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SER Elements in Practice: Dviete River Basin Case In Latvia Stakeholder Mapping and Involvement

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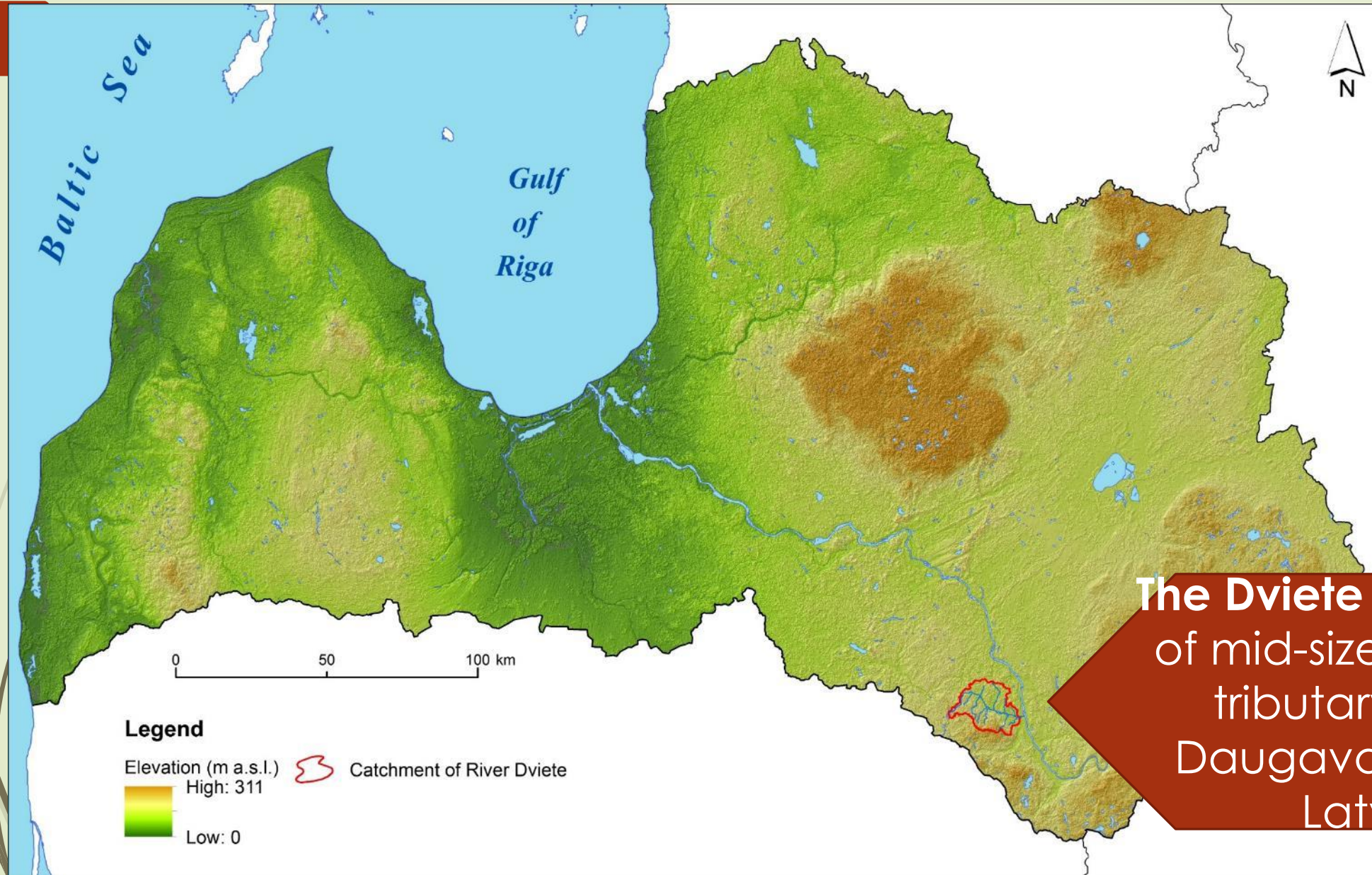
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LIST OF TERMS

- Environmental governance
- Collaboration governance
- Bottom-up governance/top-down
- Socially engaged research (SER)
- **Research-and-Development Framework, R&D**
- Helix theory – intertwining stakeholder groups collaboration
- Quadruple Helix Model
- Renewed Quintuple Helix Model
- **Mediators (stakeholders) – Media, NGOs, Educators (formal/non-formal), Science/Academia**
- Stakeholder mapping and involvement/participation
- **MARG – Multi-Actor Reference Group**
- Case Study Research (CSR)
- Etc.

Latvia Case study: Dviete river basin



The Dviete River basin
of mid-size left hand
tributary of the
Daugava River, SE
Latvia.



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Dviete River Basin Area: Geography and History



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Catchment characteristics

Drainage area – 254 km²; total length – 37 km; annual runoff – 0,057 km³; the peak flood discharge – 70m³ s⁻¹; slope of the riverbed – 4 m km⁻¹ at the upland reach and 0,2 m km⁻¹ at the lowland reach.

Extensive spring flooding (1 – 3 month) of river bed valley, caused by main region/national river Daugava (positive water dilution/cleanup etc)



Picture A – spring and picture B- exactly the same place in summer

Catchment characteristics

The Dviete River have had its **natural meandering bed until the 1930s**. During the second half of 1930s **channelization** of the Dviete River and **drainage** of the floodplain began to **adapt these areas for intensive farming**.

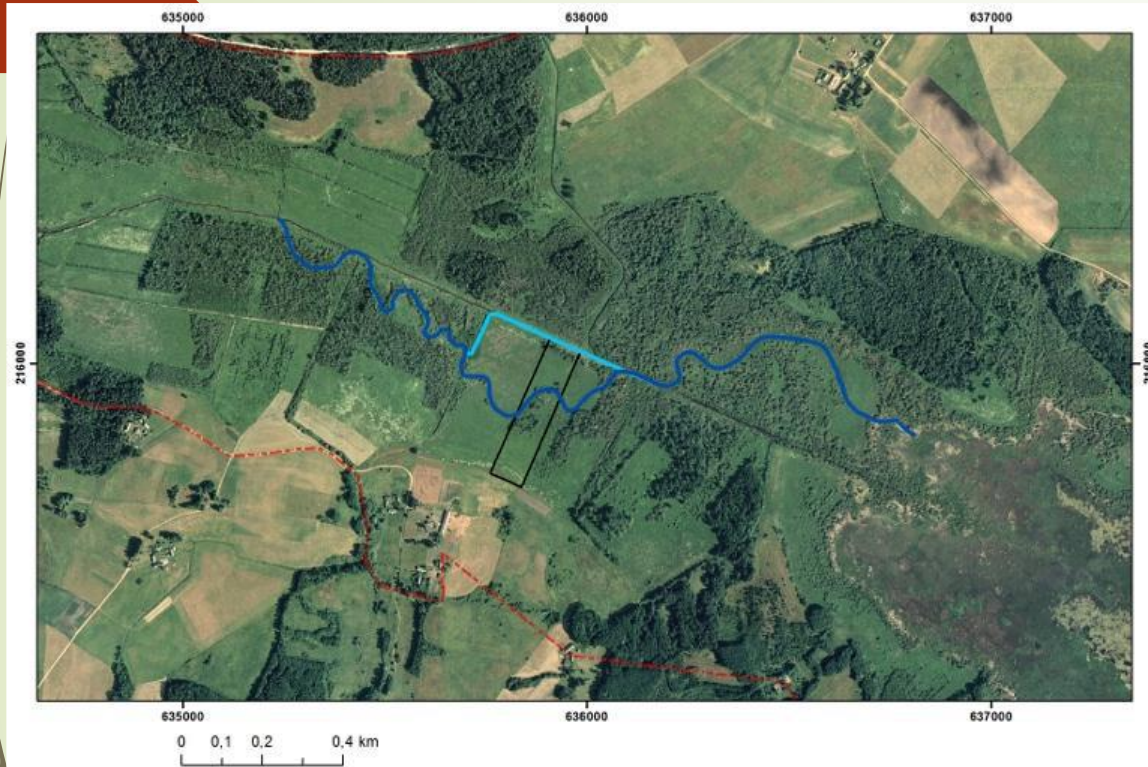
2004 – NATURE 2000

Nature park «Dviete Floodplain» - 5000 ha, incl eutrophic floodplain **meadows**, nesting for the corn-crake (*Crex crex*), other rare bird species during **summer low-water**, also an internationally important resting site for the migrating water-fowls during the **spring floods**. Now big **mammals grazing project**.

Natural riverbed of the Dviete River section above Skuku lake, 1933

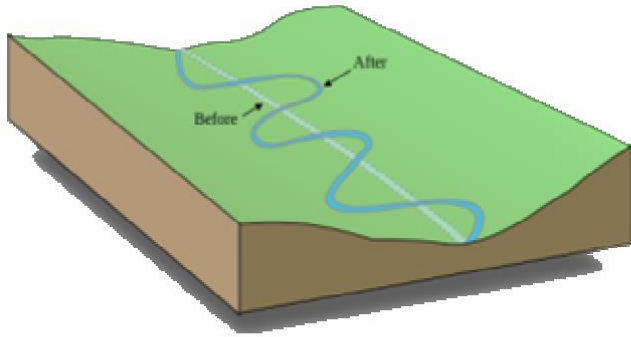


Existing projects



Restoration of the historical riverbed of the Dviete River covering most of the planned length (1,8 km) was carried out within the **LIFE+ project** "Restoration of Corncrake habitats in Dviete floodplain Natura 2000 site" (further LIFE+ project DVIETE) (2010–2015) at the beginning of 2015.

