



## **Novae Village – Revitalization case study of the village of Mohovo (NoVi)**

**Proposed project duration: 36 months**  
**Proposed project budget: app. 1.2 Mill EUR**

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*Abstract: NoVi aims at creating a model for a successful sustainable revitalization of rural villages in the Danube River basin facing abandonment. The case study area Mohovo is not only a Danube village but situated along the Croatia-Serbian national border. The model aims at addressing the most important development issues while balancing social, economic and environmental aspects in line with the SDGs and EU Strategy for the Danube River Basin. On-Site Assessment in combination with national and international expertise and participation will ensure the appropriateness of proposed solution and positive long-term impacts of the project. The model can then be applied in other areas to tackle similar tasks while accommodating for local aspects.*

*Keywords: Sustainable Community Development, Cross National Cooperation, Danube River Basin Communities*

### **Why does the consortium wish to undertake this project?**

The Danube is Europe's most international river as its basin covers about 800,000 km<sup>2</sup> in the territories of 10 states<sup>1</sup>. The industrial and social activities in these countries', differ greatly and have diverse impacts on the areas alongside the river basin. These impacts differ from country to country, but they can be very similar in the former communist states due to similar political, economic and social processes. During the transition to open-market economy, the closing down of the economic activities left only agriculture as a means to make ends meet. This process impacted mainly small and medium sized communities, especially where the majority of the population was employed by the former industries. At the same time certain city centers, outside the Danube basin started blooming due to direct investments and they lured the younger generation to abandon their small river settlements for a better future.

Many rural areas and the rural way of life have gone through a global crisis in recent years. Traditional agriculture and rural culture have been disappearing or undergoing assimilation through urbanization and modernization<sup>2</sup>. These villages have great added value to the rural landscape, economy and culture. Unfortunately, high economic investment is required to revitalize a village if there is no structured and well-studied plan. In an increasingly urban world, job opportunities, infrastructures and social life activities are settling in urban areas, as a result, villages are largely disappearing because of emigration from rural to urban zones. In some countries this has become an eminent problem and recent case studies show the importance of stopping the trend of disappearing villages. In some cases

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<sup>1</sup> Verena Winiwarter, Martin Schmid, Severin Hohensinner, and Gertrud Haidvogel, The Environmental History of the Danube River Basin as an Issue of Long-Term Socio-ecological Research

<sup>2</sup> Gao, J., & Wu, B. (2017). Revitalizing traditional villages through rural tourism: A case study of Yuanjia Village, Shaanxi Province, China. *Tourism Management*, 63, 223-233.

tourism has been recognized as a key approach to rural development and poverty alleviation<sup>3</sup>. Scholars propose integrative and sustainable rural tourism-based traditional village revitalization model to better understand the relationship between rural tourism and village revitalization. Integrated rural tourism and sustainable livelihood theory and ideology are integrated in this model 4-5.

Rural regions in the Danube River basin differ considerably in social, economic and demographic characteristics.<sup>6</sup> Therefore, finding the most effective solution for village revitalization depends on the case under study. Within the Danube region a lot of areas are being abandoned. In many cases they are of architectural importance: testimonies of architectural styles which are linked not only to particular historical periods but also to particular places, and as such have cultural importance <sup>7</sup>. The rural areas along the Danube pride on unique geographic, environmental and cultural characteristics, rich nature and cultural heritage, fertile valleys, man-made transportation and flood facilities. On the other hand, as communities are small, their population is mostly over-aged, they depend on agriculture and lack other economic initiatives. Inevitably, such observations lead to the question: “Can these areas be left to die out? If not, what are the drivers for the revitalization of these rural areas?”

The selected case-study area for the project is Mohovo village which faces the aforementioned phenomenon. Being situated along the Danube, it has the potential to be prosperous as claimed by scientists, who agree that well-developed communities are located along rivers. The Village of Mohovo is part of the City of Ilok (local governance level) and Vukovar-Srijem County (regional governance level) in Croatia. It covers an area of 11,5 km<sup>2</sup> (26,3 inhabitants per km<sup>2</sup>). In 2001 303 inhabitants and 96 households were recorded, which constitutes a 35% decrease over the last 50 years. Concerning ethnicity, the village is populated by both Croatians and Serbians equally, which is uncommon in this part of Croatia due to the war taking place in recent history, and as such represents a good example of a peaceful reintegration of the area.

