

# Sustainable water resources governance developments: societal practice and cross-sectorial policies

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**Abstract.** The governance process of surface water resources in Latvia, particularly, in small river catchment areas and lake lands, also being Natura 2000 territories, was the main foci for two studies described. Previous traditional research done in related fields in Latvia has been focusing on water studies/protection and nature protection, diverse agriculture sector developments, but often mono-disciplinary and very limited on governance studies, particularly, cross-sectorial governance of the local-regional water/lake/nature territorial socio-ecological system, and also on general and environmental-water-nature governance communications, especially to have all complementary communication instrument groups (information, education/training, participation and pro-environmental behavior).

For this extended abstract/paper, we are to recognize still not sufficiently developed cross-sectorial understanding and its top-down management applications, but also a kind of partially compensatory instrument - existing bottom-up management applications with more cross-sectorial practice and also innovative participatory management qualities. Communities and local municipalities, having limited national support and capacities limitations, developed different specific management approaches for water resources and also Natura 2000 territories governance – they could be called as non-governmental management approach and also tourism communication management approach, where lakes etc. are managed by NGOs established by the municipalities or combined with inhabitants and anglers, being the issue studied during these research projects.

**Keywords:** water and nature management, societal participation, bottom-up instruments, communication

## 1. Introduction and methodologies applied

The Environmental Ministry itself, including Water resources management division and also subordinated Latvian Environment, Geology and Meteorology Centre responsible on Latvian River Basin Management Plans, National Nature Protection Agency, also other sectorial institutions/agencies as well as regional/local stakeholders, especially, governmental and private actors from agriculture, tourism and other sectors, local communities, but particularly also local municipalities and their ground territorial administration structures, still having limited capacities and instruments, are to be all adequately involved into the management practice and hopefully also policy making of related water and natural resources

developments, but taking into account also the various interests of local communities living in nature protection, coastal etc. particular common interest territories. But mentioned processes in practice are not only complex and even with contradicting stakeholders' interests, but also taking often very long timing, and, subsequently, various approaches and encouragement instruments are to be designed and employed.

Clear requirement for cross-sectorial governance policies and their implementation instruments for all and possibly interlinked administration levels, starting from national level practice, has certain limitations still, some non-traditional and often bottom-up based management approaches from societal practice as those being studied for this paper, seem to be really contributing to local cross-sectorial governance activities, as well as to the participatory practice developments as it could be seen analyzing complex problem situations around water resources/territories and/or nature protection territories governance with multi-sectorial and multi-stakeholder interest and necessary participation.

This case study research methodological application was realized for two different even indirectly complementary water resource management EU projects, being both oriented, first of all, towards the recognition of all main stakeholders on all administrative levels in particular territory with their interests, activities and existing/perspective involvement into governance process, as well as, for mapping and analysis of the main governance sectors, necessary/possibly based on socio-ecological system (SES) approach, in relation to study the complex problem situations for cross-sectorial and cross-stakeholder governance practice and necessary developments for water resource management. The triple governance dimensions' principle frame was possibly applied: governance content as socio-ecological systems (SES) based dimension, governance instruments dimension used also for analysis and action policies development frame, and, governance stakeholders dimension into its inquiry and involvement perspective.

All the five general stakeholder interest groups, covering also most of the policy sectors, were recognized and interviewed in both case studies - representatives of national level government institutions (nature-environment-agriculture sectors for both cases and also additionally fishery-forestry-tourism-culture etc. covering most of SES sectors for Lubana lake case) and their regional branches, local/regional level municipal employees and decision makers, mediators (including

NGOs, educators, local experts/scientists), local/regional business sector as well as for Lubana lake case there were express interviews with local community representatives. Both case study research territories chosen for this paper governance studies were based not only on water resources governance developments, but also in combination with emphasis on nature protection (Natura 2000 territories), as well as, there were functioning societal practices based institutional governance, NGO's and communication instruments. These case territories with existing research results are also being currently under study in the another EU project – the Horizon-Widera project BETTER LIFE “Bringing Excellence to Transformative Socially Engaged Research in Life Sciences through Integrated Digital Centers”.

**The Dviete river catchment case** was part of EU Horizon project OPTAIN “Optimal strategies to retain and re-use water and nutrients in small agricultural catchments across different soil-climatic regions in Europe”, oriented towards identification of efficient techniques for water and nutrient retention/reuse in small agricultural catchments. Latvia case of the project is being realized in the Dviete river floodplain as a nature protection territory established in 2004 (Natura 2000), covering an area of about 4,989 ha and established to protect the natural flood-plain meadows, one of the most diverse and richest bird gathering/nesting places in Latvia, located in the territory of Upper Daugava and Jekabpils municipalities in the south-eastern part of Latvia, making it as one of the larger national nature parks.

