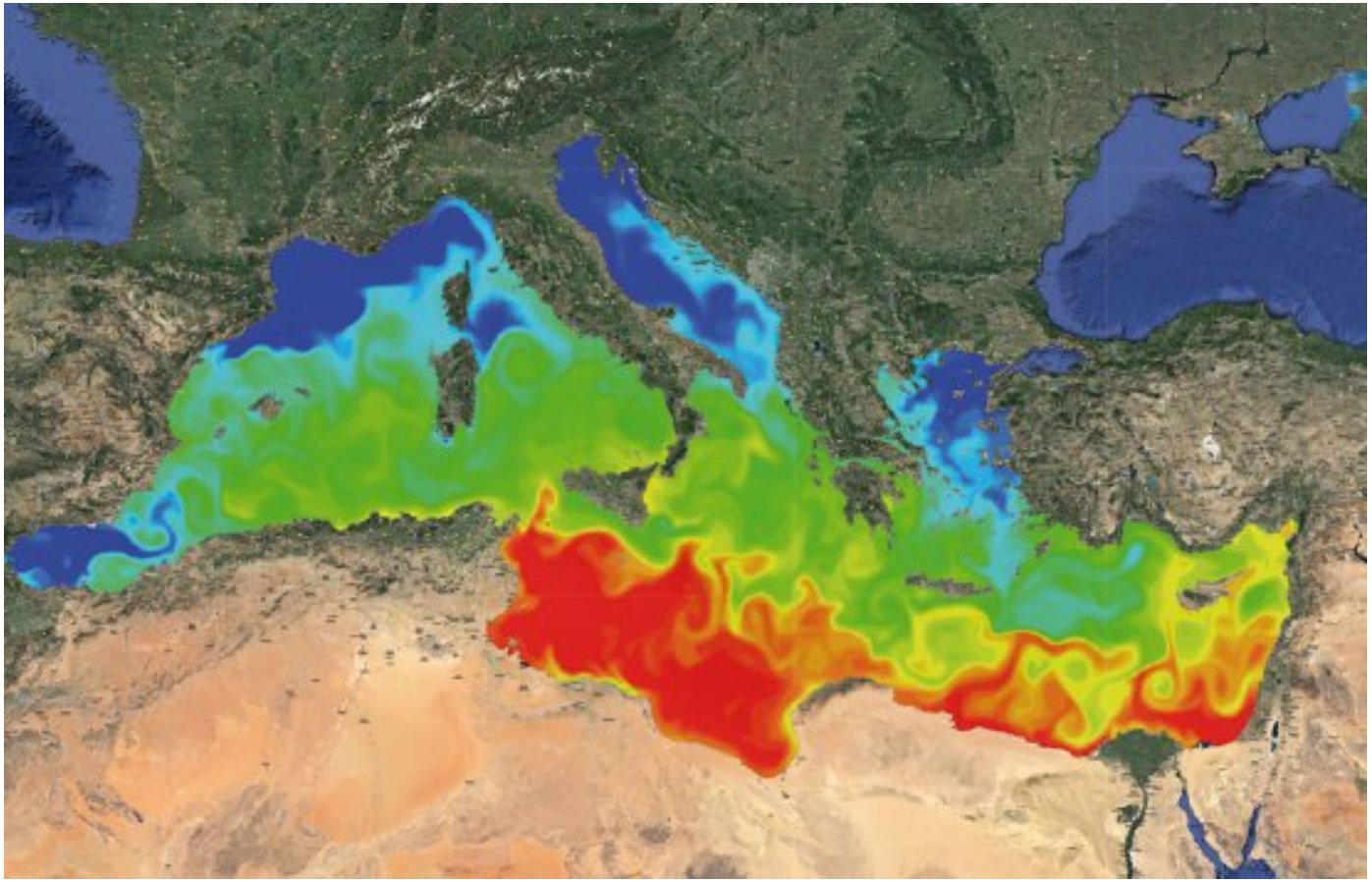
The Arno River Basin Authority

3rd Meeting of the OECD Water Governance Initiative
28-29 April 2014
Madrid
Spain

