AWDO 2020 and Financing Water Security and the SDGs in Asia and the Pacific

Dr. Tom Panella – ADB
Dr. Xavier Lefleive - OECD

Asian Water Development Outlook 2020
Achieving Water Security Across Asia and the Pacific

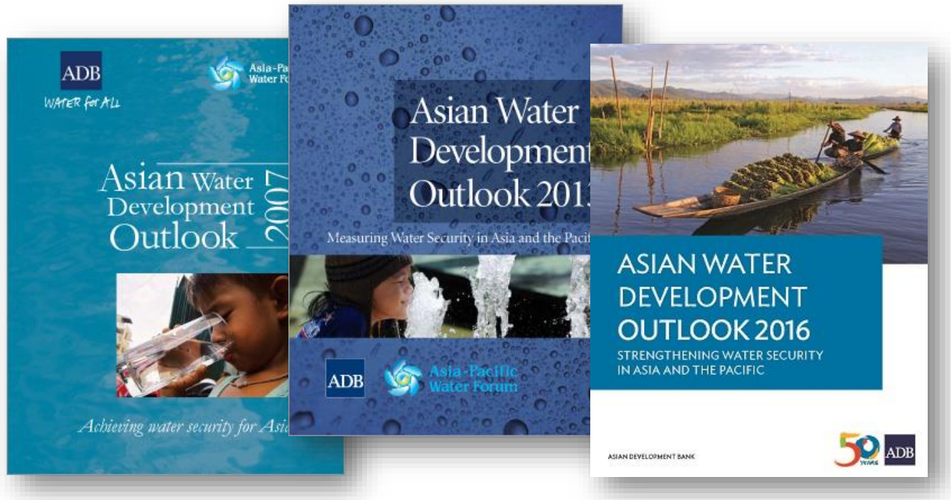
Asia-Pacific Water Forum

22 December 2020 - 5th APWF Seminar

History, Partnerships and AWDO 2020

The AWDO Journey

ADB Flagship Publication



AWDO 2020 Objectives

- Communication tool on water security for Asia and the Pacific
- Inform and guide policy reforms and investments
- Show water security progress - 2013, 2016, 2020

AWDO 2020 Partners

Asia-Pacific Water Forum

Australian Government
Department of Foreign Affairs and Trade

THE AUSTRALIAN WATER PARTNERSHIP

IWC International WaterCentre

IWMI International Water Management Institute

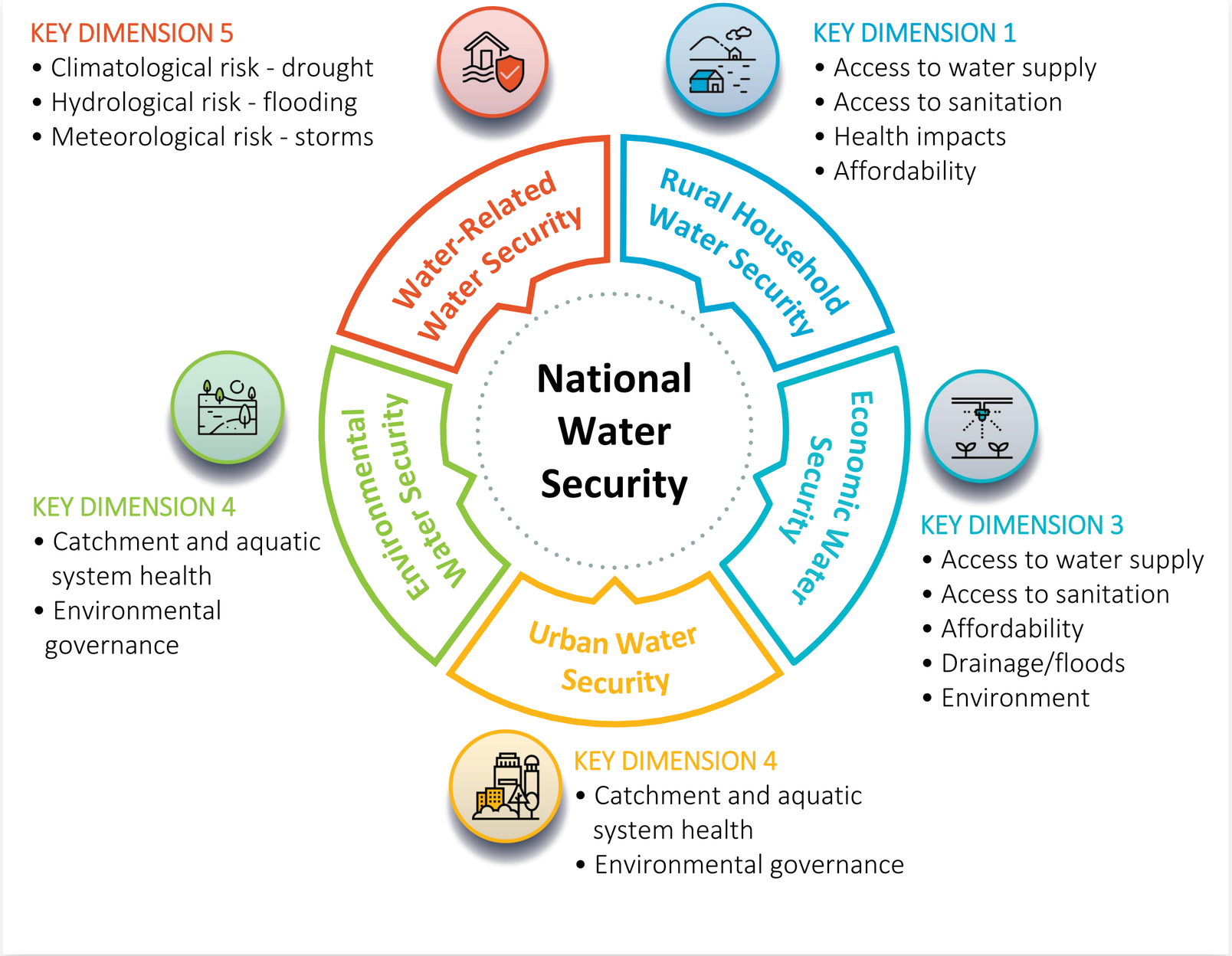
KICT KOREA INSTITUTE of CIVIL ENGINEERING and BUILDING TECHNOLOGY

OECD BETTER POLICIES FOR BETTER LIVES

Coral Fernandez-Illescas, **ADB**

Water Security across five Key Dimensions (KDs)

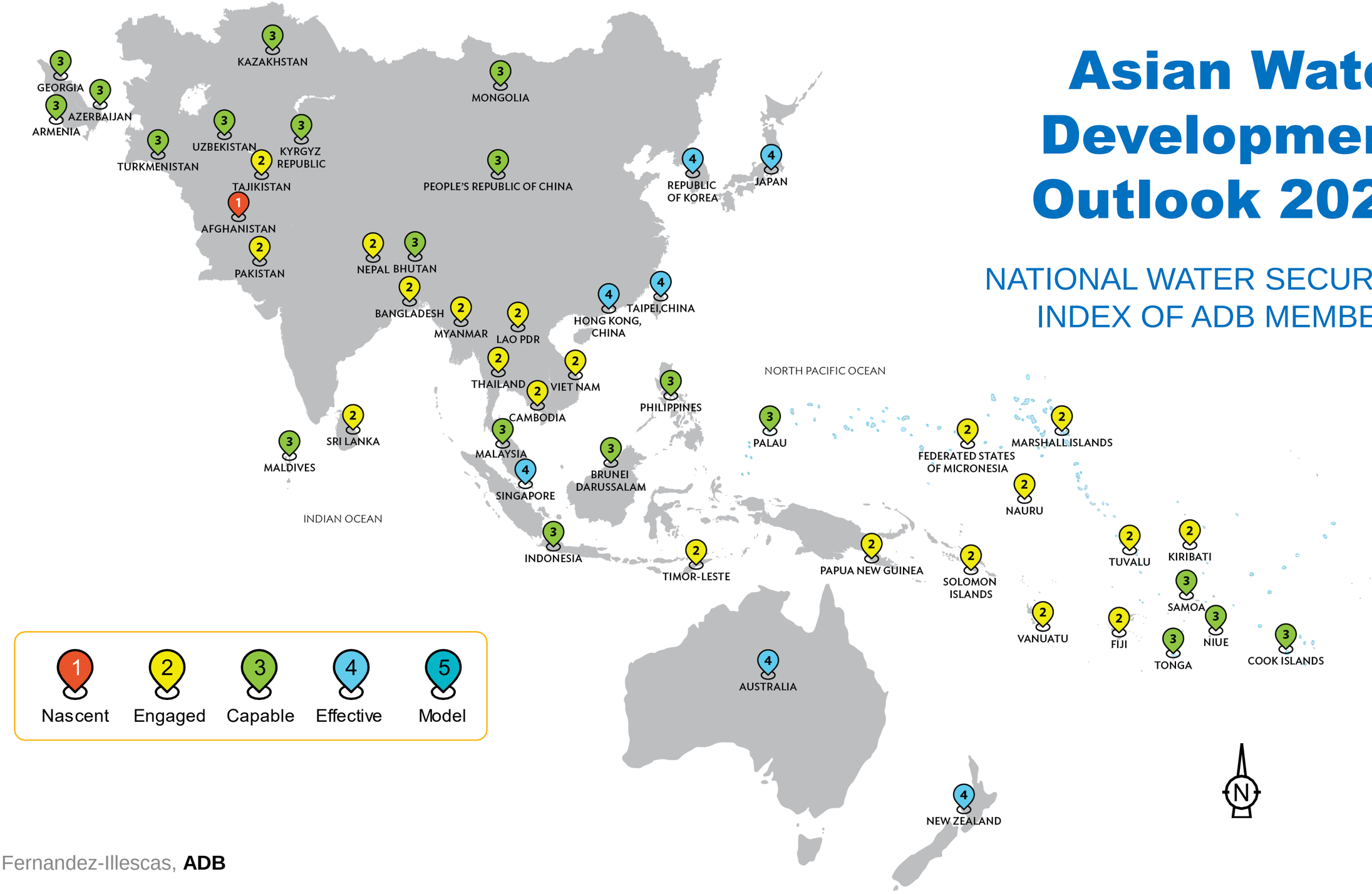
AWDO 2020 Definition of Water Security
The availability of an adequate quantity and quality of water to ensure safe, affordable, equitable and inclusive water supply and sanitation, together with sustainable livelihoods and healthy ecosystems and manageable water-related risks. Operationalizing water security will help foster resilient rural-urban economies in Asia and the Pacific.



