

SEE RIVER PROJECT

**HAND IN HAND
FOR RIVERS**

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Dr. Aleš Bizjak, SEE River Project Manager

Cross-sectoral planning of Green Infrastructure – the River Corridor Development Concept

**Mediterranean Coast and EU Macro-Regional Strategies Week
Škocjanski zatok Nature Reserve – Koper, 19 September 2017**

content

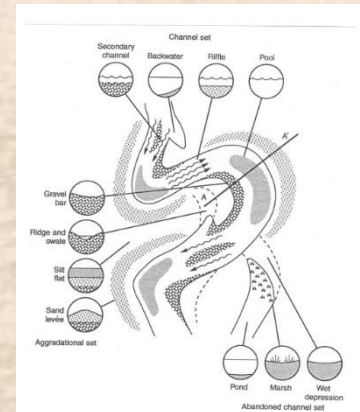
1. Contemporary rivers as parts of green infrastructure
2. SEE River project
3. River Corridor Development Concept (RCDC)

(1)

contemporary rivers as parts of green infrastructure

premises – naturocentric view

1. River is natural phenomenon, but **never of a local scale.**
2. Intrinsically, to each river belongs a river corridor – an area along both river banks where **hydromorphological processes take part as a limiting natural factor.**
3. River corridors are parts of landscape ecological structure (matrices, patches, mosaics, corridors) and have inner ecological structure (matrices, patches, mosaics, corridors) – **therefore are parts of the green infrastructure.**



Habitat—the spatial structure of the environment which allows species to live, reproduce, feed, and move.



Habitat

Barrier—the stoppage of materials, energy, and organisms.



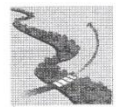
Barrier

Conduit—the ability of the system to transport materials, energy, and organisms.



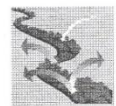
Conduit

Filter—the selective penetration of materials, energy, and organisms.



Filter

Source—a setting where the output of materials, energy, and organisms exceeds input.



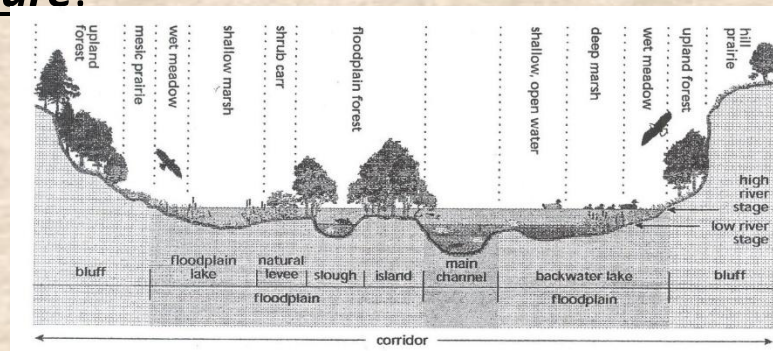
Source

Sink—a setting where the input of water, energy, organisms and materials exceeds output.



Sink

Figure 2.37: Critical ecosystem functions. Six functions can be summarized as a set of basic, common themes recurring in a variety of settings.

