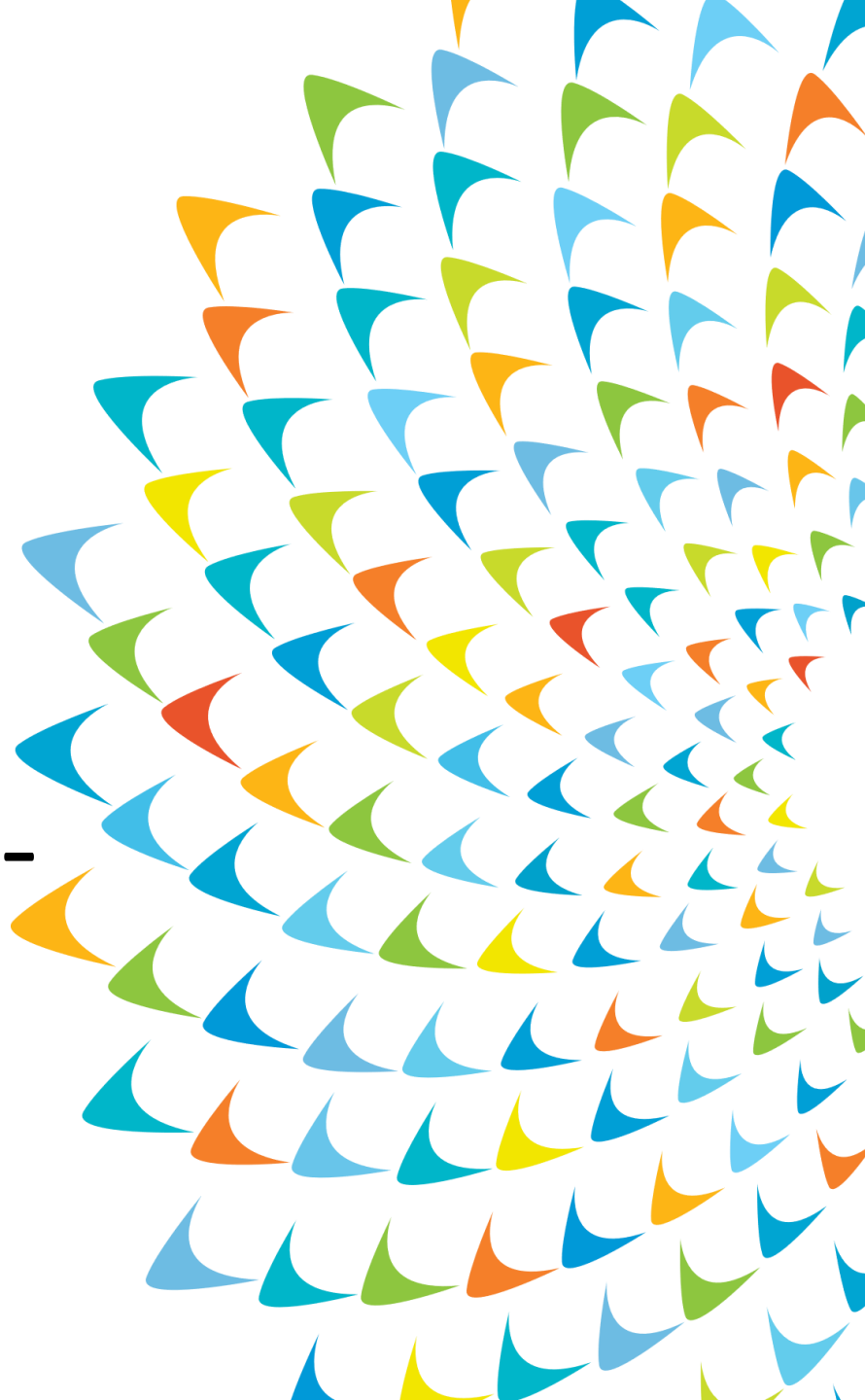
AWDO Key Dimensions for Economic Water Security and Water-related Disasters



