Water Statistics in the GCC Countries: Recent Experiences

Ibtihaj Al-Siyabi

Geographic, Environment, Energy and Tourism Department
GCC-Stat
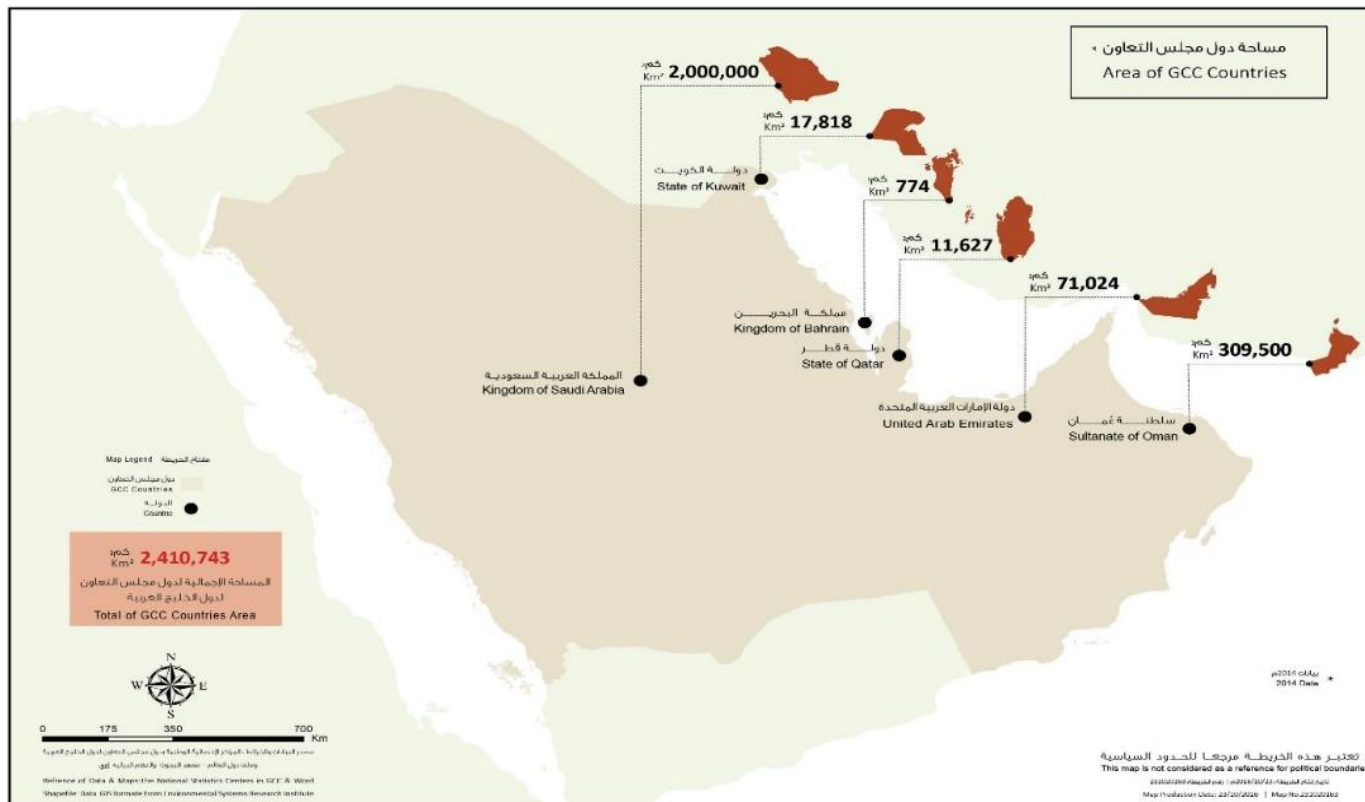iAlsiyabi@gccstat.org