Existing NSWRM



<http://en.wikipedia.org/wiki/File:Meander.svg>



Naturalization of drainage ditch bed

River basin and MARG development status & challenges

1- Dviete river basin has **strong historical memory/lifestyle footprint** to be taken into account as:

- this **natural floodplain** territory has been **extensively meliorated** for the development of **intensive agriculture** (in 1930-ties and later), what
- developed such agriculture type **working and living tradition for several generations**, also causing **agriculture based pollution** of main national river Daugava and further of the Baltic Sea – this is having **accumulated pollution impact** also nowadays, even in **NATURA 2000 site**
- after regaining national independence in 1990-ties step-wise started nature protection development activities, which resulted into establishment of **NATURE 2000 in 2004** but having still **no administration** and/or Supervising board or **any wider/stable platform/network**
- + and many national/international projects on **about 20% (5000 ha) of the river basin** territory and ever growing **EU environmental legislation** in other basin territories
- still now causing **conflicting situations** with part of agriculture stakeholders/inhabitants.

2- Even in the river basin are to be found **very first SWRM test/pilot projects**

as "Water Level Adjustment Threshold - promoting sedimentation in drainage ditches" and «Restoration of the historical riverbed of the Dviete River (1,8 km)» these are **still between few alike projects nationally** in Latvia with comparatively **limited demo** and **other dissemination/training capacities/activities**

3- **Climate changes** also for this case are to be seen as growing thread

with eventually **growing secondary pollution** due to reducing spring floods untill recently as flooding is having **positive impact on water quality** in Dviete river basin as diluting floodplain water/biogenes and mechanically cleaning waterbodies & transporting all residues away, so reducing phosphorus contamination



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EU Horizon 2020 Project: OPTAIN (2020-2025)



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OPTAIN project, Horizon 2020

Name: OPTAIN	Optimal strategies for water and nutrient conservation and reuse in small agricultural catchments in different soil and climate regions in Europe (OPTAIN)
Organization in Latvia	Institute of Life Science and Technology of Daugavpils University, in cooperation with specialists of the University of Latvia
Timeframe	2020-2025
Goal	<p>Together with local interest group representatives/participants, OPTAIN aims to select and optimize the spatial distribution and combination of water conservation measures at both farm and catchment level, taking into account their environmental and economic sustainability.</p> <p>Keywords: Catchment-scale water management; Natural/low water and nutrient retention; farm and catchment scale; multi-stakeholder approach; indicators; integrated assessment; multi-objective optimization; policy analysis; learning environment</p>

DVIETE RIVER BASIN AND NATURA 2000

- The Dviete River Valley is a **natural and cultural-historical area** where the **«Atbūda» period of flooding occurs** for several spring months **each year**. The Dviete Floodplain Meadows (**a Natura 2000 protected area**) was established as an important **habitat for plants and birds**.
- The National Nature Conservation agency **has limited capacity—it does not have a Natura 2000 administration and inadequately involves residents** in the management of Natura 2000 areas and development project.
- **Local authorities lack the resources and capacity for managing the area.**
- **The NGO «Union of the Dviete Valley Municipalities» (founded in 2004 by municipalities and enthusiasts) is the only organization that voluntarily and practically manages the Natura 2000 area.**
- There are various **nature conservation and livestock/agriculture restrictions/requirements** that limit the practices needed for maintaining the area and affect the socio-economic interests of certain local stakeholders (conflicts in agricultural practices).

Target groups/Interest groups: representation (**MARG – Multi-Actor Reference Group**)

- Creation and operation of the Dviete river basin management **local community/region based Multi-Actor Reference Group**
- In the context of the catchment area of the Dviete River Basin, **MARG was/is aiming to include all main stakeholders:**
 - **local governments** and their services,
 - **nature and water** protection regional/national agencies/services,
 - **farmers and agricultural** specialists/advisors,
 - other **thematic/sectoral groups**, including the **tourism sector etc**
 - **local/community opinion leaders, interest groups and NGOs**
 - regional/**national NGOs** (**professional** and public)
 - **scientists/experts**



MARG: Benefits for stakeholders

- **Influence OPTAIN research** and contribute by **providing local knowledge and a vision** for the development of the area.
- **Learn about new strategies/techniques** for improving water and biogenic management in agricultural catchments.
- **Influence agricultural policy** frameworks by engaging in **dialogue with other stakeholders**, e.g. farmers, agricultural advisers and policy makers, etc.
- **Sharing experiences and discussing solutions with other stakeholders across region/country/Europe** to better adapt to extreme natural phenomena in the future.

MARG: Benefits for OPTAIN partners

- **Better understanding of the conflicts** between agricultural water use and the need for water **both in nature and in other areas of human activity at the local scale.**
- To include the **wishes of local stakeholders and experts**, including their opinions on possible and desirable measures in each case study.
- Improve studies on the importance, prioritization and comparison of **measures evaluated by stakeholders and landowners.**
- Receive feedback on **the mix of measures explored** in the project and their **expected environmental, economic and social benefits**, as well as constraints

Methodology (II):

MARG Development and Project Impacting Studies

➤ **Case study research**, complementary including:

- Document studies
- Observation/assessment of the situation
- Focus group interviews
- **In-depth semi-structured interviews – to be continued** (individual face-to-face interviews) were conducted mainly in person – **23 interviews** with representatives of local, regional and national target groups - 4 main target groups of the administration (yet excluding general public/local residents):
 - State administration/ministries/regional agencies and
 - municipal administration segments,
 - local entrepreneurs, esp, farmers etc,
 - mediators (NGOs, media, educators, scientists/experts),

General tasks for Case Studies (13) researchers

- **To identify, gather and discuss** with **all possible target groups/interest groups** - farmers, entrepreneurs/tourist organizers, educational and also non-governmental organizations, representatives of other interest groups, and, of course, representatives of local governments and environmental specialists, in order to
- **gather local experience and interests** in the implementation of this type of water resource conservation and reuse measures in the Dviete catchment basin, and
- **jointly and comprehensively evaluate** these possible measures and
- **JOINTLY prepare concrete, scientifically based recommendations** to the responsible institutions of the Latvian state at its various levels of administration,
- as well as **scientific reviews** for project partners elsewhere in Europe,
- thus **developing legislative and policy initiatives of both Latvia and the EU** and practical examples of water resource management.

MARG – Multi-Actor Reference Group (EU Horizon OPTAIN project)

- The project **organized a MARG - Multi-Actor Reference Group** and its **meetings**, which should occur **once a year** (5-year project).
- So far, **three MARG meetings** have been held, during which **representatives of the stakeholder groups (max 12 participants even response is higher)** are introduced to the ongoing project activities and both sides were discussing situational analysis and **project CONTINUATION**.
- **Key initial conclusions about MARG** (work continues and final stage with Project products is approaching):
 1. There is **general main stakeholders interest about MARG** type activities as soon its really relates local development issues/problems and **stakeholders are competent** enough to contribute to **understanding and developing** local R&D.
 2. **The activity and involvement of stakeholder groups** in matters concerning the Dviete River basin are higher when **there is a real/practical project/research benefit for the local community and stakeholders**.
 3. Obviously, its also very **important to choose the right yearly timing, day and time** (particularly, both professional duties and other competing interests/leisure activities) to hold MARG meetings to secure **best participation and contribution**.



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Stakeholder Mapping: General Approaches and Practice



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Stakeholders: main OPTAIN partners (start-up)

- Local inhabitants: islanders, farmers, nature etc. enthusiasts, opinion leaders etc...
- Nature Protection Agency (Latgale region chapter), Environmental Ministry

- Union of the Dviete Valley Municipalities (UDVM) - NGO

Founders are five municipalities (Bebrene, Pilkalne, Dviete, Rubene, Asare), now as admin units within new united local municipalities after ATR'09, mainly **Ilūkste municipality** (7500 inhab.), but in 2021 after ATR-II - **Daugavpils district municipality** (> 35 000)

