

Achieving Water Security and Resilience in Asia Pacific: Asian Water Development Outlook 2022

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THA 2022 International Conference on

Moving Towards a Sustainable Water and Climate Change Management After COVID-19



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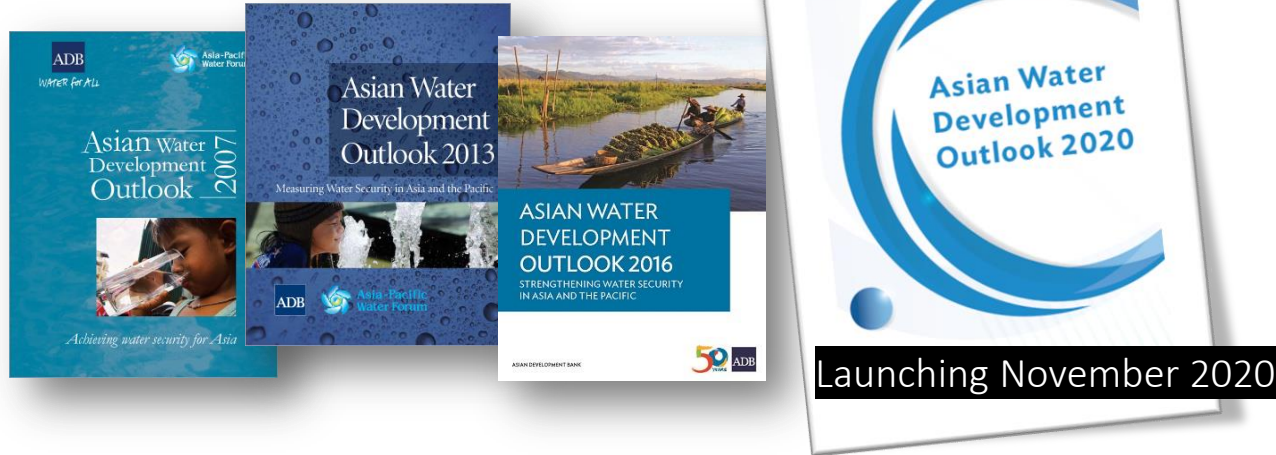
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Thursday **27 January 2022**

Asian Water Development Outlook (AWDO) 2020

ADB Water Sector Flagship Publication



AWDO 2020 Contents

1. Key Dimensions of Water Security (KD)

- KD1: Household Water Security (rural)
- KD 2: Economic Water Security
- KD 3: Urban Water Security
- KD 4: Environmental Water Security
- KD 5: Water-Related Disasters Security

2. Finance and Governance and Water Security

3. Policy in Action – ADWO 2020 Country Cases Studies: India, PRC, Thailand and Timor-Leste

AWDO 2020 Objectives

- Provide an overview and 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

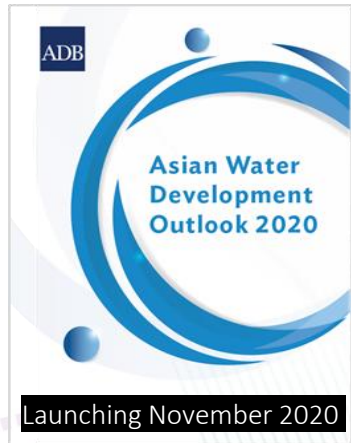


ADB and Water Security

2007 – ADB in cooperation with Asia Pacific Water Forum embraced Water Security for AWDO