Coral Fernandez-Illescas, **ADB**

Asian Water Development Outlook 2020

NATIONAL WATER SECURITY INDEX OF ADB MEMBERS

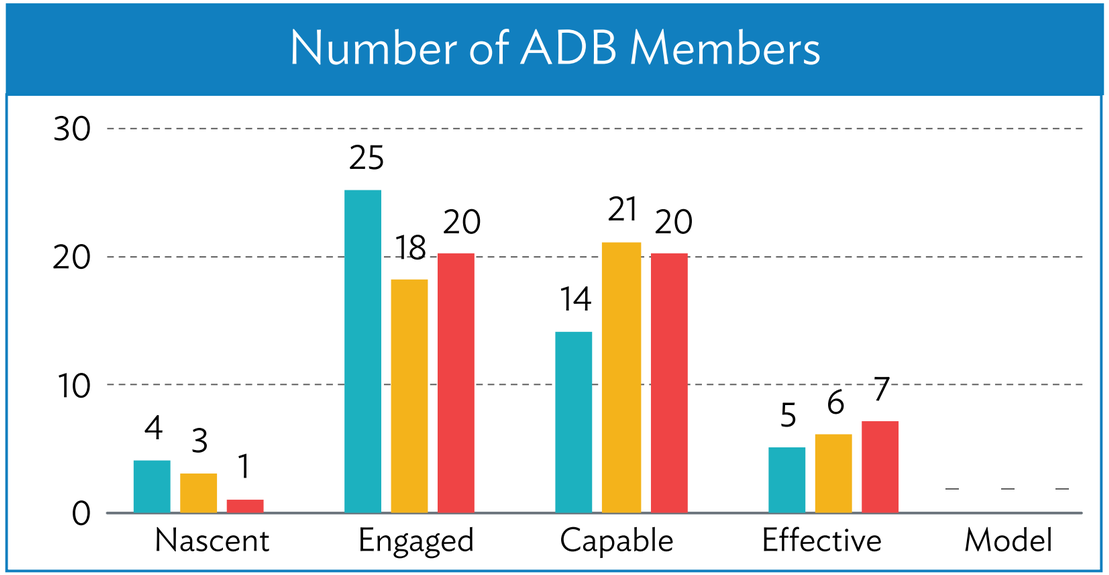


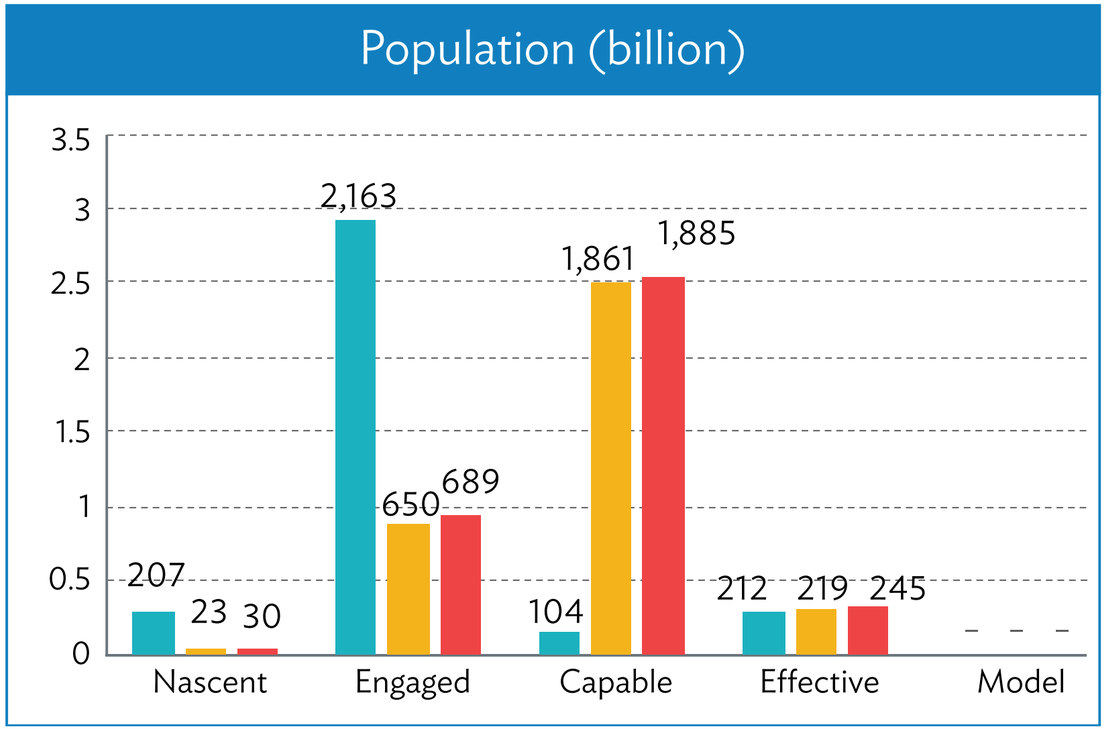
Coral Fernandez-Illescas, **ADB**

Number of ADB members and people in development stages 2013 – 2016 – 2020

- Positive trend – several ADB members have improved from the Nascent and Engaged Rating to the Capable and Effective Rating
  - PRC from Engaged to Capable (2013–2016)
  - India from Nascent to Engaged (2013–2016)

- However, many people are still living in Nascent and Engaged stages of Water Security

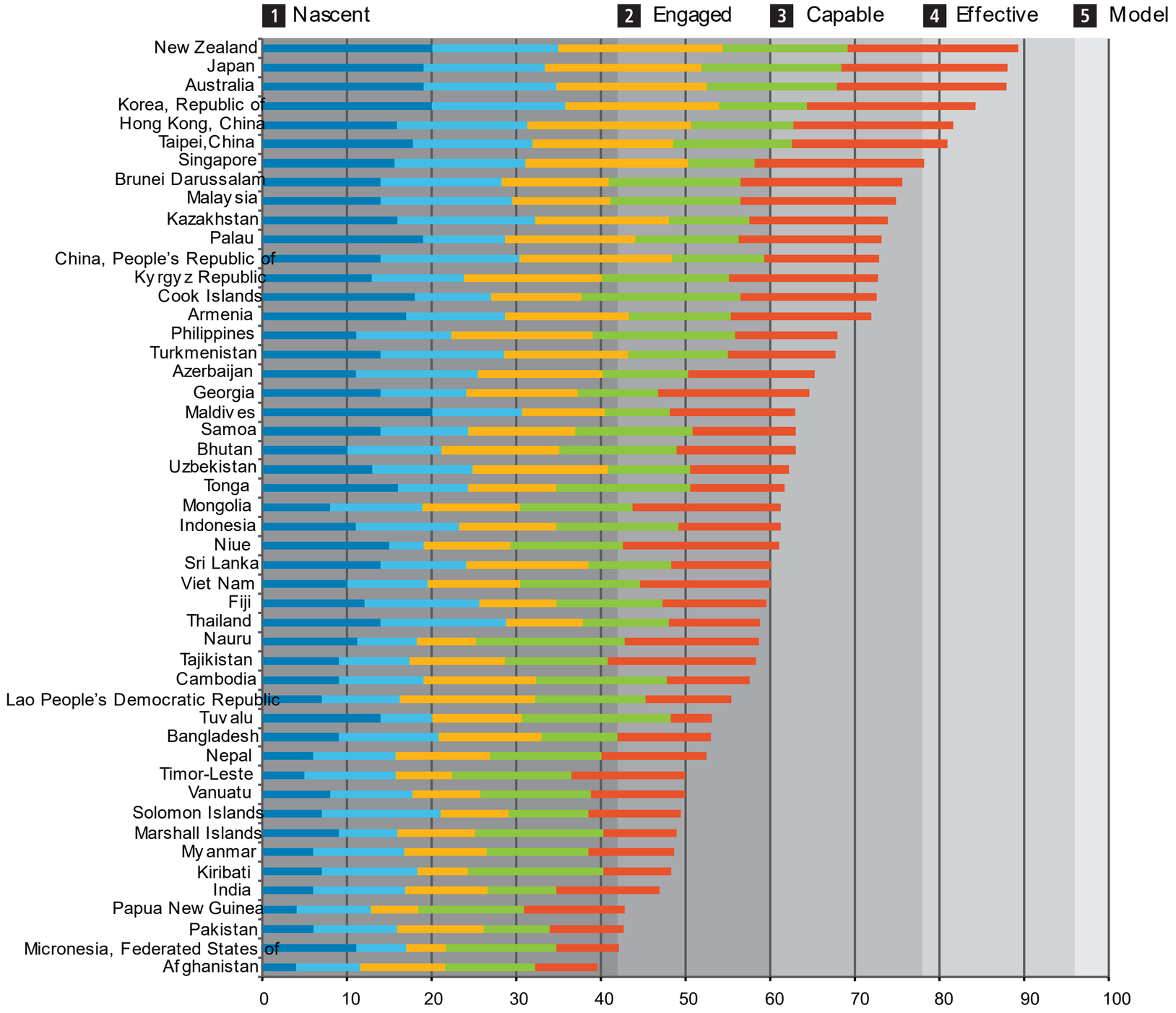




LEGEND: 2013 2016 2020

Coral Fernandez-Illescas, **ADB**

National Water Security Scores



LEGEND:

Key Dimension 1	Rural Household
Key Dimension 2	Economic
Key Dimension 3	Urban
Key Dimension 4	Environment
Key Dimension 5	Water-Related Disaster

Coral Fernandez-Illescas, **ADB**

Key Dimension 1
Rural Water Security

Rural Household Water Security (KD1)

Background

- KD1 now measures only Rural HH WS
- Four sub indicators in total
- Though considering a relatively small volume of water, RHWS has enormous societal impacts
- Closely linked with the “for all” principle of the SDGs

Definition

KD1 assess the extent to which ADB members provide sufficient, safe, physically accessible and affordable water, and sanitation services for health and livelihoods, coupled with an acceptable level of water-related risk, in rural households

