SEMIDE
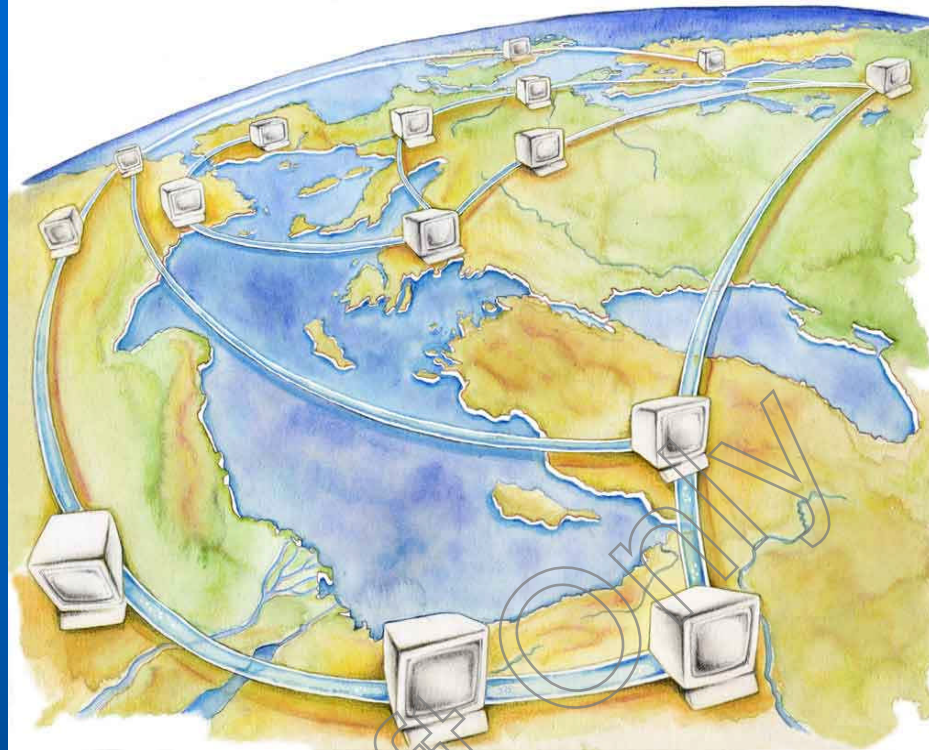
www.semide.net

Système Euro-Méditerranéen d'information sur les savoir-faire dans le domaine de l'Eau

EMWIS

www.emwis.net

Euro-Mediterranean Information System on know how in the water sector

النظام المعلوماتي الأورومتوسطي للمعرفة في مجال المياه

Developing harmonized national water information systems in the Mediterranean

Eric MINO

DG ENV

EURO-MEDITERRANEAN PARTNERSHIP

Context of EMWIS activities

1995	Euromed Partnership
1996	Euromed Ministers Initiate EMWIS
1999	EMWIS operational launch
2005	EMWIS first activities on data management
2008	UfM Water Ministerial conference Long Term Water Strategy initiated

Focus on know-how sharing
- **9 years of operation**
- **20 countries**
- **About 50 000 visitors per month**

➢**Confidence between water authorities**

- **Feasibility studies of National Water Information Systems (**Algeria, Cyprus, Israel, Jordan, Lebanon, Malta, Morocco, Palestine, Tunisia, Turkey)
- **Preliminary analysis for a Mediterranean Water Observation Mechanism - 2006-2007** (7 national diagnostic studies, 25 international initiatives consulted)

International policy drivers

- **<u>UfM Mediterranean Water Strategy</u>**

  - ❑ **Strengthening the provision of data, information and statistics on water**

- **<u>Arab Countries water strategy</u>**

  - ❑ **Database on shared water resources**

- **<u>EU - Horizon 2020 – Depolution of Mediterranean sea</u>**

  - ❑ **Monitoring: Urban waste water, Industrial emission and Urban solid waste**

  - ❑ **Extension of Shared Environmental Information System**

- **<u>UNEP - Mediterranean Strategy for Sustainable Development</u>**

  - ❑ **Resources and Demand indicators**

- **<u>UN – Water => World Water Assessment Programme</u>**

  - ❑ **Total freshwater renewable resources**

  - ❑ **MDG goals**

  - ❑ **Water abstraction per sector**

2009-2010 Activities

❑ **Preparation of regional activities (concept note)**
- Coordinating data collection mechanisms
- Harmonisation of definitions (interoperability)
- Fostering NWIS as main source of reliable data
- Exchange of experiences

