Hvordan måler man bæredygtighed på vandområdet

Palle Lindgaard-Jørgense,DHI

Hydrologidag, 26. oktober, 2017

50 YEARS
OF SOLVING
CHALLENGES IN
WATER ENVIRONMENTS
1964 - 2014

DHI

Metoder til måling af:

- SDGerne på vand og relation til den sociale, økonomiske og miljømæssige dimension
- Tiltag som understøtter målene/potentielt øger bæredygtighed med fokus på 6.4 water use and scarcity
- Institutionsbidrag til SDGerne –eksempel DHI

Millennium Development Goals MDGs

- UN-led
- 8 goals and 21 targets, focusing on poverty reduction
- Relevant to low income countries
- 2 water and sanitation targets under MDG 7
- 3 core indicators on water and sanitation
- Monitoring through household surveys

Sustainable Development Goals SDGs

- Country-led
- 17 goals and 169 targets, 230 indicators focusing on the three pillars of sustainable development
- Relevant to all countries
- 8 water and sanitation targets under SDG 6 + 1 under SDG 11
- 12 core indicators on water and sanitation
- Monitoring by national authorities, feeding into regional and global reporting

Social dimension interlinkages

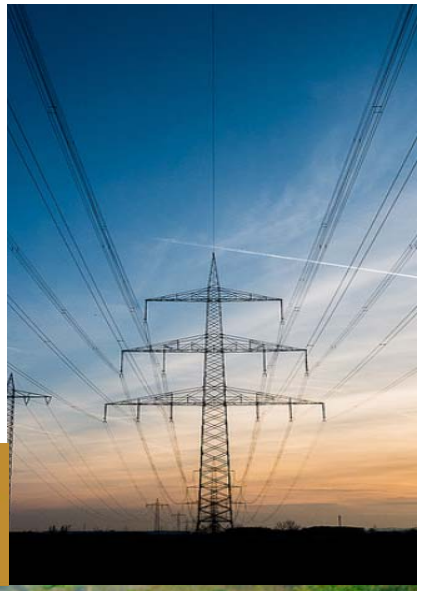
- WASH → reduced burden of disease and malnutrition / time for, and access to, education, economics activities, politics
- Water and ecosystem resources → access to basic services → increased pressure on natural resources ← IWRM
- IWRM ←→ institutional capacity, participation, transparency

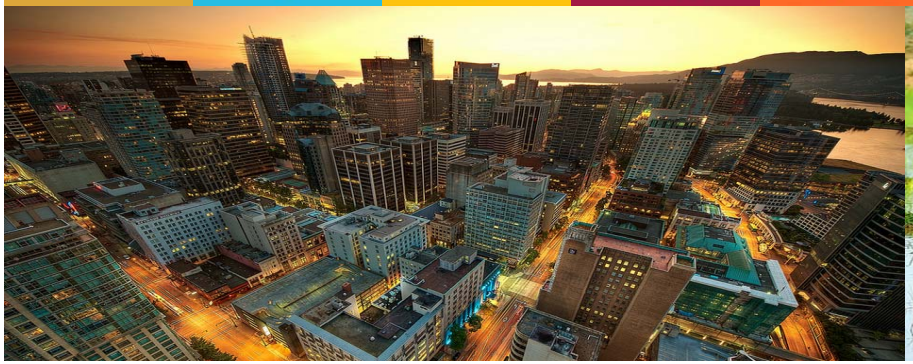
→ Reduced poverty and inequalities, increased resilience

Economic dimension interlinkages

- Water and ecosystem resources → economic growth and development → pressure on natural resources ← IWRM and sustainable practices
- WASH → healthy workforce → economic growth and development
- Disaster risk reduction → resilient economies

→ Reduced poverty and inequalities + resources for WASH, ecosystem protection, disaster risk reduction