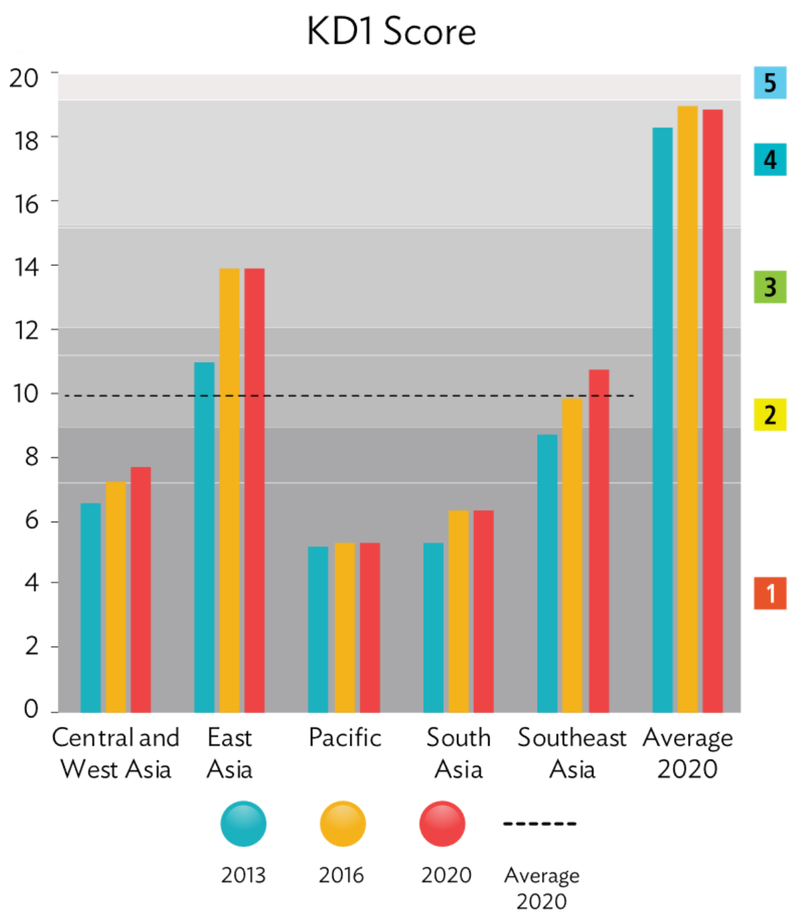
KEY DIMENSION 1

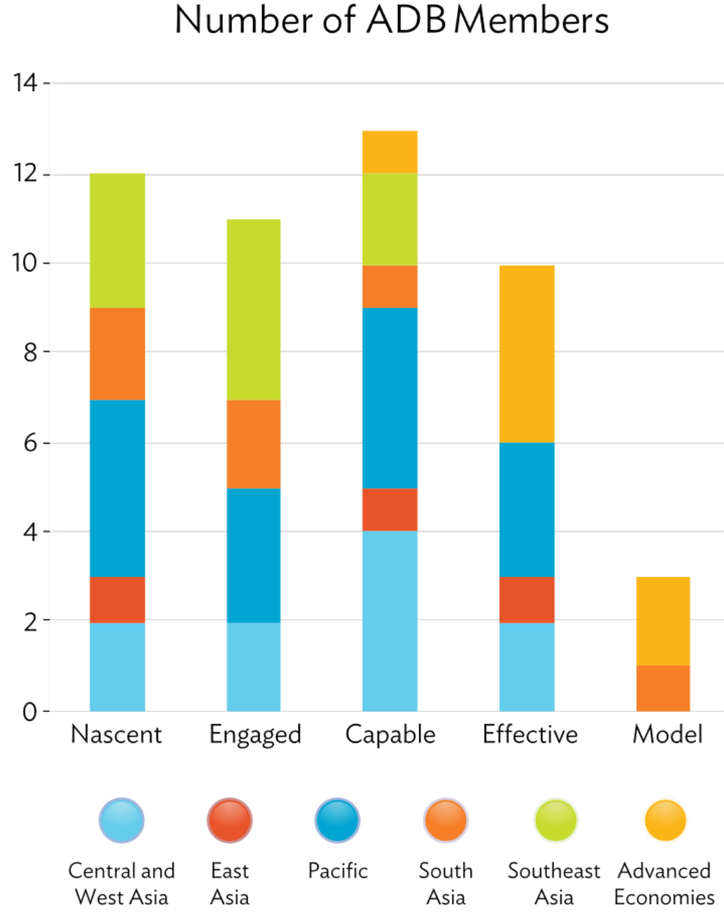
- Access to Water Supply
- Access to Sanitation
- Health Impacts
- Affordability

Rural Household Water Security (KD1)

Key finding – Results

- Afghanistan and PNG are the least secure countries
- The Maldives has made the most improvement since 2013 because of their improvements in water supply and sanitation access
- While their scores have remained low, India, Nepal and Cambodia have all shown strong improvements in their access to sanitation and Lao has shown the most improvement in water supply
- Concerningly most countries with declining scores were in the Pacific



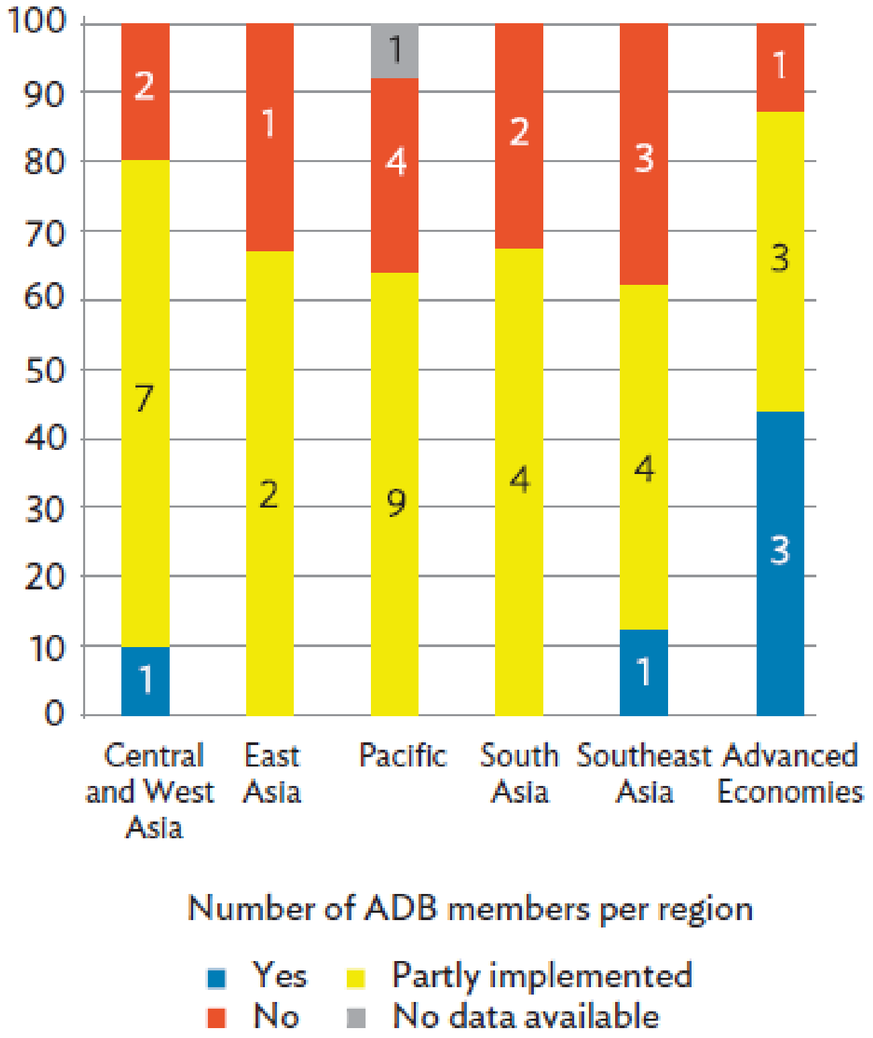


Lachlan Guthrie, **IWC**

Rural Household Water Security (KD1)

Policy recommendations

- Whole of systems strengthening approach is needed, as focusing on a single element is not likely to achieve SDG 6
- For example, many countries have comprehensive WASH policies but have severely inadequate resources (both capital and human resources) to implement.
- Systems strengthening should specifically include;
  - Better engagement and empowering of socially vulnerable groups
  - Addressing the severe shortage of human resources
  - Locally appropriate solutions are needed, particularly in the Pacific



Key Dimension 2
Economic Water Security

Economic Water Security (KD2)

BACKGROUND

- Water is required for economic production and growth in every sector.
- Physical water scarcity does not indicate economic constraints.
- Water must also be delivered reliably in time, space, and quality.
- Information on how much water limits production is still lacking.
- Components of KD2 indicators:
  - Overall water balance and water infrastructure
  - Sector analysis of
    - Water productivity
    - The self-sufficiency of production
    - The per capita production security

Definition

KD2 is a measure of the assurance of adequate water to sustainably satisfy a country's economic growth and accommodate economic losses due to water-induced disasters.

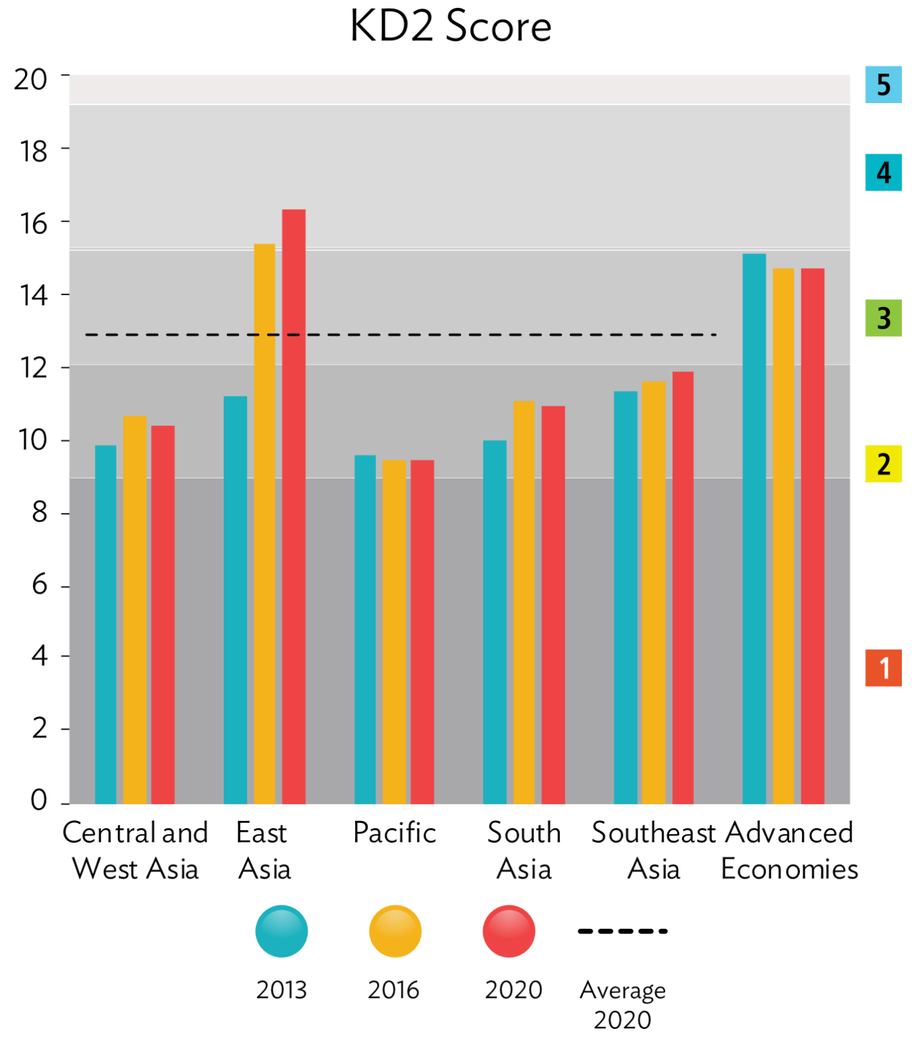
KEY DIMENSION 2

- Broad Economy
- Agriculture
- Energy
- Industry

Economic Water Security (KD2)

