INTRODUCTION SESSION 2
"COLLABORATIVE WATER DATA MANAGEMENT FOR KNOWLEDGE DEVELOPMENT "

Regional exchange on IWRM experiences in the Mekong River Basin

15-16-17 October 2014
Vientiane, Lao PDR

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FRANCE
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Program of the session

09:00 – 09:15	**Welcome / Introduction to the session (facilitator)**
09:15 – 10:45	**Study cases presentations on data management**
	Laos
	Cambodia
	Vietnam
	China
	Myanmar ?
	Mekong River Commission
10:45 – 11:00	***Coffee break***
11:00 – 12:00	Presentation of other international examples
	Exchange, synthesis and recommendations of good practices adapted to the regional context (open discussion)
	Validation/ amendment of the **key messages** for the next World Water Forum
12:00 – 12:15	Wrap up and close **(around a glass of French wine :)**

Generalities
and main concepts
related to
water data management

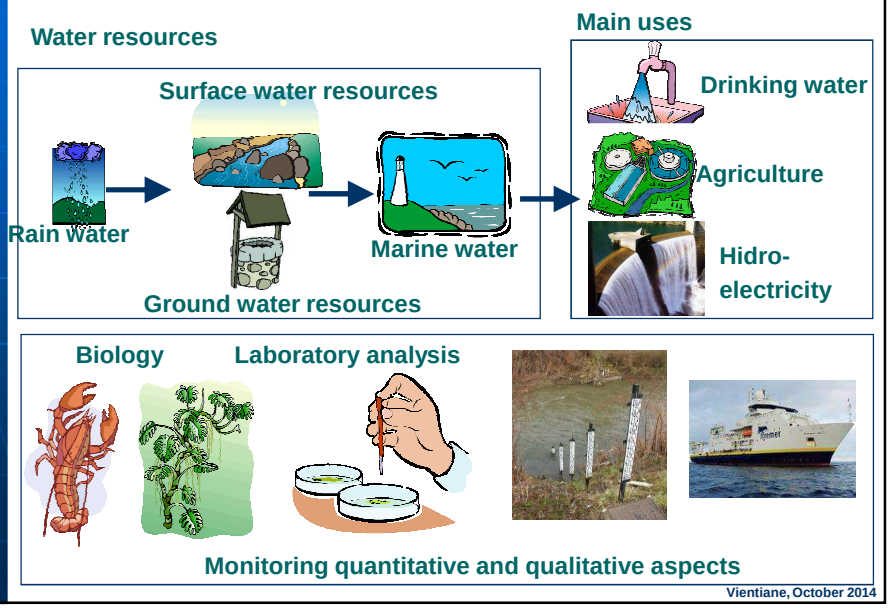
Needs for data/information/knowledge

- Efficient IWRM requires to develop the production of **information necessary to better guide water resource management decision making** for planning, assessing the impact of development project, earmarked charges, …

- **Various levels of water management with various roles**
  - **National water resource planning**
  - **Basin Water resource planning**
  - **Local operational management (Province, district, municipal level, dams operation, …)**
  - **Transboundary water management basins (Mekong)**

- **Different users of information with different needs in information for decision taking**
  - **each one requires reliable, up-to-date and relevant information on different issues (regulations, planning, risk management and public information…)**
  - **Type of information to produce are different : level of aggregation, way of processing, giving access, presenting and are different**
  - **Type of necessary basic data are different**

Multiplicity of topics and data producers



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Existing situation related to data management

- Many topic to dealt with in the basin (hydropower, irrigation, mining, water supply and sanitation, flood management, …)
- The data to elaborate necessary information is produced/managed by various organizations
- Information is **fragmented, incomplete dispersed and heterogeneous** way

=> need efforts to rationalize and make this information readable, easily accessible and available in order to produce useful information

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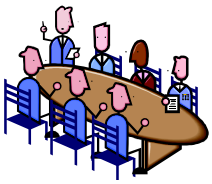
Consequences of lack of easy access to data

Information knowledge

Public

Deciders



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Developing networks of data exchange between actors

Public

Decidor

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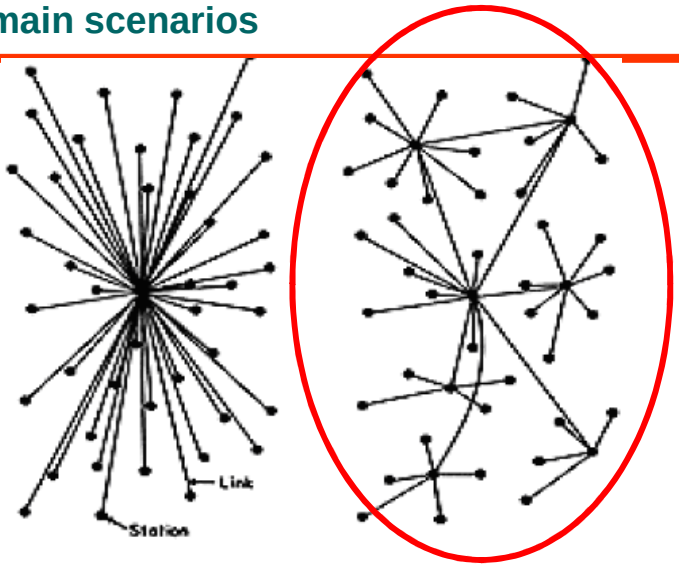
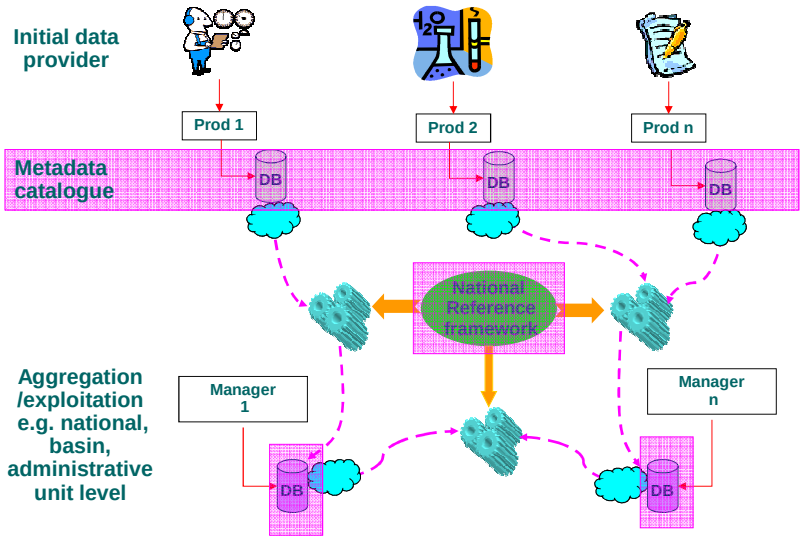
2 main scenarios