With EC DG Env support

❑ **Metadata catalogue (data discovery)**
❑ **Map viewer and administrative reference data sets for the region**
❑ **Interoperability guidelines**
- Recommendations on standards
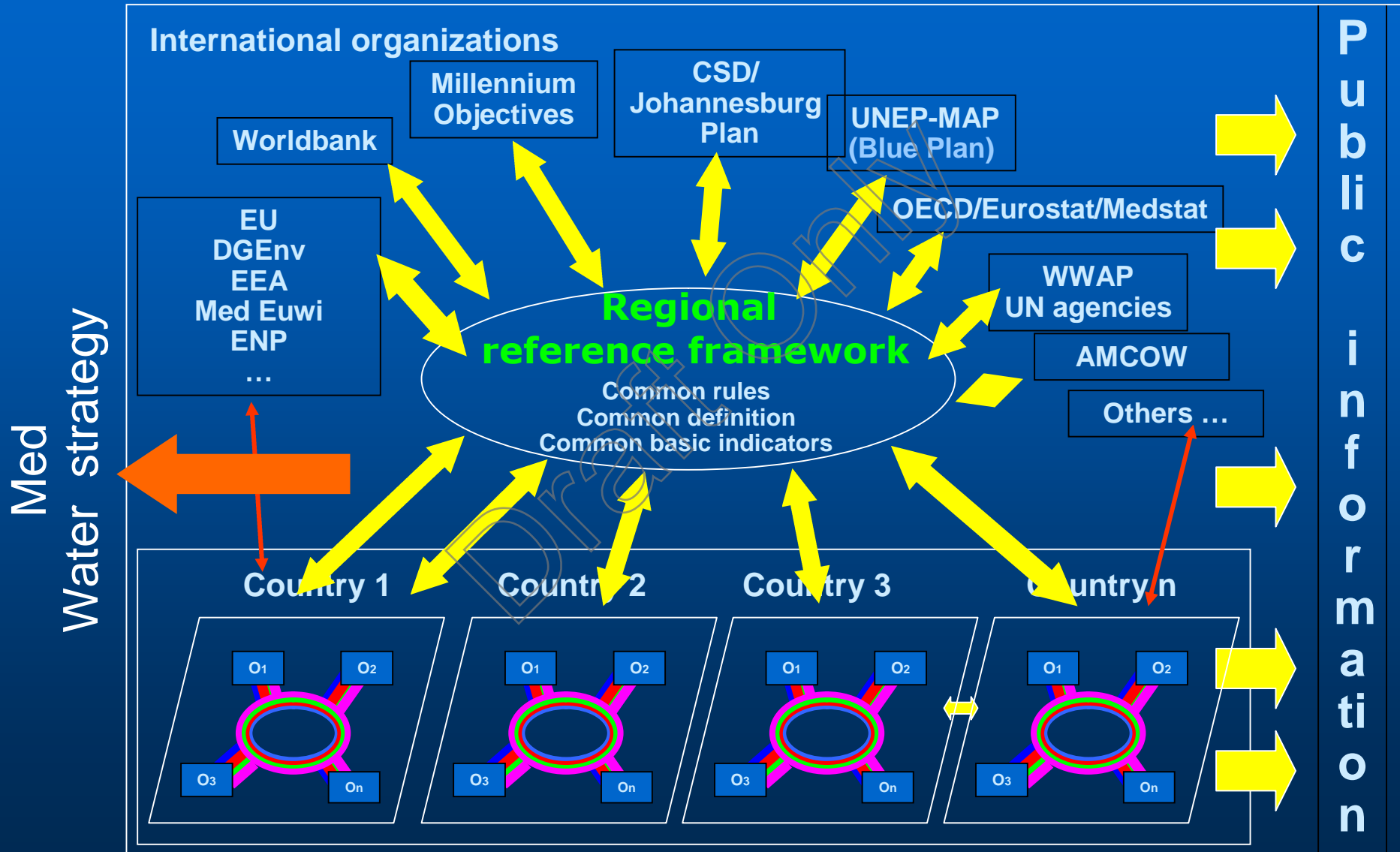- Data models

❑ **Data harmonisation pilot**
- Tunisia and Jordan
- Based on UN water accounting approach

❑ **National technical workshops:**
- State of plays on National Water Information systems
- Tunisia, Lebanon, Jordan, Egypt, Palestine, Morocco, Syria, Turkey