In the 1980s, the Socialist Federal Republic of Yugoslavia (SFRY) faced political and economic crisis, reflecting the increasingly conflict relations between the Republic and the provinces. During both World Wars, the Ilok region suffered major social changes. Further changes arose from 1991 to 1994 had greater impact and caused significant consequences for Mohovo area.

The cultural heritage of Mohovo includes two archeological sites: the prehistoric, antique and medieval, church of St Nikola Tavelić (catholic) and the church “Vaznesenja Gospodnjeg” (orthodox). Additionally, in 2012 some bone fragments of a woolly mammoth and a rhino from the Pleistocene were found. Forestry issues include devastation of forests during the last war that were not managed afterwards; some parts are inaccessible due to unresolved issues with the neighboring state of Serbia – those are unmanaged and illegally felled. Due to the climatic and pedological characteristics of the area, there is the possibility and the need for irrigation in agricultural production (planned accumulations). There are two abandoned ponds south of Mohovo village that were used for fish production until the 1990s. They are now neglected, overgrown with weeds and low vegetation, while their outlets are destroyed.

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<sup>3</sup> Nyaupane, G. P., Morais, D. B., & Dowler, L. (2006). The role of community involvement and number/type of visitors on tourism impacts: A controlled comparison of Annapurna, Nepal and Northwest Yunnan, China. *Tourism management*, 27(6), 1373-1385.

<sup>4</sup> Zou, T., Huang, S., & Ding, P. (2014). Toward A Community-driven Development Model of Rural Tourism: the Chinese Experience. *International Journal of Tourism Research*, 16(3), 261-271.

<sup>5</sup> Zhou, R., & ZhongLS, L. J. (2015). Research on rural world heritage sites: Connotation and tourism utilization. *Geographical Research*, 34(5), 991-1000.

<sup>6</sup> Medojevic, J., Milosavljevic, S., & Punisic, M. (2011). Paradigms of rural tourism in Serbia in the function of village revitalisation. *Human Geographies*, 5(2), 93.

<sup>7</sup> Russo, P., Riguccio, L., Carullo, L., & Tomaselli, G. (2013). Using the analytic hierarchical process to define choices for re-using rural buildings: application to an abandoned village in Sicily. *Natural Resources*, 4(4), 323.

The existing state road currently doesn't meet the technical elements of traffic safety. The spatial plans envisage the construction of 13 km of new modern roads, which would greatly improve the traffic through the village of Mohovo. Local roads also need to undergo considerable improvement.

The part of Danube passing through the Republic of Croatia is classified as a high-speed international waterway route. There is no harbor or appropriate mooring berths in Mohovo.

The area of Mohovo is at a high level of telecommunication development. A development plan for further improvement of the network exists. Local power exchanges have been replaced by modern stations and the number of connections will gradually increase according to the local needs.

Currently energy for the village is provided by a gas network. Alternative energy sources such as biomass, solar energy and wind energy have not been explored or implemented so far.

It is necessary to improve the water management in order to protect the existing watercourses against the harmful effects of the industrial and agricultural byproducts, especially downstream of the water-borne watercourses of torrential character. The water supply system of Mohovo is connected to the transport pipeline from the direction of Ilok city. The current wastewater repository for the Mohovo village is the river Danube. The construction of a wastewater purification plant has been planned.

A Spatial Plan encompasses the new and the existing settlements in Mohovo: including renovation of buildings, modernization of existing and construction of new communal infrastructure.

The wider area is designated as a part of Natura 2000 ecological network: Site of Community Importance HR2000372 Dunav – Vukovar. The Spatial Plan of the Vukovar-Srijem County recognizes and proposes the whole right bank of the Danube River (including the area of Mohovo) for protection as an especially valuable natural landscape. A conceptual design is being prepared for the nearby area, Dunavac, in order to promote its usage for a sport and recreation considering different purposes.

