



United Nations  
Educational, Scientific and  
Cultural Organization



World Water  
Assessment  
Programme

# Interlinkages between SDG6 and the SDGs: A regional perspective

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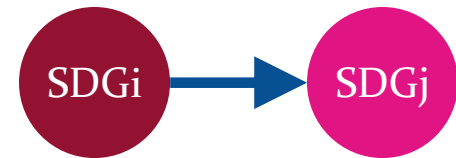


# Overview

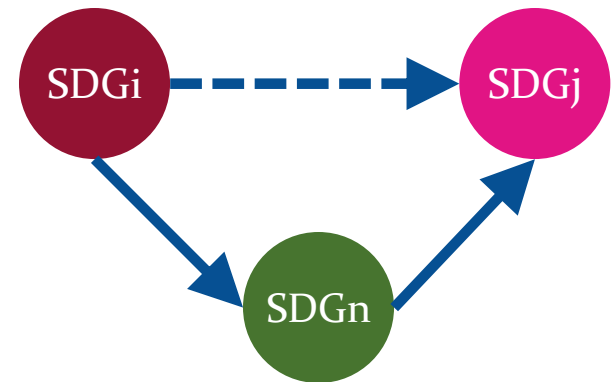
- 1- Introduction to Interlinkages Between SDGs**
- 2- Interlinkage Mapping and Evaluation Methods**
- 3- The Interlinkages Between SDG 6 and the SDGs under review at the HLPF 2019**
- 4- The Quantitative Nexus Approach: Opportunities and Challenges**

Interlinkages  
Between SDGs  
and SDG targets

i) Direct



ii) Indirect



# 1

## Introduction to Interlinkages Between SDGs

### Interlinkages Between SDGs and SDG targets

#### i) Supportive (Synergies)

SDG 2.3 (agriculture productivity) to SDG 2.1 (end hunger)

#### ii) Conflicting (Trade-offs)

SDG 2.3 to SDG 6.1 (safely managed drinking water)

**These should be analyzed by Country/Region conditions and challenges contexts**

**GCC**

Because drinking water depends basically on desalination which is fossil energy-intensive, SDG 6.1 is in conflict with SDG 13 (Climate action) in terms of GHG emissions.

Within the same context, SDG 6.1 is also in conflict with SDG 14 (marine environment).

## i) Qualitative Methods

### i) Direct Qualitative Interlinkages

(Weitz et al., 2014; Karnib, 2017; Nilsson, 2017; Le...

Supportive (Synergies)

Neutral

Conflicting (Trade-offs)

• Subjective

• Experience

• ...

May differ based on country conditions and policy settings

SDGj

**Expert**

An expert is someone with some experience through extensive knowledge called in for advice

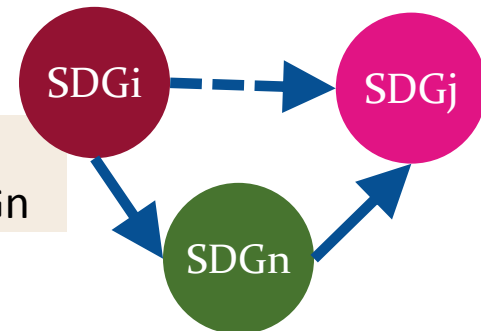
### ii) Indirect Qualitative Interlinkages

(Karnib, 2017)

If SDGi is directly supportive to SDGj and SDGj is directly supportive to SDGn

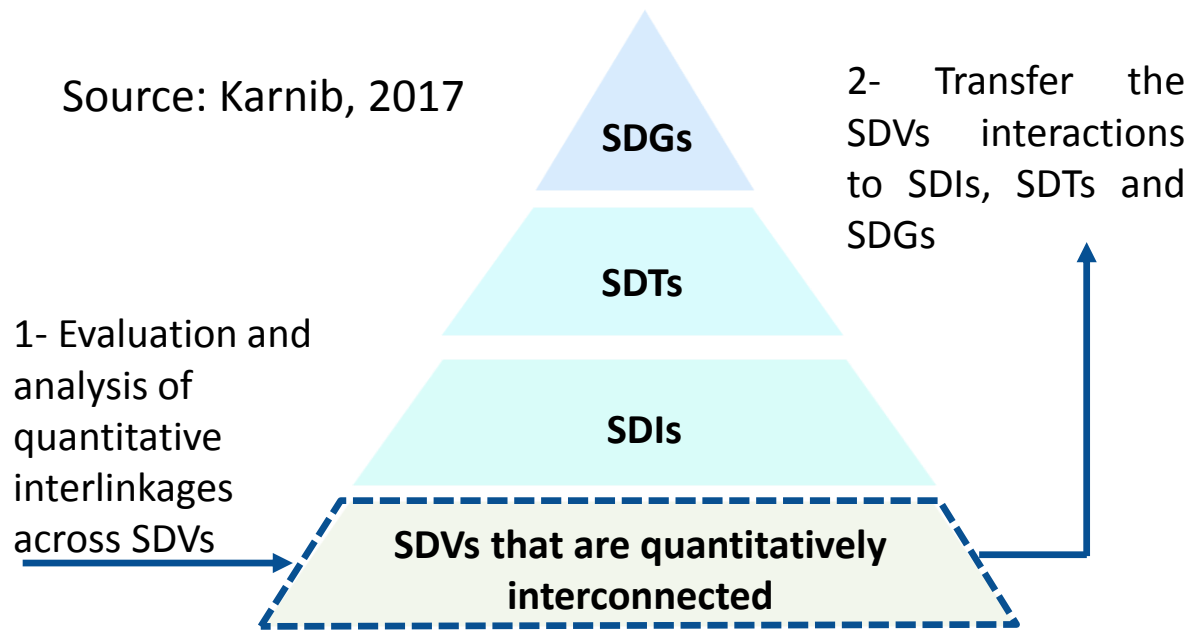
than

SDGi is indirectly supportive to SDGn



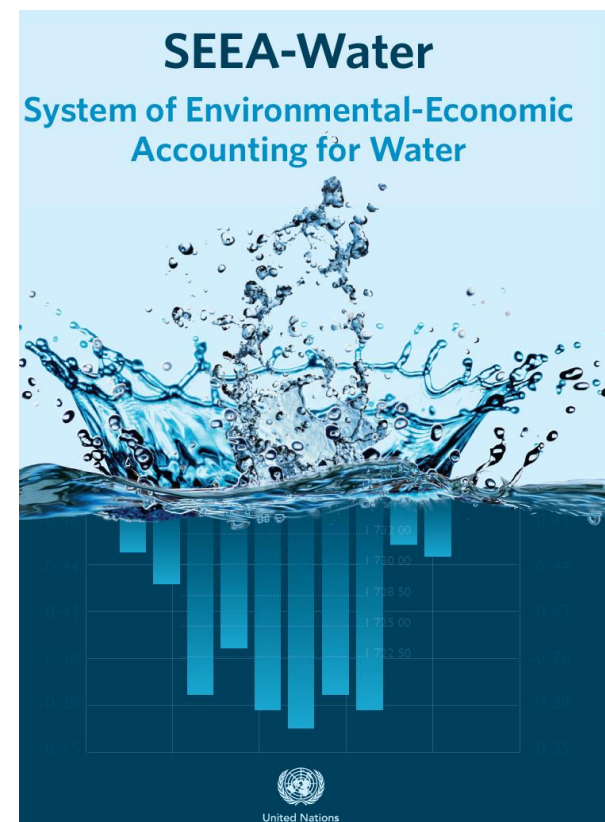
## ii) Quantitative Methods

Source: Karnib, 2017



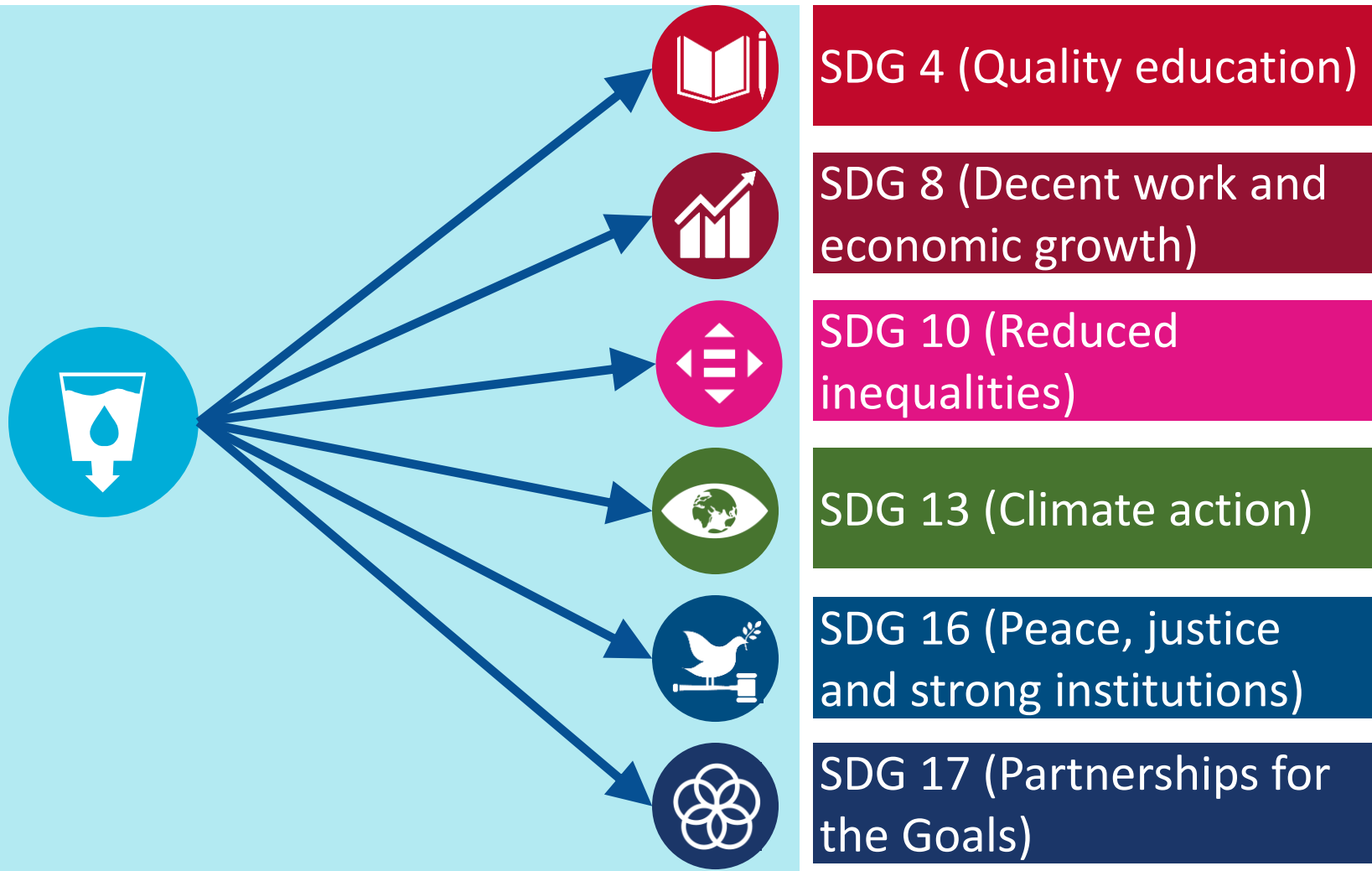
A bottom-up process for analysing interactions across SDGs

- Data and models
- Evaluation and Comparison of scenarios



Water Availability

## The Interlinkages Between SDG 6 and the SDGs under review at the HLPF 2019



## The Interlinkages Between SDG 6 and the SDGs under review at the HLPF 2019

### methodology and framework




- i) Scanning a set of regional challenges related to SDGs under review and identifying the rationale of interlinkages with water;
- ii) Assessment of the qualitative dependency levels on water using regional expert judgment-based;
- iii) Mapping water related challenges and policy actions distilled from the regional Voluntary National Reviews;
- iv) Providing national and regional example and case studies of response options;
- v) Proposing potential policy recommendations.