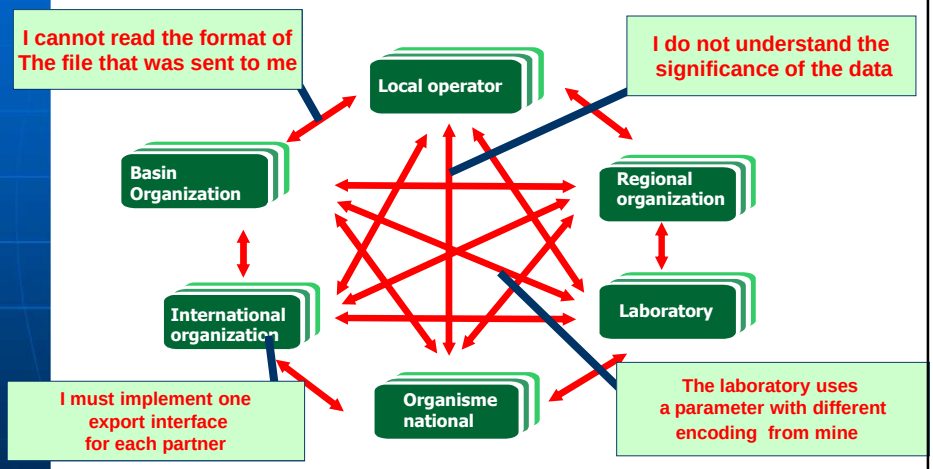
Centralised
System for all topic (ex: Basin BD)

Decentralised
and collaborative system
(i.e. per topic)

Through a collaborative approach of data management (a tendential scenario)



Some difficulties encountered with data exchange



Countries and MRC are invited to present

1/ A global indication on how is organized water data management at national level and basin level

2/ Your experience on the organization of the data collection for the basin characterization;

3/ A presentation of some example hydrological bulletin produced in Vietnam (daily or monthly bulletin on rain, hydrology....) whatever at national or local level.

Main concept: from data to knowledge

Data → **Information** → **Knowledge**

-Alphanumeric datasets
-Geographic info (vector/raster)

- Information resulting from data and geo processing
  - -Indicators/dashboards
  - -Maps, Graphs
  - - Directories,
  - - Bulletins, warning info ....
- Other information
  - -Documents
  - -News
  - -Opinions (forum)
  - -Pictures, video, ...

- Synthesis and multimedia dissemination (paper, on line, video...) of knowledge adapted to the target:
-Deciders
-Experts
-Public
-...

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Main steps generaly considered from data production to information dissemination

Production and first validation of raw data

Data collection

Data processing and 2nd quality control

Information production

Dissemination

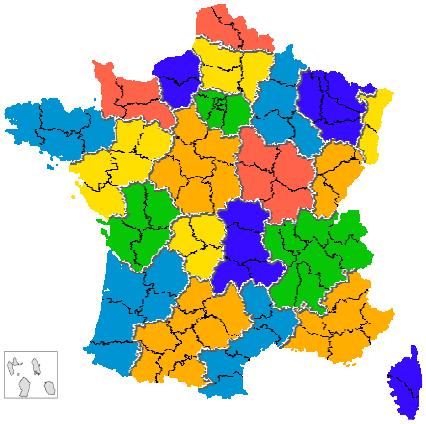
Study case of the French Water information system

"Applying the principle of free and public access to water related data and organizing the institutional links/interoperability of systems and data exchanges procedures between national and local organizations"