### **Rationale for the setting-up of the consortium**

Mohovo, as well as the City of Ilok (as a local self-government unit), belong to the first group of cities and municipalities of the special state concern. Having suffered the deterioration impact of depopulation, it is important to kick-off a bottom-up movement for redevelopment of the Mohovo area that will engage both the local self-government unit but also local communities. At the moment, few initiatives are under way but lack the systematic approach and are not able to tackle all aspects essential to ensure sustainability of the community.

Thus the setting-up of this consortium is proposed aims at creating a model of sustainable village revitalization. We strongly believe that the proposed consortium brings together top-level national (Croatia) and international experts, perfectly suited to assess both current situation and possibilities related to economic, social and environmental development of the Mohovo area. Moreover, international expertise and knowledge of the Danube Region will ensure adequate dissemination of projects results and promotion of the model in the Danube basin rural areas.

Possible consortium partners are:

- City of Ilok (as a local self-government unit, Croatia);
- Regional Centre of Expertise on Education for Sustainable Development (University of Graz, Austria);
- Faculty of Agrobiotechnical Sciences (Josip Juraj Strossmayer University of Osijek, Croatia);
- Faculty of Economics and Business (University of Zagreb, Croatia);
- Business and Development Department (incl. the experts in intercultural communication, University of Ruse, Bulgaria);
- Department of Tourism and Communication Studies (University of Zadar, Croatia) and/or Ilok Tourist Office (Croatia);

- Faculty of Technology Novi Sad (University of Novi Sad, Srbija);
- Department of Engineering and Architecture (incl. the experts for the project risk management, University of Trieste, Italy);
- Geonatura Ltd. Consultancy in Nature Protection (Zagreb, Croatia).

At the same time, during the implementation of various work packages different various stakeholders will be approached and consulted, such as:

- representatives of local community, including the representatives from NGO Valley of the Mammoth and Angling Society “Kečiga” Šarengrad (Croatia).
- Water Management Department for the Danube and Lower Drava River (Hrvatske vode, legal entity for water management) (Croatia);
- Regional Forest Administration Vinkovci and / or Regional Forest Office in Ilok (Hrvatske šume, limited liability company for forest and woodland management) (Croatia);
- Hrvatske ceste d.o.o., limited liability company for management, construction and maintenance of state roads (Croatia);
- Hrvatska elektroprivreda d.d., legal entity for electricity (Croatia);
- Public Institution for the Management of Protected Natural Values in the Vukovar-Srijem County (Croatia);
- Croatia Agency for the Environment and Nature.

### **European added value**

Research and promotion of best practice will improve sustainability within the Danube region. Novae Village is an added value to the region since it will contribute in reduction of future risks or at least mitigation of consequences. It will create a model for those communities along the Danube who wish to tackle similar problems and will provide movement of capital (human, knowledge, experiences, etc). Implementation of the project and realization of the proposed model will contribute to achieving the targets of various EU strategies and directives, e.g. the EU Biodiversity Strategy to 2020, EU Strategy on Green Infrastructure, Renewable Energy Directive, EU strategy on adaptation to climate change, EU Water Framework Directive and Floods Directive and others.

The success of the project depends on the EU expertise and funds. EU cooperation ensures the proper know-how & experience, while regarding the financial means, currently there is no any possibility to apply for such a project in the national, regional or local funding.

### **Aims and objectives**

Based on the preliminary research, as explained above, this project proposal sets the following aims and objectives:  
Phase 1 (Year 1 and 2) - Aim: Develop a research-based model on how to revitalize a rural area along the Danube, which could:

- Objective 1 Limit the brain drain and depopulation
- Objective 2 Improve the quality of life of local community, measured by SDGs
- Objective 3 Propose and encourage sustainable economic activities
- Objective 4 Propose measures for natural and cultural heritage.