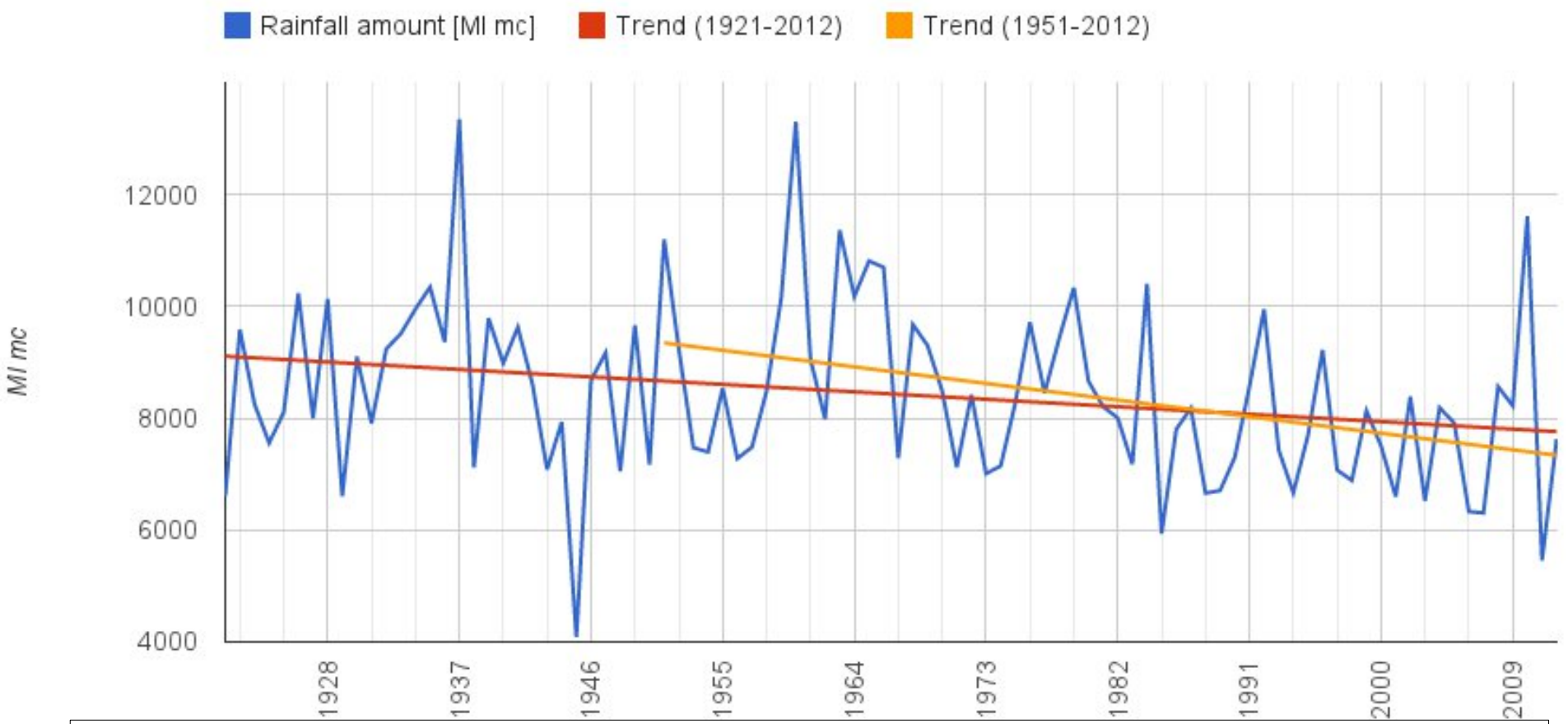
Governance principles and indicators targeted to the Mediterranean area:



Modelling of temperature anomalies in the Mediterranean Sea

Efficient water management in the Mediterranean area can be achieved only facing issues like: rainfall variability, seasonal water scarcity and drought phenomena, high vulnerability to extreme weather events.