KEY FINDINGS – RESULTS

- Changes to economic water security take years of planning and policy prioritization to achieve.
- Most regions have been relatively stable or shown minor improvements since 2013.
- East Asia has showed the greatest advancement thanks to decades of policy and investment prioritization on food and water security.
- Some members in Central Asia have benefited from investments in infrastructure that help mitigate lower natural water availability.
- Despite limited progress, increasing stress on water resources is shown with declining scores for countries in each region since 2016.
- The greatest challenges in the Pacific Islands.



Economic Water Security (KD2)

Policy Recommendations

- Enhance water resources monitoring, measurement and data availability.
- Improve water productivity by ensuring that adequate water is available when and where it is needed.
- Apply Integrated Water Resources Management and ensure adequate storage and distribution systems that can both help mitigate and adapt to climate changes and sectoral reallocation.

Key Dimension 3
Urban Water Security

Urban Water Security (KD3)

Background:
Urban water security means sustainably meeting the community's water needs (technical, economic, environmental, and social) now and in the future. Adding the SDGs for water and sanitation leads to the functional definition of KD3 in AWDO 2020.

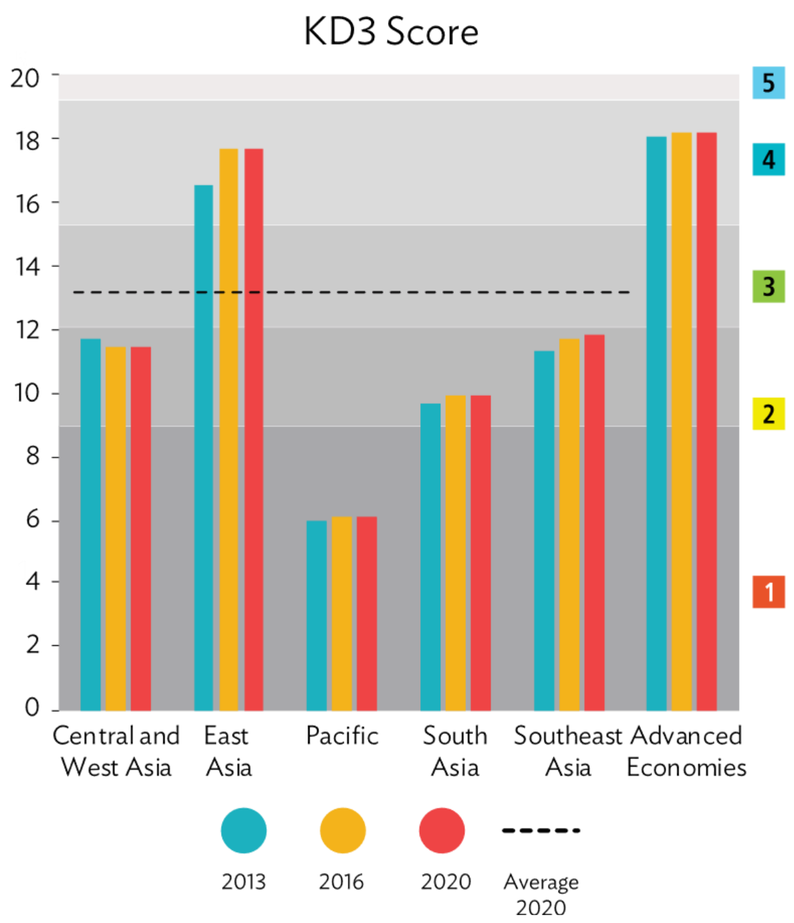
Definition:
Urban water security assesses the extent to which countries are providing safely managed and affordable water and sanitation services for their urban communities to sustainably achieve desired outcomes.

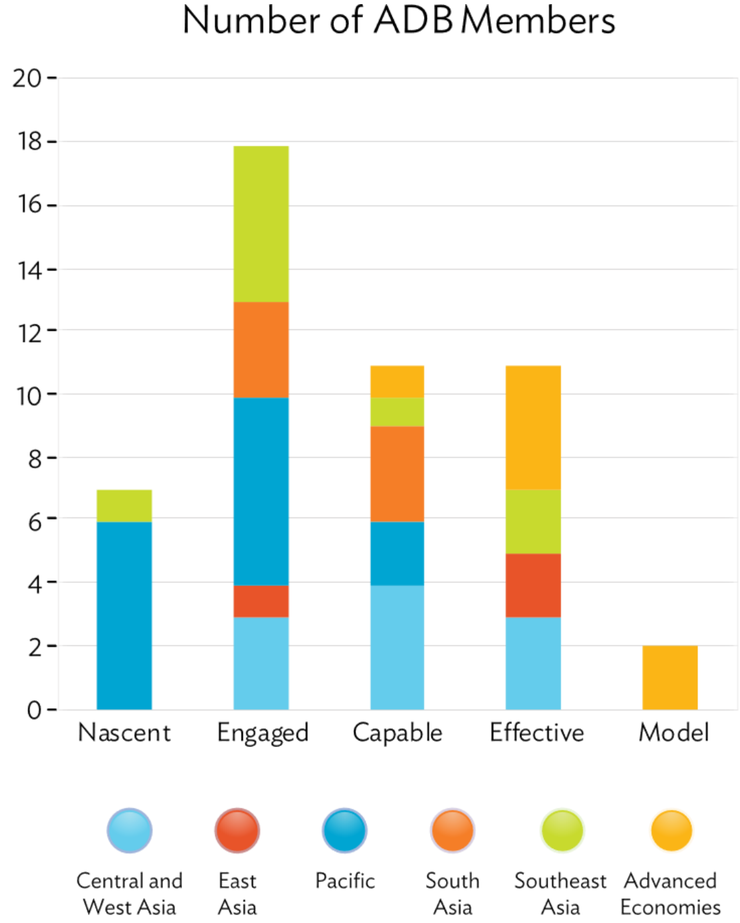
Key Dimension 3
- Access to Water Supply
- Access to Sanitation
- Affordability
- Drainage/floods
- Environment

Urban Water Security (KD3)

KEY FINDINGS – RESULTS

- 7 countries Nascent many in the Pacific (Marshall Islands, Federated states of Micronesia, Kiribati, Nauru, Papua New Guinea) and 1 in South East Asia (Timor-Leste), in total 1. 9 million people.
- 18 ADB member countries (790 urban million people), are at the “engaged” level, which is also at insufficient security level.
- Investment is improving security, but urban population growth means the overall proportion with water security is increasing slowly.

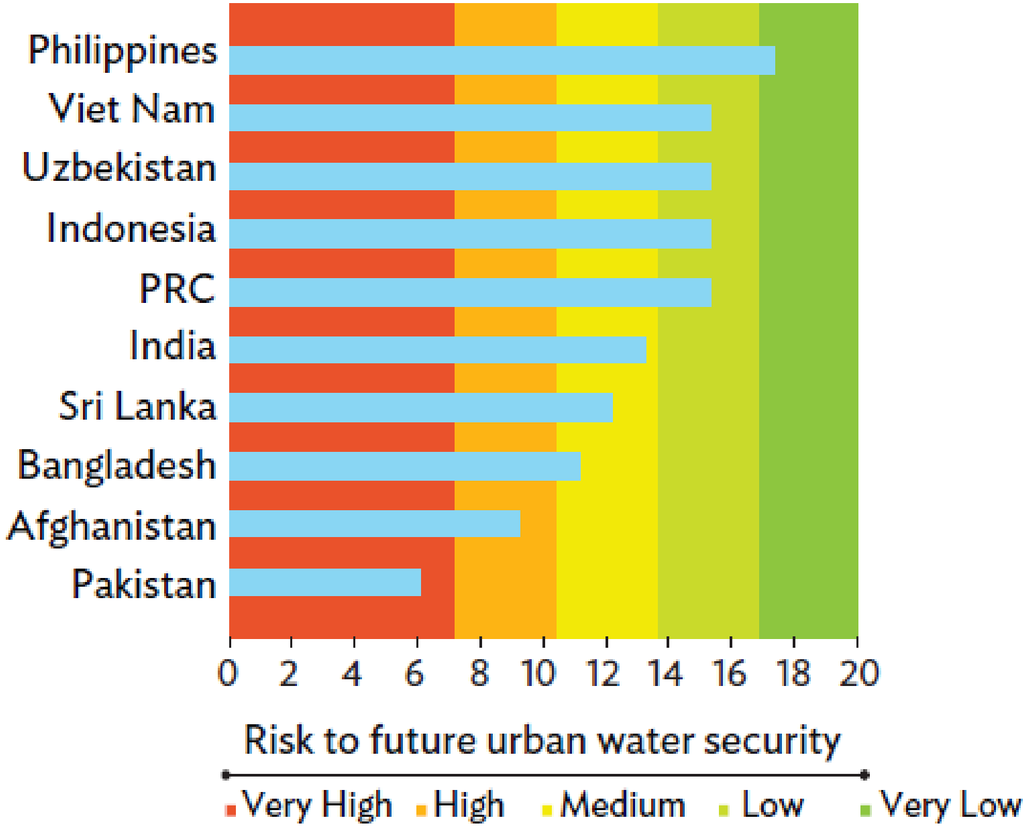




Urban Water Security (KD3)

Policy Recommendations

- Attention on countries with ‘nascent’ or ‘engaged” levels.
- Invest in sanitation, wastewater treatment - circular economy.
- Improve water cost-effectiveness and affordability.
- Improve drainage security.
- Improved attention to including urban growth, non-revenue water, water consumption (and efficiency), energy use costs, and climate change.
- Improved management of data and information, including systematic updating and improve monitoring and evaluation.
- More precise urban definition including informal settlements.
- Quantification of “future security” risks in addition to current security (case study undertaken of 10 countries).