Phase 2 (Year 2) - Aim: Approbate the model and assess its community impact as an applicable pilot initiative .

Phase 3 (Year 3) - Aim: Promote this model in the Danube basin rural areas.

### **Sustainability**

According to the relation between the BOCR (Analytical Network process analyses include Benefits, Opportunities, Costs and Risks) factors of the Project and SDGs, the impact of this project could be sustained beyond its lifetime. Outcomes that we consider sustainable are listed in benefits and the opportunities are the possible alternatives that can guarantee the objectives. Therefore the project objectives directly improve 9 SDGs: No Poverty, Zero Hunger, Quality Education, Renewable Energy, Good Jobs and Economic Growth, Sustainable Communities, Climate Action and Life on Land. This relationship between SDGs ensure long lasting success of the objectives. Two SDGs could be at risk: Clean Water and Sanitation and Life on Land which will be considered in the Work Packages to avoid any deviation from objective during the project. At project level Risk and Cost assessment provide a reliable index for project continuity and financial stability. The feasibility of the project could be quantitatively analyzed by BOCR analytical network process.

### Project activities and Methodology

<b>WP Title and Nr</b>	<b>Research on current situation in Mohovo</b>	<b>1</b>
<b>Description</b>	<p>In order to develop an effective model that would encompass both sustainable development and nature conservation, existing socio-economic situation and natural values of the Mohovo have to be assessed in detail:</p> <ul style="list-style-type: none"> <li>● demographic profile of the population, are there any seasonal fluctuations;</li> <li>● state of the transport (roads, public transport, waterways), energy, telecommunications, water supply and treatment infrastructure;</li> <li>● existing economic situation;</li> <li>● existing quality of life – schools and education, health care, recreation possibilities et.;</li> <li>● existing tourism situation;</li> <li>● existing natural values and ecosystem services.</li> </ul> <p>Moreover, similar cases (researches, models) of village revitalization, i.e. their strengths and weaknesses will be analyzed.</p> <p><b>Methods:</b> literature and online research, field research of Mohovo area, questionnaire surveys, interviews, participative meetings with relevant stakeholders, GIS analysis et.</p> <p>Timeframe: Phase 1</p>	

<b>Tasks</b>	<ul style="list-style-type: none"> <li>● Data gathering – extensive literature and online research on both the existing situation in Mohovo area and similar cases.</li> <li>● Assessment of existing infrastructure (transport, energy, telecommunications, water supply and treatment).</li> <li>● Assessment of existing economic situation.</li> <li>● Assessment of existing quality of life (schools and education, health care, recreation possibilities et.).</li> <li>● Assessment of existing tourism possibilities.</li> <li>● Field work – research of natural values and ecosystem services.</li> <li>● Area assessment from the aspects of biodiversity (includes field research).</li> <li>● Mapping and assessment of ecosystem services (includes field research).</li> </ul>
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<b>WP Title and Nr.</b>	<b>Possibilities for Mohovo infrastructure development</b>		<b>2</b>
<b>Description</b>	<p>Good infrastructure is essential for sustainable cities and communities – good health and well-being of their inhabitants, their access to quality education and affordable energy. Moreover, it promotes knowledge and products exchange with other communities, tourism and economic growth. At the same time, poorly implemented infrastructure can have a distinct negative impact on biodiversity (ecosystem services) and cultural heritage and increase the vulnerability of local community to natural disasters and effects of climate change. Therefore, based on the data gathered during the Work Package 1, possibilities for Mohovo infrastructure development will be assessed in detail, with an emphasis on nature-based solutions and emerging new technologies.</p> <p>Methods: literature and online research, participative meetings with relevant stakeholders, GIS analysis, optimization and planning processes et.</p> <p>Timeframe: Phase 1</p>		
<b>Tasks</b>	<ul style="list-style-type: none"> <li>● Assess the options for developing sustainable health-care and education infrastructure.</li> <li>● Assess the options for implementing sustainable housing and architecture.</li> <li>● Assess the options for sustainable transport (incl. potential new roads, public transport options and connections to other nearby cities, bike lines et.).</li> <li>● Assess the suitability of implementing the Blue-Green infrastructure (BGI).</li> <li>● Assess the plant-based waste water treatment options.</li> <li>● Assess the renewable energy options (e.g. small wind turbines, solar panels).</li> <li>● Write a report and propose recommendations for development and implementation of sustainable infrastructure.</li> </ul>		