Current Climate Change has already had a wide range of impacts and is putting water managers and decision makers to the test. This situation is likely to exacerbate in the future

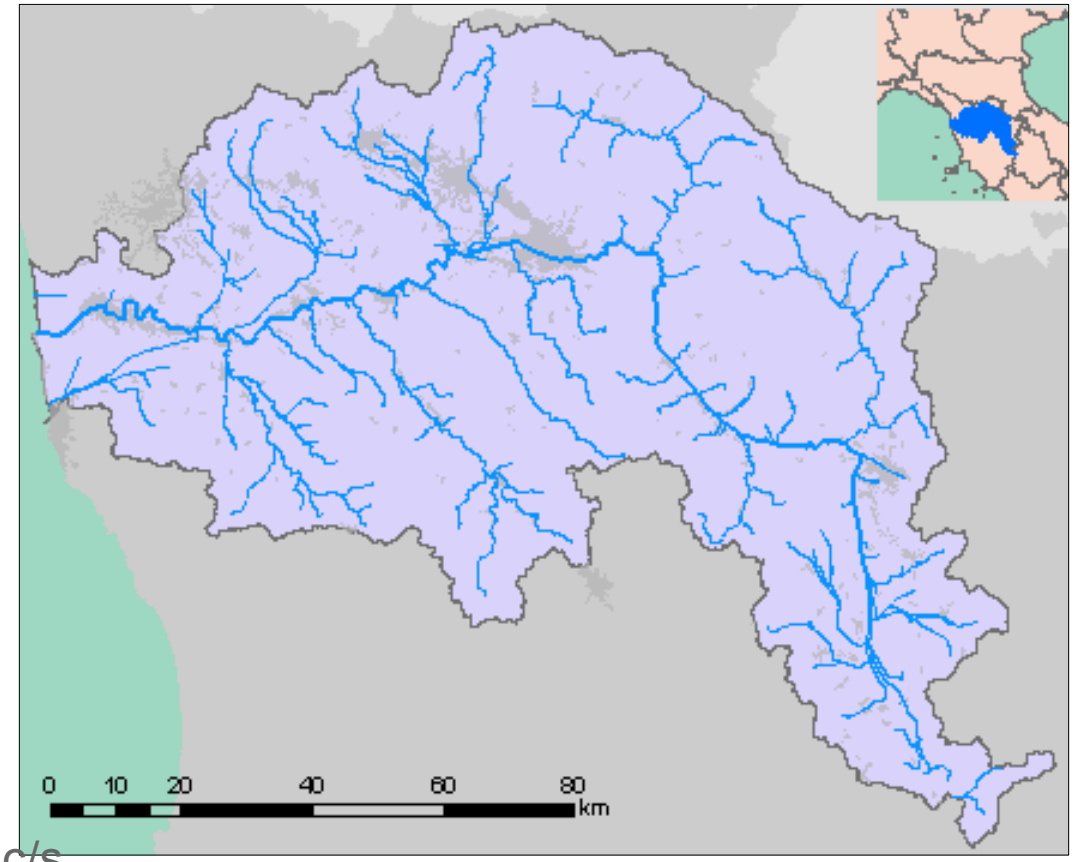


Arno River Basin: Decrease of rainfall in the Arno River Basin, trend assessed on historical time series of 60 and 90 years.

By 2050 almost all Mediterranean regions will face severe water stress (OECD “Environmental Outlook). Guaranteeing an adequate quantity of water of good quality for all uses is at the core of water management practices.
Our experience shows that efficient water resource management is possible only through a detailed and updated water balance knowledge. On this basis, it is possible to identify, develop and share with all actors involved in the water cycle mangement, quantitative indicators not only to measure and tackle critical situations but also assess the efficiency of measures

Definition of the **hydrological balance** and **Environmental Flow:**

•Management of **withdrawals** and **releases**, including reduction of licensed abstraction volumes, ensuring environmental protection (i.e. respect of EF) and water uses optimization.