December 6, 2016
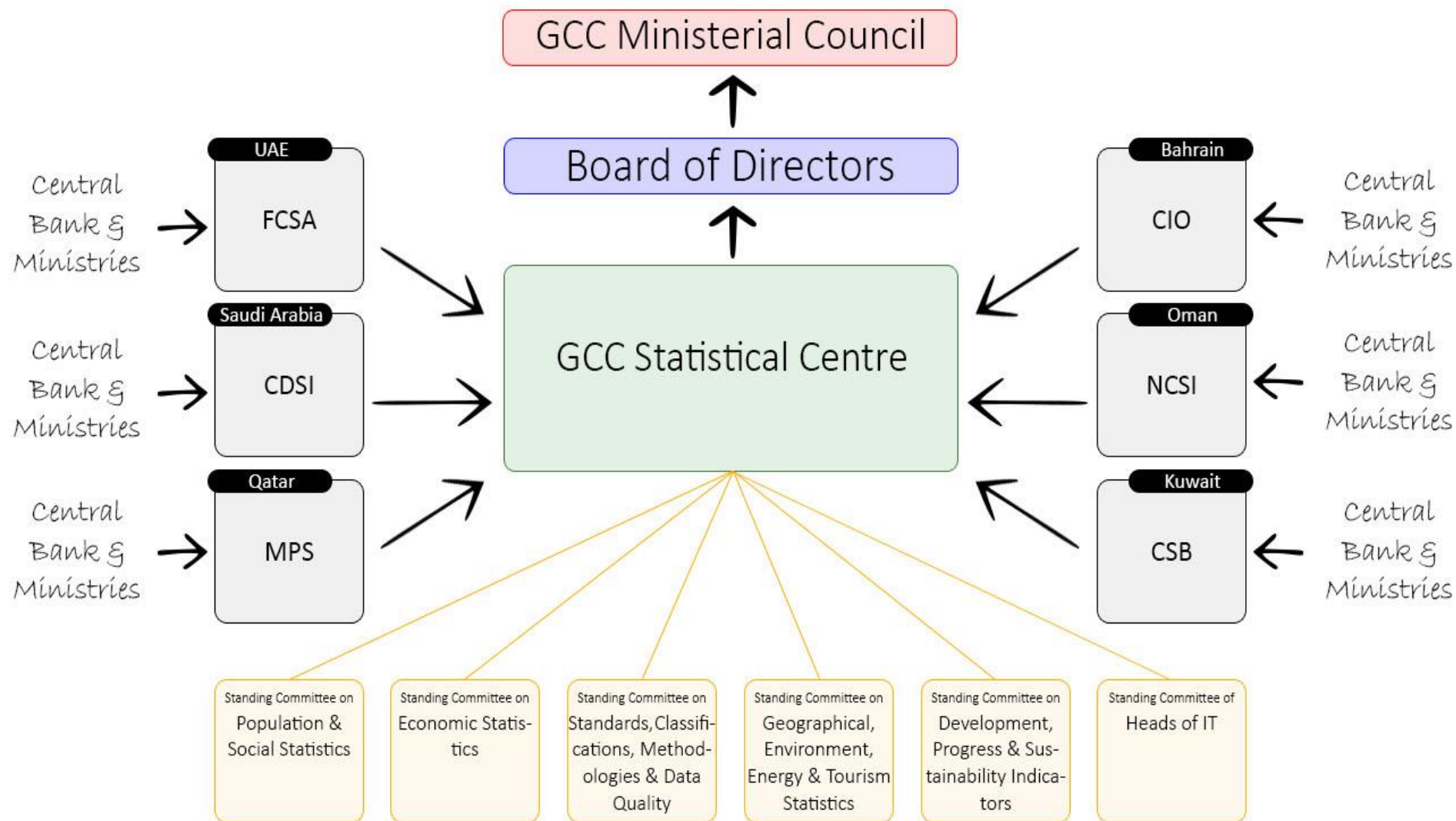Abu Dhabi, U.A.E

Contents

- GCC-STAT: Background

- Overview of the Environment Statistics Project

- Methodology

- Results and Challenges

- Overcoming Challenges – an example

- Recommendations

- Further Reading

GCC-STAT: Background

- **GCC: founded in 1981**

- **Objective:** creating coordination between the member states on various levels, social, economic, political, security and defense.

