



IWRM IN WANGCHHU RIVER BASIN, BHUTAN

Presented by,

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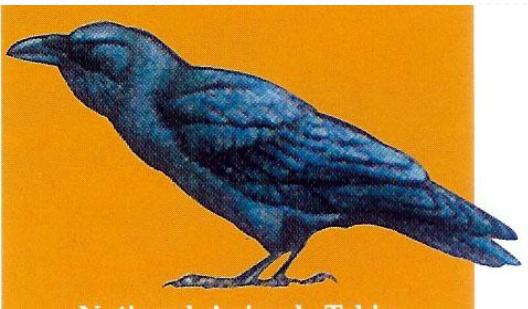
Bhutan - Location



National features



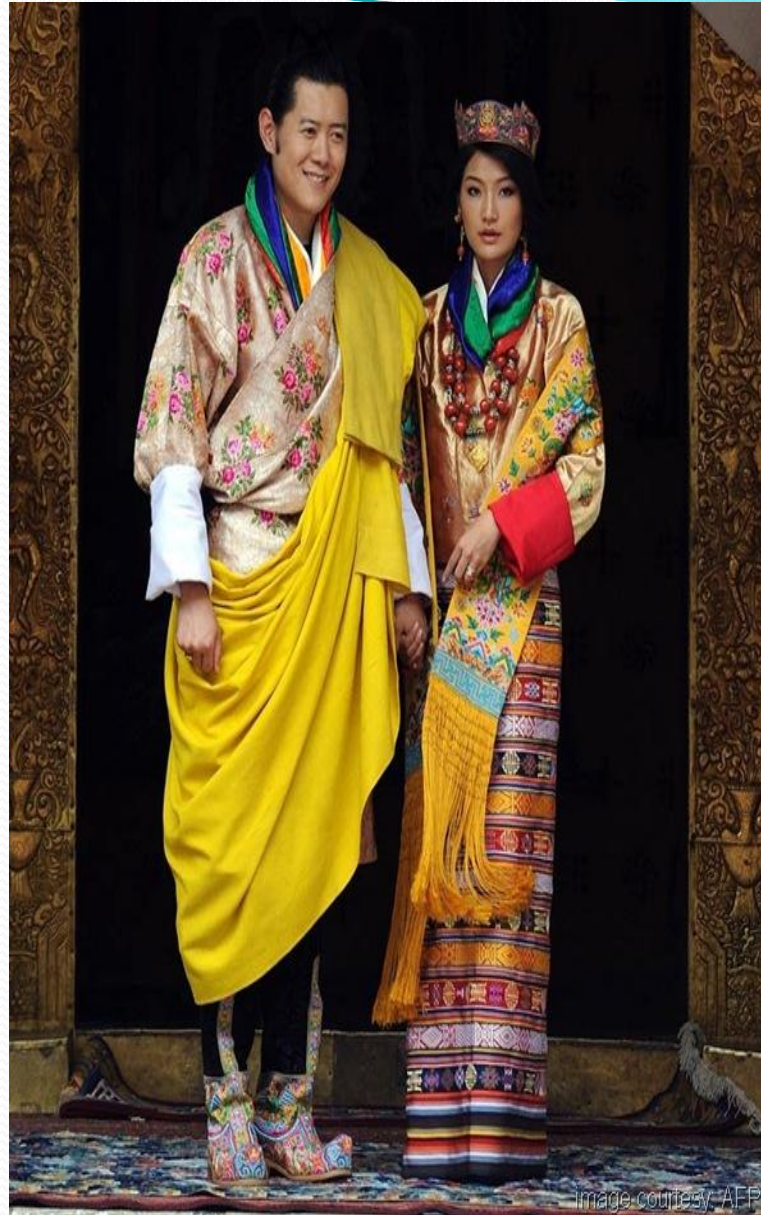
National Flag



National bird-Raven



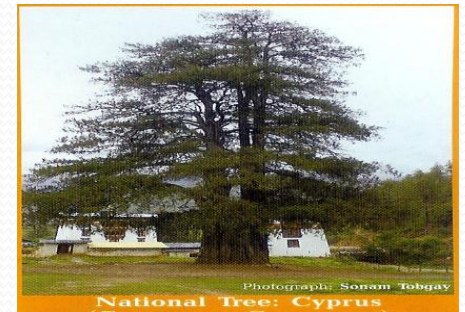
National butterfly (Swallowtail)



