



WHAT IS THE WAY FORWARD?

SCENARIOS FOR
THE NIRAJ-TÂRNAVA MICĂ REGION
WITH RELATION TO ECOSYSTEM SERVICES



MINISTERUL MEDIULUI,
APELOR ȘI PĂDURILOR





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Târgu Mureș

2016

You are holding the summary of the "Mapping and assessing ecosystem services in Natura 2000 sites of the Niraj-Târnava Mică Region" project in your hand. The project was generously supported by the EEA Grants 2009-2014 with the contribution of the Romanian Ministry of Environment, Water and Forests. The implementation is led by Milvus Group Association, with contribution from the partner organizations Centre for Ecological Research of the Hungarian Academy of Sciences (MTA ÖK) and CEEweb for Biodiversity, the Hungarian representative of the network of European nature conservation NGOs.

For more information, please visit: www.eeagrants.org, www.eeagrantsmediu.ro, www.eeagrants.ro.

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PUBLISHED BY:

Milvus Group Association

SUGGESTED REFERENCE:

Arany, I., Bogdány, Sz., Czúcz, B., Kalóczkai, Á., Kelemen, A. M., Kelemen, K., Papp, J., Szabó, L., Vári, Á., Vizi, I., Zólyomi, Á. (2016): What is the way forward? Scenarios for the Niraj-Târnava Mică region with relation to ecosystem services. Târgu Mureş, Romania



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DEAR READER!

You are holding in your hands a publication regarding **the Niraj-Târnava Mică region's natural environment as well as its future**. With the help of the short summary you will gain insight into our study, which was carried out along the two rivers with the contribution of local stakeholders.

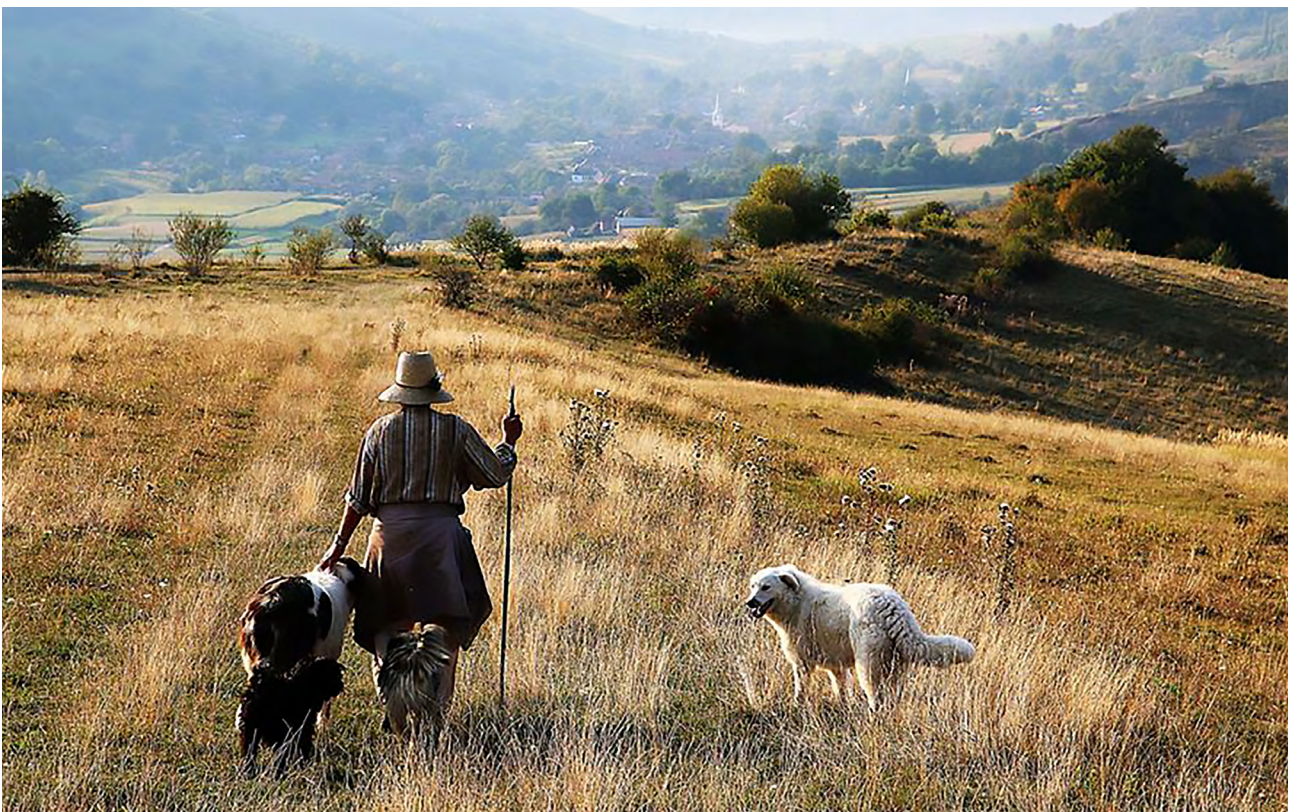
During the study we aimed to assess and map the Niraj-Târnava Mică region's most important ecosystem services, to help incorporate them into the decision making processes at different levels. In order to conserve the **ecosystem services** selected by the local population, we drew up **scenarios** and developed proposals to help preserve natural assets and keep them available for the future.

In preparing the study, our fundamental aim was to generate **locally usable, practical results**. We believe that the best way to reach our goal was to involve the local population throughout the whole process from the first planning steps to drawing conclusions and discussing the lessons learnt. This book is thus the result of joint work: we as researchers established a few flexible frameworks to be filled with content by the active members of the local community. The introduced scenarios reflect the love of nature, the hopes, concerns, fears and worldviews of local inhabitants, accordingly. We hope that the countless in-depth conversations and the collective pondering will result in a deeper, shared understanding of the challenges we currently face, and that the answers received will point towards real solutions and common goals.

In this publication, amongst all the main steps and results of the study, we mainly address those concerning the possible future scenarios for the Niraj-Târnava Mică region. More information about the further results of the project is available at www.milvus.ro/ecoservices website under the study *What are the gifts of nature worth? - Summary study of the mapping and assessment of ecosystem services in Natura 2000 sites of the Niraj-Târnava Mică region*.

We recommend this short summary to anyone who feels concerned about the future of the Niraj-Târnava Mică region, or would like to see real alternatives for the conservation of natural assets and would like to make a difference in the region through their conscious decisions.

This publication was released within the project *"Mapping and assessing ecosystem services in Natura 2000 sites in the Niraj - Târnava Mică region"*. The project's eligible amount is 402.340,41€, of which 60.351,06€ is co-financed from the national budget through the Romanian Ministry of Environment, Waters and Forests, RO02 Programme - Biodiversity and Ecosystem Services.