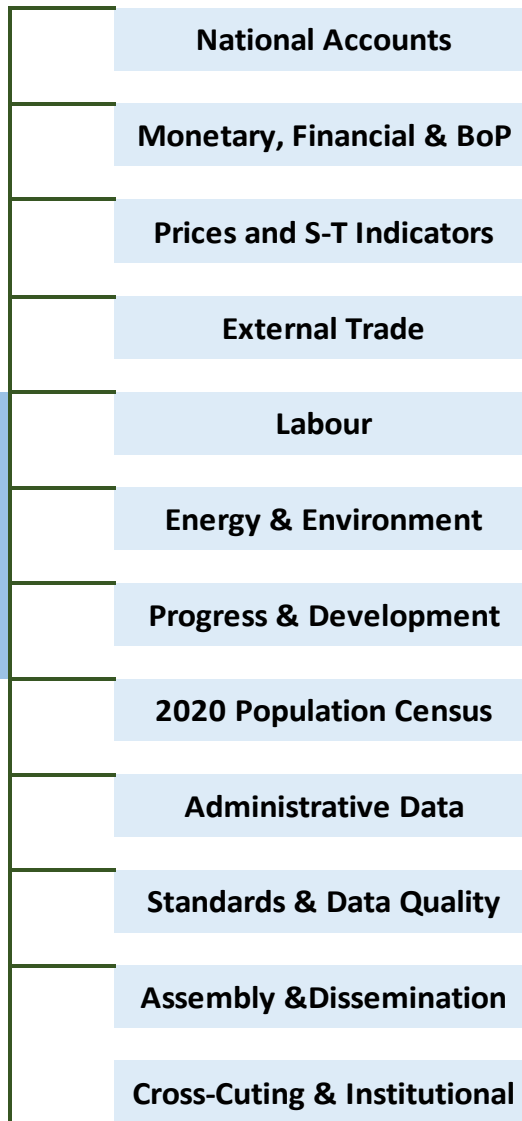- **GCC-Stat: established in 2011; started operations in 2013**

GCC-STAT: Background

GCC-STAT: Background

Statistical Programs

- National Accounts
- Monetary, Financial & BoP
- Prices and S-T Indicators
- External Trade
- Labour
- Energy & Environment
- Progress & Development
- 2020 Population Census
- Administrative Data
- Standards & Data Quality
- Assembly &Dissemination
- Cross-Cuting & Institutional

For each Road Map, we have:

- objectives over the next five years
- how the datasets will evolve over time
- their frequency and timeliness
- statistical standards to be followed
- role of GCC-Stat in developing the statistics in that field

More details:

http://www.gccstat.org

Aims of the project:

- Building a harmonized Environment Statistics System

- Adopting standard questionnaires set by UNSD or UNEP

- Promoting the use of Geographical Information System (GIS)

- Disseminating environment statistics by GCC-Stat regularly

Environment Statistics Project (cont.)

The Environment Statistics Project has a number of sub-projects including:

a) **Water Statistics**
b) Waste Statistics
c) Air Emission &Quality Statistics
d) Land use and Changes in Land Statistics
e) Marine Environment Statistics
f) System of Integrated Environmental & Economic Accounting (SEEA)
g) Sustainable Development Indicators (ENVO-SDG)