Photograph: Ryosuke Ogawa

National Flower: Blue Poppy

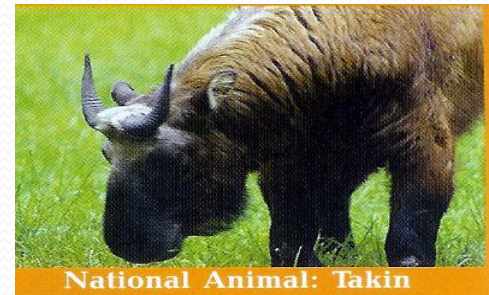
National flower



Photograph: Sonam Tobgay

National Tree: Cyprus

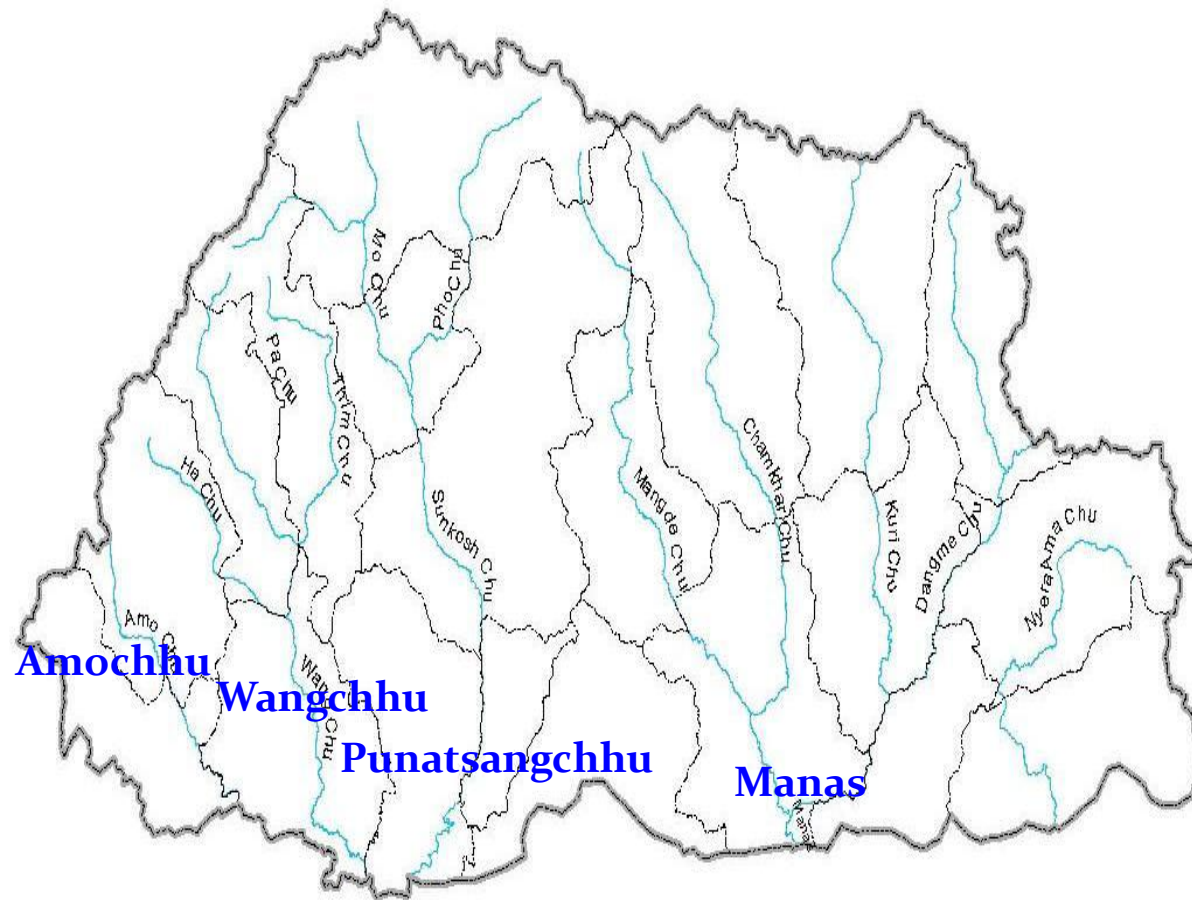
National tree



National Animal: Takin

National animal

Salient Features



The four major river basins of Bhutan

✓ Total land area; approx. 38,394 sq km

✓ Forest cover; 81% of the country
(including shrubs)