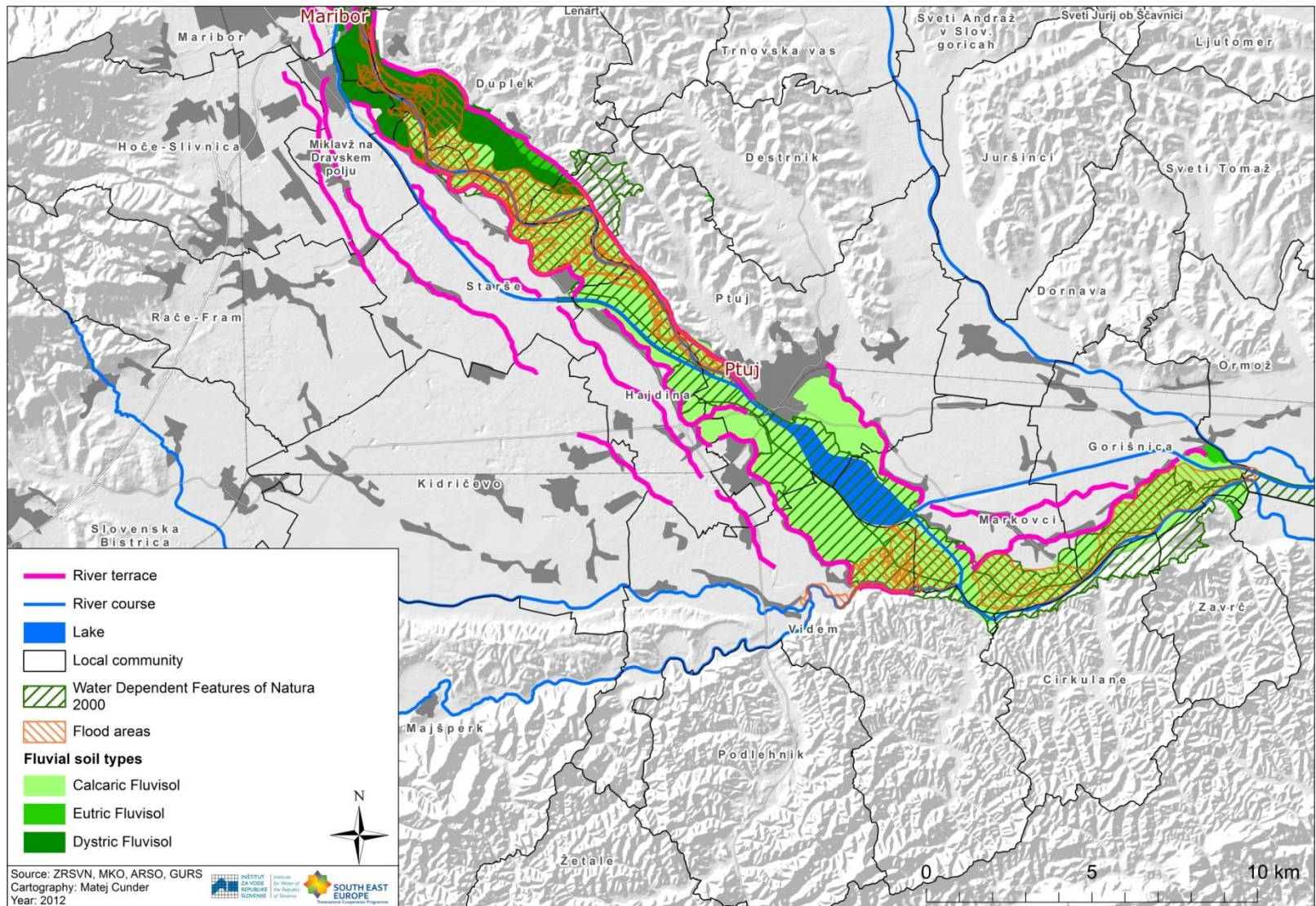


premises – antropocentric view

1. Rivers as natural resource and river corridors as parts of land were always attractive for mankind for very different reasons, **however always related to needs of survival, or in later phases, for economic benefit.**
2. Sustainable cross-sectoral planning of river corridors can be assured by a regional approach instead by a general (transboundary or national) or a fragmented (local) manner, **where top-down meets bottom-up.**
3. **Improper** land use (planning) (policy) can cause sever damages to natural environment as well can endanger mankind lifes and harm state or private property.



river corridor delineation



contemporary river



Sava River, View from Šmarna gora, Marko Perhart, about 1850.



Sava River, View from Šmarna gora, photo: A. Bizjak, 2012.

- Contemporary river is a river (corridor), managed in a way to accomplish all (antagonistic) protective and developmental sectoral goals, initiatives and measures as well as interests of riparian local communities. It possess good water status, good habitat status and low flood risk.

A realistic or too ambitious goal?

Drava River Vision Declaration (Maribor, SI, 2008)

DECLARATION

International Symposium
20-25 September 2008
Maribor, Slovenia

DRAVA
RIVER
VISION

DECLARATION

concerning common approaches to water management, flood protection, hydropower utilization and nature and biodiversity conservation in the Drava River basin

Based on the holding, from 23 to 25 September 2008 in Maribor, Slovenia, of the International Symposium "Drava River Vision", in which representatives from water management and nature conservation bodies, education institutions and non-governmental organizations (NGOs) from the Drava River riparian states Italy, Austria, Slovenia, Croatia and Hungary participated in response to popular demand for the protection and maintenance of the various landscapes of the Drava River across the different national borders concerned, and in order to strive for a good status of the river, agreeing to support and strengthen existing strong common approaches to water management, flood protection, hydropower utilization and biodiversity conservation in the river basin, offering our intention to cooperate in the conservation, administration and further appropriate development of the Drava River and its associated geographical, hydrological and ecological systems.

PRESENT SITUATION:

The Drava River (Italian: Drava, German: Drau, Slovenian: Drava, Croatian: Drava, Hungarian: Duna) is a tributary of the Danube, and has its source at Többsch (Italy), approximately 1,450 m above sea level. It flows through Italy, Austria, Slovenia, Croatia and Hungary, and discharges into the Danube at Osijek (Croatia) at approximately 90 m above sea level. With a length of 720 km and a median flow of 500 m³/s, the Drava River is the fifth largest tributary of the Danube.

The Drava River basin is rich in natural resources of water and raw materials, and offers huge potential for sustainable development.

During past centuries, large sections of the Drava River were regulated, successfully reducing natural hazards. Fish migration however has been prevented by the many structures that have been introduced. From Rakonitz (Croatia), Austria downstream, the Drava River is heavily affected for hydropower. On the Austrian side of the river there are eleven hydropower stations, with a further eight on the Slovenian side and three on the Croatian side. Additional proposed stations are under discussion in Slovenia and Croatia.

Along the Drava River there are important and well preserved ecological core zones, with a huge diversity of animal and plant species. Many of these areas have been placed under protection by the governments concerned, through protection regimes such as National Parks and Nature Parks, and may form part of the "Natura 2000" European protected areas network. In the EU candidate country Croatia, the construction of similar Natura 2000 areas is in preparation, alongside other national protected areas designations. The EU has supported many river restoration and rehabilitation projects in recent years, which have saved flood protection objectives as well as the conservation of wild fauna, flora and habitats. Increasing areas of natural inundation has been a benefit not only for rare and endangered wildlife but also for the safety of the waters.