Source: U.S. EPA
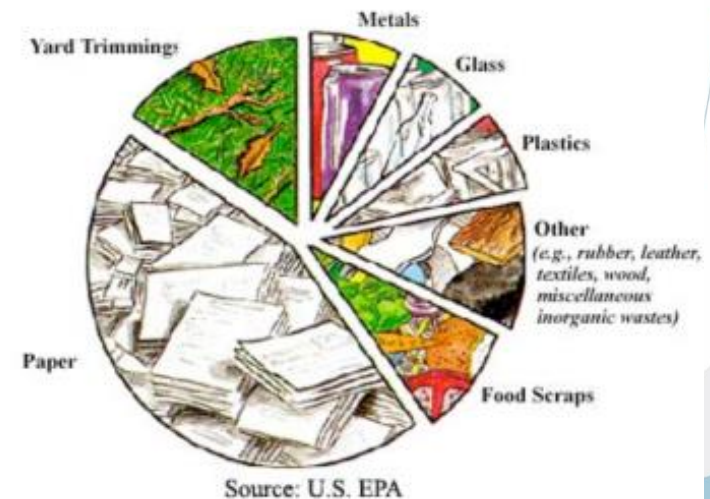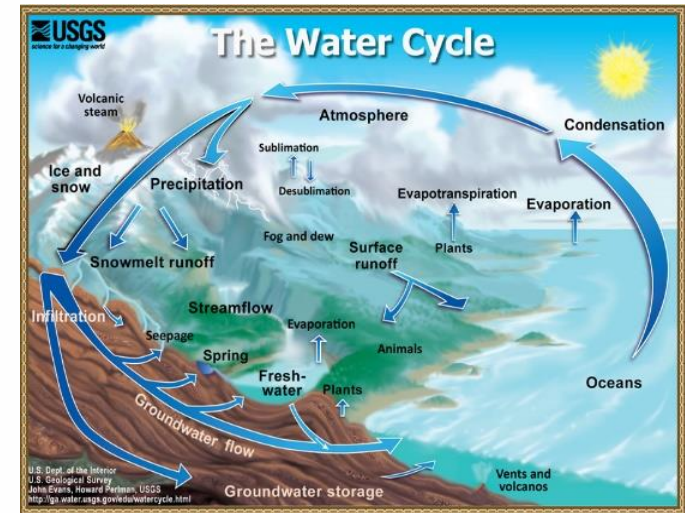
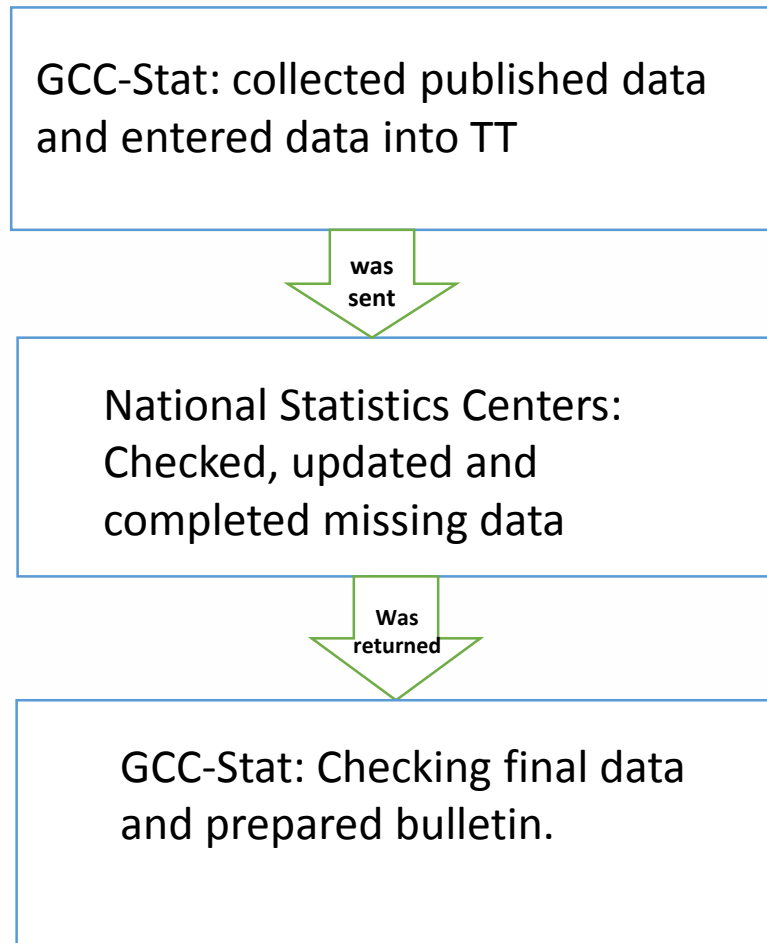Data was collected and assigned to countries. It was prepared as per international standards/Framework**:**

- UNSD (United Nation Statistics Division)

- FDES (Framework for the Development of Environment Statistics).

- IRWS (International Recommendations for Water Statistics)

- WHO (World Health Organization).

- GCC-Stat requirements added

Transmission Tables of Water Statistics

- Renewable Fresh water Resources (TT 1)

- Inland water stocks (TT 1.2)

- Fresh water Abstraction and Use (TT 2)

- Water Supply Industry (TT 3)

- Waste water Generated and Treatment (TT 4)

- Population Connected to wastewater Treatment (TT 5)

- Freshwater Quality (TT 6)

- Marine water Quality (TT 7)

- Water Infrastructure (TT 8).

❖Detailed Transmission Tables are available in the paper

Methodology

GCC-Stat: collected published data and entered data into TT

was sent

National Statistics Centers: Checked, updated and completed missing data

Was returned

GCC-Stat: Checking final data and prepared bulletin.