Basin surface: 8282 sq. km
Population: 2.200.000 inhab.
Min daily avg. discharge (2011): 6 mc/s
Max daily avg. discharge (2011): 740 m/s

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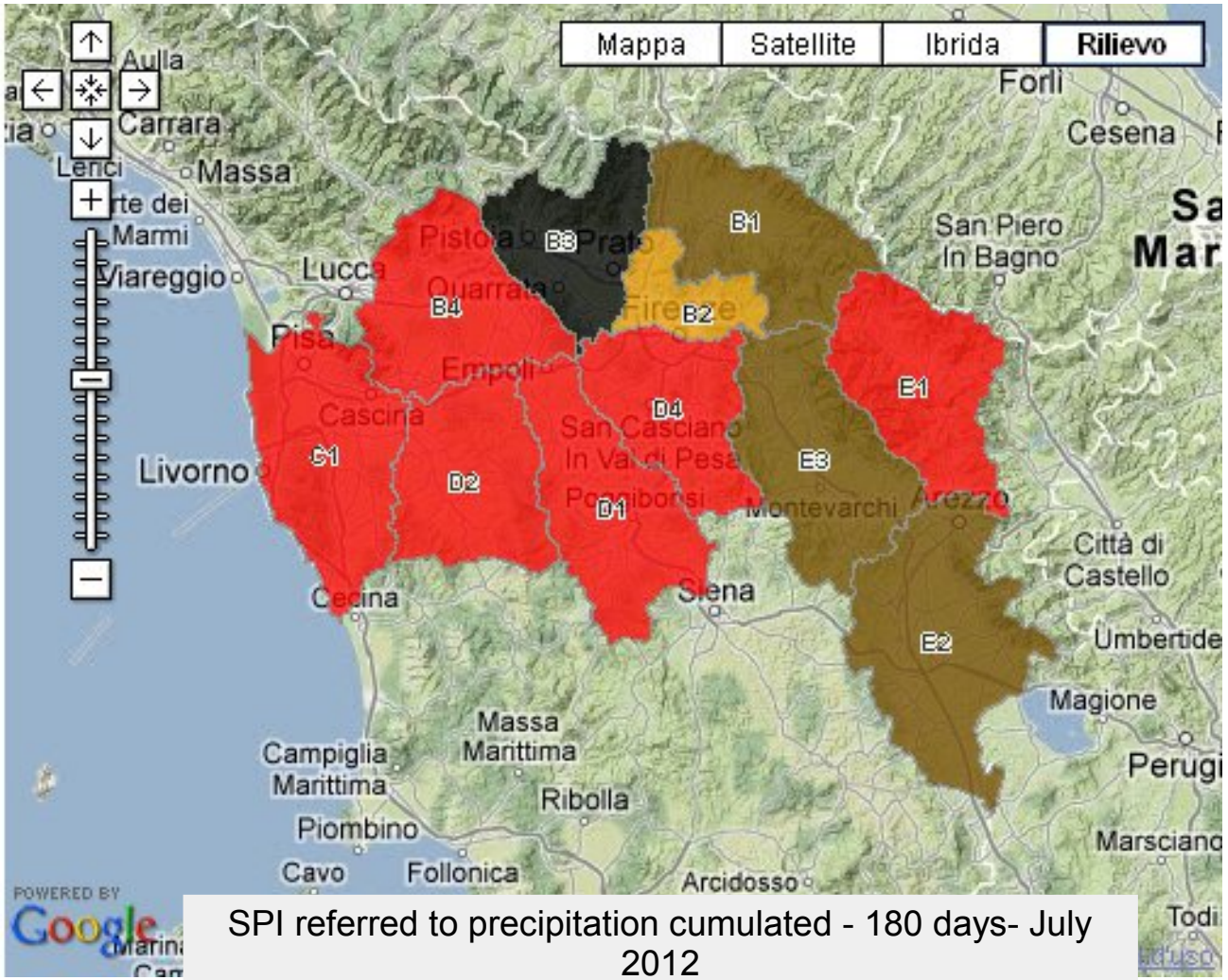
Indicator #1

Standard Precipitation Index
evaluated at subbasin scale

SPI Index scale
- exceptionally dry
- extremely dry
- severly dry
- moderately dry
- abnormally dry
- near normale
- abnormally moist
- moderately moist
- severly moist
- extremely moist
- exceptionally moist