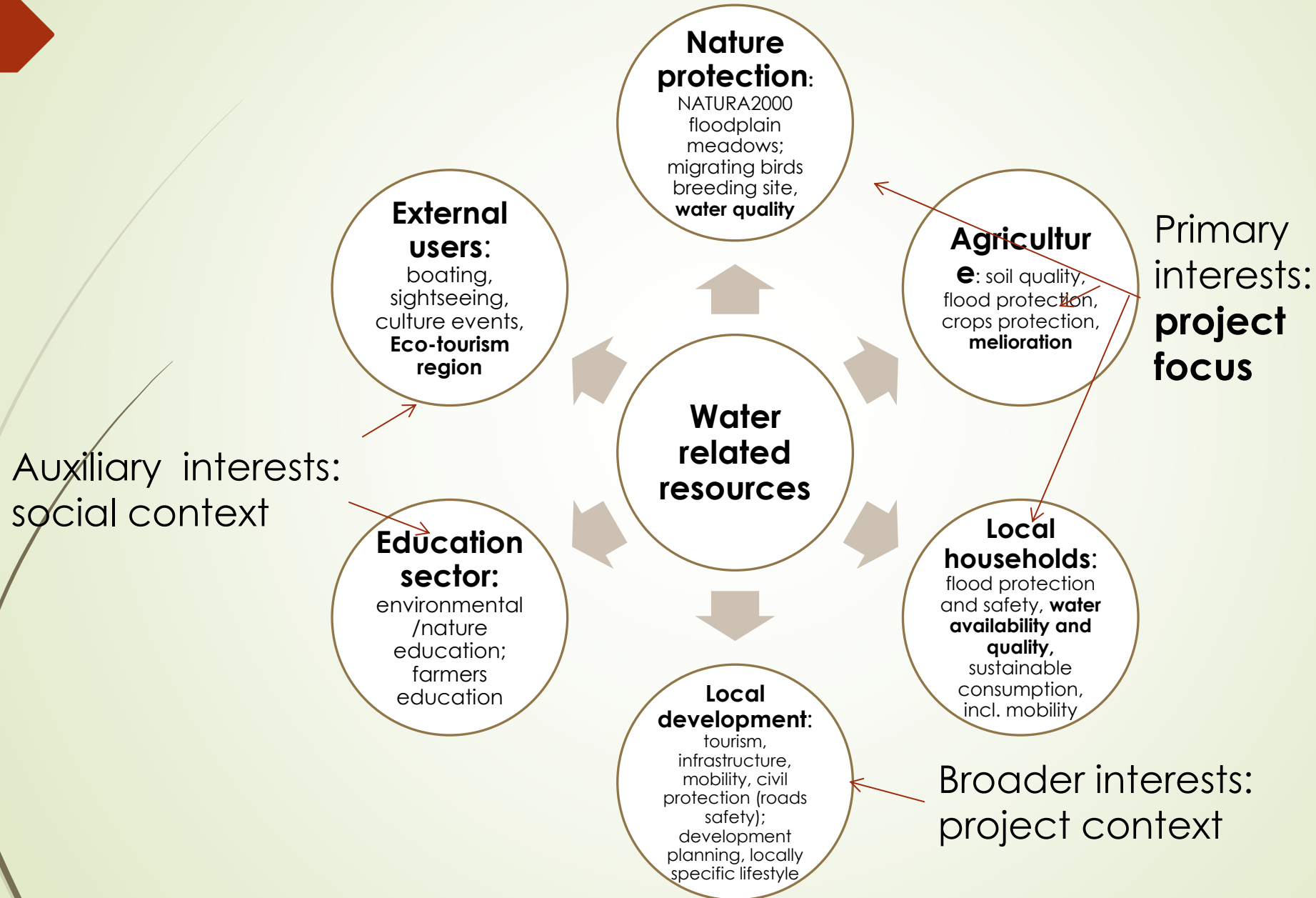
UDVM is acting also as Dviete floodplain **NATURA 2000 management group**, incl. mgt of grazing animals project !

Many projects have been developed in close cooperation between the **Daugavpils University** and this NGO.

- Ilūkste municipality/ Daugavpils district municipality

Incl. **Nature resources admin. Unit**, responsible for nature/landscape protection territories as well as lakes etc. (e.g. Environmental management specialist for lakes)

Dviete river basin case: Basic diversity of stakeholder interests/stakes – Horizontal integration



MARG – stakeholders mapping **basic approaches:**

Altogether 53 all types of stakeholders named, incl.:

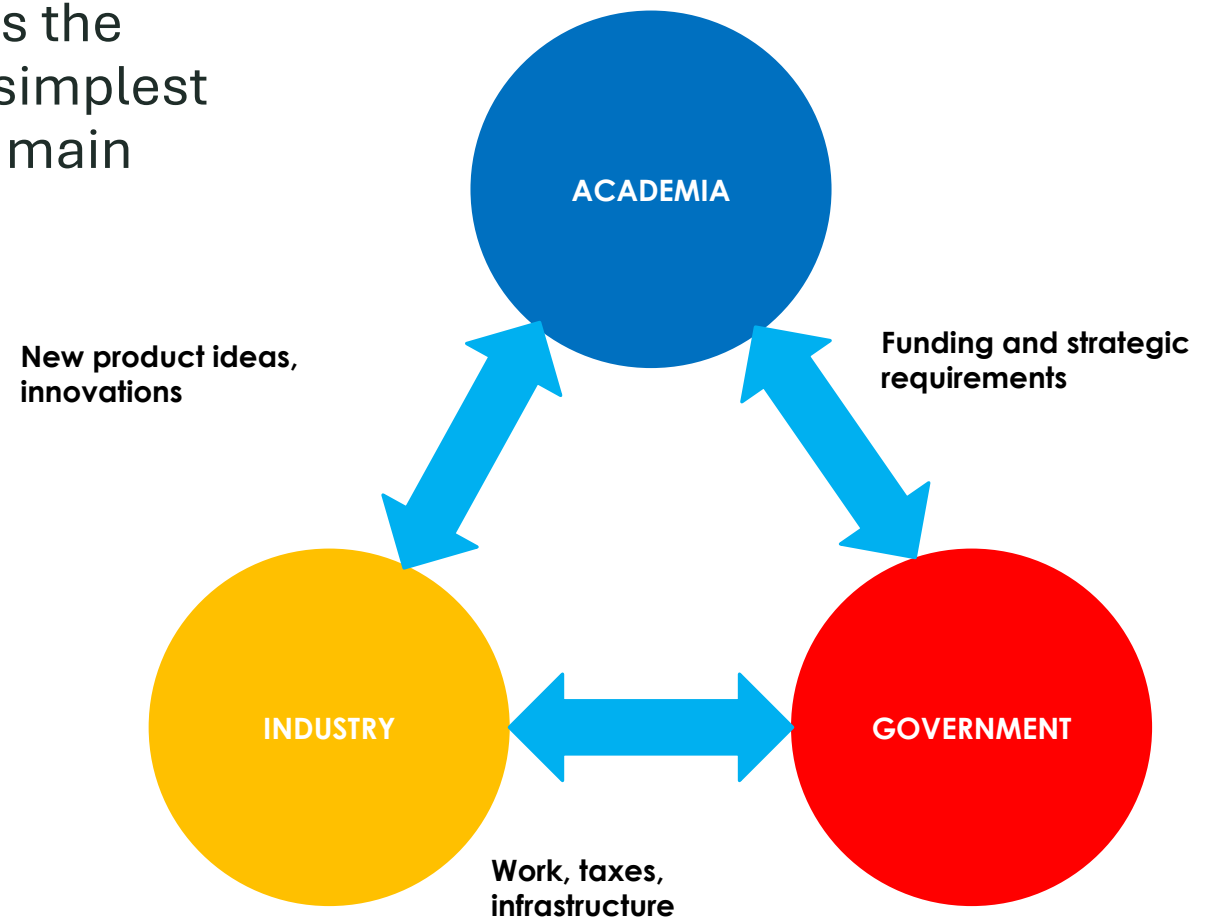
- SES approach: **socio-ecological system** research-and-development (R&D)
- **Horizontal integration** covering main **related sectors: environmental-nature protection-forestry-nature/eco-tourism-various agriculture-and main socio-economic development activities** locally/regionally
- **Vertical integration** between **admin/planning levels (4)** in the country
- **All stakeholder groups: municipalities (4 mgt levels)** – state governance (and their regional structures – corporate sector – households/inhabitants – and, **especially, also mediators** (NGO, media, formal/non-formal educators and research/science, responsible for
- **All governance instrument groups** necessary for nature-friendly agriculture and river basin governance: policy&legislative, institutional/administrative, planning, economic-financial, infrastructure & technological, and, especially, communication (**information, education, participation and pro-environmental behaviour**);
- ACTUALLY, working with **all 3 (river basin) governance dimensions:**
 - **Governance thematic content/sectors**
 - **Governance stakeholders/segments**
 - **Governance instruments**

BETTER LIFE APPLICATION: STAKEHOLDERS and MODELS : **Helix model**

- **Helix Theory/models** - an internationally recognized method from innovation/management sciences that **describes and illustrates the development of collaboration between various stakeholder groups.**
- **Key features** of the main approaches of **Helix Theory:**
 - **It integrates multiple stakeholder groups**, with each participant having its own role and responsibility.
 - **Mutual interaction** fosters innovation and effective resource use.
 - **Continuous communication and coordination** between different groups.
 - **Flexible and adaptable** to changing circumstances.
 - **A holistic approach** that considers the **interests and needs** of all stakeholders.