http://www.eaufrance.fr/

Administrative organization of the water management sector in France

22 regions /100 departments/ more than 36000 municipalities



6 basin agencies

Portal of the French national Water Information system

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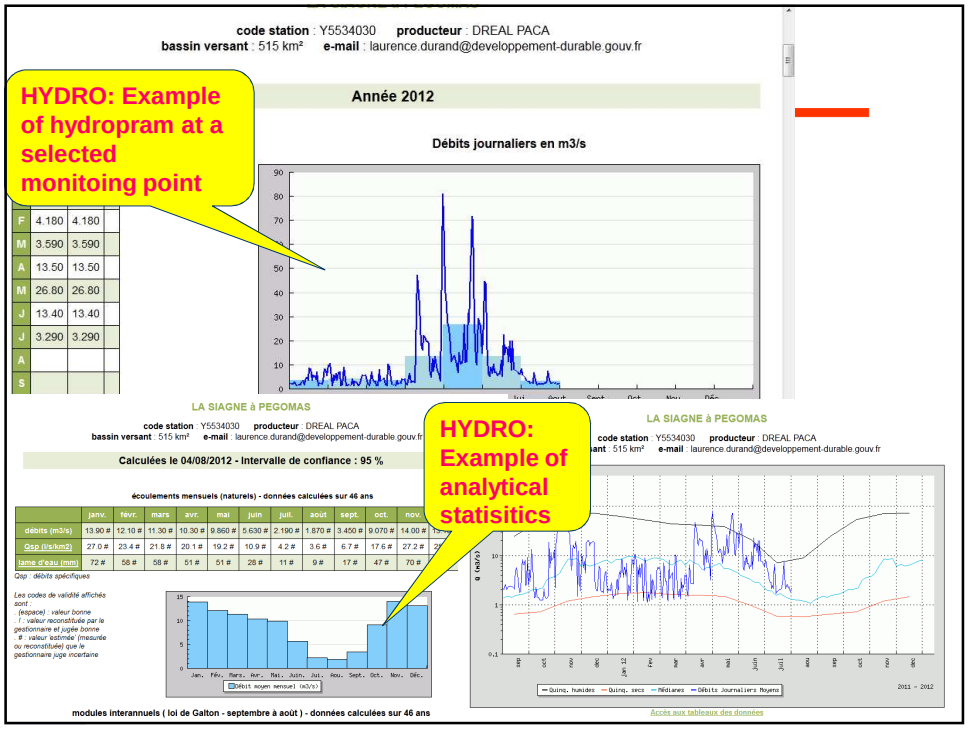
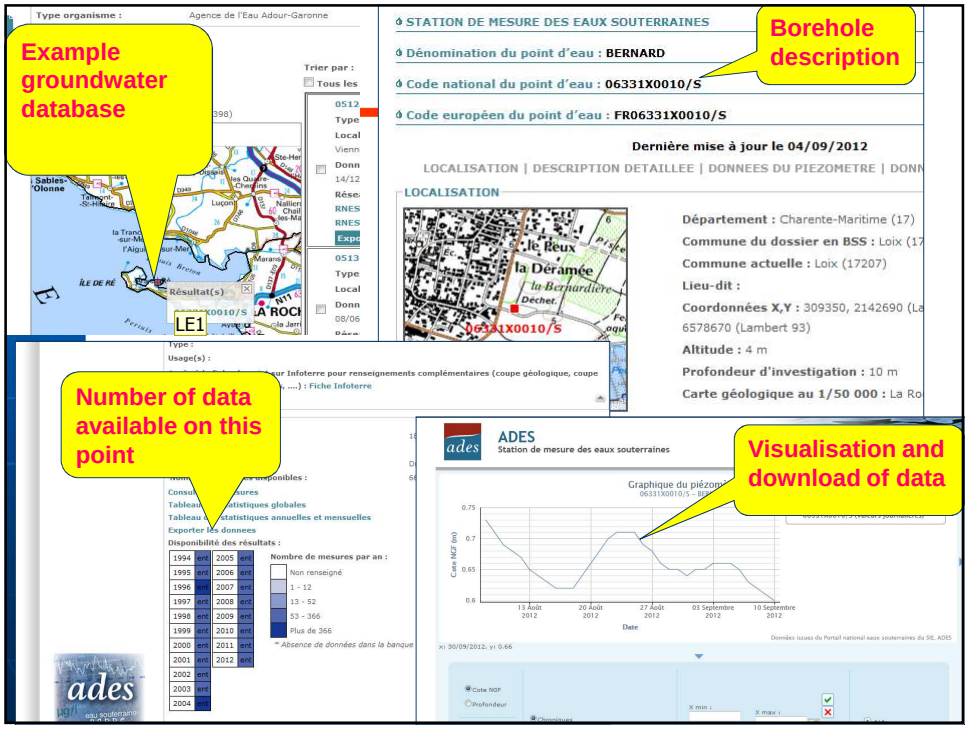
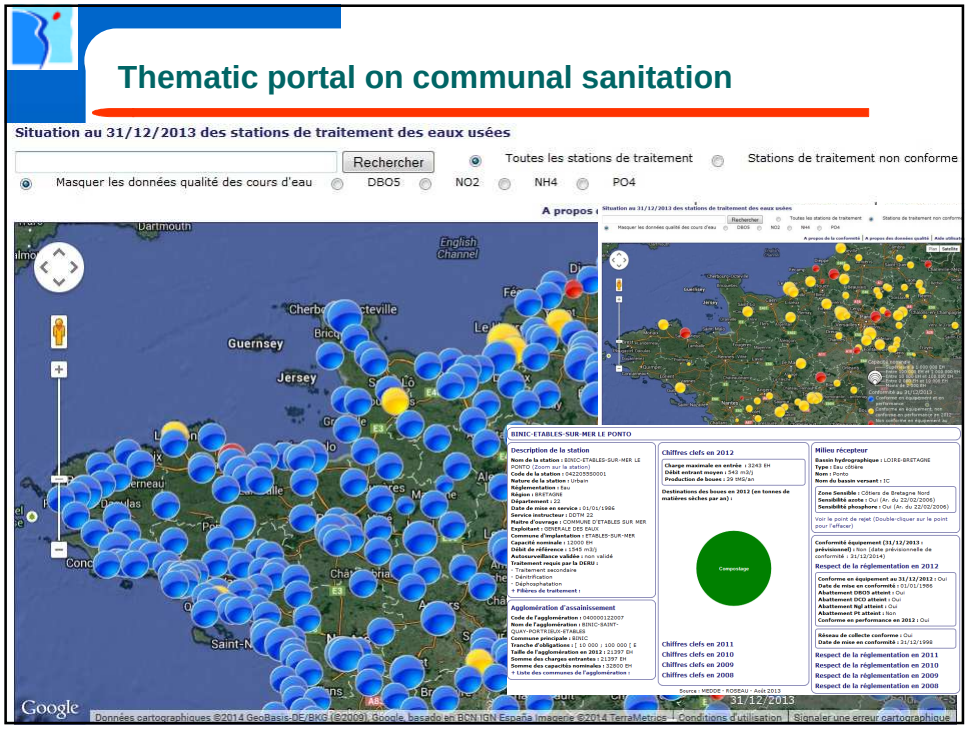