5 Key Dimensions

Key Dimension 1
Household Water Security
Satisfy **household** water and sanitation needs in all communities

Key Dimension 2
Economic Water Security
Support productive **economies** in agriculture and industry

Key Dimension 3
Urban Water Security
Develop vibrant, livable **cities** and towns

Key Dimension 4
Environmental Water Security
Restore healthy **rivers** and ecosystems

Key Dimension 5
Resilience to Water-Related Disasters
Build resilient **communities** that can adapt to change

KD2: Economic Water Security

- Water is an Economic Good
- The Dublin Statement: "water has an economic value in all its competing uses and should be recognized as an economic good".
- Three critical factors
  - the value of water,
  - the use cost of water, and
  - the opportunity cost of the resource
- Water Energy Food Nexus
  - Improving Access
  - Improving Efficiency

KD2: Economic Water Security

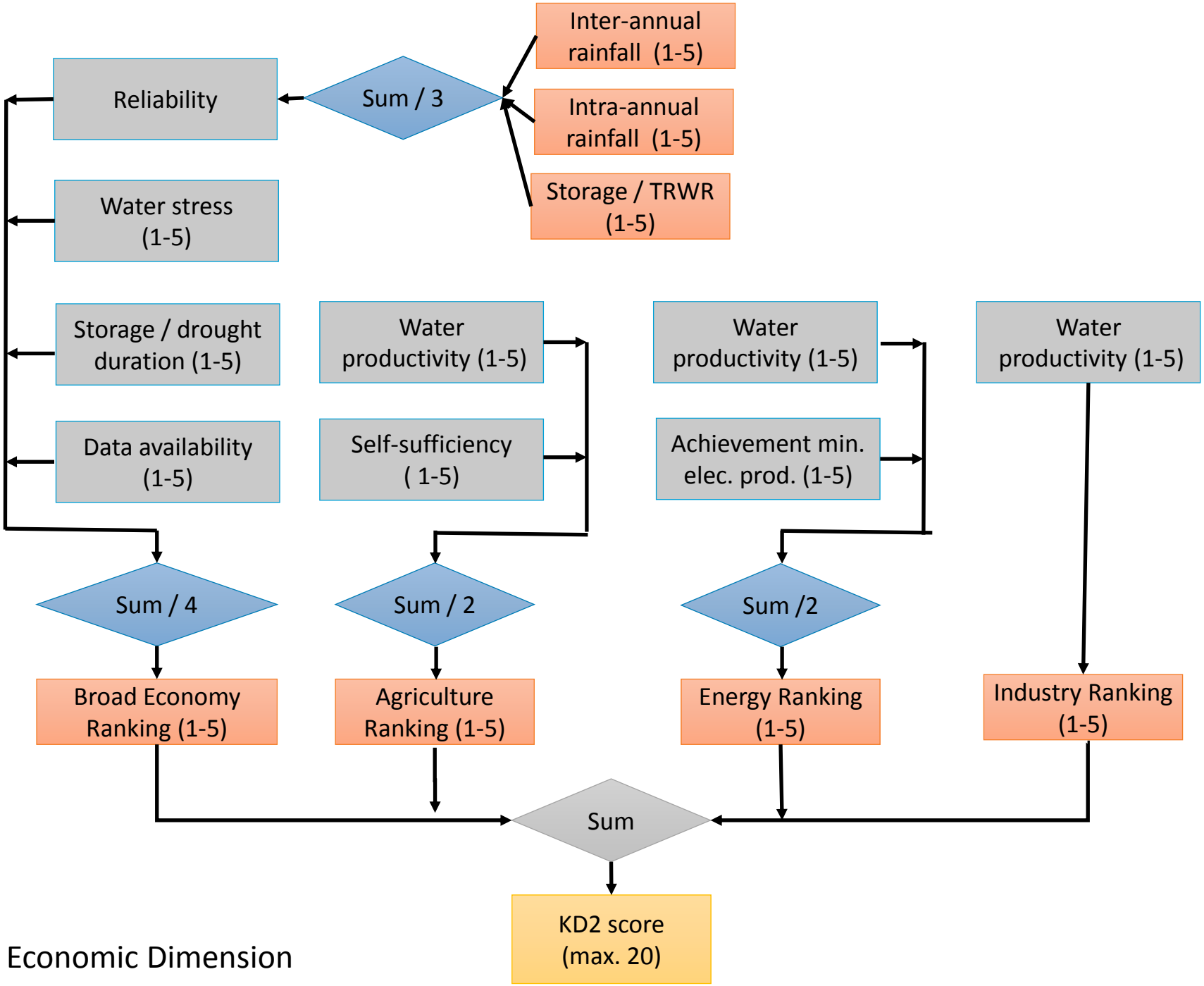
- KD2 Measures the productive use of water to sustain economic growth in food production, industry and energy sectors
- Assurance of adequate amounts of water of acceptable quality to sustainably satisfy a country's economic requirements
- Links to
  - SDG 2 – Target 2.3
  - SDG 6 – Target 6.4
  - SDG 7 – Target 7.2
  - SDG 8 – Goal 8
- Data Years: 2012-2013

