

HABIT-CHANGE

Stakeholder Dialogue

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1. Introduction, objective and method

1.1. Introduction

In the project proposal output 3.1.2 is described as follows: "Stakeholder dialogue. Compilation of most important climate-change related problems as seen by important stakeholders (e.g. regional administrations, land users, associations), documentation about 40 pages."

This report therefore provides a compilation of stakeholder positions, describes their perception of climate change und focuses on those phenomena that are considered problematic and are directly or indirectly connected with climate change. The compilation helps to identify the most important land users and stakeholders who already have an influence on the conservation status of protected habitats and the management of the investigation areas. These stakeholders and land users have to be involved in the process of adapting the management plans for the protected areas.

This output is relevant for the next actions and outputs in work package 3, 4 and 5 because of two reasons: On the one hand the stakeholders have a specific knowledge of the area and/or the know-how assisting them in a better retrospective judgement on the development of local conditions. On the other hand, they have an influence on the development of protected areas, and within this context they pursue future-oriented and specific interests as regards the development of certain areas.

Their special experience and their specific interests make them important partners in the management of protected areas. Although stakeholders might not necessarily have a substantiated knowledge of possible regional impacts of climate change, getting to know them and documenting their perception is important for several reasons:

- 1. The knowledge of potential stakeholders permits their participation in the process of preparing climate-change adapted management plans (CAMPs).
- 2. The knowledge of the stakeholders' interests and their influence gives first indications of landuse interests and conflicts in the area.
- The interpretation of stakeholder positions allows for inferences from the climate-change perception of other protagonists and interested members of the public in the protected area. On the basis of this knowledge future demands on communication and participation in preparing CAMPs can be derived.
- 4. The experience of stakeholders can help to indicate climate-change induced problems.

All in all, the stakeholder position can offer useful information on the area, the land-use interests, on current conflicts and on the perception of climate change.

Definition of 'stakeholder'

The outcome of the stakeholder-dialogue depends essentially on who is understood or defined as ,stakeholder'. The International Union for Conservation of Nature defines stakeholder from a corporate perspective as "any group or individual who can affect or is affected by the

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achievements of the company's objectives" (IUCN (International Union for Conservation of Nature), 2011) and the European Environment Agency refers to a WHO-definition: "An institution, organisation, or group that has some interest in a particular sector or system." (EEA (European Environment Agency), 2011).

In this project the terms ,stakeholder' and "land user" are used as follows:

Stakeholders are defined as persons, groups or institutions who have an influence on the protected area, but are not necessarily present in the area (e.g. regional administrations, associations, NGOs etc.).

In this output the term 'stakeholder' also includes persons or institutions using the area, thus called user or land user. Users usually are a sub-group of the stakeholders, who frequently have a higher influence on the condition of the area due to their presence there and through the implementation of management measures than other stakeholders. In this project stakeholders and users are two different groups of people, and this differentiation will become particularly relevant in the outputs 3.1.5 and 3.2.1.

Users are persons or institutions being present inside the boundaries of protected areas that manage parts of the area and implement measures. They influence the condition of the protected area directly (e.g. management authorities of the protected area, land users like private landowners, farmers or tourists).

Accordingly, stakeholders are natural or legal persons exerting a direct or indirect influence on the protected areas.

1.2. Objectives

The main objective of this report is to give an overview on relevant stakeholders and land users in the investigation areas of the Habit-Change Project and to identify protagonists of existing conflicts in the protected areas.

It is an important goal to identify the range of stakeholders and users (and those who are estimated to be especially affected by climate change), climate-change and land-use related problems, conflicts, and the existing knowledge and experience with stakeholder participation processes and stakeholder involvement in the investigation areas. Another objective of this output is to find out whether land-use or management techniques by stakeholders and land users have already been modified due to climate change and how these modified techniques may affect the relation between stakeholders, land users and the management authorities of protected areas.

Aiming for the preparation of climate-change adapted management plans (CAMPs), the problems and conflicts will be assessed in the management plans and stakeholders will be identified who should participate in the process of elaboration.







Therefore the following research questions will be answered by this report:

- Which stakeholders are considered to be relevant in the investigation areas?
- What kinds of stakeholder dialogues already exist in investigation areas?
- Do stakeholders and users experience climate-change related problems?
- Which stakeholders are estimated to be especially affected by climate change?
- What knowledge and experience with stakeholder participation processes and stakeholder involvement in design and adaptation of management plans for protected areas exists?
- Which stakeholders should participate in the process of adaptation of management plans to improve chances for adaptation and mitigation measures and practices?

1.3. Classification with regard to other outputs:

Output 3.1.2 will contribute to preparing the implementation of CAMPs in work package 5, providing a basis for the involvement of important stakeholders in the revision of the management plans.

The results presented in this report for output 3.1.2, the compilation of the most important climatechange related problems as seen by important stakeholders, are closely related to the other outputs of work package 3:

- Output 3.1.5: report on user requirements related to climate change (core output)
- Output 3.2.1: report about existing user difficulties
- Output 3.2.2: list of climate-change induced and related pressures on protected areas

The core output 3.1.5 specifies the **requirements** land users ask to be met in the climate-change adaptation process. The compilation of user requirements and adaptation options is based on a sector-orientated (agriculture, forestry, nature conservation etc.) review of scientific publications and will be supplemented by information from the investigation areas. The adaptation and climate-protection measures by different kinds of land users can lead to massive changes in the use and development of protected areas. This output is based on the evaluation of topical scientific reports and on professional and political positions.

Output 3.2.1 describes current problems in the protected areas with special regard to the **use** of land from the user point of view. It is expected that the already existing problems and utilization conflicts within the protected areas are either exacerbated or, partly, mitigated by climate induced changes. If climate-change induced problems are reported from the investigation areas they are also included in this output. Sources will be interviews (questionnaires) in the investigation areas (mostly with the management authorities) as well as research reports and management plans.

Output 3.2.2 then lists the research to date on climate-change induced and related pressures on protected areas and the most important results of the three former outputs, and it points out the characteristics of the problems, conflicts and user claims in the investigated areas.

All outputs mentioned so far are relevant for the preparation of output 3.3.1, in which the identified user requirements are the base for the evaluation of new climate-change related management strategies and practices.

1.4. Method

The assessment of climate-change related problems as seen by important stakeholders was conducted based on data which was collected in the Habit-Change Project. For this purpose a questionnaires was designed and sent to the protected areas management authorities or their academic partners who were asked to fill in their information. The questionnaires were sent to the respondents by mail at the 30.04.2010, and were returned over the entire year 2010. The full questionnaire is added to this report as Annex 1.

Prefacing the central objective of the survey is outlined in the questionnaire. It addresses three sets of questions concerning

- A) Involved stakeholders
- B) Problems in the protected areas
- C) Existing communication structures and established stakeholder dialogues in the areas

The responses are presented in the following chapters 2 to 4 (according to questions A to C). Comments given in an open section are included in this data collection. Some questionnaires were filled in German, the responses had to be translated and sometimes even summarised.

Table 1 lists all investigation areas of the Habit-Change Project and their responsible project partners that responded to the questionnaires. From three investigation areas no information was available or questionnaires weren't answered (Lower Morava Biosphere Reserve and Bohemian Switzerland National Park in the Czech Republic, Warta Mouth National Park, Poland). For Shatsk National Nature Park in Ukraine the questionnaire was only partially filled in, nevertheless the responses were included in this report.





Investigation area	Institutions that were contacted and/or are responsible to provide information from investigation areas
Rieserferner-Ahrn Nature Park	AI 14: Autonomous Province Bozen - South Tyrol, Agency for Natural Parks, related project partner is PP 17: European Academy Bolzano (EURAC)
Schaalsee Biosphere Reserve	AI 5: Schaalsee Biosphere Reserve, related project partner is PP 5: Potsdam Institute for Climate Impact Research (PIK)
Flusslandschaft Elbe- Brandenburg Biosphere Reserve	AI 4: Flusslandschaft Elbe – Brandenburg Biosphere Reserve, related project partner is PP 6: Technische Universität Berlin (TUB)
Vessertal - Thuringian Forest Biosphere Reserve	AI 6: Vessertal - Thuringian Forest Biosphere Reserve, related project partner is PP 4: Thuringian State Institute for Forestry, Game and Fishery (TLWJF)
Balaton Uplands National Park	PP 7: Balaton Uplands National Park Directorate (BUNP)
Fertö Hansag National Park	AI 10: North Transdanubian District Environment and Water Directorate, related project partner is PP 2: University of Vienna (UniV)
Körös-Maros National Park	AI 13: Körös-Maros National Park, related project partner is PP 8: Szent Istvan University (SIU)
Biebrza National Park	PP 9: Biebrza National Park (BNP)
Natural Park Bucegi	Al 16: Natural Park Bucegi, related project partner is PP 12: University of Bucharest (UniB)
Danube Delta Biosphere Reserve	AI 20: Danube Delta Biosphere Reserve, related project partner is PP 14: Danube Delta National Institute for Research and Development (DDNI)
Secovlje Salina Nature Park	PP 15: SOLINE Pridelava soli d.o.o. (NP SES)
Triglav National Park	PP 11: Triglav National Park (TNP)
Shatsk National Nature Park	AI 19: Shatsk National Natural Park, related project partner is PP 3: National Academy of Sciences, Scientific Centre for Aerospace Research of the Earth (CASRE)

Table 1: Participation in the project

PP = Project Partner; AI = Associated Institution

2. Relevant stakeholders and land users in protected areas

The information given by the protected areas management authorities or by the project partners representing them is depicted in tables below. The respondents were asked to name and focus on users and institutions which will be particularly affected by climate change or which exhibit a large potential for the support of adaptation measures. Moreover it was pointed out that all types of land use and both institutions and individuals should be taken into account.

Below the information regarding relevant stakeholders in every investigation area is compiled. Different kinds of stakeholders are assigned to the following categories: Administration, Nature Conservation Organisations, Economic interest groups, Users, Others.

2.1. Rieserferner-Ahrn Nature Park, Italy

Rieserferner-Ahrn Nature Park is situated in the north-eastern part of the Autonomous Province Bozen-Südtirol in Italy. Main characteristics of the Park are glaciers, waters, coniferous forests and alpine meadows. The European Academy Bolzano (EURAC, Project Partner PP 17) is responsible for maintaining contact with the administration of the Nature Park. The questionnaire was completed by Steve Kass from the European Academy Bolzano (EURAC).

Types of stakeholder	Stakeholder
Administration	Branch office for nature parks, forestry office, water and energy office
Nature conservation-NGO	-
Economic interest group	-
Users	Farmers, foresters, tourists
Others	-

 Table 2:
 Identification of land users and other stakeholders in Rieserferner-Ahrn Nature Park

2.2. Schaalsee Biosphere Reserve, Germany

The Schaalsee Biosphere Reserve is situated in Mecklenburg-West Pomerania in northern Germany and covers 309 km² of a diverse landscape around Schaalsee. This lake is filling up 24 km² of a glacial tongue basin formed during the Weichsel glacial period. The area once was part of the iron curtain between the East and West Germany and is now an element of pan European green belt. Schaalsee Biosphere Reserve is an associated institution (AI 5) of the Habit-Change Project. The questionnaire was completed by Antje Middelschulte from the administration of Schaalsee Biosphere Reserve.

Table 3: Identification of land users and other stakeholders in Schaalsee Biosphere Reserve

Types of stakeholder	Stakeholder
Administration	Office of agriculture, forestry office, local administrations, municipalities, fisherman and anglers organisations, water- and soil





Types of stakeholder	Stakeholder
	associations, administration union Schaalsee
Nature conservation-NGO	Foundation "Biosphäre"
Economic interest group	Local citizens'' initiative (tourism)
Users	Farmers, local fisherman and anglers, landowner, water- and soil associations
Others	private landowners, citizens

2.3. Flusslandschaft Elbe-Brandenburg Biosphere Reserve, Germany

The Elbe River flows through the glacially shaped Northern German Plain. The whole biosphere reserve covers approximately 400 km of its length; the Brandenburg section covers about 70 km. The reserve features remaining alluvial plain, lowlands in which peat bogs have formed; extensive areas of sand and dune systems. Flusslandschaft Elbe-Brandenburg Biosphere Reserve is an associated institution (AI 4) of the Habit-Change Project. The questionnaire was completed by Heike Garbe from the regional authority for environment, health and consumer protection Brandenburg (Landesamt für Umwelt, Gesundheit und Verbraucherschutz des Landes Brandenburg).