✓ Total population; approx. 700,000

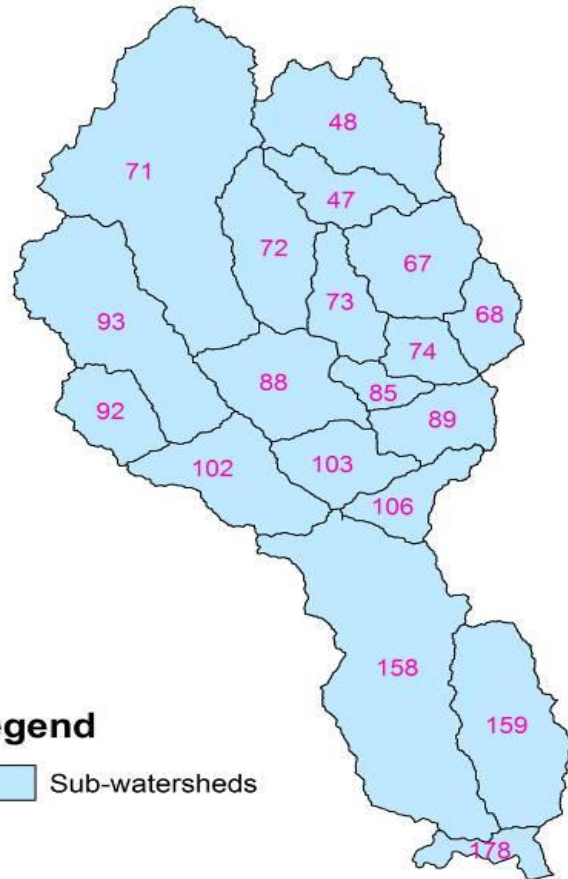
✓ Administration; 20 districts

✓ Main economy: Hydropower & Agriculture


✓ Long-term mean annual flow for entire country = $2,325 \text{ m}^3/\text{s} = 73,000 \text{ million m}^3/\text{year}$

General information of Wangchu RB

Sub-watersheds in Wangchu Basin



Legend

 Sub-watersheds

1:595,995

0 3.5 7 14 21 28 Km

Jigme Tenzin, WMD

The total area: 4608 km² (SWAT model)

