Towards a Qatari Framework for Environment Statistics

The use of the (draft) UN FDES in Qatar

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Qatar Facts

- Total area: 11,580 km^2
- Population (October 2012): 1,757,540
  - Male: 1,310,065
  - Female: 447,475
- Precipitation: 82 mm/year (1990-2008)
- Temperature (mean max):
  - Summer: 41.3 °C
  - Winter: 23.6 °C
- GDP per capita: $80,440 (2011)
- CO_2 emitted/person: 46.1 t/year
- Water use: ~310 l per capita per day

Baseline

- Annual Environment Statistics available:
  - QSA website
  - Environment Statistics Report
  - Main data source: Ministry of Environment

- Needs:
  - Classifications, Terminology, units of measurements
  - Data quality (coverage, coherence, consistency)
  - Metadata
  - Better adressing national and international information needs
  - Coordination with users and producers

Objectives of Environment Statistics of Qatar

1. Production of official environment statistics on a regular basis.

2. Supporting evidence-based policy and decision making based on QV 2030 and QNDS 2011-2016 with official statistics on the environment

3. Supporting awareness raising concerning the environment

4. Supporting other national and international needs related to environmental information

5. Environment statistics are part of the National Statistics System (NSS)

6. Qatar Statistics Authority has the overall responsibility and mandate to produce official environment statistics by
   - Involving all relevant stakeholders (producers and users of data)
   - Using international standards for environment statistics, data integration and analysis (e.g. SEEA) and quality assurance
   - Developing business rules and tools for efficient data sharing in cooperation with the relevant stakeholders

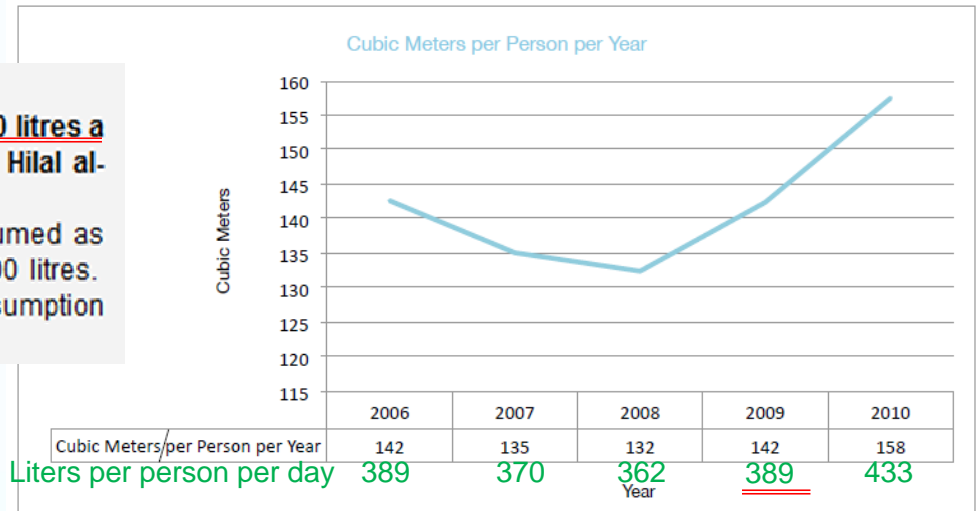# Example Water: Why do numbers not match?

Kahramaa 2010 Report

Table WT15   Average Water Per Capita Consumption. Last 5 Years

Cubic Meters per Person per Year

	2006	2007	2008	2009	2010
Cubic Meters per Person per Year	142	135	132	142	158
Liters per person per day	389	370	362	389	433

Gulf Times 20 March 2012

Qatar's per capita water use 'highest in world'

Qatar's per capita water consumption rate, estimated at around 430 litres a day, could be the highest in the world, Kahramaa president Issa Hilal al-Kuwari said yesterday.

Last year, Kahramaa had gone on record saying that Qataris consumed as much as 1,200 litres of water a day while expatriates used about 200 litres. The estimate was based on the figures of 2009. The average consumption was then given as about 310 litres per person a day.
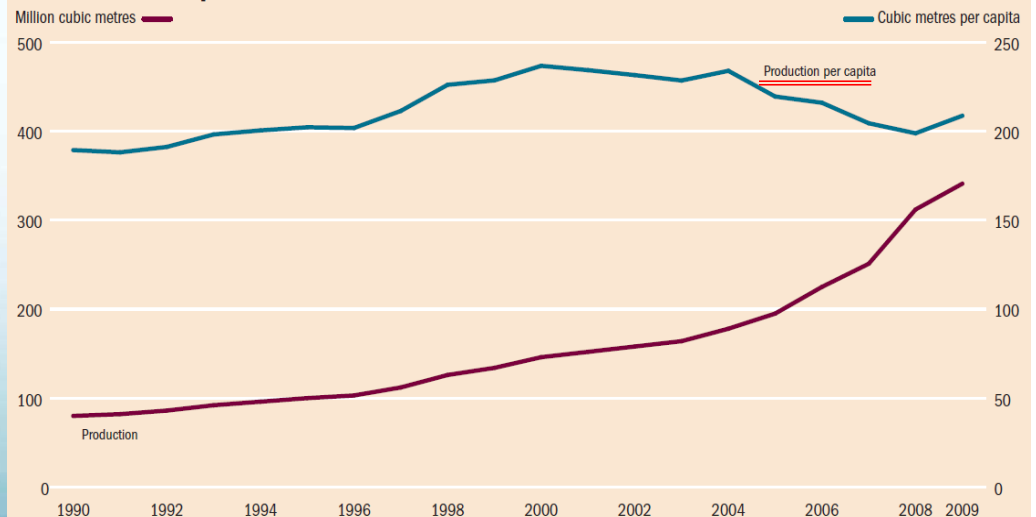
QNDS, page 217