Types of stakeholder	Stakeholder
Administration	Regional authority for environment, health and consumer protection (Departments of dyke construction, implementation of the EU-water framework directive, water management concepts, maintenance of water bodies, nature conservation), Ministry of Environment, Health and Consumer Protection of the Federal State of Brandenburg, Office of Infrastructure and Agriculture of the Federal State of Brandenburg, Office of Finances of the Federal State of Brandenburg, Lower Nature Conservation Authority, lower water authority, lower hunting authority, waterway administration, European Union
Nature conservation-NGO	Friends of the earth Germany (BUND e. V.), nature and biodiversity conservation union (NABU e. V.)
Economic interest group	Local tourism organisation
Users	Private farmers, private forest owners, state forest, water- and soil association, private providers of tourism services, hunters, anglers, tourists, local businesses, shipping
Others	Regional spatial planning authorities

Table 4:Identification of land users and other stakeholders in Flusslandschaft Elbe-Brandenburg
Biosphere Reserve

2.4. Vessertal - Thuringian Forest Biosphere Reserve, Germany

The Vessertal - Thuringian Forest Biosphere Reserve is dominated by the Thuringian Forest highlands, which are part of the Thuringian-Franconian highlands. The questionnaire was completed by Nico Frischbier from the Thuringian State Institute for Forestry, Game and Fishery (TLWJF) and Jürgen Erdtmann from the administration of the Biosphere Reserve Vessertal.

Types of stakeholder	Stakeholder
Administration	Regional authorities for building, economy and health, waste and emission control, nature conservation, spatial planning, water management; Land consolidation authorities
Nature conservation - NGO	Friends of the Biosphere Reserve Vessertal-Thüringer Wald e.V., association "Schutzgemeinschaft Deutscher Wald"
Economic interest group	-
Users	Forestry, agriculture, hunters, water management: Forestry commission offices, administration of drinking water reservoirs, water- and soil associations, operator of local sewage systems, private and municipal tourism and recreational facilities, transport, municipalities, local population
Others	Energy utilities, regional spatial planning authorities

Table 5:Identification of land users and other stakeholders in Vessertal - Thuringian Forest
Biosphere Reserve

2.5. Balaton Uplands National Park, Hungary

The Balaton Uplands National Park (BUNP) is situated beside Lake Balaton in Hungary. Characteristic of BUNP are grasslands and wetlands, suchlike the study areas Tapolca fen, Sásdi meadow, Lesencetomaj fen, Nyirádi Sárálló fen and the Tapolca- and Kétöles creeks. The questionnaire was completed by Judit Cservenka from Balaton Uplands National Park Directorate.

Please see also outputs 3.1.3 and 3.1.7 (elaborated by Szent Istvan University) of the Habit-Change Project for further information on Balaton Uplands National Park and Körös-Maros National Park. Output 3.1.3 summarizes current user known problems in Hungary and in output 3.1.7 maps of the protected areas with actual habitat types, their naturalness state and potential conflicts are provided.

Types of stakeholder	Stakeholder
Administration	Balaton Uplands National Park Directorate, Middle-Transdanubian Regional Environmental Nature Conservation and Water Management Inspectorate, Council for the Development of Lake Balaton Region, Central Agricultural Office (including Agriculture and Forestry Affairs), local governments in the area, forest Manager (BAKONYERDŐ)
Nature conservation- NGO	NGOs dealing with nature conservation, environmental protection

Table 6:	Identification of land users and other stakeholders in Balaton Uplands National Park
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Types of stakeholder	Stakeholder
Economic interest group	Fishing companies, reed-cutters, lots of tourist associations/offices in the area, mining companies (dolomite, basalt, Permian red sandstone)
Users (general and differentia- ted by study areas within BUNP)	 Villagers (several protected settlements within the territory of the NP), lots of private landowners (farmers), forestry, vineyard owners, hunting associations, tourists, golf clubs, bikers, hotels, campsites, motocross-riders Tapolca fen: farmer who grazes the area with cattle, forest owners (landowners) Sásdi meadow, Lesencetomaj fen: nature conservation guards, photographers, mushroom pickers Nyirádi Sárálló fen, Tapolca- and Kétöles creeks: aquatic plant growers (illegally), anglers
Others	Researchers doing different kind of research (joining to the Hungarian Biological Monitoring System), associations responsible for water management, research facilities, harbours for sailing-boats and yachts, hunting associations

2.6. Fertö Hansag National Park, Hungary, Lake Neusiedl, Austria

The park is a transnational conservation area with conservation zones in Austria and Hungary. Stakeholder Information was only available from the Hungarian side of the park. Hopefully stakeholder information from the Austrian side can be added later. The questionnaire was completed by Ildikó Tóth from North Transdanubian District Environment and Water Directorate.

Types of stakeholder	Stakeholder
Administration	National park administration, regional environment and water directorate, regional environmental nature conservation and water management inspectorate, Austrian-Hungarian Water Commission, local governments, Hungarian Council of the World Heritage "Fertö Area"
Nature conservation-NGO	-
Economic interest group	Commercial harbours, reed management company
Users	Vine-yard owners, farmers, tourists, fishermen, anglers
Others	Associations, limited companies, enterprises, owners

Table 7: Identification of land users and other stakeholders in Fertö Hansag National Park

2.7. Körös-Maros National Park, Hungary

Körös-Maros National Park in South-Eastern Hungary is located among the rivers Tisza and Maros. It is characterized by freshwater habitats, marshes and grasslands and by the areas' agricultural use.

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Please see also outputs 3.1.3 and 3.1.7 (elaborated by Szent Istvan University) of the Habit-Change Project for further information on Balaton Uplands National Park and Körös-Maros National Park. Output 3.1.3 summarizes current user known problems in Hungary and in output 3.1.7 maps of the protected areas with actual habitat types, their naturalness state and potential conflicts are provided. The questionnaire was completed by Ákos Malatinszky from the Szent Istvan University (project partner PP 8) and Péter Bánfi from Körös Maros National Park Directorate

Types of stakeholder	Stakeholder
Administration	Körös-Maros National Park Directorate, Regional Environmental and Water Management Directorate (also effective in the Kisvátyon area), Water management association (also effective in the Kisgyanté area)
Nature conservation-NGO	-
Economic interest group	-
Users	Owner of the cattle that graze the areas hired by the national park plus the shepherds looking after them; farmer who mows the area hired by the national park; visitors of the study trail in Kisvátyon area
Others	Nature conservation guards

Table 8:	Identification of land users and other stakeholders in Körös-Maros National Park

2.8. Biebrza National Park, Poland

The Biebrza National Park is located in Northeast Poland, in the Podlaskie Voivodship. The northeastern boundary of the park is near the Belarus border. The main habitat type is wetland. Biebrza National Park is project partner of the Habit-Change Project (PP 12). The questionnaire was completed by Mateusz Grygoruk from Biebrza National Park. Biebrza National Park has intensified the efforts in stakeholder dialogues and has organized meetings with relevant stakeholders lately. A protocol of the latest meeting is added to this report as Annex 2. Therein more detailed information about relevant stakeholders is available.

Types of stakeholder	Stakeholder
Administration	Local governments, Wojewodzki Zarzad Melioracji i Urzadzen Wodnych (Regional Board of Melioration and Hydrotechnics)
Nature conservation-NGO	Ptaki Polskie (Polish Birds NGO), Towarzystwo Biebrzańskie (NGO), OTOP (Polish Association of Bird Protection, NGO)
Economic interest group	-
Users	Farmers
Others	-

 Table 9:
 Identification of land users and other stakeholders in Biebrza National Park





2.9. Danube Delta Biosphere Reserve, Romania

The Danube Delta in Southern Romania maintains its enormous biodiversity in a better state than most other deltas in Europe, even in the world. The Danube Delta National Institute for Research and Development (DDNI) is Project Partner (PP 14). The questionnaire was completed by Cristina Nichifor from the DDNI.

Types of stakeholder	Stakeholder
Administration	Danube Delta Biosphere Reserve Administration, Romanian National Forests Administration, Romanian Waters Administration, Fishing and Hunting Administration, Tulcea County Council, Town halls of the settlements from DDBR (Chilia, Sf. Gheorghe, Maliuc, Crişan, Sulina)
Nature conservation-NGO	-
Economic interest group	-
Users	Different private land owners that restrict the access on their propriety
Others	-

 Table 10:
 Identification of land users and other stakeholders in Danube Delta Biosphere Reserve

2.10. Natural Park Bucegi, Romania

Natural Park Bucegi is located in the Alpine bio-geographical zone on the most eastern part of the Carpathian Mountains in Romania. The area hosts a variety of habitats as peat bogs, grasslands, scrubs, deciduous forests, coniferous forests, scree, communities of hydrophytes along the waterways and chasmophyte vegetation.

University of Bucharest (UniB, PP 12) is responsible for communication with the Park's administration. Current user-known problems in Bucegi Natural Park are analysed in a separate output of work package 3 (output 3.1.8). The report for output 3.1.8 is prepared by University of Bucharest and is based on data from interviews with relevant stakeholders in and around Bucegi Natural Park. Thus please see output 3.1.8 for further information on this investigation area. The questionnaire was completed by Anca Sârbu and Camen Comanescu Petronela from the University of Bucharest.

Types of stakeholder	Stakeholder
Administration	Administration of the Natural Park Bucegi (under the co-ordination of the National Forest Administration), The National Agency for Natural Protected areas and the Conservation of Biodiversity, Scientific Council of the Natural Park Bucegi, Consulting Council for Administration, ROMSILVA – National Forest Administration, regional forest offices as administrators of national forest fund, public property; Protected Areas Department; local environmental Protection Agencies; Town halls; Romanian Water National Agency, Territorial Directions
Nature conservation-NGO	Foundation "Friends of Bucegi Natural Park"
Economic interest group	-
Users	Landowners (churches, town councils, private persons and the state), providers of tourism services, mountain rescue service, S.C. Teleferic Prahova S.A., School Inspectorates, Mountain Police Departments, Environmental Control Guard
Others	-

Table 11: Identification of land users and other stakeholders in Natural Park Bucegi

2.11. Secovlje Salina Nature Park, Slovenia

SOLINE Pridelava soli d.o.o. (Salt Production Co. Ltd.) is protecting and permanently preserving the natural and cultural heritage within Sečovlje Salina Nature Park and producing salt in the traditional manner. Its open areas are a habitat of various bird species and are influenced by the sea level. SOLINE Pridelava soli d.o.o. is project partner of the Habit-Change Project (PP 15). The questionnaire was completed by Andrej Sovinc from Secovlje Salina Nature Park.

	Types of stakeholder	Stakeholder
	Administration	Secovlje Salina Nature Park - SOLINE Pridelava soli d.o.o., Ministry of Environment (designation as protected area and management), Ministry of the Economy (salt production)
	Nature conservation-NGO	Bird-watching and Bird Study Association of Slovenia (interested in the issues related to bird population management and research)
	Economic interest group	Secovlje Salina Nature Park - SOLINE Pridelava soli d.o.o.
	Users	Salt-makers (employees of the Salt-making Company and Park Management Soline d.o.o.)

Table 12: Identification of land users and other stakeholders in Secovlje Salina Nature Park





Types of stakeholder	Stakeholder
Others	Landowners: the area is almost completely owned by the state, only a few hectares of farming lands are included in the area of the Park; Science institutions (National Institute of Biology, University of Maribor, Water management Institute – Institute for Waters) Farming, forestry or tourism organisations are not considered as direct partners for consultation as all the management decisions are taken by the Ministry of Environment.