Overall there has been an obvious improvement in the water quality of the Drava River in recent decades. This has been achieved by the closure of numerous settlements and industrial plants to sewage systems and wastewater treatment plants, which generally operate at high efficiency. There is, nonetheless, still a need for action in several areas.

The International Symposium "Drava River Vision" is a part of the 10th European Water Forum (Maribor, Slovenia).

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International Symposium
20-25 September 2008
Maribor, Slovenia

DRAVA
RIVER
VISION

DECLARATION

To secure the values and ecological functions of the Drava River basin for generations to come, we agree the following ten objectives as priorities for the future:

1. To promote the Drava River as a model for integrated implementation of EU policies on water and nature protection

The EU Directives on water management (Water Framework Directive), flood protection (Flood Directive) and biodiversity conservation (Habitats Directive and Birds Directive) constitute a fundamental basis for river basin management in the Drava River catchment. Integrational coordination and exchange of information can positively reinforce the implementation of relevant policies.

2. To enhance flood protection through the improvement of flood warning systems and through increased information exchange

Flood protection in the Drava River basin is a shared responsibility of all riparian countries. To give warnings in flood prone areas at an early stage, flood risk must be detected sufficiently early to provide time for people to react. In a context of cross-border coordination and climate change along the Drava River, emphasis should be given in future to the improvement and adjustment of flood forecast models and flood warning systems.

3. To enhance flood protection through protection and restoration of water retention areas along the Drava River

Recent insights – particularly based on flooding disasters – indicate that flood security measures for protection from floods alone may not provide the most effective solutions. In the face of climate change and an expected increase in extreme flood events, we aspire to an improvement in the flood situation and raising the level of system security along the Drava River – this means in the first instance preservation, and then, where necessary and feasible, creation or restoration of suitable water retention areas.

4. To continue and further develop restoration of the Drava River and its floodplains

In recent years many river restoration and rehabilitation projects have shown that flood protection and nature conservation need no longer conflict with each other. River restoration often leads to an enhancement of ecological diversity. Water retention areas associated with the river can prevent uncontrolled outflow of water, thus improving flood protection. Further river restoration and rehabilitation projects with these multiple benefits will be encouraged, both on national level and in a transboundary context, taking into account the economic capacities of particular states.

5. To maintain and further develop the Drava River as an "ecological backbone"

Ecological core areas along the Drava River such as Natura 2000 areas, nature conservation areas, landscape conservation areas or free flowing river sections form an "ecological backbone" of the river basin. This transnational backbone network has to be safeguarded through active transboundary cooperation. The establishment of transnational protected areas systems such as the proposed UNESCO Biosphere Reserve "Danube-Drava-Mura" across the riparian countries forms a key part of this, and will be supported.

6. To reestablish the ecological connectivity of the Drava River for migratory fish

As a result of numerous barriers, the Drava River is no longer possible for fish migrating over long distances. In the future we aim to cooperate in establishing appropriate measures, including fish passes and fish bypasses, to support fish migration in the Drava River and its tributaries, in accordance with the objectives of the Water Framework Directive and the Habitats Directive.

The International Symposium "Drava River Vision" is a part of the 10th European Water Forum (Maribor, Slovenia).

41 | International Symposium / 23 - 25 September 2008 / Maribor, Slovenia

DECLARATION

International Symposium
20-25 September 2008
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DRAVA
RIVER
VISION

7. To establish the Drava River as a cross-border recreation area

The Drava River provides an attractive location for holidaymakers. A 300 km Drava River cycle path leads from the river's source to Maribor in Slovenia. Opportunities for sustainable regional recreation developments of this kind, based on the Drava River's historic values, should be further explored. We aim to enhance the quality of the Drava River's environment for those who seek recreation and relaxation in an attractive landscape setting.

8. To use opportunities for the Drava River to be a connecting lifeline for different nations

After many years of fragmented approaches, today's more unified Europe offers new opportunities to bring together the people of many different origins who live in the Drava River basin. Those responsible for water management and river conservation in each country will initiate new dialogues with their counterparts in the other riparian countries, in coordinated efforts towards the shared aim of a high quality of life for the people in this region.

9. To undertake integrated river basin management rather than fragmented sectoral measures

International agreements concluded in recent years such as "Agenda 21" and EU Directives such as those on Water, Floods, Habitats and Sustainable Energy Sources, together with the shift in social priorities, have led to new approaches, strengthening the ongoing development of more sustainable approaches in the field of flood protection and hydropower. Modern approaches to activities such as these, therefore, in a context of integrated river basin management, seek to integrate economic, ecological and social aspects. Harmonized planning of water management, flood protection, hydropower use, recreation and biodiversity conservation can lead to sustainable solutions that also have higher public acceptance.

10. To undertake further development of the Drava River area in partnership with its resident human populations

Those engaged in agriculture, forestry, tourism, energy production and economic development, as well as residents in local communities, are all important partners in achieving the objectives of sustainable development of the Drava River. Adequate cooperation among all these groups can help to minimize any conflict between ecosystem values and economic development.

Signed as a signal for full support of the Drava River Vision Symposium, Maribor, 24 September 2008

by the Heads of Delegation of the International Commission for the Protection of the Danube River from the Danubian States Austria, Croatia, Hungary and Slovenia and by the Director of the Department for Hydraulic Engineering of Bolzano, South-Tyrol in Italy.