**The Lubana lake catchment case** was a part of EU project LIFE GOODWATER IP “Implementation of River Basin Management Plans of Latvia towards good surface water status” and it was realized in Lubana lake region as substantial/central part of the Lubana wetland territory (Natura 2000) - protected natural area of international importance (Ramsar site) having more as 47.9 thousand ha in size, making it the largest nature protected area in Latvia. It was established in 2009 by combining 11 previously existing nature reserves into a single complex reserve. Lake Lubana (around 80 km<sup>2</sup>) is the largest lake in Latvia, being also the largest dammed lake in Europe. The whole wetland formed from the former floodplain territory of the lake, currently being located mostly within the borders of Rezekne and Madona municipalities at the central-eastern part of Latvia.

Research-and-development (R&D) studies approach with partial involvement of socially engaged research applications was realized within case study research methodology framework, what included in-depth semi-structured interviews with all main local-regional stakeholders (including main policy sectors involved/to be involved) and also national level policy makers and experts - altogether, almost 40 persons interviewed in lake region Lubana case (also around 60 express interviews) and above 20 persons in Dviete river basin case - complemented also by the document studies and local observation visits.

The general aim of this study choosing and involving two water resources management case territories was to identify and analyze **multi-sectorial and multi-stakeholder governance processes** and, particularly, societal practice also as bottom-up approaches, studying complementary governance dimensions of governance contents/sectors (cross-sectorial applicability), instruments and interest groups of those territories with the

combination necessities of both statutory nature protection governance and water resources governance applications, in order to recognize **pre-conditions for necessary sustainable water resources governance enhancement**, particularly, societal practices further innovations and local management instruments.

## 2. Case study research in Dviete and Lubana regions

Dviete and Lubana regions as two cases of water resources management territories chosen have undergone comprehensive governance studies process, but for this paper frame we will focus on cross-sectorial policies developments problems and societal practices innovations.

### 2.1. Towards cross-sectorial policies: participation

#### Dviete river basin catchment area and NATURA 2000.

Today, measures to promote water and nutrient runoff in rural areas (drainage, melioration, etc.) can also be treated differently, so the EU also practices and financially supports small-scale measures of various types/approaches to promote the reduction or delay of water and nutrient runoff, and such project experience should be collected, evaluated and disseminated as done by the H2020 research project OPTAIN. Between all the results, there were perspectives on adequate and compatible policy mechanisms identified - most respondents considered the sectoral policies not to be adequate, particularly, low compatibility was noted for water scarcity issues, then water quantity in field and water quality nutrient recovery from streams, as well as, incoherent legislation in general. In summary, most of interviewees from national level, but also from other management levels, considered the OPTAIN project issues oriented policies not to be adequate and recognize incoherent governance sectors and authorities, including having still different goals of agriculture - nature, agriculture - water sectors, their interconnectivity. Nature sector persons in general emphasize that nature is not sufficiently mainstreamed, however other sectors representing persons recognized actually the opposite, but also data are not compatible for all sectors. Main problems and challenges for implementing measures - complicated implementation in real life, sector and cross-sector administrative and other barriers, communication aspects, especially, insufficient awareness, communication efforts and qualities due to limited capacities. There is to be seen also some problem of common understanding and interpretation of terminologies and particular measures.

Interviewees recognized also following main suggestions for improved implementation of governance, efforts for better coordination and coherence between nature-environment-agriculture-also other economic sectors, incl. tourism etc.: interests of different policies (sectoral priorities) have to be spatially aligned; improve shared understanding between governance fields; stating concrete responsibilities and duties of various stakeholders in water management. There were also suggestions to actively improve information sharing, education/training needs and stakeholders' engagement – stressing formal/informal consultation procedures and process, developing informal education and digital information sharing, awareness raising and communication in general.

Practical management part locally for this Dviete river basin catchment area and NATURA 2000 territory has been done by an NGO Association of Dviete Valley Municipalities founded already two decades ago by local municipalities and the most active residents of the parishes with the aim of protecting the ancient area of the Dvietes River and maintaining the Dvietes Nature Park – this NGO, being based on projects funding and some municipal support, is actually functioning as Natura 2000 territory voluntary management institution, including necessary works with infrastructure, grazing animal herds etc, and information and education activities.

#### Lubana lake basin area and NATURA 2000.

The natural area is statutory dominated by nature protection (supervised by the Nature Protection Agency) with contrasting Lubana lake/catchment hydrotechnical regulation (statutory responsibility of the Ministry of Agriculture) with significant limitations and unclear local/regional development opportunities (long-term lack of nature protection plan) for other sectors (fisheries, agriculture, forestry, hunting, culture, recreation/leisure and tourism, especially, bird watching etc.), since looking at the lake/region as a socio-ecological system. SES approach has been barely followed and representatives of socio-economic sectors were not involved, besides tourism sector. not particularly targeted until recently, and, local residents and entrepreneurs are insufficiently informed, represented and involved target groups. Currently, the management of Lake Lubans is insufficient in general, and the organizations involved in management do manage their own sectors and do not cooperate enough, promoting the perspective of sustainable development of the territory. There are clear requirements expressed by most of stakeholders to communicate and start really to cooperate in order to agree/design joint multi-stakeholders supported lake governance planning process towards eventually collaborative governance system, that would focus on governance of the entire region, not just the wetland.

