter/day
Percentage of treated wastewater
KD4 Environmental Water security
River Health score***
Hydrologic Alteration score (%)
Environmental Management Score
KD5 Resilience to water-related disaster
Flood and Windstorms Index (0-1)
Droughts Index (0-1)
storm surge and coastal flooding (0-1)

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  - highlighting the need for an integrated approach to water management
  - and linking and quantifying these dimensions with higher governmental objectives (such as food security and sustainable green development)
- Provide a basis for comparison of their Water Security with other countries in the region
- Provide a basis for comparison of the Water Security differences within their country (provinces, river basins) to support decision making on investments
- Follow the progress over time that the country and regions make in achieving water security (2019-2024?)

Which means …..

- That applying the AWDO methodology is not a one-time happening
- IWRM is a continuous process
  - to reach a higher level of water security (the IWRM spiral)
  - to adapt to changing conditions (socio-economic development, climate change)
- Each application of AWDO will evolve in time
  - based on the experience with the earlier application
  - to adapt to changes in priorities and policies
  - but the message of AWDO will stay the same … integration, need for investments, etc
- AWDO at ADB level is also evolving
  - from 2013 to 2016 to 2020

From AWDO 2016 to AWDO 2020

AWDO 2020 will continue along the same lines as previous AWDO, but with:

- Some pre-determined changes in approach / methodology
  - KD1 now only Rural Household
  - KD5 to include the hazard
- More prominent attention to Governance and Finance (supported by OECD)
- Stronger link with SDGs
- More attention to equity issues (inclusiveness)
- Country case studies – learning from application at country level

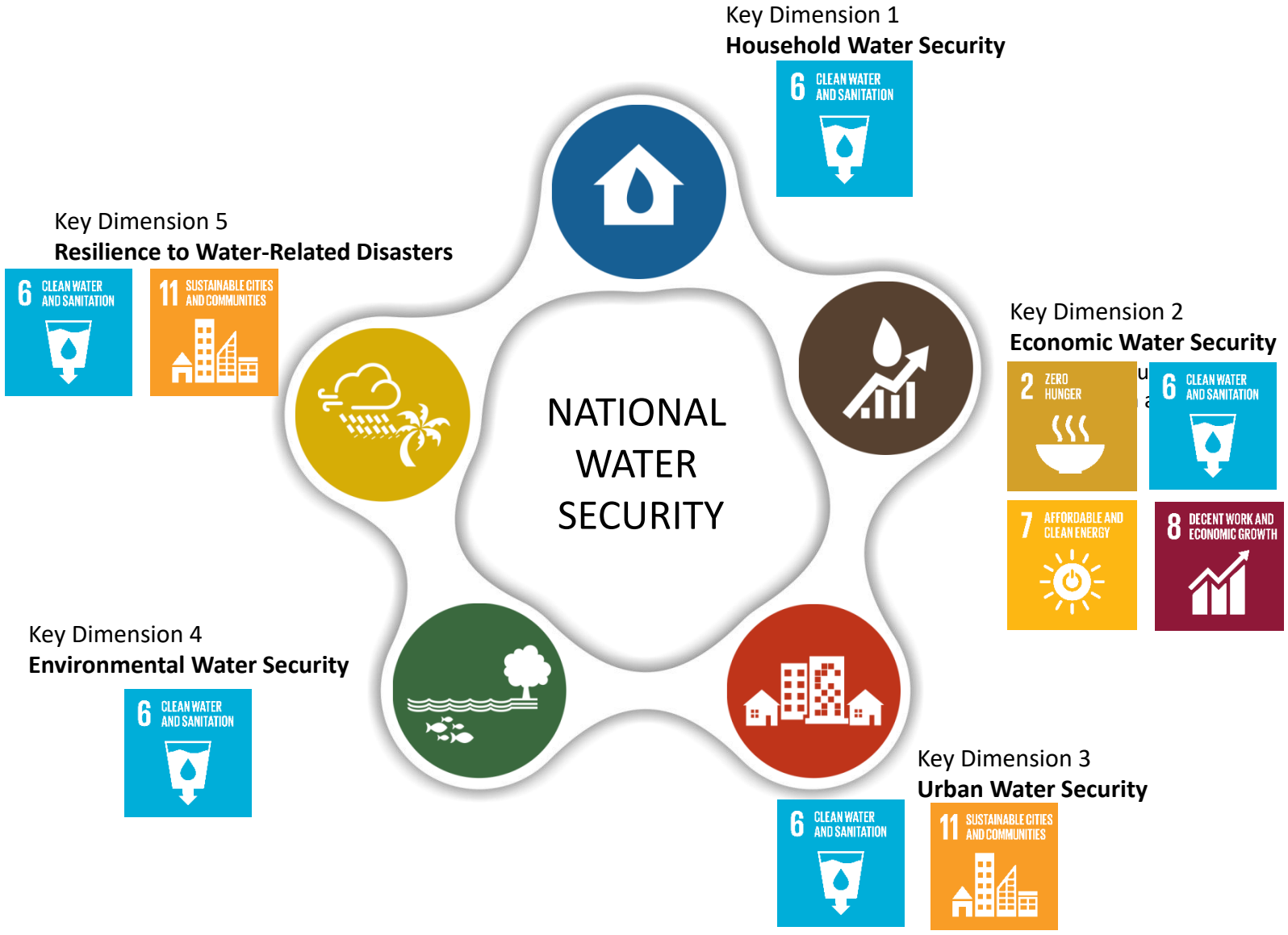
Changes in methodology from AWDO 2020 compared to AWDO 2016

