



AUSTRIAN TECHNOLOGY DAYS SOUTH EAST ASIA  
2022

THAILAND | MALAYSIA | PHILIPPINES  
VIETNAM | INDONESIA | SINGAPUR

Overview of Water Management / Flood  
Prevention in South East Asia

# Achieving Water Security in Asia and the Pacific

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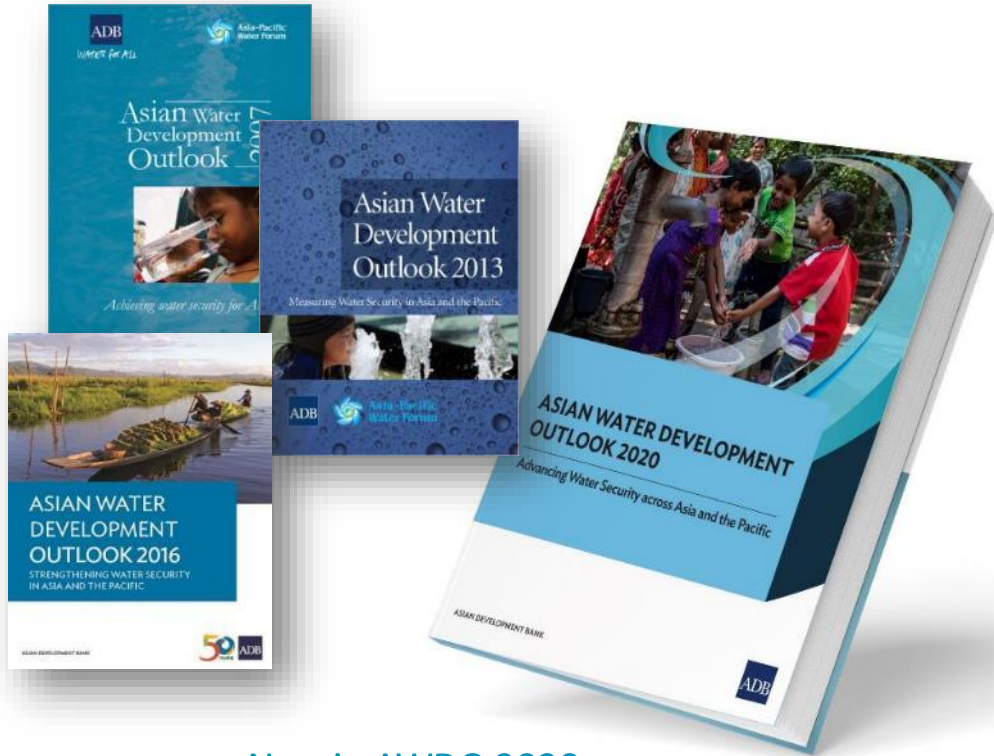


**ADB's goal to  
Achieve a Water  
Secure and  
Resilient Asia and  
the Pacific**

**Disaster Resilience  
and Flood Prevention**

**ADB's Water Sector  
Framework 2021-  
2030**

# Asian Water Development Outlook- Evaluates National Water Security



## New in AWDO 2020:

- Improved methodology
- Many working partners
- Country Case Studies (Thailand, India, PRC, Timor-Leste)
- Future Risk Framework

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## Five Key Dimensions of National Water Security

### KEY DIMENSION 5

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



### KEY DIMENSION 4

- Catchment and aquatic system health
- Environmental governance

## Download the AWDO 2020 report

[www.adb.org/publications/asian-water-development-outlook-2020](http://www.adb.org/publications/asian-water-development-outlook-2020)



