MARISCO: adaptive MAnagement of vulnerability and RISk at COnservation sites

Multiplier-workshop for the MARISCO-method exemplified by the Schorfheide-Chorin Biosphere Reserve, Germany




Documentation of a “MARISCO-coaching for coaches” in Chorin, Germany
February 2016

Commissioned by the “Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ)”

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1. Introduction

Workshop goal

Numerous projects initiated and supported by the GIZ have already made use of the MARISCO-method as a strategic ecosystem-based approach to systemically analyze complex regional situations and issues as well as improve a particular (conservation) site management. To enhance the application of the MARISCO-method in countries of cooperation a training course for multipliers was conducted. After having taken part in the coaching, the participants are able to apply the several steps, the MARISCO-cycle comprises. They can confidently moderate participatory workshops in cooperative projects in partner countries and consult the project management team. For this purpose, the participants have got a deeper insight into content-wise as well as various technical facets of the methodology, but were taught about relevant practical and didactic aspects as well.

The MARISCO-method

This “coaching for coaches” was implemented by the "Centre for Econics and Ecosystem Management e.V.". Since its founding in 2011, the CEEM has promoted the development of the principles of econics and their application in sustainable development with a focus on ecosystem management and adaptation to global change based on ecosystems. Developing a research portfolio focused on the needs of the environmental sector, the CEEM has cooperated with various institutions and organizations dedicated to the conservation and management of ecosystems, promoting innovation and application of scientific results in the management of natural resources.

Among CEEM’s innovations, the MARISCO methodology was developed in collaboration with and supported by GIZ. MARISCO represents a methodological approach to facilitate the integration of the assessment of risk and vulnerability in project management and at conservation sites and has been applied in many projects on a global level (e.g. in Albania, Germany, Korea, Costa Rica, Ecuador, Guatemala and Peru). The methodology has been derived from the *Open Standards for the Practice of Conservation* (OS), which were developed by the *Conservation Measures Partnership* (CMP).

This method tries to integrate the perspective of sustainably using and cherishing the value of the local, national and regional biodiversity into the general thinking of state, economy and society. In an integrated manner MARISCO takes adaptation to climate change into account; an especially important aspect as currently severe consequences of the latter are visible and likely to be experienced in the future. The work is transparent, participatory and unconstrained by any lack of scientific, evidence-based knowledge (use of non-knowledge) and thus open to all audiences with their diverse valuable information to offer.

MARISCO follows the approach of a systematic “step-by-step” procedure which is based on conservation objects and a systemic analysis of all factors and threats that generate stress in territorial systems, with emphasis on conservation areas. It also adopts the philosophy of adaptive management, following

the principle that conservation management cannot be certain about relevant issues and the effectiveness of strategies and that therefore management should represent not only planning, but above all action and lifelong learning.

A whole study contains several consecutive steps that are conducted both by the team of coaches and organizers as well as the participants of two workshops. It shall result in a management plan that is adaptive and takes account of risk and vulnerability. The whole exercise comprises four interrelated phases: Phase I (Preparation and initial conceptualisation), Phase II (Systemic vulnerability and risk analysis), Phase III (Comprehensive evaluation prioritisation and strategy formulation), Phase IV (Implementation and (non-)knowledge management.

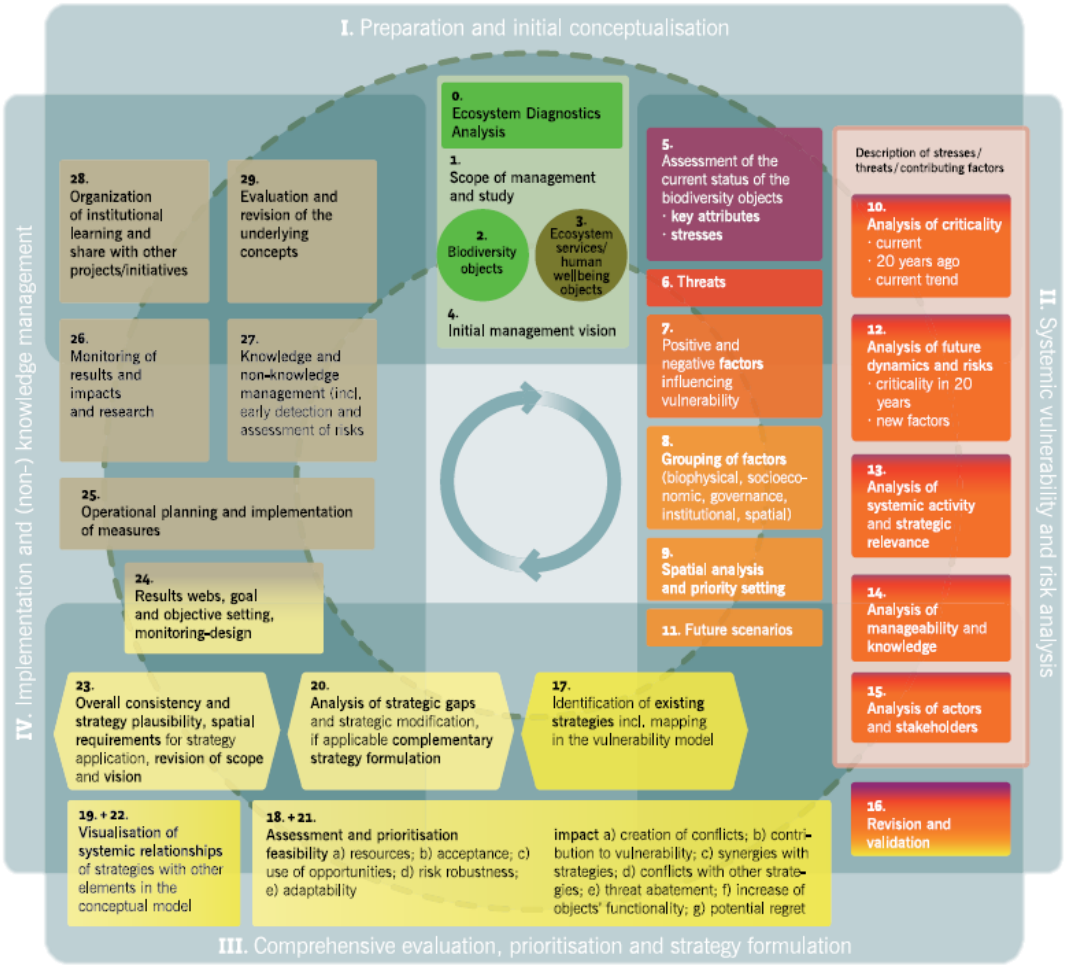
Phase I starts with step 0 – the Ecosystem Diagnostic Analysis, which does not yet include the workshop and its participants but offers the coaches the possibility to "get in touch" with the regions of interest which they could only theoretically and virtually visit beforehand. The actual workshop actions follow, meaning: setting an agreed upon geographical scope of management and study, analysis of the conservation objects (human wellbeing, social services, social systems, ecosystem services and biodiversity objects) as well as their connections and interrelations. Phase I is fulfilled after having proposed an initial management vision.