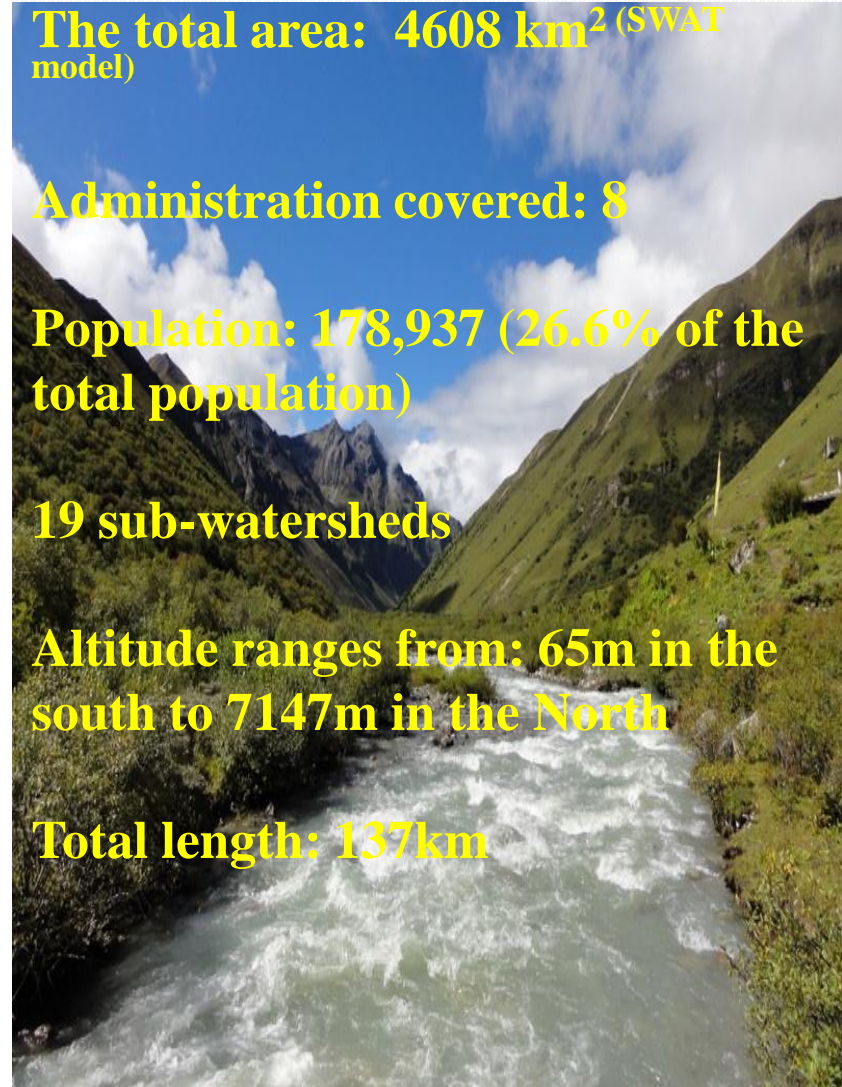
Administration covered: 8

Population: 178,937 (26.6% of the total population)

19 sub-watersheds

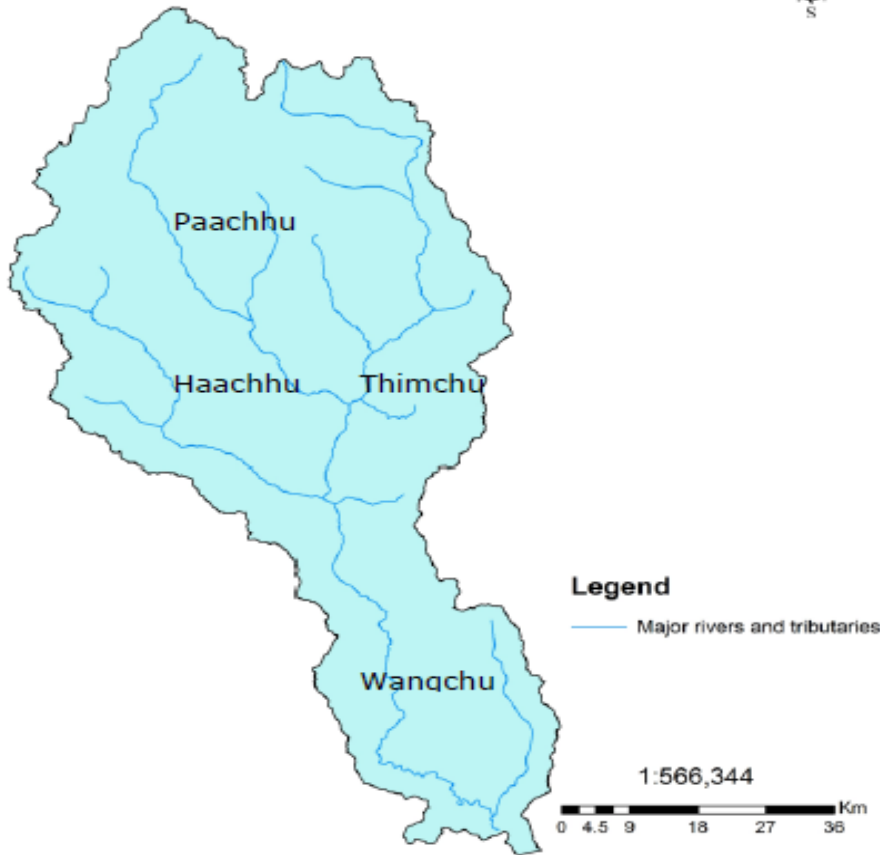
Altitude ranges from: 65m in the south to 7147m in the North

Total length: 137km



General information contd...