## The Interlinkages Between SDG 6 and the SDGs under review at the HLPF 2019

### Methodology and framework

#### Assessment method of the qualitative dependency on water

Score	symbols	Explanation
5		Strong water dependency level (i.e. the achievement of SDG targets is strongly dependent on water).
3		Moderate water dependency level (i.e. the achievement of SDG targets is moderately dependent on water).
1		Feeble water dependency level (i.e. water create favorable conditions to the achievement of SDG targets)

## The Interlinkages Between SDG 6 and the SDGs under review at the HLPF 2019

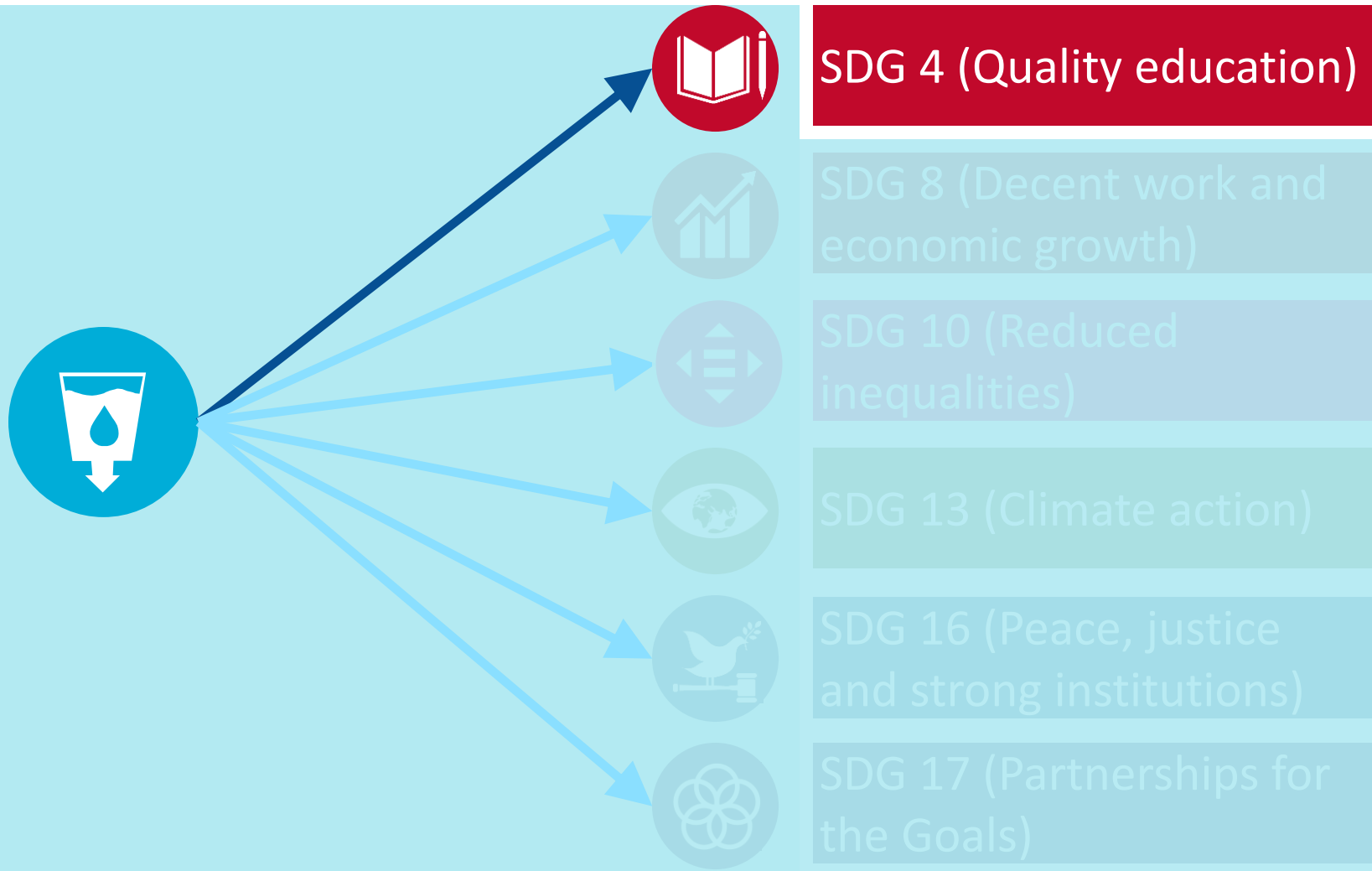
### Methodology and framework

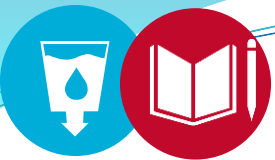
Assessment method of the qualitative dependency on water

List of the number of participating experts from the different Arab states

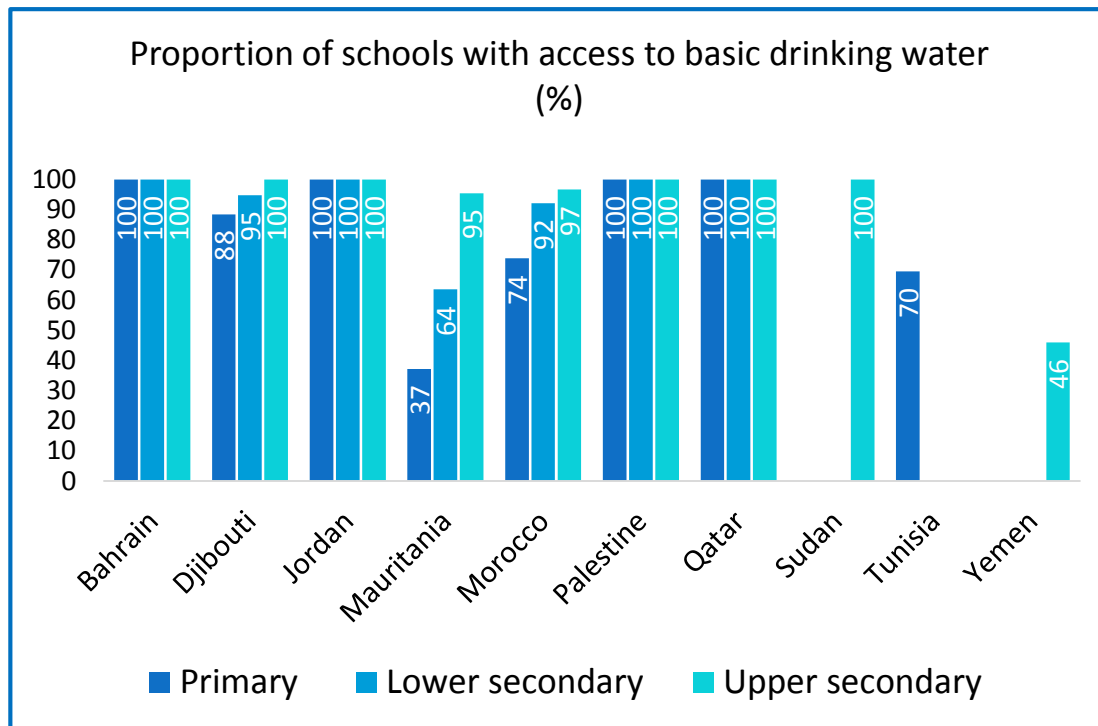
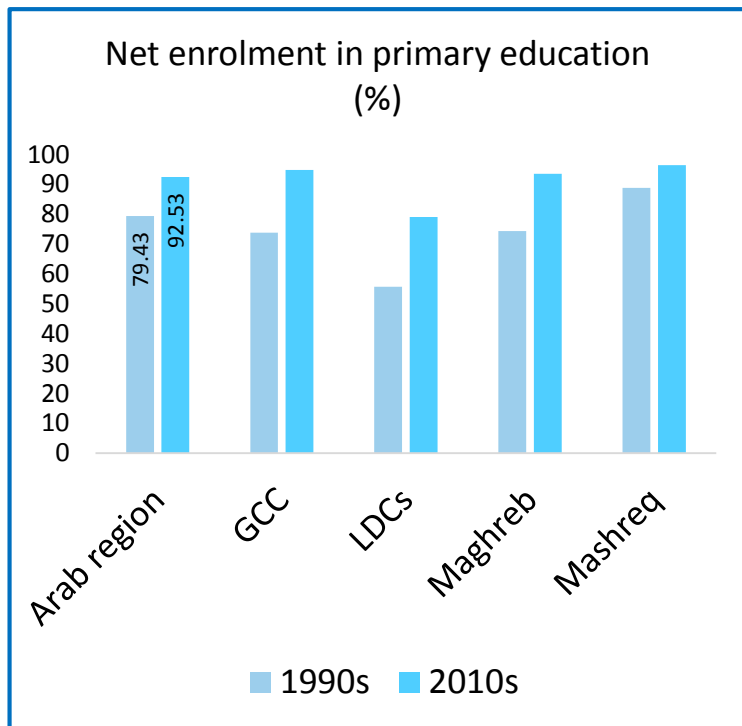
Arab States	No. of experts
Bahrain	1
Egypt	3
Iraq	2
Jordan	3
Lebanon (including the author)	2
Oman	3
Palestine	2
Sudan	4
Tunisia	3
UNESCO Office in Doha	1
<b>Total</b>	<b>24</b>