Sub Indicators of Economic Water Security

- Broad Economy
  - describes the general water related boundary conditions for the use of water for economic purposes
    - Expansion in water storage
    - Increase in availability of withdrawals
    - Improved data
- Agriculture – Water Productivity and food security
  - South-East Asia – Thailand, Vietnam
- Energy – Water Productivity and Energy Security
  - Hong Kong, PRC
- Industry – Water Productivity in Industry

Issues

- Groundwater:
  - Unsustainable levels of extraction in arid and semi arid countries
  - Tragedy of Commons
  - Limited data – GRACE may help
- Water Energy Food Nexus
  - Solutions need to be at local level
  - Focus on increasing access and improving resource use efficiency
  - Trade has a role to play

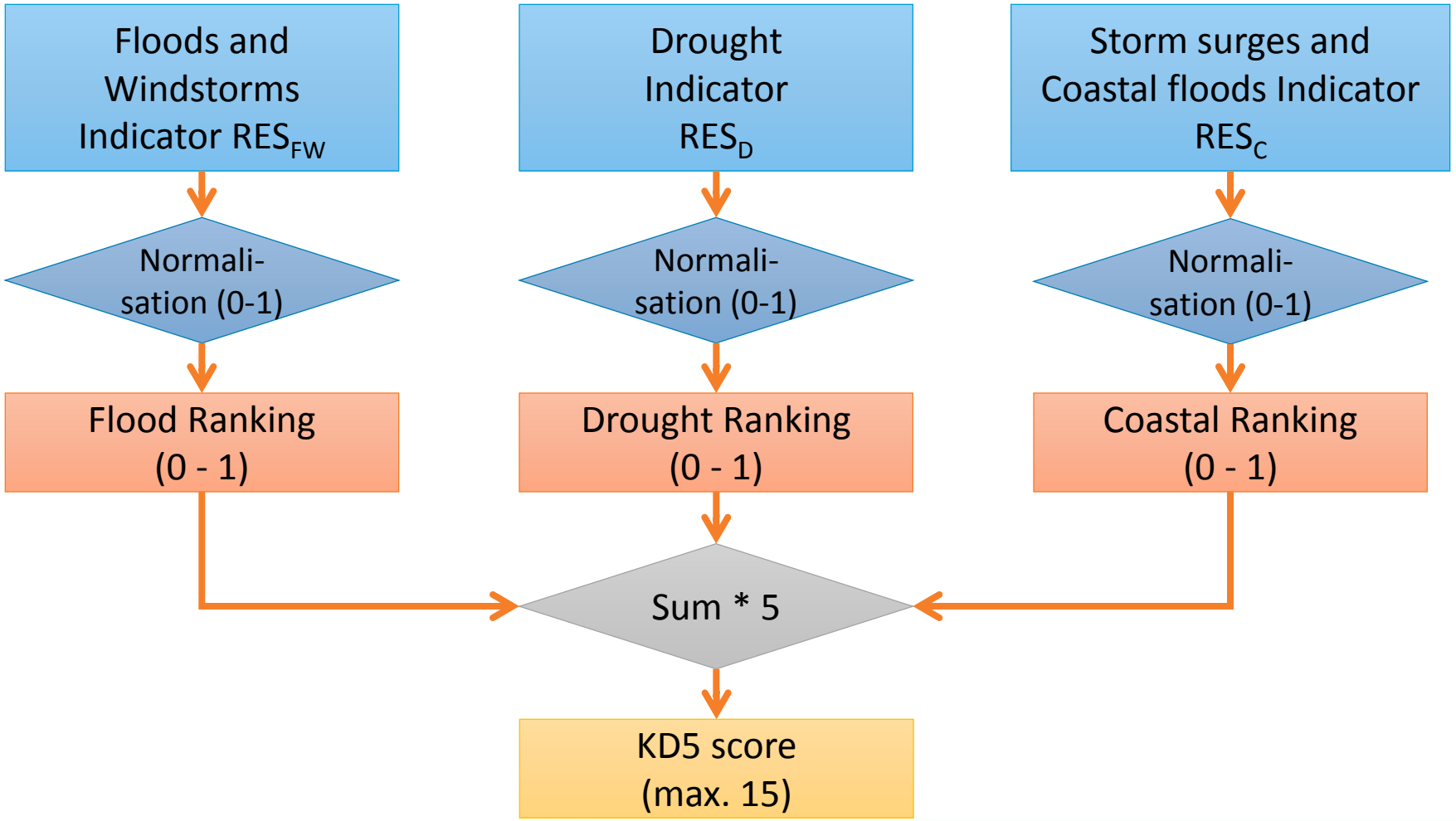


Economic Dimension

KD5: Resilience to Water Related Disasters

- Capacity of a country to cope with and recover rom impacts of water related disasters
- Sub indicators
  - Floods and Windstorms
  - Drought
  - Storm surges and coastal floods
- SDG Links
  - SDG 6 – Target 6.4
  - SDG 11 – Target 11.5
- Data Years: 2012-2015
- AWDO Differs from CRED in quantifying the capacity of a country to cope with and recover from disasters