Environmental dimension interlinkages

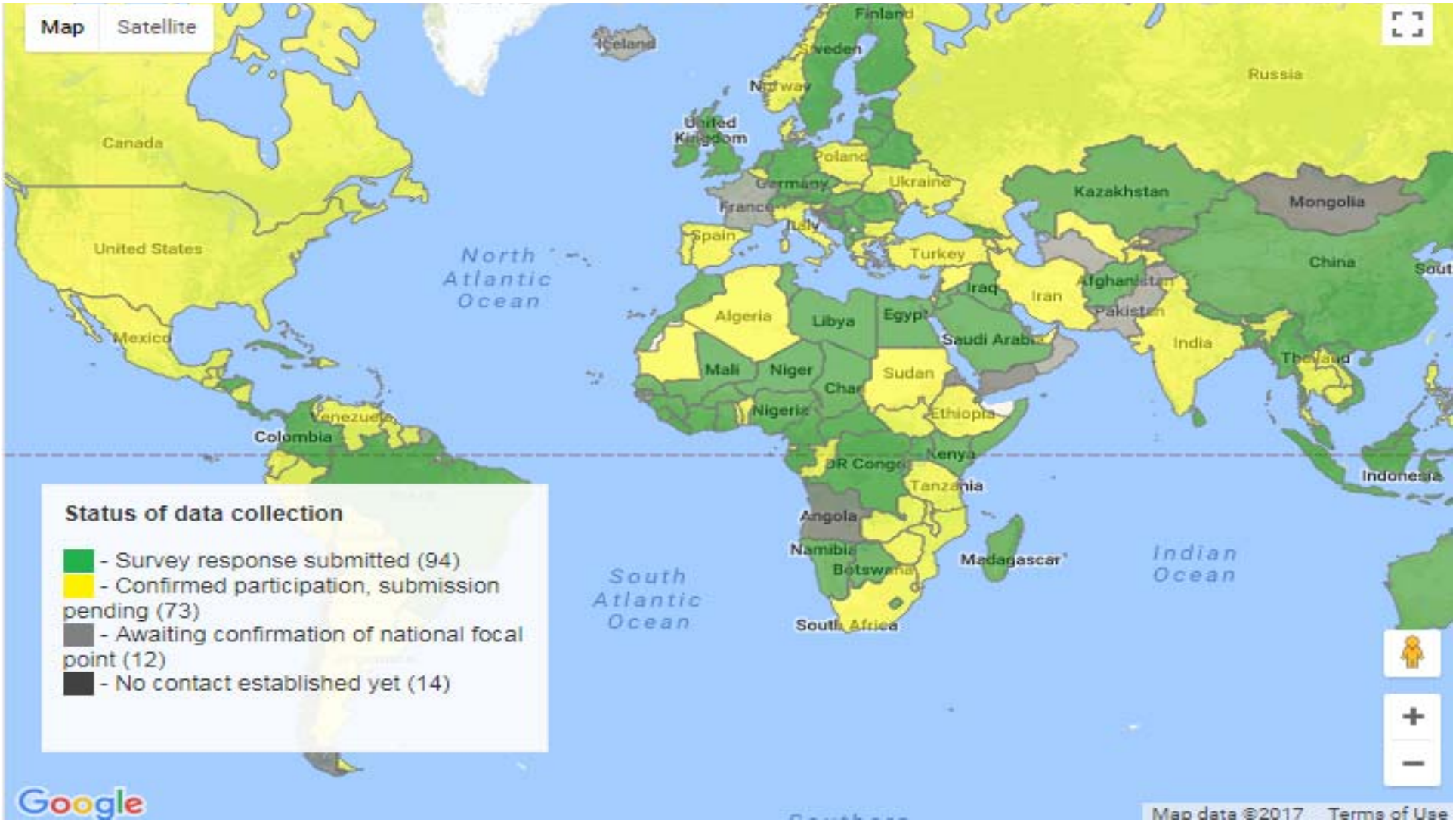
- Ecosystem protection and climate change mitigation ←→ improved water quality and quantity, disaster protection
- Wastewater treatment and water use efficiency → resilient terrestrial and marine ecosystems
- Social and economic development → pressure on natural resources ← IWRM and sustainable practices

SDG 6 Indicators

6.1.1	Safely managed drinking water services (WHO, UNICEF)
6.2.1	Safely managed sanitation and hygiene services (WHO, UNICEF)
6.3.1	Wastewater safely treated** (WHO, UN-Habitat)
6.3.2	Good ambient water quality** (UNEP)
6.4.1	Water use efficiency** (FAO)
6.4.2	Level of water stress* (FAO)
6.5.1	Integrated water resources management (UNEP)
6.5.2	Transboundary basin area with water cooperation** (UNECE, UNESCO)
6.6.1	Water-related ecosystems** (UNEP)
6.a.1	Water- and sanitation-related official development assistance that is part of a government coordinated spending plan (WHO, UNEP, OECD)
6.b.1	Participation of local communities in water and sanitation management (WHO, UNEP, OECD)