Per capita household consumption

Litres per capita per day, 2001–2002

Qatar, 2009
(reduction of 83 litres per capita per day; 130 million cubic metres)

GDP per capita, 2001–2002 (US$)
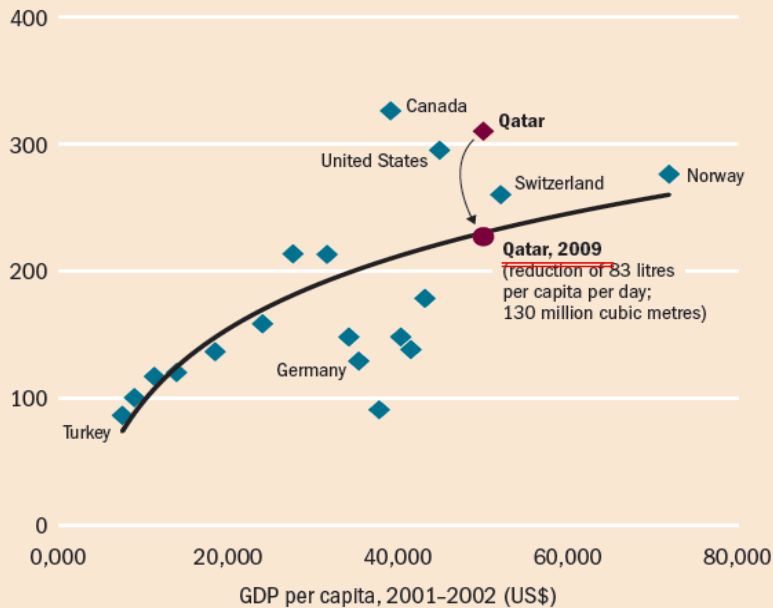
QNDS, page 218

Desalinated water production

Million cubic metres / Cubic metres per capita

Example Water: Why do numbers not match?

QSA, Environment
Statistics 2010

QNDS, page 220

مياه الصرف الصحي المعالجة
TREATED WASTE WATER
2005 - 2010

TABLE (236) / جدول رقم (236)

Particulars	2010	2009	2008	2007	2006	2005	التفاصيل
Waste water input[1]	8,777,336	2,953,492	2,736,936	2,747,629	1,700,000	157,500	كمية مياه الصرف الصحي الخام الداخلة للمحطة[1]
Treated waste water output[1]	7,681,484	2,646,493	2,437,252	2,805,313	0	141,750	كمية مياه الصرف الصحي المعالجة والخارجة من المحطة [1]
Distributed waste water[1]	7,681,484	2,646,493	2,437,252	2,805,313	125,000	141,750	توزيع مياه الصرف الصحي المعالجة[1]
Number of samples Analysed in laboratory	20,403	2,321	2,856	4,080	3,016	3,500	عدد العينات التي تم تحليلها في المختبر
Number of tests perfomed	105,171	37,680	48,552	31,110	30,848	24,500	عدد الاختبارات تم عملها في المختبر
Waste water dischared to castal areas[2]	33,458	0	1,159,827	0	0	0	كمية المياه المعالجة الملقاه في المناطق الساحلية [2]

(1) Unit: Cubic Meter.
(2) Flow Figure is an approximation

(1) الوحدة : متر مكعب
(2) كمية المياه الملقاه (تقريبية)

Figure 6.3 About a third of water produced leaks into the water table each year
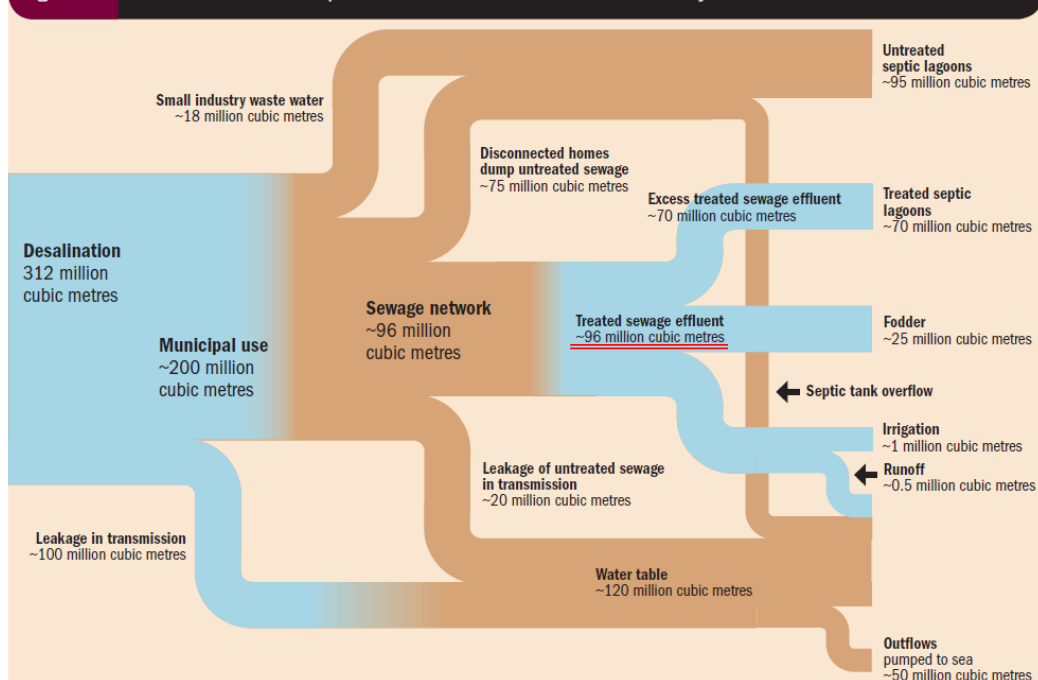
FAO Aquastat