Major rivers and tributaries in Wangchu Basin



The Headquarter of the basin is formed by Haa Chu, Pa Chu and Thim Chu





36 glaciers and 221 glacial lakes are located in the head waters of the Basin (ICIMOD)

Mean flow: 98.49 cumics (DoE)

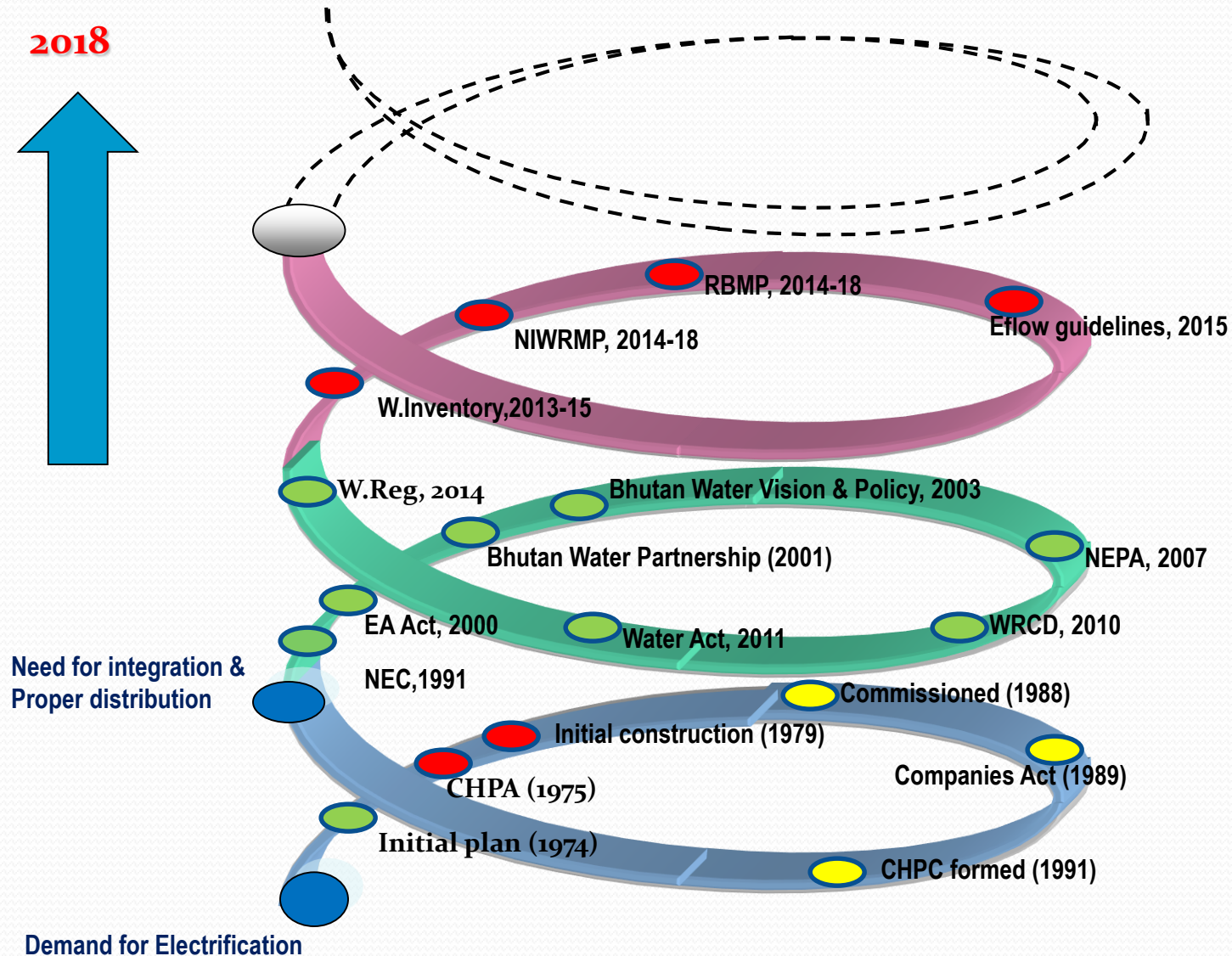
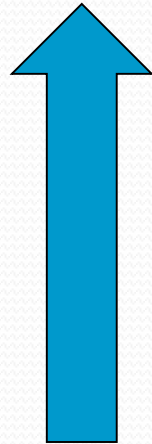
Annual sediment load: 300,000 to 700,000 ton per year



IWRM Spiral of Wangchhu Basin

- Phase 1: 
- Phase 2: 
- Phase 3: 
- Phase 4: 