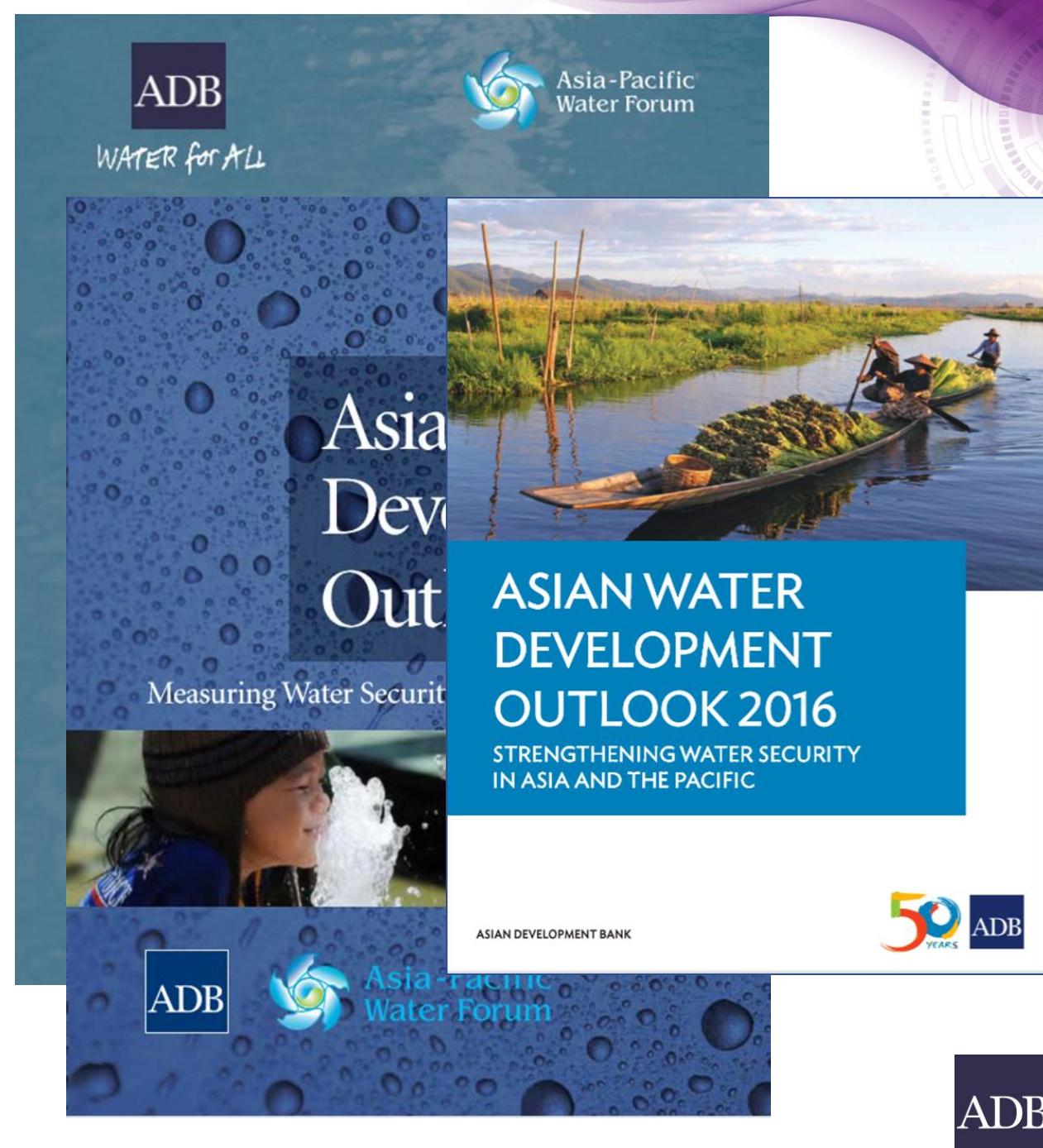
2013 – Developed the first methodology to quantify National Water Security

2016 – Improved the methodology and tracked progress



New in AWDO 2020:

- **Improved methodology**
 - KD1 focused rural households
 - KD5 includes risk and resilience
 - New databases (all public)
- **Finance and Governance**
 - Sections by OECD
- **Country Case Studies** (Thailand, Karnataka, PRC, Timor-Leste)
- **Future Risk Framework** (e.g. climate change, health)
- **Living AWDO Website**
 - Ongoing Knowledge and Policy in Action



Key Dimensions and the SDGs



KEY DIMENSION 1



TARGET 6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

TARGET 6.2: By 2030, achieve access to adequate and equitable sanitation and hygiene for all, and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.



KEY DIMENSION 2



TARGET 2.3: By 2030, double the agricultural priority.



TARGET 6.3: By 2030, substantially increase water-use efficiency across sectors; substantially reduce the number of people suffering from water scarcity.



TARGET 7.2: By 2030, increase substantially the share of renewable energy.



Promote, sustained, inclusive, and sustainable growth, and full and productive employment.



KEY DIMENSION 3



TARGET 6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

TARGET 6.2: By 2030, achieve access to adequate and equitable sanitation and hygiene for all, and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.



Make cities and human settlements inclusive, resilient, and sustainable.



KEY DIMENSION 4



Ensure healthy lives and promote well-being for all at all ages.



Conserve and sustainably use the oceans, seas, and marine resources.



Sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss.



Ensure access to water and sanitation for all.



KEY DIMENSION 5



Ensure healthy lives and promote well-being for all at all ages.



Ensure access to water and sanitation for all.



Build resilient infrastructure, promote sustainable industrialization, and foster innovation.



Make cities inclusive, safe, resilient, and sustainable.



Take urgent action to combat climate change and its impacts.



Conserve and sustainably use the oceans, seas, and marine resources.