### KEY DIMENSION 1

- Access to water supply
- Access to sanitation
- Health impacts
- Affordability



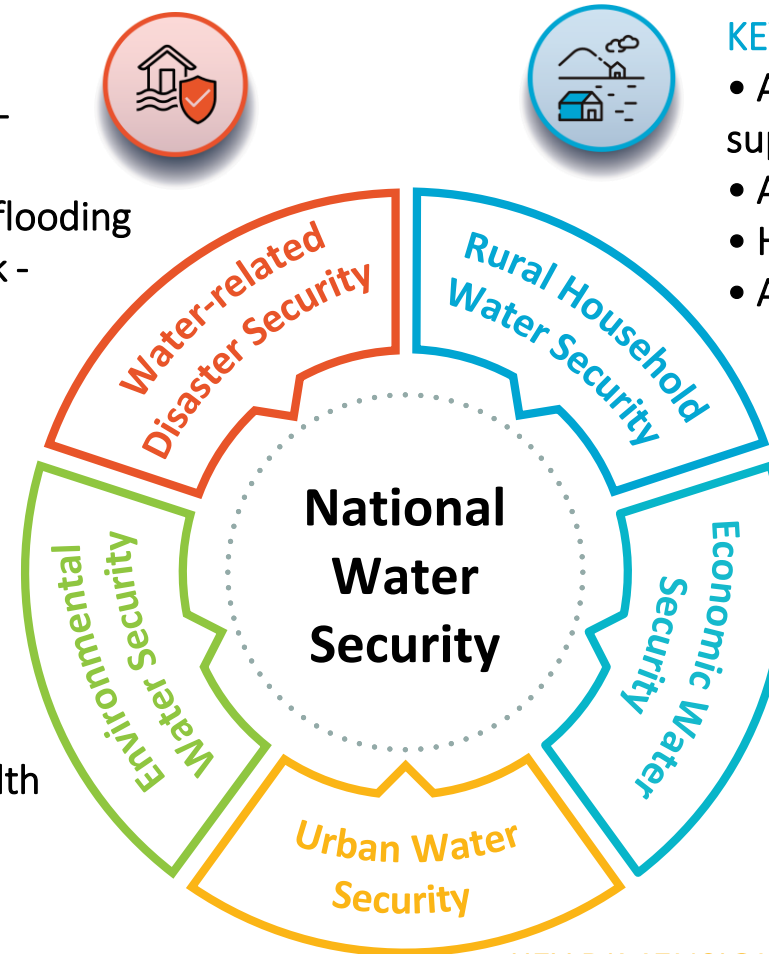
### KEY DIMENSION 2

- Broad economy
- Agriculture
- Energy
- Industry



### KEY DIMENSION 3

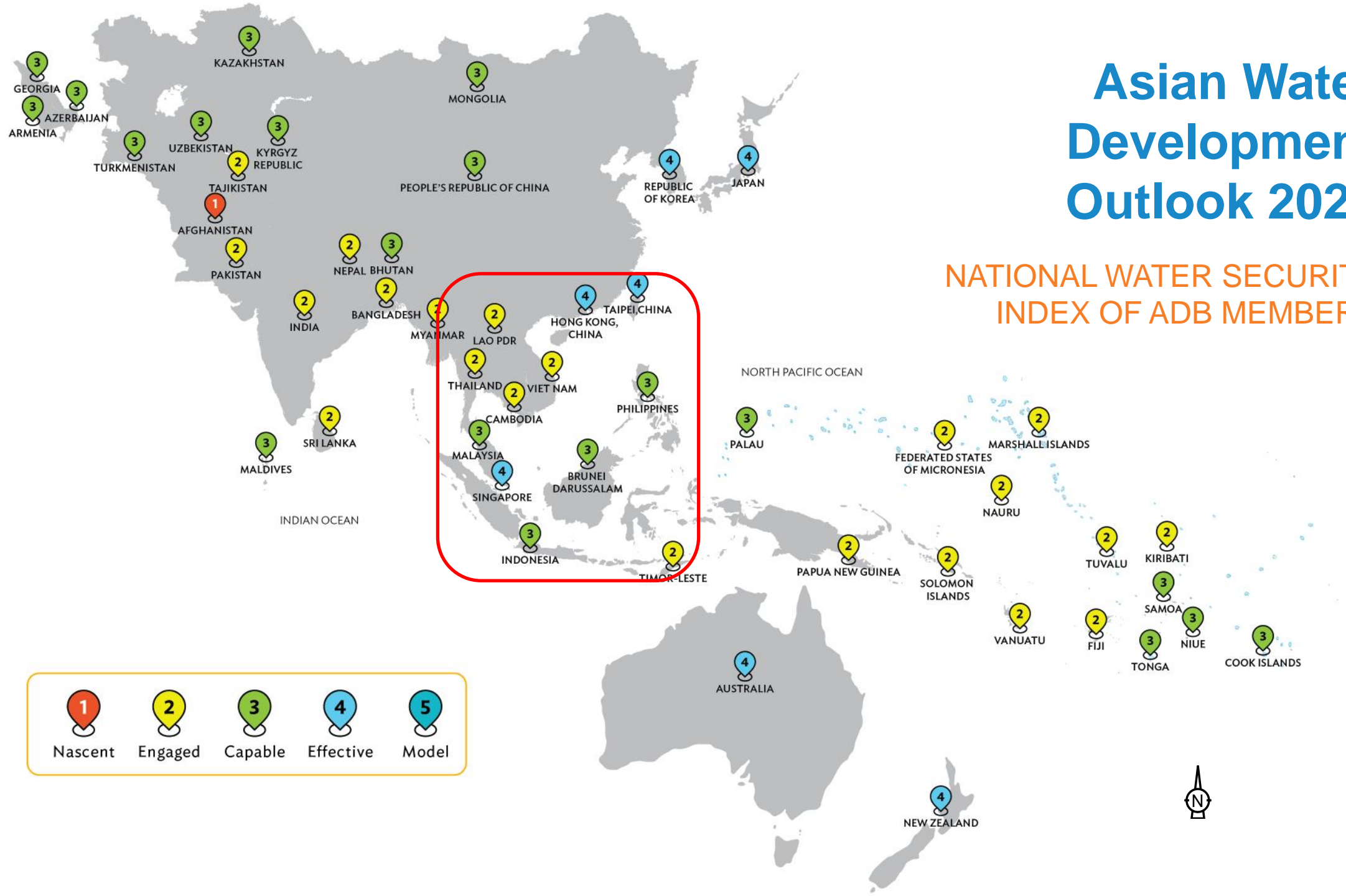
- Access to water supply
- Access to sanitation
- Affordability
- Drainage/floods
- Environment