Phase II involves carrying out a complex situation analysis to establish a sound understanding of the status quo for the conservation objects, and to identify existing and potential stresses, threats and contributing factors. All these elements are assessed according to states of criticality, dynamics, and levels of knowledge and manageability, and are related to relevant stakeholders.

Phase III comprises an analysis of existing strategies and the systematic development of new strategies that allow for the effective enhancement of the objects' functionality; the abatement of threats; and the avoidance or reduction of vulnerability and risk. It also includes a check for strategic consistency and complementarity, as well as for the elaboration of a monitoring plan.

Phase IV covers the implementation of the strategic plan and includes strategic knowledge management and the evaluation of the implementation process.

Complete principles and a full description of the methodological steps are given in the accompanying manual (see website: http://www.marisco.training).



Outline of the cyclic procedure of a MARISCO study including the ongoing identification of risks of increased vulnerability of the conservation targets or the same strategies. For further information, please have a look at the MARISCO manual on our website (http://www.marisco.training/resources/manual/).

2. Schorfheide-Chorin Biosphere Reserve

As this workshop was a “coaching for coaches”, focusing on the training of the MARISCO-method, there was no concrete geographical background or conservation site to be analyzed. But as MARISCO’s nature is to scrutinize ecosystems and negative anthropogenic impacts on them, it was helpful and necessary to decide for a model region. The selected area was the “Schorfheide-Chorin Biosphere Reserve” in the north of Brandenburg.

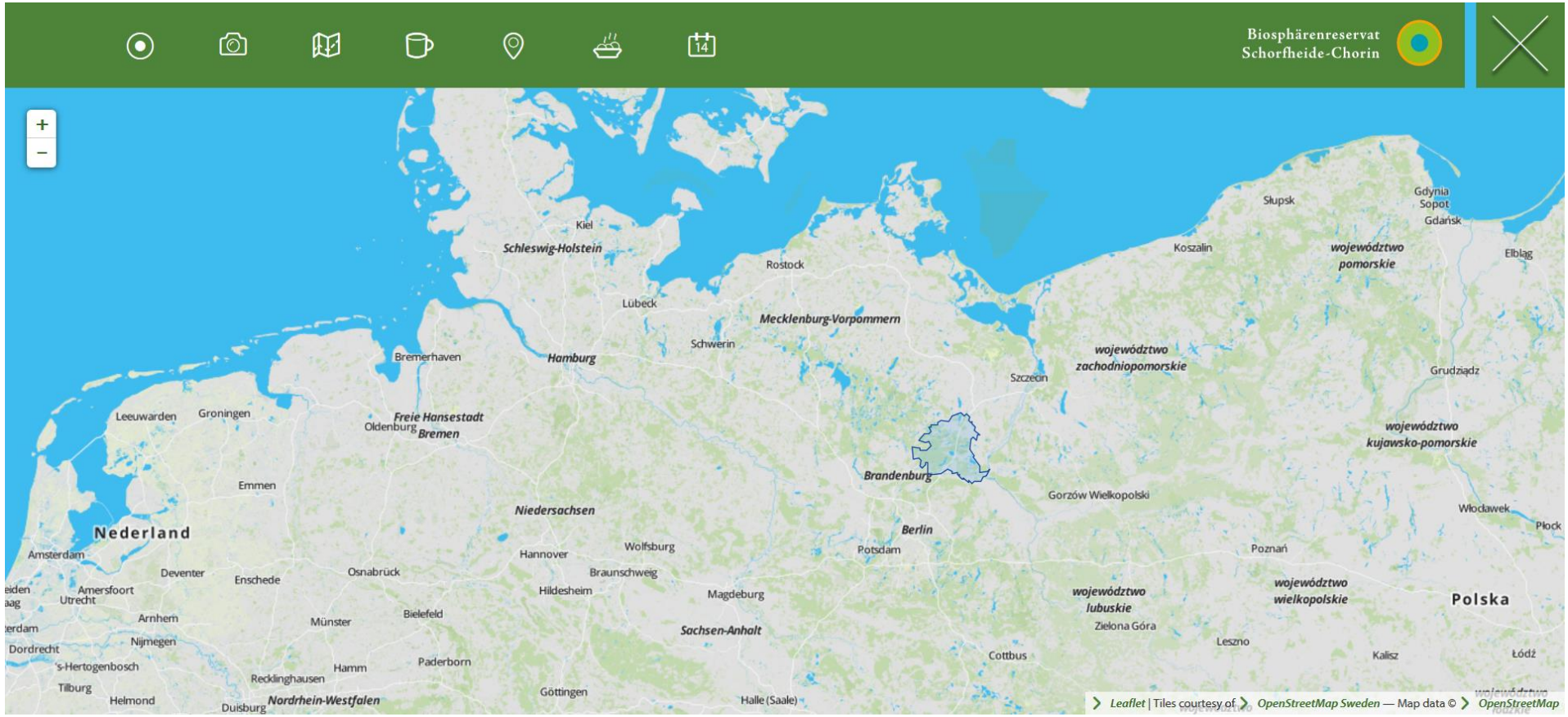
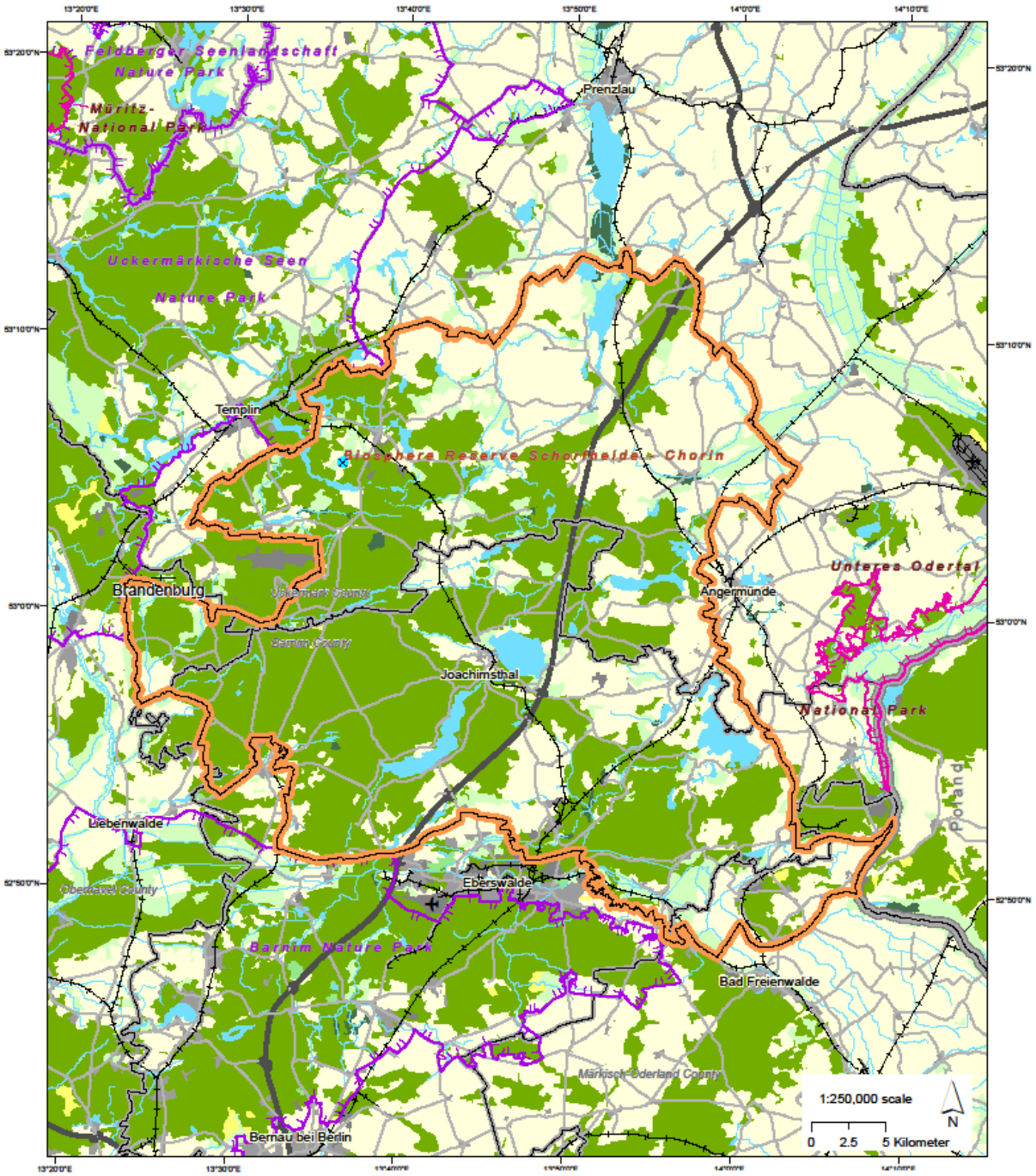
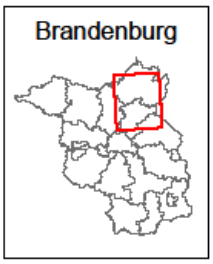