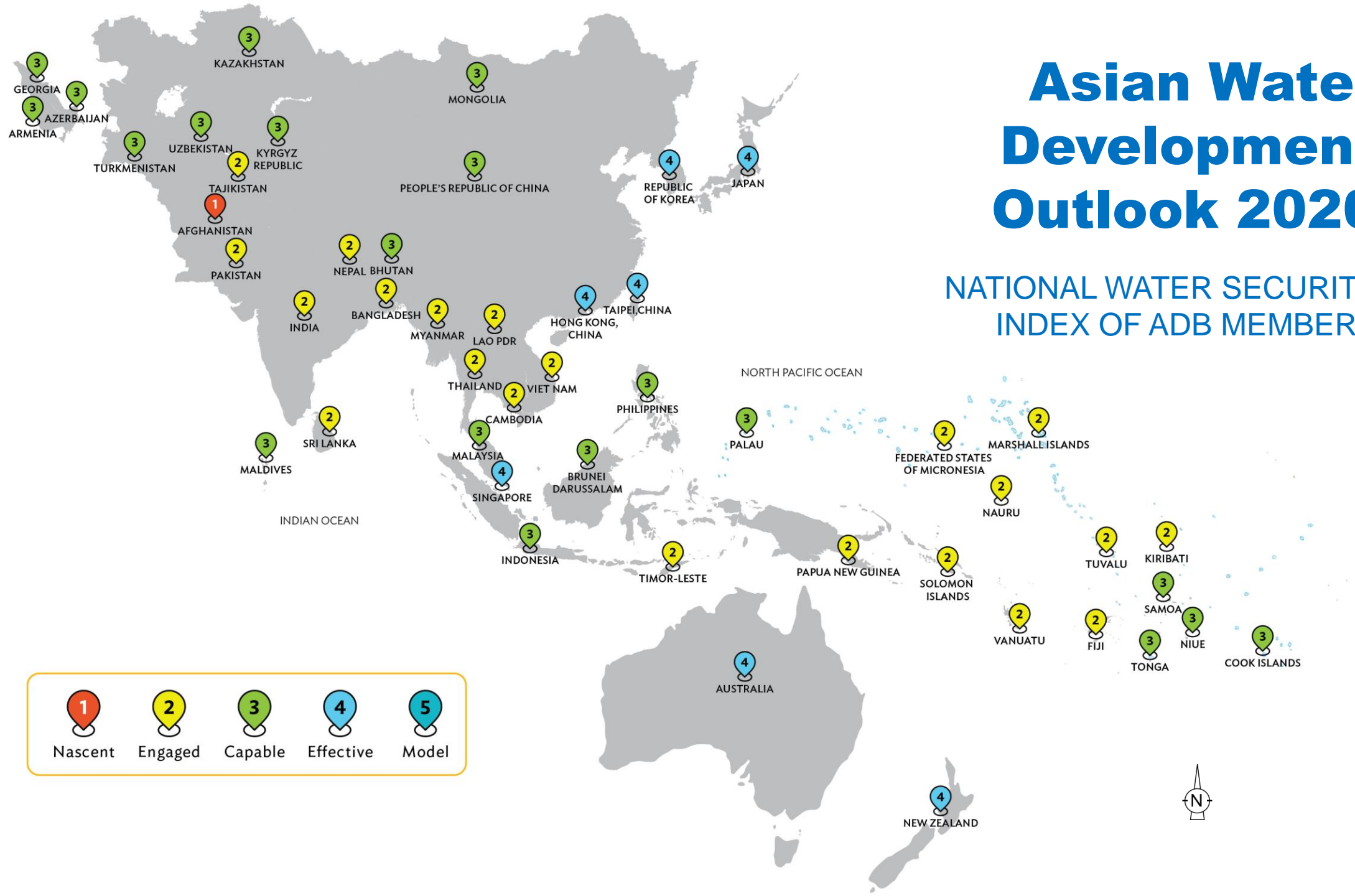


Sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss.