http://www.fao.org/nr/water/aquastat/countries_regions/qatar/qatar_cp.pdf

Non-conventional sources of water			
Produced wastewater	2005	55	10^6 m³/yr
Treated wastewater	2006	58	10^6 m³/yr
Reused treated wastewater	2006	43	10^6 m³/yr
Desalinated water produced	2005	180	10^6 m³/yr
Reused agricultural drainage water		–	10^6 m³/yr

Example Water: What is the problem?

- **No comprehensive view** on all water-related aspects (e.g. groundwater stocks, groundwater quality, desalination, losses, treatment, re-use, discharge, economy etc.)

- **Different classifications:**
  - Municipal, Agricultural, Industrial...
  - International Standard Industry Classification (ISIC)
  - Residential Flat, Residential Villa, Commercial, Big Hotels, Small Hotels, Industries, Government, Special Rate

- **Different units of measurements:**
  - Imperial Gallons versus Metric System
  - Cubic meters per person per year versus liters per capita per day

- **Problem with terminology, indicators and definitions, e.g.:**
  - **Water per Capita Consumption** (Kahramaa): (System Input Volume – Transmission Losses) / Population. Industrial, commercial and agricultural uses are **included!**
  - **Per Capita Household Use** (United Nations): The quantity of water used to cover the household and related utility needs of the population (including enterprise employees), calculated per capita. Industrial, commercial and agricultural uses are **excluded!**

Example: Ozone Depleting Substances:
Increasing or decreasing consumption in Qatar?

UNDP Arab Statistics http://www.arabstats.org

Qatar: Consumption of all ozone-depleting substances (ODS) in ODP tonnes

Stat/Indicator

150

100

50

0

2002   2007

Year

Decreasing

Homepage \ Qatar:

Latest Update: Saturday 3/12/2011 December

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SriLanka/Bangladesh
Philippines/East Asia

Use of ozone depleting substances surges 43%
By Santhosh V. Perumal/Business Reporter

Qatar's total consumption of ozone depleting substances surged 43% to 2,027 metric tonnes (MT) in 2010 mainly due to a three-fold rise in hydrochlorofluorocarbons (HCFC), official figures show.
However, the use of ozone depleting substances in the country showed a highly uneven growth pattern with their consumption peaking in 2009, according to Qatar Statistics Authority (QSA) data for 2005-10.
The consumption of HCFC jumped more than three-fold year-on-year to 580.80MT in 2010, while it had risen 29% to 192.3MT in 2009 but more than quadrupled to 148.50MT in 2008, the environmental statistics, released by the QSA, stated.

Increasing

Montreal Protocol:
Metric tonnes <> ODP tonnes!

QSA, Environment
Statistics 2010

استهلاك المواد المستنفذة لطبقة الأوزون
CONSUMPTION OF OZONE DEPLETING SUBSTANCES
2005 - 2010

TABLE (217) (Unit:Metric Ton)