Fig.1: Location of Schorfheide-Chorin Biosphere Reserve in northern Germany, Source: Schorfheide-Chorin Biosphere Reserve n.y.

Biosphere Reserve Schorfheide-Chorin *CORINE Land Cover*





Biosphere reserve Schorfheide-Chorin
County boundary (Germany)
Federal State boundary (Germany)
National boundary
National park
Nature park

Major highway
Secondary road
Railway
Airfield
Urban fabric
Airport, industrial area
Green urban area

Arable land
Fruit plantation
Natural grassland, pasture
Woodland, forest
Moor, heathland
Transitional woodland shrub
Water bodies

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The Schorfheide-Chorin Biosphere Reserve (SCBR) was founded 1990 and is part of the international network of UNESCO Biosphere Reserves (BR). It seeks to harmonize the protection of natural and culturally shaped ecosystems (it encompasses 47 FFH-sites) with local interests. That is why almost 79% of the whole BR are and will always be socioeconomically used areas, allowing highly environmentally friendly land-use.

Spreading over 129.161 ha, the Biosphere Reserve is one of the biggest protected areas in Germany. Its landscape is coined by 240 lakes, numerous swamps, extensive forests, meadows, and agricultural fields. The surface was formed during the Pomeranian stadium of the last ice age (Weichsel ice age) approximately 12-15.000 years ago, influencing the whole northern part of Europe. Due to this process several different geomorphological appearances can still be observed nowadays: From gentle valleys to steep slopes (the highest elevation being 139m above sea level); from outwash plains and mires to lakes and diverse wetlands, anything can be found here.

The climatic conditions in the SCBR show a transition zone between the Atlantic climate in the western part and the continental climate in eastern regions. This results in a difference between the precipitation patterns of both areas: The eastern section experiences approximately 100m less precipitation per year (480mm vs. 580mm). Thus, also the mean annual temperature varies: 8,6°C in the west and 8,3°C in the east. Since the middle of the last century climate change has become apparent in the BR. The vegetation period has increased between 13-19 days, as spring starts earlier and autumn extends further into winter time. Among other anthropogenically induced factors, this is increasingly leading to a deficit of water in the SCBR and surrounding areas, even spreading over whole Brandenburg.

One specialty of the Schorfheide-Chorin Biosphere Reserve is that it encompasses one of the last old beech forests of Europe, the “Grumsin” (spreading over 7000 ha). It belongs to a network of four further areas in Germany that have been designated as component parts of a World Natural Heritage site in June 2011. They are an extension of further UNESCO-assigned beech forests in Slovakia and the Ukraine (BRSC 2016).

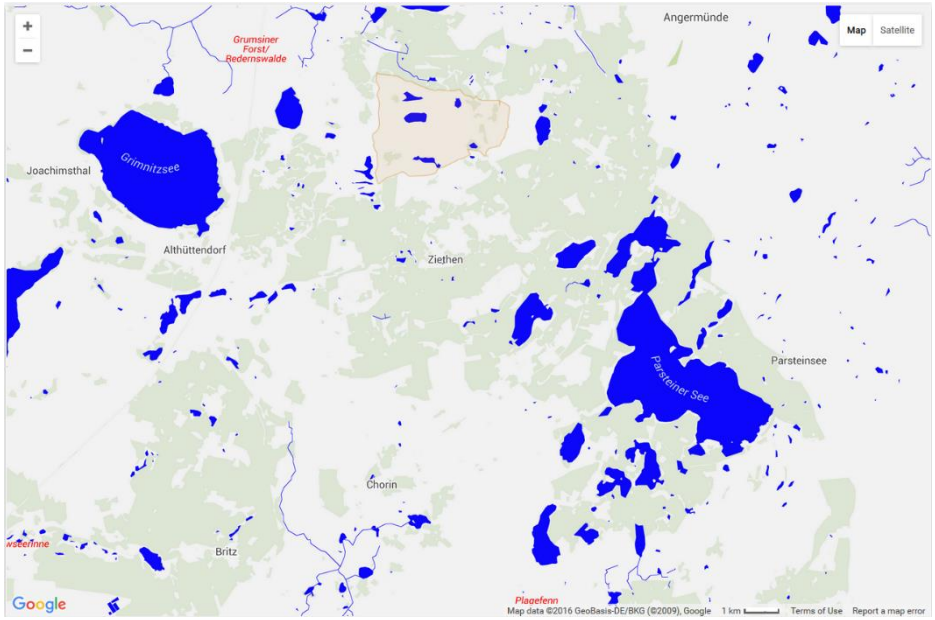

Fig.2: Location of beech forest „Grumsin“ at core of SCBR, Source: Weltnaturerbe Buchenwald Grumsin e.V. 2016