Asian Water Development Outlook 2020

NATIONAL WATER SECURITY INDEX OF ADB MEMBERS



Nascent



Engaged



Capable



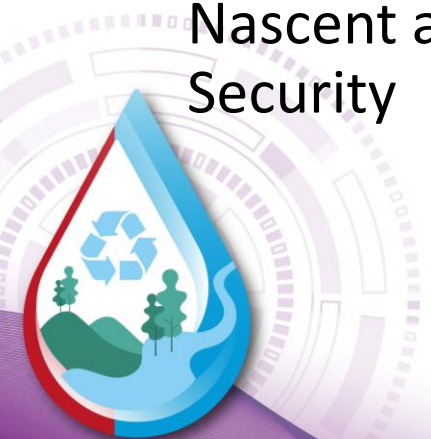
Effective



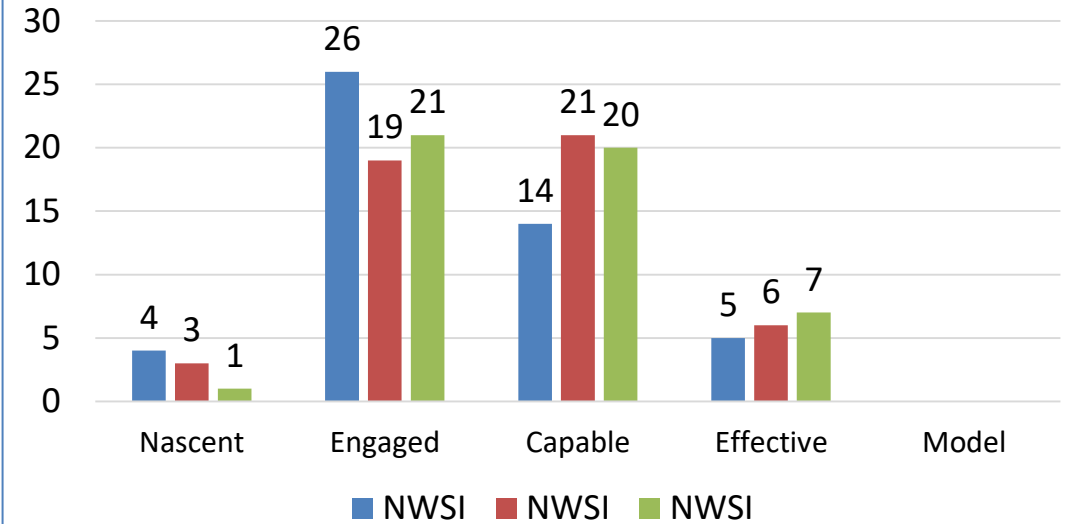
Model

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

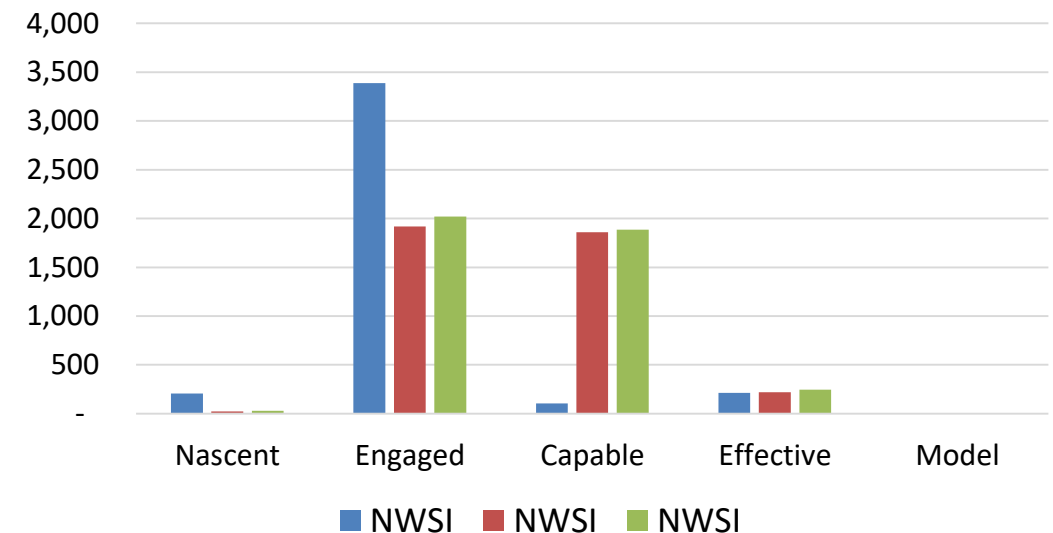
- Positive trend – several ADB members have improved from the Nascent and Engaged Rating to the Capable and Effective Rating
 - PRC from Engaged to Capable (2013-16)
 - India from Nascent to Engaged (2013-16)
- However, many people are still living in Nascent and Engaged stages of Water Security



NWSI - # ADB members



NWSI - population (in million)







KEY DIMENSION 1

RURAL HOUSEHOLD WATER SECURITY

RESULTS:

- KD1 now measures only rural household water supply and includes 4 sub indicators
 - although only a relatively small volume of water, KD1 has huge social and health impacts
- KD1 is closely linked with the “for all” principle of the SDGs
- The Maldives has made the greatest improvement since 2013 because of their increased access
- While their scores have remained low, India, Nepal and Cambodia have all shown strong improvements in their access to sanitation and Lao PDR has shown the most improvement in water supply
- Most of the countries that have regressed in KD1 were in the Pacific

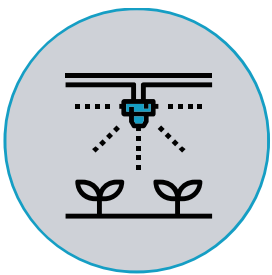
RECOMMENDATIONS:

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

KEY DIMENSION 1

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





KEY DIMENSION 2

ECONOMIC WATER SECURITY

RESULTS:

- Economic water security 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.
- Changes to economic water security take years of planning and policy prioritization to achieve.
 - 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 also benefit from investments in infrastructure that help mitigate lower natural water availability.
- Most regions have been relatively stable or shown minor improvements since 2013.
- Despite limited progress, increasing stress on water resources is shown with declining scores for countries in each region since 2016, and the greatest challenges in the Pacific Islands.

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 2

- Broad Economy
- Agriculture
- Energy
- Industry





KEY DIMENSION 3

URBAN WATER SECURITY

RESULTS:

- KD3 primarily measures safely managed and affordable water and sanitation services in urban and informal settlements to sustainably achieve desired, (and ideally agreed), outcomes
- 5 countries Nascent – 4 in the Pacific (Marshall Islands, Micronesia, Nauru, Papua New Guinea) and 1 in South East Asia (Timor-Leste), in total 1. 7 million people in urban areas
- Despite major investments, level of urban water security has remained about the same in the period 2013 till 2020 due to urbanization. In total 600 million urban people still do not have adequate access to water supply and sanitation services.

RECOMMENDATIONS:

- Increased attention on Pacific and South Asia including affordable water supplies.
- View wastewater, stormwater, and rainwater as a resource
- More integrated solutions and leapfrogging opportunities
- Improved attention to future risks and management of issues including urban growth, non-revenue water, water consumption (and efficiency), energy use costs, climate change
- Improved management of data and information, including systematic updating and improve monitoring and evaluation
- Future AWDO editions could benefit from more precise urban definitions, clarity on informal settlement inclusion and quantification of “future security” risks

KEY DIMENSION 3

- Access to Water Supply
- Access to Sanitation
- Affordability
- Drainage/floods
- Environment





KEY DIMENSION 4

ENVIRONMENTAL WATER SECURITY

RESULTS:

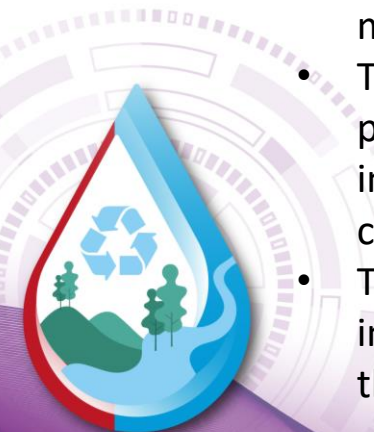
- Majority of countries show only moderate changes in KD4 from 2016 – 2020
 - most of these changes were declines
 - these countries represented all regions
- The performance of eight countries improved mainly due to a higher score for the Environmental Governance sub-index
 - these countries also represented all regions

RECOMMENDATIONS:

- The health of aquatic ecosystems is under considerable pressure
- It has been difficult to compare countries because of lack of data; remote sensing products under development will continue to improve monitoring
- There is a risk in traditional/grey infrastructure without environmental protocols that may boost one dimension of water security while impacting another; healthy ecosystems are not just something for rich countries
- The twin pressures of short-term human alterations and longer-term impacts of climate change will affect how ecosystems function throughout the region

KEY DIMENSION 4

- Catchment and Aquatic System Health
- Environmental Governance





KEY DIMENSION 5

WATER RELATED DISASTER SECURITY

RESULTS:

- Water-related Disaster Security is a national-level assessment of risk to water-related disasters—comprising Climatological (drought), Hydrological (flood), and Meteorological (storm) risks—based on assessments of the scale of the hazard, the exposure, the vulnerability, and the capacity of the nation.
- Capacity across Asia-Pacific has increased slightly while Vulnerability has decreased slightly from the first reporting of KD5 in 2013—both are signs of progress
- The East Asia region has shown the most progress in reducing Risk recently while the Pacific is the most challenged by Water-Related Disaster in recent years
- Drought is the most prominent Risk out of the three Hazard categories across Asia-Pacific

RECOMMENDATIONS:

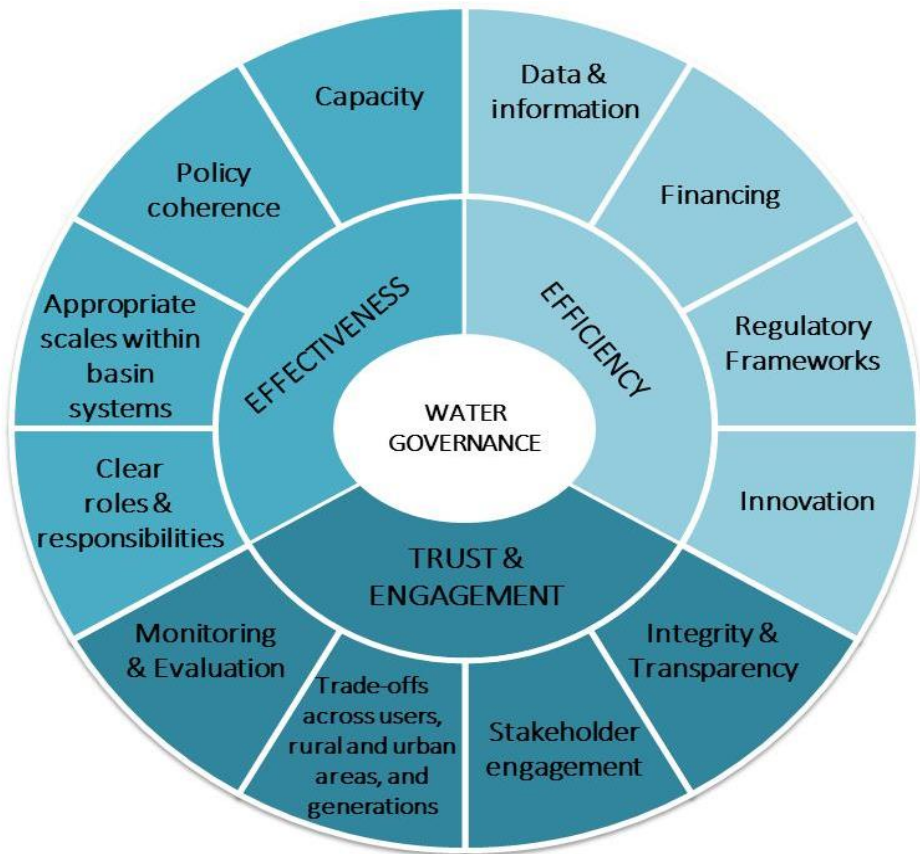
- Enhance international efforts for standardized data collection of disaster impacts, in particular, gathering gender-disaggregated data
- Promote a gender-responsive approach to disaster risk reduction and climate change adaptation
- Adhere to international agreements like the Hyogo and Sendai frameworks and promote cooperation in reducing the risks of water-related disaster

KEY DIMENSION 5

- Climatological risk / drought
- Hydrological risk / flooding
- Meteorological risk / storms



GOVERNANCE AND WATER SECURITY



RESULTS:

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

RECOMMENDATIONS:

- Strengthen the implementation and monitoring of water-related disaster
- Adopt water policy instruments to manage trade-offs
- Adopt water economic instruments to manage water resources and generate associated sustainable funding
- Address capacity and data gaps
- Develop further stakeholder engagement in water decision making
- Mainstream integrity and transparency practices across water policies, institutions and governance frameworks