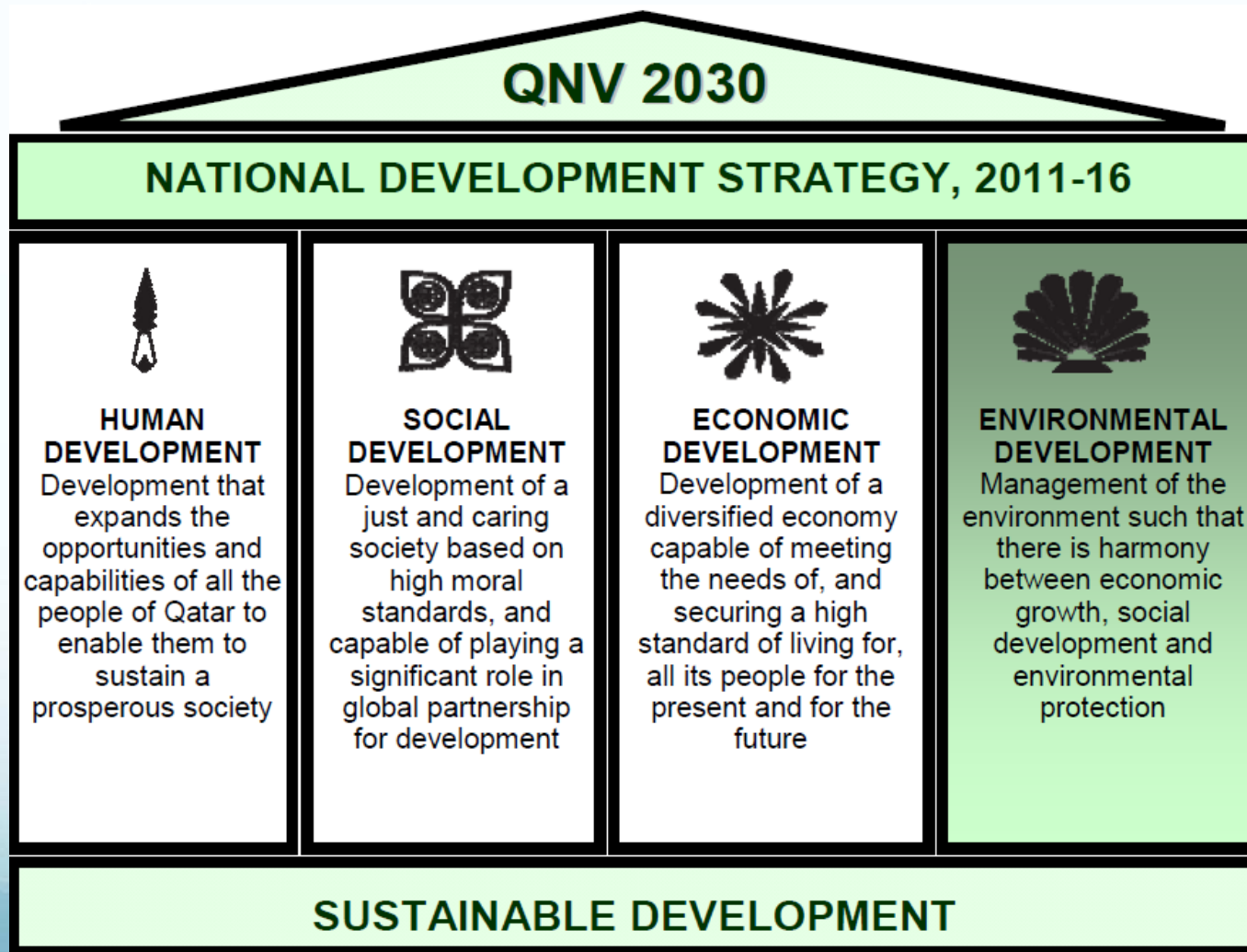ول رقم (217) (الوحدة : طن متري)

Substance / Year	2010	2009	2008	2007	2006	2005	السنة / المادة
CFC-11 [1]	0.00	0.00	1.78	3.03	4.35	6.09	مركبات الكلور والفلور العضوية- 11 [1]
CFC-12 [1]	0.00	0.00	3.27	10.00	27.08	30.91	مركبات الكلور والفلور العضوية- 12 [1]
HCFC-22	1,446	1,225	604.00	427.78	325.85	272.22	مركبات الكلور والفلور العضوية - 22
HYDRO CHLOROFLUOROCARBON (134A)	580.80	192.30	148.50	35.44	0.00	0.00	مركبات الهيدروكلورفلوركربونية (134A)
Total	2,027	1,417	757.55	476.25	357.28	309.22	المجموع

[1] Importation of (CFC-11 ,CFC-12) has been stopped by 2010, in accordance to **Montreal Protocol**.

(مركبات الكلور والفلور العضوية- 11, مركبات الكلور والفلور العضوية- 12) تم حظر استيرادها إعتباراً من 2010 حسب بروتوكول مونتريال.

The National Development Strategy defines the Policy Information Needs

QNV 2030

NATIONAL DEVELOPMENT STRATEGY, 2011-16

HUMAN DEVELOPMENT
Development that expands the opportunities and capabilities of all the people of Qatar to enable them to sustain a prosperous society

SOCIAL DEVELOPMENT
Development of a just and caring society based on high moral standards, and capable of playing a significant role in global partnership for development

ECONOMIC DEVELOPMENT
Development of a diversified economy capable of meeting the needs of, and securing a high standard of living for, all its people for the present and for the future