SDG Indikator 6.5.1- IWRM- questionnaire på landeniveu

- Section 1: Enabling Environment.
- Section 2: Institutions and Participation
- Section 3: Management Instruments.
- Section 4: Financing.
- 6.5.1 Calculation Section 1 Enabling Environment – Average score Section 2 Institutions and Participation – Average Score Section 3 Management Instruments – Average Score Section 4 Financing – Average Score Indicator 6.5.1 score = Average of above (Degree of IWRM implementation (0-100))


Map
Satellite
Status of data collection
- Survey response submitted (94)
- Confirmed participation, submission pending (73)
- Awaiting confirmation of national focal point (12)
- No contact established yet (14)
Canada
United States
Mexico
Colombia
Iceland
Finland
Sweden
Norway
United Kingdom
Poland
Germany
France
Spain
Italy
Ukraine
Russia
Kazakhstan
Mongolia
China
Turkey
Iraq
Iran
Afghanistan
Pakistan
India
Algeria
Libya
Egypt
Saudi Arabia
Mali
Niger
Sudan
Nigeria
Ethiopia
Kenya
Tanzania
Angola
Namibia
Botswana
South Africa
Madagascar
Indonesia
North Atlantic Ocean
South Atlantic Ocean
Indian Ocean
Google
Map data ©2017
Terms of Use

Regeringens handlingsplan for FN´s verdensmål. Danmarks opfølgning, marts 2017

- Fokuseret opfølgning på alle 17 verdensmål (rapport til Folketinget, Statistisk rapport til FN systemet, 3 rapporter til FN møder
- 37 målsætninger (targets) for indsatser
- 2 omhandler vandområdet:

- Fremme partnerskaber med udviklingslande *(indikator: mobilisering af total og privat kapital gennem Danidas erhvervsplatform)*

- Beskytte vand og havmiljø (*indikatorer: tilstand af vandmiljø Vandrammedirektivet, Fiskeri forvaltet efter Maximum Sustainable Yield princippet)*

Target 6.4 and monitoring indicators

Target 6.4: *By 2030 substantially increase water use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to adress water scarcity and substantially reduce the number og people suffering from water scarcity*

Indicator 6.4.1: Change in water use efficiency

Indicator 6.4.2: level of water stress. Freshwater withdrawal as a proportaion of available freshwater resources

6.4.1 Water Use Efficiency (step-by-step monitoring Guide for SDG 6- FAO

WUE= Awe x Pa + Iwe x Pi + Swe x Ps

WUE: water use efficiency

Awe: irrigated agricultural water use efficiency (USD/m3)