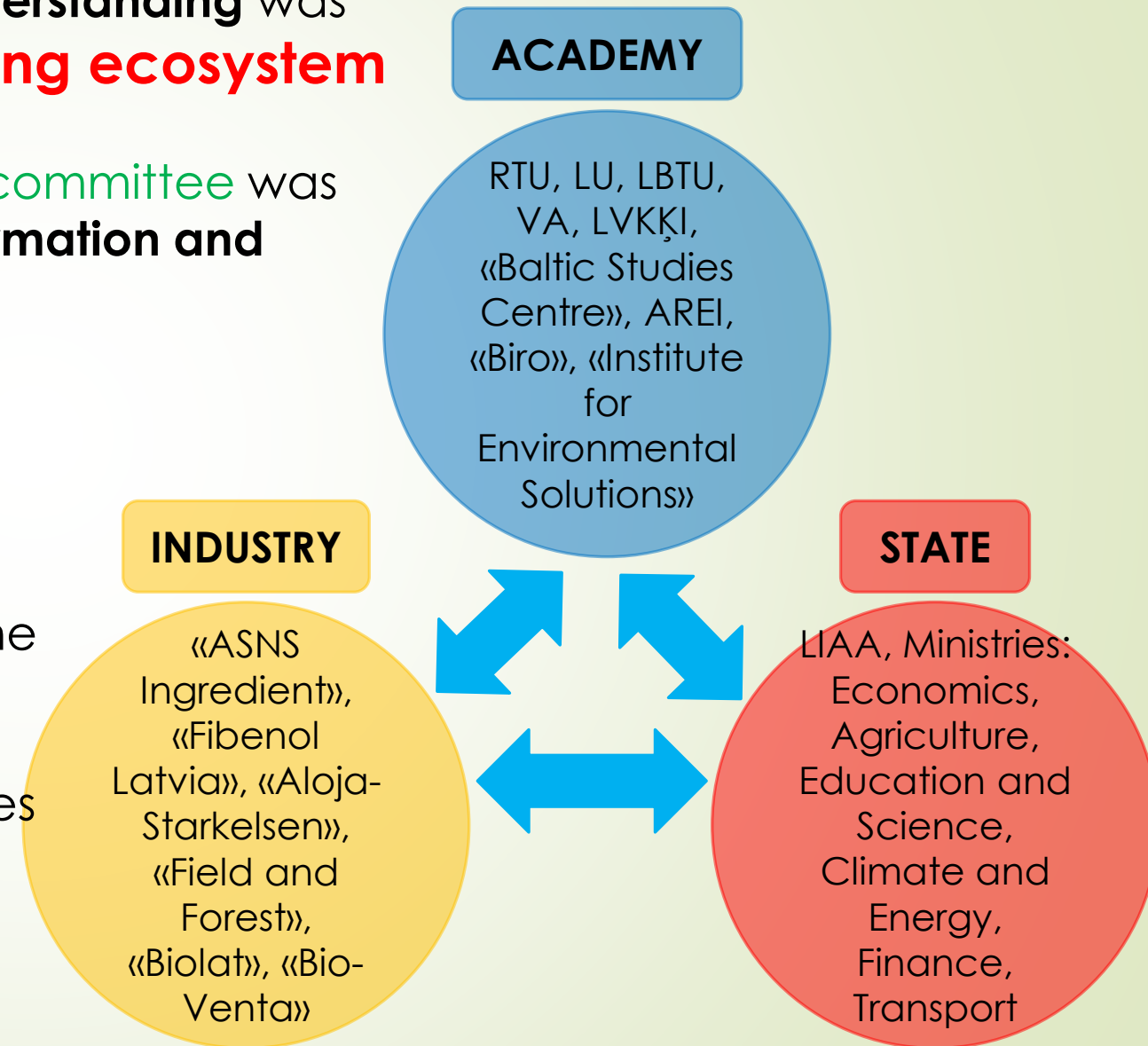
HELIX THEORY

- One of the fundamental models is the **Triple Helix Model**, which is the simplest approach model, including three main groups:
- **government,**
- **industry,**
- **and academia.**



CREATION OF A BIOREFINING ECOSYSTEM

- 18.06.2024. a **Memorandum of Understanding** was signed on the creation of a **new biorefining ecosystem (22 organizations)**.
- To coordinate the cooperation an **action committee** was established to ensure **the exchange of information and cooperation** between the parties involved:
 - industry companies,
 - universities, scientific institutions
 - and the state administration.
- The commercial-scale biorefinery Project in Latvia has now the **status of a national priority investment project** and access to the **"Green Corridor"** as accelerated services initiative.
- SIA "Fibenol Latvia" begins preliminary studies and an EIA on a 26-hectare plot in **the Industrial Park in Valmiera municipality** having a building rights agreement now.



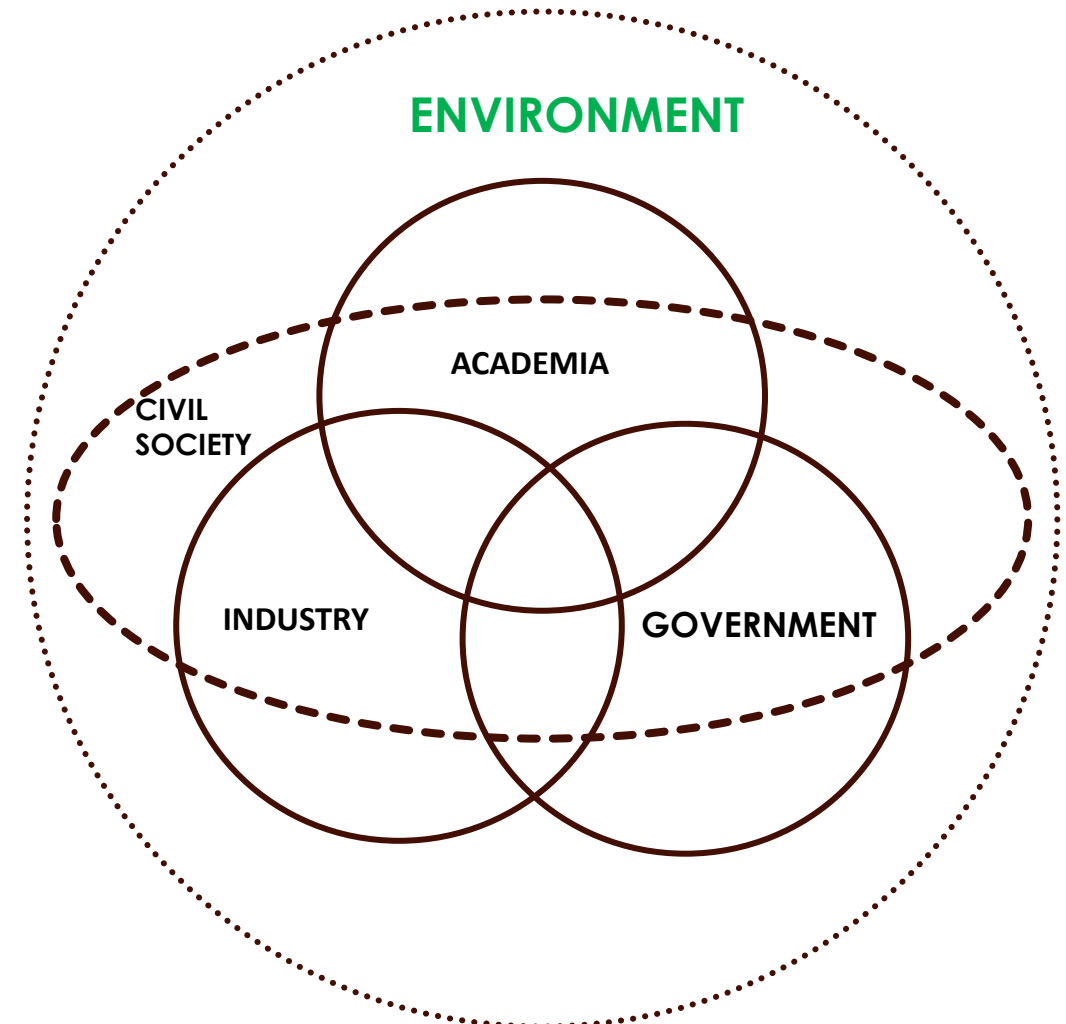
QUADRUPLE HELIX MODEL



Quadruple Helix Model (Varmland County Administrative Board, 2019: 4)

QUINTUPLE HELIX MODEL

- The literature shows that **various studies** (Carayannis and Campbell, 2020) have **demonstrated that, in addition to the Quadruple Helix Model, the natural environment also plays a crucial role** in advancing and improving management.
- **Environmental protection is a necessity for humanity**, but it also **acts as a driving force for further knowledge and innovations**, intentionally leading to a mutually beneficial situation for both **ecology and innovation** (Carayannis and Campbell, 2020).