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3. Workshop documentation

	Sunday 21st Feb. 2015	Monday, 22nd Feb. 2015	Tuesday, 23rd Feb. 2015	Wednesday, 24th Feb. 2015	Thursday, 25th Feb. 2015	Friday, 26th Feb. 2015	Saturday, 27th Feb. 2015
8:30 9:00 10:00 11:00		**MARISCO Workshop:** • Theoretical background • Preparation of a MARISCO exercise • Ecosystem Diagnostics Analysis • Scope • Vision	**MARISCO Workshop:** • Ecosystem services • The fundament: ○ Biodiversity objects ○ Key Ecological Attributes	**Excursion** Destination: Schorfheide Chorin Biosphere Reserve	**MARISCO Workshop**: • How to process workshop results • Typical outputs • About tactics and strategy • How to develop strategies and how to (not) trust them: ○ Existing strategies ○ Stakeholder analysis	**MARISCO Workshop**: • Working with strategies • Adaptive loop: revisiting scope and vision • Systemic relationships • Overall consistency and plausibility • Analysis and processing of strategies (results webs, goal, objective setting) - Theory	**MARISCO Workshop**: • Case studies • Feedback • Evaluation
12:30	**Check-in**						**Check-out**
13:30	Around the lake and through history: Joint walk to Chorin monastery	• How to involve the participants throughout the workshop – hints and tips **MARISCO Workshop**: • All is about systems and services (is it?)-Theory: ○ Social systems ○ Social services ○ Human wellbeing • Practical application • Feedback	**MARISCO Workshop**: • Towards a systemic vulnerability analysis: ○ Stresses ○ Threats • Mapping of threats • From symptoms to root causes: ○ Contributing factors 1. Feedback	**MARISCO Workshop**: • Criticality analysis • Criticality analysis	**MARISCO Workshop**: • Assessment and prioritization • Complementary strategies	**MARISCO Workshop**: • Analysis and processing of strategies – Practical application • Again and again? Monitoring design, implementation and (non-) knowledge management • Limitations to adaptive management	
17:00	**Acquaintance & introduction**						
18:30 20:00						(Klosterschaenke)	

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The MARISCO-workshop week contained several different parts. The day of arrival already offered several items on the agenda: A first “getting-in-touch” with the region on a short explanatory walk into the close vicinity of the hotel, an introductory presentation to the area as well as an interesting conversation with two representatives of the Biosphere Reserve. Monday, Tuesday, and Wednesday were reserved for the acknowledgement of all steps that are to be conducted during a first MARISCO-workshop, the situation analysis. The conceptual model was developed and the criticality analysis introduced. On Wednesday an excursion to the Schorfheide-Chorin Biosphere Reserve was organized through which the participants hat the possibility to experience the region first-hand and obtain further information from experts. Thursday and Friday dealt with the processing of the first workshop results and further usage of this material to develop strategies for a more adaptive and adequate management of a (conservation) site. The last joint hours on Saturday were spent, listening to several case studies in which MARISCO was applied (Georgia, Brazil, Namibia, Ecuador, MARISCO with children, ECOSEFFECT).

Walk around the lake

As not all workshop participants had arrived at the hotel yet, the group decided to postpone the acquaintance round to a later point in time and start off with a short walk around the “Amtssee” right next to the hotel. First insights into the current situation as well as the development of the surrounding ecosystems were obtained. Northern Germany’s landscape was majorly formed during the ice ages, the last and most impacting one being the Weichsel ice age. Therefore, higher hilly areas mark the ground moraine of the former ice masses and lower ones the terminal moraine. The many streams and rivers depict the vast glacial valley region alongside of the terminal moraine. The outwash plains are areas with sandy soils and relatively low potential for soil fertility. The group acknowledged that the first tree species to be found in the area have been pine and birch trees.

The group was also able to witness the work of local natural engineers – beavers. They have a significant influence on the hydrological conditions in and around the Schorfheide-Chorin Biosphere Reserve. Streams are often clogged and swamps and ponds are created leading to a loss of water in other regions. This leads to human-wildlife conflicts as agricultural practices, which are a major source of income for the inhabitants of the county of Barnim, are very often affected.

From a historical perspective, the activities and achievements of the Cistercian monks who lived in the monastery of Chorin which was founded during the 13th Century, are of great importance. They manipulated the natural hydrological pattern of the area and established trenches and ditches for drainage and irrigation. Another natural resource that was extracted (in GDR times) was the resin of trees. It was used, among others, for medical purposes.

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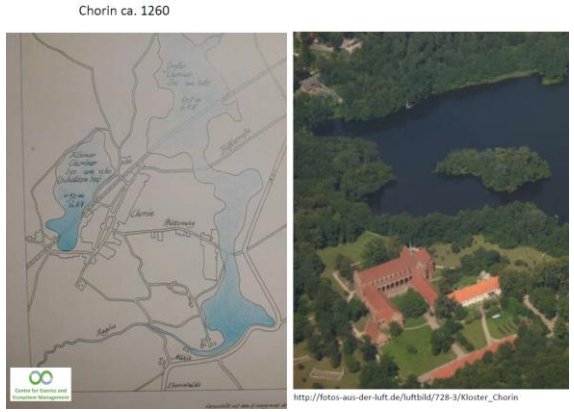
The group members followed the facilitator’s explanations and expressed their interest for the historical and ecosystemic background of Chorin and its surroundings.