Overall Mediterranean vision

Shared Water information Systems

Data access right
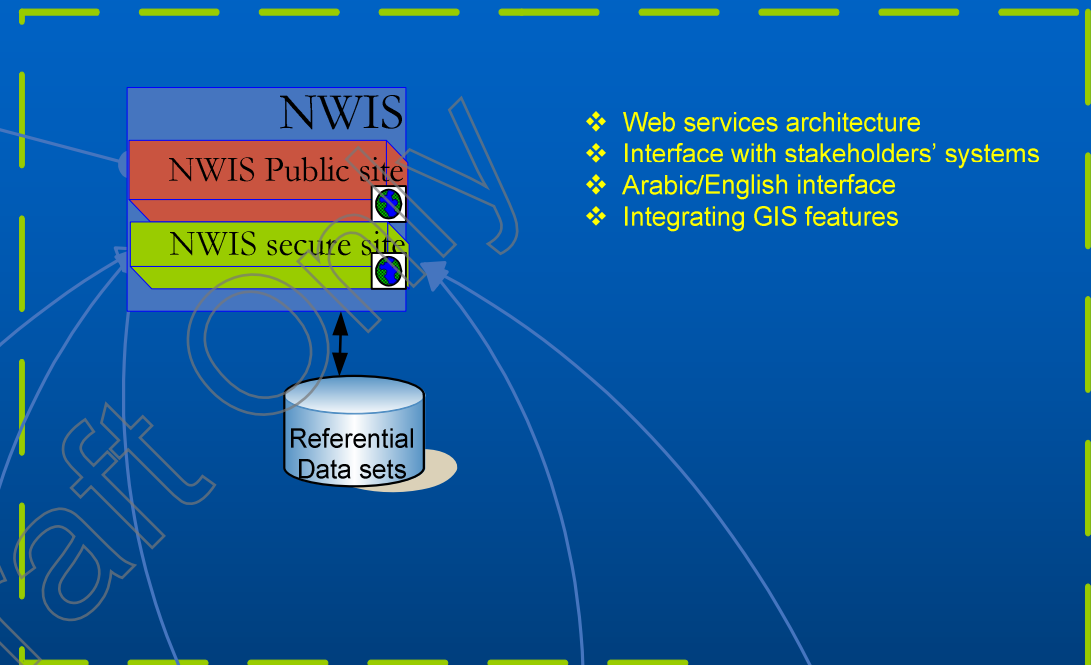defined by data
owners

Data exchanges
can be restricted to
a close group of
stakeholders

Web navigator

NWIS

NWIS Public site

NWIS secure site

Referential
Data sets

- ❖ Web services architecture
- ❖ Interface with stakeholders' systems
- ❖ Arabic/English interface
- ❖ Integrating GIS features

Stakeholders

Coordinator for all focal points

Public | Secure | Internal

Public | Secure | Internal

Public | Secure | Internal

Public | Secure | Internal

Public | Secure | Internal
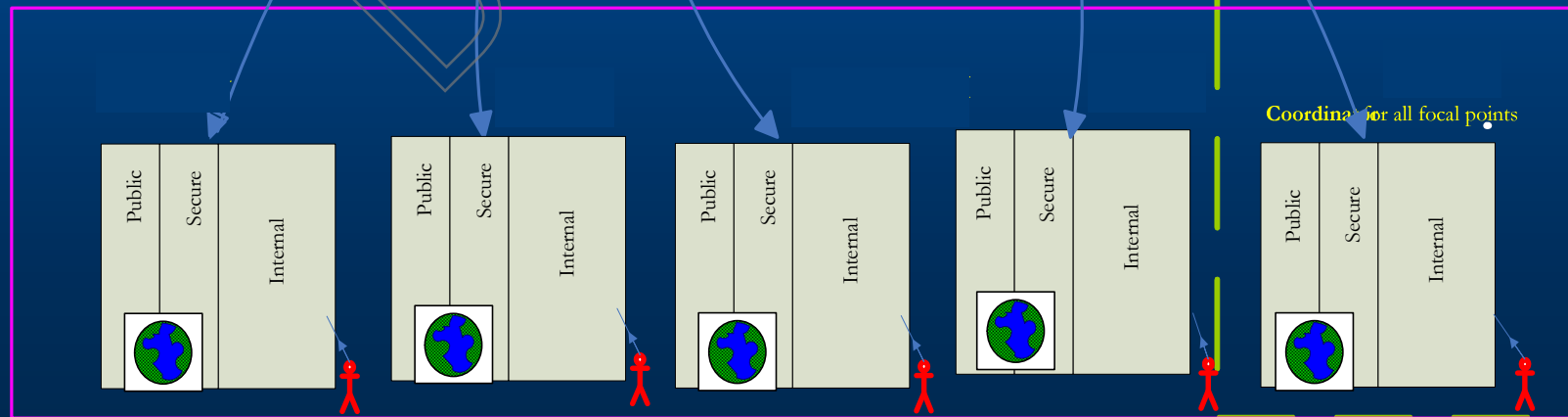
Content of a reference data framework

- **<u>Referencial datasets</u>**

    - ❑ **Hydrological networks (e.g. rivers, watersheds, lake, aquifers)**

    - ❑ **Water management areas (e.g. protected areas, administrative units)**

    - ❑ **….**

- **<u>Data dictionaries (data models, reference lists)</u>**

    => Generic conceptual data model developed

- **<u>Definition of indicators, data collection methods</u>**

    => Pilot activity on going on water quantities

- **<u>Geo-catalogue of data sources and data services</u>**

    - ⇒ **Prototype available with a Mediterranean profile**

    - ⇒ **Linked map viewer under development**

- **<u>Interoperability specifications (exchange formats/ service protocols)</u>**

    => Recommendations on standards to be used (for SEIS/WISE/INSPIRE interoperability)