ADAPTATION OF THE **quadruple to NEW QUINTUPLE** HELIX MODEL (R.Ernšteins)

- **1- Public authorities**, which are considered as a single entity in previous models, **are examined separately in our model**

- **state administration (and various often competing etc sectors) and**
- **municipal administration segments**
- **+ and regional administrations/planning regions in Latvia**

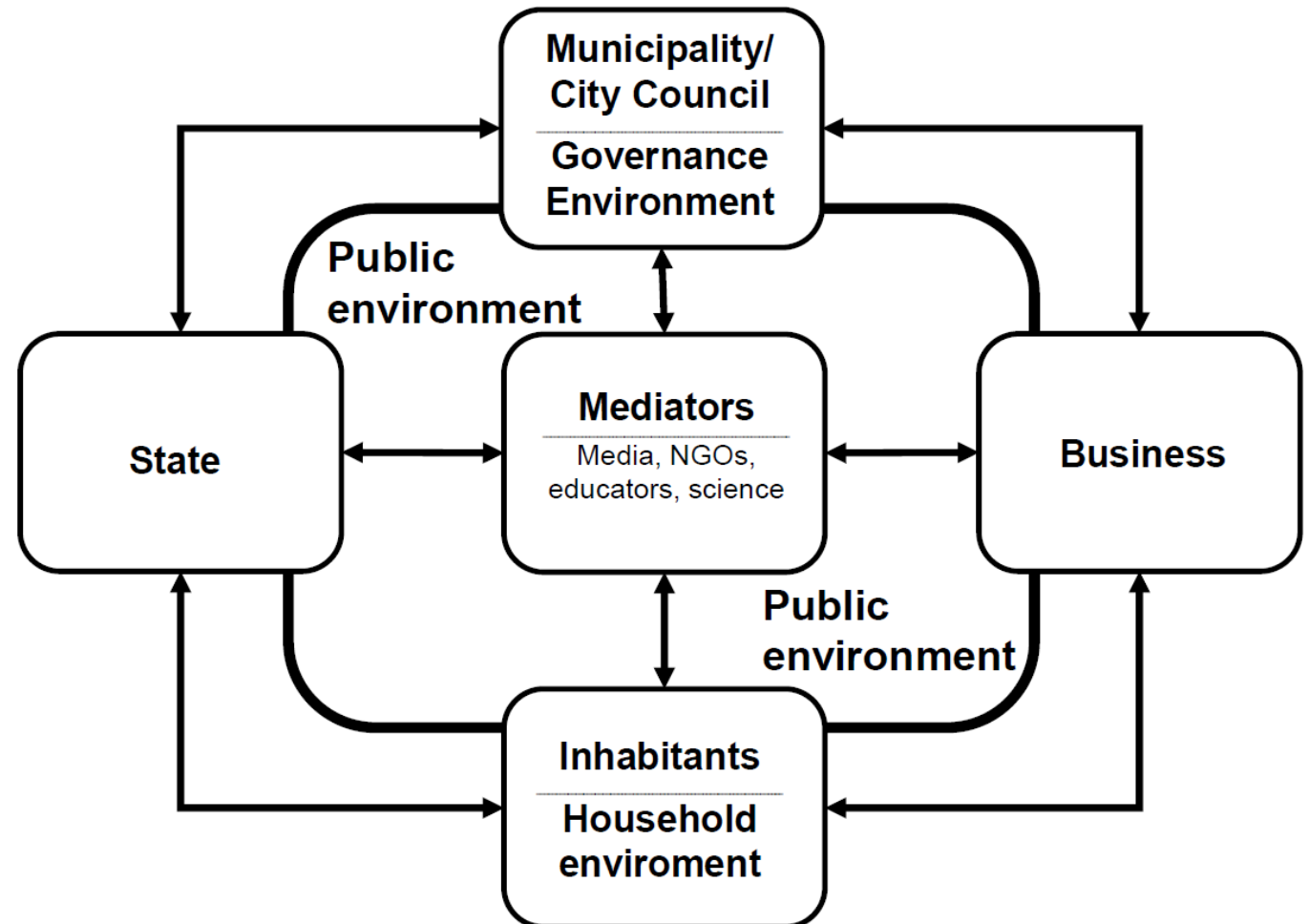
although municipalities are part of the overall state administration system, **in practice, it is often observed that these two stakeholder groups have different information, perspectives, and interests in various situations.** Therefore, it is important to examine these stakeholder groups separately.

- **2- Similarly, a significant influence in environmental governance and communication is exerted by mediators**, which are further divided into **four sub-segments:**

- **Media**
- **Educators (formal/non-formal education)**
- **NGOs (Society-based, Professional etc.)**
- **Academia/Science sector.**

BACKGROUND OF THE NEW QUINTUPLE HELIX MODEL (R.Ernšteins)

- In our **environmental governance research**, including its various sectoral thematic studies and, particularly, in **Research-and-Development projects** (Ernšteins, 2001; 2017), we **use a similar but fundamentally differently structured and emphasized model of all main stakeholder groups**—the **hierarchically structured collaboration model of governance segments**.

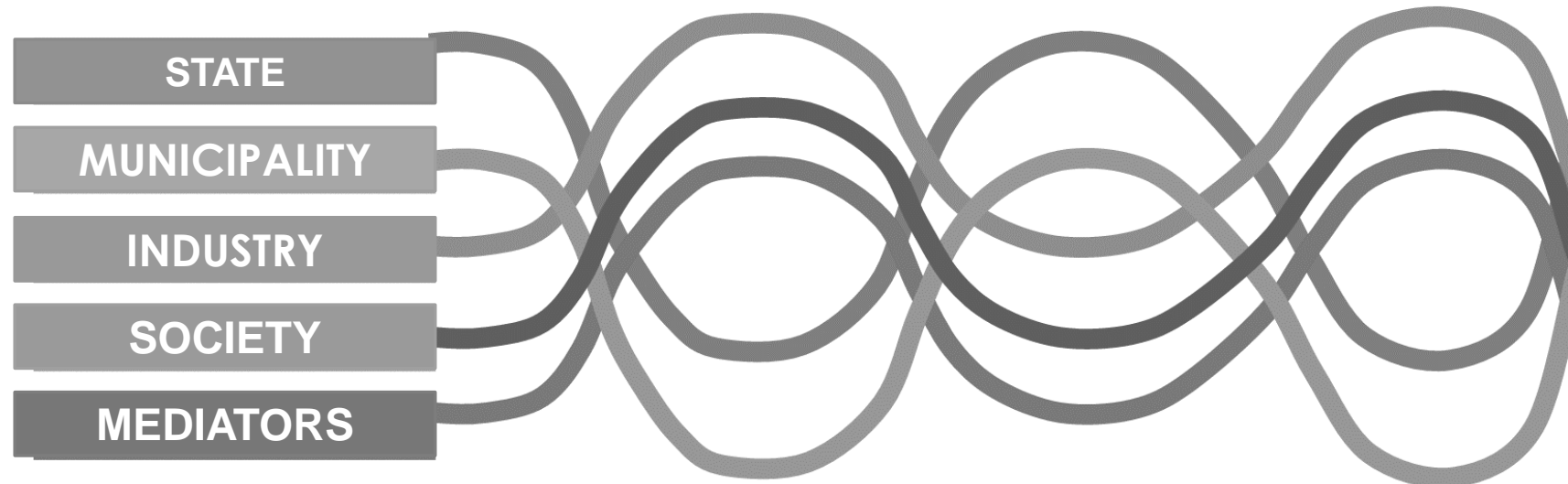


ADAPTATION OF THE Quadruple/QUINTUPLE HELIX MODEL (R.Ernšteins)

- The model simultaneously shows the stakeholder groups'
 - vertical and horizontal
 - the hierarchically structured direction of collaboration and
 - the overall need for interaction to ensure that all **the segments created by the stakeholder groups form a complementary and cohesive whole**
- nation-wide stakeholdership system.**
- For effective environmental governance in a country, it is necessary to have all five segments – system governance requires:
 - state administration segment,
 - municipal administration segment,
 - individual/household inhabitants segment,
 - corporate segment,
 - and the overall mediator segment.

IN THE CONTEXT OF RESEARCH METHODOLOGY

- **The adapted (updated/enhanced) NEW Quintuple Helix model** (R. Ernsteins) is an approach model for structuring and describing stakeholder groups, where the groups are divided into **five intertwined collaboration spirals**, corresponding to the hierarchical model of target group collaboration created within the five management segments.
- According to which the **stakeholder mapping was conducted** and the report was created.





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Stakeholder segments MATRIX: Latvia case Identification and Overview of stakeholder groups



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STAKEHOLDER GROUPS SEGMENTS (examples of stakeholders)	Stakeholder groups overview	Level of engagement (from 5→1)	Engagement Before the Study (Methods)	Engagement in the Study (Methods)	Post-Study Engagement (Methods)	Priority (Summary from 3→1)
<u>SOCIETY</u> <ul style="list-style-type: none"> Households (from apartment buildings to rural homesteads), their communities, etc. Individuals – Local nature/environment activists, opinion leaders Social and diverse informal interest groups Local resident / household communities, village elders, village councils Thematic groups of residents – fishermen, hunters, mushroom pickers, medicinal plant experts, gardeners, bird watchers, divers, etc. 						
<u>MEDIATORS</u> <ul style="list-style-type: none"> Media – local/regional television, portals, newspapers, municipal publications, social media, influencers, etc. Educators – formal and informal education, Eco-Schools, clubs, etc. NGOs – local thematic (e.g., beekeepers, coastal groups) and social (e.g., pensioners) associations, local partnerships/LEADER groups, Local Government Associations, lake management NGOs, village NGOs, home producers and artisans' NGOs, etc. Academia – institutes (e.g., BIOR), laboratories, scientists, experts, etc. 						
<u>INDUSTRY</u> <ul style="list-style-type: none"> Farmers (including Green Markets, direct food supply chains, etc.) Tourism businesses (including nature/environment, canoeing, hiking/skiing, cultural activities, etc.) Service/production companies, including electricity network companies Environmental and other consulting firms (including the Environmental Solutions Institute/Cēsis), etc. 						
<u>MUNICIPAL / LOCAL GOVERNMENT</u> <ul style="list-style-type: none"> Planning Regions/Structures County Councils, administration, services/agencies, etc., including Public Service Institutions (PSIA) Including tourism information centres, municipal police, museums, libraries, cultural centres, youth centres, etc. Thematic nature/environment specialists/experts (e.g., lake managers), public relations, website, social media, etc. County district administrations and their services, etc. 						
<u>STATE</u> <ul style="list-style-type: none"> Ministries and Departments, Services, etc. Regional Offices/Agencies of Ministries, etc. National Parks, Other Protected Natural Areas, etc. 						