SPI referred to precipitation cumulated - 180 days- July 2012

Early recognition of critical metereological conditions

Weak information of effective water resources availability

No information related to water uses and water scarcity conditions

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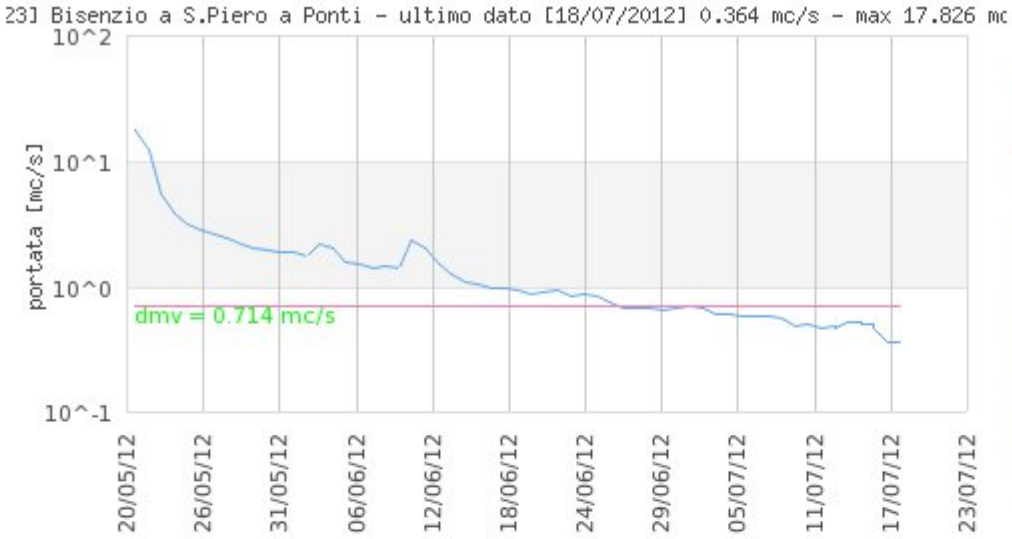
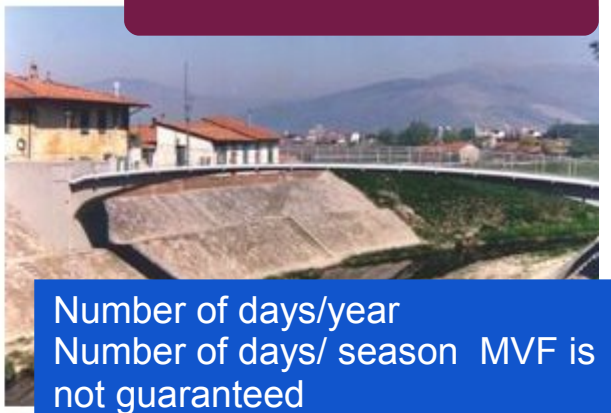
Indicator #2

River stage gauge





Number of days/year
Number of days/ season MVF is not guaranteed

Basin plan, "Hydrological balance"

Code	Hydrological criticity level	Constraints	Localization
[4012] bisenzio	C4 - Interbacini a deficit idrico molto elevato	Art. 20, Art. 24	

Detailed information of effective water resources availability

River Basin Management Plan (Dir. 2000/60/CE)

Water body	Category/Naturw	Global ecological status	Good status in...
[CI_N002AR083fi3] FIUME BISENZIO VALLE	Fiumi (Naturale)	scadente	2021