Key Dimension 4
Environmental
Water Security

Environmental Water Security (KD4)

Background

- In Asia and the Pacific, freshwater systems are an integral part of many landscapes and human lives are inextricably linked to them.
- Healthy waterways provide a range of ecosystem services, including provision of good quality water and food security from agricultural products such as healthy fisheries in both freshwater and coastal systems.

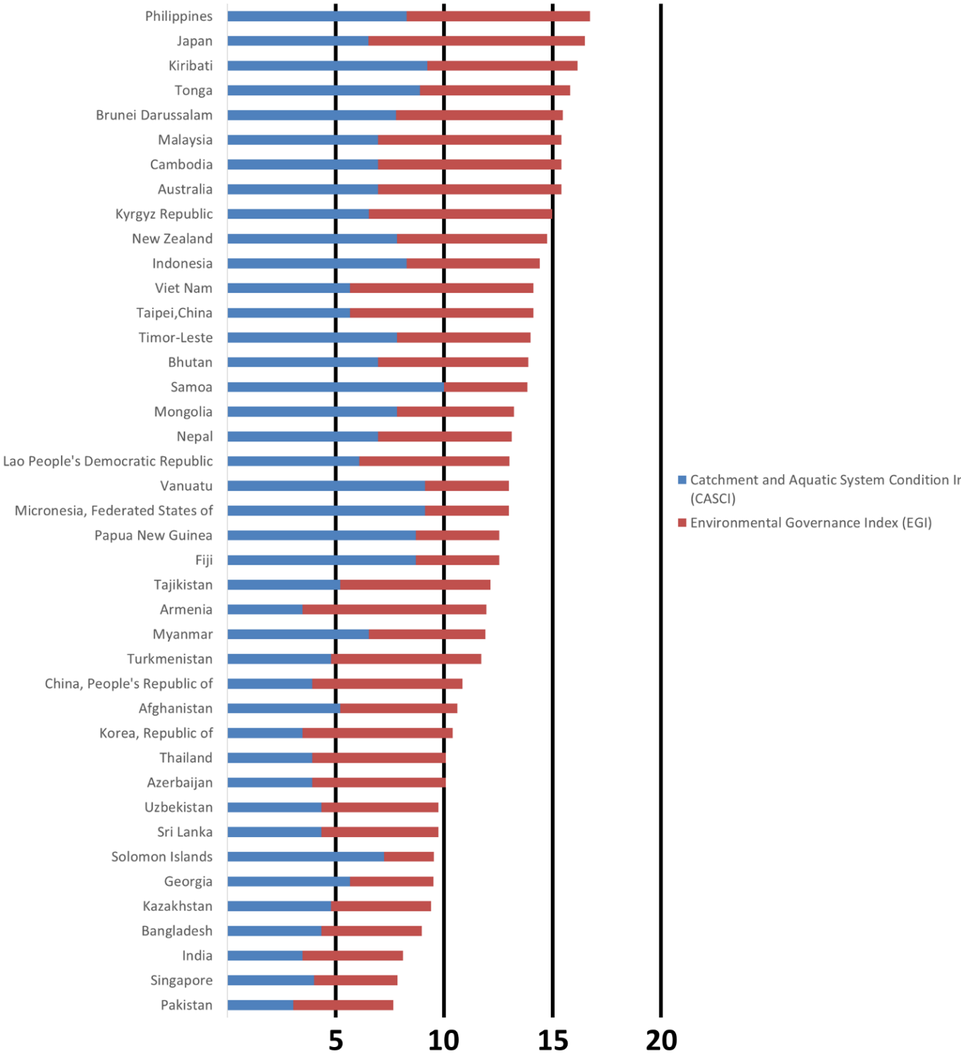
Definition

- Environmental Water Security assesses the health of rivers, wetlands and groundwater systems and measures the progress on restoring aquatic ecosystems to health on a national and regional scale.

Key Dimension 4

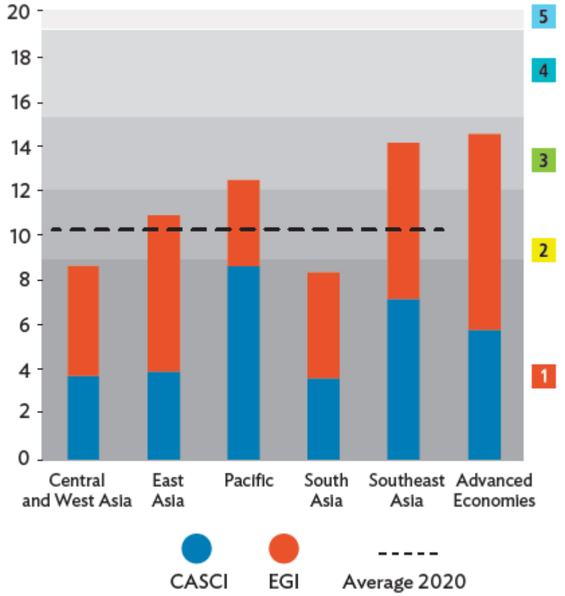
- Catchment and Aquatic System Health
- Environmental Governance

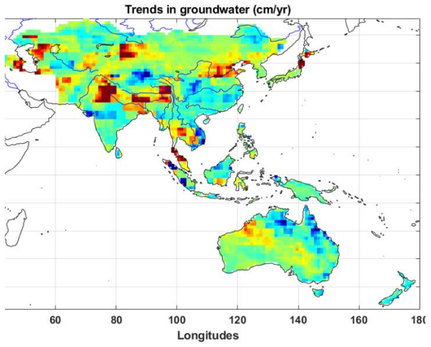
Environmental Water Security (KD4)



KEY FINDINGS – RESULTS

- Population weighted average scores show distinct regional patterns.
- Overall South Asia scored most poorly, with moderate scores across both indices.
- Relatively high scores for the CASCI in countries with relatively larger land areas of limited development (Pacific and Southeast Asia).
- Lower scores of the EGI occurred in the Pacific nations.
- Suggests risks to future water security





Environmental Water Security (KD4)

Policy Recommendations

- Healthy functioning aquatic ecosystems are the foundation of water security
- Many efforts to improve other aspects of the NWSI impact KD4
  - Develop guiding principles for managing aquatic ecosystem health for infrastructure projects
- Key principles could include but not be limited to:
  - High quality water for high quality ecosystems
  - Healthy riparian zones for healthy rivers
  - Maintaining flow variability for healthy aquatic ecosystems
  - Maintaining lateral and longitudinal connectivity along the river network
  - Groundwater extraction should not exceed groundwater recharge
  - The importance of heterogeneity of instream habitat
  - Native species fare better without invasive species

Environmental Water Security (KD4)

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Key Dimension 5
Water-related Disaster Water Security

Water-Related Disaster Security (KD5)

Definition

Water-Related Disaster Security assesses a nation's recent exposure to water-related disasters, their vulnerability to those disasters and their capacity to resist and bounce back.

Risk Assessment Criteria:

$$RISK = \sqrt[3]{HE \times V \times (1 - C)}$$

Water-related Disasters Assessed

- Climatological Risk (Drought)
- Hydrological Risk (Flooding)
- Meteorological Risk (Storms)

Indicators Assessed

- Hazard-Exposure
- Vulnerability
- Capacity

Water-Related Disaster Security (KD5)