## The Interlinkages Between SDG 6 and the SDGs under review at the HLPF 2019



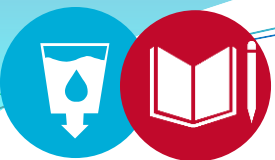


# 1- Interlinkages between Quality Education (SDG 4) and Water (SDG 6)



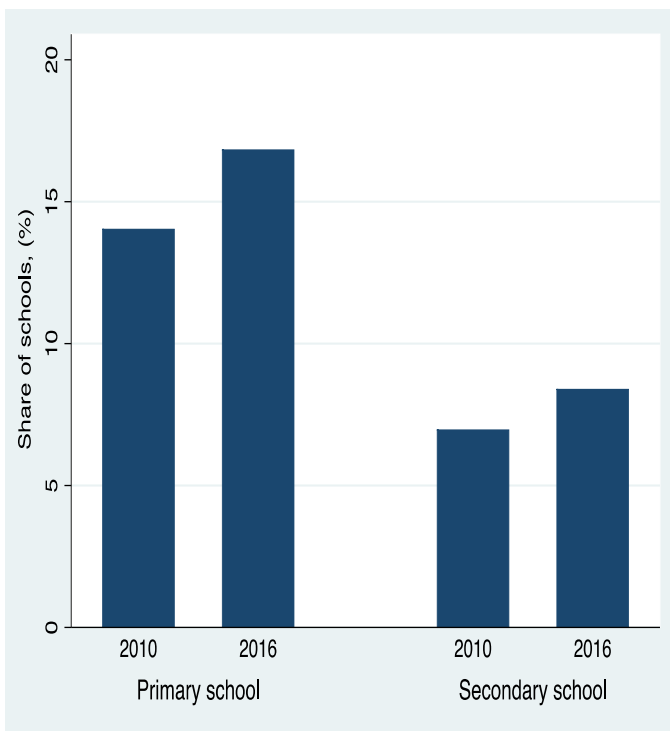
Source: World Bank - World Development Indicators

Source: UNESCO Institute for Statistics

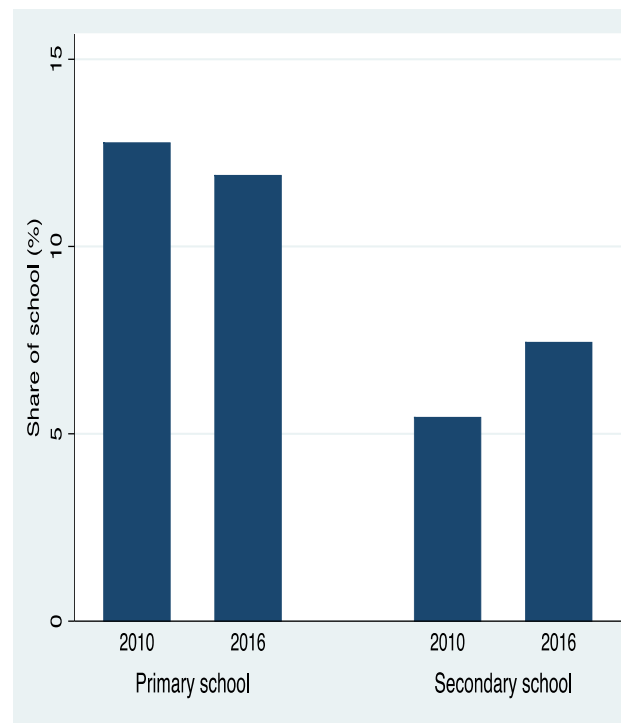


# 1- Interlinkages between Quality Education (SDG 4) and Water (SDG 6)

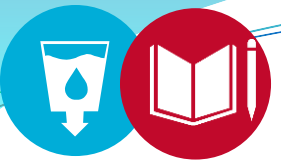
## Regionally



Share of schools that that they don't have access to water supply or they have access to drinking water from an unimproved source in the Arab region



Share of schools that they don't have access to improved sanitation services in the Arab region



## 1- Interlinkages between Quality Education (SDG 4) and Water (SDG 6)

### SDG 4 challenges

Improving educational outcomes [4.1, 4.2, 4.3, 4.4]

Improving access to WASH facilities in schools [4.a.1]

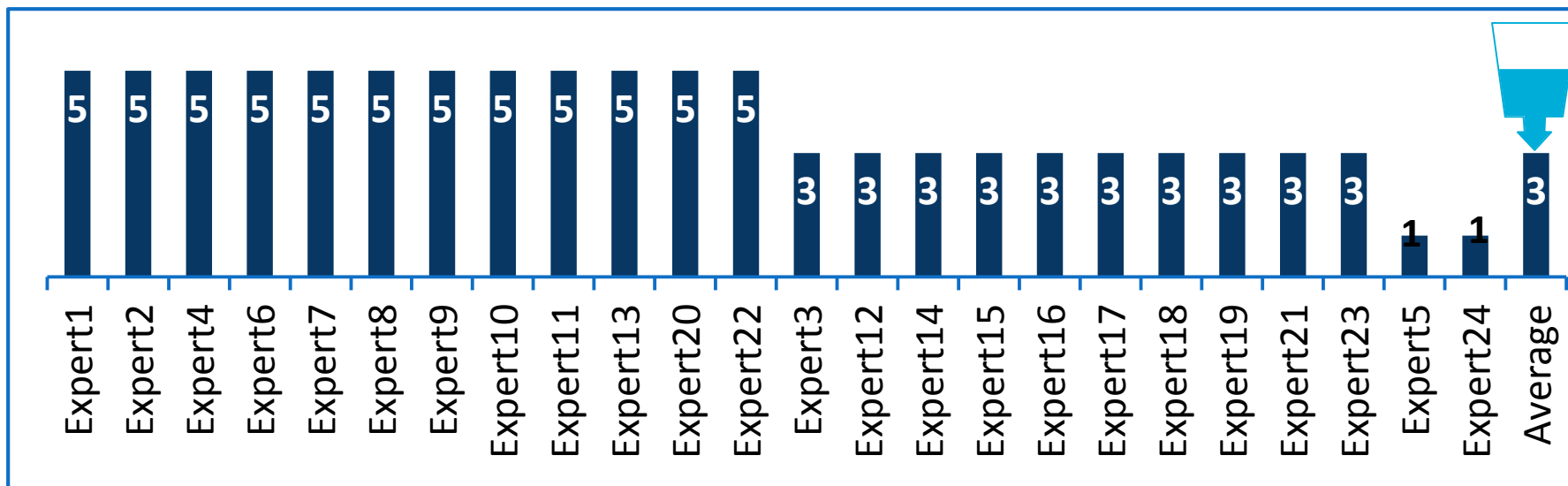
Lack cleaning and maintenance of the WASH facilities in schools [4.a.1]

Building human capacity in the water and water-using sectors [6.a]



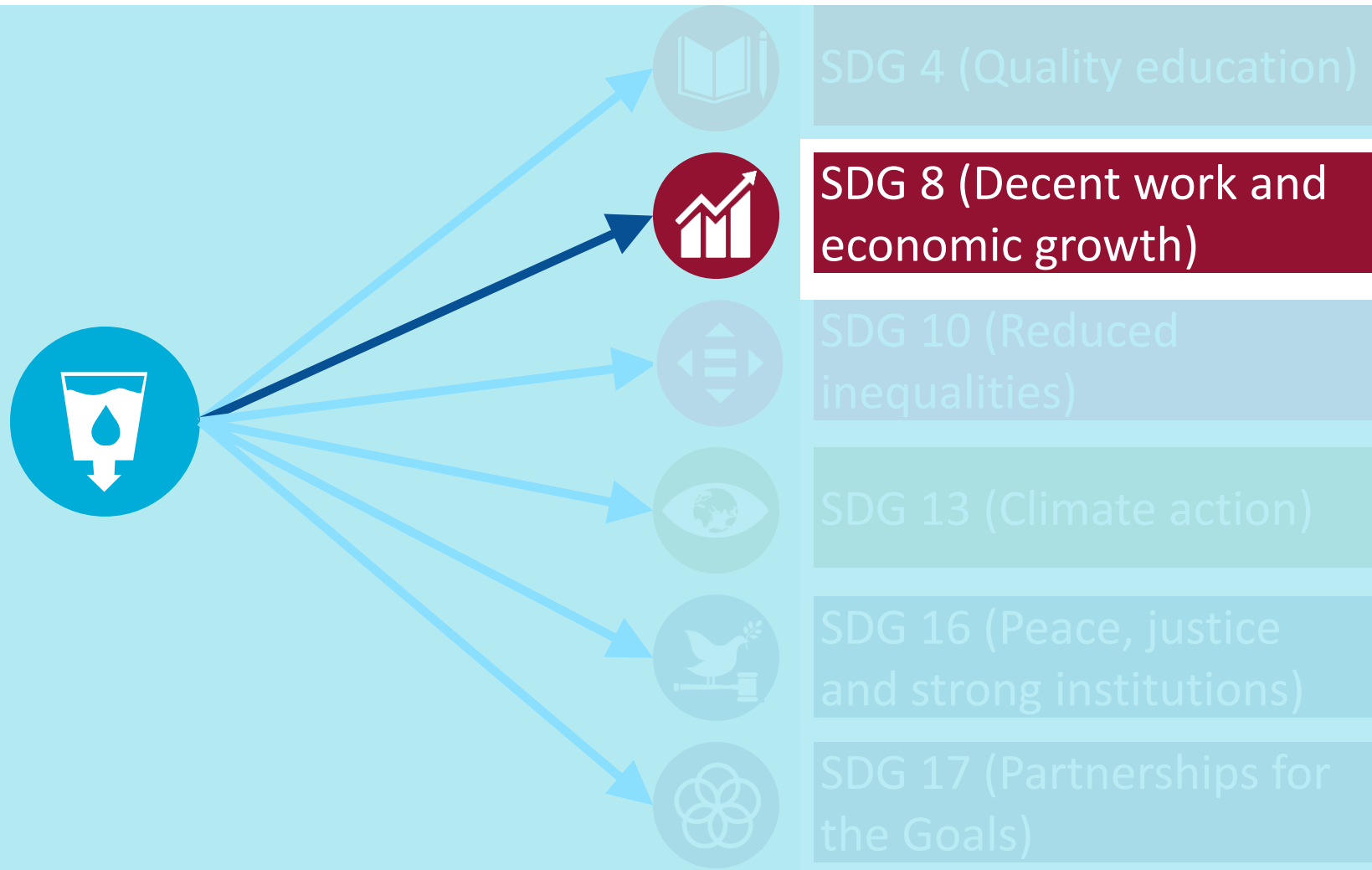
# 1- Interlinkages between Quality Education (SDG 4) and Water (SDG 6)