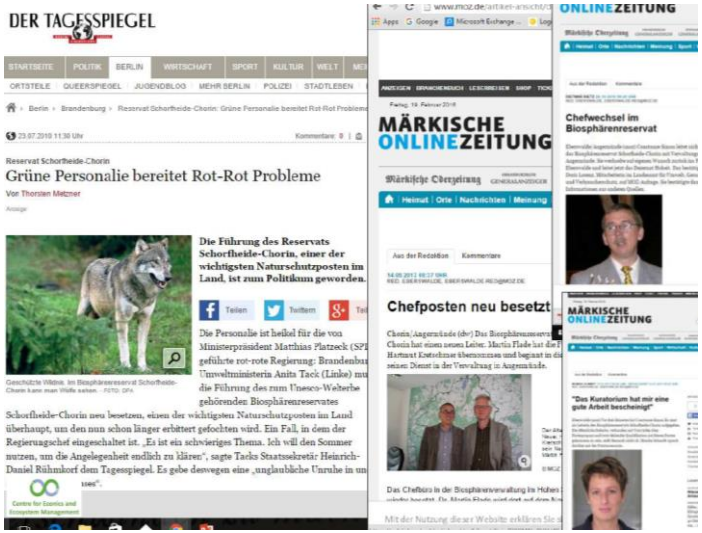
Acquaintance round and introduction

In order to be able to closely work together on a friendly personal base during the whole week, it was very helpful to exercise a first round of acquaintances at the very beginning of the introductory session. After the group went through the agenda of the week, once again acknowledging the different steps to be get accustomed with, the participants were asked to get together in pairs and exchange some personal as well as professional information about each other. As the workshop group constantly sat in a communicative circle with an opening facing the presentation wall, it was very easy to simply get into a conversation with the person next to each other. The next task was to introduce the neighbor to the whole group to inform everybody about the general background of their colleagues.

After a short coffee break the group had the honor to meet the newly appointed head of the Schorfheide-Chorin Biosphere Reserve, Dr. Ulrike Garbe as well as the responsible for public outreach Beate Blahy. They introduced themselves and gave a short insight into their working fields and the challenges involved.

In order to have a common base to work and discuss from, a short presentation about the establishment of the Schorfheide-Chorin Biosphere Reserve as well as the latest changes in management had been prepared.





Vividly supported by a great variety of photographic sources, the participants also had the opportunity to get a “year-round” impression of the natural appearance, condition, and usage of the area.

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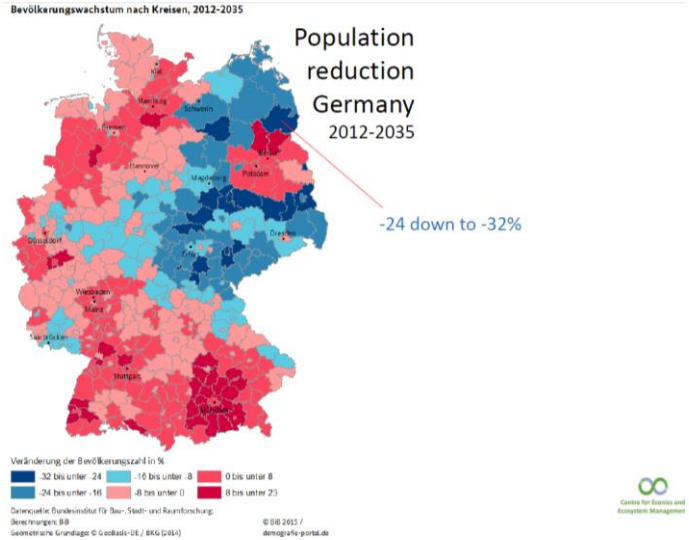
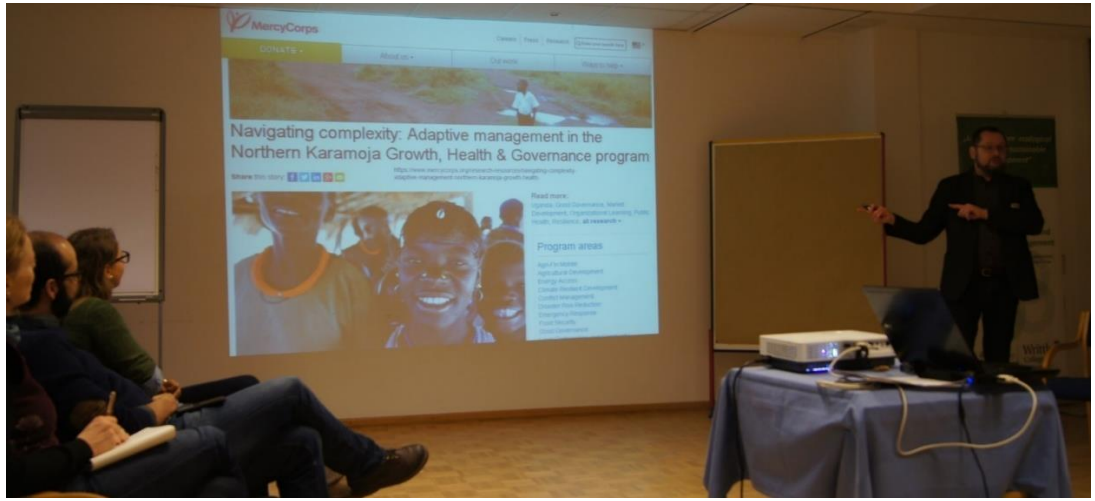
The presentation also addressed socioeconomic and socio-cultural issues that occur within and due to the Schorfheide-Chorin Biosphere Reserve as an institution.



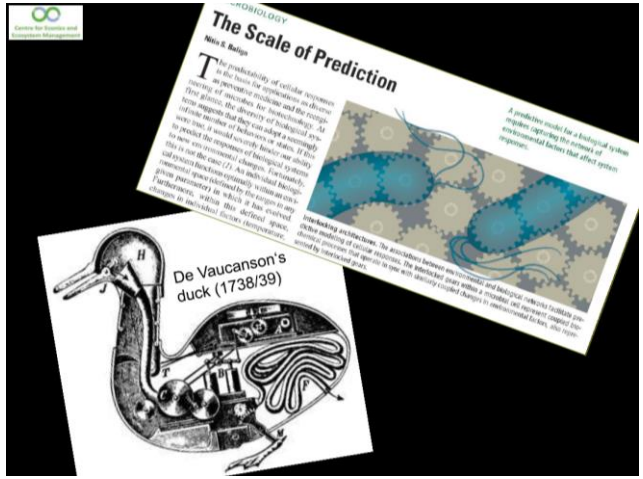
Afterwards the group was given the opportunity to get into a conversation with the two representatives of the Schorfheide-Chorin Biosphere Reserve (SCBR) and ask questions about ecosystemic -, social - as well as management implications of the Biosphere Reserve.