- KD1
  - **now only rural household water security**
  - clearer definition of rural ‘household’ security (community)
  - service levels addressed
  - weighting used to include ‘inequality’
- KD2
  - combination of ‘productivity’ and ‘**security**’ (e.g. food security)
  - security brings in the option of trade (virtual water)
- KD3
  - new sub-parameters to be included: efficiency, NRW (Non-Revenue-Water), energy costs
  - service levels addressed
  - slum areas will be included
  - consistency with KD1 improved

Changes in methodology from AWDO 2020 compared to AWDO 2016

- KD4
  - next presentation
- KD5
  - **now includes the 'hazard'** and follows a risk based approach: risk = hazard x impact
  - redefined as 'Resilience to water related **risk**'
  - includes now flooding due to dam break and cyclones
  - small changes in sub-variables (e.g. tv coverage replaced by internet connection)
  - specific workshop on KD5 on 17-19 September in Korea

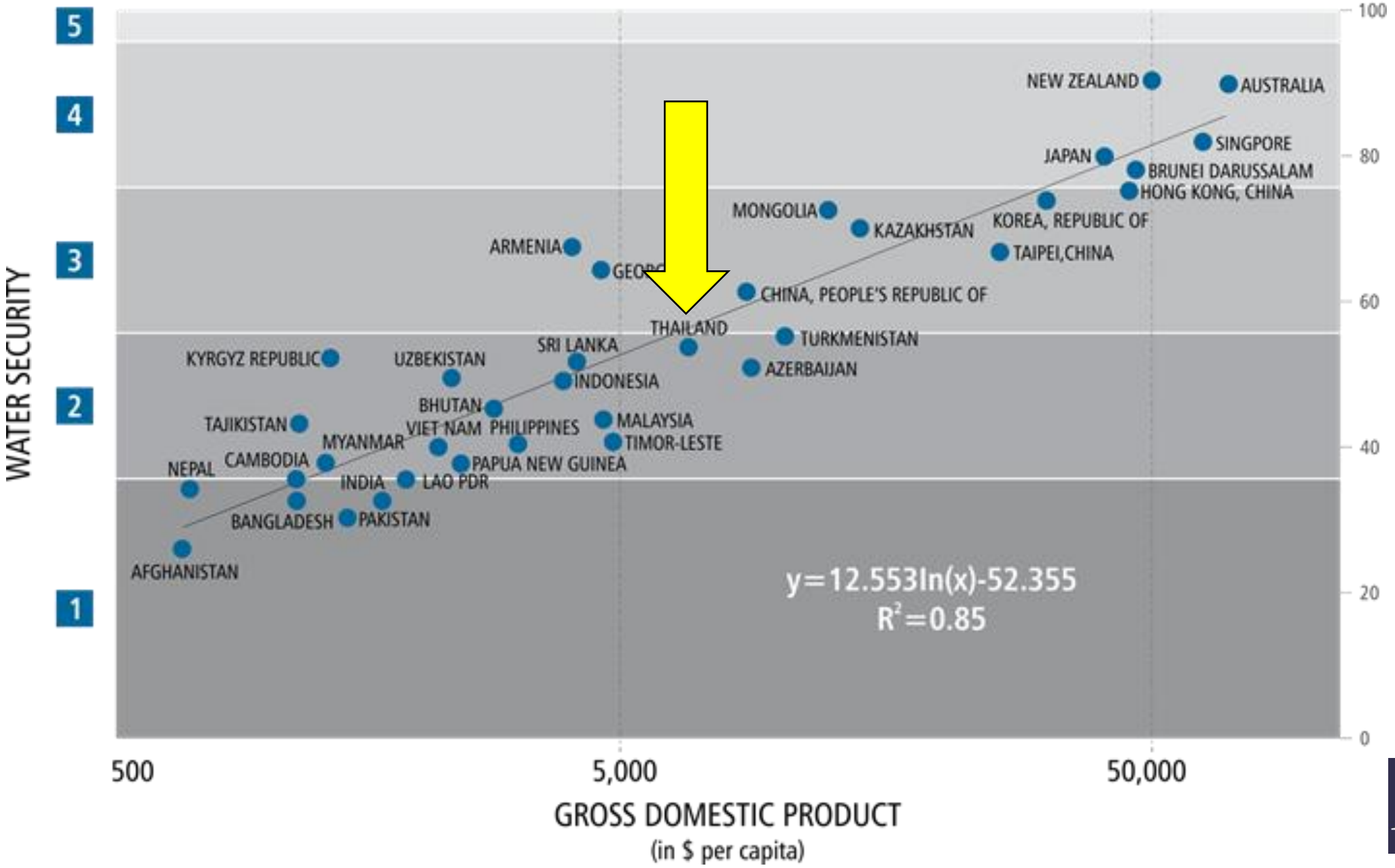
5 Key Dimensions and the Sustainable Development Goals



AWDO and Finance / Economics

- Clear link between Economy and Water Security

WATER SECURITY AND GDP in AWDO 2016



AWDO and Finance / Economics

- Clear link between Economy and Water Security

- Question:
  - has a country a higher water security because they have more money to invest (have a higher GDP)? or
  - does a higher water security leads to a higher GDP?