## 1.1 Improving educational outcomes [4.1, 4.2, 4.3, 4.4]



Preliminary assessment of the qualitative dependency level on water

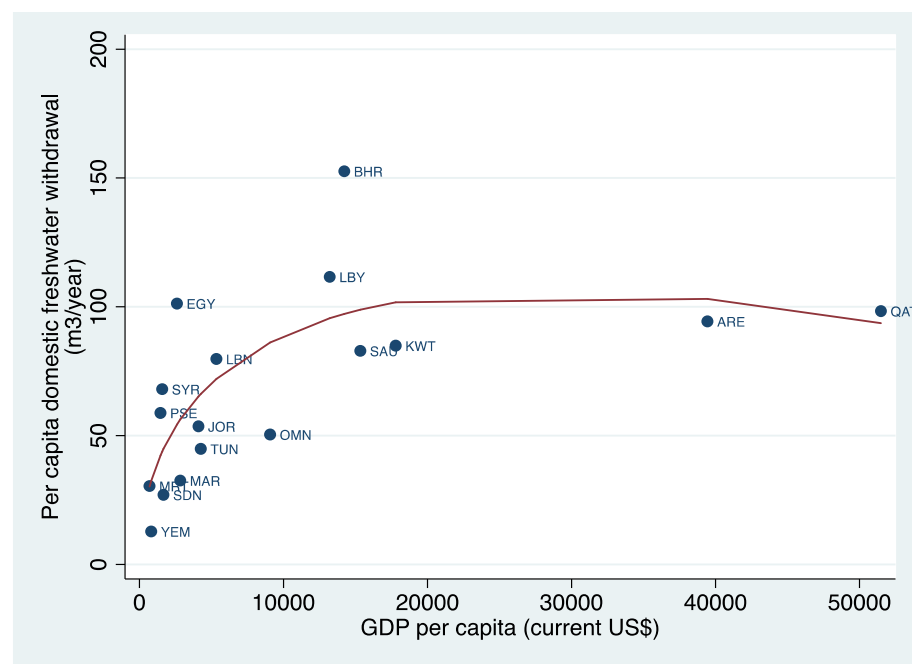
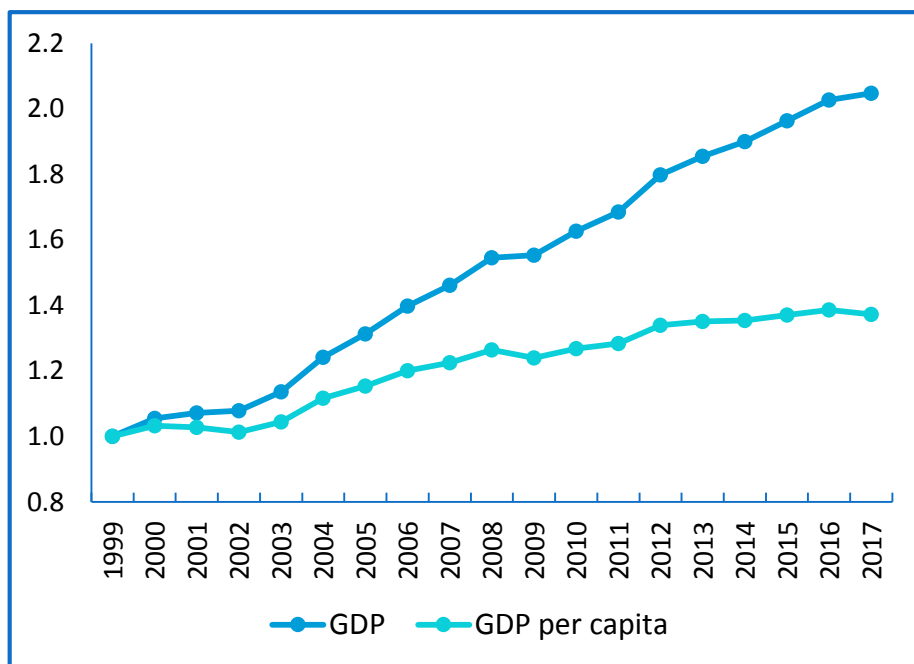
## The Interlinkages Between SDG 6 and the SDGs under review at the HLPF 2019





## 2- Interlinkages between Decent Work and Economic Growth (SDG 8) and Water (SDG 6)

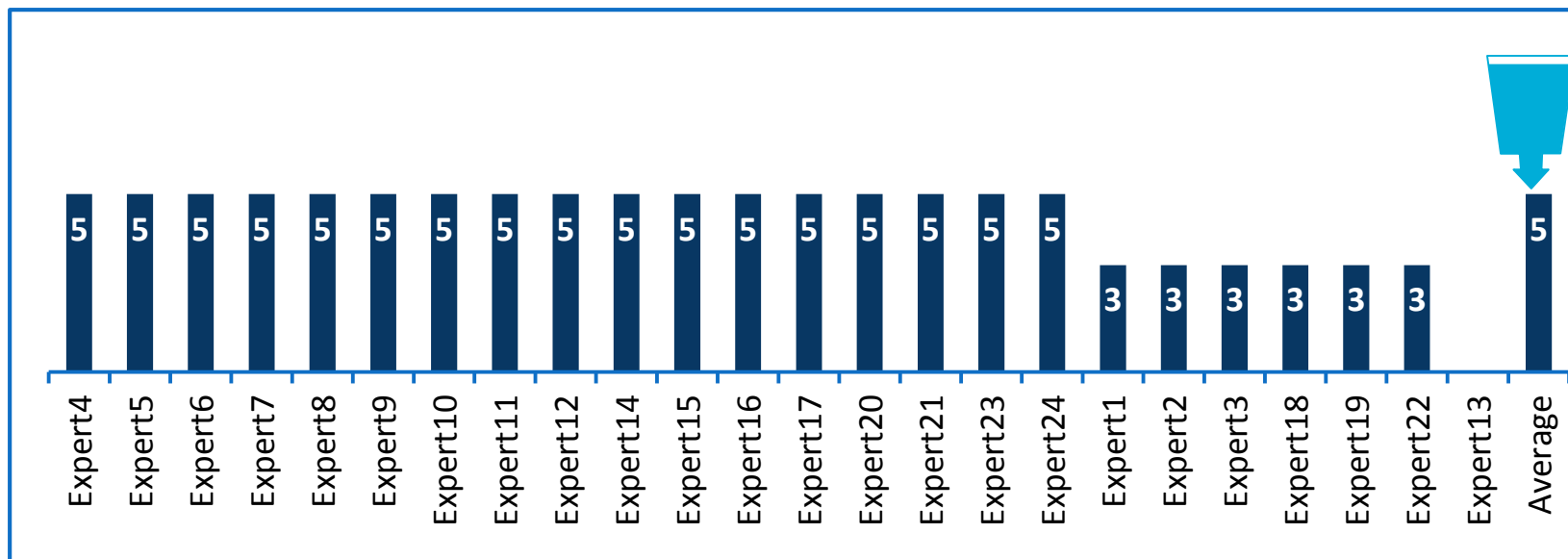
### 2.1 Sustain economic growth [8.1.1, 8.2.1, 8.4.1, 8.4.2]





## 2- Interlinkages between Decent Work and Economic Growth (SDG 8) and Water (SDG 6)

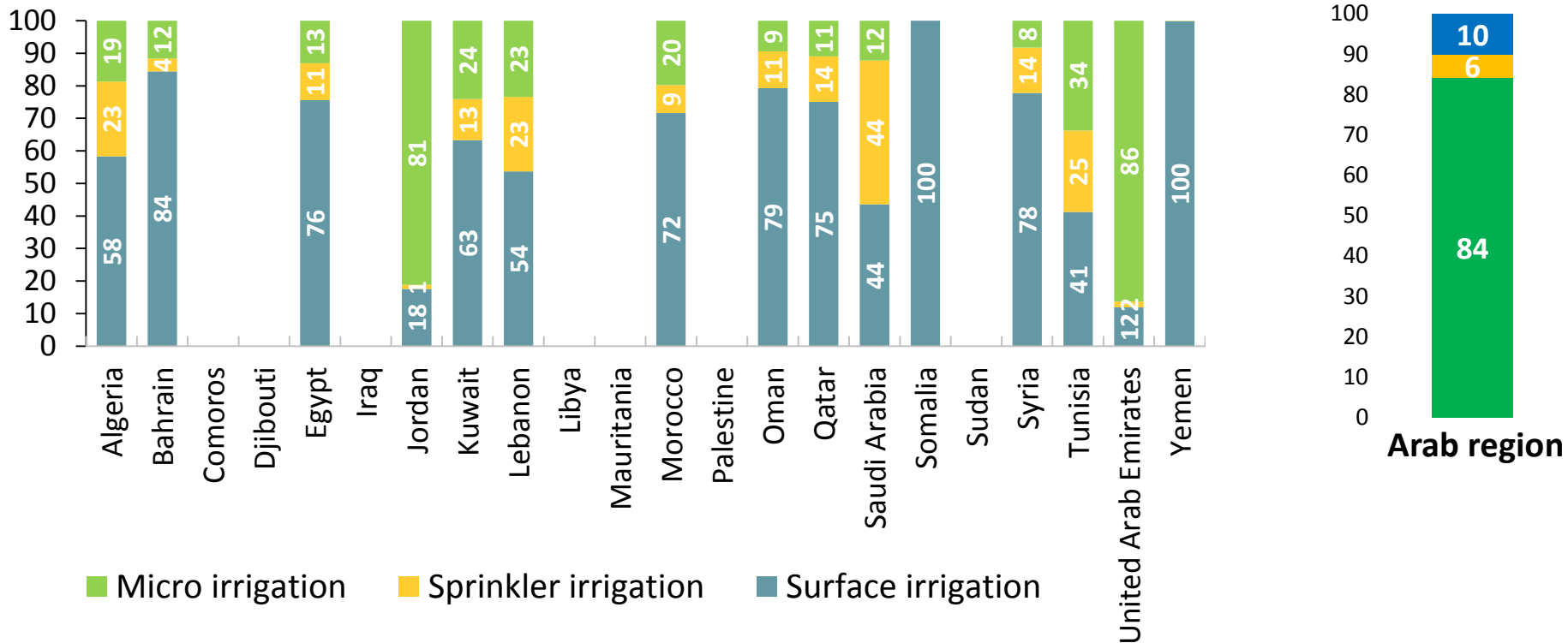
### 2.1 Sustain economic growth [8.1.1, 8.2.1, 8.4.1, 8.4.2]