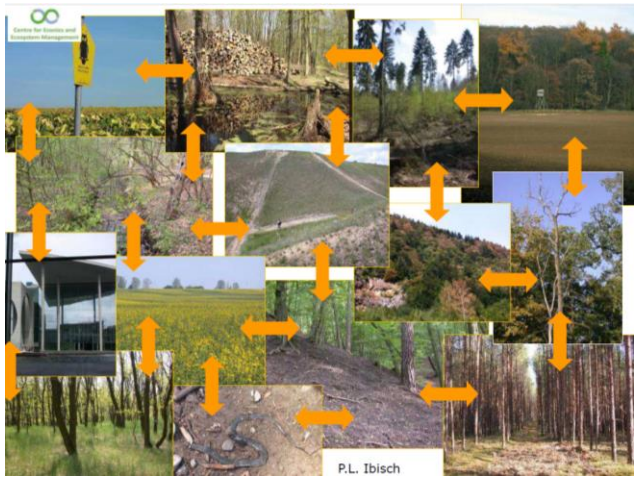
Theoretical background

Monday morning started off with an introductory talk by Pierre Ibisch. He explained how and why MARISCO came into being.



Throughout his research he spent much time dealing with complex systems theory, systemic thinking and uncertainties.





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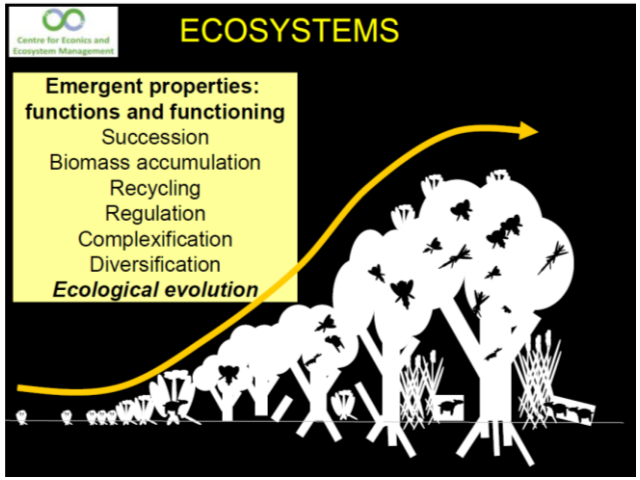
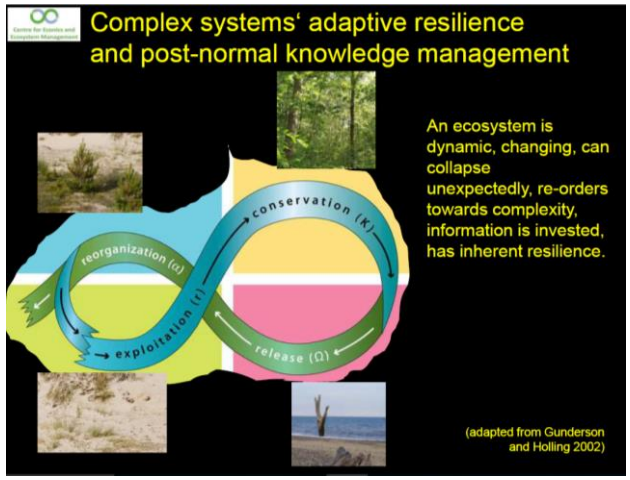
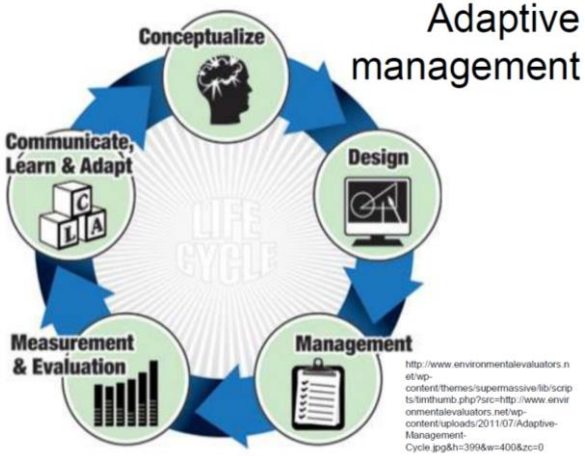
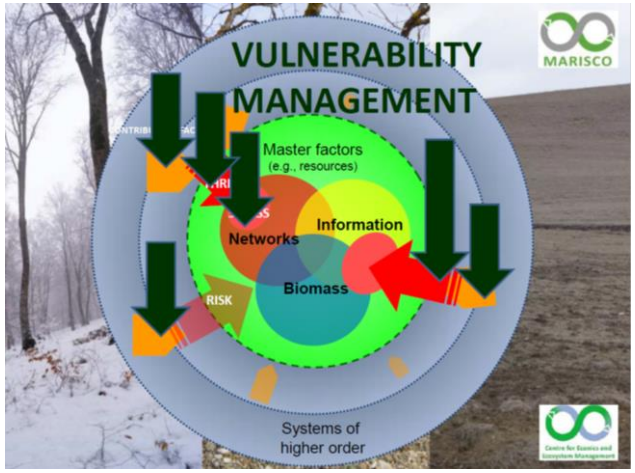




His team figured that there was an urgent need to elaborate further methodologies to collect and map the vast existing knowledge and non-knowledge about conservation sites, later not restricted to the conservation status anymore. Based on the *Open Standards for the Practice of Conservation* (OS), established by the *Conservation Measures Partnership* (CMP), MARISCO evolved as an appropriate tool to approach adaptive vulnerability management in a world full of volatility, uncertainty, complexity, and ambiguity.