Example groundwater database
Borehole description
Number of data available on this point
Visualisation and download of data
STATION DE MESURE DES EAUX SOUTERRAINES
Dénomination du point d'eau : BERNARD
Code national du point d'eau : 06331X0010/S
Code européen du point d'eau : FR06331X0010/S
Dernière mise à jour le 04/09/2012
LOCALISATION | DESCRIPTION DETAILLEE | DONNEES DU PIEZOMETRE | DONN
LOCALISATION
Département : Charente-Maritime (17)
Commune du dossier en BSS : Loix (17
Commune actuelle : Loix (17207)
Lieu-dit :
Coordonnées X,Y : 309350, 2142690 (La
6578670 (Lambert 93)
Altitude : 4 m
Profondeur d'investigation : 10 m
Carte géologique au 1/50 000 : La Ro
ADES
Station de mesure des eaux souterraines
Disponibilité des résultats :
Nombre de mesures par an :
Non renseigné
1 - 12
13 - 52
53 - 366
Plus de 366

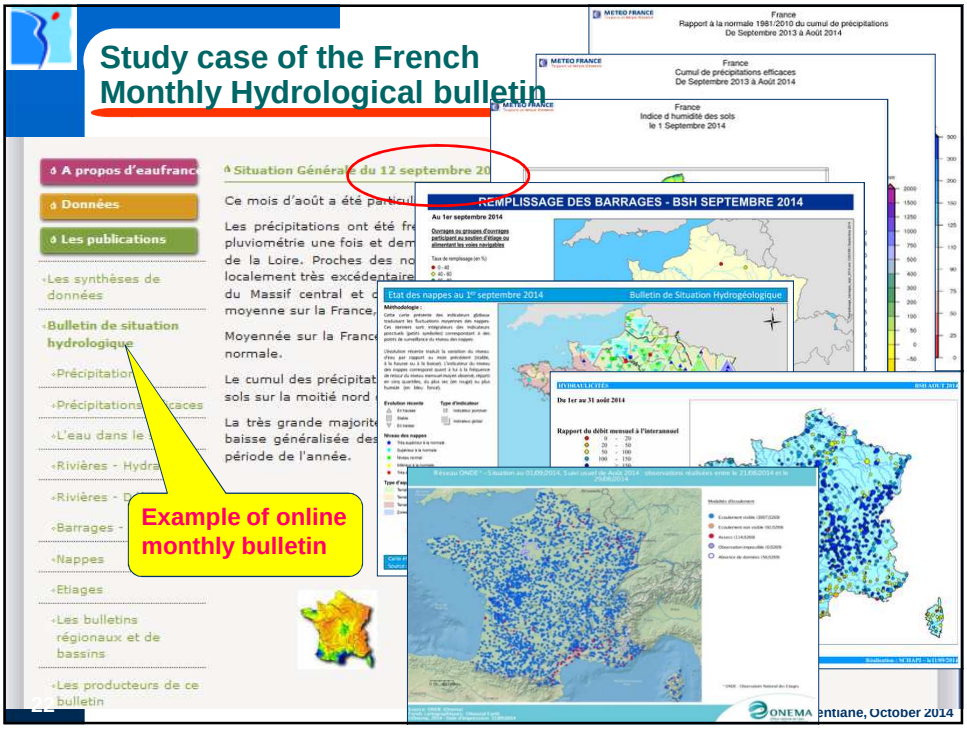

Thematic portal on communal sanitation
Situation au 31/12/2013 des stations de traitement des eaux usées
Rechercher
Toutes les stations de traitement
Stations de traitement non conforme
Masquer les données qualité des cours d'eau
DBO5
NO2
NH4
PO4
Guernsey
Jersey
Google
31/12/2013

Slide 19

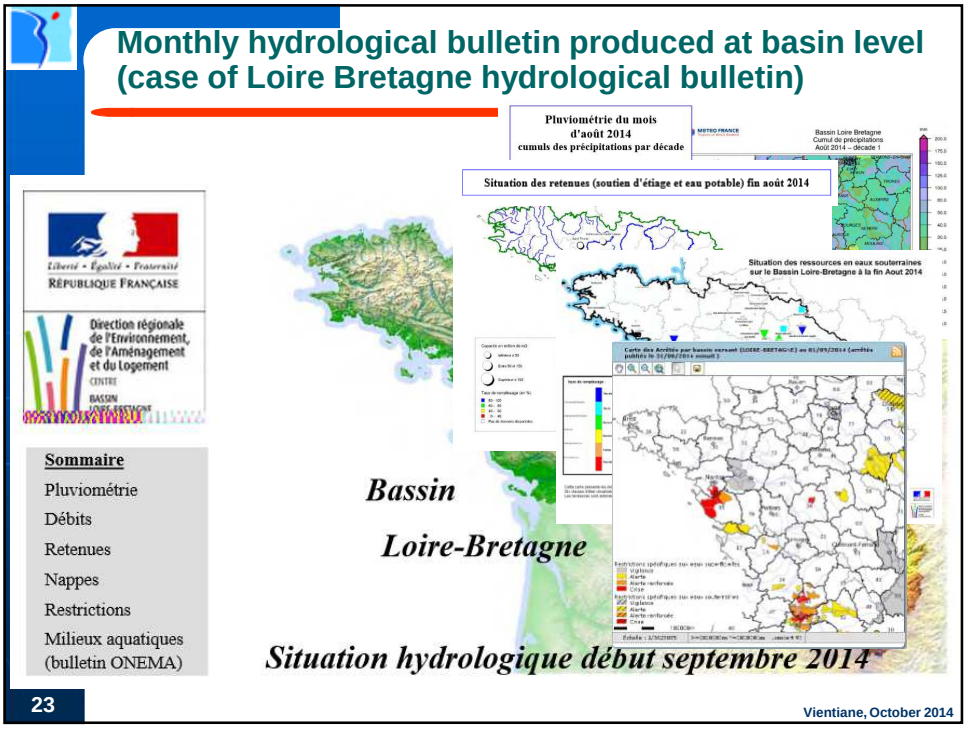
LE1 Número
Lictevout, Elisabeth; 24/09/2012