2.12. Triglav National Park, Slovenia

Triglav National Park is located in the south-eastern section of the Alps in the north-west of Slovenia, along the Italian border and close to the Austrian border. The questionnaire was completed by Tanja Menegalija from Triglav National Park Administration (PP 11).

Types of stakeholder	Stakeholder
Administration	Ministry of environment and spatial planning, Ministry of agriculture, other national ministries; Regional development agencies, Municipalities
Nature conservation-NGO	Nature protection and environmental NGOs
Economic interest group	-
Users	Farmers, owners of the forests, local inhabitants, visitors
Others	Media, Research institutions, Universities; Utility services; Private financiers, Forestry sector representatives; Tourist sector representatives

Table 13: Identification of land users and other stakeholders in Triglav National Park

2.13. Shatsk National Nature Park, Ukraine

Shatsk National Nature Park is situated in north-west Ukraine, some 160 km north-west of the city of Lutsk and features a unique landscape of rivers, lakes, fens and forests. The questionnaire was completed by Anna Kozlova from the Scientific Centre for Aerospace Research of the Earth (CASRE) (PP 3).

Types of stakeholder	Stakeholder
Administration	Park's administration, Shatsk training state forestry, Regional state administration, Ministry for environment protection of Ukraine
Nature conservation-NGO	-
Economic interest group	-
Users	Farming cooperatives (private landowners), landowners, tourist camps, recreation departments, sanatoriums

Table 14: Identification of land users and other stakeholders in Shatsk National Nature Park

3. Current user-known problems

The respondents were asked to name

- Problems in protected area (we distinguish between problems related to nature protection and problems related to social and/or economic interests)
- Impacts of climate change on the stakeholders' situation and the existing problems in the protected area
- Stakeholders' awareness of the influence of climate change and about planed or implemented adaptation measures

With the answers given in this section of the questionnaire for most investigation areas the perspective and perception of the management authorities of the protected areas is described. Only for Bucegi Nature Park the perspective of relevant stakeholders was included in the questionnaire. Basis for this information from Bucegi Nature Park was an elaborate process of stakeholder dialogue in which the University of Bucharest made interviews and developed an extra questionnaire in Romanian language. For more details about the user-known problems in Bucegi Nature Park also see the report for output 3.1.8.

In the reports for work package 3 **problems** are distinguished from **conflicts** as follows:

- Problems are defined as issues that different stakeholders or land users experience while fulfilling their duties and in achieving their objectives. For example: Storm events may cause problems for forest owners to achieve an economic remunerative management and use of forests.
- Conflicts are defined as problems between different stakeholders and land users that arise when their objectives and interests stand contrary to each other. For example: The question of how intense a forest may be managed and which tree species are planted for rejuvenation may lead to conflicts between forest owners with economic interests and nature protection institutions with tasks to preserve biodiversity.

Impacts of climate change may cause **problems** for all kinds of stakeholders and land users because they affect the achievement of objectives.

It also has taken into account that the investigation areas of the Habit-Change Project belong to different categories of protected nature areas. Some of the areas are designated as Biosphere Reserves while others are National Parks or Nature Parks. The investigation areas have therefore different objectives and tasks. Biosphere Reserves serve as areas for a sustainable development that includes the social and economic development as well as the conservation of biodiversity and ecosystem functions. National Parks are largely focussed on nature protection and the conservation of wilderness areas. As a result some investigation areas report problems that result from their tasks in nature conservation while others also report of problems in obtaining social and economic objectives.







To find out if the experienced problems of management authorities and other land users are related to climate change the question for awareness of climate change was added to the questionnaire. If problems are considered as impacts of climate change stakeholders and land users may be more open for the requirements of adaptation to climate change.

3.1. Rieserferner-Ahrn Nature Park, Italy

Table 15: Problems, impacts of climate change, awareness – Rieserferner Ahrn Nature Park

Problems
Problems related to nature protection (ecological):
- High visitor density in areas close to the lake, in summer mainly day visitors, in winter visitors of
nearby biathlon centre
- Disturbance of river banks
 Garbage and trampling damages affect hiking trails
- Some of the historic alpine meadow paths and passes in the region are highly frequented by
mountain bikers or even by cars. Some hiking trails show erosion damages.
- Nearby ski region in the municipality Ahrntal is presently expanded unto the boundary of the
Nature Park
- Lift operation causes a permanent disturbance and reduction of the habitat of raptors (air
cables)
- Agriculture: high altitude grasslands: Intensification of use (more frequent mowing, fertilisation,
overgrazing) causes changes of species assemblage and erosion damages
- Depositories of fertilizer might cause nutrient input in waters and fens
- Intensive agricultural use of specific area (Bärental): mowing, fertilisation and grazing cause
overexploitation
- Installation of small hydroelectric power plant beside boundary of protected area causes
changes in water management
Problems related to social/economic interests/factors:
- Area is important for tourism
- Conflicts between agriculture and water management
Impacts of climate change
- Retreat of glaciers causes threats to tourism due to falling rocks and mudslides
- Permafrost degradation
- Succession/scrub encroachment after abandonment of agricultural land
Awareness
Nothing yet



3.2. Schaalsee Biosphere Reserve, Germany

Table 16: Problems, impacts of climate change, awareness – Schaalsee Biosphere Reserve

Problems

Problems related to nature protection (ecological):

- Land-use conflicts between local recreation, tourism, hiking and cycle routes in sensitive areas

- Water management of bogs and lakes
- Lack of water
- Nutrient contamination of sensitive ecosystems
- Intensive cultivation or abandonment of areas (vegetation encroachment)
- Loss of plane and open areas due to reforestation, water-logging, extensive land use

Problems related to social/economic interests/factors:

- Long process to get permissions/buy land of the landowners for renaturation projects

- Conflicts concerning tree preservation by law between landowners and local nature conservation authority

Impacts of climate change

Farmers:

- Lack of water in the summer, increase of extreme weather events (droughts, storms)

- Erosion caused by heavy rain in winter, loss of humus and displacing or leaching of macronutrients (entry into sensitive ecosystems)

- Increase of mineralization of organic substance
- ightarrow Necessity to adapt to climate induced impacts to keep the soil fertility

 \rightarrow Necessity to find efficient solutions for water management (irrigation management, use of water-saving technology is of central signification to the region, water retention of the landscape, improvement of landscape water supply)

→ Chances: increasing precipitation in winter may increase yield, crop variability will increase, opportunities to plant thermophilic plants, market gardening. German Renewable Energies Act offers new income opportunities and increasing land prizes for farmers

Fishery:

- Higher water temperatures and lack of oxygen causes changes of species assemblage (species migration, increase of thermophiles, loss of species adapted to low temperatures) and an increase of fish diseases and mortality

→ Insecure existence of fishermen

 \rightarrow Chances: higher productivity of thermophilic freshwater species (carp, catfish) in shallow waters and deep lakes

Forestry (private and state-owned forest):

- Reduced precipitation slows plant growth and causes local drought damages

- Increased risk of damages due to frost
- Increase of mineralization of organic substance
- Increase of diseases and insect calamities
- Change of species assemblage to xerophiles or thermophiles
- Increase of calamities such as forest fires and windfall

ightarrow Forest transformation is necessary, complexly structured mixed stands possess highest

resistance to the expected climate change

Tourism:







- Region will become more attractive for tourists because of warm and dry conditions in summer (increasing pressure on sensitive ecosystems). Water quality deterioration (increase of blue algae) may affect leisure activities at lakes

Awareness

Farmers: high flexibility towards changes (market demand, prizes, climate, weather), interested in methods and plants that reduce costs and increase yield

Fishermen: low awareness, no activities known

Forestry: lack of information/awareness of private landowners, no activities known,

cooperation between Biosphere Reserve Schaalsee and tree planting initiative (www.waldaktie.de)

Municipalities: low awareness, only few projects concerning climate change, lack of convincing visionaries and best practice examples in the region

Tourism (citizens, citizens' organisations): impacts are not obvious yet and difficult to foresee,

no activities known. Low awareness that nature conservation and biodiversity management have positive influences on climate protection and tourist attraction of the region

3.3. Flusslandschaft Elbe-Brandenburg Biosphere Reserve, Germany

Table 17: Problems, impacts of climate change, awareness – Flusslandschaft Elbe-Brandenburg **Biosphere Reserve**

Problems

Problems related to nature protection (ecological): - Changes in rainfall amounts and shifts in the rainfall cycle (locally and at a inter-regional level) - Extension of flood control - Occurrence of new pests (immigrating from the South, e.g. Thaumetopoeidae) - Loss of some native species, increase of invasive species, biodiversity changes, shifts of species assemblages - Loss of bogs and other wetlands due to insufficient water supply - Drainage and dewatering - Land-use change due to German Renewable Energies Act with impacts on habitats: new biogas plants, cultivation of maize, ploughing up of grassland Problems related to social/economic interests/factors: - Propagation of pathogens (such as illnesses transmitted by ticks) Impacts of climate change Agriculture and forestry: - Water scarcity causes reduced yields, financial losses - Competition for land with flood defences - Necessity to adapt land-use practices to climate change by introducing new crops, modification of plantations which are not appropriate to the site - Calamities cause reduced yields and financial losses; need to apply new methods of control - Renewable Energies Act offers new sources of income for farmers, but exacerbates water

scarcity and boosts cultivation of monocultures

Shipping:

- Financial losses due to water scarcity



Administrations:
- High investments (adaptation and damage control)
- Loss of areas (e.g. for nature conservation) because of flood defences
- Loss of habitats and species (native species and cultivated varieties) requires adapted
management, assistance measures, etc.
- Handling of new pests necessary (approval of new methods of control)
Water- and soil association:
- Changes of water regime and precipitation may cause higher investments, extension of flood
control would implicate additional areas to be maintained
Tourists:
- Current user known problems may diminish or enhance the landscapes' attractivity
- Private providers of tourism services: Longer season or less tourists, dependent on the
landscapes' attractivity, sensation seeking tourists when extreme weather events cause
damage/flooding
Hunters:
- Wild boar population is surging as a result of large-scale maize cultivation
Anglers:
- Less fishing waters due to water scarcity
Awareness
Company () and a second state of the second s

Generally low awareness (only some individuals), authorities consider climate change in plans

3.4. Vessertal - Thuringian Forest Biosphere Reserve, Germany

The respondents focused on forestry and agriculture.

Table 18: Problems, impacts of climate change, awareness – Vessertal - Thuringian Forest Biosphere Reserve

Problems

Problems related to nature protection (ecological):

- Regeneration of forests with native tree species is difficult due to raised game population

- Abandonment of grasslands, maintenance of grasslands depends on EU funding

Problems related to social/economic interests/factors:

Forestry: risk of damages and diseases due to low tree species richness and stand diversity; local topography makes high-tech (hence economically viable) forestry difficult

Impacts of climate change





Forestry:

- Natural (especially climatic) conditions of forestry change: reduced suitability and adaptability of currently cultivated tree species

- Forestry involves higher risks concerning extreme weather events such as drought, storms, heavy rain, occurrence of pests

- Changed conditions for use of technology on humid soils, rising financial cost of adaptation measures, substantial follow-up costs after calamities

 \rightarrow Chances: Increased efficiency of timber harvest due to longer period of growth

Nature conservation:

- Changes of land use and climatic conditions threaten species assemblages and habitats

- Biosphere reserve is forest-dominated, therefore the existence of vascular plants depends

above all on the natural conditions of the forest association

Awareness

Forestry: medium awareness: knowledge of climate change, impacts and the ability of forest ecosystems to react is low and controversial

Communication is at present concentrated on areas that are perceived more threatened, however the increase of damages in the last few years (bark beetle damages, drought, storm damages) generated increased sensitivity

3.5. Balaton Uplands National Park, Hungary

Table 19: Problems, impacts of climate change, awareness – Balaton Uplands National Park

Problems

Problems related to nature protection (ecological):

- Spread of invasive weeds (especially Solidago) in dry years

- High water level in channels (Sásdi meadow) or in the creek at Lesencetomaj causes inundation and puts population of endemic subspecies of Primula farinosa at risk

- Heavy storms with up to 160-170 km/h wind speed caused storm damages in 2010

- Degradation of the reed-belt due to high water level of Lake Balaton above normal in 2010

Problems related to social/economic interests/factors:

Agriculture and mowing:

- Damages of agriculture due to water level of Lake Balaton above normal: Inflows could not drain off to the lake and fields were inundated

- Late hay harvest in extremely wet years like 2010 (weak quality of hay, bales can sometimes not be removed from the area in time)

- In dry years the amount of hay is usually not enough for the stock of the National Park **Tourism:**

- Unpredictable weather in the summer season can cause significant loss of income for providers of touristic services

Impacts of climate change

- Extreme rainfall rates and temporary lack of rain cause either surface runoff or drought

- Climate change might cause expansion of invasive species

- Occurrence of stronger winds, increased winter and summer temperatures and droughts makes



wetlands more sensitive and vulnerable, their area will decrease

Awareness

Low awareness, there is little knowledge and no regular conversation about climate change and its impacts. Adaptation is not planned, stakeholders just react to present problems.