STAKEHOLDER GROUPS SEGMENTS (examples of stakeholders)	STAKEHOLDER GROUPS OVERVIEW	Level of engagement (from 5-->1)	Engagement Before the Study (Methods)	Engagement in the Study (Methods)	Post-Study Engagement (Methods)	Priority (Summary from 3→1)
SOCIETY <ul style="list-style-type: none"> • Households (from apartment buildings to rural homesteads), their communities, etc. • Individuals – Local nature/environment activists, opinion leaders • Social and diverse informal interest groups • Local resident / household communities, village elders, village councils • Thematic groups of residents – fishermen, hunters, mushroom pickers, medicinal plants collectors, gardeners, bird watchers, etc. 						

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INDUSTRY <ul style="list-style-type: none"> • Farmers (apsi, incl. Green Markets, direct food supply chains, etc.) • Tourism businesses (including nature/environment, canoeing, hiking/skiing, cultural activities, etc.) • Service/production companies, including electricity network companies etc. • Environmental and other consulting companies (incl. Environmental Solutions Institute/Cēsis), etc. 						

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<u>MUNICIPAL / LOCAL GOVERNMENT</u> <ul style="list-style-type: none"> • Planning Regions/Structures • Municipal local county Councils, administration, services/agencies, etc., including Municipal Service Companies (PSIA) • Including tourism information centres, municipal police, museums, libraries, cultural centres, youth centres, etc. • Municipal thematic nature/environment specialists/experts (e.g., lake managers), public relations, website, social media, etc. • County local parishes administrations and their services, etc. 						

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STATE <ul style="list-style-type: none"> • Ministries and related particular Departments, Services, etc. • Regional Offices/Agencies of Ministries, etc. • National Parks, Other Protected Natural Areas, etc. 						

STAKEHOLDER GROUPS IN THE DVIETE RIVER BASIN – 53

STAKEHOLDERS	STAKEHOLDER BENEFITS	INTEREST OF STAKEHOLDER	PLANNING LEVEL OF ENGAGEMENT	REASON TO INVOLVE
STATE GOVERNANCE				
1. Ministry of Environmental Protection and Regional Development of the Republic of Latvia	Topical ministry - environment, regional and local municipalities, incl. HELCOM national supervision	Medium	Consult	Policy
Regional Environmental Board, Daugavpils Region	Regional/local environmental supervision	High	Involve	Local knowledge
Latvian Environment, geology, meteorology centre (incl. River basin districts management)	National nature resource (water resources) supervision/admin	High	Involve	Expert scientific knowledge
Latgale Regional Administration, Nature Conservation Agency	"Dviete Floodplane Nature Park" NATURA 2000 territory management	High	Involve	Expert scientific knowledge
2. The Ministry of Agriculture of the Republic of Latvia	Topical ministry - agriculture, fisheries, forestry etc	Medium	Inform / Consult	Policy
Southern Latgale Forestry of the State Forest Service	Supervising forestry within NATURE 2000 as case territory	Medium	Inform / Consult	Expert scientific knowledge
South Latgale Regional Agricultural Department	supervising agriculture within NATURE 2000 as case territory	High	Involve	Expert scientific knowledge
3. The Ministry of Economics		Medium	Inform / Consult	Policy
Investment and Development Agency of Latvia, Tourism department	supervising tourism development within NATURE 2000 as case territory	Medium	Inform / Consult	Policy

MUNICIPAL GOVERNANCE

1. Municipality of the Augsdaugavas region	Augsdaugavas region case territory	High	Involve	Policy
Department of Natural Resources of the Augsdaugavas region	Augsdaugavas region case territory	High	Involve	Policy
2. Municipal administrations of the Augsdaugavas municipalities:	Municipal administrations case territory	High	Involve	Local knowledge
Bebrene municipal administration	Bebrene municipal territory administration - case territory	High	Involve	Local knowledge
Pilskalne municipal administration	Pilskalne municipal territory administration - case territory	High	Involve	Local knowledge
Dviete municipal administration	Dviete municipal territory administration - case territory	High	Involve	Local knowledge
Sedere municipal administration	Sedere municipal territory administration - case territory	High	Involve	Local knowledge
Eglaines municipal administration	Eglaines municipal territory administration - case territory	High	Involve	Local knowledge
3. Municipality of the Jekabpils region	Neighbour municipality along main Daugava river left coast	Medium	Inform / Consult	Policy
4. Municipal administrations of the Jekabpils municipality	Rubenes municipal territory administration - case territory	Medium	Inform	Local knowledge
Rubenes municipal administration	Rubenes municipal territory administration - case territory	Medium	Inform	Local knowledge
5. Tourism information centre, Ilukste city	All tourism information, consultation, guiding and development	High	Inform / Involve	Local knowledge
6. The municipal agency of the Augsdaugavas region "TAKA"	All tourism information, consultation, guiding and development	High	Inform / Involve	Local knowledge
8. Souther-Latgale municpal training centre	Adult and municipal training centre	Small	Inform	Expert scientific knowledge
9. Latgale Planning Region Development Council/Administration	Sub-regional state-municipal governance level	Inform	Consult	Policy

CIVIL SOCIETY

Dviete Valey municipal society	Local/main NGO in case territory/main project's local partner - association of local municipal administrations, incl. NATURE 2000 work	High	Involve	Local knowledge
Society "Bebermine"	NGO in Bebrene municipality - case territory	High	Involve	Local knowledge
Bebrene education society	NGO in Bebrene municipality - case territory	High	Involve	Local knowledge
Bebrene hunting and fishing society	NGO in Bebrene municipality - case territory	High	Involve	Local knowledge
Daugavpils region and Ilukste municipal partnership "Neighbours"	Two main municipalities in the case territory (incl. LEADER projects)	High	Involve	Local knowledge
Selonian region municipal association	Daugava river left coast culture region - municipal cooperation	Medium	Inform / Consult	Policy
Southern Latgale NGO support centre	Regional mediator for local NGO and community developments	Medium	Inform / Consult	Local knowledge
Municipal association "Partnership Daugavkrasts "	Regional mediator/communicator (also LEADER etc funding networks)	Medium	Inform / Involve	Local knowledge
Farmers society "Farmers Saeima (parlament)"	National farmers society/key agriculture stakeholder	Medium	Inform / Consult	Policy
Euroregion "Country of Lakes"	Latvian-Lithuanian-Belarusian Association of border Local Governments	Medium	Inform / Consult	Local knowledge
Latgale Region Development Agency (Daugavpils)	Association of municipalities	Medium	Involve	Expert scientific knowledge
Consultative Council of Daugava river basin district	NGO and public authorities for river basin district, incl. case territory	Medium	Inform / Consult	Policy

CORPORATE GOVERNANCE

1. SIA "Ornaments", municipal enterprise	Municipal water etc. Territorial services / management	High	Involve	Local knowledge
2. Local farmers	Living/farming within the impacted territory of floodplain	High	Involve	Local knowledge
Large cooperative animal husbandry company	Living/farming within the impacted territory of floodplain	High	Involve	Local knowledge
Large cooperative crops company	Living/farming within the impacted territory of floodplain	High	Involve	Local knowledge
Vegetables	Living/farming within the impacted territory of floodplain	High	Involve	Local knowledge
Biological, graslands	Living/farming within the impacted territory of floodplain	High	Involve	Local knowledge
Milk/animal husbandry	Living/farming within the impacted territory of floodplain	High	Involve	Local knowledge

MEDIATORS

1. MEDIA	Regional mediator/communicator service, also national TV programs	Medium	Inform / Involve	Policy
Latgale Regional TV, Daugavpils	Regional mediator/communicator service, also national TV programs	Medium	Inform / Involve	Policy
"Latgales Laiks" - Latgale regional newspaper, Daugavpils	Regional mediator/communicator service	Medium	Inform / Involve	Policy
2. EDUCATORS				
Bebrene secondary and professional education highschool	local/regional professional education and expertize	High	Involve	Expert scientific knowledge
3. ACADEMIA/ SCIENCE				
Nature training/research station "Ilgas", Daugavpils University	Scientific expertize and training facility, programs, conferences etc	High	Inform / Consult	Expert scientific knowledge
Professional Training Centre, Daugavpils University	Short/long term courses/programms for professional further training	Medium	Inform / Consult	Expert scientific knowledge
Latvia University of Life Sciences & Technology (Agriculture), Jelgava	Agriculture research and education, national centre	Medium	Inform / Consult	Expert scientific knowledge
Latvia University, Faculty of Geography and Earth Sciences, Riga	Environmental, water, nature prot. research/education, national centre	Medium	Inform / Consult	Expert scientific knowledge
Latvian Nature Fund	NGO/expert foundation, incl. Dviete NATURE 2000 projects	High	Involve	Expert scientific knowledge