Richard Stadler
Austria HCD to the ICPR

Zeljko Obradovic
Croatia HCD to the ICPR

Gyula Hollo
Hungary HCD to the ICPR

Willy Brinck
Slovenian HCD to the ICPR

Rudolf Pullinger
Italian Representation Hydraulic Engineering

and adopted by the Participants at the Drava River Vision Symposium.

Let us join forces in the conservation and sustainable development of the Drava River – an aquatic ecosystem functioning as a corridor of recovery in the heart of Europe!

The International Symposium "Drava River Vision" is a part of the 10th European Water Forum (Maribor, Slovenia).



Programme co-funded by the
EUROPEAN REGIONAL
DEVELOPMENT FUND



**SOUTH EAST
EUROPE**
Transnational Cooperation Programme



SEE River

Drava River Vision Declaration (Maribor, SI, 2008)

Drava River Basin

Nature protection areas, hydropower plants and floodplain

International symposium
23-25 September 2008
Maribor, Slovenia

DRAVA
RIVER
VISION

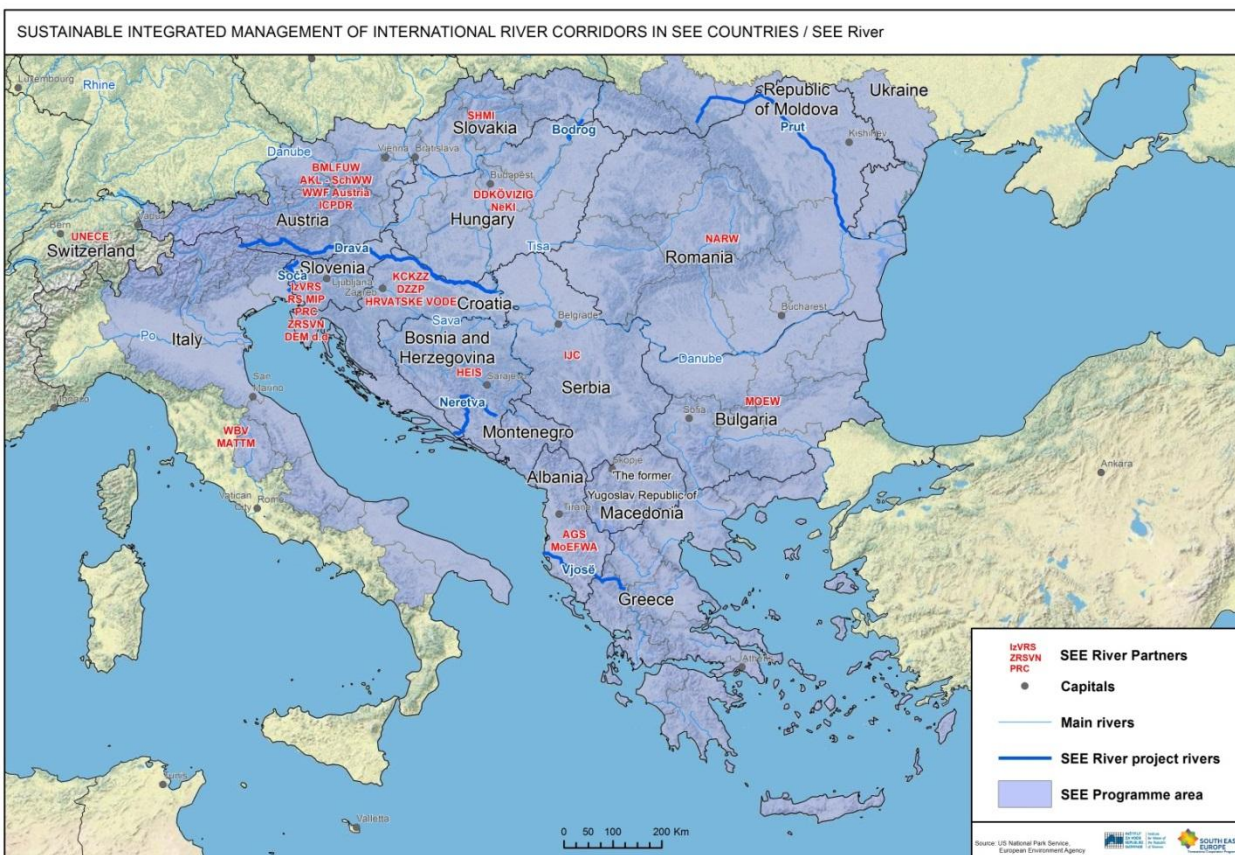


Aim:
Drava River will become a contemporary river.