INTRODUCTION

The mosaic landscapes of Transylvania hide unique natural values, which are relevant at European level. Land tenure systems, land use and its changes in the past centuries have made it possible to maintain a rich biodiversity including significant populations of species of high nature conservation value in the area, even at a European scale. This particularly rich biodiversity is the result of a harmonious and balanced long-term coexistence between man and nature.



The harmony between man and nature is not only a beautiful legacy and moral value, it also brings concrete benefits to people and society as a whole. The scientific community calls these benefits ecosystem services, which are essential services that nature provides to society. These services -for example the natural self-cleaning ability of air and water, the pollination of flowers, or the natural beauty of our living space -, are essential for the society and the economy, including the healthy functioning of local communities. However, we are facing a rapid decline of these services. To stop and reverse this loss, we need to assess and understand the goods that nature provides us with: which are the most important services ecosystems provide (Figure 1), at the same time we have to face the fact that we cannot exploit our finite resources merely for financial gains.

3 GROUPS OF ECOSYSTEM SERVICES:



PROVISIONING SERVICES

Material products provided by the ecosystems (eg. food, fuel, timber, herbal substances, natural medicine, genetic resources for farming and animal husbandry, ornament materials etc.).



REGULATING SERVICES

Ecosystem processes providing stable and safe living conditions (e.g. regulation of air quality, climate and water systems, control of erosion, water purification, control of pests, diseases and natural disasters, pollination).



CULTURAL SERVICES

Non-material goods provided by ecosystems that people can benefit from (spiritual enrichment, cognitive development, inspiration, relaxation, social connections, cultural heritage, aesthetic experience and ecotourism).

Figure 1.



THE RESEARCH PROCESS

The main goal of our study was to explore the relationship between man and nature through assessing ecosystem services in a characteristic Eastern-Transylvanian area, the Niraj-Târnavă Mică region (Figure 2.). This area is well-known to the project organizers who have had a long term working presence in the region. The area is a good representation of wider

Transylvanian hilly areas both in terms of habitats and in landscape change. Whilst the Niraj-Târnavă Mică region still has the traditional elements present, modernization has already started in several places. The different changes within society also provide a good representation of the changes across the whole Transylvanian hillside area.

MAP OF THE STUDY AREA

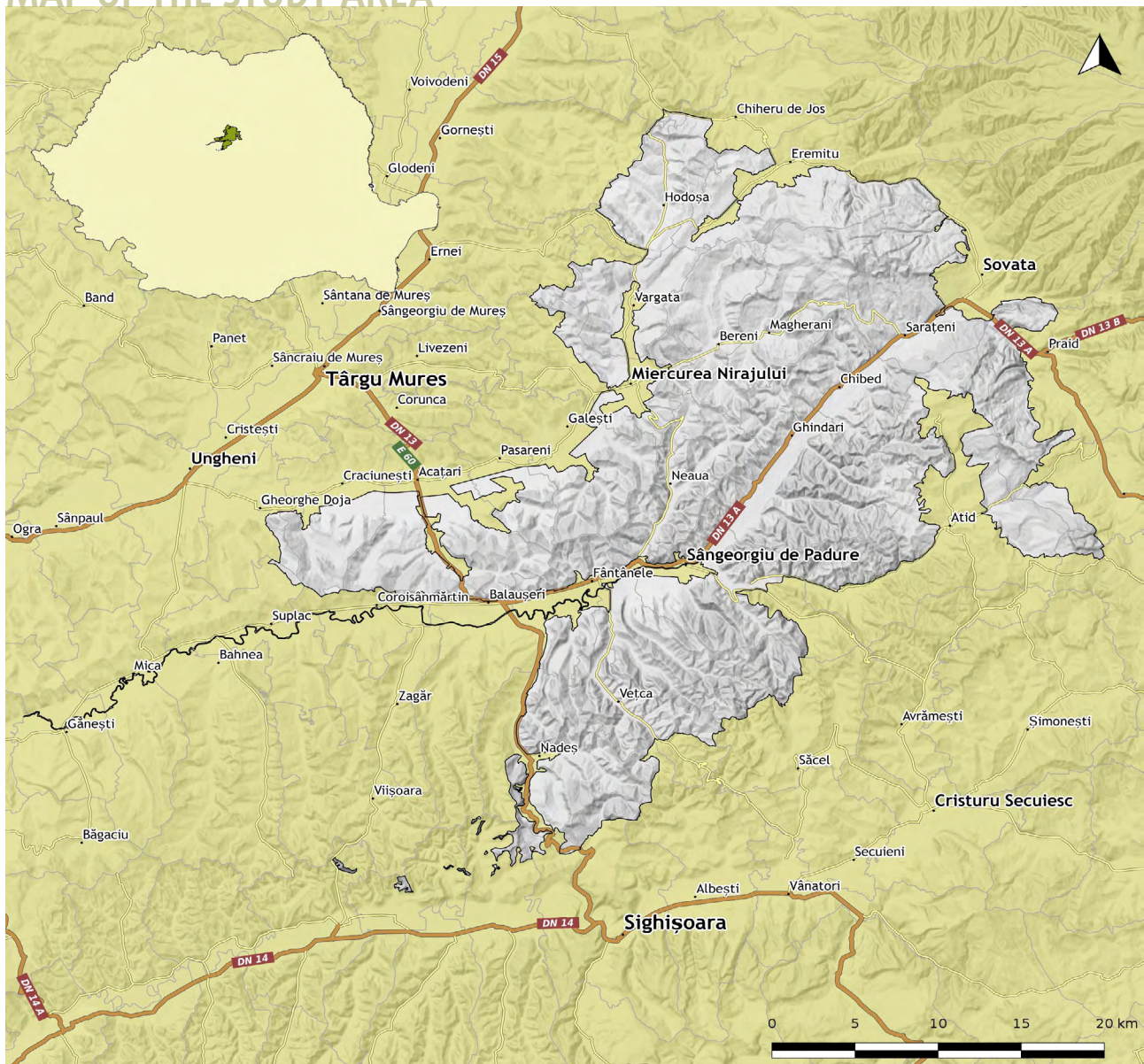


Figure 2.

The research area was designated to overlap with the four Natura 2000 sites around the Niraj-Târnavă Mică region. The study area thus covers land in three counties, the major part located in Mureș county, and two smaller areas in Harghita and Sibiu counties. Two rivers, the Niraj-Târnavă Mică pass through the area, and the settlements are mostly located along them. 202 768 people (2014) live in the region, 13 % of the population concentrated in the six cities of the region. Since the political transition, the popu-

lation has been constantly decreasing, due to three key reasons: (1) declining birth rates, (2) significant migration towards bigger cities (3) emigration in the hope of better life quality. The study area hosts good populations of lesser spotted eagles, middle spotted woodpeckers, and grassland specialists such as the corncrake. These species are good indicators of habitat richness. The brown bear, whilst being present in very few regions on a Europe-wide level, remains common in the Niraj-Târnavă Mică area, perhaps a

bit too common if you ask some local people. And whilst it is still difficult to spot an otter, its traces can be regularly observed along the riverbanks. Despite the diversity of the landscape and species, invasive alien species, such as the coneflower and goldenrod,

which give the landscape its yellow colour during August, are on the rise.