Key problem statements among stakeholder groups in the Dviete River basin area

NGOs and Nature Conservation Agency	Nature Conservation Agency has developed a nature conservation plan for the area and, within the project, has established several wild pastures. However, the Nature Conservation Agency does not provide any financial support for the nature plan and the maintenance of the wild pastures , and all responsibility falls on the voluntary work of NGOs.
NGOs and Latvian Fund for Nature	Within the project framework, the Latvian Fund for Nature established several wild pastures within the nature conservation area. However, the maintenance of these pastures is currently solely the responsibility of NGOs.
Ministry of Agriculture and NGOs and Nature Conservation Agency	The regulatory framework for grazing wild animals in nature reserves is not properly arranged, and the Food and Veterinary Service imposes requirements applicable to livestock . This creates bureaucratic obstacles and penalties that are difficult to meet . The Rural Support Service payments are insufficient, as they are justified by the fact that these lands are not used for agricultural purposes.
NGOs and ecotourism companies (boat rental operators)	Ecotourists do not contribute to the development of the area , while NGOs are responsible for maintaining all infrastructure. Therefore, NGOs want boat rental operators to charge a fee of 3 euros per ecotourist ticket, but the boat rental operators are unwilling to cooperate.
Nature Conservation Agency and ecotourism companies (boat rental operators)	Nature Conservation Agency is opposed to water-based ecotourism because boat trips during the fifth season could endanger bird nesting sites.
Farmers and Nature Conservation Agency	Farmers' economic activities in the nature reserve are restricted, but the compensation for this is very minimal, which creates dissatisfaction among local farmers.
NGOs and the local government	Greater involvement and support from the municipality are expected, as the support currently provided is very minimal and does not cover all the management costs incurred throughout the year.



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MARG: Stakeholder Practice



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MARG meeting example: Agenda

(09.09.2022 Dviete Old Valley information center)

- OPTAIN **project management report** on the work done in the reporting period 2021-2022,
- **Discussion N1** - proposals for the development
 - **water runoff regulation measures/PRACTICE** in the EU: needs and opportunities for the Dviete river basin
 - Development of public **consultation proposals for the BASIN modeling** of the selected measures
- **Discussion N2** - proposals
 - **indicators of the natural environment and socio-economic environment** for the assessment of water resource conservation and reuse measures;
 - Development of **public consultation proposals by choosing indicators for Dviete**
- Proposals of for the **practical development** of the **OPTAIN project for the next work period.**

MARG 2 meeting - EU proposed solutions: **Agrotechnical measures**

- 1. Green cover of the ground cover (green fallow) - cover as much land as possible with vegetation.
- 2. Creation of meadows and pastures.
- 3. Creation of buffer strips
- 4. Annual change of plants (cultures) (also reduces the spread of diseases and pests).
- 5. Forming volumes in strips, not homogeneous.
- 6. Cultivation of different crops in one area.
- 7. Minimal soil cultivation methods.
- 8. Shallow plowing or cultivation of the soil. This approach uses special tools.
- 9. Early sowing (not possible in Latvia).
- 10. Building terraces (not useful in Latvia).
- 11. Reduction of herd density.
- 12. Use of mulch.
- 13. Other measures that were not mentioned in the list.
- Some of the methods that were mentioned for agrotechnical measures are not possible in Latvian conditions, because the terrain or climate interferes with it.

MARG 2 – Measures proposed by the EU – **Hydrotechnical measures**

- 1. Creation of small ponds.
- 2. Restoration/creation of wetlands.
- 3. Restoration of floodplains.
- 4. Restoration of river meanders.
- 5. Restoration of riverbeds.
- 6. Restoration of seasonal watercourses.
- 7. Connecting Vecupja lakes with rivers.
- 8. Restoring the structure of riverbeds (includes placing stones in rivers).
- 9. Removal of obstacles limiting river water flows (includes liquidation of dams).
- 10. Shore stabilization.
- 11. Liquidation of shore strengthening structures.
- 12. Restoration of lakes.
- 13. Restoration of natural infiltration of underground waters.
- 14. Recultivation of polders.
- 15. Removal of aquatic plant nutrients from watercourses (includes mowing and removal of aquatic plants).
- 16. Other measures.

MARG 2 meeting - key issues and solutions (Discussion)

➤ In the end, the representatives of the target groups decided that:

1- Potential method is **to restore the structure of riverbeds** - method would require relatively little effort on the part of farmers (stones are dumped into rivers), and would not require significant changes in legislation.

2- creation of **buffer zones in the Dviete river basin** is the most useful and also the simplest of the methods.

3- suggestions for better compensation mechanisms and legislative changes as needed for this.

4- In general, the **main resistance to the buffer zone measure may come from farmers who want to cultivate as much of their land as possible**, and in order to achieve their involvement or at least cooperation in this area, it is necessary **to develop more appropriate means of compensation and cooperation-promoting instruments, which currently are insufficient.**



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Summaries, Initial Conclusions and Recomendations



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Initial general **summaries** from the interviews: representatives/inhabitants of **local target groups**

- **General interest to join/work with MARG (also as new kick-off for NGO) !**
- Suggestions **how and when to organize MARG** meetings so that they **can join more widely and also to prepare in time**
- More, regular and selected **information needed**, some eventual short-term **consultations/training - regular and very concrete/updated communication !**
- Local residents believe that this OPTAIN research is **too scientific, with little practical application, and that the proposed EU level/approach solutions are either too complicated or too expensive** – MORE ADAPTATION TO LOCAL SITUATIONS.
- MARG participants are **expecting more practical benefits** at the end of the project, particularly **from Daugavpils University also**
- There was expressed desire **for more practical projects**, such as cleaning the river and improving **tourism infrastructure etc the area.**
- **The opinions of certain interest groups differ and are also contradictory**, both historically based and in the context of the opposites of nature and socio-economic development
- **University researchers (learning SER) can be involved as mediators, and also supporting local NGO networking/consultation work**
- Local residents **would like more state support, as having** not enough funds
 - for effective management of the territory and
 - for NATURA 2000 area management, which is now carried out **voluntarily by a local NGO with some municipal support**

OPTAIN CONCLUSIONS:

Surface Water Resources and Nature Protection Governance

- 1. Not sufficiently developed **cross-sectoral understanding**, particularly, into their **legal, planning, communication, and top-down management applications**, what to some extent could be characterizing the general situation in the country for the surface water resource management, also in the field of nature protection territories management.
- 2. In the absence of existent/sufficient national-level governance situations, **local stakeholders - municipalities and local NGOs - are creating unique management approaches** and developing crucial management, **tourism and also communication frame instruments** for water resources and also Natura 2000 territories management, e.g.:
 - -a. **coordinatory - collaborative mgt institutions/centres by NGOs,**
 - -b. **nature communication and tourism communication institutions/centres etc alike as, actually,**
 - -c. **most important thematical nature-water resources-protection instruments,**
 - -d. **also developing frame and step-wise complementary applying all four nature-environmental communication instruments,**
 - -e. **real-local bottom-up applications based of cross-sectoral understanding and management practicalities**

Better Life: CONCLUSIONS-I OF THE FIRST PHASE (selected)

2. The adapted Quintuple Helix model's stakeholder and organization audit table (Stakeholder Structured Mapping), as well as the in-depth and express interviews conducted with target group representatives, and the use of the MARG (Multi-Actor Reference Group) collaboration platform initiated under the EU H2020 project OPTAIN, demonstrate that

- **these stakeholder groups are**
 - **both little known to each other and**
 - **that there is minimal regular collaboration between them, which is not actively sought or developed**
- **that is to say, collaboration practices are very limited**
 - **both within groups**

➤ and in the context of inter-group collaboration,

- **in summary, collaboration is minimal**
- **and lacks prospective development trends**
- **unless targeted and proactive efforts to foster collaboration are initiated.**
- This includes the use of **specific projects and thematic collaboration forms, such as MARG** (Multi-Actor Reference Group), a collaboration platform for the main stakeholder groups in the Dviete basin within the full context of the 5x Helix model.

CONCLUSIONS-II OF THE FIRST PHASE (selected)

3. The NGO «Union of the Dviete Valley Municipalities» administers and maintains the Dviete River floodplain area through voluntary work and enthusiasm,
- without any regular state or municipal co-financing,
 - the NGO receives funding only from tourists and actively participates in projects through self-created tourism management,
 - meaning **that the funding is project-based and administration is carried out on a voluntary basis.**
 - However, **the funding is not only insufficient but also irregular,**
 - making it challenging to maintain the NATURA 2000 area and
 - preserve the cultural and natural values of the Dviete basin and beyond.
 - Additionally, considering the limited financial resources of the local municipality,
 - the minimal state and municipal responsibility for management, and the lack of a sustainable framework, it would be difficult to ensure the long-term development of the management situation.
 - This includes both fulfilling state functions in the NATURA 2000 area and
 - promoting the bottom-up development of the area simultaneously.