KEY FINDINGS – RESULTS

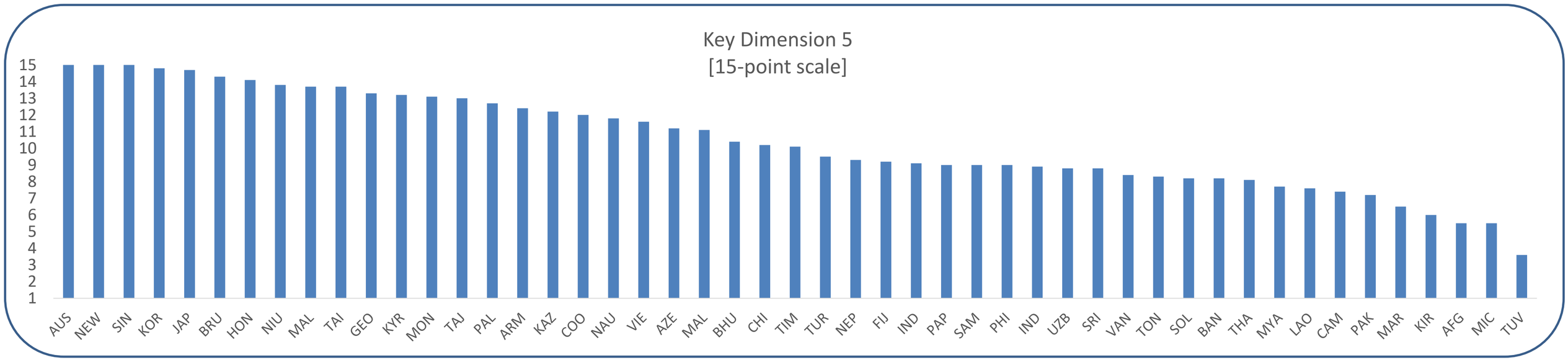
Increasing Capacity

Greatest Risk in Pacific Island Nations

Decreasing Vulnerability

Rapidly Decreasing Risk Across East Asia

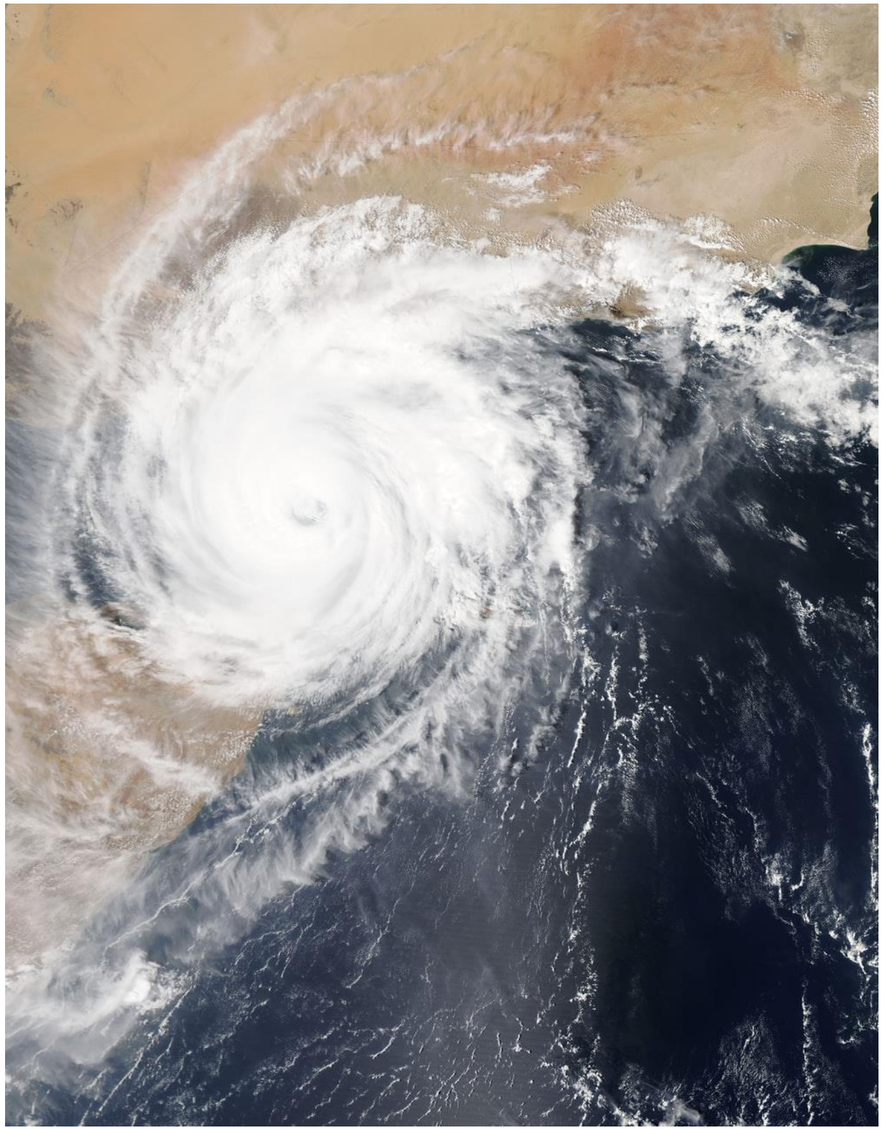
Hydrologic Disasters Affected the Most People in Asia from 2010-2019



Water-Related Disaster Security (KD5)

Policy Recommendations

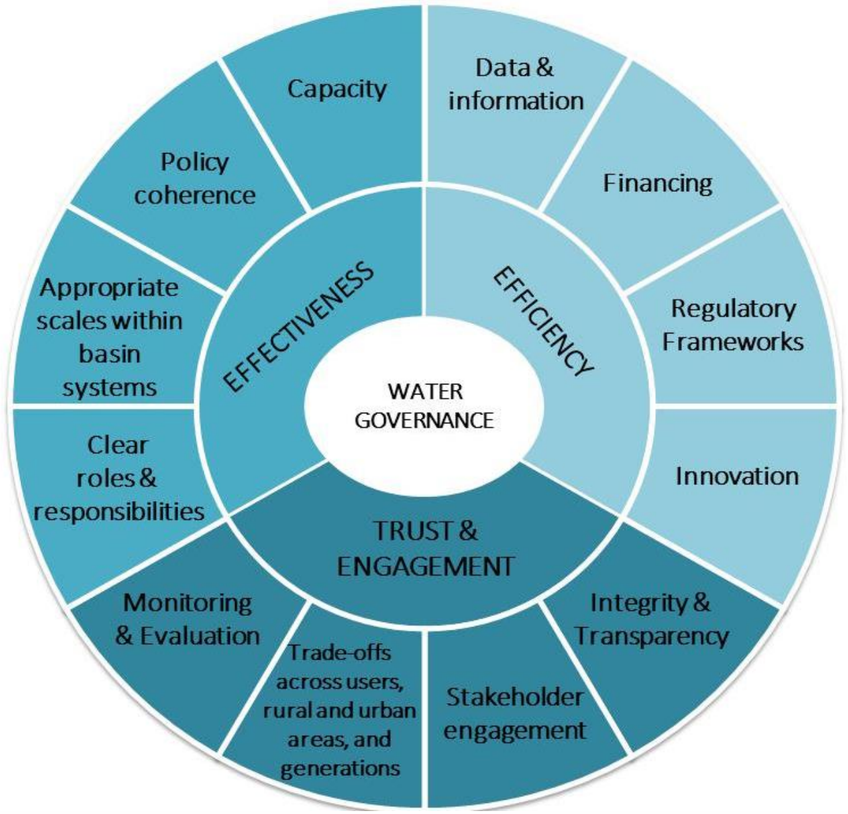
- Enhance international efforts for standardized data collection of disaster impacts, in particular gathering gender-disaggregated data.
- Promote women’s leadership and a gender-responsive approach to disaster risk reduction and climate change adaptation globally.
- Promote new mechanisms for financing risk-mitigating green and grey infrastructure.
- Adhere to international agreements, such as the Hyogo and Sendai Frameworks, and promote regional cooperation in reducing the risks of water-related disaster.



Water Governance

Background

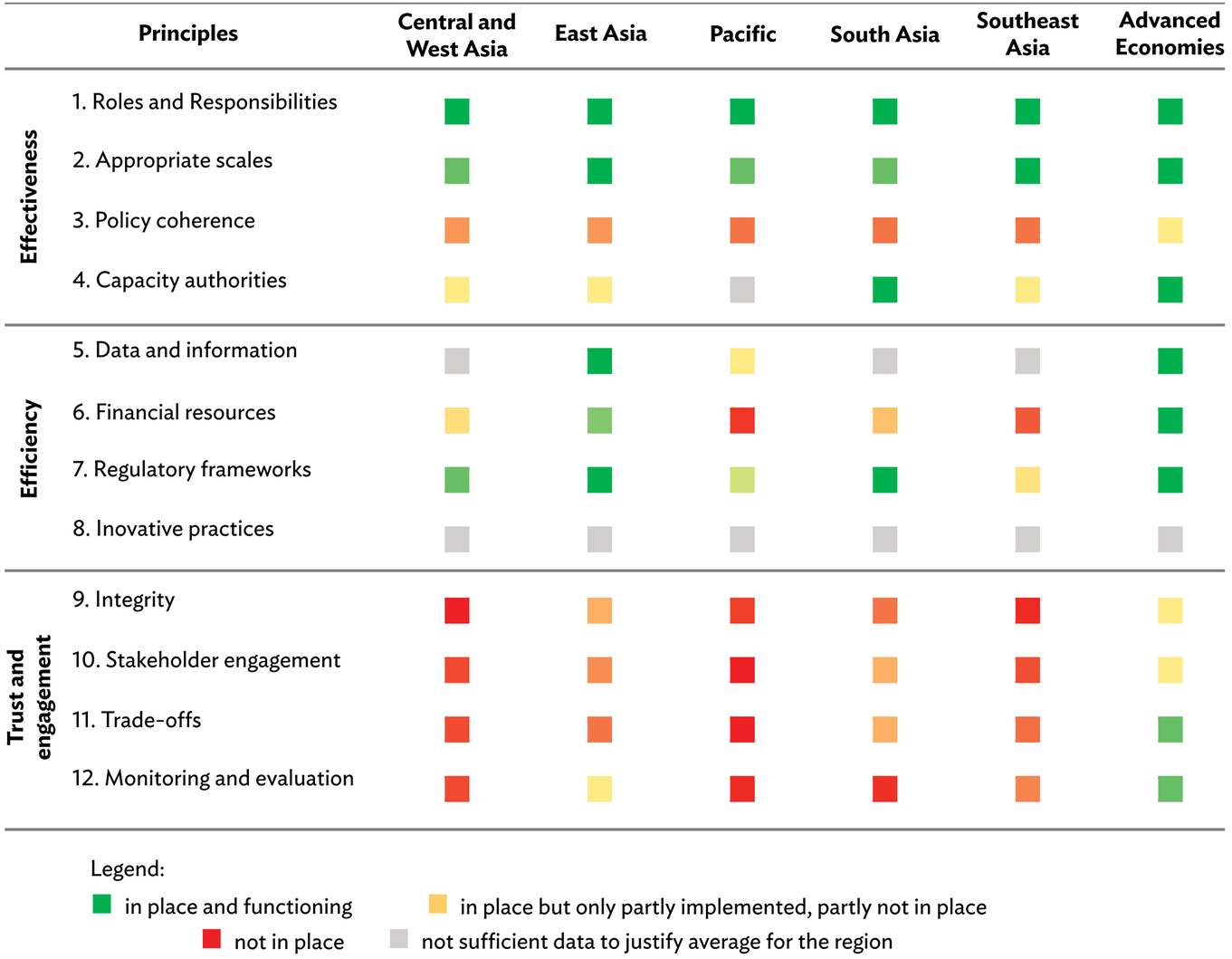
The OECD 12 Principles on **Water Governance**



www.oecd.org/governance/oecd-principles-on-water-governance.htm

Key Findings

- Most countries have an overarching water policy framework and coordination mechanisms in place
- Limited implementation of water-related policies due to capacity and funding gaps
- Insufficient data and monitoring hampering water policies evaluation
- Limited uptake of water policy instruments to manage trade-offs
- Limited use of economic instrument to manage water resources
- Limited effectiveness of regulatory frameworks: a focus on water services
- Limited uptake of integrity practices and tools