(2)

SEE River Project

SEE River – basic information and partnership



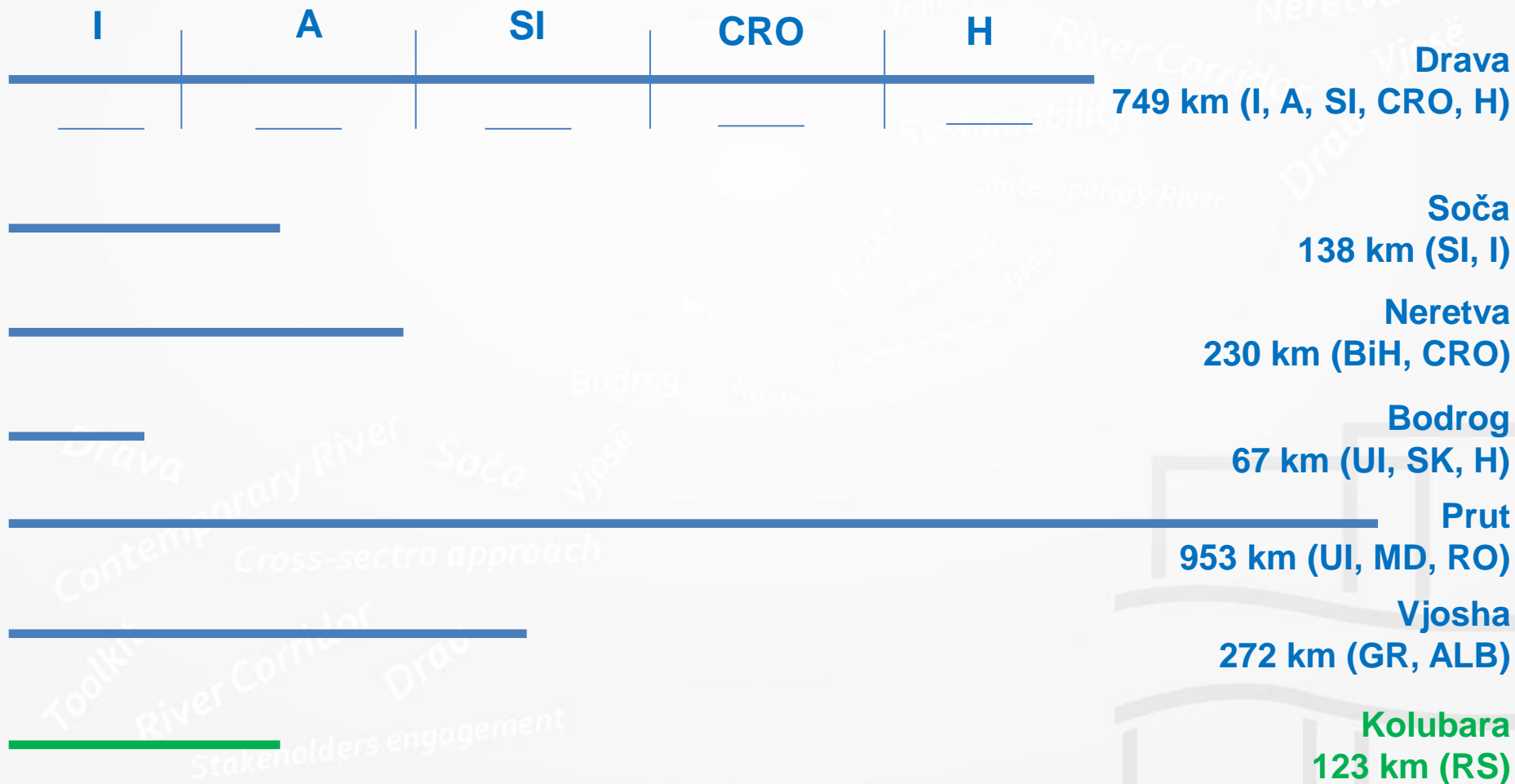
THE PROJECT

- project funded by the South East Europe Territorial Cooperation Programme
- lead Partner: Institute for Water of Republic of Slovenia
- project Partners: 26 from 11 countries (22 +4 international)
- project duration: 1 October 2012 – 30 September 2014
- total project value: 2,107,354.30 € (85% co-financed by EU)

THE PARTNERSHIP

- different sectors
- different administrative levels
- different types of organisations
- partners from 5 Drava-riparian states (IT, AT, SI, HR, HU)
- partners, representing territories of 6 other rivers: Bodrog, Neretva, Prut, Soča, Vjosa, Kolubara (SK, BiH, RO, RS, AL)

SEE River pilot transboundary rivers



SEE River pilot transboundary rivers



Drava



Bodrog



Neretva



Prut



Soča



Vjosa

selection of the 5 Drava River pilot areas

relevant (involved) sectors	Fiscalina & Drava (I) (1+4 km; 1,6+1,7 km ²)	Drau (A) (80 km; 247 km ²)	Drava (SI) (47 km; 160 km ²)	Drava (HR) (29 km; 33 km ²)	Drava (H) (62 km; 347 km ²)
water management	X	X	X	X	X
nature conservation	X	X	X	X	X
forestry	X			X	X
agriculture	X	X	X		X
tourism & recreation	X	X	X	X	X
transport	X	X			
hydropower		X	X	X	
mining				X	
navigation			X		X
fishing			X		X

SEE River elaboration levels on the Drava River

- 1) Drava river pilot areas (5).
- 2) Drava River International run.



WHERE TO APPLY?

I

A

SI

HR

H

project result

Result of the SEE River project are adopted **new knowledges, processes and procedures** of harmonising sectoral policies, plans and programmes with interests of stakeholders from international, national, regional, and local levels and of riparian local communities in the process of (international) river corridor management.

(3)

the river corridor development concept

What is river corridor development concept?