<b>WP Title and Nr.</b>	<b>Possibilities for Mohovo economic development</b>		<b>3</b>
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<b>Description</b>	<p>This WP will not only provide a solid comprehensive analysis on existing economic players and related technical infrastructure but also a List of Recommendations on new initiatives, which could be implemented by SMEs or agricultural companies. Furthermore it will deal with the complex alchemy between stakeholders (farmers, industry, local authorities, institutional experts) with different interests and cultural backgrounds, required for the emergence of new and sustainable economic initiatives.</p> <p>This last part of the WP will actively promote cooperation between stakeholders and suggest a marketing plan for the local branding.</p> <p>Timeframe: Phase 1</p>
<b>Tasks</b>	<ol style="list-style-type: none"> <li>1. Application of qualitative and quantitative methods to analyse the existing economic players and related technical infrastructure</li> <li>2. Analysis of existing examples for successful LED.</li> <li>3. Development of a marketing plan for the local branding.</li> <li>4. Drafting a List of Recommendations on sustainable economic initiatives.</li> </ol>

<b>WP Title and Nr.</b>	<b>Possibilities for Mohovo educational development</b>	<b>4</b>
<b>Description</b>	<p>Rural education will take into account community contribution and economy aspect of community such as what is the parents occupation, where the school located, are the community aware about education, and it will be part of promoting some educational goals. This WP will ensure a institutions that provide basic education that motivates children to study, training to give them skills for the labor market, opportunities for some to pursue higher education and motivation such as scholarships. Ensuring teachers well supported is crucial for successful rural education. Application of modern educational technology to the development of the rural vocation education will inevitably lead to the renovation of teaching philosophy and the reform of teaching mode and forms. Ideally, science fairs have the capacity to be a core organizing principle in elementary and secondary schools. The fairs will include science, involve many subjects in school, and require an understanding of measurement. Local association named "Dolina mamuta" will provide workshops, seminars, research reports, and other major presentations.</p> <p>All the mentioned activities will be proper for different age groups.</p> <p>Time frame: Phase 1</p>	
<b>Tasks</b>	<ol style="list-style-type: none"> <li>1. Ensure community participation</li> <li>2. Improving early childhood education and educational institutions</li> <li>3. Improving teachers skills and training</li> <li>4. Application of modern educational technologies</li> <li>5. Organisation of science fairs</li> <li>6. Organisation of workshops, seminars, research reports under the patronage of "Dolina</li> </ol>	

	mamuta" association
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<b>WP Title and Nr.</b>	<b>Possibilities for Mohovo tourism development</b>	<b>5</b>
<b>Description</b>	<p>At present times the village of Mohovo does not offer any tourist infrastructure or services, such as accommodation, restaurants, etc. In order to revitalize the area it is of vast importance to create new jobs and income opportunities through the development of a new tourist market. In that respect, the long-term positive effects in the whole region can be achieved by some strategic measures to enhance the tourist offer and generate interest in visiting the area. One of the major activities in that respect would be building a digitally enhanced interactive educational center based on the recent archeological discoveries of the mammoth remains. For future development in terms of investment in road infrastructure, signs for tourists and designing thematic maps and guides would greatly contribute to the revitalization of the Mohovo area. Finally, an introduction of a set of standards would be suggested as a precondition for a sustainable development of the suggested tourist services. For example, ISO 9000:2015 standards would make a good basis for establishing quality systems because they provide detailed guidance to assist the various stakeholders in tourism during their implementation, as well as later during the application of the system of control and quality improvement.</p> <p>Time frame: Phase 1</p>	
<b>Tasks</b>	<ul style="list-style-type: none"> <li>● Assess potential of existing tourism possibilities</li> <li>● Create GIS Survey of possible sites for tourism industry</li> <li>● Write recommendation for local actors</li> </ul>	