Application of the collaborative water data management principles for Hydrological bulletin production

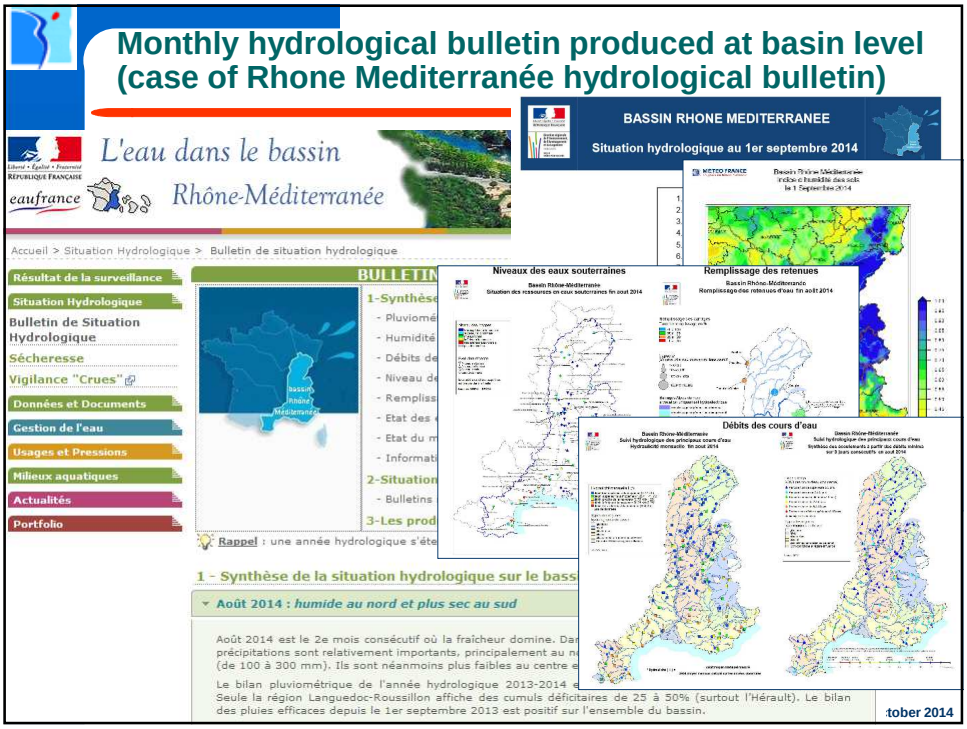
Study case of the French Monthly Hydrological bulletin



Monthly hydrological bulletin produced at basin level (case of Loire Bretagne hydrological bulletin)



Monthly hydrological bulletin produced at basin level (case of Rhone Mediterranée hydrological bulletin)

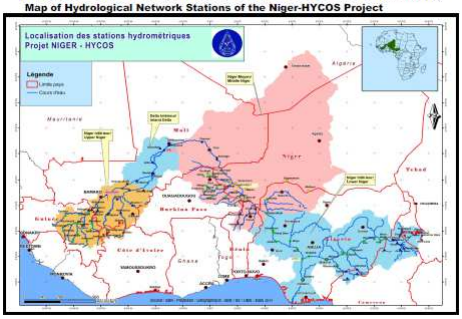


Other study cases

Case of Monthly bulleting on niger river

AUTORITE DU BASSIN DU NIGER		NIGER BASIN AUTHORITY
Projet Niger-HYCOS		Niger-HYCOS Project
Bulletin Mensuel juin 2014		June 2014 Monthly Bulletin

FIG.1 : CARTE DE LOCALISATION DES STATIONS DU RESEAU NIGER-HYCOS/
Map of Hydrological Network Stations of the Niger-HYCOS Project



2.0 ANALYSE DES ECOULEMENTS

2.1 Niger Supérieur

Le volume total écoulé à Koulikoro, du 1er au 30 juin 2014 est de 0.54 milliards m³. Le débit maximum mensuel de 478 m3/s a été observé le 23 juin et le minimum de 198 m3/s le 01 juin 2014 (fig. 2 et Tableau 2).

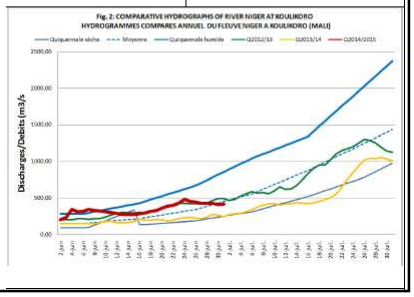
Le débit moyen mensuel en juin 2014 était de 343m³/s.

2.0 DETAILED FLOW ANALYSES

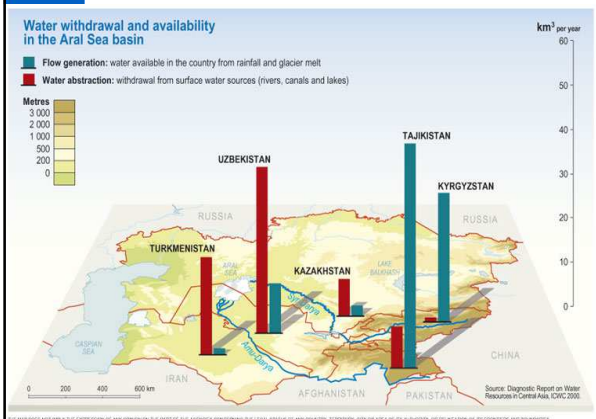
2.1 Upper Niger

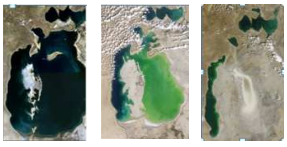
The total flow volume at Koulikoro, from 1st to 30th June 2014 was about 0.54 billion m3. A maximum flow of 478 m³/s is observed on 23th June and a minimum of 198 m3/s recorded on 1st June 2014 (Fig. 2 and Table2).