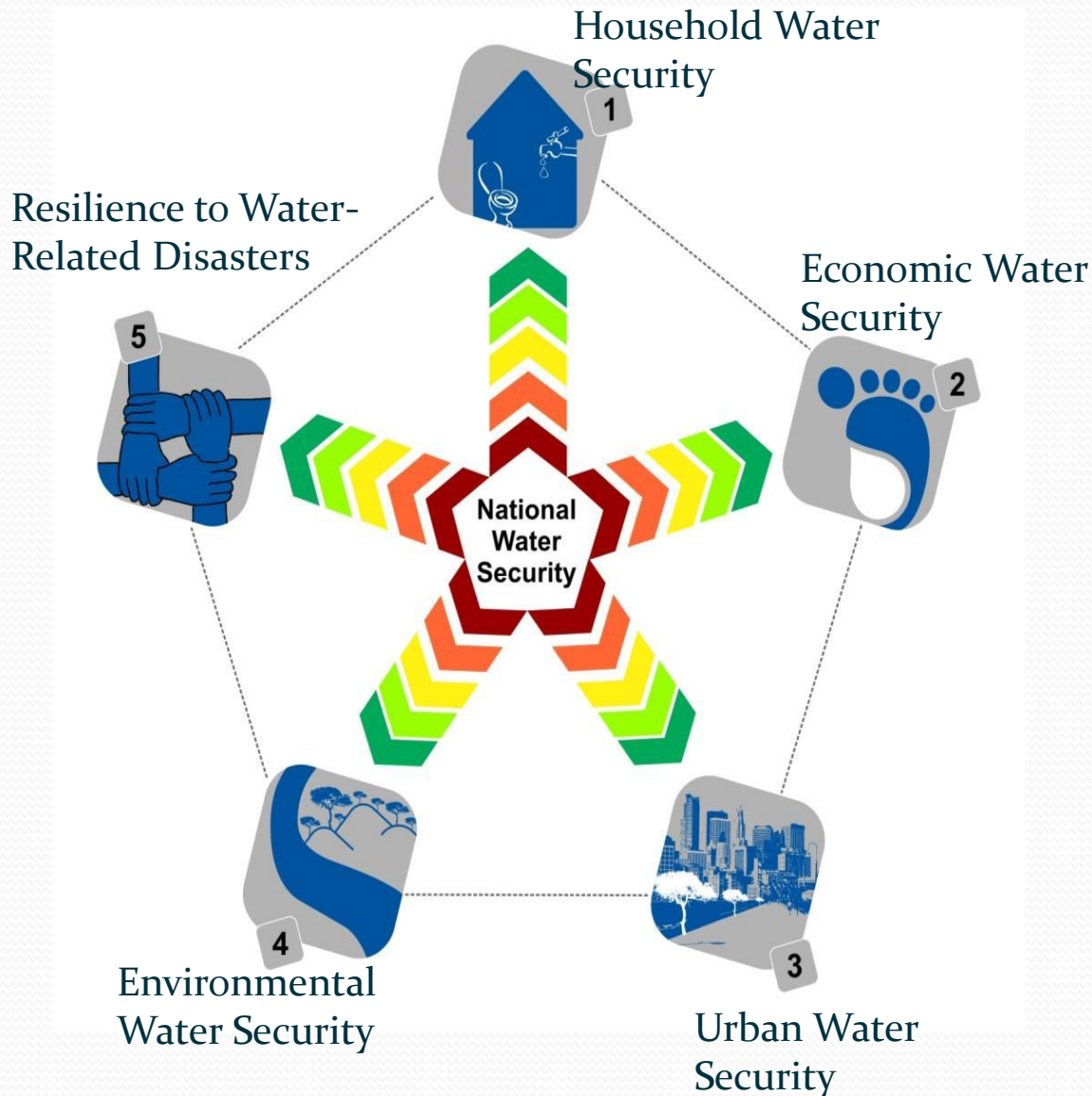
2018



5 key dimensions (KD) of water security

AWDO 2013 provides the tools or framework for the assessment of water security in five dimension

AWDO indicators will be used to assess the outcome of IWRM



Reminder and take home message

“You can’t cross the sea merely by standing and staring at the water.” — Rabindranath Tagore



“Whiskey’s for drinking, & water’s for fighting over.” - Mark Twain

“You can live without oil, and you can even live without love. But you can't live without water.” - Daniel Moynihan

A scenic view of a mountain valley. In the foreground, there are lush green terraced rice fields. In the middle ground, a traditional white building with a grey roof and a small spire is visible, surrounded by greenery. In the background, a village with several buildings is situated on a hillside, with more mountains and a cloudy sky in the distance.

TASHI DELEK
&
Safe journey