ENVIRONMENTAL DEVELOPMENT
Management of the environment such that there is harmony between economic growth, social development and environmental protection
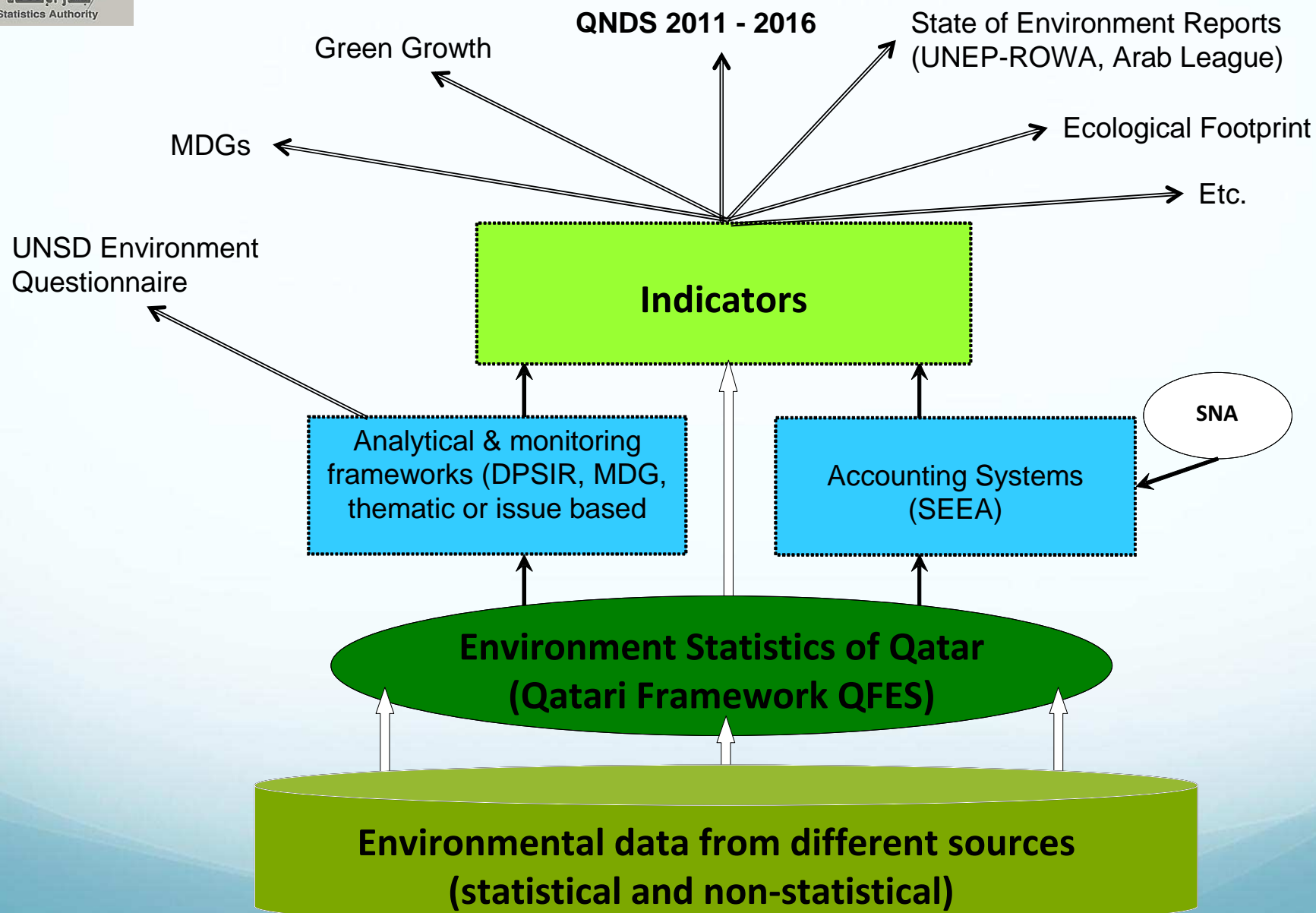
SUSTAINABLE DEVELOPMENT

Policy Objectives and Information Needs (QNDS 2011-2016)

- **Water:** Cleaner water and sustainable use

- **Air quality and air pollution**: Cleaner air and effective climate change responses

- **Waste:** Reduced waste, more recycling and more efficient use

- **Biodiversity:** Nature and natural heritage conserved, protected and sustainably managed

- **Human habitat**: More sustainable urbanization and a healthier living environment

- **Awareness raising:** An increasingly environmentally aware population

- **Governance and cooperation:** Improved governance and regional and international cooperation
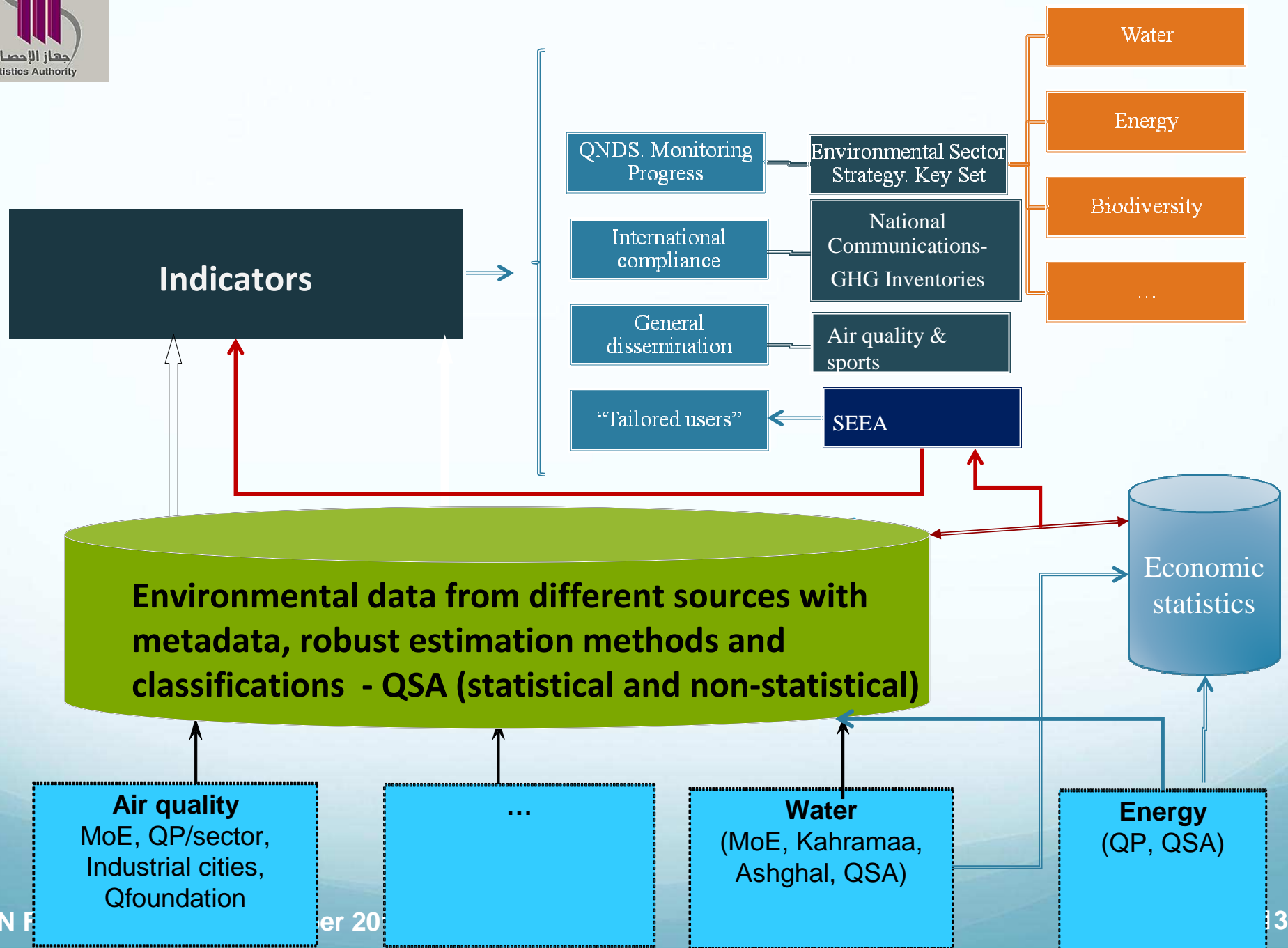
Use of the (draft) UN FDES