The mean monthly flow in June 2014 is 343 m³/s.



Central Asia: Aral Sea Basin

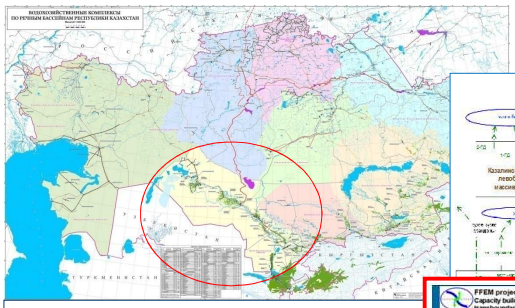




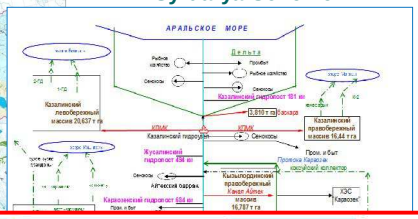
Aral sea: 1989/2000/2012

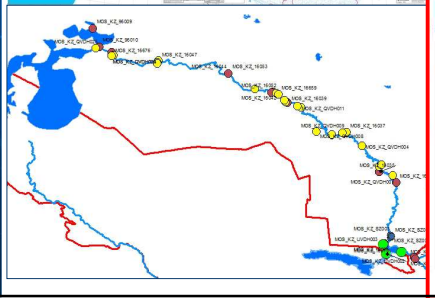
Specific action in Kazakhstan

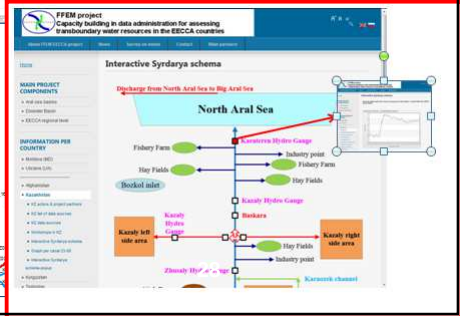
Reinforcing water information system on the Syrdarya



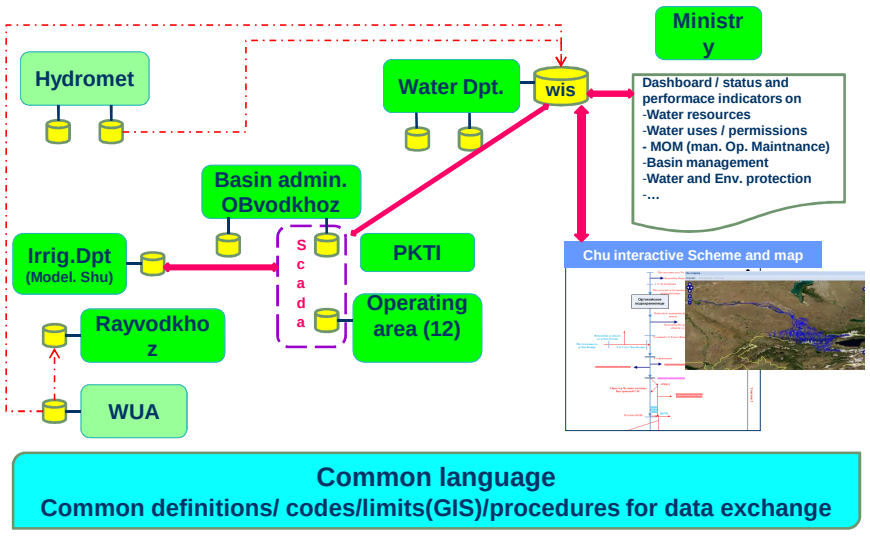
Syrdarya Scheme







Application to the Chu Basin (surface water QTT data)



Common language
Common definitions/ codes/limits(GIS)/procedures for data exchange

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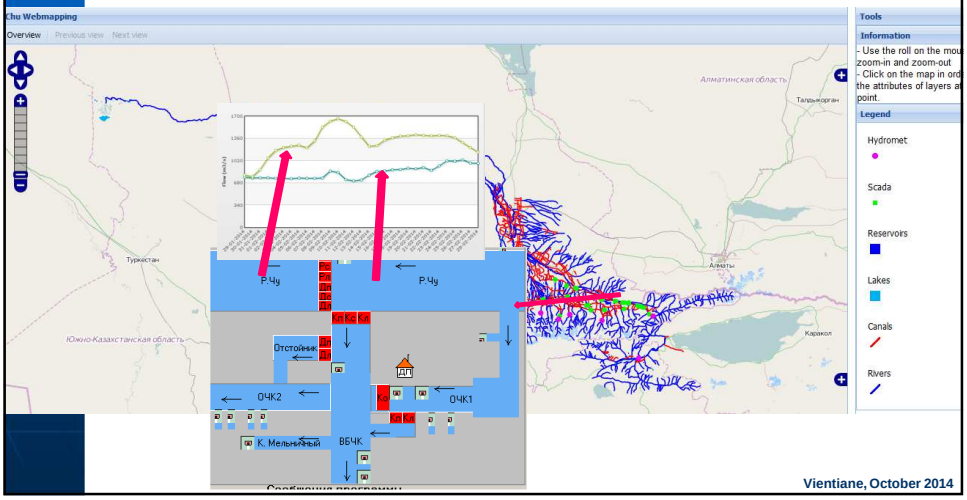
Interactive map on the Chu river transboundary basin (Kyrgyzstan /Kazakhstan)



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First draft regional bulletin in central asia