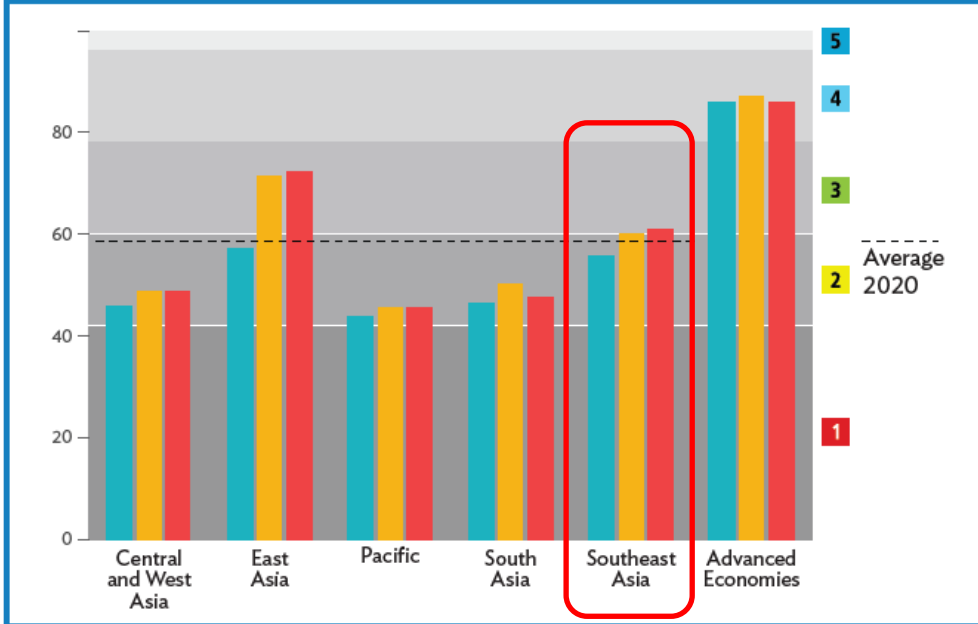


# Asian Water Development Outlook 2020

## NATIONAL WATER SECURITY INDEX OF ADB MEMBERS



## NWS Scores by Region



All regions have made good progress between 2013 and 2020, in particular East Asia and Southeast Asia.

\* Without the Advanced Economies

## TOP PERFORMERS ON NWS – AWDO 2013 to 2020

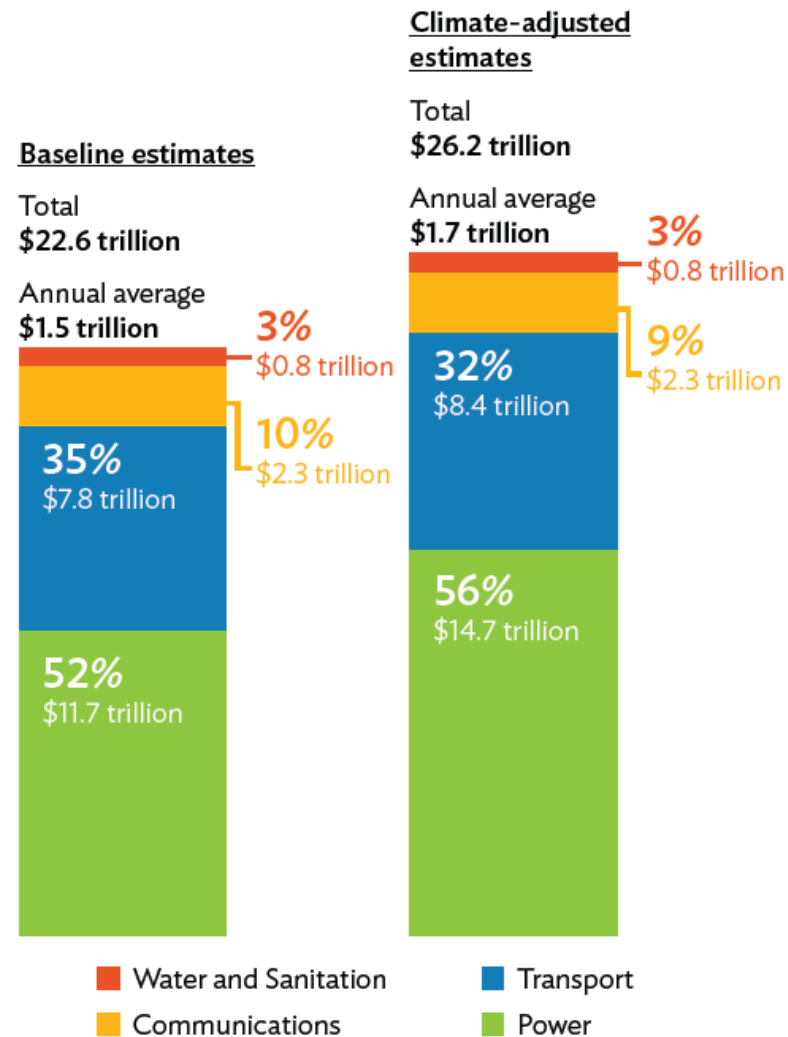
PRC (+16)  
 Kyrgyz Republic (+10)  
 Maldives (+10)  
 Palau (+10)  
 Philippines (+9)  
 Tajikistan (+9)  
 Taipei, China (8)  
 Kazakhstan (+7)  
 Bangladesh (+6)  
 Cook Islands (+6)  
 Lao PDR (+6)  
 Marshall Islands (+6)  
 Mongolia (+6)  
 Niue (+6)  
 Samoa (+6)  
 Tuvalu (+6)  
 Uzbekistan (+6)  
 Viet Nam (+6)