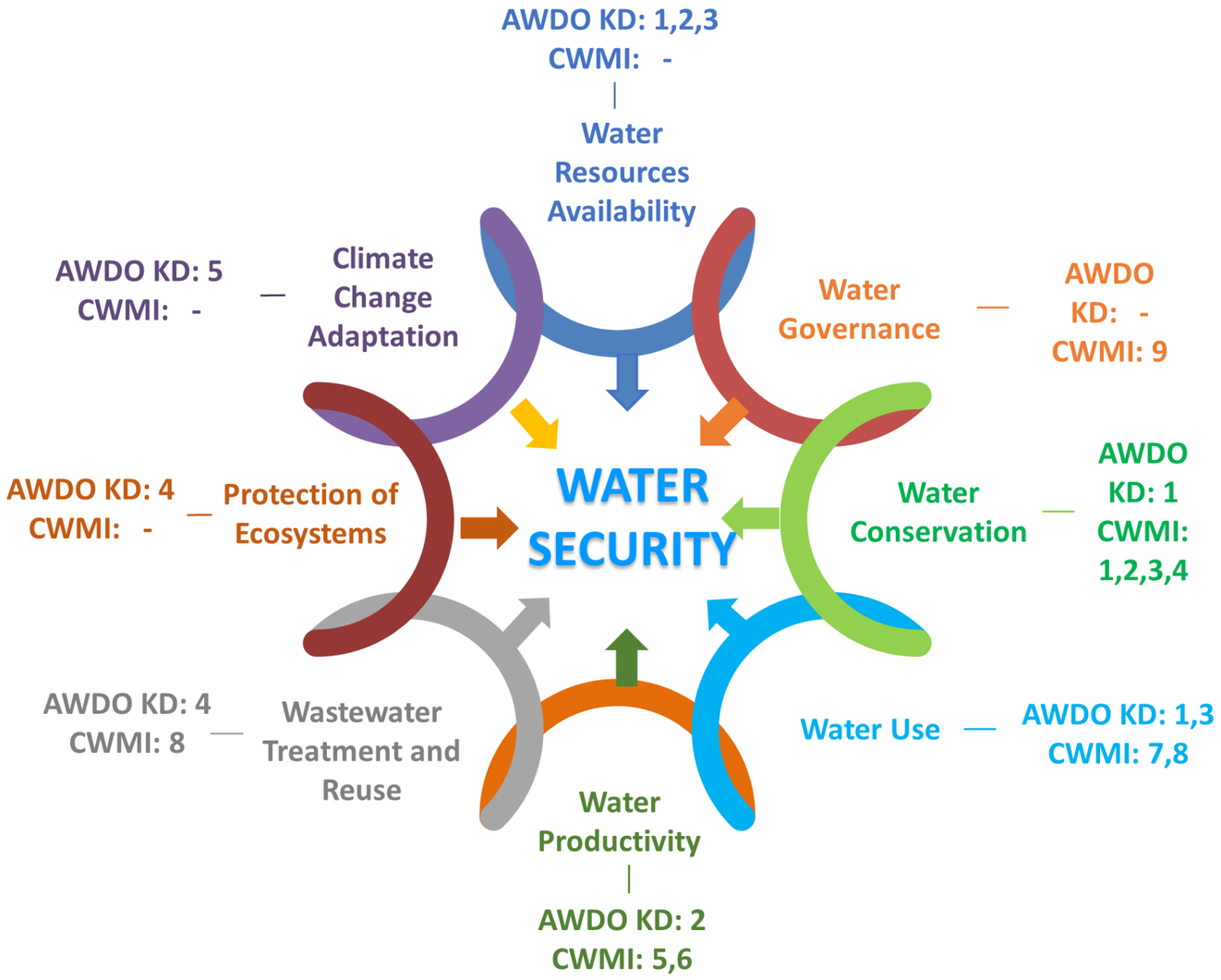
Policy Recommendations

1. Strengthening the implementation and monitoring of water-related policies
2. Adopting water policy instruments to manage trade-offs
3. Adopting water economic instruments to manage water resources and generate sustainable finding
4. Addressing capacity and data gaps
5. Developing further stakeholder engagement in water decision-making
6. Mainstreaming integrity and transparency practices across water policies, institutions and governance frameworks

Region	Priority Actions		
Central West Asia	Integrity	Trade-offs	Stakeholder engagement
East Asia	Policy coherence	Trade-offs	Stakeholder engagement
Pacific	Financing	Trade-offs	Monitoring and evaluation
South Asia	Policy coherence	Trade-offs	Monitoring and evaluation
Southeast Asia	Policy coherence	Integrity	Stakeholder engagement
Advanced Economies	Policy coherence	Monitoring and evaluation	Stakeholder engagement

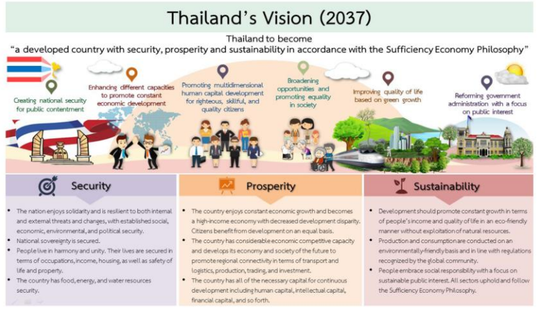
India - Karnataka

- India's NITI Ayog developed a Composite Water Management Index (CWMI)
- ACIWRM applied AWDO methodology for Karnataka state (province) and mapped CWMI indicators against AWDO indicators
- Index was very handy to shape the new State Water Policy - articulating several aspects of water sub-sectors with priority
- Karnataka started streamlining data collection and setting up a database (KWRIS) for easy compilation of water security index
- Will explore to compute at river sub-basin level and district (sub-provincial) level and adapt the index further for local realities
- AWDO exercise was a good tool/opportunity to galvanize all departments/agencies for IWRM
- A separate detailed report is published as Karnataka Water Development Outlook (KWDO)



Thailand

Mainstreaming Water Security Strategy into National Water Strategy



สกสว TSRI

จุฬาลงกรณ์ มหาวิทยาลัย CHULALONGKORN UNIVERSITY

Thai Water Partnership

Linkage of Water Security Strategy in Thailand Master Plans

1 National strategy 20 years (1st level) : National development targets

National security | Competitiveness | Peopleware | Social equity | Green development | Government management

Office of the National Economic and Social Development Council (NESDC)

2 Master plan under national strategy (2nd level) :19th issue: water management

23 issues

AWDO 2016
Framework as a Tool for Dialogue and Development

19.1 To improve national water security

19.2 To Enhance water productivity

19.3 To recover national water resources

3 Master plan on water resources management (3rd level) : To support the 2nd level

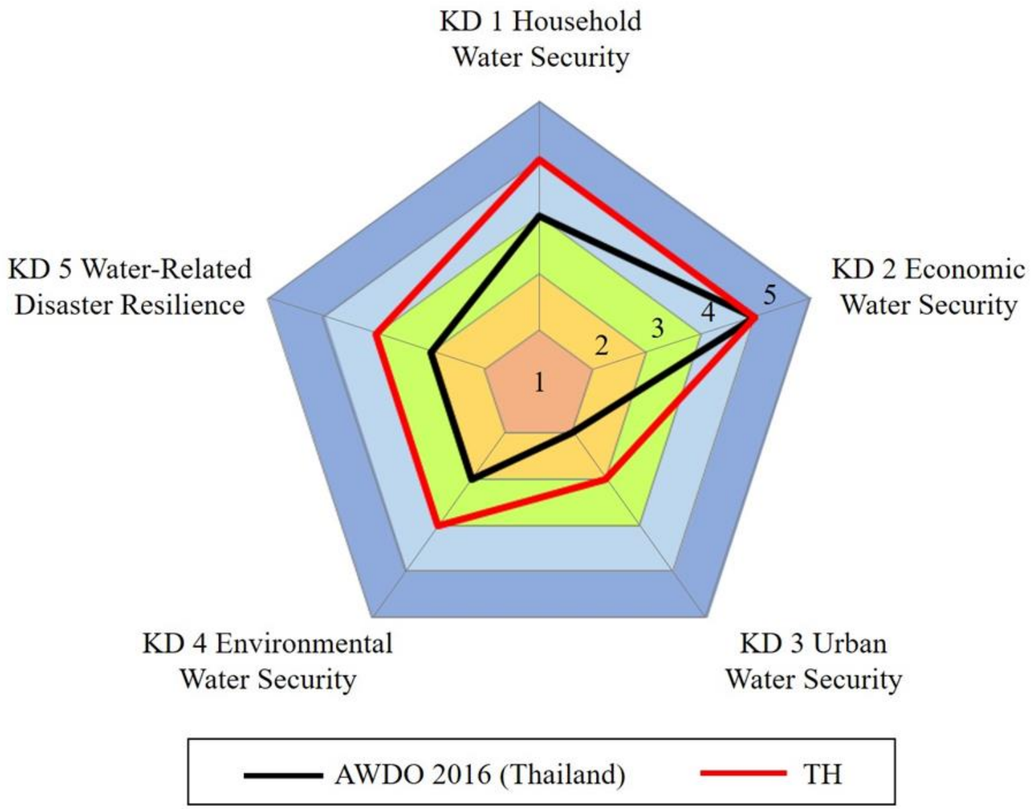
Water for domestic | Water for production | Flood management | Water quality | Upstream conservation | Water management

Office of the National Water Resources (ONWR)

Source: ONWR 2019

Thailand

Research Project “**Analysis of water security, water productivity and water-related disaster for water resources master plan**” supported by **Thailand Science Research and Innovation (TSRI)** (2018 – 2020)



To develop a baseline database and analyze the status of water security of Thailand to assess water productivity, water quality, and water-related disasters to support the development of master plan for water resources.