3.6. Fertö Hansag National Park, Hungary

Table 20: Problems, impacts of climate change, awareness – Rieserferner Ahrn Nature Park

Problems Problems related to nature protection (ecological): Water quality problems occur especially in the reco

- Water quality problems occur especially in the reed belt: significant growth of algae, inner nutrient pollution, sedimentation, silting

- Growth of the reed belt reduces open water surface

- Occasional low water level in the channels (due to silting and makrophyta-overgrowing) causes problems of water supply in the reed belt

- Surface runoff overstrains capacity of the Hanság-channel during periods of rain

Problems related to social/economic interests/factors:

- Reed management: reed quality problems, mild winter temperatures make reed harvesting more difficult

- Recreation: unfavourable conditions for water sports (sailing, surfing) at low water levels, silting and growth of algae disturbs tourists

Impacts of climate change

Clarification of the following questions is expected from Habit-Change Project:

- Will climate change impact on water balance?

- Will climate change effect on the habitat diversity?

- Will a management of water level in Lake Neusiedl be necessary due to the climate change?

- Can Lake Neusiedl be preserved in the present form?

- If endowment is necessary, when does it have to start?

- What kind of measures should we take?

- How will the eutrophication develop in respect of climate change?

Awareness

[Editor's note:] In the returned questionnaire from Fertö-Hansag National Park a listing of management measures which influence the water quality of Lake Neusiedl and other activities of the administration was given. The reported measures didn't respond to the topic of awareness of climate change and therefore were not transferred to this table.





3.7. Körös-Maros National Park, Hungary

Table 21: Problems, impacts of climate change, awareness – Körös-Maros National Park

Problems

Problems related to nature protection (ecological):

Management of protected areas:

- 2010 was an extremely wet year, pasture was not too wet so it was grazed (instead of mowing?), producing a high amount of grass resulting in under-grazing

- In the Kisvátyon area it was very difficult to mow and the mowed hay was not transported away from the area because of flooded roads

- Water from the Kisgyanté area is normally drained around end of summer (or dried naturally) and then the area is mowed, but this year, although the sluice gate was opened, the area remained wet, blocking mowing, accelerating succession

- Water scarcity in 2009: dry year, amount of hay is usually not enough for the stock of the NP; the NP had to buy water to avoid drying out of Sző-rét swamps.

Problems related to social/economic interests/factors:

-

Impacts of climate change

- Extreme rainfall rates and temporary lack of rain cause either surface runoff or drought

- Climate change might cause expansion of invasive species

- Occurrence of stronger winds, increased winter and summer temperatures and droughts makes wetlands more sensitive and vulnerable, their area will decrease

Awareness

Low awareness, there is little knowledge and no regular conversation about climate change. Adaptation is not planned; stakeholders just react to present problems.

Positive process: water management authority started to approach inundations of fields by retaining water on the grasslands instead of draining fields (benefits wetlands and microclimate)

3.8. Biebrza National Park, Poland

Table 22: Problems, impacts of climate change, awareness – Biebrza National Park

Problems

Problems related to nature protection (ecological):

Drainage:

- Drainage system isn't functioning because it was not maintained properly and overgrew with shrubs and reeds

- Intensification of cattle farming causes a strong pressure to reclaim ditches and bringing them back function. The re-utilisation of ditches causes an alteration of hydrological conditions of habitats. Farmers need financial support (subsidies) when meadows are not assessable due to wet weather conditions. In dry years haymaking is possible without financial support.

Problems related to social/economic interests/factors:

- Flooding events, which affect mostly the haymaking in summer months
- Rainfall floods in catchment of Brzozówka (Tributary of Biebrza)
- Water management of Biebrza River and drainage of areas around the national park causes

flood waves, overbank flow and floods (not harmful for settlements, but makes access of tractors on wetland meadows impossible)

Impacts of climate change

Not precisely known yet, no analysis available.

Awareness

So far no actions involving climate-change scenarios have been taken.

Climate-change scenarios can be the crucial aspects of management plans. However, with no statements and analysis done in this matter, none of the impacts and factors can be analysed so far. As there is no general strategy, most of the conflicts are trying to be solved locally and individually.

3.9. Danube Delta Biosphere Reserve, Romania

The questionnaire wasn't filled in completely, but contains differentiated statements on user-known problems.

Table 23: Problems, impacts of climate change, awareness – Danube Delta Biosphere Reserve

Problems
Problems related to nature protection (ecological): -
Problems related to social/economic interests/factors: -
Impacts of climate change
Romanian Waters Administration:
- Droughts
- Inaccessible channels due to sedimentation or low water level because of too little rain
Danube Delta Biosphere Reserve Administration:
- Reed bed die-back
Romanian National Forests Administration:
- Forest drying, especially alder and oak trees
- Changes of type of vegetation from humid to dry because of less available groundwater in
spring periods
- Increase of existent invasive species or appearance of new invasive species
Fishing and Hunting Administration:
- Less species for hunting and fishing
Municipalities:
- Ineffective agriculture and more diseases or pests on crops (cereals)
Awareness
Low awareness, no planned adaptation to climate change.





3.10. Natural Park Bucegi, Romania

Table 24: Problems, impacts of climate change, awareness – Natural Park Bucegi

Problems

Problems related to nature protection (ecological):

- Degradation of the grasslands areas (overgrazing and damages due to tourism)
- Soil erosion and degradation
- Noise

- Visitors' behaviour: Lighting fire in forbidden areas, throwing garbage, use of ATVs (all terrain vehicles) and SUV (sport-utility vehicles), illegal logging, poaching, park regulations are not respected

- Massive garbage problem: visitors throw garbage everywhere, also lack of garbage collection - Lack of environmental awareness of visitors

- Construction: tendency to extend the ski area, uncontrolled constructions in the parks' surroundings

surroundings

Problems related to social/economic interests/factors:

- Little involvement of local communities in the management of the area
- Lack of camping grounds
- Chaotic economic exploitation of the area
- Heavy rainfalls cause damage of access roads of the park

Impacts of climate change

Indications of climate change as seen by the interviewed stakeholders:

- Variations in temperature during days (15 degrees difference in only a couple of hours) or in the course of the year (delay in the appearance of first snow)

- More extreme weather events (storms, heavy rain especially during the summer, flooding), melting of snow and ice

- 45% of interviewed stakeholders believe that climate change will have a negative impacts on owners and users and will intensify the already existing problems, problems are seen concerning the following topics:

Winter sports:

- Less snow, shorter period in which winter sports can be practiced, skiing is possible only at high altitudes (rarely below 1500 m)

- Tourists: Skiing becomes more expensive

- Providers of tourism services: Higher costs and investments (artificial snow installations,

energy), losses of income due to decreased number of tourists and blockage of access roads **Tourism:**

- Different mountain paths are no longer accessible

- Extreme weather events endanger tourists (increased number of accidents)

Nature protection:

- Water scarcity in summer affects vegetation

- Changes of species assemblage and functioning of the ecosystems, biodiversity losses,

especially of species and habitats adapted to high altitudes

- Spread of invasive species which influence native species
- Geomorphological changes of mountains
- Difficulties in the adaptive management of the ecosystems

- Longer periods of grazing causes degradation of grasslands

Awareness

Some awareness of owners, very low awareness of tourists, lack of knowledge and information, no adaptation to climate change yet.

Owners have started to take action such as sowing of ski lawns, torrents control, controlled cutting down of trees, making ecological paths in tourist areas, teaching tourists how important environmental protection is.

3.11. Secovlje Salina Nature Park, Slovenia

Table 25: Problems, impacts of climate change, awareness – Sevovlje Salina Nature Park

Problems

Problems related to nature protection (ecological):

- Rise of the sea level is considered a major climate-change induced problem, it is expected that floods will affect both biodiversity and salt production negatively

- Hydrological regime of the Dragonja river (flows through the park area)

- Excessive carbon emissions due to increased visitation of the area (motorised access)

Problems related to social/economic interests/factors:

Impacts of climate change

- Sea level rise might threaten both biodiversity conservation and salt production

- Uncontrolled flooding affects biodiversity

- Breeding success of ground-nesting bird species is affected by more frequent and intensive summer storms (eggs or young birds are flushed away)

- Habitats of halophytes and insects will be reduced due to larger extend of flooded land

- Changes in water salinity will affect populations of fish and sea turtles

- Potential spread of invasive species

Awareness

SOLINE Pridelava soli d.o.o. is aware of potential sea level rise, flood control measures are implemented (reconstruction works on dykes and sea defence walls)

3.12. Triglav National Park, Slovenia

 Table 26:
 Problems, impacts of climate change, awareness – Triglav National Park

Problems

Problems related to nature protection (ecological): -

Problems related to social/economic interests/factors:

- Political will and commitment depends on economical situation
- Local inhabitants are a weak stakeholder group (not interested in participation)

- Private interest is often put prior to public interest

Impacts of climate change





Problems

Managers have to foreseen some activity adaptations due to climate change, adopt action plans and present them to land users in the area.

Awareness

There is no action yet

4. Stakeholder Dialogue

The question block about communication among the stakeholders relates to existing, past and planned processes of communication, to the involved parties and to strategies and methods. We asked about forms of communication. The options "Face-to-face contact", "Meetings", "Workshops", "Legal dispute" and "others" could be ticked, the single forms should be explained concerning the involved stakeholders and topics of communication. Furthermore we asked about conflicts between stakeholders concerning the management of the protected area and about possible changes of the stakeholder dialogue that might be necessary against the background of climate change.

4.1. Rieserferner-Ahrn Nature Park

Table 27: Stakeholder dialogue and communication – Rieserferner Ahrn Nature Park

Communication structures
Face-to-face contact: Farmers, Offices Meetings: Farmers, Offices Other: Tourism Surveys
Conflicts (communication)
 Conflict between farmers and branch office for nature park concerning finances, competencies and lack of negotiation power of farmers Intensification of grassland cultivation Road construction Hydroelectric power stations (only outside protected area; construction of additional, larger power station has been discussed)
Adaptation of communication strategies under climate change
Conflicting stakeholders are members of Nature park management board; the majority of members come from agriculture: farmers and land users may have strong influence on Nature Park Law and management plan.

4.2. Schaalsee Biosphere Reserve

Table 28: Stakeholder dialogue and communication – Schaalsee Biosphere Reserve

Communication structures

Face-to-face contact: when required; municipalities, Foundation "Biosphäre", administration union Schaalsee; concerning land consolidation procedures;

Meetings: board of trustees of biosphere reserve Schaalsee (ongoing meetings 1-2 times/year), LEADER local action group, groups involved in the development of management plans under the habitats directive (in progress FFH management plan Schaalsee and Röggeliner See, Round Table "Climate Change" with local enterprises, municipalities (regular meetings);

Workshops: Framework biosphere reserve Schaalsee (overall conception with stakeholders in working groups, 2003), workshops when required (farmers, pomiculture, actors of the regional







Communication structures

marketing, etc.)