Iwe: Industrial…

Swe: Service sector incl. urban

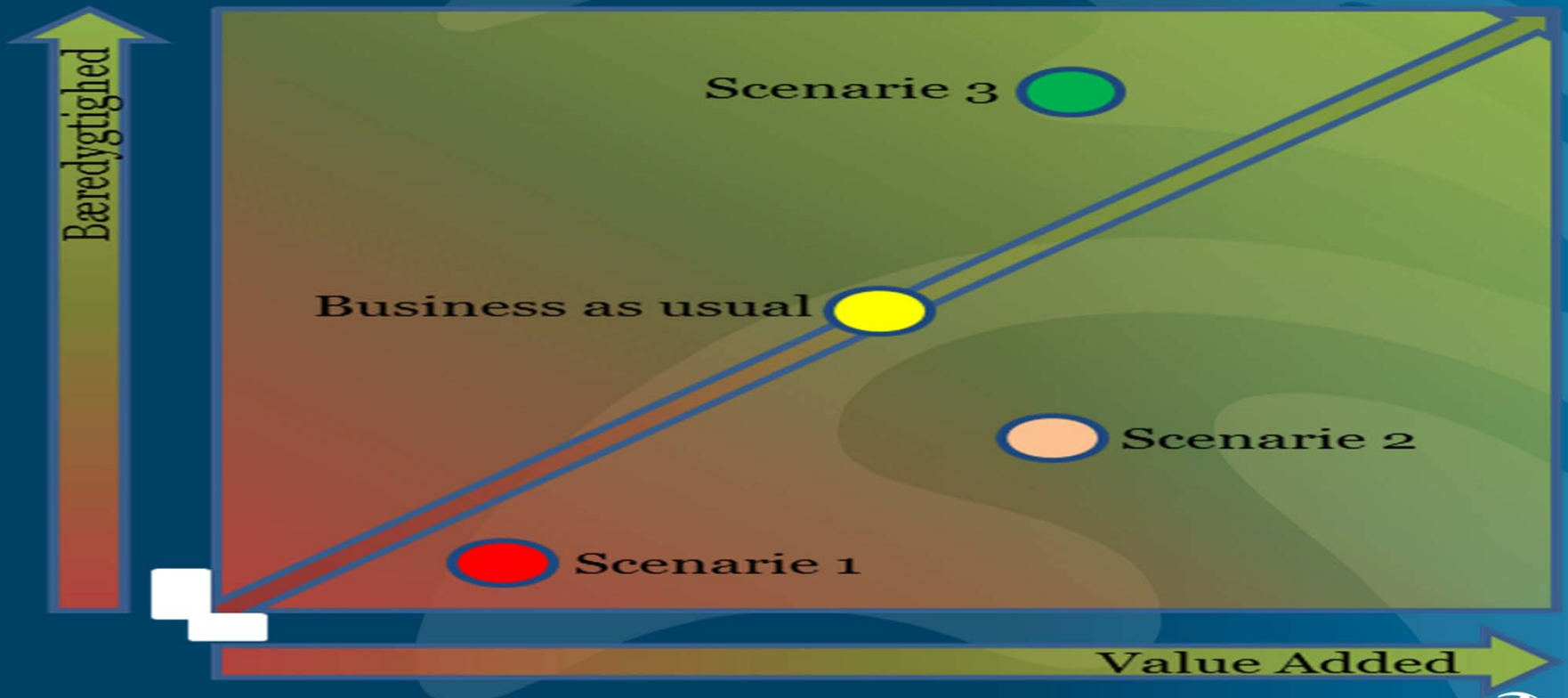
Pa: Proportion of water withdrawn by agriculatural sector over total withdrawals

Pi: industrial….

Ps: service sector..

Example: Netherlands 53 €/m3

Increased water use eficiency



Eco-efficiency

- *Ecoefficiency= value added by using the water/impact from using the water(all types of water incl. e.g. process and waste water)*
- *Value added = value of product or service- cost of creating the value or service*
- *Impact- life cycle impact through the whole value chain*

Methods: ISO 14045 on Ecoefficiency and ISO 14044 on Life Cycle Assessment

Indicator 6.4.2: level of water stress. Freshwater withdrawal as a proportion of available freshwater resources

- Method of computation: The indicator is computed as the total freshwater withdrawn (TWW) divided by the difference between the total renewable freshwater resources (TRWR) and the environmental water requirements (Env.), multiplied by 100. All variables are expressed in km3 /year (109 m3 /year). Stress (%) = TWW / (TRWR - Env.) * 100

Water scarcity Footprint- ISO 14046

Input to the analysis

- Local water consumption (not withdrawal) in the whole production chain (including water consumtion taking place outside Denmark)
- Example soy beans in Argentine, Wheat and barley in Denmark, Farm water consumtion-return water from manure handling and water consumption in slaughter houses
- Local water scarcity situation (local water stress indicators)

Analysis

Water scarcity (local water consumption x local water scarcity indicators)

Corporate social responsibility reporting

DHI CSR reporting process for the 2016 report:

- Management decision to report DHI support to the SDG´s
- Guidance to DHI offices on how to identify and describe project activities which support the SDG´s (all 17 goals and targets)
- Review of DHI project database (2016 projects)
- Project review and editing of text on finally selected targets (1.2, 2.4, 3.9, 5.5, 6.3, 6.4, 6.5, 6.6, 6a, 6b, 7a, 8.4, 9.4, 11.5, 11.6, 12.2, 13.1, 14.1, 14.7, 15.8, 17.6
- Visit DHI webpage www.dhi.com