- **Identification of a structured list of statistics with priority for implementation.**

- Top down: structured matching of various information needs with required environmental statistics

- Bottom-up: analyzing the international comparability of existing statistics (terminology, classifications, units of measurement, comprehensiveness, etc.)

- Matching the statistics framework with other (e.g. institutional) frameworks of main data providers (e.g. Kahramaa, Qatar Petroleum, etc.)

- Providing the foundation for the implementation of Environmental-Economic Accounts

We need a common framework to be consistent, coherent and efficient

QNDS 2011 - 2016

Green Growth

State of Environment Reports
(UNEP-ROWA, Arab League)

MDGs

Ecological Footprint

Etc.

UNSD Environment
Questionnaire

Indicators

SNA

Analytical & monitoring
frameworks (DPSIR, MDG,
thematic or issue based

Accounting Systems
(SEEA)

**Environment Statistics of Qatar
(Qatari Framework QFES)**

**Environmental data from different sources
(statistical and non-statistical)**

Qatari Framework for Environmental Statistics and multi-purpose uses

Indicators

QNDS. Monitoring Progress	Environmental Sector Strategy. Key Set
International compliance	National Communications- GHG Inventories
General dissemination	Air quality & sports
"Tailored users"	SEEA

Water

Energy

Biodiversity

…

Environmental data from different sources with metadata, robust estimation methods and classifications - QSA (statistical and non-statistical)

Economic statistics

Air quality
MoE, QP/sector, Industrial cities, Qfoundation

…

Water
(MoE, Kahramaa, Ashghal, QSA)

Energy
(QP, QSA)

Environment Statistics Workshop with Key Stakeholders (23-25 September 2012) Outcomes

- **CONCLUSIONS:**

  - QV2030 and QNDS is common umbrella; however, activities addressing environmental policies, indicators and information demand requires more coordination

  - Need for common standards (classifications, units of measurement etc.) and terminologies has been identified

  - Priority information needs were identified = Scope of Qatari Framework of Environment Statistics

- **RECOMMENDATIONS:**

  - **Continue work on environment statistics framework**

  - Establish a Task Force on Environment Statistics and Indicators (based on existing „Environment Statistics Team") + Thematic Working Groups

  - Agree on set of key environmental indicators and a comprehensive set of environment statistics