Legal dispute: citizens' initiatives

Other: information events about renaturation projects (bogs, river systems)

Conflicts (communication)

- Citizens' initiative/local administrations/tourists: tourist use of landscape (walking and hiking trails, renaturation of bogs)

- Conflicts concerning tree preservation byelaws between landowners and local nature conservation authority

- Farmers/landowners: permissions under building and nature conservation law (building in the landscape, installation of biomass systems, tree protection byelaws)

- Fishery and anglers organisation: use of lakes, river systems

- Forestry: forest transformation without forestry use, afforestation in sensitive ecosystems

Adaptation of communication strategies under climate change

Project on measures and strategies to cope with climate change since 2007, activities: **Study**: Regional appraisal of climate change and the development of climate protection and adaptation strategies in the Schaalsee Biosphere Reserve Region (http://www.schaalsee.de/ inhalte/download/Klima_english_low_res.pdf), information events with presentation of the study (target group: local stakeholders)

Environmental education: information events about climate change, promotion of renewable energy, renewable biomass for municipalities, citizens, local stakeholders and pupils,

demonstration of sustainable cropping methods in cooperation with the federal agronomic research institute (demonstration of field tests, lectures, guided tours, target group: local farmers)

Round tables: (target group: local entrepreneurs, politicians, municipality representatives); support of best practice projects (bio energy, renewable energy);

Organization of 1. Climate Conference West-Mecklenburg (BalticClimate, Baltic Sea Region Programme), workshops on agriculture and mobility, climate tour, exchange of information and experience, target group: local stakeholders)

We are searching for new ways for stakeholder dialogues, to involve them and to initiate projects. There is need to expand communication because of low awareness.

Stakeholders are involved in the planning process for protected areas (Natura 2000 sites) (working-groups, information events), adaption is not the main topic.

4.3. Flusslandschaft Elbe-Brandenburg Biosphere Reserve

Table 29: Stakeholder dialogue and communication – Flusslandschaft Elbe-Brandenburg Biosphere Reserve Biosphere Reserve

Communication structures

Face-to-face contact: selected land users, several administrations (mainly concerning water retention, flood control, forest conversion)

Meetings: several administrations

Other: with land users (flood control, shipping, water maintenance)

Communication structures

Conflicts (communication)

Adaptation of communication strategies under climate change

There is no strategy of communication, but it would be desirable to have one, namely beyond local scale (federal state, federal government).

Planning and new management plans: involvement of representatives of public interests

4.4. Vessertal - Thuringian Forest Biosphere Reserve

Table 30: Stakeholder dialogue and communication – Vessertal - Thuringian Forest Biosphere Reserve Reserve

Communication structures

Face-to-face contact: Forestry (Contacts to forestry office, districts)
Meetings: e.g. facilitated process of biosphere reserve-expansion
Workshops: annual symposiums, invitations to representatives from forestry, local administration, nature protection, hunting, farmers' association (overall 300-400 recipients)
Legal dispute: Statements/participation processes (forestry office and other administrations)
Other: participation at local council meetings and presentation about biosphere reserve

Conflicts (communication)

Forestry: forest calamities (bark beetles on spruce) are accepted in core area of the biosphere reserve, which pressures neighbouring spruce sites

Conflicts between forestry and tourism concerning use of forest roads

Regeneration of forests with native tree species is difficult due to raised deer population Natural forest rejuvenation with deciduous tress and rare species is threatened by excessive game population that causes damages (stakeholders: hunters, tourists with interests in animal observation), natural rejuvenation makes effective hunting more difficult due to rich forest structure (hunting is limited by topical hunting laws)

Forestry-nature conservation: Use of tree species that are considered highly productive and adapted to climate change (neophytes) may conflict nature conservation goals (Pseudotsuga menziesii)

Adaptation of communication strategies under climate change

Climate change is used as main argument to continue and force the conversion of forests. Climate change and forest conversion are topics of political programs since 2009 and influence policies for the Biosphere Reserve. Existing forest management consulting has to be extended by topics of climate change to raise awareness of forestry and acceptance of required adaptation measures.







4.5. Balaton Uplands National Park

Table 31: Stakeholder dialogue and communication – Balaton Uplands National Park

Communication structures

Face-to-face contact: Nature conservation guards take part in daily routine of the areas, giving advice on the field for owners and farmers.

Conflicts (communication)

No, the national park directorate does not have any conflicts on our investigation areas.

Adaptation of communication strategies under climate change

No current stakeholder dialogues (besides face-to-face contacts) and no plans to extend it.

4.6. Fertö Hansag National Park

Table 32: Stakeholder dialogue and communication – Fertö Hansag National Park

Communication structures

Face-to-face contact: local staff of North Transdanubian District Environment and Water Directorate meets almost daily colleagues of national park, local government, users, residents **Meetings**: take place in the context of different projects (River Basin Management Plan, Hydroecological Information System).

Workshops: take place in the context of different projects (River Basin Management Plan, Hydroecological Information System, Hungarian Hydrological Society)

Others: practice of assigning management rights - for example get out license, signing contracts

Conflicts (communication)

Assignment of management rights and land-use rights are not practiced by the same people/institutes

Adaptation of communication strategies under climate change

4.7. Körös-Maros National Park

Table 33: Stakeholder dialogue and communication – Körös-Maros National Park

Communication structures

Face-to-face contact: Nature conservation guards take part in the daily routine of investigation areas, giving advice on the field for owners, farmers.

Conflicts (communication)

No, the national park directorate does not have any conflicts on these sample areas.

Adaptation of communication strategies under climate change

No current stakeholder dialogues (besides face-to-face contacts) and no plans to extend it.



4.8. Biebrza National Park

 Table 34:
 Stakeholder dialogue and communication – Biebrza National Park

Communication structures

Face-to-face contact: In particular cases delegations of the BNP Office visit farmers and stakeholders

Meetings: With regard to some problems stakeholders are invited to participate in meetings of the Scientific Board of BNP, Stakeholder forum (annual meeting organised for local authorities), "Wszechnica Biebrzanska" (Conference organized by the BNP which focuses on certain problems,

that are specified in advance. 3-4 meetings every year.)

Workshops: So far no workshops have been organized, but such an activity is planned. **Other**: Local field meetings in areas of conflicts

Conflicts (communication)

Some conflicts with farmers are result from national regulations. According to the national law, within the Polish National Parks it is strictly forbidden to change the water regime. However, as the Biebrza NP was established in 1993, in advance there were some drainage and melioration done. Nowadays, management plans of the park cannot include any drainage works. Also farmers cannot drain areas without permission of the NP (according to the rules, such a permission cannot be issued). Under these conditions some conflicts with farmers appeared.

Adaptation of communication strategies under climate change

A meeting of stakeholders and users at Biebrza National Park concerning climate change impacts and the Habit –Change Project was organized in January 2011 (see Annex 2).

4.9. Danube Delta Biosphere Reserve

Table 35: Stakeholder dialogue and communication – Danube Delta Biosphere Reserve

Communication structures

Legal dispute: between DDBR Administration and town halls of the settlements from the Danube Delta concerning land use and settlements expanding in natural areas (habitat fragmentation); Between County Council, DDBR Administration and private land owners concerning land use and access

Conflicts (communication)

Romanian National Forests Administration and the inhabitants: poaching and habitat fragmentation (illegal deforestation);

DDBR Administration and inhabitants: poaching (fishing and hunting in protected areas) and illegal reed burning in large areas that affects the biodiversity;

Property rights in Romania are very strong and the state institutions don't have the authority to interfere in land owners activities

Adaptation of communication strategies under climate change

Climate change is not yet a topic of communication. Starting a dialogue is quite a challenge, because a minimum agreement about economic interests and nature protection objectives is needed in order to achieve something. Regarding the protected areas, the inhabitants are mostly







poor or land owners are politically sustained, the state institutions are struggling to maintain, monitor and control the biodiversity and climate change effects in protected areas that are privately owned.

4.10. Natural Park Bucegi

Table 36: Stakeholder dialogue and communication – Natural Park Bucegi

Communication structures

Face-to-face contact: University of Bucharest started a stakeholder dialogue in the protected area in August 2010.

Other: Scientific Council of the Natural Park Bucegi; Consulting Council for Administration

Conflicts (communication)

Touristic development - nature protection: municipalities want to intensify the touristic use of the park area

Forest Administration: Administration structures and responsibilities are under change, the forest administration might be divided to different institutions.

Adaptation of communication strategies under climate change

Stakeholders show some awareness but little knowledge about climate change and its impacts. The communication structures seem to be weak.

4.11. Secovlje Salina Nature Park

Table 37: Stakeholder dialogue and communication – Secovlje Salina Nature Park

Communication structures

Face-to-face contact: Presentations are given to all employees on the impacts of climate change on biodiversity and salt-production processes

Meetings: Problems of adaptation to climate change are discussed with the relevant authorities of the Ministry of Environment

Workshops: round-table discussion and presentation for employees about possible impacts of climate change in the area was organised by Soline d.o.o.

Conflicts (communication)

No

Adaptation of communication strategies under climate change

Communication on the impacts of climate change is already a part of the communication strategy of the management authority. In order to reduce carbon dioxide emissions and raise awareness of employees and visitors of the area, a reduction in motorised access to the working areas was introduced and a public transport was set up. It is aimed to intensify communication about climate change.



4.12. Triglav National Park

Table 38: Stakeholder dialogue and communication – Triglav National Park

Communication structures

Face-to-face contact: with land owners

Meetings: with foresters, local authorities, local community organizations

Workshops: with foresters, local authorities, local community organizations, experts from other protected areas

Conflicts (communication)

No

Adaptation of communication strategies under climate change

The administration of Triglav National Park intends to develop a communication strategy using statements/speeches, direct mailing, internet techniques and web-based forums, telephone information line, surveys and interviews, info centres and stands, own events and exhibitions.





5. Resume and conclusions

5.1. Summary and valuation

One of the main objectives of this report is to identify and name stakeholders and land users that have an influence on the status of the protected area and therefore have to be included in the process of adaptation of management plans. A favourable conservation status of protected habitats is not only threatened by climate-change induced pressures and impacts but also by pressures from land use and land-use changes. To identify existing conflicts with relevant stakeholders and land users who should be solved in the adaptation process of management plans the investigation areas were asked to report about conflicts and involved parties.

The answers from the questionnaires that were presented in chapter 2 to 4 for each investigation area separately are summarised in this chapter according to the objectives of this output:

- Which stakeholders are considered to be relevant in the investigation areas?
- What kinds of stakeholder dialogues already exist in investigation areas?
- Do stakeholders and users experience climate-change related problems?
- Which stakeholders are estimated to be especially affected by climate change?
- Which stakeholders should participate in the process of adaptation of management plans to improve chances for adaptation and mitigation measures and practices?

5.1.1. Range of Stakeholders

Which stakeholders are considered to be relevant in the investigation areas?



Figure 1: Stakeholders in Habit-Change investigation areas

Users and administration are the stakeholder groups that were named in highest numbers. Administrations were named for all 13 areas. The respondents named 2-9 administrations, such as local governments, public authorities and the parks' administration.

All respondents named users in their area as well. Overall it's a high number of users, but the importance of land users in the single areas or the respondents' awareness of their existence and importance varies. Respondents named between 1 and 16 different users or user groups/institutions.

NGOs might be less important from the respondents view. 8 respondents stated that there are NGOs active in the respective area, but for two areas the question is answered generally, the organizations are not named. For 4 areas (Schaalsee, Vessertal, Biebrza, Bucegi) a NGO was named that is engaged in the respective area.

Economic interest groups (local tourism initiatives, fishing companies, reed-cutting and management companies, mining companies, commercial harbours, salt production) exist in 5 areas.