- cross-sectorally reconciled development action plan on a regional scale, based on thorough analysis of natural circumstances and stakeholders views and expectations
- based on sustainable development and watercentric issues, and on the idea more room for the rivers,
- compiles sectoral initiatives and seeks for multifunctional spatial solutions,
- respects the relevant EU directives, national, regional and local legal demands,
- Involves stakeholders from national, regional and local level and articulates their demands and initiatives.

river corridor development concept goals

(1) To ensure sustainable use of natural resources.

(2) To improve the state of environment and living conditions in the area.

(3) To decrease the level of environmental risks.

(4) To utilise the spatial attractiveness of the region.

(5) To engage the financial sources in a rational way.

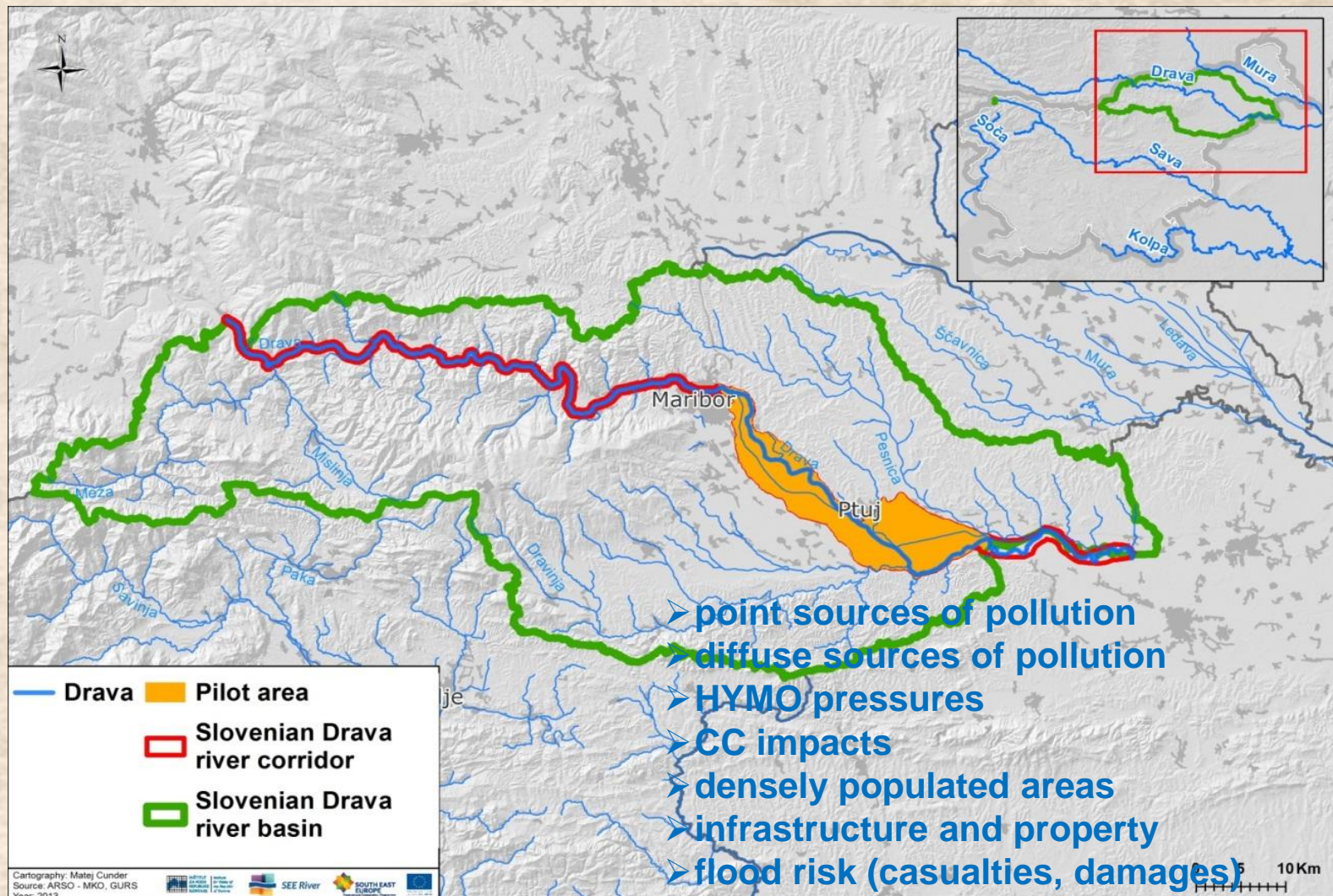
(6) To increase the economic competitiveness and employability in the region.

issues

- water management,
- nature protection,
- utilisation of sustainable energy sources,
- forestry and agriculture,
- tourism and recreation,
- traffic,
- other relevant sectors, present in the area.