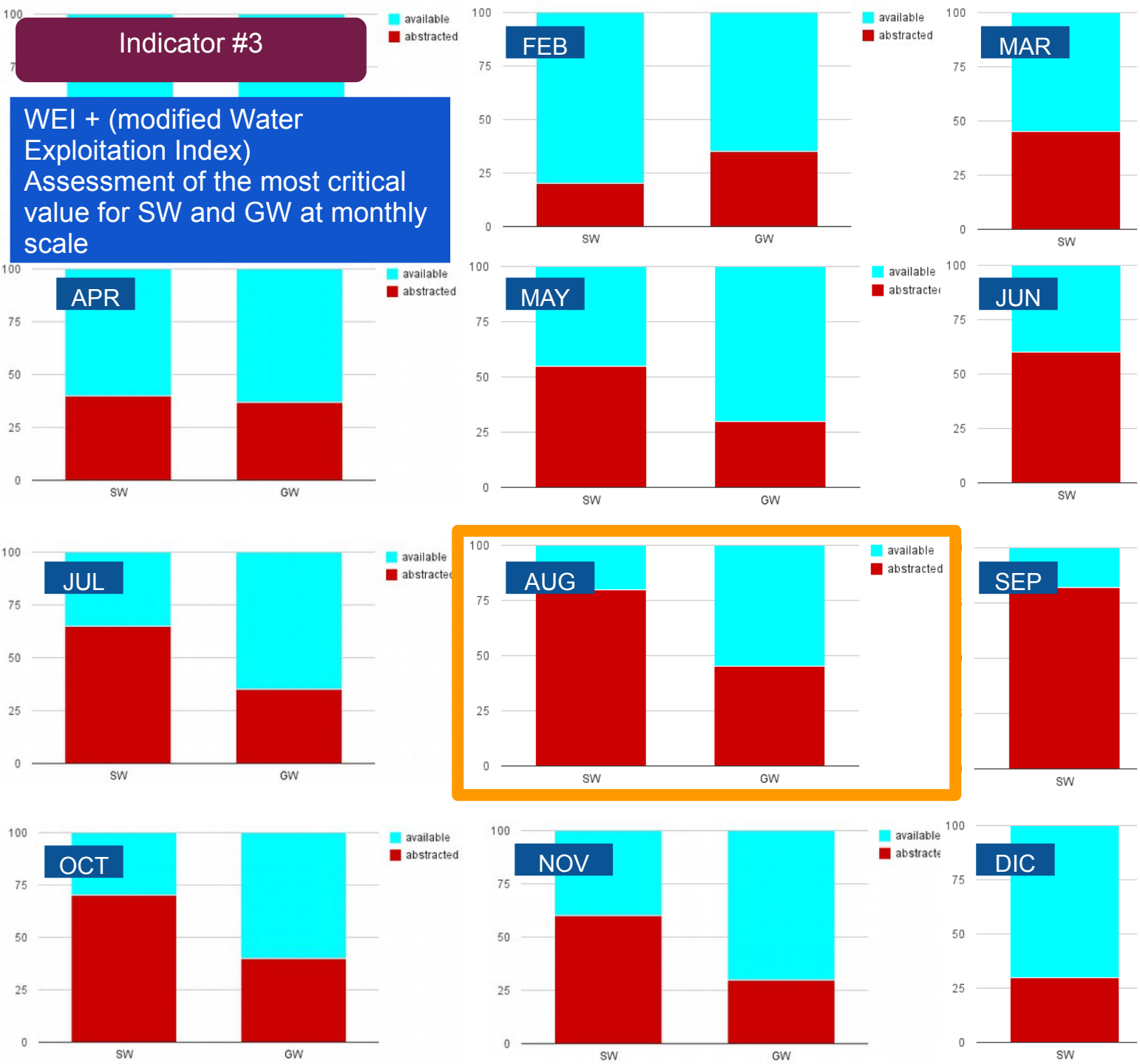
Localization

Mappa

Weak information related to water uses and water scarcity conditions

Indicator #3

WEI + (modified Water Exploitation Index)
Assessment of the most critical value for SW and GW at monthly scale



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Precise identification of seasonal critical conditions