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

FINANCE AND WATER SECURITY

PROJECTED INVESTMENT NEEDS:

- Water supply and sanitation
 - Most countries will need to allocate between 1 and 2% of GDP to invest in water supply and sanitation infrastructure over the period 2015-2030
 - Outliers: Afghanistan, Nepal, Pakistan, Timor Leste
- Flood risk exposure
 - Afghanistan, Bangladesh, Cambodia, Kyrgyz Republic, Tajikistan and Viet Nam may all have flood risks exceeding 6% of GDP in 2030
- Irrigation expansion and efficiency improvements. Driven by:
 - Growing populations
 - Changes in dietary preferences
 - The effects of climate change

SOURCES OF FUNDING:

- Public taxes are the main source of finance for water-related infrastructure
- Official Development Assistance remains a low share of investment in water infrastructure and may not be targeting those countries who need it most
- Water supply and sanitation tariffs are under-utilized, although affordability acts as a barrier in selected countries



FINANCE AND WATER SECURITY

POLICY OPTIONS:

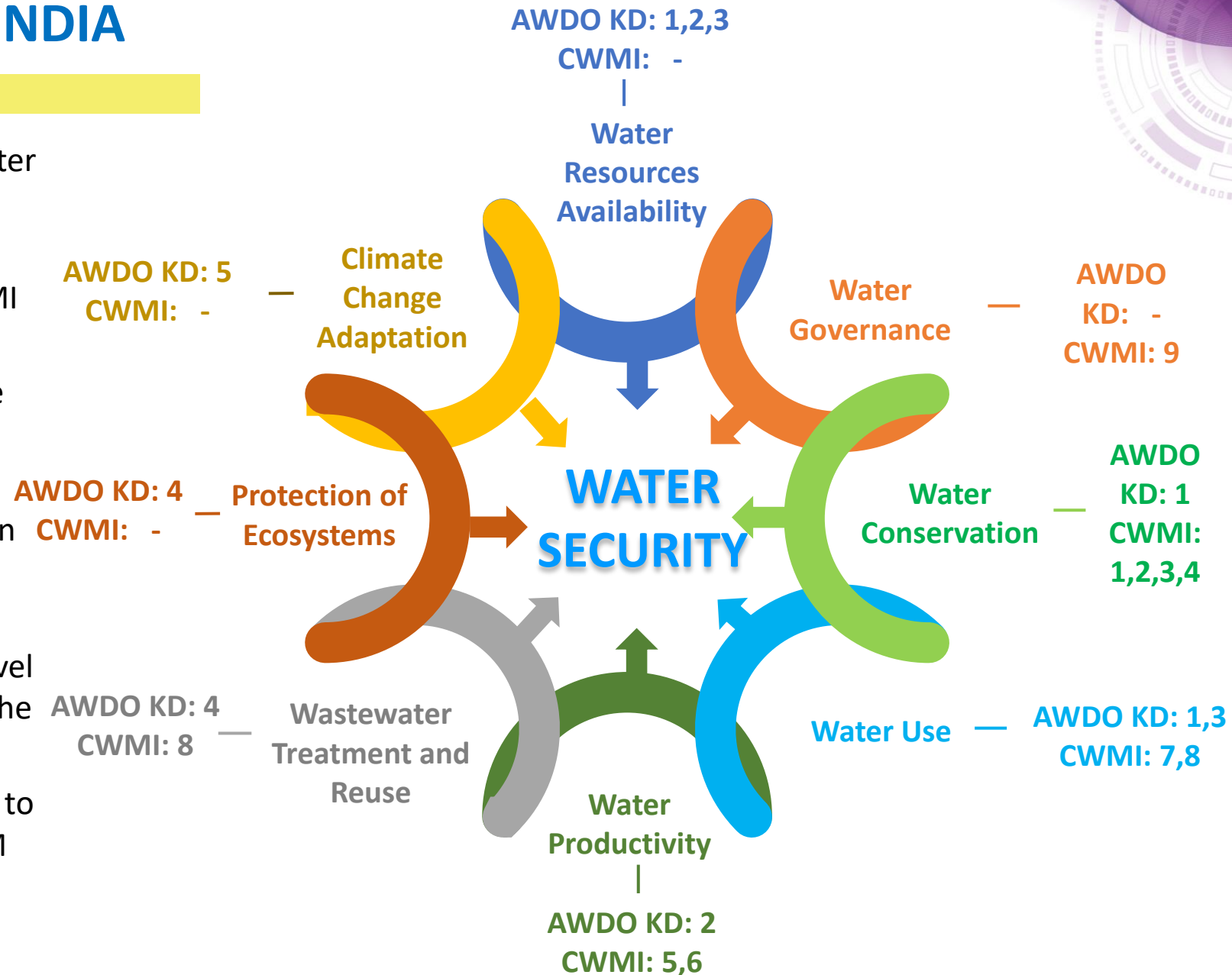
- Make the best use of available assets and financial resources
 - Enhance the operational efficiency of service providers
 - Build capacity for economic regulation
 - Encourage connections with central systems when these are available
 - Strengthen capacity and monitoring
- Minimize future investment needs
 - Develop climate-resilient plans to future-proof the water sector
 - Support plans with realistic financing strategies
 - Encourage policy coherence across water policies and other policy domains
 - Manage water demand and strengthen water resources allocation practices
 - Develop cost-effective flood risk mitigation strategies
 - Exploit innovation in line with adaptive capacities.
- Harness additional sources of finance
 - Ensure tariffs for water services reflect the costs of service provision
 - Consider new sources of finance from users and beneficiaries
 - Leverage funds to crowd-in commercial finance