For this investigation into the area of ecosystem services we set up a research process based on the recommendations of the European Union.* We strived to



give a prominent role to the knowledge and values of the local community during the implementation and to maximise stakeholder involvement. We selected the ecosystem services to be assessed based on the opinions of the local communities. These opinions were explored through interviews and questionnaire surveys. Subsequently we completed the assessment

and mapping of ecosystem services across the area, a process that involved building models based on the expert knowledge of local people who deal with the management of ecosystems and their services on a daily basis. This process can be viewed as an attempt to assess the relationship between habitat types and their ecosystem services by formulating



* The proposals and recommendations of the European Union are assessed in the report "Mapping and Assessment of Ecosystems and their Services - Indicators for ecosystem assessments under Action 5 of the EU Biodiversity Strategy to 2020", which was published in 2014.

quantitative rules and illustrating them on maps of ecosystem service provision. During the process we also, where possible, assessed the current value of the services for the research area by assigning monetary values to the services provided. Throughout the entire process, an Advisory Board, representing the most important economic and social sectors of the

area, contributed a great deal to the study (Figure 3.). The main task of the Board was professional supervision and ensuring credibility: every important step and result of the study were discussed with them and their suggestions were built into the analysis and models.

ADVISORY BOARD



The implementation of the research project was substantially supported by an Advisory Board representing local experts from a wide range of fields (agriculture, forestry, hunting, water management, tourism, municipalities, civil sphere, regional associations, education, nature conservation, press). The Board, comprising 12 members, met 4 times during the research process, and we also consulted its members individually regarding questions related to their areas of expertise. The main task of the Board was professional supervision, advisory work and ensuring credibility: every important step and result of the study was discussed with them and their suggestions were built into the analyses, models and evaluations. All members of the Board live and work in the project area, and represent the Niraj-Târnavă Mică region almost equally.

Figure 3.

During the study, in addition to mapping and assessing the selected ecosystem services we strived to draw up a holistic, systematic ideal future scenario of the region, combining scientific and societal aspects. To achieve that, we developed four possible alternative scenarios for the area and as-

essed them with the contribution of local stakeholders, based on their values, desires and fears. The main goal of this publication is to present the process and the results of this scenario planning. Figure 4. gives a brief overview of how it connects with the overall study.



THE KEY ELEMENTS OF THE OVERALL RESEARCH PROCESS

DETERMINING THE RESEARCH FRAMEWORK

We conducted interviews with local stakeholders and collected data with the aim to explore the natural and social conditions and the landscape use of the area, and the local means of subsistence. We reviewed the regulatory environment, the economic situation and the most important local stakeholders. We created an Advisory Board comprising local experts (Figure 3.), which supported our work at key points throughout the whole project.

IDENTIFYING THE MOST IMPORTANT ECOSYSTEM SERVICES

Based on the results of the interviews and the questionnaire surveys conducted among a wide range of local stakeholders as well as the opinions expressed by the Advisory Board, we identified the most important ecosystem services of the region.

MAPPING ECOSYSTEM SERVICES

As a first step of the mapping process, we developed a detailed habitat map, which formed the basis for the mapping of the ecosystem services. We then formulated models based on scientific literature and the knowledge of local experts. The models describing the capacity of habitats to provide ecosystem services were used for the visual representation of the services.

SCENARIO PLANNING

Together with the Advisory Board and additional representatives of local social groups (experts, land users, inhabitants) we examined the most important factors influencing the fate and living conditions of the landscape and the communities living here as well as the possible directions of change. Based on the results, we developed four alternative scenarios.

ASSESSING ECOSYSTEM SERVICES

We assigned monetary values to the results of the models by applying market prices or indirect valuation methods. Beyond the economic value, the different habitats have a social role value as well that cannot be monetised. The forest for example is not only important in terms of its marketable timber as it also provides recreation opportunities. In order to take into account the non-monetised social benefits, we complemented monetary valuation with the social valuation of possible capacities and actual benefits.

EVALUATING THE SCENARIOS

We evaluated the outlined future scenarios in terms of the ecosystem services and human well-being they provide, which we then compared to the current situation. Taking all this into account, the local stakeholders identified the ideal scenario.

LESSONS LEARNED

Together with the Advisory Board we reviewed the results based on which the local experts developed policy recommendations for the sectors that have the biggest impact on the landscape (agriculture, forestry, water management, tourism, municipalities, the civil sphere and regional associations).

Figure 4.

WHY DO WE NEED TO CONSTRUCT SCENARIOS?

Ecosystems that provide their essential services are complicated natural systems. We affect their operation with every decision, be it cutting down a tree, building a new road or pension, or stopping grazing on a hill. However, making the right decisions is not an easy task: often private interest flies in the face of public interest, short term runs counter to long term. Furthermore, we do not understand the interrelatedness of the complex systems either, hence we have difficulty seeing clearly the possible consequences of our decisions. Moreover, our future is threatened by countless uncertain economic, social or environmental factors from climate change to geopolitical processes which make decision-making or even giving advice on concrete issues all the more difficult.

However, there is an option in the arsenal of science for tackling such deeply uncertain and complex issues: scenario planning. The main aim of scenario planning is to condense all the unknown and uncertain factors into a few different but internally consistent scenarios by considering the main driving forces

and covering the main uncertainties of the future. Scenarios focus on the common, joint effect of different factors. They create the impression as if we were studying how the different colours and shapes move on a large tapestry if one thread or the other is pulled.

Scenario planning is not a scientific process in the strict sense of the word: without the extensive participation of and dialogue between those involved, there is no chance of understanding interrelatedness or identifying values and threats. Accordingly, during scenario planning and evaluation we intended to address and involve all major social and professional layers of the local community. Without the participation of the experts of sectors including agriculture, forestry, water management, tourism, education, and others, the results achieved can easily show internal contradictions and can poorly reflect natural relationships as well as local and social idiosyncrasies.

Figure 5. describes the four main steps of the process closely related to scenario planning.

THE KEY STEPS OF SCENARIO PLANNING

1.

DETERMINING
THE FACTORS

By factors we mean all the influences and driving forces that determine the direction of the present and expected development of the local society and have an effect on the condition of the natural environment too. These factors provided the basis for scenario planning. The major factors of the Niraj-Târnavă Mică region were determined with the help of the Advisory Board. Members of the Advisory Board selected the two factors that they deemed most important of all the collected ones: the “cohesive force of the community” and “land use regulation (environmentally friendly or non-friendly)”.