CONCLUSIONS – III OF THE FIRST PHASE (selected)

4. The conceptual model of managing the Dviete River floodplain area (NATURA 2000) **BY LOCALLY-BASED NGO** is a **PERSPECTIVE** example of a **bottom-up approach to community-driven management**. However,
- **it suffers from insufficient engagement and support from higher-level top-down authorities/management**, including
 - **administrative and financial support.**
 - Therefore, for bottom-up management **to be as effective as possible, it is essential to develop cooperation among interest groups** and establish various organizational and thematic collaboration forms (e.g. a collaboration platform).



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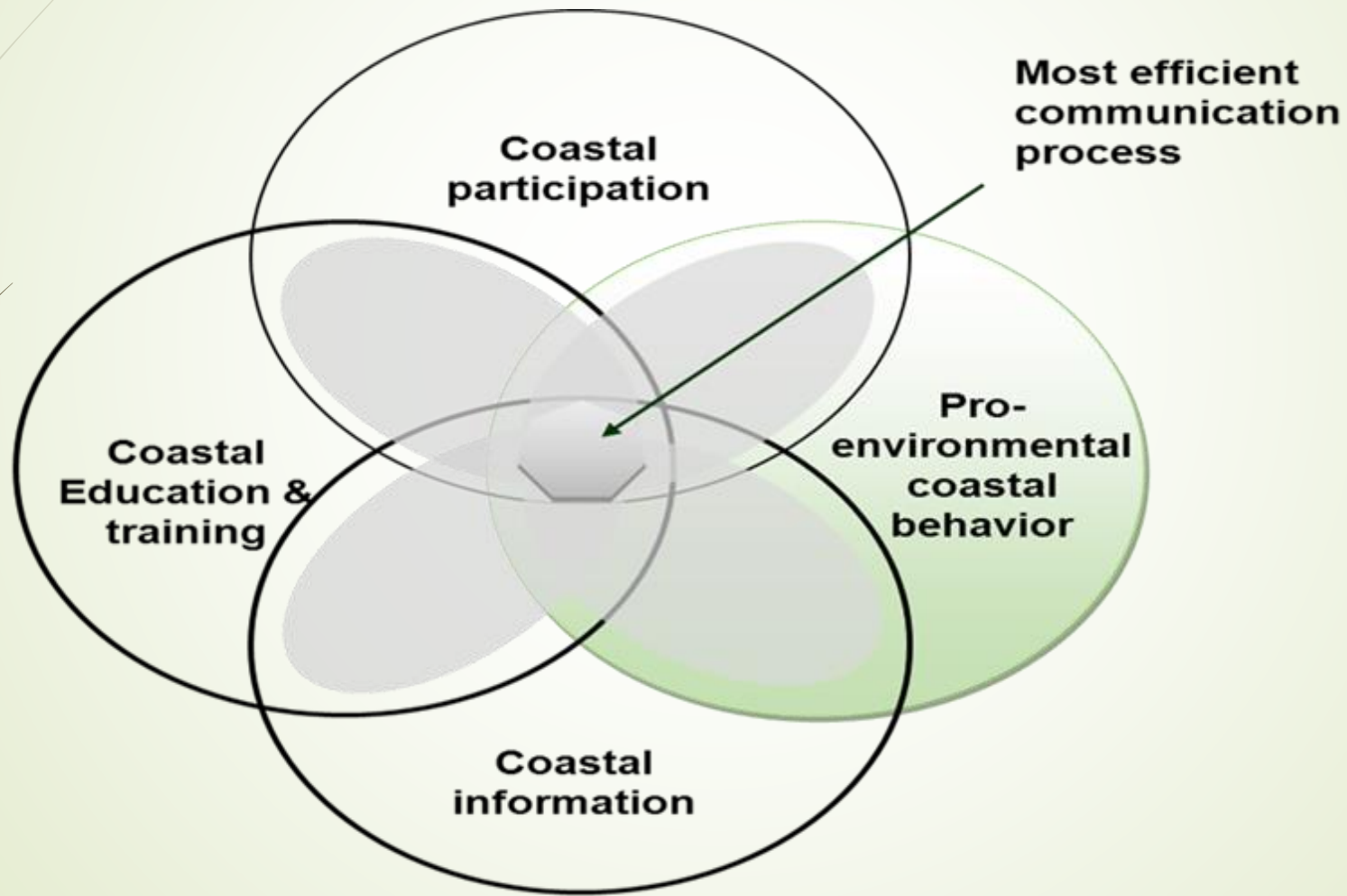
Thank you and questions ?!



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. Coastal governance environmental communications system (Ernsteins 2017)



Examples of communications instruments

1.Information instruments	<ol style="list-style-type: none">1. Visual information sources (maps, pictures, brochures, billboards, booklets)2. Information centers3. Audio-visual sources (films, interactive stands, etc.)4. Public and state media
2.Education instruments	<ol style="list-style-type: none">1. Schools , museums and other places of learning2. Educational programmes, initiatives and lectures3. Non-formal education groups and societies
3.Participation instruments	<ol style="list-style-type: none">1. NGO`s2. Environmental campaigns, clean-ups and similar events3. Land improvement campaigns and voluntary initiatives
4.Pro-environmental behavior instruments	<ol style="list-style-type: none">1. Thematic events (Earth Day, Animal/Plant of the Year)2. Initiatives for the use of renewable resources/energy, pro-environment decisions3.Measures to condemn environmentally unfriendly behavior (the polluter pays, hunting restrictions, tariffs for environmentally unfriendly goods)

1.Environmental Information Instruments		<ul style="list-style-type: none"> ⌚ The center itself is a information point. ⌚ Written materials about the wetland, lake and local nature, and the center itself on website (www.lubanamitrajs.lv/) and social-networks, such as Facebook and Instagram. ⌚ Visual information materials in the territory/nature: ⌚ Informative stands at Wetland TIC and wetlands nature trails; ⌚ Information booklets and brochures about the area, local nature and the wetland; ⌚ Indications regarding wetlands and other natural objects near the center ⌚ Audio-visual instruments such as a video: "Lubana Wetland – Then and Now."
2.Environmental Education Instruments		<ul style="list-style-type: none"> ⌚ Wetland TIC organized birdwatching and nature camps; ⌚ Educational events related to wetland nature and bird watching; ⌚ Lectures and educational events organized by Wetland about the local nature; ⌚ Designing of various nature trails, including information and education elements; ⌚ Bird watching courses and lectures, ⌚ Tour guide services for nature tourists visiting the nature trails.
3.Environmental Participation and Collaboration Instruments	and	<ul style="list-style-type: none"> ⌚ Intermediation between municipalities-NCA-local residents-other interest groups (fisherman, angling enthusiasts, etc.); ⌚ Planning meetings with the involved local stakeholders; ⌚ Participation in working groups and meetings with representatives of local target groups related to the wetland; ⌚ Involvement in: ⌚ Planning works organised by the Nature Conservation Agency (NCA) or the local municipalities related to the wetland; ⌚ Preparation of written proposals and cooperation with other local stakeholders in the development of the Lubana Wetland Nature Protection Plan (2021-2023); ⌚ Cooperation with: ⌚ Other TICs in the wetland region; ⌚ National Ornithological Society and individual local ornithology enthusiasts; ⌚ Tour operators related to nature tourism in the wetland and local area; ⌚ Local guest houses related to the nature environment and nature tourism; ⌚ WTDC "Lighthouse"; ⌚ Local youth/nature NGO`s such as "Arborians", bird watching cooperatives and associations; ⌚ Local municipalities and other groups/organizations.
4.Environmentally Friendly Action Instruments		<ul style="list-style-type: none"> ⌚ Bird watching camps; ⌚ Environmentally friendly behavior education events (identification of rare birds and plant species, tree planting) in cooperation with NCA and LSF; ⌚ Bird feeding and birdhouse making activities related to bird watching; ⌚ Lake coastal area cleaning works (non-biodegradable waste, glass bottles, electronics, etc); ⌚ Pro-environment initiatives around Lake Lubans such as popularization of Zero-Waste lifestyle; ⌚ Support of local fishermen and guest houses regarding Environmentally-friendly actions.
5. All Four Communication Instruments Towards Complementarity		<ul style="list-style-type: none"> ⌚ Participation in designing nature trails for pedestrians and cyclists; ⌚ The Wetland TIC operates as an information center, tourism object, recreational area, guest house, and environmental education object; ⌚ Intermediary between local guest houses, tourists, municipalities, residents, and environmental activists. ⌚ The center oversees the activities of nature tourists visiting the trails and provides active recreation areas. ⌚ Collaboration with municipalities and "Lighthouse" to organize recreational activities in the area. ⌚ Lectures and courses on birdwatching in collaboration with local birdwatching groups and eco-schools to organize bird-watching camps. ⌚ Involvement in planning the Lubana region municipality development strategy, which includes eco-friendly development.