NWIS basic principles

- **Information should be managed as close as possible to its source**
  - ❑ **Multiple partners/providers**

- **Information collected once and shared with others for many purposes**
  - ❑ **Different aims / user categories**
  - ❑ **Interoperability, geographical scales**

- **Provision to the public of aggregated data**

- **Unique provider for each data type**

- **Gouvernance**
  - ❑ **Strategic -> needs**
  - ❑ **Technical -> referential data sets**
  - ❑ **Basins (or management units) -> data collection**

NWIS vision

- **Governmental system**
  - Interministerial intranet
  - Limited public access
  - Sub-systems managed by each partner
  - Node of a broader system
    - SEIS
    - eGov infrastructure
- **User categories**
  - Executive / decision makers (incl. other ministries)
  - Experts
  - General public
- **Technical issues**
  - Web based system integrating thematic sub-systems
  - Graphical user interface, geographical data access
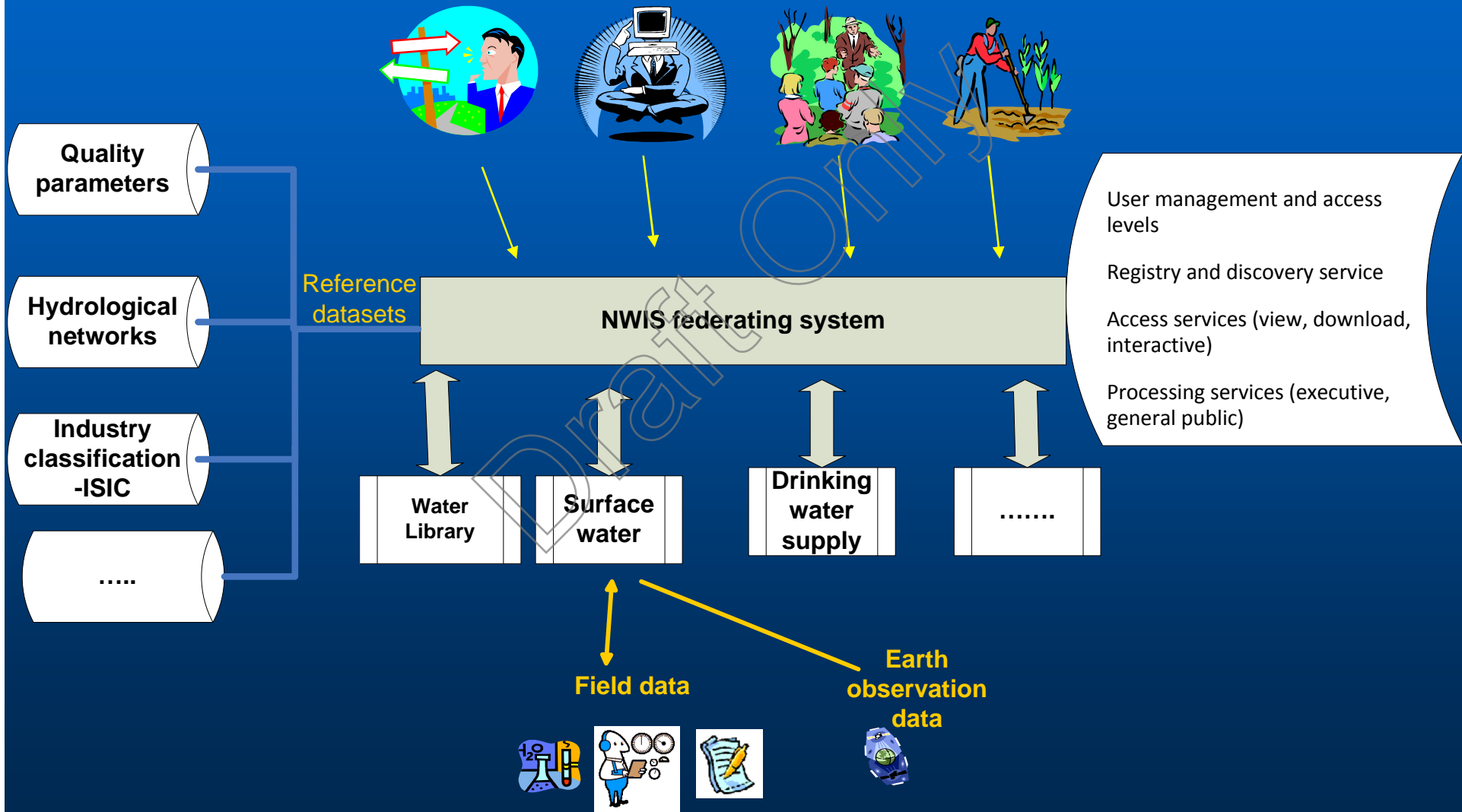 - Using international data standards