(out of a max scale of 100)



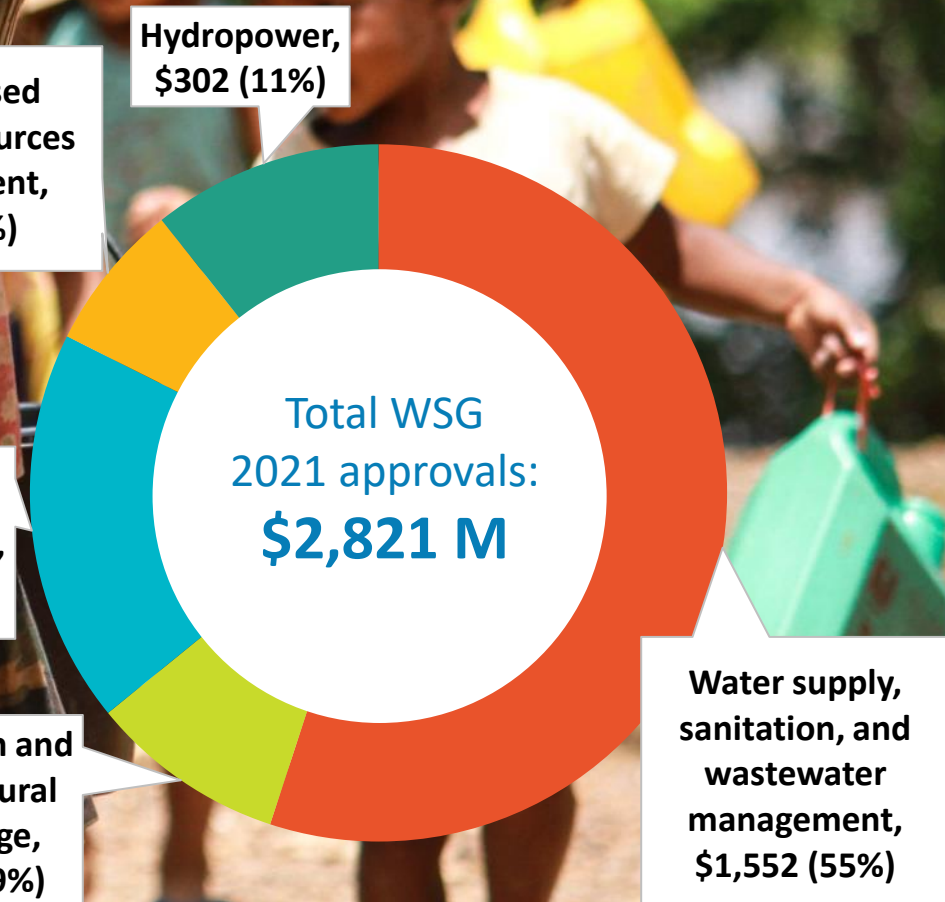
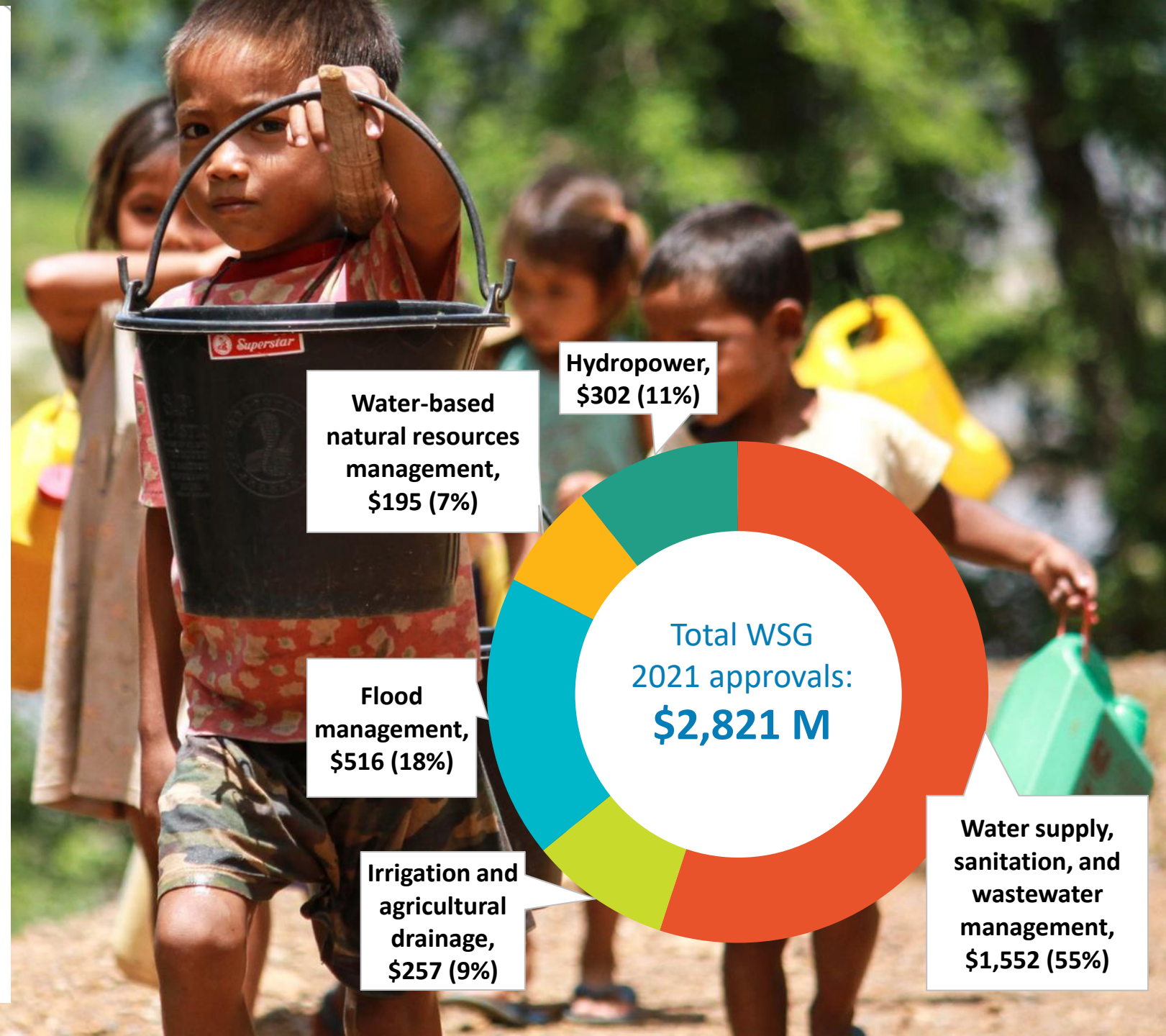