*It is not all about
more money.*



CASE STUDY: KARNATAKA, INDIA

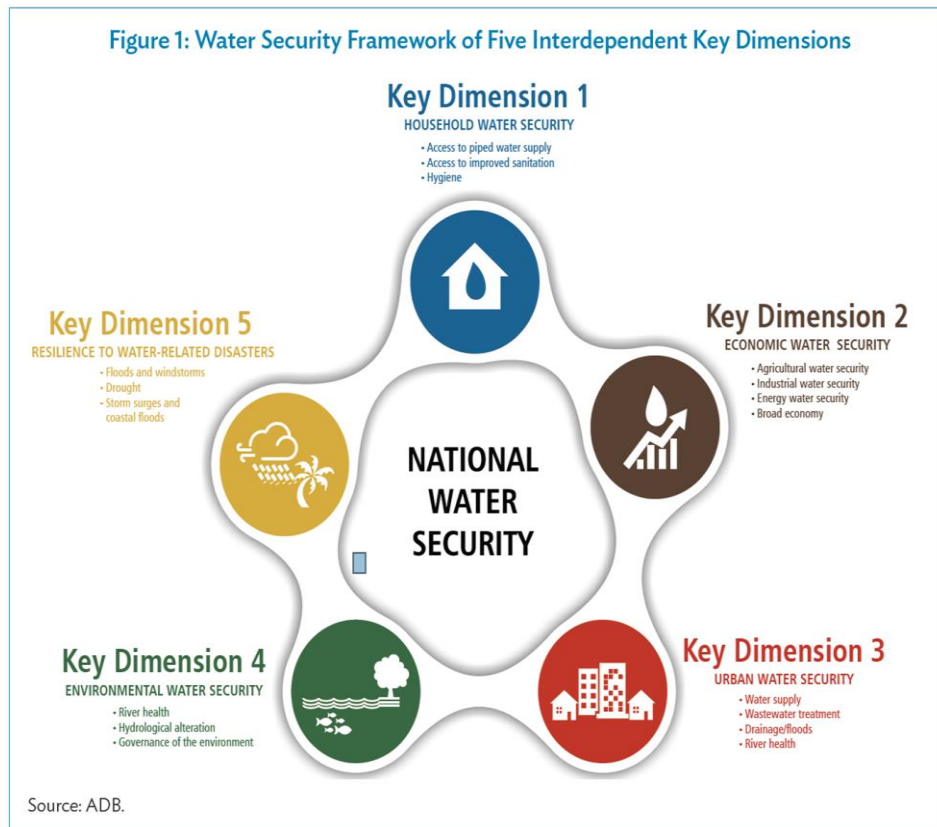
- India's NITI Ayog developed a Composite Water Management Index (CWMI)
- ACIWRM applied AWDO methodology for Karnataka state (province) and mapped CWMI indicators against AWDO indicators
- Index was very handy to shape the new State Water Policy - articulating several aspects of water sub-sectors with 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)



Water Sector Assessment in the Yellow River Basin - ADB Technical Assistance

18 indications in five key dimensions were selected for this assessment based on AWDO methodology the TOR of this project, the characteristics and problems of Yellow River basin and referring to ADB indications for similar purpose.

Indicators of ADB



17 indicators in five key dimensions

Indicators for this assessment

KD1: Water Supply Security

- Available water resources per capita
- Rate of access to tap water in rural areas
- Water quality pass rate of centralized drinking water sources
- Runoff regulation capacity
- Development and utilization rate of surface water

KD5: Water-related Disaster Security

- Flood losses to GDP ratio
- Rate of important reach management through flood prevention works
- Warning & forecasting and dispatching coverage
- Proportion of areas affected by drought

KD4: Environmental Water Security

- Water qualification rate of important water function zones
- Wastewater and sewage treatment rate
- High water quality rate of important tributaries

KD2: Economic Water Security

- Ratio of GDP per capita in the basin to the national average
- Grain yield per m3 of water
- Industrial added value per cubic meter of water