NWIS governance

- **<u>Interministerial body:</u>**
  - ❑ **Rely on an existing body**
  - ❑ **MoU on management / data sharing rules**
  - ❑ **Specific agreements on datasets to be shared, incl. publications**
  - ❑ **Defining priorities and further developments**
  - ❑ **System validation**
  - ❑ **Fund raising requests**
  - ❑ **Members: public institutions partners of the NWIS**

- **<u>Technical coordination committee</u>**
  - ❑ **In charge of implementation and system management**
  - ❑ **Definition of thematic developments and reference data sets**
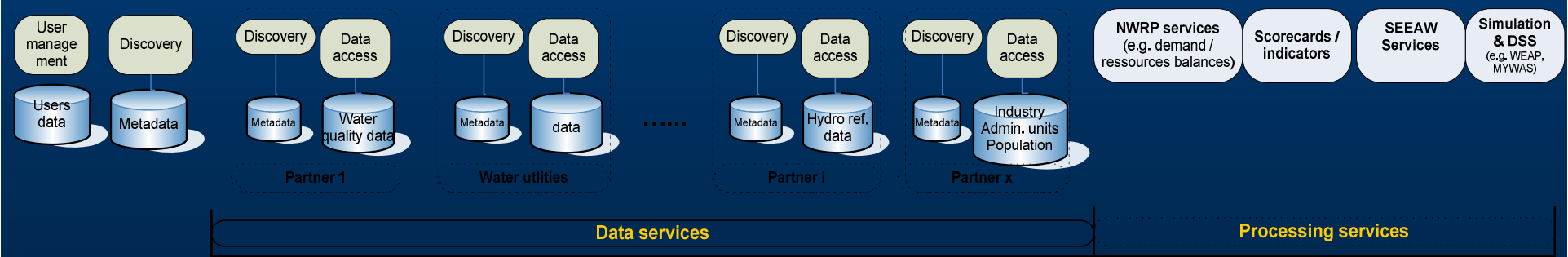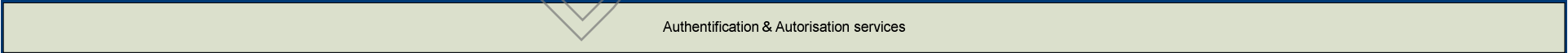 - ❑ **Involving focal points from each stakeholder**

NWIS components
extendable architecture

Quality parameters

Hydrological networks

Industry classification -ISIC

…..

Reference datasets

NWIS federating system

User management and access levels

Registry and discovery service

Access services (view, download, interactive)

Processing services (executive, general public)

Water Library

Surface water

Drinking water supply

…….

Field data

Earth observation data

Technical architecture

Public access

Intranet access

NWIS web geo-portal

(tha **Other applications**
(that can be developed by water stakehoders partners)

Service bus

Authentification & Autorisation services

| User manage ment | Discovery | Discovery | Data access | Discovery | Data access | Discovery | Data access | Discovery | Data access | NWRP services (e.g. demand / ressources balances) | Scorecards / indicators | SEEAW Services | Simulation & DSS (e.g. WEAP, MYWAS) |

Users data | Metadata

Metadata | Water quality data

Metadata | data

......

Metadata | Hydro ref. data

Metadata | Industry Admin. units Population

Partner 1

Water utilities

Partner i

Partner x

Data services

Processing services
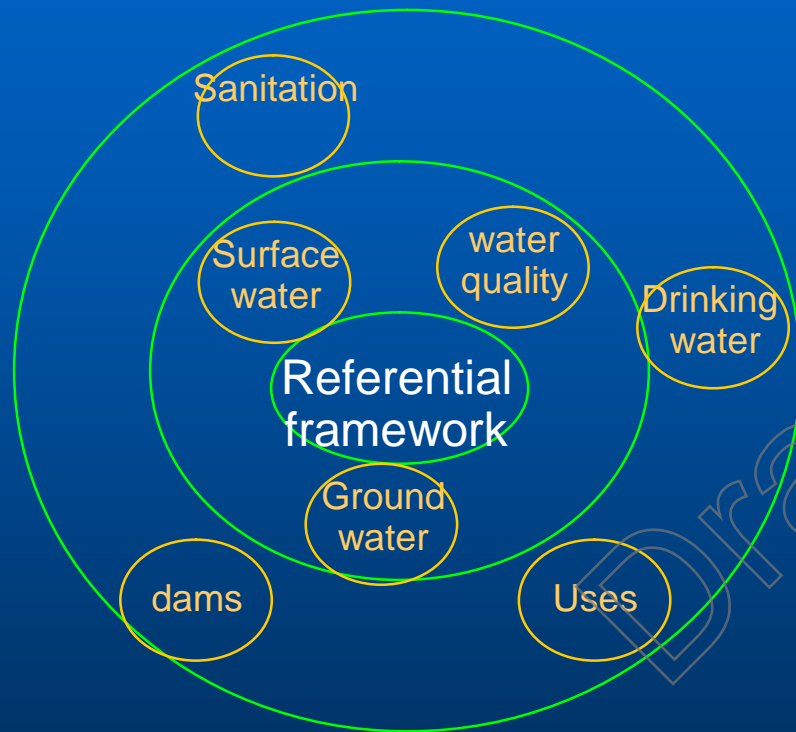
A step wise integration process