Figure 4: Estimated Infrastructure Investment Needs by Sector, 2016–2030 (2015 prices)



Note: Estimated needs for 45 developing member countries.

Source: Asian Development Bank. 2017. *Meeting Asia's Infrastructure Needs*. Manila.

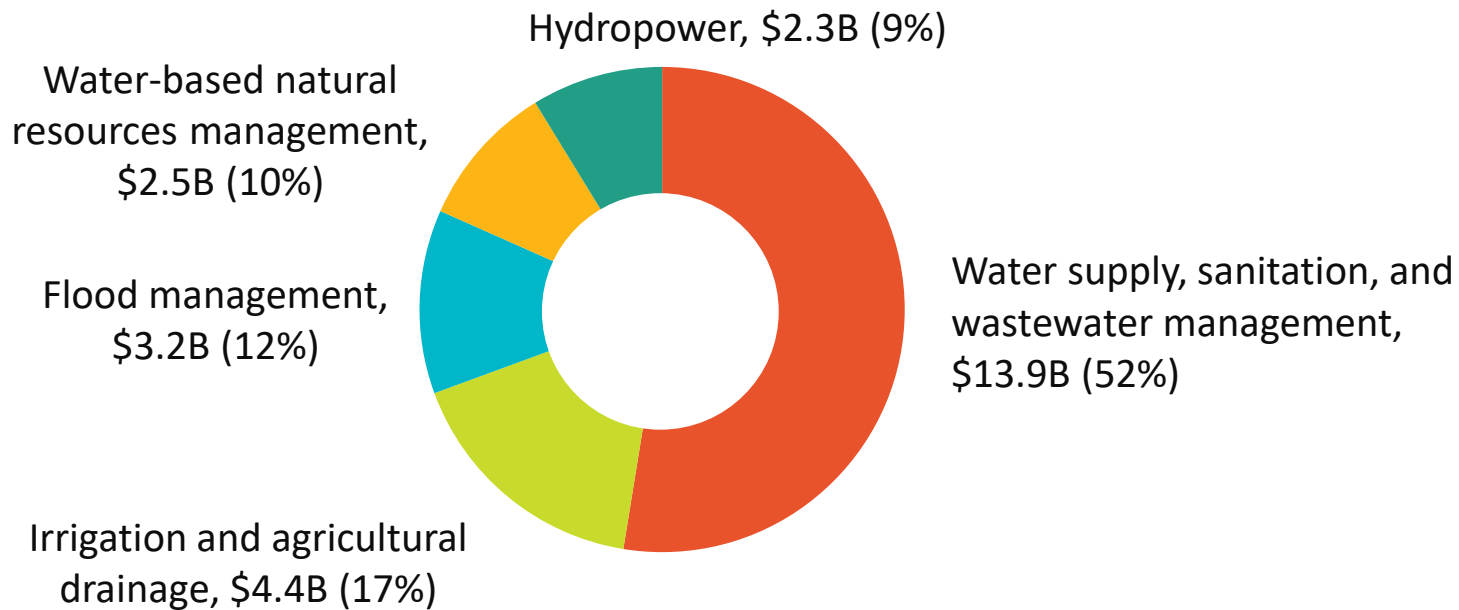




# Toward Water Security and Resilience for at least 654 million people in Asia and the Pacific

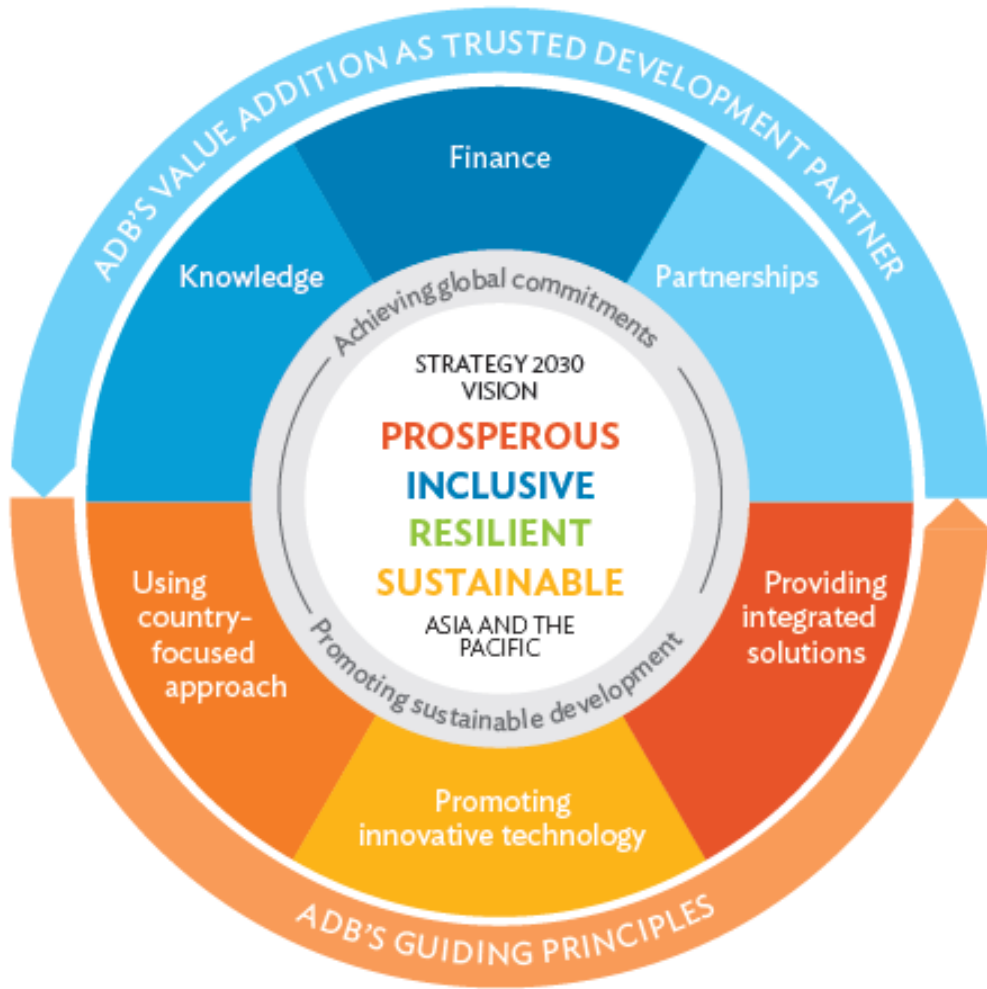
Total Investment: \$26.4B (Dec 2021)

Distribution of ADB's 2011-2021 Water Financing by Sector



# Disaster Resilience and Flood Prevention

Achieving a water secure and resilient Asia and the Pacific Region





# Major water-related disaster events to which ADB responded

Achieving a water secure and resilient Asia and the Pacific Region



## **Sulawesi Tsunami (September 2018)**

- \$3 million emergency grant within one month
- \$500 million loan (December 2018) with additional \$208 million from the Government.