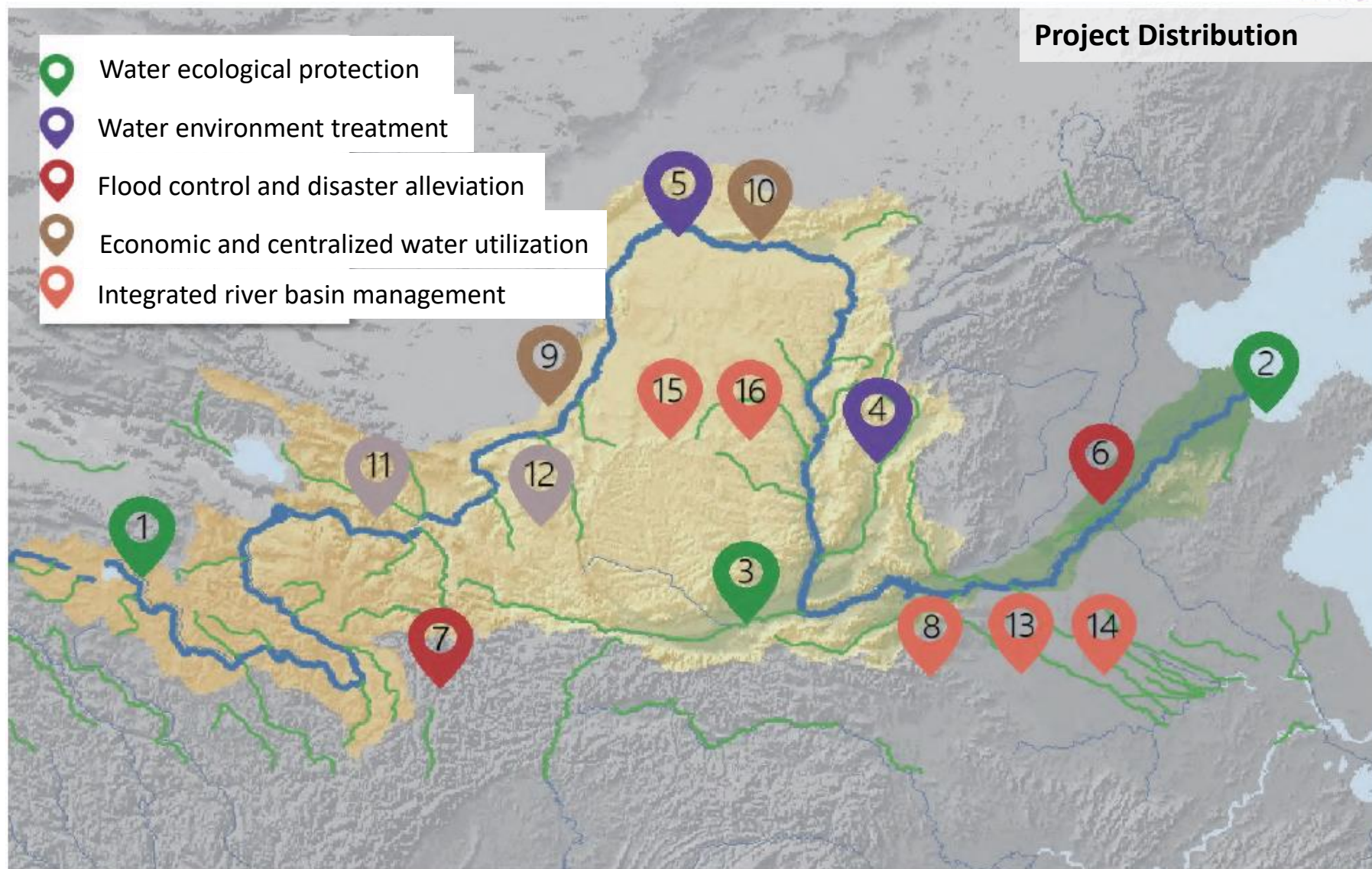
KD3: Ecological Water Security

- Ecological basic flow guarantee rate of important sections
- Water and soil conservation rate
- Ecological health index of important rivers and lakes

18 indicators in five key dimensions

Investment Roadmap Developed Throughout the Basin Using AWDO Methodology

Following the funding principles of ADB, **16 recognizable projects with highlights were selected out of the 33 projects** recommended to be funded by ADB during the 14th Five-year Plan. The estimated total investment of such 16 projects distributing in the 9 provinces/regions in the Yellow River Basin is CNY 23.9 billion.



The New Normal and Associated Water Sector Investments

- Increased and more inclusive WASH and wastewater infrastructure and service delivery targeting the poor and vulnerable in low-income communities and informal settlements; decentralized and community-specific WASH service delivery
- Strengthening linkage between WASH and health: enhance support towards behavioral change to ensure public health is improved not just service delivery and wastewater-based epidemiology; multi-stakeholder approach.
- Acceleration of the digital utility: (i) reliable and effective high-level and digital solutions and technologies for monitoring and operations, including automation and remote-control to ensure service delivery; (ii) automated billing systems, cashless (mobile), E-commerce to increase revenue collection; and (iii) improved communication with customers
- Building capacity and strengthening financial sustainability of water service providers and support tariff reforms and operational efficiency to strengthen financial health. Emergency funds and financial assistance to maintain operations.
- Increased safe and resilient water service provision – robust and integrated safety and emergency plans, crisis management and preparedness, use of personal protective equipment (PPE) for workers
- Building resilience to absorb shocks and stresses due to pandemics, disasters, and climate change by e.g., implementing holistic approach in improving service delivery and public health across water supply, sanitation, flood and solid waste management and solid waste management at city level.
- Prioritize resumption of critical capital works and infrastructure maintenance and inspections. More resilient future infrastructure designs to withstand shocks and minimize operations and maintenance needs.
- Diversification and localization of supply chains to ensure availability of necessary inputs.
- Irrigation and drainage modernization, diverse crop mixture, food production closer to the markets (e.g., urban farming), focus on internal markets and resource reuse, import substitution.
- A green and nature-positive recovery: design green infrastructure investments, green jobs.



Thank You

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