Some stakeholders could not be included in one of the suggested categories because they were not described detailed enough or didn't match the given categories. Those were summed up in the category "Others" (8 areas, 1-7 stakeholders: private landowners, citizens, Regional spatial planning authorities, public utilities, researchers and scientific institutions, universities, associations responsible for water management, research facilities, harbours for sailing-boats and yachts, hunting associations, nature conservation guards, media; private financiers, forestry sector representatives; tourist sector representatives).

The analysis of the answers shows that stakeholders and users are well known in most of the areas but the influence of respective groups and sectors is varying. It has to be considered, that so far no information was gathered about the specific area in the investigation areas where land users and stakeholder are active. One of the next steps in the Habit-Change Project will be to identify the land users and stakeholders that influence the protected habitats that are selected for deeper investigations in the project. Therefore information from the habitat-mapping and the stakeholder dialogue has to be connected to focus on those areas where stakeholder dialogues have to be intensified.

5.1.2. Existing stakeholder dialogues

What kinds of stakeholder dialogues already exist in investigation areas?

To learn about the existing knowledge and experience with stakeholder participation processes and stakeholder involvement in design and adaptation of management plans for protected areas different categories or forms of communication and dialogue were offered in the questionnaire.

The answers show that communication between management authorities and users and stakeholders is of diverse intensity and regularity. The most common form of communication is face-to-face contact (10 of 12 areas), followed by meetings (in 8 areas) and workshops, that have been held in five areas.





Personal contacts are the only communication in Körös-Maros NP and Balaton Uplands NP, where nature conservation guards keep in touch with owners and farmers. This strategy seems to be successful as it is stated that the park directorate doesn't see any conflicts in the respective areas.

Legal disputes show that the communication between stakeholders and the park management is not possible any more by means of dialogue. Legal disputes are usually a result of conflicting objectives of the involved parties and often deal with the limited use of property rights. From 3 of the Habit-Change investigation areas legal disputes were reported.

In the category "Others" many different forms of communication were reported that reach from information events to the participation in local council meetings. Those communication activities show the engagement and interest of the park management to present and discuss the objectives and ideas of the protected area to a wider public. They can be seen as important measures to increase acceptance and understanding. These communication forms are also important for raising awareness of climate change under stakeholders and land users.





5.1.3. Current user known problems in the investigation areas

Do stakeholders and users experience climate-change related problems?

Which stakeholders are estimated to be especially affected by climate change?

It is expected that existing problems and conflicts in protected areas will get worse under climate change because the expected limitations of water resources, suitable areas for touristic activities or the shortfall of arable land. To avoid escalating conflicts an early identification of climate change related problems is necessary. Land users and stakeholders that are strongly affected by climate-change impacts have to participate in the process of adaptation to get a chance to integrate their interests and needs in climate-change adapted management plans. Adaptation of management plans

should establish "win-win-solutions" that help stakeholders and the management authorities to obtain their goals under climate change. Both, nature conservation and economic and social interest should benefit from the adaptation of management plans, because the management of most protected areas strongly relies on the cooperation between stakeholders and the area management.

The user known problems and existing difficulties are also subject of the report for output 3.2.1 which gives a thorough analysis of reported problems and difficulties. In this report the current user known problems are aggregated to categories that can be related to different groups of stakeholders and users. We generally distinguished between problems that hinder the achievement of nature conservation goals and problems that oppose social and economic interests of stakeholders and users.

Problems in achieving nature conservation goals are caused by land-use practices in agriculture and forestry, touristic use and development of areas, changes in water management and water balance, changes in species composition and the spreading of invasive species. Land-use practices include the intensification with use of pesticides and fertilizer as well the abandonment of areas.



Figure 3 shows how often problems of nature conservation were reported from the Habit-Change investigation areas.

Figure 3: Problems of nature conservation in Habit-Change investigation areas

Different groups of stakeholders and users have problems obtaining their goals. Most of the problems reported are related to climate change or the occurrence of extreme weather events. Some problems arise due to conflicts between nature conservation objectives and the economic interests of stakeholders.







Figure 4 shows which user groups reported problems in obtaining the socio-economic goals.

Figure 4: User groups with problems in Habit-Change investigation areas

The answers show that all users of the protected areas experience problems due to extreme weather events like storms, draughts and floods. These events have impacts on nature conservation and on the socio-economic interests of stakeholders. Though everyone seems to be affected only few stakeholders put these events in relation to climate change.

5.1.4. Awareness

The awareness of climate change and projected impacts of climate change are fundamental for the process of adaptation of management plans. With the questionnaire information about the awareness of climate change was collected. First of all it can be assumed that the awareness of the management authorities of protected areas is at least medium or high, otherwise they wouldn't see the need to participate the Habit-Change Project. But the answers show that there is no general awareness for climate-change induced problems in nature protection, partly because existing problems aren't related to climate change but considered as impacts of natural climate and weather fluctuations. The relatively low awareness of nature conservation managers may result also from the insufficient information basis about possible impacts and projected developments of climate change.

More interesting is the information on how aware relevant stakeholders and land users are about climate change. Land users like forestry show the highest awareness and already have taken action to react to the projected changes. Other stakeholders generally have low awareness; existing problems - even if they are caused by extreme weather events - are not related to climate change. But it seems that especially extreme events like storms, floods or droughts are predestined to raise awareness.

No awareness of stakeholders and no adaptation measures taken was reported from 3 areas: Rieserferner-Ahrn Nature Park, Biebrza National Park, Triglav National Park

Low awareness of stakeholders and no systematic assessment was reported from 4 areas: Balaton Uplands National Park, Körös-Maros National Park, Danube Delta Biosphere Reserve, Natural Park Bucegi

Low awareness of stakeholders but beginning consideration in official programs and policies was reported from Flusslandschaft Elbe-Brandenburg Biosphere Reserve and Schaalsee Biosphere Reserve.

Medium awareness of stakeholders and already taken measures (reconstruction works on the dykes and sea defence walls) were reported from Secovlje Salina Nature Park and different sectors in Vessertal - Thuringian Forest Biosphere Reserve. The highest awareness was reported from forestry sector in Vessertal - Thuringian Forest Biosphere Reserve.

The results show that there is a relation between already existing information, programmes and concepts and the level of awareness. The more information about the impacts of climate change is provided to land users and stakeholders the higher is the awareness. In areas where awareness is high adaptation is starting to be planned and implemented. It is important that information about climate change and its impacts is not only presented as scientific research results but oriented to the needs and problems of stakeholders and users. It is important how knowledge is presented and what communication channels are used. The best way to reach relevant stakeholders and users is a stakeholder dialogue that opens space for questions and discussions.

The answers show that the process of adaptation to climate change has to start with the provision of more information about climate change to raise awareness and understanding. This information has to aim at the management authorities of the investigation areas as well at the stakeholders and land users of the investigation areas. Appropriate communication strategies and information material has to be developed.

Acceptance of future climate change adapted management plans (CAMPs) and the success of management measures in nature protection will require awareness raising measures in education, information, research and stakeholder dialogues. Without or with low awareness, relevant users and stakeholders won't be able to denominate adaptation requirements.

5.2. Discussion

Which stakeholders should participate in the process of adaptation of management plans to improve chances for adaptation and mitigation measures and practices?

The results from the analysis of the questionnaires show that both area managers with nature conservation tasks and users with economic interests experience problems due to changing climatic conditions. It is obvious that all user groups present in protected areas and the management authorities for the protected areas have to change and adapt their objectives, strategies and practices to changing climates. Most areas include protected habitats that resulted from specific







agricultural land-use practices that are now threatened by changes of land-use and by changes in climatic conditions. The agricultural and forest use of protected habitats and other parts of the investigation areas provides an important basis for the economic development of the population in and around protected areas. It is also essential for the maintenance and management of cultural landscapes and their protected habitats. When farmers and forestry have problems to keep up an economic worthwhile land management, because the lack of subsidies, changes in national or international policies, restrictions from nature conservation or demographic changes; the conservation of protected habitats is put at risk. Nature conservation goals can only be achieved together with important land users, stakeholders and local inhabitants; not against them. Therefore these groups and their specific interests have to be considered in the adaptation process. The guiding principle of adaptation should be to generate "win-win-situation" that allow improvements in nature conservation and in the economic situation of important stakeholders.

Stakeholders and land users that already experience problems due to extreme weather and changing climatic conditions will be open for discussions about variations in strategies and practices. It seems important to address these stakeholders as early as possible to coordinate their adaptation needs and requirements with the requirements of nature conservation. The identified stakeholders with problems should be involved in an intensified stakeholder dialogue as a basis for the adaptation of management plans.

The results show that the experience and intensity of stakeholder dialogues and communication processes between park managements and stakeholders varies between different investigation areas. Some areas use many different forms of communication and have close contact to users and stakeholders while others are just about to start stakeholder dialogues. From more experienced investigation areas valuable information about effective stakeholder dialogues can be obtained. The exchange of information and knowledge between the participating investigation areas has to be intensified during the remaining project period. Upcoming workshops should be used for exchange about stakeholder processes in protected areas.

The first step for an intensified cooperation and jointly development of adapted management plans together with stakeholders and users is the preparation and distribution of relevant information about climate change and its possible impacts on the protected areas. This information is elaborated in the Habit-Change Project and needs to be distributed and presented in the investigation areas. That way the awareness of climate change and the urge to take action can be raised under stakeholders and users. It might be helpful to approach different groups of stakeholders and user with customized communication strategies and information concepts. Farmers might be interested in different impacts and adaptation requirements than tourism. Different target groups need tailored solutions.

Finally it has to be qualified that the provided information about stakeholders, problems and impacts of climate change strongly depend on the perspective and knowledge of the persons who answered the questionnaire. Only in Bucegi Nature Park the questionnaire was taken as an occasion to hold interviews with stakeholders to collect their specific perspective. The intensification of stakeholder dialogues as a preparation work for the development of climate change adapted management plans (CAMPs) will reveal if more stakeholders have to included and additional problems to be solved. While information from some areas is very detailed and profound other areas answered in a more

general way. Hopefully the level of information can be homogenized in the further proceeding of the project.

The filled questionnaires proved that the understanding of concepts, terms and problems varies very much between participating partners. This shows that more communication and reconciliation is necessary to come to a common understanding and definition of concepts, terms and methods. The next workshops of the Habit-Change Project will provide an appropriate forum for this discussion.

6. Sources

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7. Annexes

7.1. Annex 1: Questionnaire

The requested information was obtained by the following questions:

A) Identification of land users and other stakeholders

Which stakeholders and land users are considered to be relevant by the management authorities of the protected area? Who needs to be involved in the adaptation process of the management plans? Please consider groups and persons who:

- are strongly affected by CC impacts,
- have already existing conflicts/problems or cooperation with management authorities or
- offer great potential in supporting adaptation activities.

Please list land users and other important stakeholders for the respective area below. Please refer to all relevant sectors of land use, such as forestry, agriculture, fishery, tourism, settlements and industry. Give detailed information whether you refer to organisations, institutions or individuals.

• Land users

Land users are defined as people being present inside the boundaries of protected areas that manage parts of the area and implement measures. They influence the condition of the protected area directly (e.g. private landowners, farmers or tourists).

• Other stakeholders

Other important stakeholders have an influence on the protected area, but are not necessarily present in the area (e.g. regional administrations, associations, NGOs etc.).

B) Current user-known problems in the protected area

• Problems

Which problems were reported to you or did you hear about? Please list below for every user and stakeholder.

• Impacts of climate change

Which impacts do you expect climate change (CC) to have on the stakeholders situation? How are stakeholders affected by CC? How might this influence the mentioned problems (intensification or easing)?

Awareness

How do you estimate stakeholders and users awareness of CC and CC induced problems? Are they already taking action? How are they reacting?



C) Stakeholder dialogue and communication

Communication structures

How does communication with the stakeholders in general take place? Are there already existing communication structures? What dialogue processes are already finished, what are the results, what dialogues are still in progress?

Is there	If yes, please specify dialogue partners and topics:
Face-to-face contact	
Meetings	
Workshops	
Legal dispute	
Other: please exemplify:	

• Conflicts (Communication)

Are there any conflicts with stakeholders mentioned above concerning the management of the protected area? Please list below for every stakeholder.