The SI Drava Pilot Area

river section length: 46 km¹
area surface: 160 km²



The SI Drava Pilot Area

local community	surface total	surface within RC	surface portion within RC
	km2	km2	%
Cirkulane	32,1	0,7	2,2
Dornava	28,4	4,3	15,1
Duplek	40,0	9,2	22,9
Gorišnica	29,1	19,2	65,8
Hajdina	21,8	15,0	68,8
Hoče-Slivnica	53,7	< 0,1	< 0,1
Kidričevo	71,5	2,0	2,8
Maribor	147,5	9,6	6,5
Markovci	29,8	29,8	100,0
Miklavž na Dravskem polju	12,5	8,3	66,2
Ormož	141,6	< 0,1	< 0,1
Ptuj	66,7	25,5	38,2
Starše	34,0	25,0	73,5
Videm	80,0	11,3	14,1
Zavrč	19,3	0,3	1,5
SKUPAJ	807,9	160,1	

the algorithm

Life Vein – Obere Drau
(LIFE+, 2006-2011)

DRV Declaration (2008)
goals ,10‘

national level
of planning

determination of river corridor

analysis of river corridor

status remoteness from goals
,10‘

management regimes
and administrative procedures

local level
of planning

regional development plans
local communities spatial development plans
stakeholder involvement and participation
interviews and questionnaires
etc.

international and bilateral obligations
state infrastructure projects
RBMP
FRMP
NATURA 2000 management plans
NREAP

list of stakeholders

record of demands,
expectations and
initiatives

analysis of
oppositions

regional level of planning

top-down → ← bottom-up

← → ← →

reconciled goals and solutions

list of stakeholders

record of demands,
expectations and
initiatives

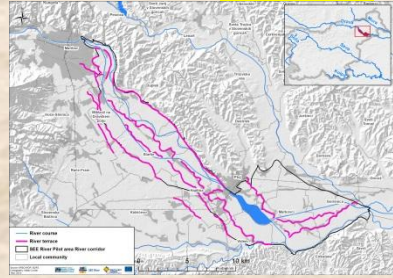
analysis of
oppositions

feed-back effect

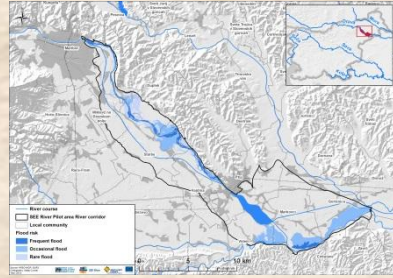
river corridor development concept
action plan and project proposals
(e.g. for the EU 2014-2020)