- Hazard is not included at present

KD 5 - methodology



KD 5 –Determining Sub-indicators

Step 1: Basic data + standardization (0-1)

Step 2: Determine joint score for E, V, C

Step 3: Calculate Vulnerability V Resilience Res

	Flood & Windstorms (FW)	Drought (D)	Storm Surge / Coastal Flooding (C)
E Exposure	Pop. density, urban and population growth rates	Pop. density, urban and population growth rates	Pop. density, population growth rates, % below 10m
VB Basic Vulnerability	Governance, poverty, ODA, infant mortality, deforestation	Governance, poverty, ODA, , infant mortality, agric. GDP	Governance, poverty, ODA, deforestation, infant mortality
C_H Hard Coping capacity	GDP, reservoir cap	GDP, reservoir cap	GDP, paved road density
C_S Soft Coping capacity	Literacy, education, tv, mobiles, econ. growth	Literacy, education, tv, mobiles, econ. growth	Literacy, education, tv, mobiles, econ. growth
Combined score (sum)	E_{FW}, VB_{FW}, C_{FW}	E_D, VB_D, C_D	E_C, VB_C, C_C
Vulnerability Resilience	$V_{FW}=(E_{FW}+VB_{FW})*(1-C_{FW}/C_{FWmax})$ $Res_{FW} = 1 / V_{FW}$	$V_D=(E_D+VB_D)*(1-C_D/C_{Dmax})$ $Res_D = 1 / V_D$	$V_C=(E_C+VB_C)*(1-C_C/C_{Cmax})$ $Res_C = 1 / V_C$