2.

DEVELOPING
4 ALTERNATIVE
SCENARIOS

We determined the two possible endpoints of the two selected factors, namely: 1) Strong, close-knit community – weak, diverging community 2) Environmentally friendly regulation – non-environmentally friendly regulation. This way we could construct four alternative scenarios. The scenarios were created by 4 focus groups of 4 or 5 local people answering thematic questions. The scenarios take place in 2040. The constructed scenarios were visualized by the groups using photo collages.

3.

EVALUATING
THE SCENARIOS

As a first step of scenario evaluation we estimated, using ecosystem service mapping models, how the examined ecosystem services change in the scenarios. This was followed by another workshop examining the effect of the above on the welfare of the local population. Participants of the workshop determined, in 4 groups of 4 or 5 apiece, which social groups will be winners and losers of the given scenario and what the welfare of these social groups will be like in the given scenario. Evaluation was carried out based on six dimensions of welfare supported by the literature. These dimensions were as follows: livelihood, social recognition, physical health, mental and spiritual health, being a member of a community, safety and public safety. The evaluation was followed by the selection of the scenario that would be ideal for the local people.

4.

DEVELOPING
RECOMMENDATIONS

Results of the scenario evaluation workshop and the chosen scenario were presented to the Advisory Board and we asked them to come up with recommendations for the major sectors affecting land use so that the chosen scenario becomes a reality/near-reality by 2040. The most important sectors were: agriculture, forestry, water management, tourism, local governments, civilian society, associations of small regions.

As a first step of the process we examined, relying on the help of the Advisory Board, what were the critical economic, social, land use and regulatory drivers that have the greatest impact on ecosystems and hence on the availability of their services. After identifying these drivers and selecting the two most important

of them, with the participation of the local experts and stakeholders, we drew conclusions as to how these factors will influence people's lives and nature. In other words, what does the future hold for us given the various assemblages of the factors.



As a next step, we evaluated the scenarios from the aspect of ecosystem services and the well-being of the local population and then chose the scenario most promising for local people. All this allowed us to consider what changes and measures were neces-

sary to reach an ideal future where the community, the local economy, and nature form a harmonious coexistence and where ecosystem services can be treated in a sustainable manner, stressing that they determine people's well-being.



In what follows we present the jointly constructed scenarios, their evaluation, and the lessons drawn. With our work we aimed to start a responsible dialogue about the future in the region of Niraj-Târnavă Mică rivers. We hope that the dialogue we started

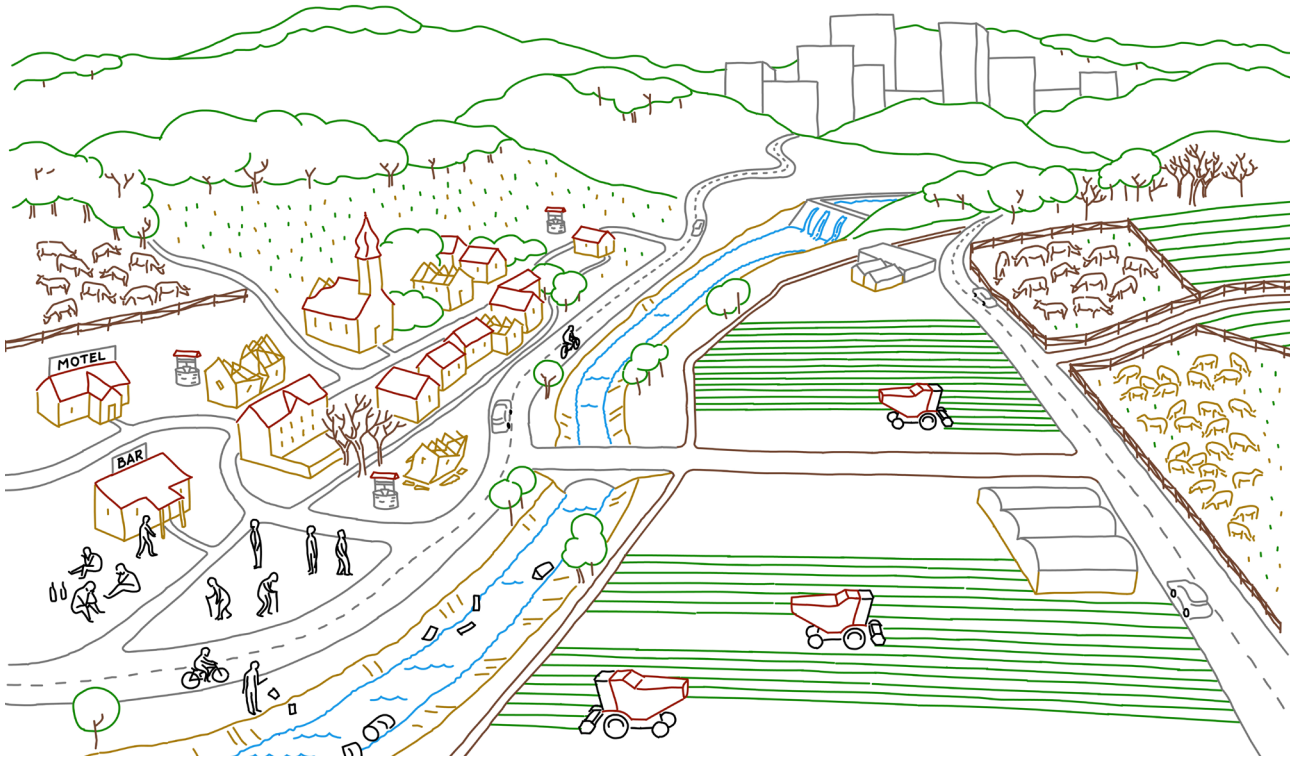
will continue even after the research is finished, and that our ideas will materialize through the beauty and values of the region, and the enthusiasm of the local people.



SCENARIO I.

AS HELPFUL AS KISSING FROGS

UNSTABLE COMMUNITY, ENVIRONMENTALLY FRIENDLY REGULATION



The average standard of living of the population is low and there are significant social disparities within the community. Peri-urban settlements are becoming more and more urbanized, and the population of more remote villages is significantly declining. People are becoming poorer and their health is deteriorating. Common values and public spaces have been abandoned, and the traditional village landscape has disappeared due to the lack of a cohesive community that can preserve them.