## **Aceh Tsunami (2004)**

- ADB established a \$600 million multi-donor (\$300 ADB) Asian Tsunami Fund within 6 weeks
- ADB restored livelihoods and essential public services and reconstructed infrastructure



# Major water-related disaster events to which ADB responded

Achieving a water secure and resilient Asia and the Pacific Region



## Pakistan Floods (2010)

- \$3 million emergency grant within one month
- \$654 million loan within 6 months following the damage needs assessment



## Typhoon Haiyan (Yolonda – 2013)

- \$3 million emergency grant within one month
- Over \$900 million within one month and eventually approved/reallocated over \$1.1 billion

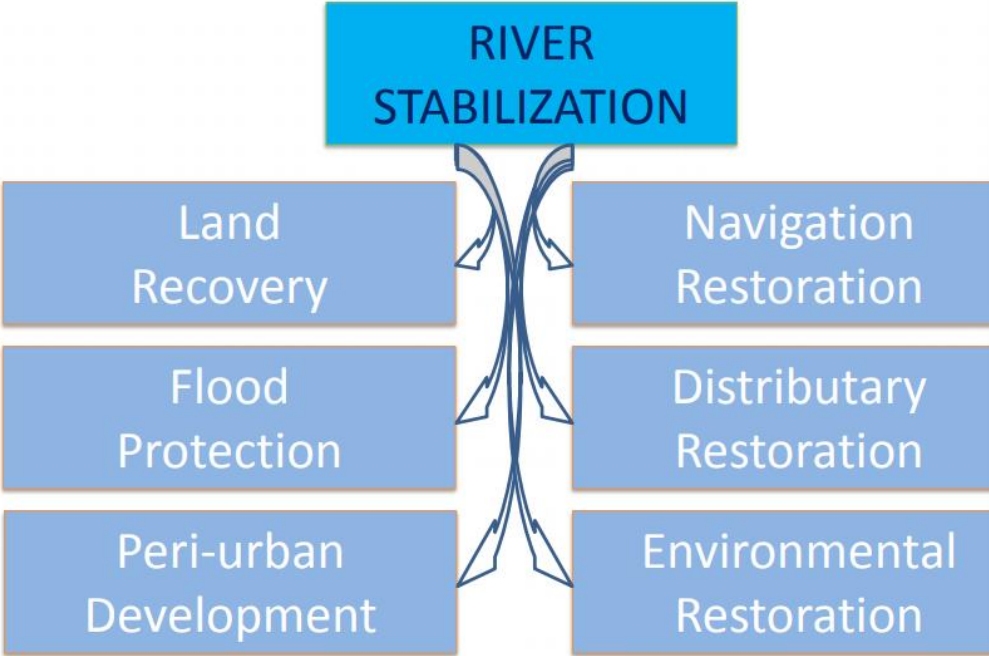


# From Flood Management to integrated water-related disaster risk management

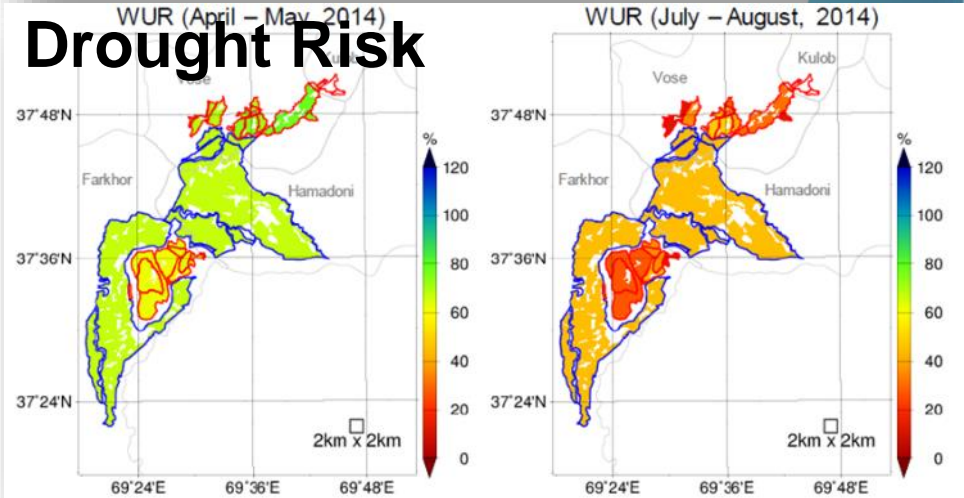
Achieving a water secure and resilient Asia and the Pacific Region



