SOPHIE Agenda

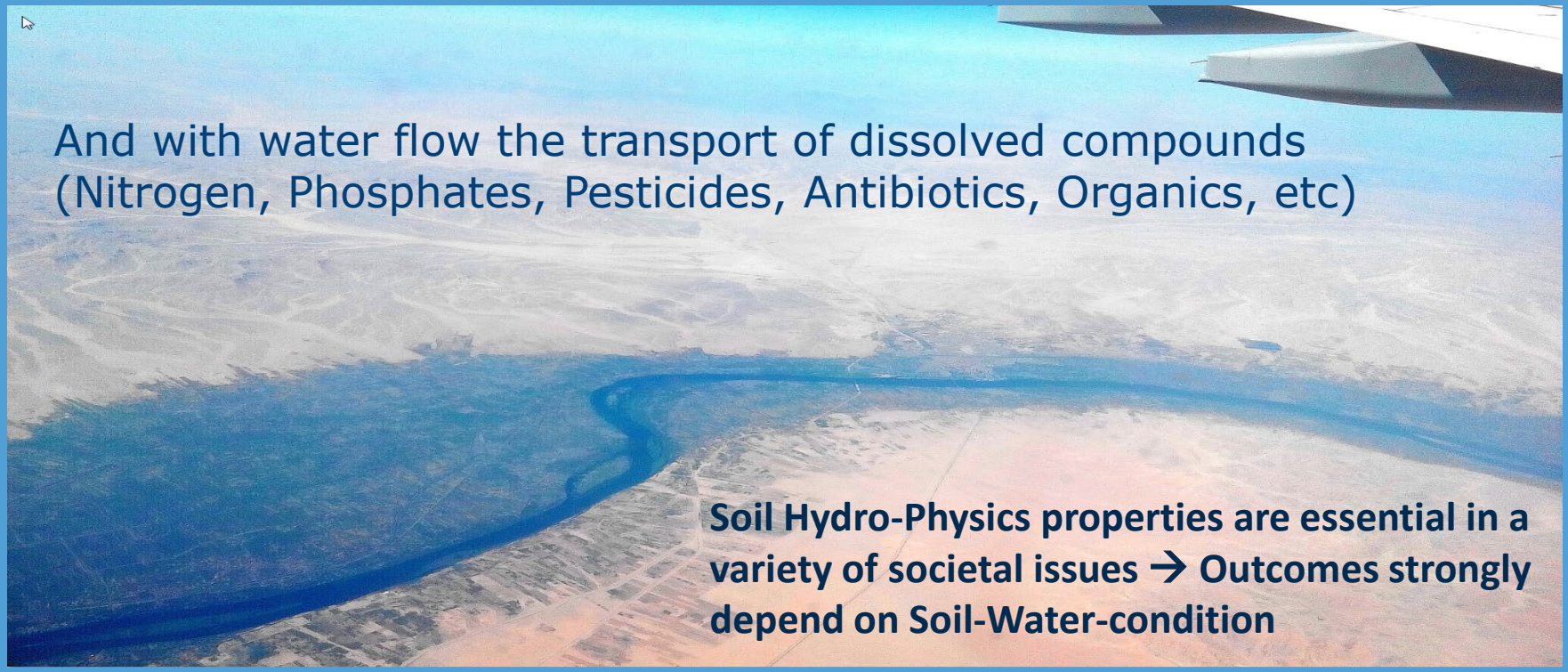
13.10 Basic development agenda presentation [20 min]
13.30 Discussion 1 [20 min]
13.50 Reference samples presentation [20min]
14.10 Discussion 2 [20 min]
14.30 Business/organisational model presentation [20min]
14.50 Discussion 3 [20 min]
15.10 Wrap up [15min]

Total time: 145 min (approx. 2,5 hours).

SOPHIE: Harmonisation, Innovation, and Standardisation of soil hydro-physics properties through international collaboration.

G. Bakker, M. van der Ploeg

Hydro-physics properties are THE properties that determine the soil-water interactions



Photograph: Nile region Achmim, Egypt (mid east)

Objective of SOPHIE

SOPHIE supports the

Realisation of qualified soil hydro-physics data

- **highly needed for EU policy making**
- **determined with EU-wide agreed methods:**
  - **Harmonised (preferred methods/parameters)**
  - **Innovated (cost-effective)**
  - **Standardised (procedures)**
- **for laboratory- and field methods**

through international collaboration.