The Lubana Wetland Information Centre (WIC) was founded in 2007 with the aim of popularizing Lake Lubana and the surrounding wetland complex among local residents and tourists. Initially, the center was managed by the municipality of Madona, but in 2014, the center was leased by the youth NGO "Pie Kraujas", which managed the center until 2022, when the center returned to the municipal administration. Under the leadership of the NGO, the center was significantly developed, it began to lead tours around the wetland area, organize various educational and bird watching events, provide modest but sufficient accommodation for visitors, and also actively engaged in the organization of recreational events, cooperating both with the municipalities of Madona and Rezekne, and with the Latvian Ornithological Society, other NGO's, entrepreneurs etc.

#### *2.2. Towards societal practices: communication*

In the project, in the Dviete river basin area, it is important not only to collect the related experiences of local municipalities, nature and water protection agencies, farmers and agriculture agencies/NGO's, sector specialists and advisors, academics, local/community and regional/national level NGO's (professional and societal)

but also to provide the opportunity for all these diverse interest groups, particularly the local ones, to cooperate with the researchers during the entire research (socially engaged research), incl. by establishing a permanent Multi-actor reference group (MARG) and organizing possible information exchange, project results discussion and cooperation. This is to be done together with NGO named Association of Dviete Valley Municipalities.

Since 2008, the NGO operates and maintains the Information Center "Gulbji", staffed by volunteers and/or project workers, providing information and educational activities on the natural, cultural and historical values, management of biologically valuable grasslands, ecotourism developments, consultations on natural grazing.

The Wetland Information Center (WIC) serves not only information function but has several important functions. Nature information/communication function, also tourism information function. WIC initially operated just as tourism and nature information center, but it was more and more developing nature education/training and nature-friendly behavior activities with wide range of target/interest groups and also it was involving and participating itself in local/regional and nature protection planning. Stepwise all main communication complementary parts/instruments were elaborated – information, education, participation, pro-nature behavior. The center also has administrative and institutional function - it is acting as an intermediary between local residents/visitors and local businesses/tourism entrepreneurs, nature and other governmental agencies and municipalities, also working with mediators as NGO's, educators, mass media. WIC also provides some control/influence over tourists/visitors - it is main locally present institution with administration staff to inform/communicate not only visitors, but also local inhabitants/business about nature protected areas and permissions/prohibitions there.

In the cooperation of the main actors, the WIC can potentially be developed as an essential communicative-administrative management instrument, in the absence of other full-fledged nature/lake protection institutional instruments in the area.

### **3. Conclusions**

Sustainable water resources governance developments are still being partially limited by **not sufficiently developed cross-sectorial understanding** and its legal, planning, communication and top-down management applications, as it is to be seen also during evaluation of two Natura 2000 framed territorial watershed case studies research applications, which to some extent are characterizing general situation in the country, also in the field of nature protection management. From other side, as a kind of **partially compensatory mechanism**, there is to be recognized local bottom-up management applications, as real institutional instruments developing eventually more cross-sectorial understanding and practice at the local level, as well as, importantly having innovative participatory management qualities.

In the conditions of limited national management level support, local municipalities, having not enough administration capacities, are developing different specific

management approaches for water resources management, also for the management of Natura 2000 territories, being without locally present nature protection administration personal. For example, various lakes, Natura 2000 territory are managed by NGOs being established by one or several municipalities or by the communities themselves as consisting of local inhabitants, land owners, anglers etc, or combining both options, what's getting more attention lastly. This approach could be called as **non-governmental management approach**. However, NGO partnerships with municipalities are still important, particularly, in the lake/nature infrastructure maintaining and development etc. as in the studied case of Dviete River Valley NGO.

Another approach could be recognized and called as **tourism communication management approach**, in general comparison, being formally similar to the widely known traditional municipalities owned Tourism Information Centers. But in case of Lubana Wetland Information Centre, such institution is managing not only nature and tourism information, but also education/training and pro-nature behavior activities, even participatory works, so covering whole **complementary set of nature-environmental communication instrument groups**. Also as Lubana lake and the whole Lubana Wetland Natura 2000 territory have no locally present nature administration, Lubana Wetland Information Centre is partially performing their duties too, especially, in information and consultation etc., what all can and shall be further developed in partnership between national Nature

Protection Agency and municipality, and, in collaboration with other stakeholders.

Mentioned examples of specific bottom-up management approaches, actually recognize that either local **municipalities related NGOs, nature tourism and also nature communication institutions** could be assigned as really important sustainable water resources and nature protection management institutional instruments and often as the only one institutional instruments locally available. In the case of Lubana lake and wetland management, tourism should be emphasized not only as a management sector, but also as an important instrument for nature/lake protection and factor to stimulate the development of other local sectors.

All diverse sectorial and general stakeholder interests are to be communicated, coordinated and collaboratively governed, and, in particular, during **all the stages of governance process** (assessment, policy and planning, management, monitoring and communication), what's often is still not fully realized in practice.

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