Referential framework
- ❑ **Set by and for the stakeholders**
- ❑ **Quality Assurance**

Sub-systems
- ❑ **One domain = one leader**

National system
- ❑ **Sub-systems integration**
- ❑ **Needs going beyond single sub-systems**

Typical NWIS roadmap

- **High level decision on building a NWIS**

- **MoU signature, with identification of focal points in each institution**

- **Fund raising**

- **Detailed analysis and NWIS specifications, including some sub-systems upgrading**

2 years

- **System implementation and training**

- **System operation**

- **Iterative process:**

  - ❑ **New components/public institutions can join later**

Pilot activity on data harmonisation (1/2)

- **System of Environmental-Economic Accounting for Water –SEEAW**
  - ❑ **Recognised mandate of National Statistic Institutes**
  - ❑ **Requires a lot of data from different sources**

- **NWIS:**
  - ❑ **Valuable use case for the provision of (raw) data**
  - ❑ **Structuring approach with standardised definitions**
  - ❑ **Water resource community aware of SEEAW**
    - Support provided by the EU MED-Stat programme

Pilot activity on data harmonisation in Tunisia

- **2 technical missions in 2009**

- **Meetings with all the institutional stakeholders**

- **Inputs for the financial agreement with the African Water Facility**

- **Memorandum of understanding signed between 5 ministries for data sharing under SINEAU**

- **Potential technical assistance to the beneficiaries for**
  - ❑ **Joint preparation of the reference data sets by the national partners**
  - ❑ **Ensuring coherency with international standards**

Pilot activity on
data harmonisation in Jordan

- **2 technical missions in 2010**

- **Meetings with the main stakeholders**

- **Validation with and commitment from the Minister of water and irrigation**

- **Endorsement by the Jordanian Prime Minister**

- **Draft concept note for a funding request under preparation**

National Workshops

- **State of play on NWIS**
  - ❑ (follow up on studies carried out in 2005)
- **Lebanon**
  - ❑ 1st definition of a Center for Information and Training on water
- **Egypt**
  - ❑ Project identification form for NWIS 1st phase supporting IWRM in the framework of the National Water Resource Plan
- **Palestine**
  - ❑ Coordination with UNICEF support for PWA water databank, preparation of a training to move towards a NWIS
- **Morocco**
  - ❑ willingness of all stakeholder to setup such system, coordination with GTZ supporting a sub-system

- **Turkey: 15 December**
- **Syria: 20 December**

Tools

Available from Medwis portal (under development)

- **<u>Generic conceptual data model</u>**
- **<u>Geo-catalogue of data sources and data services (discovery service)</u>**
  - ❑ **Metadata profile compliant ISO, INSPIRE and WISE**
- **<u>Web map viewer</u>**
  - ❑ **Linked to the geo-catalog**
- **<u>Interoperability technical guidelines</u>**
- **<u>NWIS feasibility studies and Med water observation study</u>**
- **<u>Examples of MoU for NWIS</u>**
- **<u>Reporting obligations of Med countries</u>**