## 2- Interlinkages between Decent Work and Economic Growth (SDG 8) and Water (SDG 6)

### 2.2 Improve global resource efficiency in consumption and production [8.4]

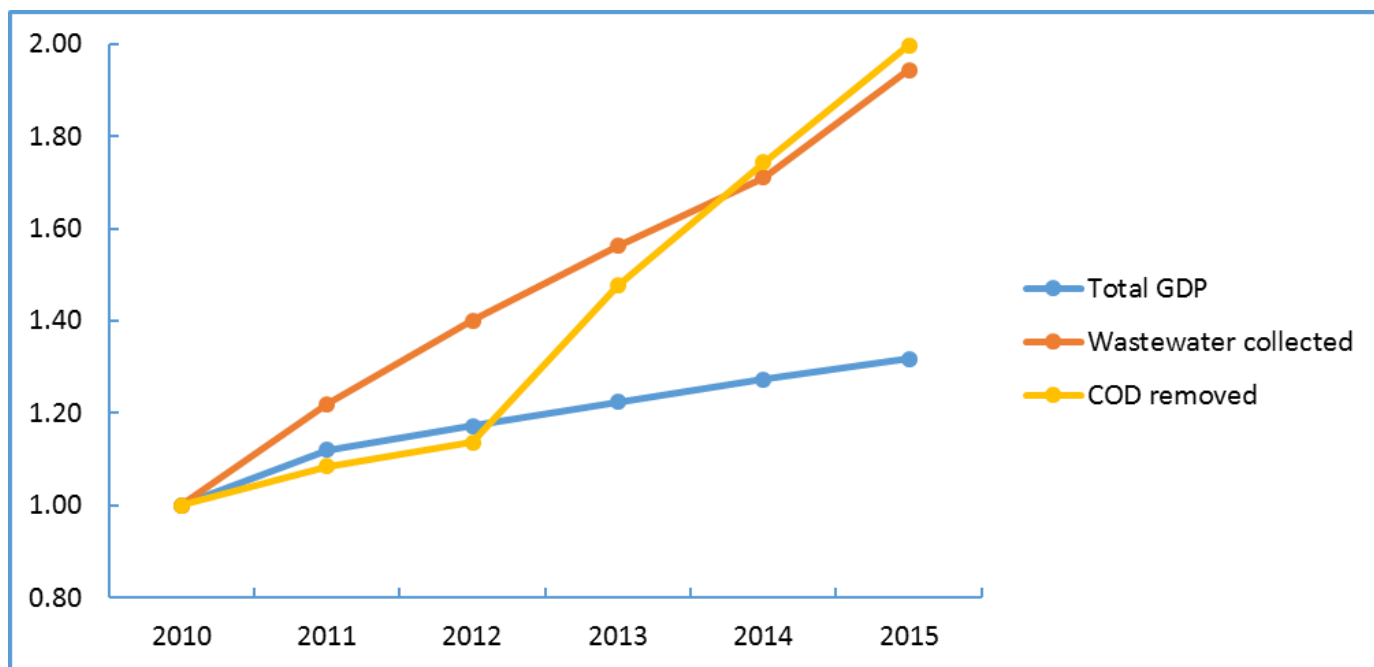




## 2- Interlinkages between Decent Work and Economic Growth (SDG 8) and Water (SDG 6)

### 2.3 Decoupling economic growth from environmental degradation [8.4]

Trends of the GDP along with wastewater collected and COD removed in Qatar (2010-2015)



Source: Compiled by the author from MDPS (2015)



## 2- Interlinkages between Decent Work and Economic Growth (SDG 8) and Water (SDG 6)

### 2.3 Decoupling economic growth from environmental degradation [8.4]

Quantifying pollutants released to the environment

For example, although the proportion of population connected to piped wastewater network is 71.23 % in Beirut and Mount Lebanon, only 9.64 % of the pollutants are safely removed.

Beirut and Mount Lebanon



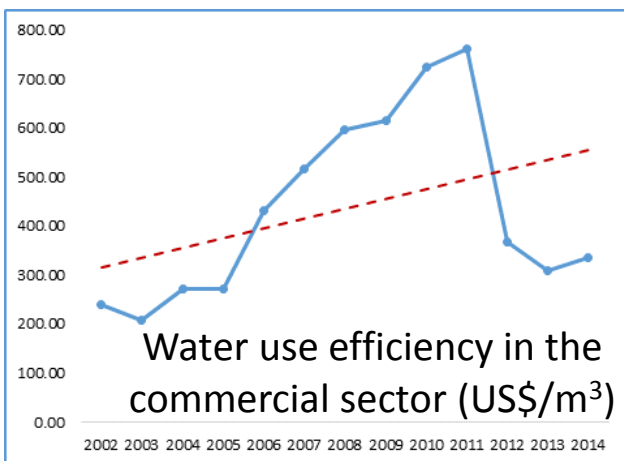
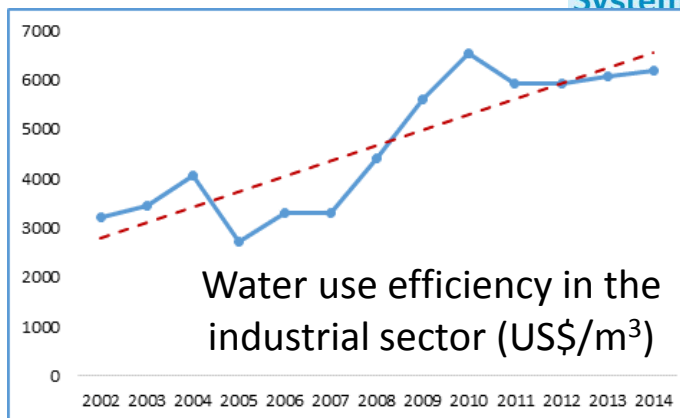
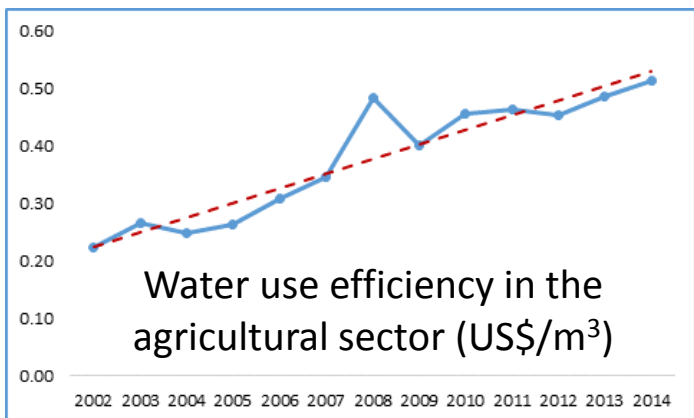
Source: (Karnib 2016)

% population connected to piped wastewater network

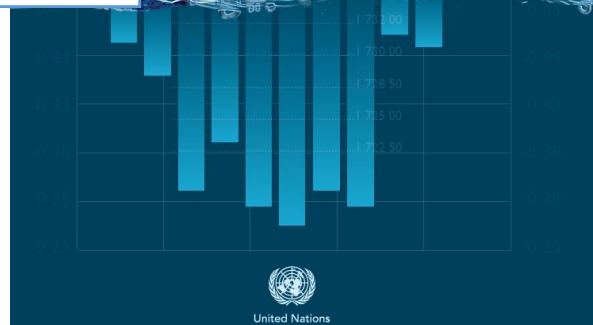
% pollutants are safely removed

## 2- Interlinkages between Decent Work and Economic Growth (SDG 8) and Water (SDG 6)

### Water, Economic and Environment statistics

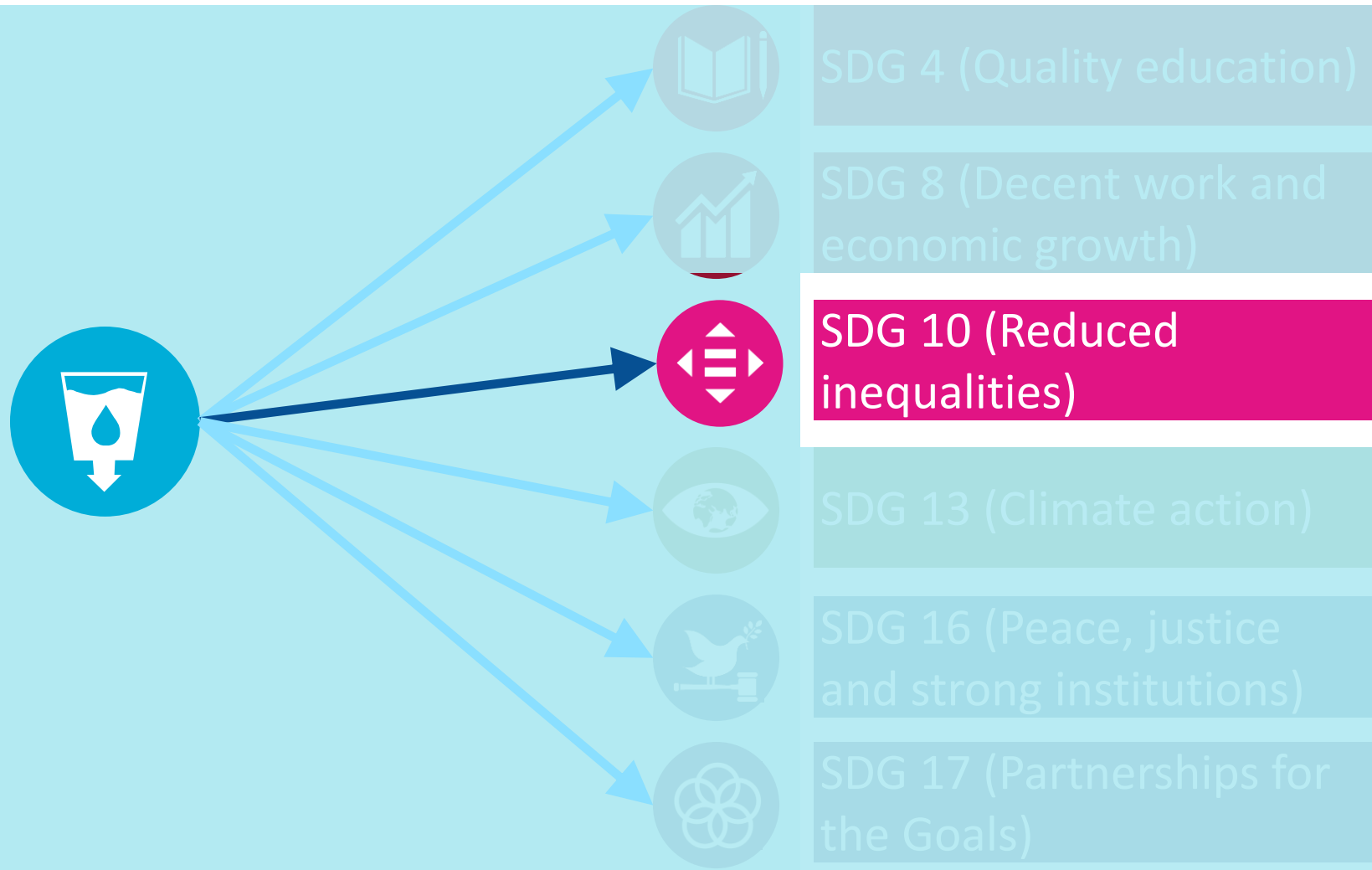


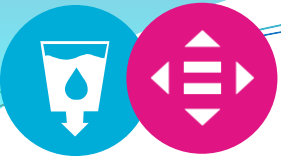
### SEEA-Water System of Environmental-Economic Accounting for Water