**nhc**  
northwest hydraulic consultants



## Drought Risk

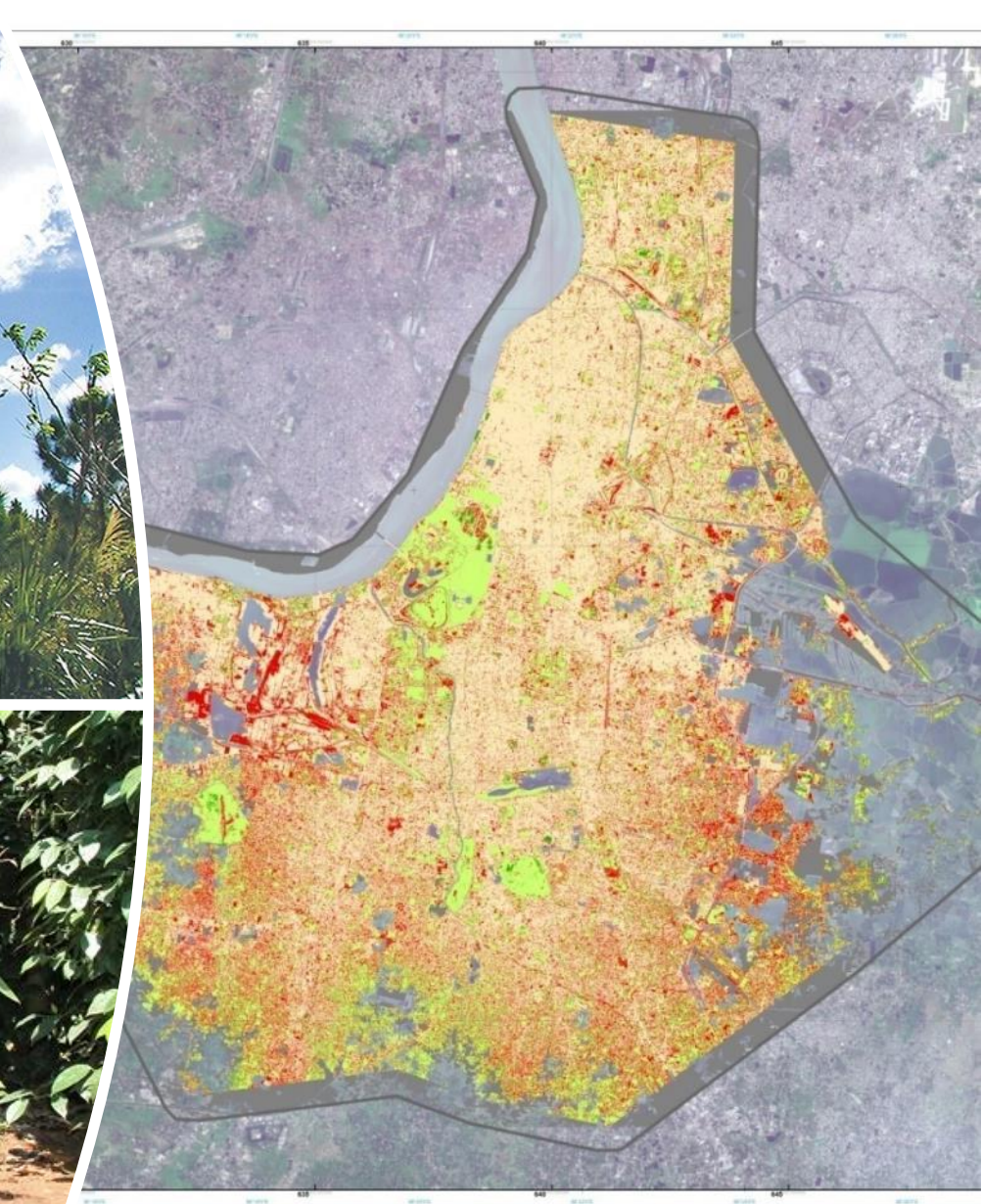




# High-level Technology

Achieving a water secure and resilient Asia and the Pacific Region

- **Rainfall forecasting using radar** (Nepal)
- **SCADA/IoT** for water utility asset management (Philippines)
- **Smart meters** for non-revenue water reduction (Bangladesh's Dhaka Water Supply Authority)
- **Drip irrigation** for "more crop per drop" (Viet Nam, India)
- **Remote sensing** in water accounting and productivity (Cambodia, India, Indonesia, Pakistan, Sri Lanka, Viet Nam)
- **LIDAR survey** for O&M of irrigation assets (Indonesia)
- **Mobile phone application and big data** for disaster risk resilience (Bangladesh, Fiji, Philippines)
- **Disaster Risk Insurance** (Viet Nam)



URBAN GREEN AREA CHANGE MAP OF KOLKATA, INDIA  
Changes between Historic (2005) and Current Status (2017)

1:50,000  
1 cm = 500 m  
0 0.5 1 2 3 4 5 6 7 km





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