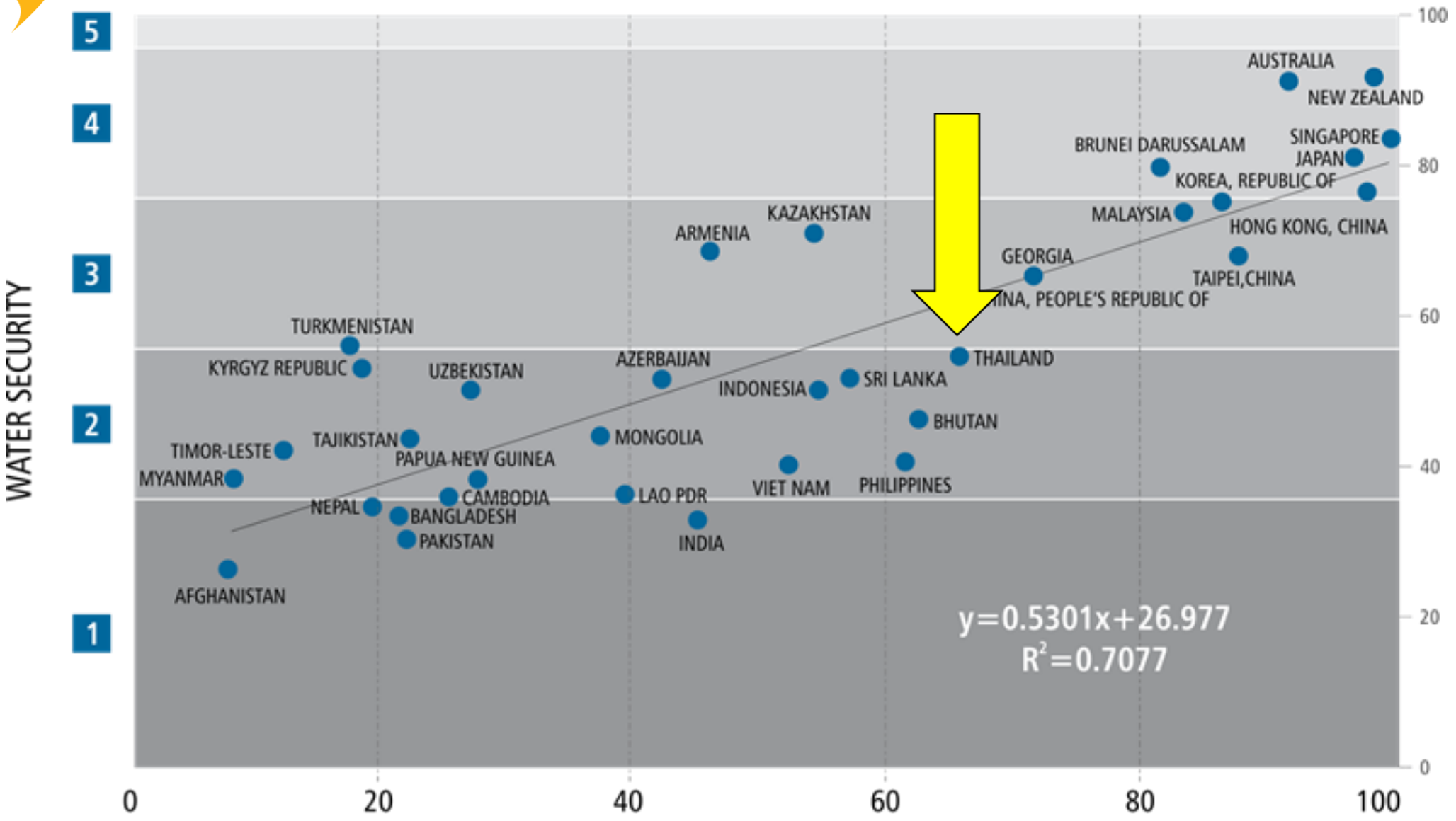
- Investments are needed
  - how can we finance these investments
  - use of innovative financing means

- Presentation of Hannah Leckie (OECD) on how we hope to include Finance in AWDO 2020

AWDO and water governance

- Good water governance will lead to higher water security
  - in combination with the political will and financial means to implement and enforce

WATER SECURITY AND GOVERNANCE in AWDO 2016



General Governance index of World Bank

AWDO and water governance

- Good Water Governance will lead to higher water security
  - in combination with the political will and financial means to implement and enforce
- What is Water Governance and what is good Water Governance?
- Governance is strongly determined by the political and cultural situation in a country
- Presentation of Silvia Cardascia (ADB, but on behalf of OECD) on how we hope to include Governance in AWDO 2020

AWDO 2020 and Country Case studies

- Country Case studies to be included in AWDO 2020
  - Thailand
  - India (Karnataka)
  - Indonesia
  - Timor Leste
- Earlier country case studies: Mongolia, Bhutan and PRC
- Why?
  - AWDO hopes to learn from these country case studies
    - link with higher governmental development objectives
    - lessons learned to be included in AWDO 2020 (text boxes) and as adjusted methodology in next version of AWDO
  - But also because we think that applying AWDO at country level (including the spatial detail) will lead to better water management in these countries

Thank you