Source: Compiled by the author using MDPS (2015) data

## The Interlinkages Between SDG 6 and the SDGs under review at the HLPF 2019



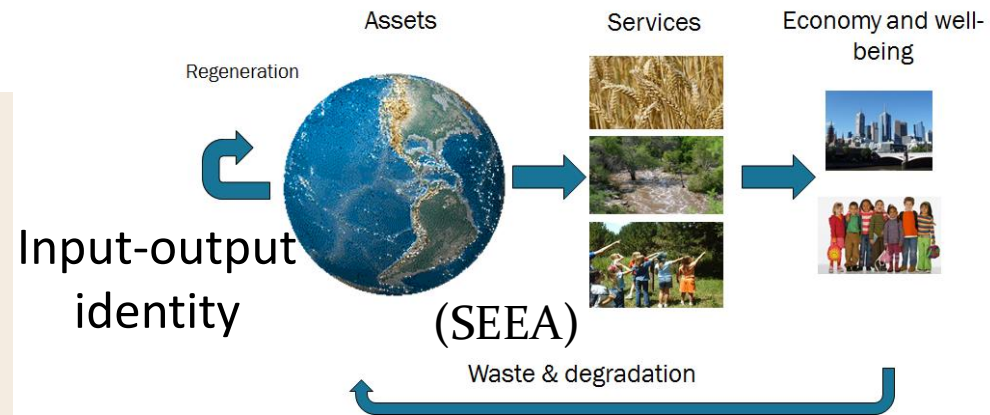


## 3- Interlinkages between Reduced Inequalities (SDG 10) and Water (SDG 6)

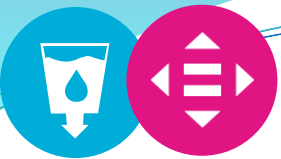
### 3.1 Sustain income growth [10.1]

Water-economy accounting methods to analyze interlinkage between water use and household income and expenditure

Usually, households consumption at high incomes is less water intensive than consumption at low incomes, because the production of necessities such as food, is more water intensive than that of luxuries such as services.

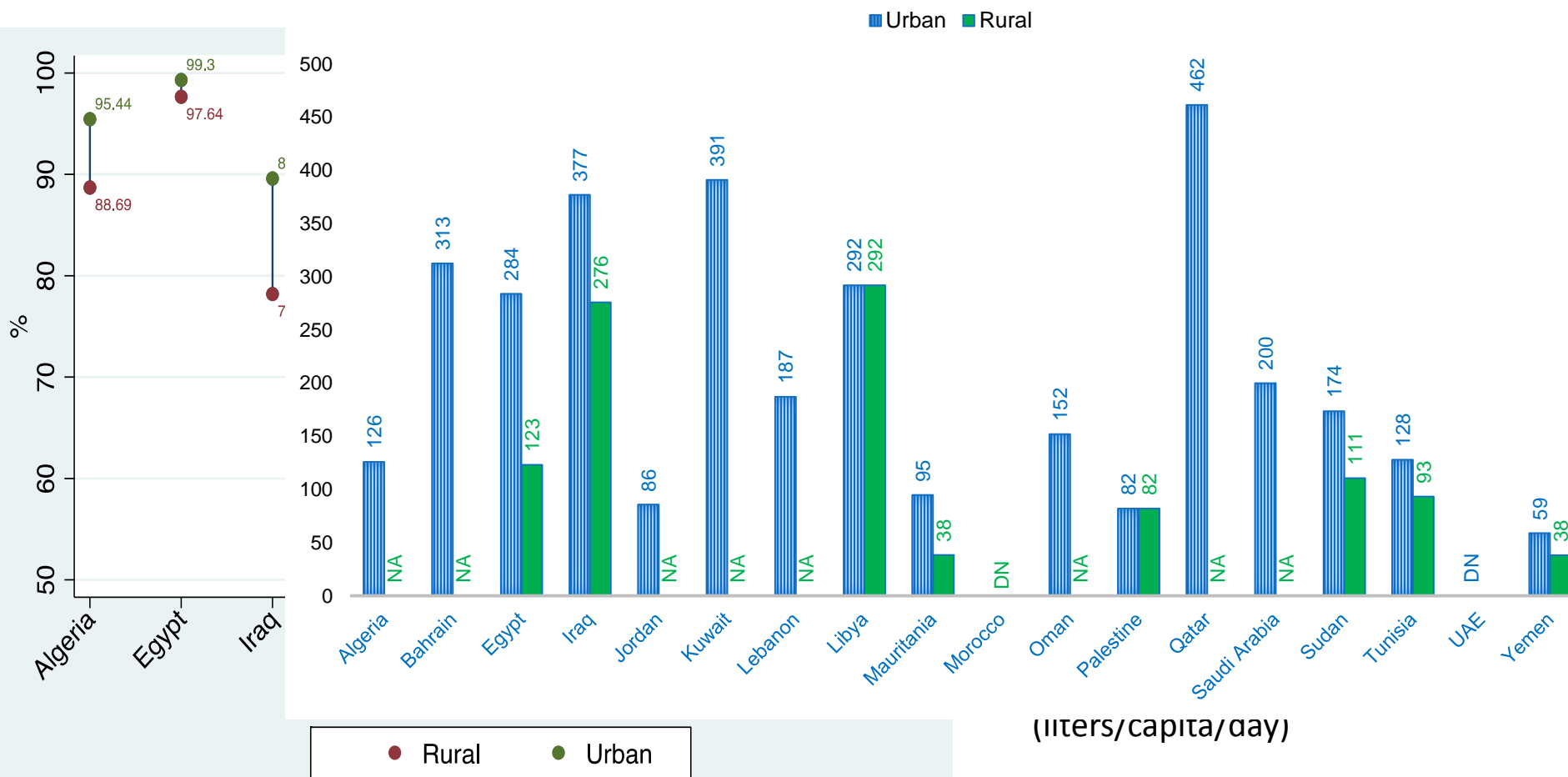




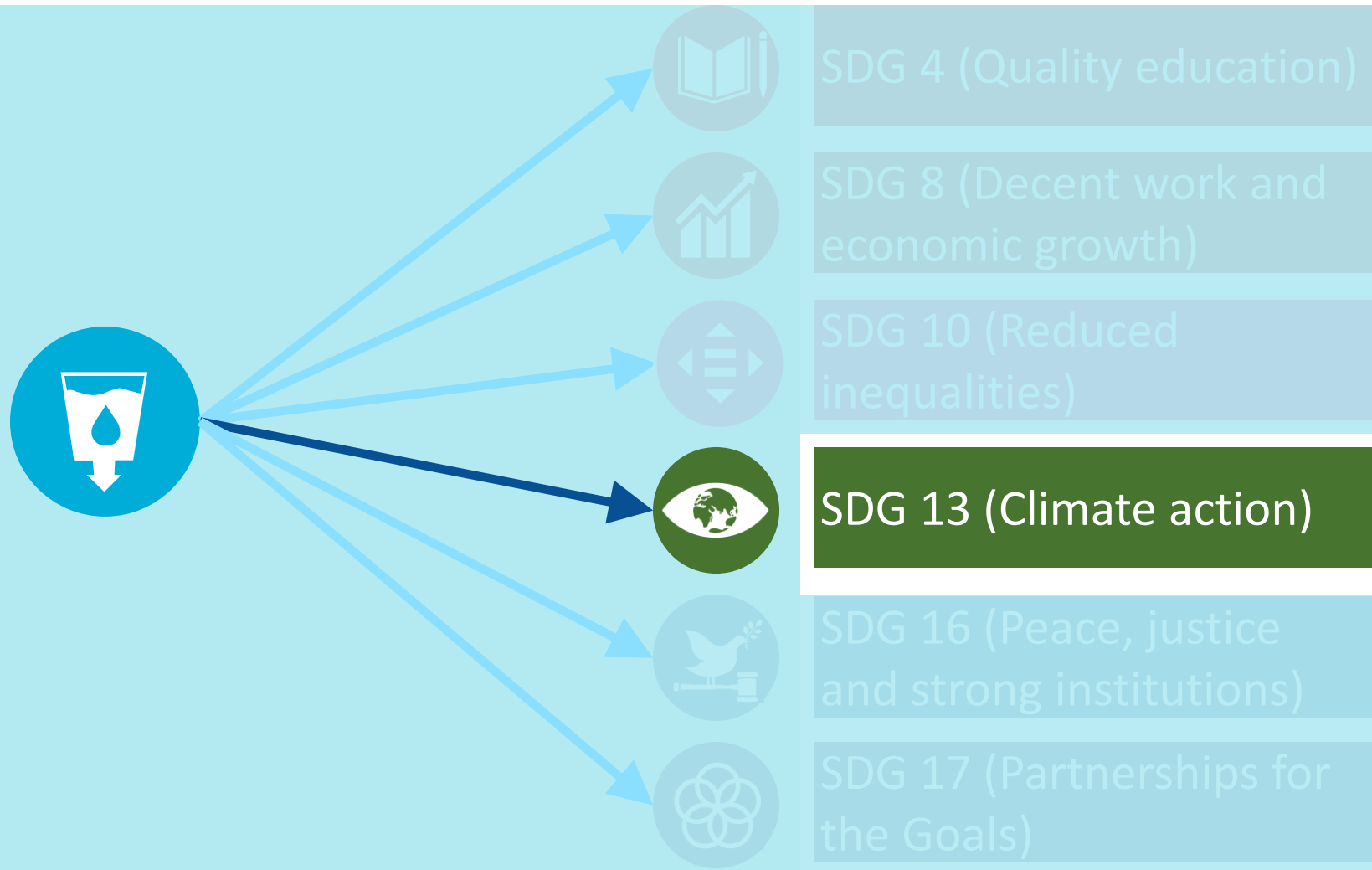


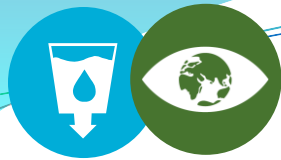
# 3- Interlinkages between Reduced Inequalities (SDG 10) and Water (SDG 6)