1. Environmental Conditions and Quality
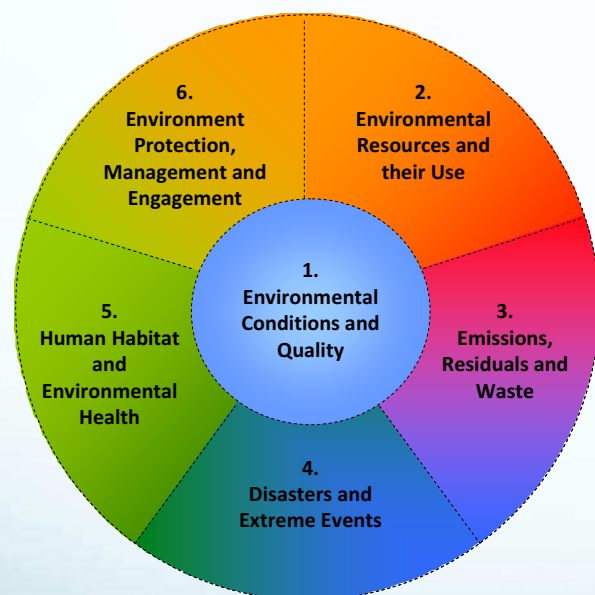
1.1: Physical Conditions

 1.1.1: Atmosphere, climate and weather

 1.1.2: Hydrological systems

1.1.3: Geological and geographic information

1.2: Soil and Land Cover

1.2.1: Soil characteristics

1.2.2: Land cover

1.3: Biodiversity and Ecosystems

1.3.1: Biodiversity

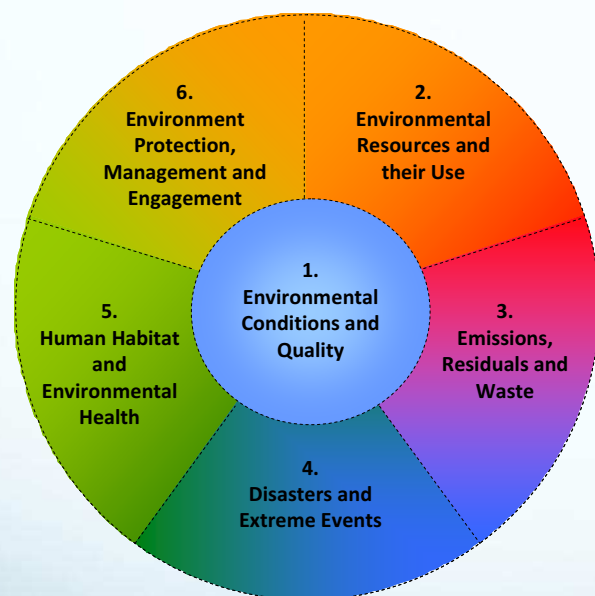1.3.2: Ecosystems

1.4: Environmental Quality

1.4.1: Air quality

1.4.2: Freshwater quality

1.4.3: Marine water quality

1.4.4: Soil quality

1.4.5: Noise

2. Environmental Resources and their Use

2.1: Mineral and Energy Resources

    2.1.1: Stocks and changes of mineral and energy resources

    2.1.2: Extraction of mineral and energy resources and related activities

2.2: Land

    2.2.1: Land use

    2.2.2: Land use changes

2.3: Soil Resources

    2.3.1: Soil resources

2.4: Biological Resources

    2.4.1: Timber resources and their use

    2.4.2: Aquatic resources and their use

    2.4.3: Other biological resources and their use

2.5: Water Resources

    2.5.1: Water resources

    2.5.2: Abstraction, use and returns of water

3. Emissions, Residuals and Wastes

3.1: Emissions to Air

3.1.1: Pollutants Emissions

3.1.2: Greenhouse Gas Emissions

3.1.3: Ozone Depleting Substances

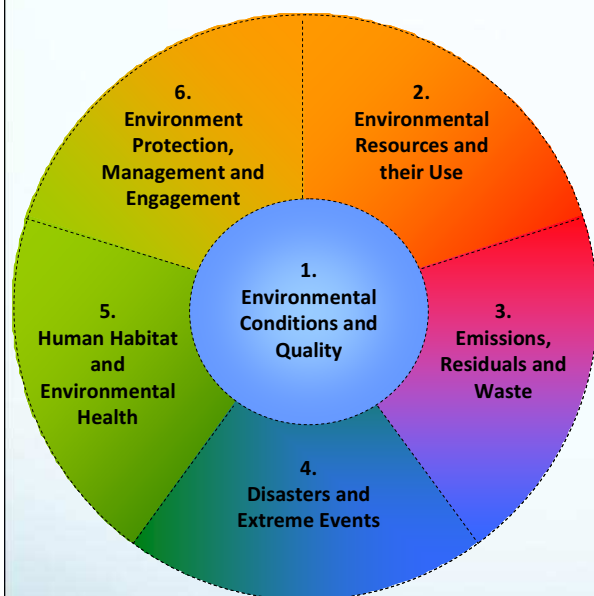3.2: Generation, Management and Discharge of Wastewater

3.2.1: Generation and pollutant content of wastewater

3.2.2: Collection and treatment of wastewater

3.2.3: Discharge of wastewater to the environment
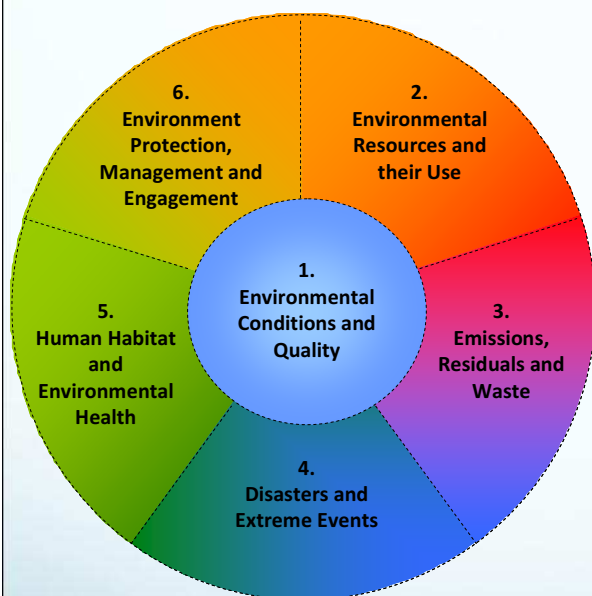
3. Emissions, Residuals and Wastes