• Adaptation of communication strategies under CC

Is CC a subject of communication processes? Do you plan to change communication strategies and public relations due to CC? Do you consider new ways for stakeholder dialogues? Is there a need for expanded communication processes against the background of CC? How are users and stakeholders involved in adaptation processes inside protected areas?







7.2. Annex 2: Biebrza Stakeholder Dialogue

"Climate induced changes and land management in protected areas"

WP3 meeting of stakeholders and users

Biebrza National Park, under the INTERREG IVB project HABIT-CHANGE,

January 22- 23, 2011

Minutes

Place: Osowiec-Twierdza/Goniadz, Biebrza National Park, Poland

Date: 21-23.01.2011

Organizers : BNP and IOS

Meeting Agenda: Appendix 1

Participants - 81 persons (list of participants in Appendix 2)

Goals of the meeting:

- to present the main ideas of the HABIT-CHANGE project to local stakeholders, tourists, managers, guides and scientists.

- to share knowledge on climate change and its impact for local economy and environment,

- to get the feedback from participants on their point of view in regard with climate change and its impacts to the Biebrza Valley.

Background information:

- Information brochure was issued to disseminate the Project goals (Appendix 3);

- Speakers and organizers of the meeting:
 - BNP Mr Andrzej Grygoruk (Deputy Director), Mr Tadeusz Sidor (Deputy Director), Mr Mateusz Grygoruk (Project Coordinator in BNP);
 - IOS Dr. Bożena Kornatowska, Dr. Jadwiga Sienkiewicz (Project Coordinator in IOS), Prof. Maciej Sadowski, Dr. Grzegorz Rąkowski





- Prof. Tomasz Okruszko (Warsaw University of Life Sciences, Department of Hydraulic Engineering)

- Dr. Dorota Mirosław-Świątek (Warsaw University of Life Sciences, Department of Hydraulic Engineering)

- Dr. Maciej Kamiński (Deputy Director of Wigry National Park)

-Mr. Ryszard Modzelewski (Director of Narew National Park)

- Mr. Tomasz Kułakowski (Polish Society for Bird Protection – PTOP)

- Mr. Wojciech Misiukiewicz (Wigry National Park)

Friday, January 21st

In the evening the official meeting of organizers and speakers took place. During the evening dinner in Dobarz restaurant, the strategy of the meeting and the discussion scheduled for the next day was prepared.

Saturday, January 22nd

The meeting took place in the Park headquarters at Osowiec-Twierdza. The participants in the plenary session were introduced to the meeting purposes and main speakers by Mr Andrzej Grygoruk, the Deputy Director of the Biebrza National Park (Programme of the meeting – Annex 2). Afterwards, Mr Mateusz Grygoruk the Coordinator of the HABIT CHANGE Project at the Biebrza National Park explained the aims of the INTERREG IV B Programme within the Park and gave a brief introduction to HABIT-CHANGE topics. The next speaker, Professor Maciej Sadowski of the IOS, gave an informative and interesting presentation on trends and rates of climate change in north-eastern Poland and, especially in the Biebrza Valley, based on climate change scenarios. Predicted trends of climate change over the next several decades, according to scenarios for north-eastern Poland, foresee that there may occur about 2.5° C increase in the mean annual air temperature and a significant variability of extreme precipitation events. This variability from year to year may reach even 50%. Longer drought periods are to be expected in spring and summer with episodes of violent wind storms and intense rainfalls. The forecasted shortening of snow cover duration might be responsible for a general decrease in soil water saturation what together with increased evapotranspiration may lead to drying out of some more vulnerable habitats. Professor Tomasz Okruszko of the Warsaw University of Life Sciences provided the audience with the newest information on how the climate will affect wetland management based on the examples from Poland and Europe. He focused on ecosystem services of wetlands, which have been analyzed in a set of 103 the most important European wetlands. By presenting his research done in framework of the SCENES Project, he admitted, that in the time horizon 2050 more than a half of analyzed ecosystem services of wetlands are expected to be lost due to foreseen changes in hydrological parameters within analyzed sites. Analyzed ecosystem services were: wetlands as habitats for birds, wetlands as habitats for vegetation, wetlands as a fish-spawning places, nutrient removal in riparian wetlands, carbon storage in mires and the production (hay, reed, game, tourism...).





Prof. Maciej Sadowski and Prof. Tomasz Okruszko

After the coffee break, Dr. Jadwiga Sienkiewicz of IOS presented trends of potential changes in habitats and vegetation of the Biebrza Valley in consideration of predicted climate change. Climate induced changes in local hydrological conditions are likely to disrupt functioning of wetland ecosystems including biomass production and decomposition; hydrological cycles and succession of vegetation what affects biodiversity and causes changes in wetland vegetation. Almost all of the habitats in the

Biebrza Valley are sensitive to climate induced changes as they are to human pressures. Assuming that human pressures in the Park remain at a more or less stable level, it is the mire and other open habitats that are most vulnerable to climate induced changes. The greatest risk is involved with those habitats that retained their near natural status and support communities having the character of close-to-climax vegetation, often supporting rare species of glacial relics. The assessment of habitat vulnerability in the BNP bases on a three dimensional approach. It is founded on the one hand, on the concept of habitat naturalness (habitat sensitivity) and, on the other, on the expected magnitude of climatic and human induced pressures, while taking into account the present distribution (location) of habitats in the Biebrza Valley (ability to cope with adverse effects).

The group of most vulnerable sites (highest vulnerability), that is those of the lowest adaptive capacities, embraces the sedge moss and moss communities on non-flooded fens depending on a high groundwater table. These communities represent the so-called extreme habitats with species which have a narrow ecological amplitude. To this class there belong also moist and alternately-moist meadows with purple grass on extensively managed and drained fens which, are presently disappearing due to abandonment of mowing. On the other end of the local vulnerability scale there are habitats that were entirely transformed by man, mostly associated with settlements. In between the two above extremes there are habitats representing intermediate classes of vulnerability. The general classification of habitat vulnerability in the Biebrza Valley was illustrated in the map and presented as a poster.

Afterwards, Dr. Dorota Mirosław-Świątek, of the Warsaw University of Life Sciences presented the analysis of changes in the flood extent over the last 60 years and predictions as to flooding trends in the Biebrza Valley. Statistical calculations of water levels and flooding frequencies and volume were



supported with mathematical modeling of flood extent. The analysis was done on the basis of Osowiec water gauge – the input to developed hydraulic model. Analysis indicated, that



the flood frequency in period of 1951-2010 has not changed much. Nevertheless, the beginning of spring floods has moved in recent years of approximately half-a-month earlier than in 50's. Due to water management and climate changes, summer floods are nowadays more frequent, which is crucial for agricultural management in the valley.

During the lunch-break, speakers and organizers had a common lunch and discussed preliminary results of the meeting. The meeting participants were able to buy lunch meals, as a catering company was invited to the meeting venue.



Tomasz Kułakowski

After the lunch-break, Mr. Tomasz Kułakowski from Bird Protection Association PTOP gave a lecture on birds appearance changes in NE Poland. He reported, that certain bird species (eg. geese) appeared earlier in the Biebrza Valley, which could be ascribed to increasing trend of air temperature in winter. He also admitted, that some southern birds (i.e. white egret) can spread their population towards the North. This fact was already observed in the Biebrza Valley, as the number of white egrets has recently increased.

Presentation of Tomasz Kułakowski was the last of plenary session. After the session, invited guests started the discussion panel. The main aim of the discussion was to recognize the level of consciousness of meeting participants as to the climate change. The invited guests – leaders of the discussion – had 5 minutes to introduce their point of view on climate change induced changes of ecosystems. Afterwards, the meeting attendees could ask questions and give comments on expert's opinion. At the end of the meeting, Mr Wojciech Misiukiewicz presented remarkable slideshow about herons. Some species of herons can become an indicator in climate-change dynamics analysis.

At the end of the meeting participants were asked to fill-in the questionnaires which have been prepared for each group of meeting participants: guests (mostly scientists, guides and tourists), stakeholders and farmers. Results of the questionnaire are being analyzed.

Presentations given during the meeting will be available online on websites <u>www.habit-change.eu</u> and <u>www.biebrza.org.pl</u>.







Sunday, January 23rd

On the 2rd day the meeting concluded with a guided half-day field trip to the "Grobla Honczarowska", Biebrza National Park. The trip was guided by Dr. Cezary Werpachowski and Mr Mateusz Grygoruk. The character of the landscape, typical landscape elements and current problems of management and climate change were discussed and interpreted with participants. In locations where piezometers along the "Grobla Honczarowska" are situated, Mr Mateusz Grygoruk described the network of hydrological monitoring of BNP and explained the parameters being monitored and how they can be interpreted for the purpose of climate change analysis. As the weather was perfect, participants of the trip could admire the winter landscapes of the Biebrza National Park.



During the field trip on Sunday – "Grobla Honczarowska"

Conclusions

- The HABIT-CHANGE WP3 meeting was the first of such kind, that treated about the climate change in the Biebrza Valley.

- Analyzing the active participation of audience in discussions, it can be assumed, that the subject of meeting was interesting.

- Hearing the comments of people after the meeting one can reasonably assume, that most of the participants did not connect recent changes in the environment with climate change. Therefore, the meeting lead to the increase of stakeholders and guests consciousness on climate-change related problems.

- The meeting got a very positive feedback from the audience.

We would like to thank all the participants for their active participation in plenary sessions, discussions and the field trip!

Mateusz Grygoruk & Jadwiga Sienkiewicz

APPENDIX 1 – Meeting agenda

XXXIV Wszechnica Biebrzańska 22-23 stycznia 2011 r.



Osowiec-Twierdza



SOBOTA, 22.01.2011 r.

- 9.00 9.10 powitanie uczestników Dyrektor BPN
- 9.10 9.30 Projekt HABIT-CHANGE w Biebrzańskim Parku Narodowym mgr Mateusz Grygoruk, BPN
- 9.30 10.10 Kierunki i tempo zmian klimatu w Północno-Wschodniej Polsce oraz w Dolinie Biebrzy Prof. dr hab. Maciej Sadowski – Instytut Ochrony Środowiska w Warszawie
- 10.10 10.50 Analiza wpływu zmian klimatu na stan mokradeł w Europie dr hab. inż. Tomasz Okruszko, prof. SGGW – SGGW w Warszawie
- 11.50 11.20 przerwa kawowa
- 11.20 12.00 Kierunki potencjalnych zmian warunków siedliskowych i roślinności w Dolinie Biebrzy Dr hab. Apolonia Ostrowska Prof. IOŚ-PIB, dr Jadwiga Sienkiewicz – Instytut Ochrony Środowiska w Warszawie
- 12.00 12.40 Zmiany zasięgu zalewów w Dolinie Biebrzy w okresie 1951 2009 czy grozi nam wielka powódź?
 Dr Dorota Mirosław-Świątek, SGGW w Warszawie
- 12.40 13.15 przerwa na posiłek
- 13.15 13.55 Ptaki a klimat obserwacje z północno-wschodniej Polski Mgr inż. Tomasz Kułakowski, PTOP
- 14.00 15.00 Dyskusja panelowa na temat przyrodniczych i gospodarczych konsekwencji potencjalnych zmian klimatu w Północno-Wschodniej Polsce prof. dr hab. Maciej Sadowski – Instytut Ochrony Środowiska w Warszawie dr hab. inż. Tomasz Okruszko, prof. SGGW - SGGW w Warszawie mgr inż. Tadeusz Sidor – Biebrzański Park Narodowy mgr inż. Ryszard Modzelewski – Narwiański Park Narodowy dr inż. Maciej Kamiński – Wigierski Park Narodowy oraz uczestnicy Wszechnicy Biebrzańskiej
- 15.00 Zakończenie

NIEDZIELA, 22.01.2011 r.

9.30 – Wycieczka terenowa po Grobli Honczarowskiej

APPENDIX 2 – List of participants







HABIT-CHANGE



Lista obecności na XXXIV "Wszechnicy Biebrzańskiej" w dniu 22.01.2011 r.