feed-back effect

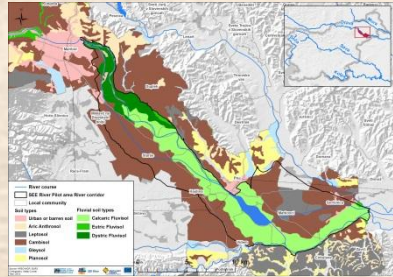
experts and stakeholders



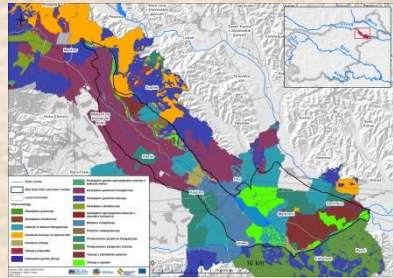
hydromorphology



hydrology

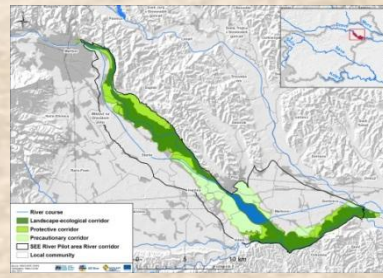


soils

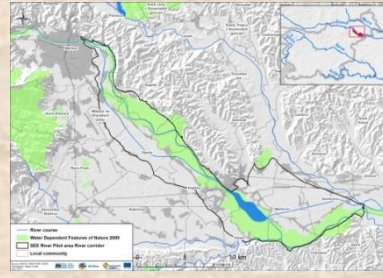


phytocoenosis

natural variables and resources analyses

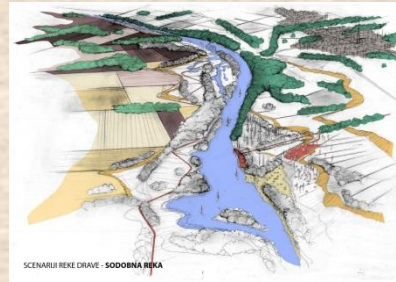


RCIR



Natura 2000

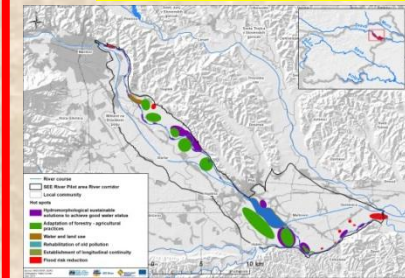
experts and stakeholders



Drava 2030

cross sectoral cooperation and stakeholder dialogue scheme

regimes



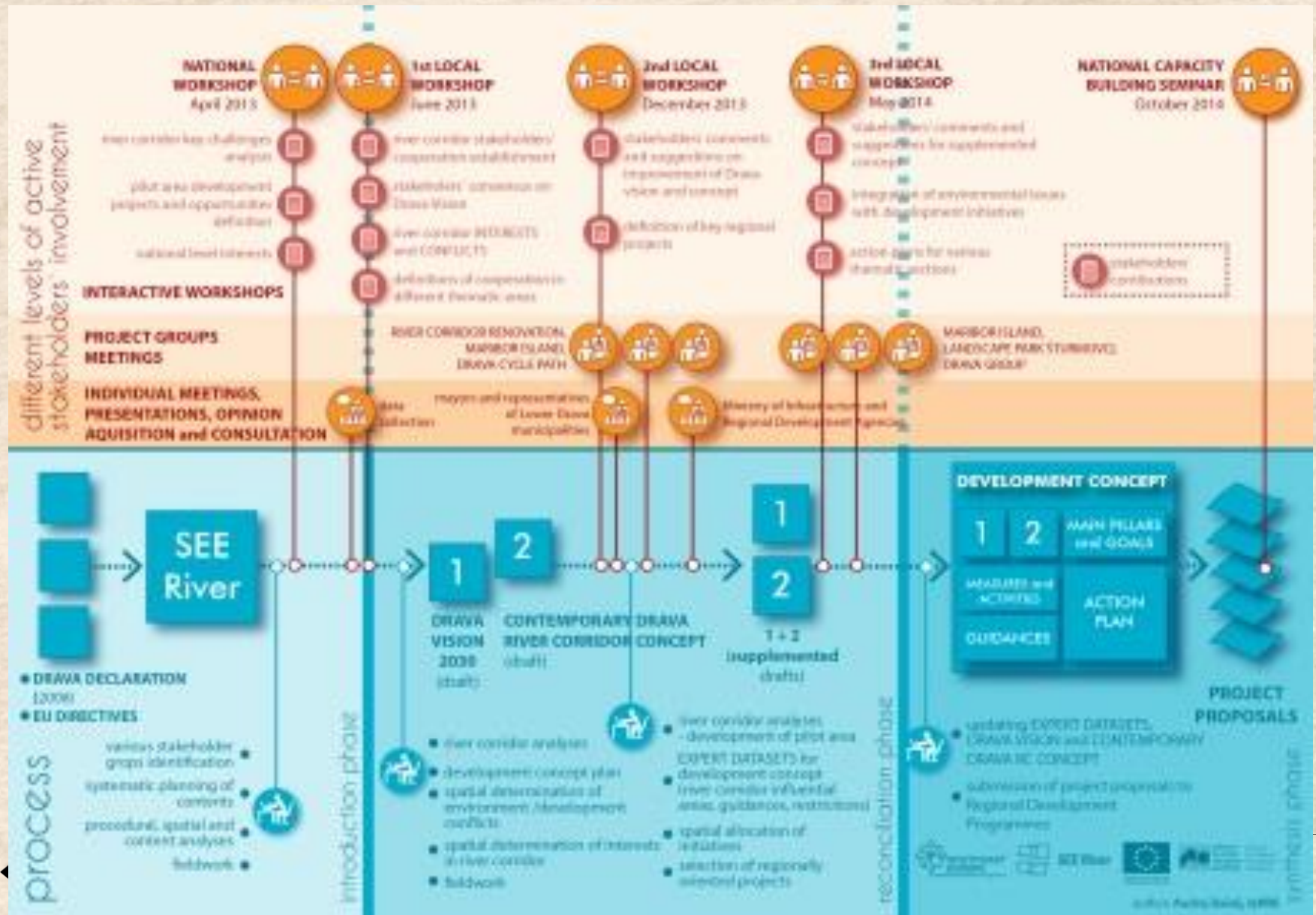
sectoral development interests

river corridor development scheme and action plan

environmental hot-spots analysis



River Corridor Development Concept Scheme



What are the local initiatives?



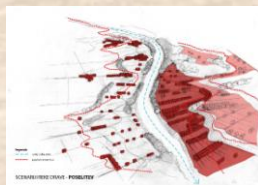
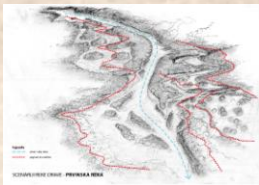
What are the national interests?

What should the (Drava) River look like in 2030?



Mapping the stakeholders interests.

Mapping the stakeholders interests.



Drava River Corridor Action Plan

1. **Water-nature protection-hydropower utilisation management and use of the Drava River:** *(1) Drava River Corridor Restoration – integrated flood protection development and habitat diversity protection project.*
 2. **Good Forestry and Agricultural Practices on flooded and ground water areas in the river Drava River Corridor:** *(1) The Šturmovci area restoration project.*
 3. **Recreational and touristic water way Maribor – Ptuj – Zavrč:** *(1) The Drava River bike lane, (2) The Drava River navigation way, (3) Fishes and Fisheries.*
 4. **Education and awareness raising:** *(1) Establishment of regional information centre on Mariborski otok.*
- Who does what when structure.
 - Description of the action (background, purpose, activities).
 - Expected synergies.
 - Financing possibilities.

good practices

1. Entwicklungskonzept Alpenrhein (IRKA, 2005).
2. River Basin Agenda for Alpine Space (BSUGV, 2006).
3. Gewässerentwicklungskonzept Gurk (BLFUW, AKL; 2009).
4. Future Water (DEFRA HM Government, 2008).
5. Water for People and the Environment (Environment Agency, 2009).

content

1. River corridors as parts of green infrastructure
2. SEE River project
3. River Corridor Development Concept (RCDC)

Almost everyone has an exceedingly inconsistent perception of reality. The only things they find real are the things that represent their interests. They find everything else, which is by all means just as real, abstract.

(Stephen Spender, English poet, 1909 – 1995)



Thank you for your attention!

WWW.SEE-RIVER.NET

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