<b>WP Title and Nr.</b>	<b>Defining and approbation the development model</b>	<b>6</b>
<b>Description</b>	<p>The process of defining the model consists of a set of actions, targeted at community involvement. For this the project uses the transdisciplinary approach to jointly negotiate development scenarios for sustainable revitalization, of Mohovo area.. The main scientific and practical outputs will include: a model of possible sustainable revitalization and a practical Tool Kit for community-based local redevelopment. These outputs will be achieved via the organization and implementation of three Forum sessions with the local community stakeholders and a publicity campaign to promote the mid-term results of the public discussions and the final outputs.</p> <p>Time frame: Phase 2</p>	



<b>Tasks</b>	<ol style="list-style-type: none"> <li>1. Elaboration of three Forum sessions to discuss and define the Model among different development scenarios for sustainable revitalization</li> <li>2. Publications (on-line, social and traditional media) on the mid-term results of the public discussions and the final outputs.</li> </ol>
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<b>WP Title and Nr.</b>	<b>Dissemination</b>	<b>7</b>
<b>Description</b>	<p>Description The project committee agrees on a detailed dissemination plan for addressing different stakeholders of the project. Dissemination activities will include:</p> <ul style="list-style-type: none"> <li>• Promotional Events for Local Actors</li> <li>• Information Events for Financing Parties</li> <li>• Writing and Distributing Press Releases to Media about Project Activities</li> <li>• Scientific Publications on the Results of the work packages</li> <li>• Creation of Information Material</li> <li>• Participation of Project Partners at International Conferences</li> <li>• City Exchange Programme</li> </ul> <p>Timeframe: Phases 1, 2 and 3</p>	
<b>Tasks</b>	<ul style="list-style-type: none"> <li>• Write Dissemination Plan</li> <li>• Organisation of Events</li> <li>• Create Dissemination Material</li> <li>• Write Scientific Papers</li> <li>• Setting up City Exchange Programme</li> </ul>	

<b>WP Title and Nr.</b>	<b>Project Management</b>	<b>8</b>
<b>Description</b>	<p>The Project Management Plan will be compiled and approved by all project partners and will define how the project activities will be properly executed, monitored and controlled, and terminated. It will provide a comprehensive baseline of what has to be achieved by the project, how it is to be achieved, who will be involved, how it will be reported and measured and how information will be communicated. It will be made available to all project partners. All the financial details of the budget will be recorded in a transparent manner complying with the signed protocol. The project management committee will provide an effective and objective management of all the work and operations of the project concerned with the implementation of the program flow, financial management and project monitoring, evaluation, and dissemination process. The development and agreement on a plan of how to handle risks and conflicts is an important part of the project management plan. A strategy paper on dealing with different languages and intercultural aspects will be developed at the beginning of the project.</p>	

	Timeframe: Phases 1, 2 and 3
<b>Tasks</b>	<ul style="list-style-type: none"> <li>• Create Project Management Plan</li> <li>• Budget controlling</li> <li>• Reporting</li> <li>• Risk Management Plan</li> <li>• Intercultural Communication Strategy</li> </ul>

### Budget Estimation

Budget estimation was made under the assumption of a 3 year project. Detailed budgeting will be done once the consortium chooses a specific call in order to adhere to the specific budgeting guidelines of the funding parties. Different strategies can be applied to attract co-funding and other forms of support for the project.

1.	Labour costs - staff costs for the Six project partners institutions for 3 years to deliver the WP, including One Manager and 12 researchers	app. 600.000,- EUR
2.	Travel- all project travel costs for project partners	app. 100.000,- EUR
3.	External services - organisation of partner meetings and stakeholder events, travel and participation of associated partners and project stakeholders in project related events, consumables, external experts, audit	app. 600.000,- EUR
4.	Administration costs/overheads - flat rate of 5% is applied to the sum of (1+2+3) for all six Universities	app. 45.000,- EUR