The chief occupation of the region remains agriculture, however, the agrarian society is in the process of transforming into a two-tier society. The majority of currently active small farmers cease all agricultural activities, and their lands become incorporated into medium and large farms. Thanks to economic development subsidies, medium and large landowners employ modern, up-to-date technologies, and use the subsidies provided by the environmentally-friendly regulation. There are an increasing number of farmers converting to organic farming, directing production towards external markets. While the total number of animals is increasing and former pastures are re-opened to grazing, domestic animal farming no longer exists. The fragmented nature of the landscape is greatly reduced due to the changes in ownership structure.

Demand for biomass and firewood increases due to higher energy prices, putting forests under increased pressure. Degraded land is used for afforestation, thus extending forested areas. Environmental-friendly regulation encourages the planting of native trees. Despite regulation, the diversity and naturalness of the landscape as well as biodiversity decrease due to problems induced by global warming and changes in land ownership (the dissolution of current small-scale farming). Nevertheless, there is no room for a completely homogenous landscape to be formed due to geographical and terrain conditions.

As a result of the changing climate, the region faces water shortages. Natural waters are fully state-owned, and the state aims to tackle the issue of water conservation through environmentally friendly investments to improve water retention. While the largest farmers have the means to introduce integrated landscape techniques for improved water retention, small- and medium-sized farms continue to face serious water shortages. Water pollution incidents and related health problems occur frequently.

All these changes result in reduced attractiveness of the region as a tourist destination. Nature and the landscape continue to offer touristic potential, but community-level tourism development is hindered by the lack of community cohesion.

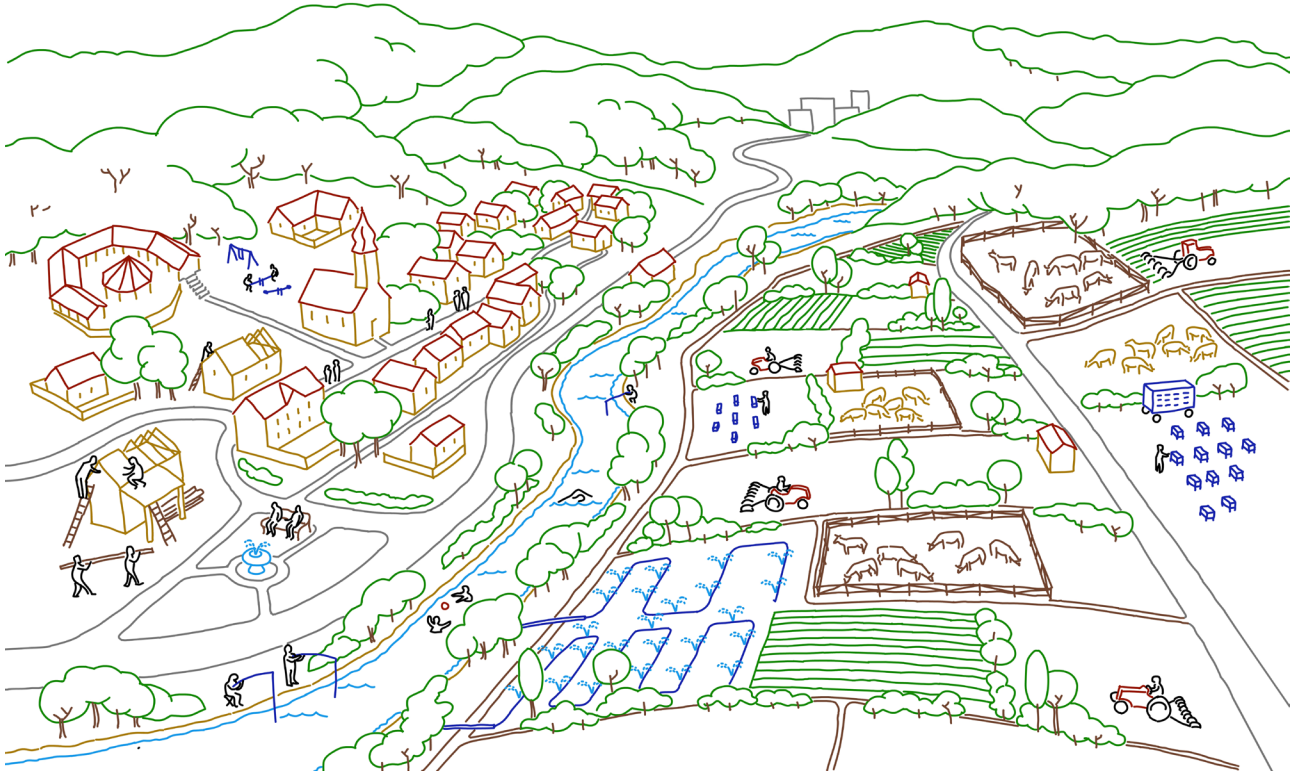




SCENARIO II.

GREENTECH

STABLE COMMUNITY, ENVIRONMENTALLY FRIENDLY REGULATION



The population as well as their standard of living is increasing, people have a balanced and healthy individual and community life. People consume healthy, locally produced products, drink clean water and live a quiet life. Social cohesion within the community is strong and community values are core values. Agriculture gives the basis for livelihoods in the region, and is partly subsistence and partly, as a result of collective efforts of the farmers, market oriented. Local industry is built mainly on the processing of agricultural products, and does not put much pressure on the environment thanks to strict environmental regulation. The region is characterized by small- and medium-sized enterprises practicing traditional professions, specializing mainly in service activities.

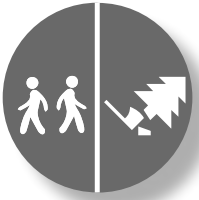
Agriculture is sustainable and characterized by an overall awareness. Plant production happens mainly on small parcels, which sustain and preserve landscape and nature values. Lands are owned partly by the community and partly by private entities. The farmers effectively engage in cooperation in terms of technological developments. In addition to native plant and animal species, more adaptable, heat and drought tolerant species emerge.

The community manages the habitats sustainably, the landscape is fragmented and diverse, the naturalness of the habitats is high. Meadows and pastures are in use by the community, but are not overloaded, and forests consist mainly of native tree species.

Soft tourism is one of the most important sources of livelihoods. Tourism builds strongly on presenting local folk traditions and religious customs, and showcasing architecture and the built environment, but above all it gives a glimpse into the natural heritage of the region.

As a result of the droughts caused by climate change, water replacement and irrigation will be necessary, which can be solved partly through modern and effective technology and partly through facilitating natural water retention. The preservation and maintenance of wetlands will become a key pillar of climate change adaptation.