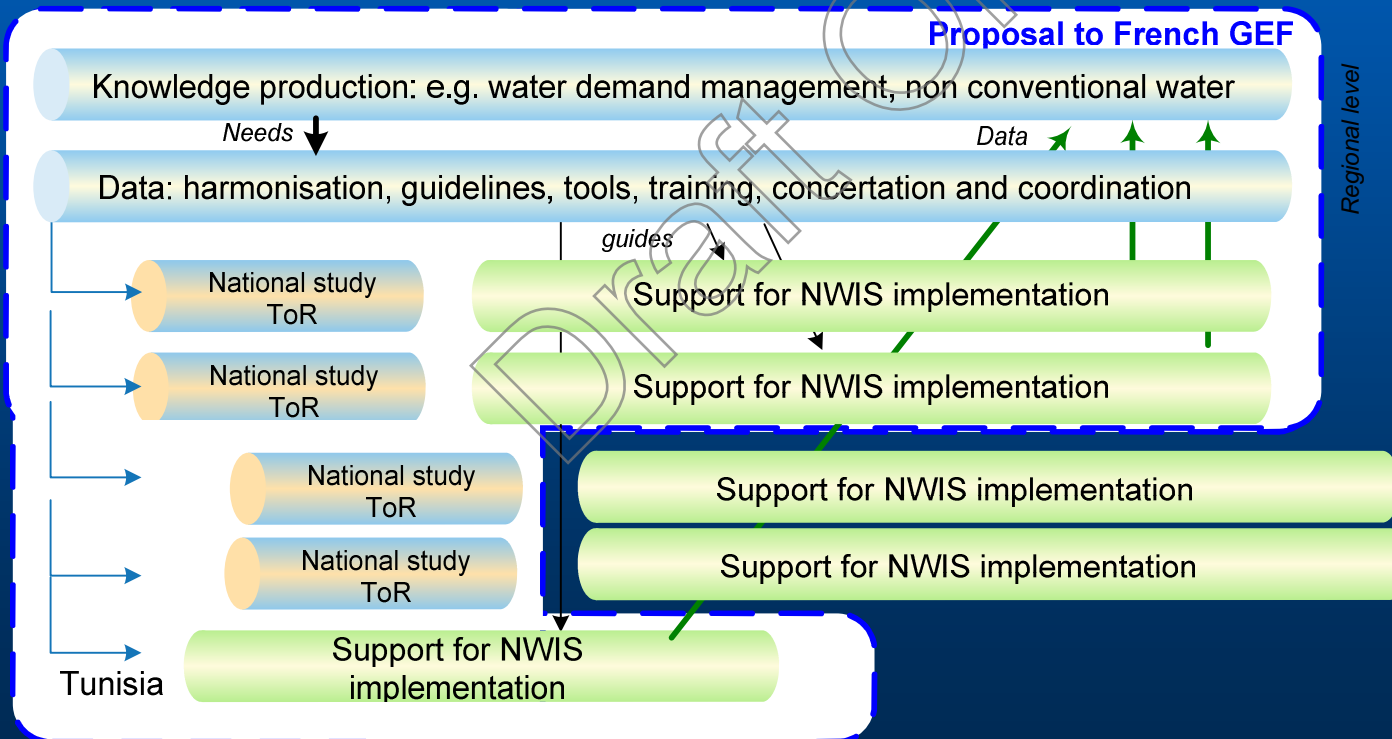# Collecting reference data sets for the Med region

- **Aim: building a reference map at the Mediterranean level, with:**
    - ❑ **River basins**
    - ❑ **Artificial reservoirs and dams**
    - ❑ **Main rivers and lakes**
    - ❑ **Aquifers**
    - ❑ **Administrative units**
- **Integration successfully demonstrated with**
    - ❑ **Some river basins GIS layers: Tunisia, Israel**
    - ❑ **EU**
    - ❑ **List of administrative units**
- **Next stage?**
    - ❑ **All river basins from voluntary/all countries?**
    - ❑ **Other reference datasets**
    - ❑ **Administrative unit layers**
    - ❑ **Provision of valid metadata for these layers**

Med water Knowledge hub:
component: « strengthening data management »

- **Response to Ministerial request**
- **Based on Med water observation mechanism study (2006-2007)**
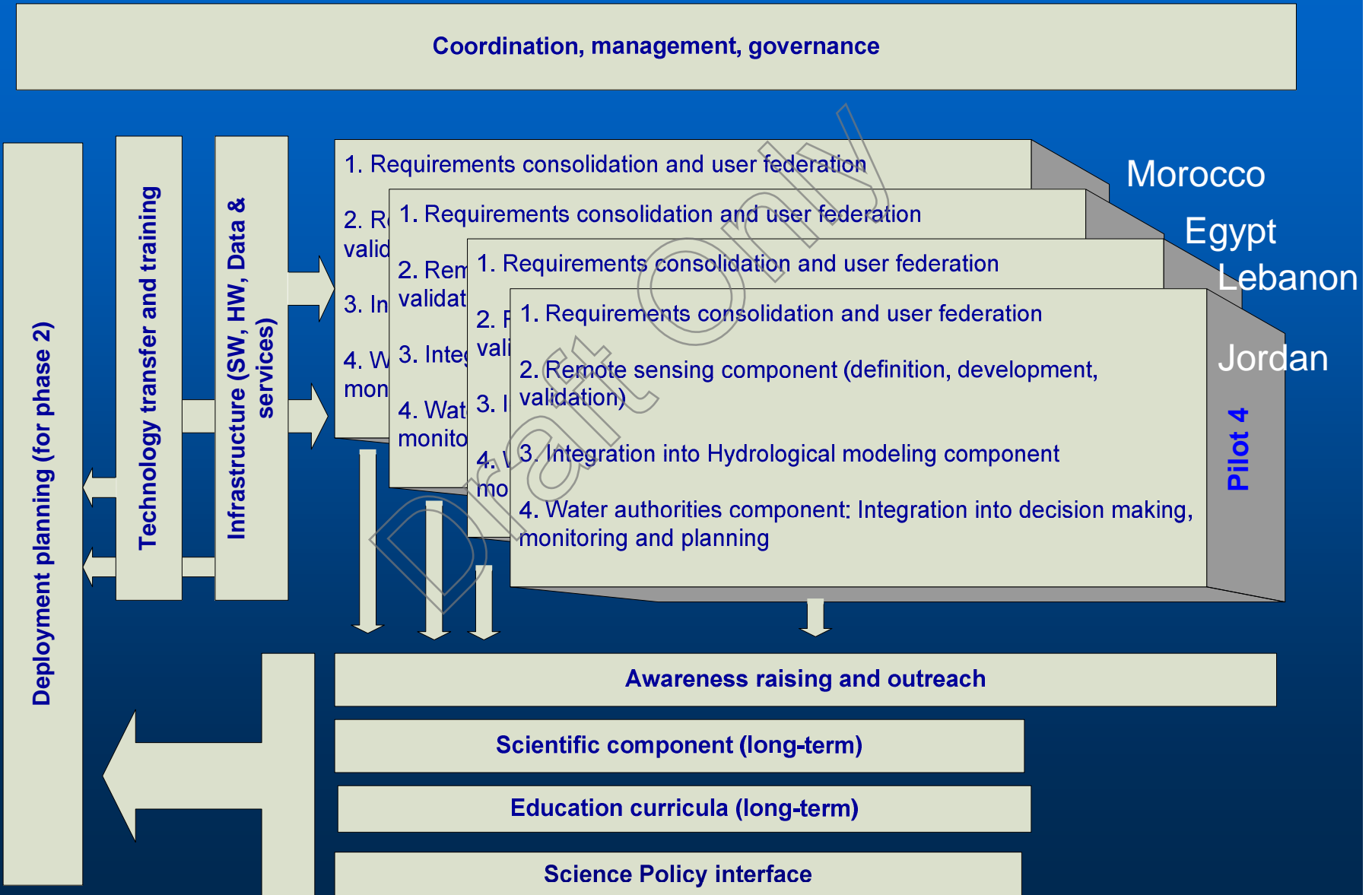- **Potential funding from French GEF:**
  - ❑ **Additional funds for NWIS implementation necessary**