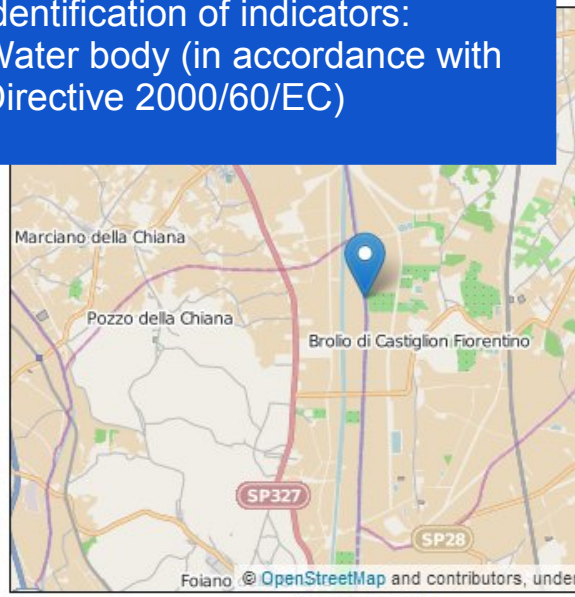
Reliable information of effective water resources availability

Information directly related to water uses and water scarcity conditions

Waterbody sheet

General Information	Code	CI_N002AR058ca
	WISE code	IT09CI_N002AR058ca
	WB Name	CANALE MAESTRO DELLA CHIANA
Localization	Subunit	ARNO
	Region	TOSCANA
	Basin	Arno
	Sub-basin	Chiana
Characteristics	Category	Fiumi
	Type	999
	Nature	Artificiale
	Basin area [skm]	1189.5
	Directly drained area [sq. km]	88.7
Links	Protected areas	IT5180013 (SIC) IT5190008 (SIC) ZVN001 (ZVN) ASE018 (ASENS)
	Upstream WB	[CI_N002AR456fi], [CI_N002AR774fi], [CI_N002AR345ca], [CI_N002AR569fi], [CI_N002AR371fi], [CI_N002AR365fi], [CI_N002AR368ca], [CI_N002AR374fi], [CI_N002AR372fi], [CI_N002AR004ca] ... Total number of upstream water bodies: 62
	Downstream WB	[N002AR003IN]

Reference scale for the identification of indicators: Water body (in accordance with Directive 2000/60/EC)



See a larger map

Note: this is a sample map. More precise geographical localiz waterbody can be visualized on the specific web GIS map

Pressures

	1	2	3	4	5	6	7	8	9	10
Direct pressures						6				
Total pressures										10
Environmental status 2009										
Environmental status 2012										

UWWT	Industrial	Urban	Agricultural
Transport	Abstraction	Reservoir	Phys.Alter.

Waterbody sheet

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Basin	Arno
Sub-basin	Chiana

Pressures

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UWWT	Industrial	Urban	Agricultural
Transport	Abstraction	Reservoir	Phys.Alter.

Environmental status

Status	2009	2012	2015
	sufficiente	scadente	

Water balance

Monitoring: 09S1274, TOS01004521, 09S1275 — ECO+ CHIM- — WEI+ > 0.8

Good status objective by: 2015 | 2021 | 2027

Programme of Measures

UWWT	Industrial	Urban	Agricultural
Transport	Abstraction	Reservoir	Phys.Alter.