Floods and Windstorms Indicator Res_{FW}

Drought Indicator Res_D

Storm surges and Coastal floods Indicator Res_C

- see doc file
- make letter case consistent

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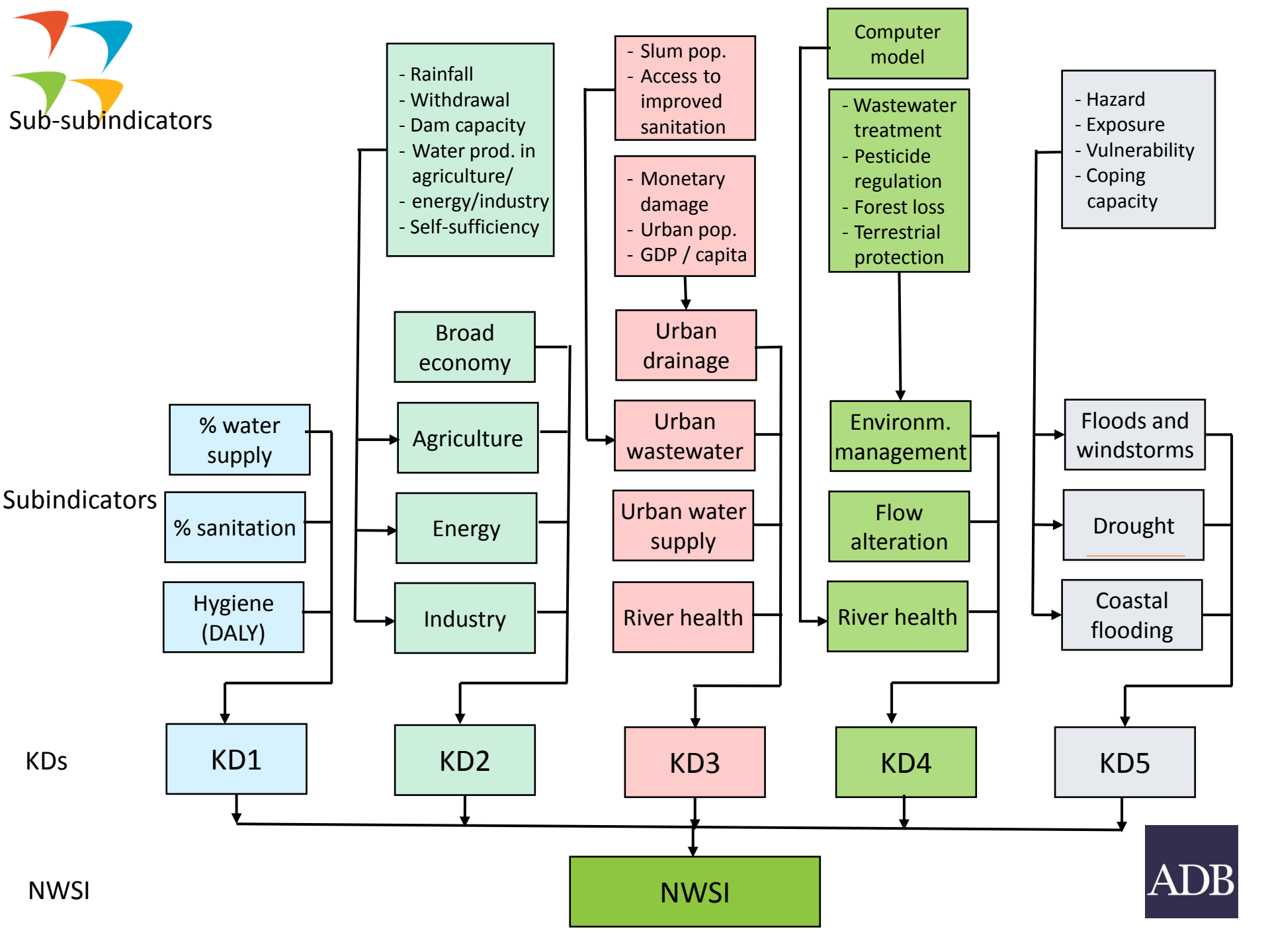
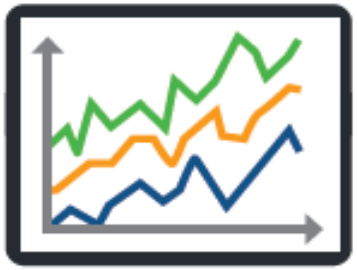