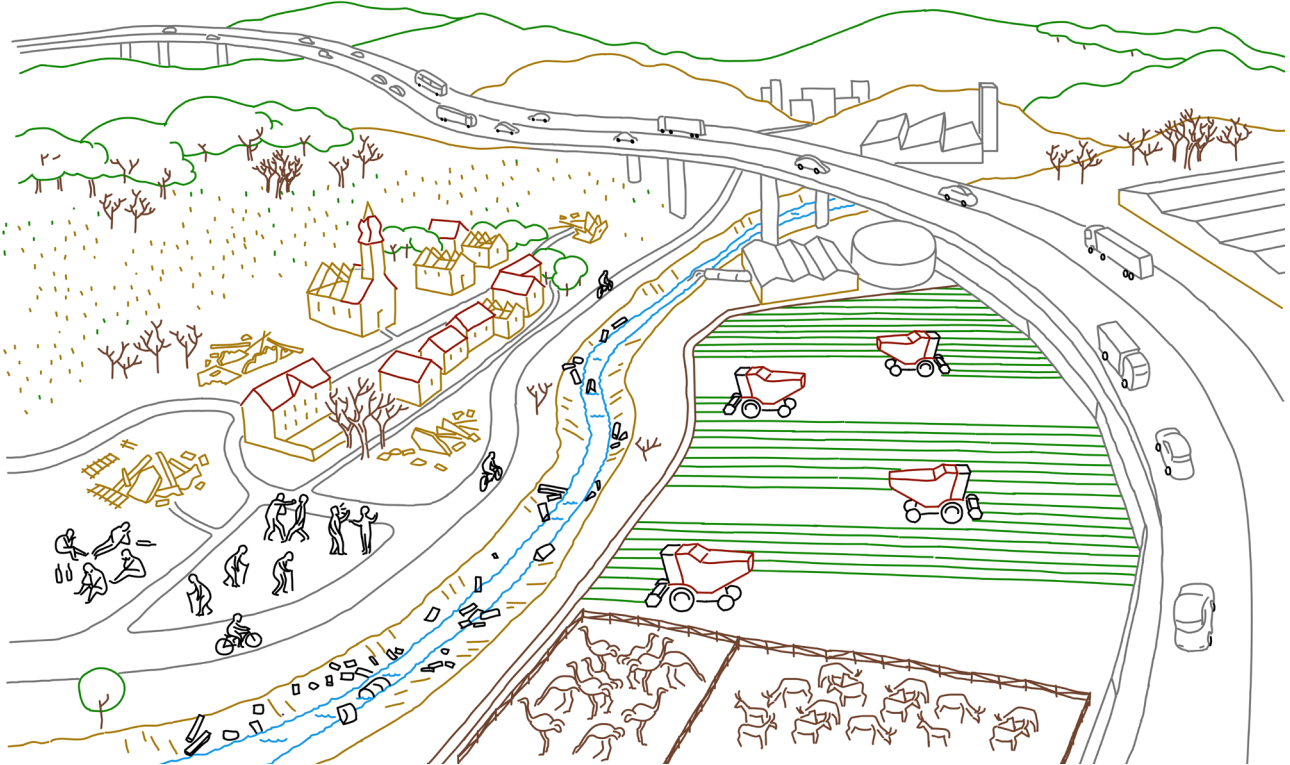




SCENARIO III.

TAKE IT AND RULE

UNSTABLE COMMUNITY, ENVIROMENTALLY UNFRIENDLY REGULATION



The development of the region's settlements is divided; villages are being gradually abandoned and their population is declining, whereas in peri-urban localities it is stagnating. There is a lack of community cohesion; each citizen strives to ensure means of subsistence on their own. A huge gap arises between social classes: a tiny wealthy elite and an increasingly impoverished, deprived majority. The former group holds and controls most of the resources and lands, while the majority of the population live on small margins, covering basic expenses by working for the elite or commuting to cities, but unemployment is high as well.

This leads to concentration of land under large holdings, where intensive, mechanised, environmentally destructive cropland management and livestock production take place. New, southern species (e.g. sweet potatoes, rapeseed, goat, ostrich) spread across farmlands. Small parcels disappear, and with it most of the local knowledge about land use. To ensure their livelihood, the "little people" keep 'backyard' flocks on their plots of land in the villages, and sometimes forage edible plants.

Natural habitats retreat as large farms enable significant livestock production resulting in the expansion

of large, coherent, overgrazed and degraded grassland. The landscape is no longer fragmented and its monotony is broken only by scattered buildings, ruins, industrial plants and the newly-built highway.

Waters are polluted with agro-chemicals, the water flow of rivers and streams has declined due to irresponsible water management and climate change. Wetlands supporting natural water retention and purification diminish. Natural forest area also declines, the share of alien tree species increases to allow for more logging. The protective and public welfare function of the forest diminishes, and forest ownership, similarly to agricultural lands, is transferred to large farmers, at the same time as small farm owners and commonages retreat.

As a result of having lost most of the natural values (natural and village landscape, healthy environment), tourism does not play a key role in the development of the region.