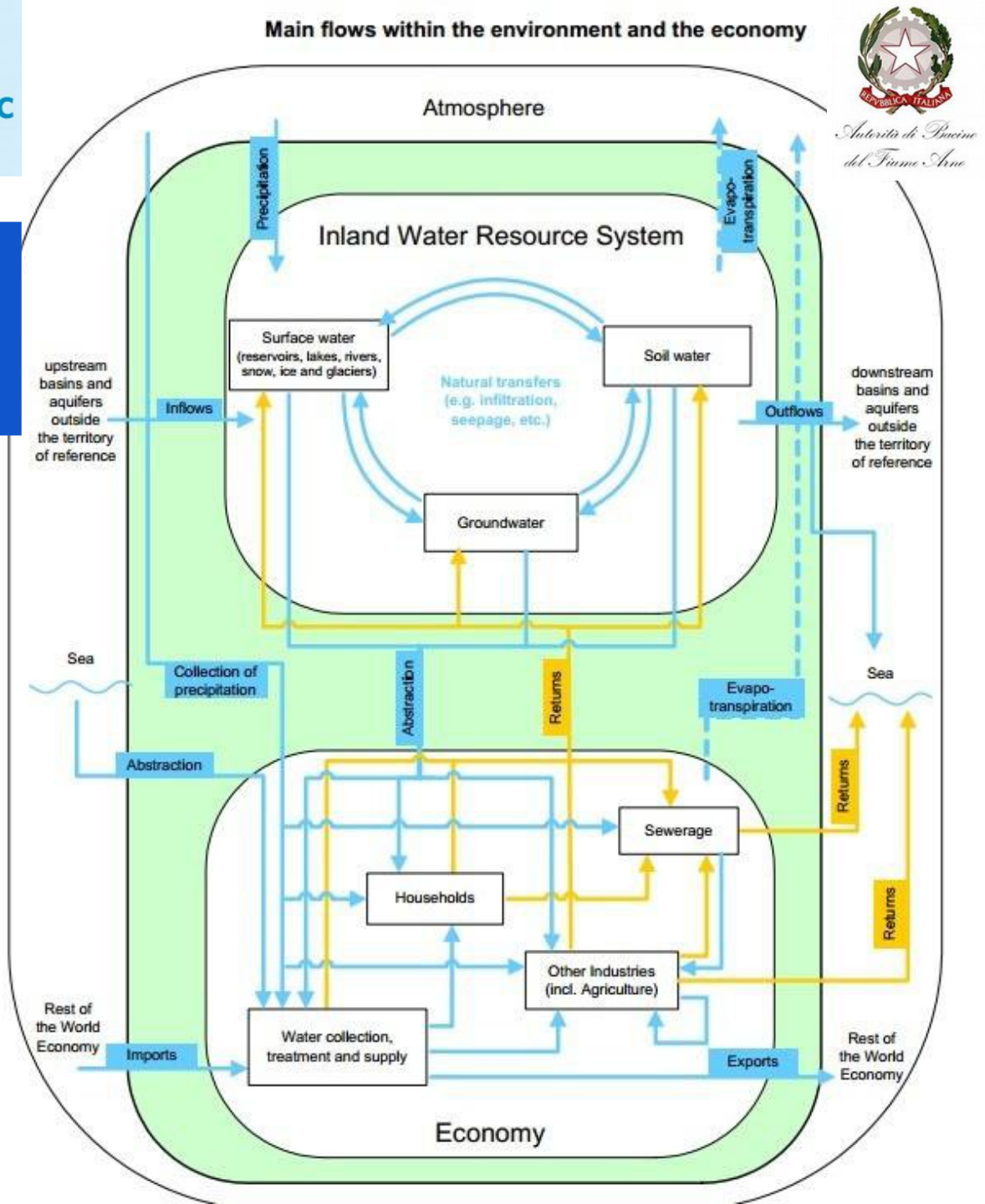
Executive Information System: a web based information system that allows the comparison among quantitative data, measures put in place to increase water availability and the environmental conditions of the water body

Stazione cod. [196/4521]

SEEA-Water

System of Environmental-Economic Accounting for Water

Possible indicator of a best practice
- Implementation of water balances based on the UN SEEA-ater System



SEEA-Water

System of Environmental-Economic Accounting for Water

PAWA PILOT ARNO WATER ACCOUNTS

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Pawa is a pilot project funded under the EC 2013 Call "Halting Desertification in Europe" that will test application of the SEEA-Water tables at montly scale in 3 selected subbasins.
Partners: SEMIDE/EMWIS - ARNO -ISPRA

"

A. Physical use table (*physical units*)		Industries (by ISIC category)						
		1-3	5-33, 41-43	35	36	37	38, 39, 45-99	Total
From the environment	1. Total abstraction (= 1.a + 1.b = 1.i + 1.ii)							
	1.a. Abstraction for own use							
	Hydroelectric power generation							
	Irrigation water							
	Mine water							
	Urban run-off							
	Cooling water							
	Other							
	1.b. Abstraction for distribution							
	1.i. From inland water resources:							
	1.i.1. Surface water							
	1.i.2. Groundwater							
	1.i.3. Soil water							

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Thank you for your kind attention!

Gaia Checcucci
Arno River Basin Authority
General Secretary