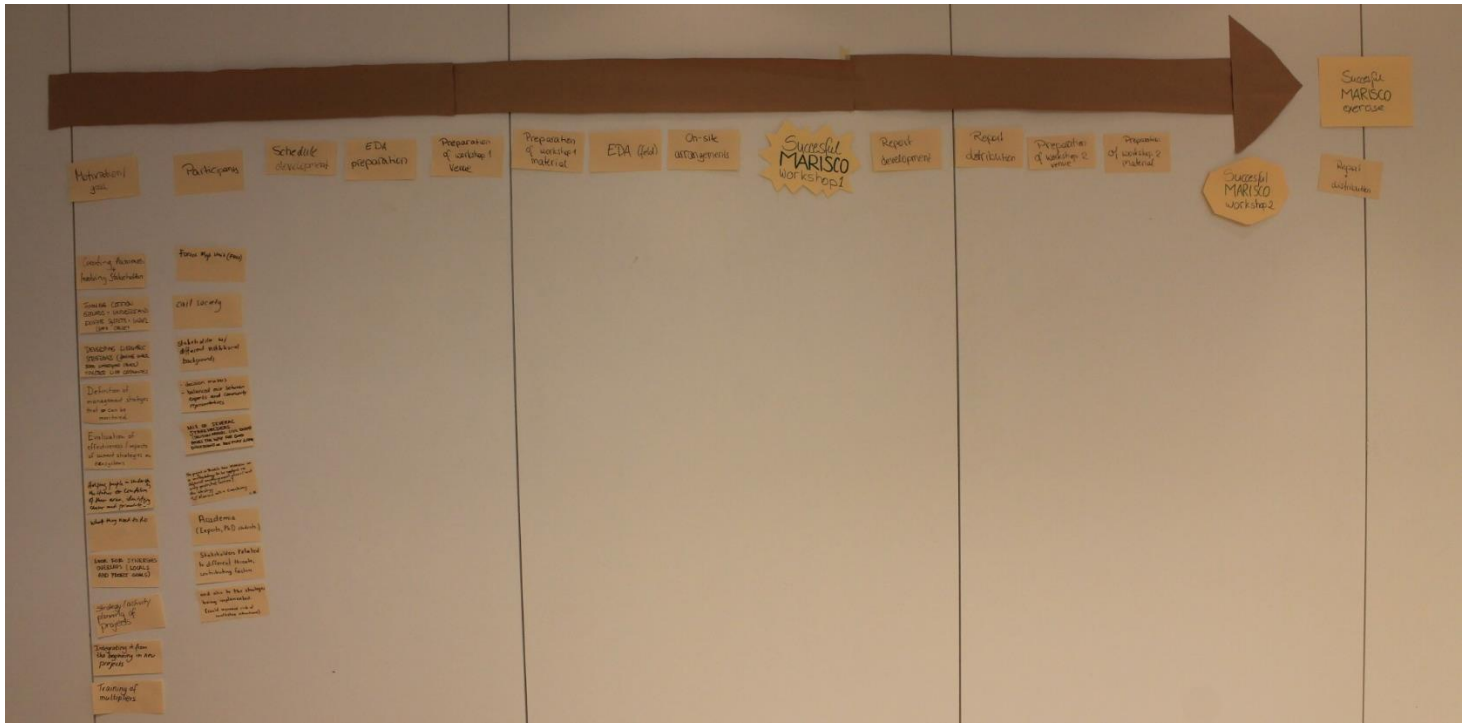
Preparation of a MARISCO exercise

Many important aspects need to be considered when preparing a MARISCO exercise. Christina Lehmann presented the different organizational aspects that need to be taken into account. The most important ones, shaping the process of workshops, are the initial motivation with which such a participatory method is put into practice as well as the participants who are invited to take part in this event. To formulate the former helps to identify the most necessary steps from the MARISCO cycle that would need to be exercised. The latter decides which information is potentially available throughout the working period as well as the general working atmosphere. The group of potential future multipliers collected numerous different aspects which could play a role during a preparation phase of a MARISCO exercise.

To guarantee the highest productivity possible among the workshop participants, certain venue requirements need to be assured as well as a great repertoire of material. As a coach it is helpful to be as informed about the area of interest as possible. Therefore, an Ecosystem Diagnostics Analysis (EDA), both theoretically from the desktop (satellite images, scientific facts, newspaper articles etc.) as well as practically on-site through an excursion supported by local experts, is very crucial.

If two MARISCO-workshops are to be practiced it is of high importance to distribute the written report about the first session, containing a documentation of the steps conducted in addition to the outputs developed from the workshop results (MS Excel-table, ranking table, matrix, digitized conceptual model). Only through this the group, maybe consisting of a few new participants, is able to appropriately prepare themselves for the second workshop. This step increases the probability of more useful workshop outcomes.

The second workshop requires a similar extent of (paper) material as the first one. It is necessary to plan more time for the printing of digitized documents (e.g. ranking tables, conceptual model). The venue should show the same characteristics as for the first workshop – extensive wall space! A list of venue requirements as well as paper material to be organized prior to a MARISCO exercise will also be made available via Dropbox.



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Ecosystem Diagnostics Analysis

The next point on the agenda was a deeper look into the EDA.

A first desktop study serves as a theoretical base both for the ground-truthing field trip as well as the moderation of a MARISCO-workshop. Vegetational, hydrological, climatic, geological aspects are just as interesting as the area's relief, settlements, infrastructure, culture and traditions, political, and socioeconomic background.

Satellite images from Google Earth bear a great potential for the analysis of surface structures, land-use (change), and other interesting visible patters.

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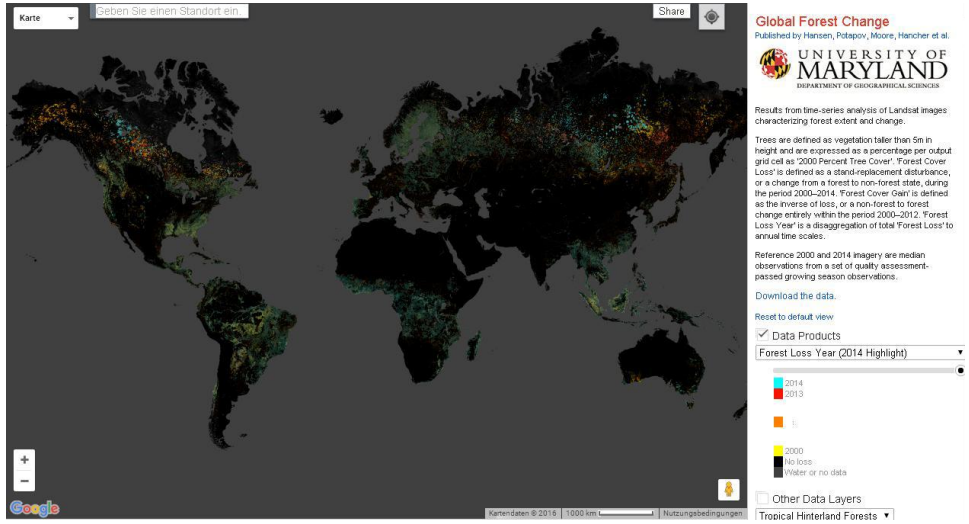
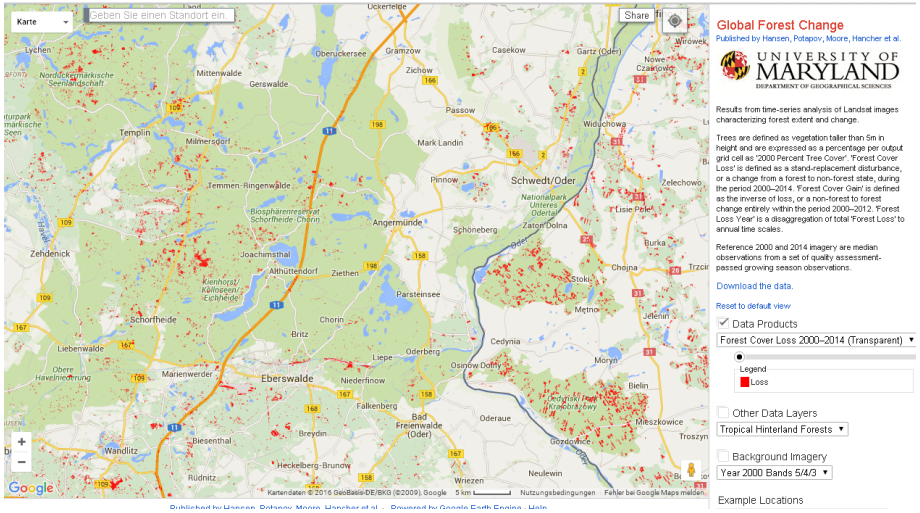
vs.