## 3.2 Reduced Inequalities in providing access to safely managed WASH facilities



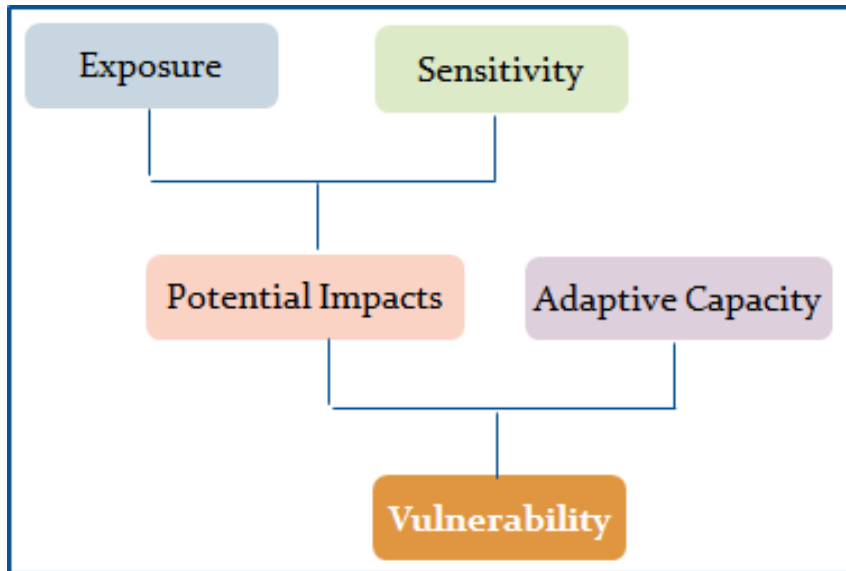
## The Interlinkages Between SDG 6 and the SDGs under review at the HLPF 2019





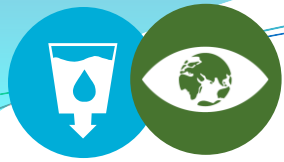
## 4- Interlinkages between Climate Action (SDG 13) and Water (SDG 6)

### 4.1 Take urgent action to combat climate change and its impacts [13.1, 13.2, 13.3, 13.b]



Components of vulnerability assessment  
(Source: UNESCWA et al. 2017b)

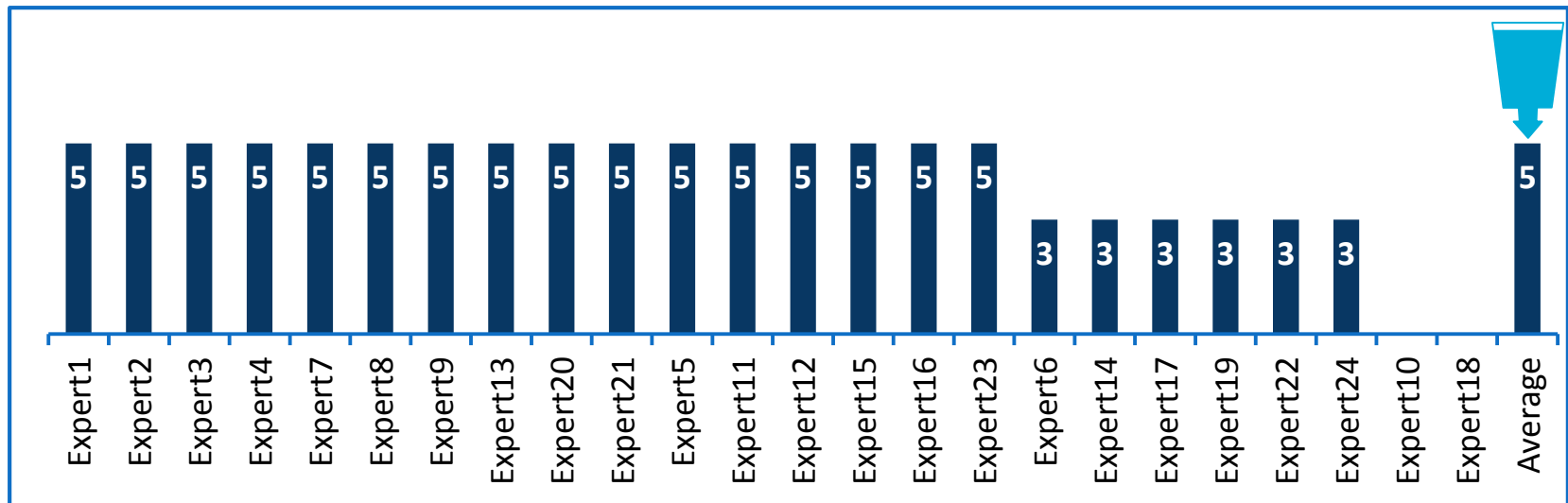




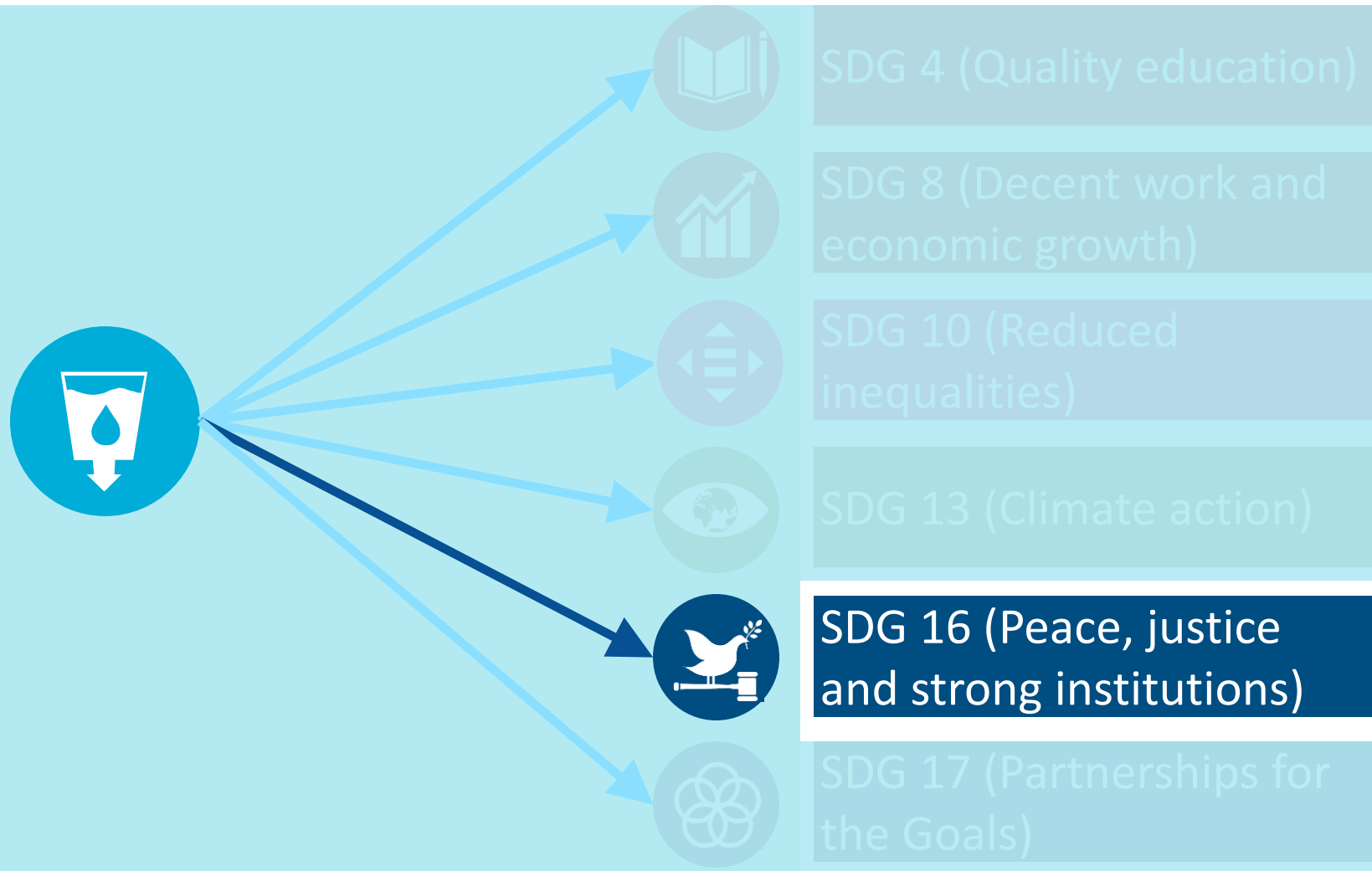
## 4- Interlinkages between Climate Action (SDG 13) and Water (SDG 6)

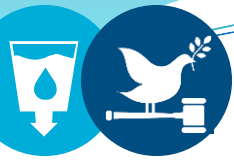
### 4.1 Take urgent action to combat climate change and its impacts [13.1, 13.2, 13.3, 13.b]

Preliminary assessment of the qualitative dependency level on water



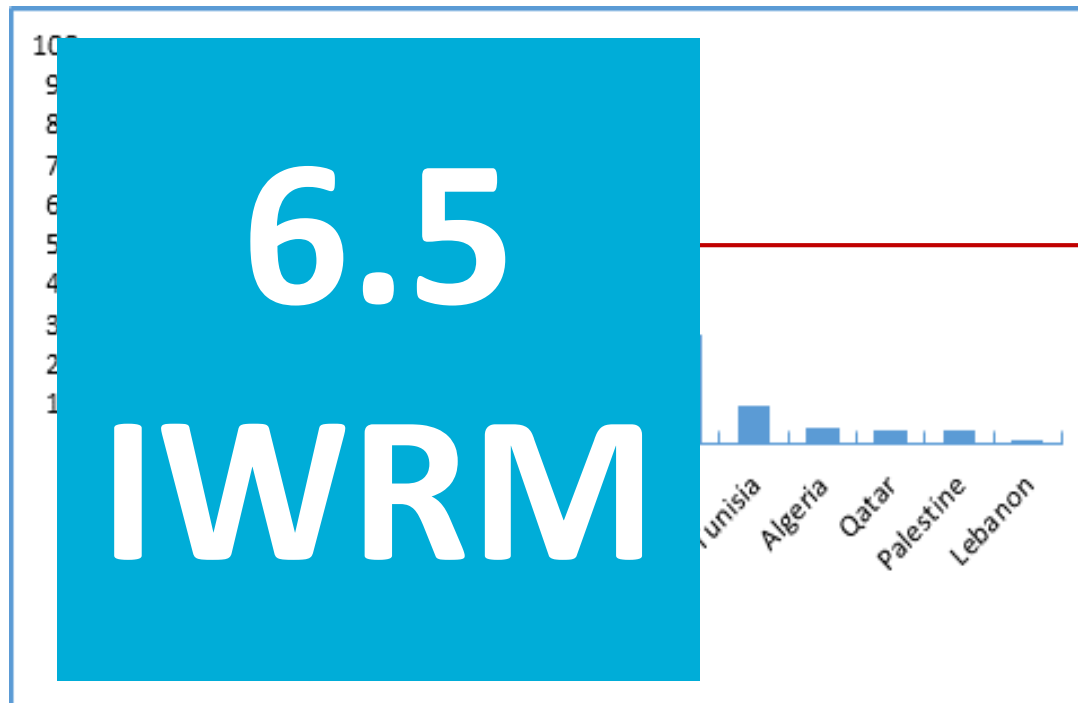
## The Interlinkages Between SDG 6 and the SDGs under review at the HLPF 2019