Sub-subindicators
- Rainfall
- Withdrawal
- Dam capacity
- Water prod. in agriculture/
- energy/industry
- Self-sufficiency
- Slum pop.
- Access to improved sanitation
Computer model
- Wastewater treatment
- Pesticide regulation
- Forest loss
- Terrestrial protection
- Hazard
- Exposure
- Vulnerability
- Coping capacity
- Monetary damage
- Urban pop.
- GDP / capita
Broad economy
Urban drainage
Subindicators
% water supply
Agriculture
Urban wastewater
Environm. management
Floods and windstorms
% sanitation
Energy
Urban water supply
Flow alteration
Drought
Hygiene (DALY)
Industry
River health
River health
Coastal flooding
KDs
KD1
KD2
KD3
KD4
KD5
NWSI
NWSI
ADB

Suite

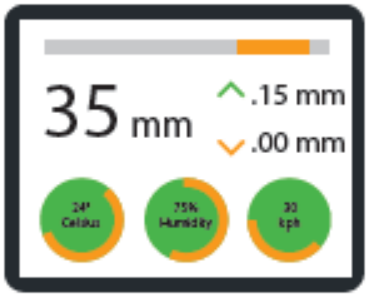


Water State Index

Medium Term Water Trend

Business Intelligence Report

Annual State of Resource Report Cards



Six Months Water Outlook

SDG Report Cards

waterfuture
Sustainable Water Future Programme

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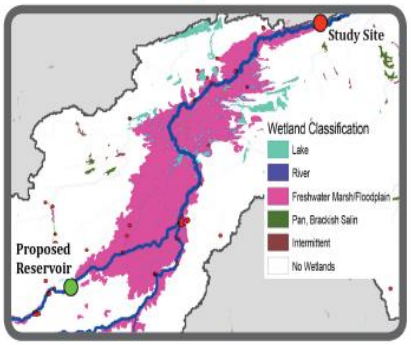
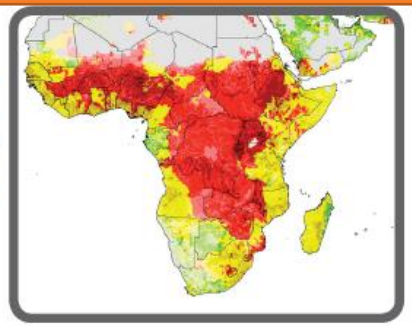
Value of COMPASS

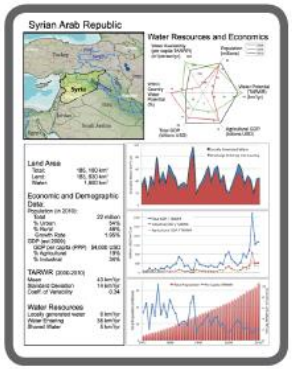
- Forecasts emerging water stress, water pollution problem and identifies risks hotspots in near real time
- Continuous and dynamic
- Diagnose the causes of the water scarcity and pollution problems of a region whether it is physical or governance related.
- Predict the role of Green Infrastructure spatially at a much finer scale that can reduce the threat to human water security.
- Track in SDG Progress and Implementation.

Natural Capital Trade-Off Analysis



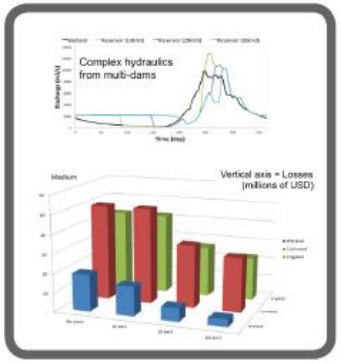
Diagnosing Emerging Patterns of Water Stress





National Water Report Cards

Asset Loss Assessment



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Thank you.