Aral Sea Basin
Bulletin related to water management
Coordinated by EC-IFAS
with the support of the FFEM-EECCA project, UNRCCA and UNDP

UNRCCA

ГИДРОЛОГИЧЕСКИЙ БЮЛЛЕТЕНЬ
ПО РЕКЕ СЫРДАРЬЯ
Бюллетень № 1, октябрь 2011 г.
(проект)

HYDROLOGICAL BULLETIN
ON THE SYRDARYA RIVER
(draft version)
Bulletin n°1 - October 2011

СОДЕРЖАНИЕ

ПРЕДИСЛОВИЕ.....
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III. РЕКА КАРАДАРЬЯ И АН ВОДОХРАНИЛИЩЕ.....
IV. СРЕДНЯЯ ЧАСТЬ РЕКИ С ВОДОХРАНИЛИЩЕ.....
V. ШАРДАРИНСКОЕ ВОДОХ ЧАСТЬ РЕКИ СЫРДАРЬЯ ....

I. ОБЩЕЕ СОСТОЯНИЕ

После исключительно многоводного 2010 года основные водохранилища (Токтогульское, Андижанское, Кайраккумское) были наполнены водой среднемноголетних значений. Такой запас воды в водохранилищах сложил водохозяйственную обстановку в верхнем и среднем течении реки Сырдарьи.

В весенне-летний период 2011 года в зоне формирования речного стока отмечалась маловодье, которое существенно повлияло на режим работы основных водохранилищ и водохозяйственную обстановку в бассейне реки Сырдарьи.

Наиболее критическая водохозяйственная ситуация сложилась в нижнем течении реки Сырдарьи - приток воды в Шардаринское водохранилище был самым низким за весь ряд наблюдений. Приток воды в Малый Арал был низкий.

Расположение гидропостов указано на рисунке ниже.

I. GENERAL TRENDS

After exceptionally high water availability in 2010 the major water reservoirs (Toktogul, Andijan, and Kairakkum) were filled up and water level was higher than the average annual indicators. Such reserves of water mitigated risks related to water management situation in the upstream and midstream of Syrdarya river.

During the spring and summer of 2011 water scarcity was observed in the area of river water formation. This significantly affected the regime of work of major water reservoirs and water management in the basin of Syrdarya river.

The most critical situation in water management was observed in the lower part of Syrdarya river – inflow to Shardara water reservoir was the lowest for the entire series of observations, and inflow to Small Aral sea was very low.

Location of stations included is shown in the map below.

II. РЕКА НАРЫН И ТОКТОГУЛЬСКОЕ ВОДОХРАНИЛИЩЕ

Пик половодья на реке Нарын наблюдался на конце июня. С июля шло плавное снижение водности реки с 970 до 330 м³/с к концу сентября. В период июль-октябрь водность реки Нарын была ниже среднемноголетних значений.

Сбросы воды из Токтогульского водохранилища с конца июня до середины августа возрастали и были больше среднемноголетних значений. Затем сбросы воды были снижены до 190-280 м³/с, что меньше среднемноголетних значений.

Происходило постепенное наполнение водохранилища до проектного объема (19500 млн.м³)

На основании анализа гидрометеорологической ситуации приток воды в Токтогульское водохранилище в невегетационный период 2011-212 гг. ожидается 153% в 4 квартале 2011 г. – 152% в октябре 2011 г. – 157% от нормы.

II. NARYN RIVER AND TOKTOGUL WATER RESERVOIR

The peak of water overflow in Naryn river was observed in the end of June 2011. From July the runoff started to decrease and in the end of September reached from 970 to 330 m³/s. During the period of July-September the water runoff in Naryn river was lower than the annual average indicators.

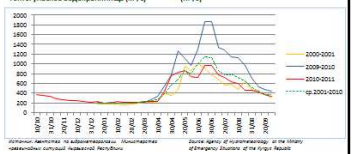
The outflow from Toktogul reservoir was increasing gradually during June and mid of August and reached the level higher than the average annual indicators. Then outflow was reduced up to 190-280 m³/s, which is lower than the average annual indicators.

The reservoir was filling up gradually reaching the projected volume (19500 Mm³).

Based on the analysis of hydrometeorological situation, the inflow to the Toktogul reservoir in the non vegetation period 2011-212 is expected 153%, in 4th quarter 2011 – 152%, in October 2011 – 157% of normal.

 # KG16936 р. Нарын – приток в Токтогульское водохранилище (м³/с)

 # KG16936 Naryn River – Inflow to Toktogul (m³/s)



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Example of radar images processing

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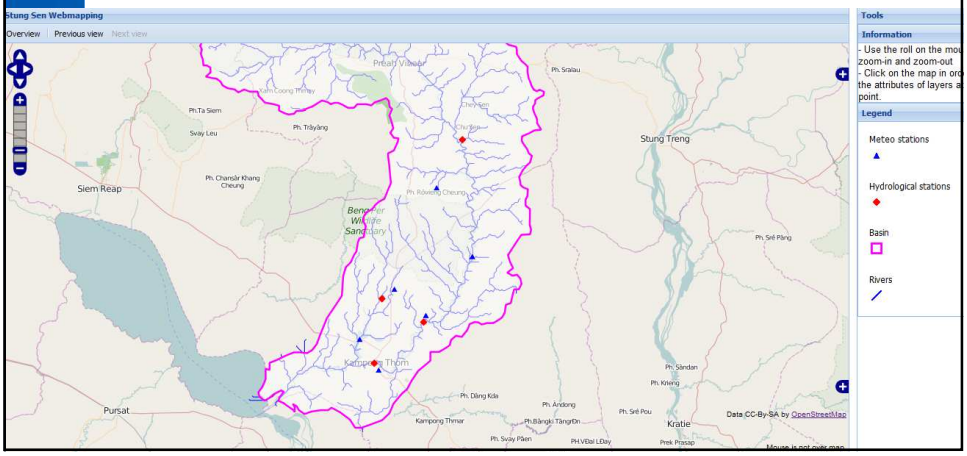
Monitoring station on Stung Sen Basin