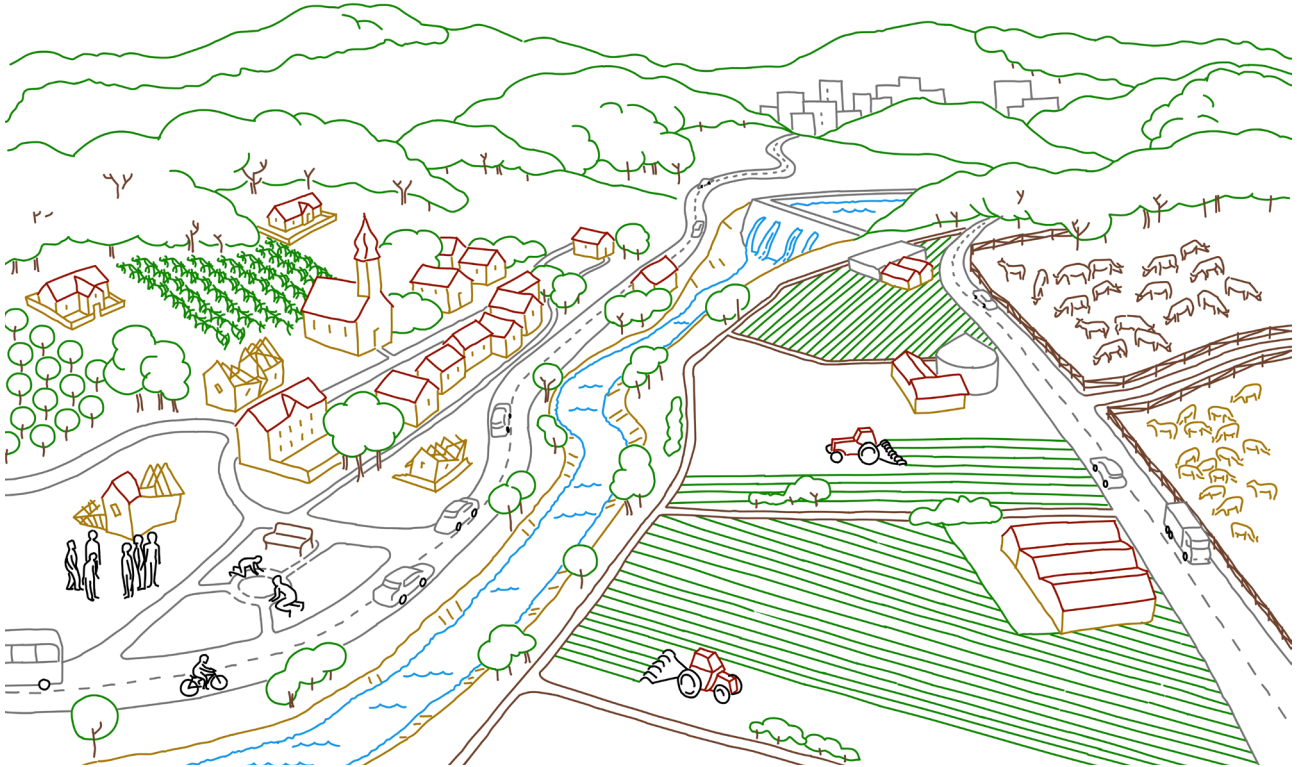




SCENARIO IV.

OPPORTUNITY IN UNITY

STABLE COMMUNITY, ENVIROMENTALLY UNFRIENDLY REGULATION



The population in the region is increasing as a large share of the people who have emigrated, return. The average standard of living is increasing, social disparities are declining and community cohesion is strong. The economic state of the region is stronger in comparison to 2016 conditions. Livelihoods are essentially based on local raw materials, and the region is characterized by small- and medium-sized enterprises. The middle class is the strongest social group.

Farmers manage large parcels with intensive, mechanised production systems. There is little unused or abandoned land, new orchards are planted, and the share and utilisation of grassland is increasing due to the higher number of livestock. Cooperatives of smaller farms remain economically viable alongside the big farmers, and their products sell well on local markets.

Infrastructure development enables fast and convenient transport. The expansion of the road network, however, causes habitat fragmentation. Barrens and bare hillsides emerge as a result of climate change and in some parts overgrazing. But, in principle, the strong, cohesive community aims for the sustainable use of grassland. The total area covered by forests remains the same, but the share of less drought-tol-

erant forests declines. The area of native deciduous forests may shrink due to climate change induced droughts, while wattle becomes more widespread.

The size of natural habitats and wetlands shrink as a result of high energy demands which require the construction of hydroelectric power plants designed to generate energy from surface waters. Waters are also essential for irrigation purposes. The population faces inadequate availability of water both in terms of quality and quantity, which can be alleviated both through exploiting groundwater sources and increasing water use effectiveness.

The tourism sector starts to develop, strives to exploit specific local features, and some farmers develop agrotourism businesses. Thus, the number of tourists is comparatively higher than in other regions.



EVALUATION OF SCENARIOS

The evaluation of the scenarios was carried out in two steps. The first step was to provide quantitative probability estimates with the help of the models* used for mapping the ecosystem services and a few local experts on how the share of the region's main habitat types and the availability of the examined ecosystem services might change under the different scenarios. The results obtained are displayed on simple diagrams (see Figure 6).

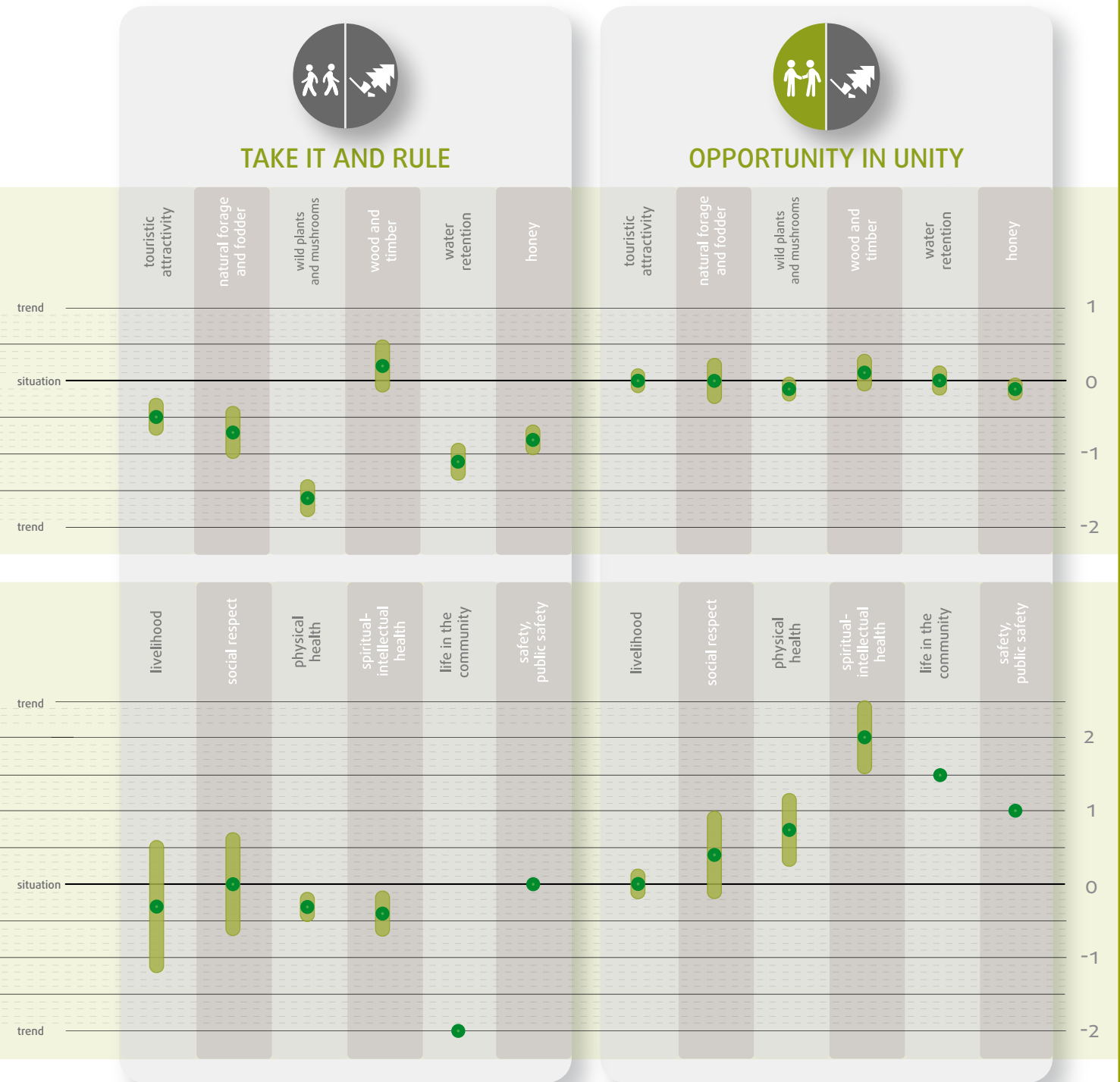
Next, in possession of the diagrams and the detailed documentation of the scenarios, we invited a new group of local stakeholders who were not involved in the scenario planning process. The aim of the scenario evaluation workshop was to explore how the well-being of different social groups would be shaped by each



Figure 6.