Results and Challenges

Results	Challenges
Renewable Freshwater Resources (TT1)	
Only Precipitation variable available for all countries	Differences in the Units used
Freshwater Abstraction and Use (TT2)	
Surface Water Abstraction - only 3 countries	Data not previously published as historical time series by NSC
Ground water Abstraction: mostly brackish (more salinity than fresh water)	Different terms used, Double counting, Sectorial Abstraction, Metadata availability
Desalinated Water Production - Used in all countries – main source of fresh water	Source of Water not identified
Reused Water - Used mainly for agriculture and landscaping in all countries.	Data only covered 2012-2014
Freshwater Use - Production appeared to be less than consumption	Problem with previous studies Not possible to derive GCC totals
New Methodology	Now able to provide accurate measures

Results and Challenges

Results	Challenges
Water Supply Industries (ISIC Code 36) (TT3)	
Gross and net of water published by all countries.	Countries divided sectors differently.
Wastewater Generation and Treatment (TT4)	
Two variables available : volume of wastewater collected and wastewater treatment	Inconsistency in the Unit used
Population Connected to Wastewater Treatment (TT5)	
Data published by countries	Methodology wasn't specified
Water Infrastructure (TT8)	
Design Capacity of (Desalinated plants, Wastewater Treatment Plant & Dams)	Types of Technology is not given.

Overcoming challenges - Example

TT 2.5 Total Freshwater Use

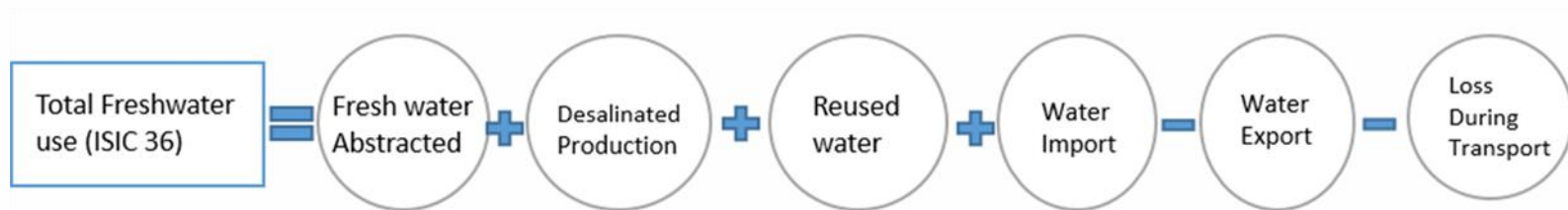**Problem:** Data obtained from previous studies suggested that production was less than consumption.

Year	Country (1)	Country (2)	Country (3)	Country (4)	Country (5)	Country (6)	Total
Production (billion Gallon)							
2008	291	83	43	358	120	35	930
2009	270	90	48	372	123	42	945
2010	234	99	51	376	125	49	934
Consumption (billion Gallon)							
2008	357	66	42	323	120	36	944
2009	358	73	46	344	123	39	983
2010	443	80	50	345	125	45	1088

Solution:

1. Collected data for water resources of each country:(Surface water, ground water, reused water and loss during transport)

2. Applied UN model

Total Freshwater use (ISIC 36) = Fresh water Abstracted + Desalinated Production + Reused water + Water Import − Water Export − Loss During Transport

3. Accurate data : production larger than consumption

Year	Country (1)	Country (2)	Country (3)	Country (4)	Country (5)	Country (6)	Total
Production (billion Gallon)							
2008	3913	130	74	351	224	29	4721
2009	3868	137	78	364	235	35	4717
2010	3838	146	81	844	237	48	5194
Consumption (billion Gallon)							
2008	419	47	42	323	114	24	969
2009	449	66	47	342	118	27	1049
2010	488	69	51	342	123	24	1097

Main challenges

- Information not published before in historical time series by NSC (e.g. Surface water)

- Limited range of published data (e.g. data on Reused water only covered the 2012-14 period – although waste water stations had been built before 2012)

- Double counting (e.g. Groundwater)

- Inconsistent units and units of measurement (e.g. mm/yr with Mm³/yr & BG/yr with Mm³/yr)

- Missing metadata (e.g. Source of desalinated)

Recommendations

- Implement the latest international standards, e.g ISIC.4 classification

- Use the same units for capacity or amount

- Improve the quality and range of metadata

- Establish national working groups comprising the key stakeholders in environment statistics (NSCs, Ministries, Agencies), to coordinate, harmonize and disseminate statistics

- Exchange of knowledge and expertise between GCC NSCs and other national stakeholders

- Improve the quality of water statistics through technical support and training from GCC-Stat

- Conduct a common survey: waste and water survey for industrial sector

Further Reading

- More about the methodology in the conference paper "Water Experiences in the GCC Countries: Recent Experiences"

- GCC-Stat, Water Statistics bulletin in GCC Countries in 2014

- International Recommendation of Water Statistics

- Framework of Development Environmental Statistics

- International Standard Industrial Classification of All Economic Activities, Rev.4.

- United Nations Statistics Division/environment questionnaire/water.

Thank you