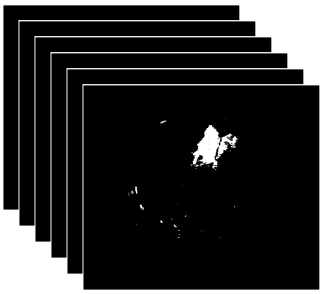
- 4 hydrological station
- 6 Pluvio stations



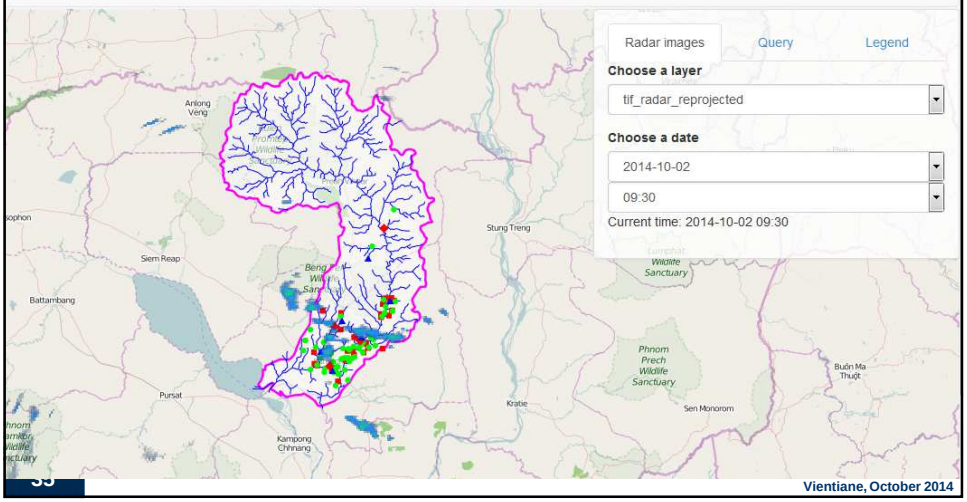
SRI image produced by the radar (MoWRAM)

- Each 15 mn the radar system managed by the "Meteorology Department" of the MoWRAM produces a raster image of Surface Intensity Rainfall (SRI)

=> 96 images per day (stored on a server since may 2014)

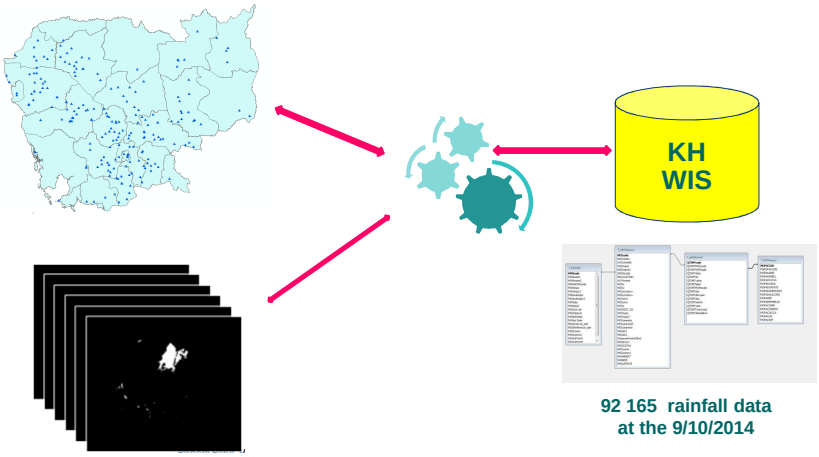


Visualization of radar images



First processing of SRI images

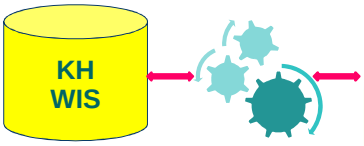
- Calculation of rain at the point of all located pluviometric station in Cambodia

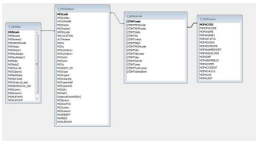


92 165 rainfall data
at the 9/10/2014

First exploitation of database

- Production of a pluviometrical bulletin automatically send by mail

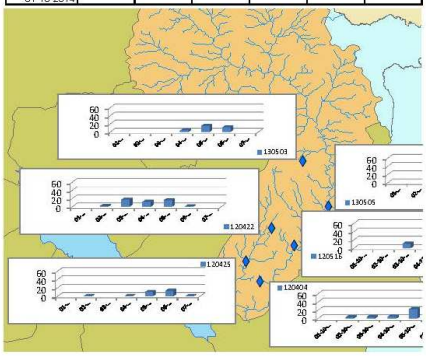




92 165 rainfall data
at the 9/10/2014

Daily bulletin of the pluviometry on the Stung Sen basin in Cambodia
Values in mm of rain estimated from the MOWRAM radar images

Date	Pluviometric station code					
	120404	120422	120425	120516	130503	130505
07-10-2014						
06-10-2014	4	1	13		11	3
05-10-2014	23	16	10	11	15	19
04-10-2014	5	12	1	5	4	
03-10-2014	4	17		11		
02-10-2014	3	2	1			
01-10-2014						



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4

Cambodia: Support to data management and integration of tools in the Tonle Sap basin Authority portal

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Vientiane, October 2014

Global methodology

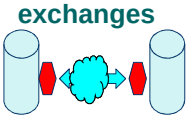
Concertation between partners

Protocol of agreement

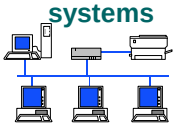
Common Language

SANDRE

Developing scenarios of data exchanges



Developing Interoperability between information systems



Exchange, processing of data valorisation and dissemination of useful information

Thank you for your attention

For more information

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