SHP-Properties – some examples

- soil water retention & (un)saturated conductivity
- shrinkage and swelling
- organic matter
- texture (particle distribution)
- structure (soil aggregation/pore structure)
- density
- capillary rise
- and alike

SHP properties in societal issues

Outcomes strongly depend on Soil-Water-condition

- Food security & Agricultural development (drought, water damage, precision drainage, irrigation, water logging, compaction, erosion)
- Salinity and Sodicity (leaching, evaporation, capillary rise)
- Soil greenhouse gas emissions (N_2O/CO_2)
- Water quality (percolation of nutrients, contaminants, antibiotics)
- Nature conservation (wet/dry lands: climate change)
- Sustainable land use (Healthy Soils, Function)
- Flooding (dike stability, infiltration, soil water repellency)
- Damage to buildings & roads (soil shrinkage)

Dike breakthrough Wilnis Netherlands, 2003

Basic Development Agenda (BDA)

- The BDA serves as a guide to **H**armonise, **I**nnovate and **S**tandardise (HIS) laboratory & field methods in a structured way.
  - **H**armonisation: accepted preferred methods & parameters
  - **I**nnovation: improvement of current methods + development of new *cost effective* methods
  - **S**tandardisation: accepted Work Instructions for chosen methods
- BDA should generate focus, clarity, and collaboration
- BDA is ready in 2019:
  - written in collaboration with active members
  - checked with members of current distribution list (*now*).

Basic Development Agenda – Harmonisation

- Set Current Situation in Harmonisation topic for
  - Field
  - Laboratory

Choose Output Parameter	Inventory of Methods & Standards	Without adjustments choose Golden, Silver, Bronze Method & Standard	Determine Bottlenecks (quality, efficiency, other) Improvements later

- Put outcome on SOPHIE-website and/or in paper with
  - Version number
  - Date
  - Supporting entities

Basic Development Agenda - Innovation

- Use bottlenecks of Harmonisation for
  - Field
  - Laboratory

Regulator panel for pressure plate setup

Per Bottleneck	Define (A4) Innovation proposals For Engineers, Researchers, Policy makers PhD's, Students	Prioritize proposals & Share proposals on website	Find collaboration and fund

- Check (intermediate) results with SOPHIE-members
- Share results on SOPHIE-website and/or in paper

Basic Development Agenda - Standardisation

- Use inventory of Harmonisation for
  - Field
  - Laboratory

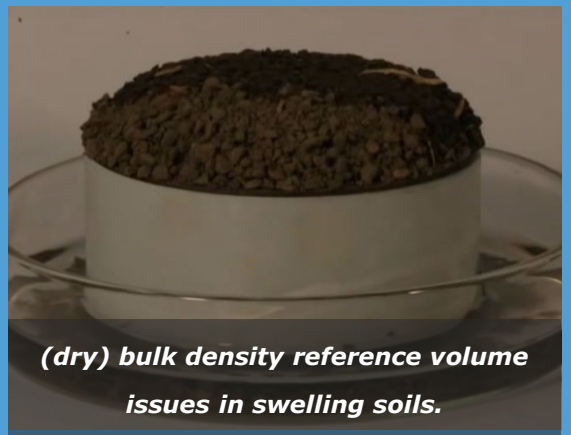
Per method/standard define Time Consumption (no costs)	Put Standard Content (or standard number with exceptions) on SOPHIE website	Discuss and improve contents per standard	Update Harmonisation "Current situation"

- Share results on SOPHIE-website and/or in paper

Basic Development Agenda – Short term (2020-2023)

- Meetings in Brussels (Dec 2017) and Gembloux (Jan 2019) have attributed to a set of focus areas for the coming 3 years:
  - Soil Particle Analysis (texture)
  - Density
  - Structure (definition, how what)
  - Infiltration capacity
  - Development of Reference samples

    for inter- and single-lab comparison of water retention determination.



(dry) bulk density reference volume issues in swelling soils.

Source: Cranfield University

- Discuss with SOPHIE members further priorities for the longer term

Thank you

If interested, you can register at the SOPHIE webpage:

https://www.wur.nl/en/article/Soil-Program-on-Hydro-Physics-via-International-Engagement-SOPHIE.htm