3.3: Generation and Management of Municipal Solid Waste

 3.3.1: Generation of Municipal Solid Wastes

 3.3.2: Management of Municipal Solid Waste

3.4: Generation and Management Hazardous Wastes

 3.3.1: Generation of Hazardous Wastes

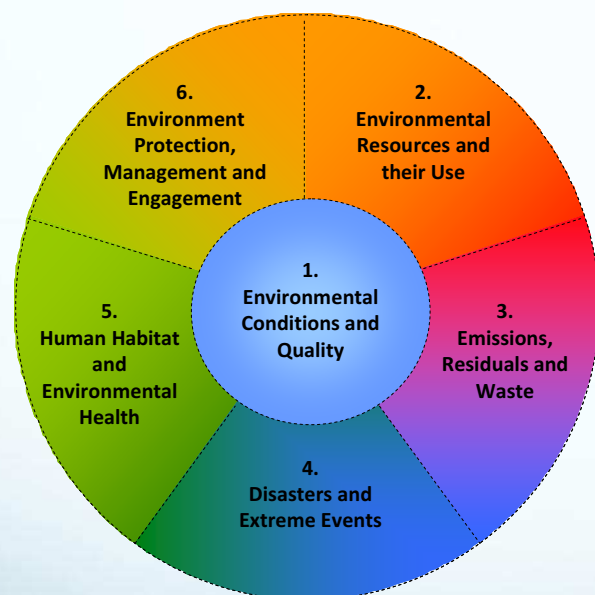 3.3.2: Management of Hazardous Wastes

3.5 Contaminated sites

3.6 Chemical Substances

4. Disasters and Extreme Events

4.1: Natural Disasters and Extreme Events

4.1.1: Occurrence of natural disasters and extreme events

4.1.2: Impact of natural disasters and extreme events

4.2: Anthropogenic/technological Disasters

4.2.1: Occurrence of anthropogenic/technological disasters

4.2.2: Impact of anthropogenic/technological disasters

5. Human Habitat and Environmental Health
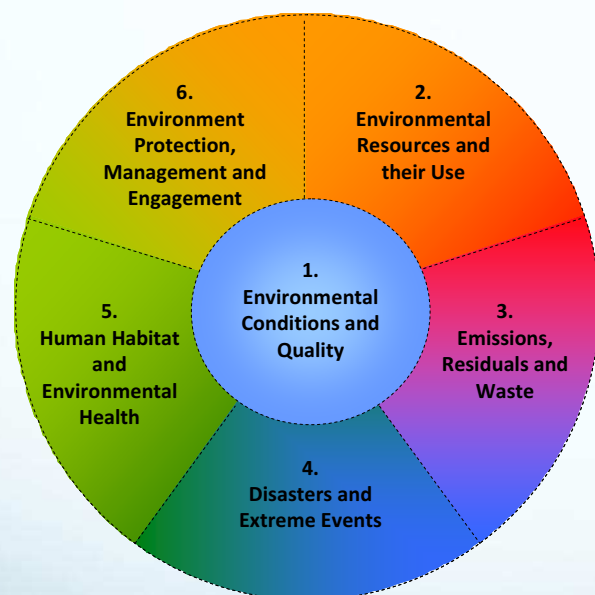
5.1: Human Habitat

5.1.1: Urban and rural population

5.1.2: Water and sanitation

5.1.3: Housing conditions

5.1.4: Exposure to ambient pollutants related to spatial location of population

5.1.5: Other urban habitat concerns (Green spaces)

5.2: Environmental Health

5.2.1: Airborne diseases and conditions

5.2.2: Water-related diseases and conditions

5.2.3: Vector borne diseases

5.2.4: Health problems associated with excessive UV radiation exposure

5.2.5: Toxic substance related diseases and conditions

5.2.6: Nuclear radiation related diseases and conditions

6. Environment Protection, Management and Engagement

6.1: Environment Protection and Management Expenditure

    6.1.1: Government environment protection and management expenditure

    6.1.2: Corporate, non-profit institution and household environment protection and management expenditure

6.2: Environmental Governance, Regulation and Engagement

    6.2.1: Institutional strength

    6.2.2: Environmental regulation and instruments

    6.2.3: Participation in MEAs and environmental conventions

6.3: Disaster Preparedness

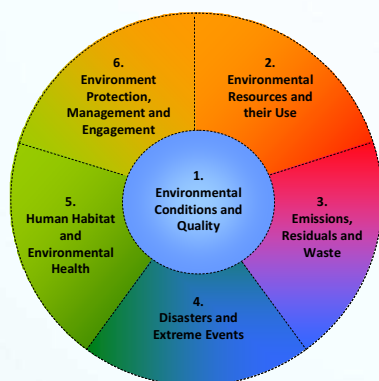   6.3.1: Disaster preparedness for natural disasters and extreme events

    6.3.2: Disaster preparedness for anthropogenic/technological disasters

6.4: Environmental Information, Education and Perception

    6.4.1: Environmental information

    6.4.2: Environmental education and awareness

    6.4.3: Environmental perception

Conclusions

- UN FDES is the basis for prioritization (Qatari Framework)

- It has to be brought into context with national and international information needs, environmental-economic accounts and indicators

- It helps to harmonize and link existing national frameworks and concepts with international standards

- It enables common understanding and provides the single reference of environmental information to QSA and key ministries and other institutions

- Show linkage between FDES, SEEA and other statistical standards, be consistent

Thank you for your attention!

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