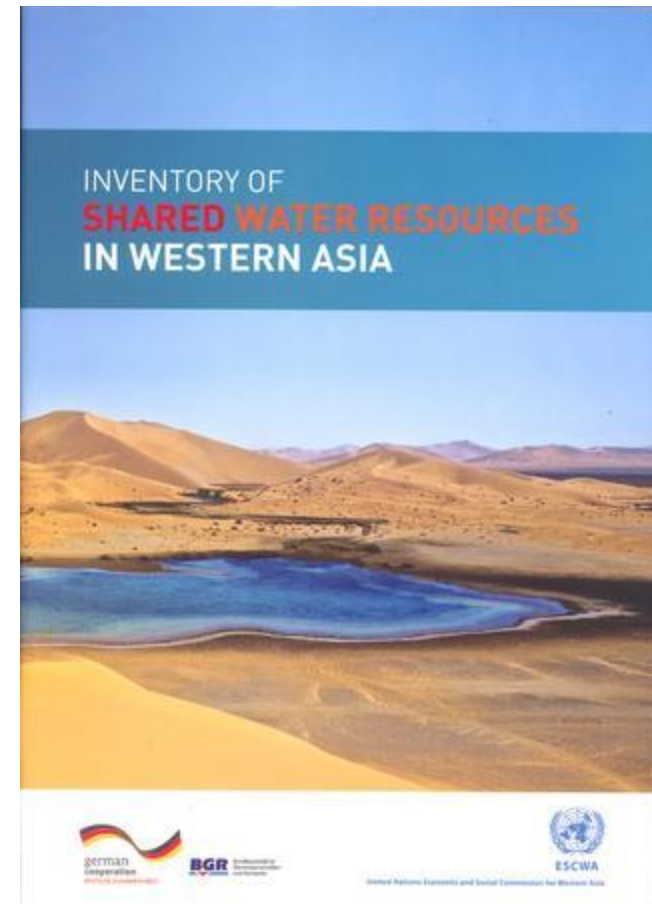
# 5: Interlinkages between Peace, Justice and Strong Institutions (SDG 16) and Water (SDG 6)

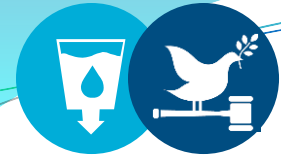
## 5.1 Reduce all forms of violence [16.1]



Water dependency ratio indicator for selected Arab states (%)

Source: FAO Aquastat data base





## 5: Interlinkages between Peace, Justice and Strong Institutions (SDG 16) and Water (SDG 6)

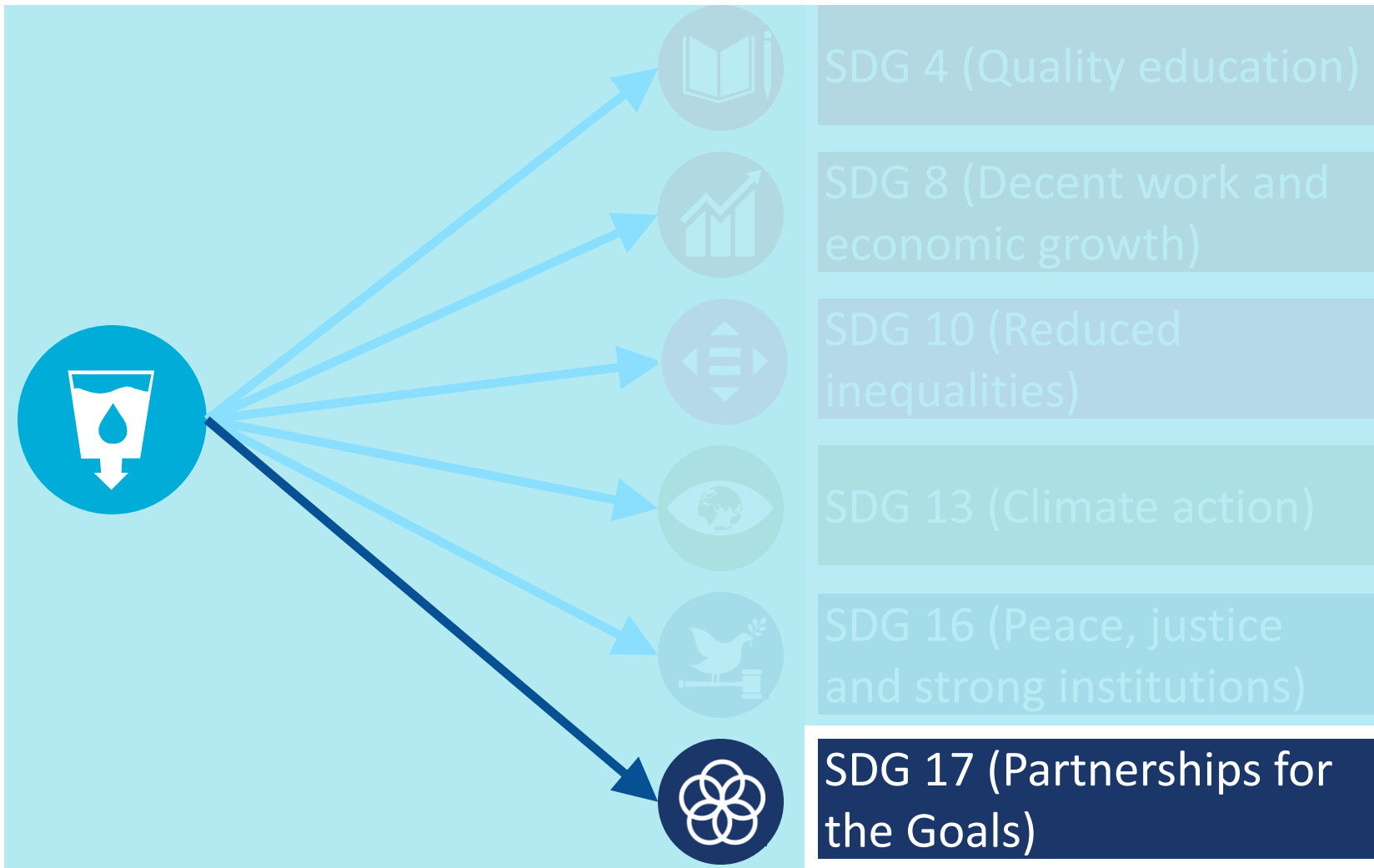
**5.2 Reduce corruption [16.5]**

**5.3 Effective, accountable and transparent institutions [16.6]**

**5.4 Responsive, inclusive, participatory and representative decision-making [16.7]**

**6.5**  
**IWRM**

## The Interlinkages Between SDG 6 and the SDGs under review at the HLPF 2019







## 6: Interlinkages between Partnerships for the Goals (SDG 17) and Water (SDG 6)

### 6.1 Finance [17.1-17.5]

Water supply and wastewater tariffs



### 6.2 Improve the multilateral trading system [17.10-17.12]

**6.5**  
**IWRM**

# 4

## The Quantitative Nexus Approach: Opportunities and Challenges

*'You cannot manage, what you do not measure'*

*What if?*

The future should be shaped by decisions based on **Scientific Understanding**



# Data Gaps

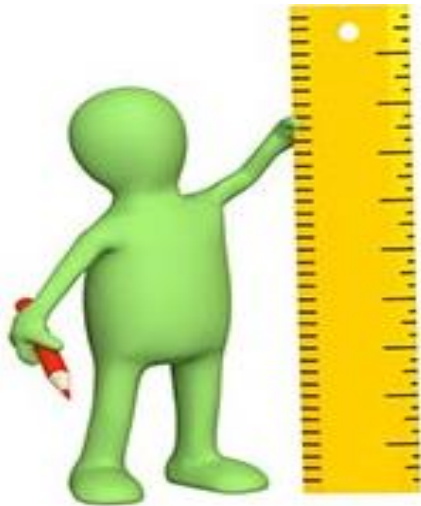
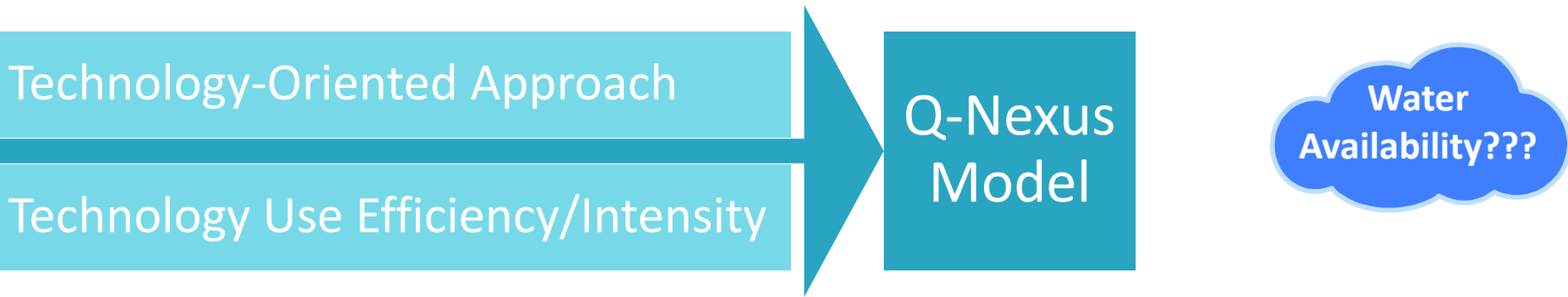


Technology-Oriented Approach

Technology Use Efficiency/Intensity

Q-Nexus Model

Source: (Karnib 2017, 2018)



### Intensities in WEF Production

Water use intensity

Energy use intensity

Food use intensity



Source: (Karnib 2017, 2018)



# Thank you!