*For more information on the models used for the mapping, please see Chapter 5 of 'What are the gifts of nature worth? - Summary Study of the mapping and assessment of ecosystem services in Natura 2000 sites of the Niraj-Târnavă Mică region.'

scenario. To achieve this, together with locals, we identified the social groups that would be the winners and losers of each scenario. Subsequently, based on the six well-being dimensions illustrated in Figure 6., we determined how the well-being of key stakeholder groups would be affected under the four scenarios. As a last step of the workshop, the participants collectively selected the scenario they considered the most promising through an open exchange of arguments and opinions. The evaluation revealed that the ideal level of well-being of the key stakeholder groups, namely the inhabitants of small villages and people living from tourism, as well as the ideal state of nature, is generated in the Greentech scenario. The level of well-being ensured in each scenario is illustrated in Figure 6.



● Expected changes in ecosystem services and well-being dimensions under each scenario based on model predictions and stakeholder discussions.

■ An estimated range of uncertainty in future ecosystem services and well-being.

DRAWING CONCLUSIONS

IDEAL SCENARIO

Our research project in the Niraj-Târnavă Mică region lasted around one and a half years. During this time we managed to widely collect and disseminate large amounts of knowledge and experience within and outside the communities. Of all the lessons, the most important is that **locals see community cohesion as the key to development, well-being and the realization of the ideal scenario**. This is also confirmed by the opinion voiced by all participants of the scenario planning workshop that a strong community is able to develop even in a malfunctioning regulatory environment, while however advantageous the conditions are, without cohesion, the community will not be able to benefit from opportunities. There is thus a great need to halt and reverse the current trends that lead to loss of community cohesion and youth emigration.

This is also what the scenario, considered as ideal by the locals calls for, in which the population and the standard of living is increasing up to 2040. According to this scenario, community life is lively, with an inclusive and tolerant society. There is adequate health-care and education in the region. It emerged clearly during our work, that **the stakeholders seek opportunities in small-scale farming and soft tourism**, and for this to be achieved the environmental conditions need to be given. There is a demand for **clean water and healthy products produced in a clean environment**. In the ideal scenario, the agricultural landscape remains fragmented and preserves its rich biodiversity and healthy forests. Furthermore, sustainable water use and good practices in water management will not be hindered by climate change.



HOW CAN THIS BE ACHIEVED?

The implementation of the ideal scenario rests on two key pillars: **community cohesion and environmentally friendly regulation**. From the local to the national and EU-level, all stakeholders including locals, NGOs from diverse fields and decision makers can (and should) act to contribute to the implementation of these pillars. Adequate employment opportunities, infrastructure and social programs are needed. For this it is important to invest in community life

and organize attractive events (sports communities, choirs, groups formed to preserve local customs) on a regular or occasional basis. Nature- and environment-friendly and local resource-based production methods should be supported through appropriate incentives. Small-scale ecological farming, which increases community resilience and the standard of living, along with a corresponding small-scale processing industry will play a key role in achieving the

scenario. The demand for knowledge and the conditions necessary for experiential learning need to be created to acquire agricultural know-how, which is currently lacking. Stakeholders need to establish producer cooperatives, proper trademark use, and an all-encompassing community trust and cohesion in order to secure access to external markets. Adequate expertise and training will be needed to revive and

sustain traditional professions. This will also contribute to boosting local tourism, for which appropriate infrastructure (food service establishments, tourist paths, cycle paths, public restrooms) and programs are essential. Local businesses need to be supported in order to establish tourism infrastructure and a pluralistic and high quality offering of programs. Sustainable forest management practices need to be im-



plemented under a regulatory framework with strict quantitative and qualitative criteria. At the same time large-scale illegal logging needs to be reduced. Good water management can only be achieved through more environmental-friendly water regulation and small-scale water storage appropriate for the landscape, and discarding the development of artificial channels. It is also important to invest in climate-friendly and sustainable water conservation

methods (drip irrigation, precipitation storage, permanent plant cover). It is essential to develop a poverty reduction strategy and integrate it into a regional strategy to be implemented by regional cooperation with broader public involvement in order to realize the 2040 scenario. This requires political will, appropriate regulation and financial support, capable of encouraging both individual and community initiatives.

ENVIRONMENTALLY FRIENDLY REGULATION

CLOSE-KNIT COMMUNITY

EMPLOYMENT OPPORTUNITIES

HEALTHY PRODUCTS

COMMUNITY LIFE

INFRASTRUCTURE



LOCAL TOURISM

DIVERSE FOREST

MOSAIC AGRICULTURAL LANDSCAPE



ACKNOWLEDGEMENTS

During our research, we collaborated with more than a hundred local stakeholders and experts. We would like to thank all of them, especially our interviewees and the participants of the workshops for devoting their time to our research and helping our work with their expertise. Thank you for the contribution of our survey respondents and the high school and university students who volunteered to assist in completing the survey. We must also thank the Municipality of Sângeorgiu de Pădure for hosting our workshops in Rhédey Castle.

PROJECT PARTNERS



The Association Milvus Group is a non-profit, non-governmental organization and research institute in Romania, acting in the fields of education, research and advisory work. It has participated in many projects including the designation of the Romanian Natura 2000 network, several species protection, educational and regional development projects, and it also operates a bird-rehabilitation centre. It manages seven Natura 2000 sites autonomously and four in partnership. It thus takes part in the management of the Natura 2000 sites in the Niraj-Târnavă Mică region, where the research for the present study was conducted.



Centre for Ecological Research of the Hungarian Academy of Sciences (MTA ÖK) is active in basic and applied research in the fields of ecology and conservation biology. MTA ÖK has a long tradition of studying complex policy-oriented research questions, and performing regional ecosystem assessments in policy sensitive landscapes. MTA ÖK is a key institution in providing scientific support to the field of Hungarian nature conservation, including tasks related to the Mapping and Assessment of Ecosystem Services, MAES.



CEEweb for Biodiversity is a network of 50 environmental non-governmental organizations in the Central and Eastern European region working for 20 years in 20 countries. Its mission is the conservation of biodiversity through the promotion of sustainable development. CEEweb works through advocacy, influencing decision making, common projects, capacity building, networking and awareness raising.



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