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18.	Anna Zaknewska	Wpisać tylko, gdy nie dotarło anula . Zaproszenie @ g mail.	2 almenter
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Lista obecności na XXXIV "Wszechnicy Biebrzańskiej" w dniu 22.01.2011 r.

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CENTRAL

EUROPEAN UNION EUROPEAN REGIONAL DEVELOPMENT FUND co-financed by the ERDF

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HABIT-CHANGE



Lista obecności na XXXIV "Wszechnicy Biebrzańskiej" w dniu 22.01.2011 r.

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47.	Zauslienia Anohej	Wpisać tylko, gdy nie dotarło zaproszenie	Anglie
48.	Hubert Komende	Wpisać tylko, gdy nie dotarło zaproszenie	H. Komarde
49.	Lutan Zando	Wpisać tylko, gdy nie dotarło zaproszenie	Æ.
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EUROPEAN UNION This project is implemented through EUROPEAN REGIONAL the CENTRAL EUROPE Programme DEVELOPMENT FUND co-financed by the ERDF

[3]



MABIT-





Lista obecności na XXXIV "Wszechnicy Biebrzańskiej" w dniu 22.01.2011 r.

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APPENDIX 3









O GHABIT-■ CHANGE



W opracowaniu wzięto pod uwagę spodziewać dalszego intensywnego powietrza o ok. 2,5°C. Jest wysoce Zmienność sum opadów z roku na mniejsze, jednak biorąc pod uwagę zaznaczony na nysunkach w postad niebieska przedstawiają uśrednioną regionalnych modeli klimatycznych wyników przez nie uzyskanych jest rok będzie duża i może dochodzić obszanu szarego. Línie czerwona i rocznej będzie mniejszy, a średnia temperatury dobowej przez próg częstotiwościa, aniżeli dotychczas. 0°C. W lecie wzrost temperatury zmiany i zmienność będą o wiele krótszym okresem zlodzenia rzek kilka modeli, a zakres zmienności zimowego rzadko będzie spadać i gwaltownymi burzami. W zimie prawdopodobne, że po 2020 r. średnia temperatura dla półrocza poniżej 0°C, natomiast zwiększy omówione zmiany temperatury zwiększonym parowaniem oraz temperatury i opadów w drugiej z tych modeli. Zaobserwowane sę częstotiwość przechodzenia połowie XXI w. przygotowano da północno-wschodniej Polski spodziewać dłuższych okresów śnieżnej, jej mniejszą grubością, temperatura półrocza letniego bezopadowych przerywanych wartość uzyskanych wyników z wykorzystaniem istniejących trendy wskazują, że należy się wzrostu temperatury rocznej suche i ekstremalnie wigotne W okresach letnich należy się mogą występować z wiekszą Prezentowane oceny zmian okresem zalegania pokrywy do 50%. Lata ekstremalnie będzie przewyższać 18°C. trzeba się liczyć z krótszym zmianą okresu roztopów. intensywnymi ulewami



HABIT-CHANGE

W drugiej połowie XX w. oraz w północno-wschodniej Polsce obserwowano wyraźny wzrost w pierwszej dekadzie XXI w. średniej rocznej temperatury w miesiącach zimowych (od powietrza. Szczególnie duży wzrost był obserwowany KLIMAT

Randon Block

i gospodarcze, bowiem skutkuje skróceniem okresu zalegania konsekwenge przyrodnicze pokrywy śnieżnej, dłuższym Taka zmiana ma powazne ujernnych i zwiększeniem okresem bez temperatur parowania zarówno

z powierzchni ziemi, jak i wody.



















celem tego przedsięwzięcia ma przyrodniczych Biebrzańskiego Lizytkowników Doliny Biebrzy być kompromis mieszkańców z wymogami zachowania unikalnych walorów Parku Narodowego. ewolugi. Scenariusze opracowane ochroną przyrody w Biebrzańskim Parku Narodowym. Nadrzędnym

modelowania hydrologicznego

z wykorzystaniem wyników

w usprawnieniu zarządzania

zostaną wykorzystane

PTAKI

Bagien Biebrzańskich. Ptaki dość w środowisku zmiany, zarówno gospodarowania, tak więc mog przewidywane scenarusze zm stanowić dobre wskaźniki stanu jego jakości. Zaobserwowane dimatycznych w perspektywie upturków plaków związanych szybko reagują na zachodzące konsekwencją zmian sposobu wskazują na możiwość zmian z najcenniejszych elementów w ostatnim okresie tendenge nablizszych klkudziesięciu lat te bedace rezultatem zmian środowiska przyrodniczego środowiska przyrodniczego dimatycznych, jak i będące

skutkiem postepującego ociepienia znacznie liczniej i częściej, niż to się terminy przylotów i przysępowan pojawity się w Wiźnie i w Tykodni czy sowa blotna, a inne przestaną takich jak, m.in.: nycyk, kulik wielk gatunków ptaków. Spodziewane z kolei, ze pewne gatunki ptaków tu gniazdować, jak np. częsty do dórej kolonie legowe niedawno z otwartymi, niegdyś regulamie niedawna nad Biebrzą batalion. będą gatunki z południa Europy tawniej spotykane okazjonalnie klimatu będą także wcześniejsze koszonymi tąłami bagiennymi, pojawiać się i grieździć się tu ak np. czapla biała oraz zołna, agodniejsze zimy spowodują do legów, a także późniejsze będą zimowały nad Biebrzą erminy adlation niektórych lednocześnie coraz częściej zdarza obecnie.

Omitofauna, a szczególnie zespoły



w składzie gatunkowym, liczebności biologii ptaków w Dolinie Biebrzy. Spadać będzie liczebność populacji ptaków wodno-blotnych, to jeden



większą niż dotychczes część roku wodnych w wybranych częściach prognozowanie zmian stosunków zmian klimatu na wanunki wodn hydrolodzy z BPN oraz SGGW w Warszawie opracowali mode o ponad 40%. Moze to wphma na zagospodarowanie mokradel zalewowymi lub podziemnymi mogą być podłapiane wodam Doliny Biebrzy, Obliczono, że występowania letnich opadów letnim moze ulec rozszerzenii. W celu oszacowania wpływu hydrologiczne umozliwiające w wyniku prognozowanego nawahrych, zasieg zalewów wodarni rzecznymi w Doln wzrostu sum opadów oraz mokradel Doliny Biebrzy. Basenie Biebrzy w okresie i nadać nowy kierunek ich wzrostu częstotiwości



Dzieki zrównoważonemu WODY

oraz niewielkiemu przekształceniu dobrze zachowanych, naturalnych środowiska Bagna Biebrzańskie uzytkowaniu gospodarczemu zbiansowane zasilanie opado bagiennych. Funkcjonowanie Najistotniejszą konsekwencją są traktowane jako przykład w ksztatrowaniu ekologiczne Biebrzy odgrywa wzajemnie zalewowe oraz podziemne. procesów hydrologicznych. ledną z najstotniejszych ról funkcji mokradel Dofmy ekosystemów wodnood dynamiki przebiegu

wodnego mokradel, które przez zmian klimatu w Dolinie Biebrzy mokradel jest ściśle uzależnione hydrologicznego oraz bilansu może być modyfikacja cyklu



HABIT-CHANGE ROŚLINNOŚĆ

do najcenniejszych przyrodniczo Mokradia Doliny Biebrzy należą zarówno wodami podziemnym od (a) strefy zalewanej wodam Europy. Zachowany tu zostal do (c) strefy brzeżnej zasilanej terenów nie tylko Polski, ale działaniu wód podziernnych. układ zbiorowisk roślinnych: charakterystyczny strefowy niezalewaną, a podlegającą Biebrzy, poprzez (b) strelę z wysokich brzegów doliny jak i wodami sphwającymi

Warunkiem istnienia biebrzańskich wpływa głównie osuszanie, a także stosunków wodnych, od których mokradel jest utrzymanie w jak zależy istnienie gleb torfowych lorfowiska są bardzo wrażliwe na wszelkie zmiany wanunków samym ich obszarze, ale takze Do oceny wraziwości siedlisk najlepszym stanie lokalnych w bezpośrednim otoczeniu. procesów torfotwórczych. Na lokalne wanunki wodne wodnych i to nie tylko na zmiany klimatu.

klimatu, najsihiejsze zagrożenia roślinności Doliny Biebrzy na przestrzenne rozmieszczenie zagrożenia. W obliczu zmian ciągłości siedlisk stwierdzono zmiany klimatu przedstawia zgrupowanych według klas Mapa wrazliwość siedlisk dia funkgonowania oraz zbiorowisk roślinnych

zagrozenia w konsekwengi zmian rośliności Doliny Biebrzy można zastosować kryterium stopnia ich

kimatu.

w zbiorowiskach mszysto granica otuliny BPN drogi drugorzędna granica Polski drog glowna Dabrowa granica BPN stadista nr laustations uniel a hero Klasy zagrożer definition in the second se rzakt Î Legenda Π Bialvstok

zasilania są wody zalewów Biebrzy. bagiennych (olsy i lęgi). Najstabsze gdzie głównym źródiem zasilania rzeczne praktycznie nie występuji otwartych oraz z zakrzaczeniami zbiorowiska leśne na siedliskach zagrożenia dotyczą zbiorowisk, są wody podziemne, a zalewy turzycowych i mechowiskach w których głównym źródłem polożone blisko koryta rzeki. Silvie zagrozone są również

CZŁOWIEK

w Dolinie Biebrzy jest wynikiem Dobry stan przyrody mokradel Najpowaźniejsze konsekwencje obszarem powinna promować taki rozwój rolnictwa i turystyki prawidłowej i zrównoważonej praktyki wynika, że skuteczna obszarze. Z dotychczasowej i turystyki w Dolinie Biebrzy zmian klimatu da rolnictwa ochrony lokalnej przyrody. który uwzględnia wymogi gospodarki roinej na tym strategia zarządzania tym hydrologicznego. Zmiany wymikają ze zmian cyklu

terminów i zasięgu zalewów oraz w okresach sianokosów, uthudnia sprzętu mechanicznego. Zmiana zasięgu występowania zalewów w dolinie. Większa powierzchnia powodują zmiany częstotiwości intensywności opadów w ciągu moluradel poprzez ograniczenie ograniczenie koszenia pociągną roku i prognozowane częstsze gospodarowanie na obszarach nawalnych w okresach letnich możliwości zastosowania podtopien, szczególnie występowanie deszczy za sobą utratę

fradycype krezenie ląki - regulame zalewy biebrzańskich strategii zarządzania na obszarach moloradel przy udziale wszystkich pomiędzy rolnictwem, turystyką ograniczenie konfliktu interesów tych ghiazdujących nad Biebrzą czynnikiem warunkującym ich przyczyniają się do utrzymania jak i przelotnych. Tworzenie różnorodności biologicznej. wodno-blotnych, zarówno stabilnych populacji ptaków użytkowników pozwoli na produktywność rolną oraz Z drugiej jednak strony tak sa podstawowym othrany przyrody.









HABIT-CHANGE

Projekt współlinansowany z Europejskiego Funduszu Rozwoju Regionalnego w ramach Programu da Europy Środkowej.

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Strony internetowe: www.habit-change.eu www.biebrza.org.pl www.ics.edu.pl W obliczu prognozowanych zmian w ekosystemach Doliny Biebrzy, jakie mogą zajść pod wpływem zmian klimatu w perspektywie najbliższych kilkudziesięciu lat, należy podjąć wspólne działania zmierzające do zachowania i poprawy istniejącego stanu ochrony zasobów przyrodniczych i lich zrównoważonego wykorzystania. Wymaga to współpracy służb ochrony przyrody, mieszkańców i innych użytkowników Doliny Biebrzy, w zakresie skutecznej ochrony przyrody przy równoczesnym zapewnianiu rentowności produkcji rolnej i promowaniu przyjaznej środowisku turystyki.



Rozlawsko Biabrzy z lotu ptako

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