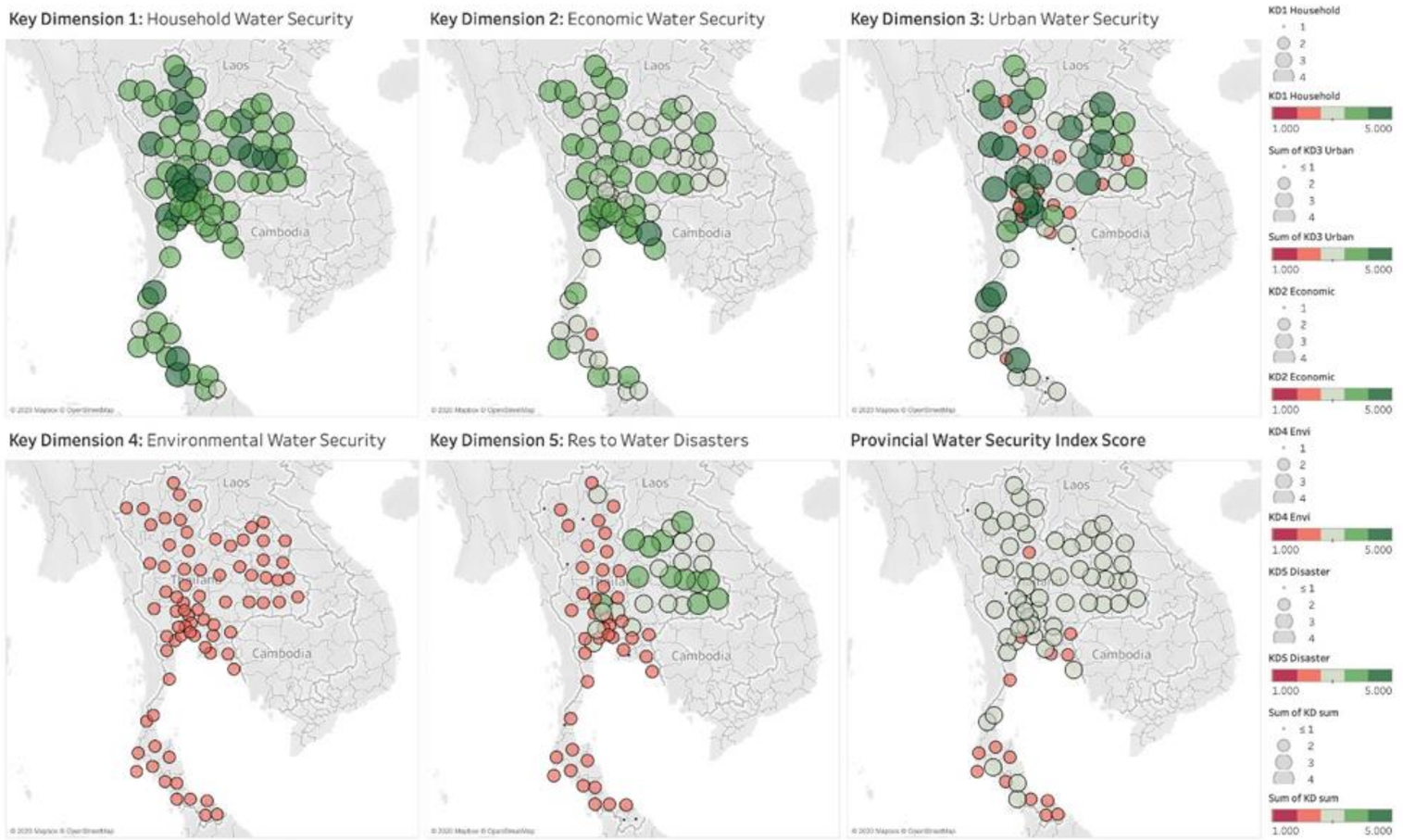
Water Security Workshop in Bangkok on 19 August 2019

ADB, OECD, IWC, CU, Thai Water Partnership, CRI,
and Representatives from NESDB, ONWR and water-related government agencies

Thailand

Key Findings: Provincial Water Security Assessment in 2017

Water Quality Index (WQI)



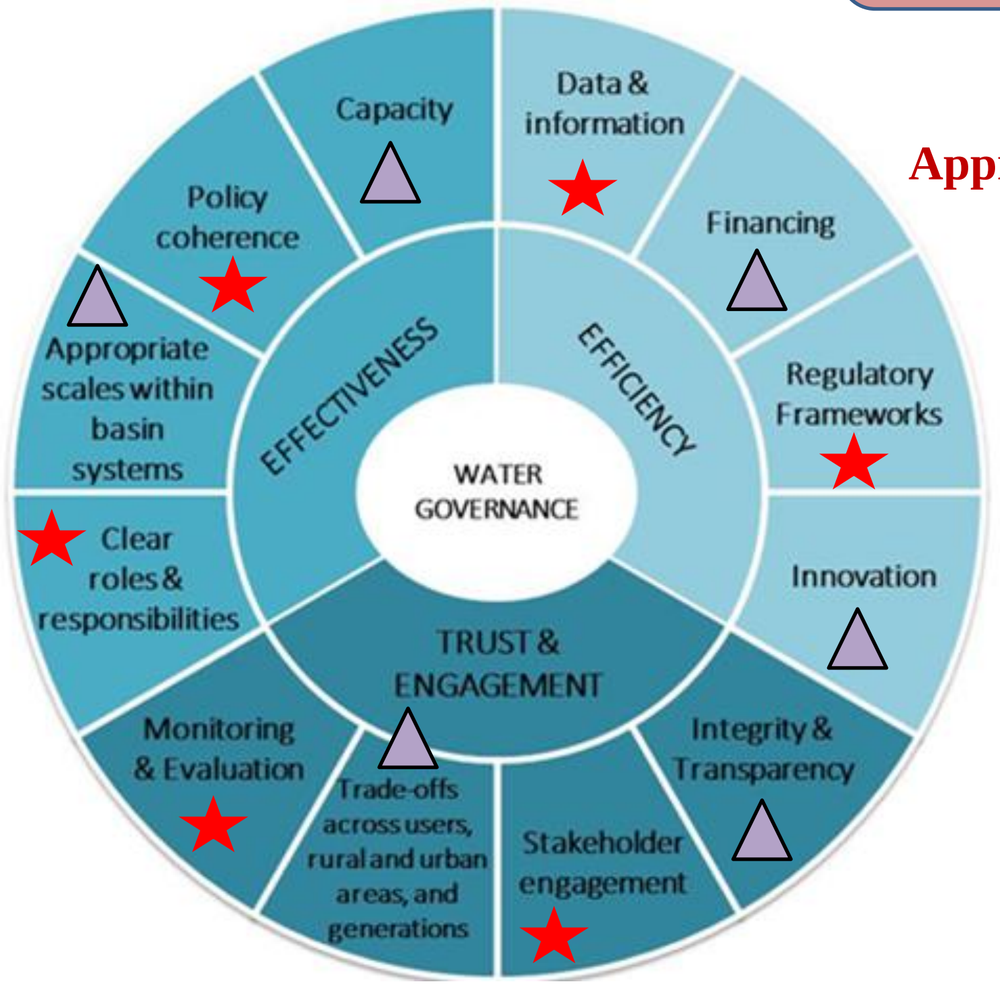
Ruangrassamee et al. (2020)

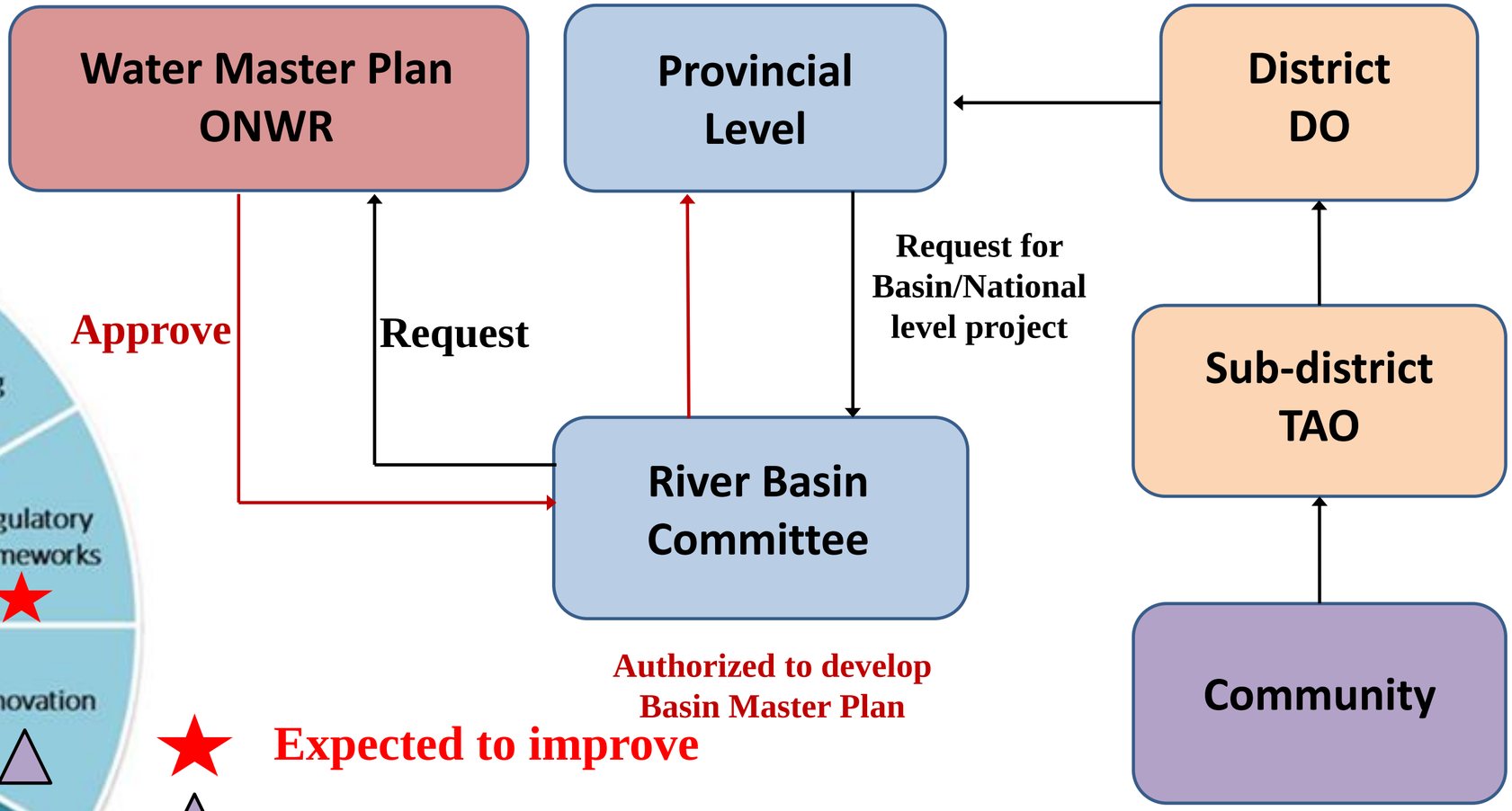
Thailand

Key Findings:

Water Governance

OECD





★ Expected to improve

△ To be defined at each level

Piyatida Ruangrassamee, **Chulalongkorn University**

Thailand

Policy Recommendations

- Goals: Ensure water security, Enhance water productivity, Conservation and restoration
- Agricultural sector: reduce water use by 30% from water saving 15%, improved reservoir operation 15%
- Industrial sector: reduce water loss/saving by 20%
- Service sector: reduce water use by 10%
- Water-related disasters: proactive approach, study on damage from water-related disasters, ecological resilience, capacity building, information access and dissemination, community participatory (reduce loss and damage by 50 % in next 20 years)
- ONWR and CU: Project on monitoring & evaluation of national water master plan

Thank You

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#AWDO2020

Tom Panella, **ADB**

Ravi Narayanan, **Asia-Pacific Water Forum**