Year 1   Year 2

Proposal to French GEF

Regional level

Knowledge production: e.g. water demand management, non conventional water

Needs   *Data*

Data: harmonisation, guidelines, tools, training, concertation and coordination

guides

National study ToR

National study ToR

Support for NWIS implementation

Support for NWIS implementation

National study ToR

National study ToR

Support for NWIS implementation

Support for NWIS implementation

Tunisia

Support for NWIS implementation

Capacity building programme on
Earth observation for water management (1/2)

- **Based on**
  - ❑ GMES free data policy
  - ❑ TIGER experiences (water sector applications in Africa)
  - ❑ NWIS developments
- **Priority areas:**
  - ❑ Water availability
  - ❑ Flash floods
  - ❑ Water quality
  - ❑ Water Use
  - ❑ Infrastructures & resources management
  - ❑ Base maps
- **1st phase – 3 years**
  - ❑ EMWIS, ESA and 4 pilot countries for test beds
  - ❑ Priority focus on remote sensing institutes and water authorities
  - ❑ All countries involved for concertation and dissemination

Thank you for your attention

www.semide.net

« who does what

National portals

Common taxonomy (multilingual water thesaurus)

Thematic forums/folders
Ground water, water scarcity
Water glossaries, satellite images, etc.
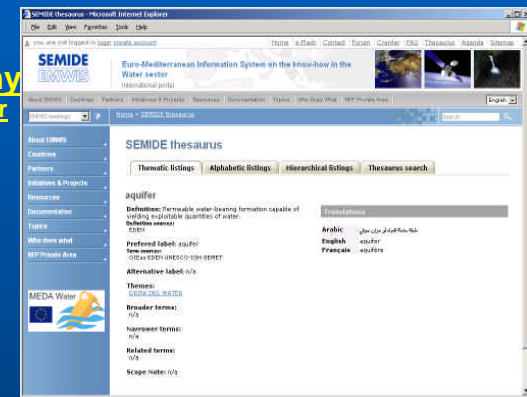
Clearing house for EU programs and initiatives
Regional water projects
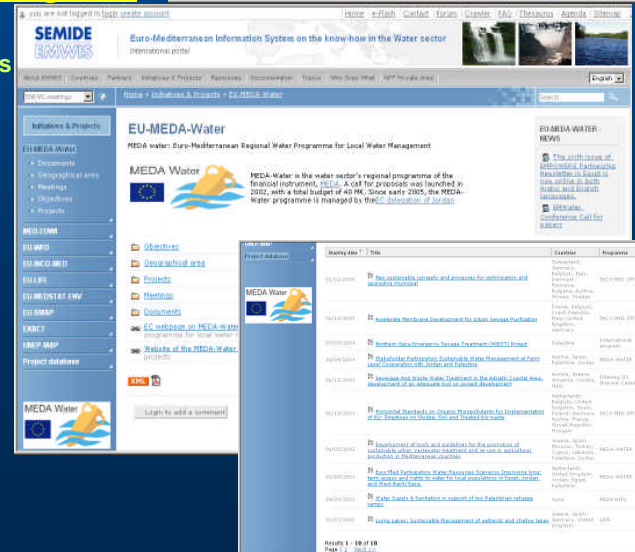
Monthly eNews Flash in Arabic, English and French