Global forest change-data from Hansen et al. (2013) (http://earthenginepartners.appspot.com/science-2013-global-forest) are a very valuable and recommendable source to track changes in the global forest cover.





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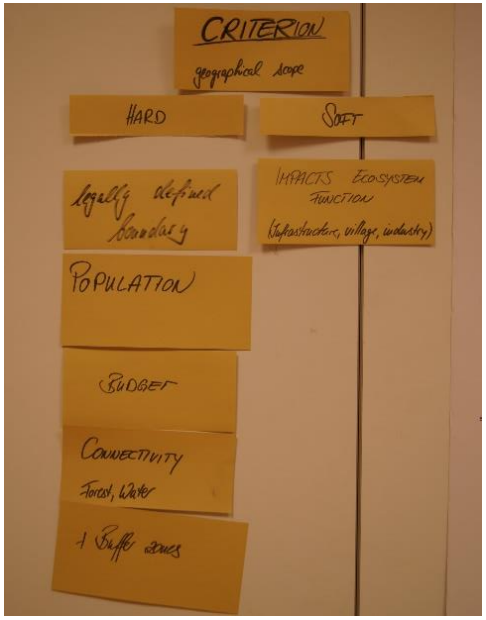
To understand in how far the theoretically obtained information correspond to the actual truth, a ground-truthing field trip is necessary. The coach gets and insight into the ecosystemic conditions of the area and is able to identify possible management flaws, showing the discrepancies between theoretical management and on the ground implementation.

Scope

In a next step the group of potential future multipliers exercised their first exemplary workshop step together. The discussion was for the first time moderated by a workshop participant (Christiane), who also led the discussion on where to limit the scope of analysis. Throughout this debate it became clear that it is necessary to differentiate between the scope of analysis (throughout the MARISCO workshop) and the possible scope of management which might include a consideration of only limited resources available. For the purpose of a MARISCO exercise, the scope serves the analysis of the region. Therefore, potentially influential areas outside of the SCBR, our exemplary region, were included in the scope, which was ultimately expanded beyond the BR-boundaries.



In order to adequately set the scope, the group proposed several criteria that need to be taken into account when jointly deciding on the geographical zone of interest.

“Hard criteria” were: Legally defined boundaries, population, budget, connectivity (forest, water), buffer zones.

“Soft criteria” were: Impacts on ecosystem functions (infrastructure, villages, industry).

Vision

Setting a common vision is of high significance when working with a heterogeneous group of people. They express their wishes for the area and draw a joint future picture. Through this step, a common ground is built. The workshop participants eagerly fulfilled this task and mentioned, that the concrete formulation of one final vision out of the diversity of opinions on the board would be helpful.

The list of visionary wishes contains the following statements:

⬆ % employment due to new jobs in sustainable/ dev.(elopement)/ green sector
Preservation of ecosystem function – E.S. → Human wellbeing
Biosphere Reserve is accepted by local stakeholders
Recognised education value
Awareness raising/ Empowerment
Environmental education projects to learn about beaver, moose, swamp tortoise and other rare/ endangered species succeeded. In addition the protection of species has become important also for parents & 90% of the local community
Natural ecosystems restauration
Implementation of connectivity
Reduce exotic species
Stakeholders collaboration with conservation of the reserve
Income generation in the area and in buffer zones
Biosphere reserve offers opportunities for improving livelihood of local residents
Eco-tourism as one of the most important sectors of income within SBR (Schorfheide-Chorin Biosphere Reserve
Improving indicators – Biodiv. & Human wellbeing
Good governance
Management
Serves as model for sustainable community development
Be a Biosphere Reserve role model in Germany (demonstrate to others + advise)
Be able to adapt to change
Provide jobs for people living inside Biosphere Reserve
Prosperity for the local communities
Sustainable management of the area
Improved ecological connectivity
A joint strategy has been developed in a multi-stakeholder process and is being implemented to conserve nature and maintain ecosystem services to human wellbeing
Collaborative management (increased particip.(ation)), shared obj.(ective)
Well managed; well funded
Involvement of local community
Conserve the natural forest/ environment
Local stakeholders get adequate share benefits from the sustainable management of the Biosphere Reserve are happy to leave the “destructive” activities on the Biosphere Reserve

How to involve participants

Afterwards the different modes of workshop interactions and the involvement of participants throughout the whole process was made the subject of discussion. It was presented that the different methodologies depend on the workshop situation. If two sessions are run in parallel (two areas of interest) the ongoing exchange in-between the two groups, is very helpful as a mutual encouragement of the participants.

In general plenary situations are used to present introductory information and to collect the various different elements of the conceptual model. In order to have fruitful smaller discussions and break up work-intensive steps, group-work has proven to be a very helpful mode.

By this it is possible to separate certain participants who might have conflicting views. Special characters are an important aspect that was mentioned. Those participants may hinder the process of the situation analysis or strategy development. Therefore, it is useful to find a way how to actively include them in the working process and “make use” of their energy and ability to steer the group. In a worst case scenario, it might also be necessary to ask a participant to step back from a particular task and let the rest of the group discuss alone. Break-out groups for special expert discussion could be another working mode during a MARISCO-exercise.

A very important step, especially when group-work has been accomplished or two parallel workshop sessions are held, is peer reviewing. Through this step, the groups can exchange their thoughts and ideas and it is possible to join their knowledge and results.

Different working material also supports the process of getting access to different kinds of knowledge. Thus, different media like visual and audio material are helpful, as well as the hands-on paper cards.

The conceptual model

The development of the conceptual model is both a step to activate and encourage the workshop participants to map their knowledge and express their opinions and to create a systemic overview and an assessment of elements and issues in the area of interest and depict their causal relations.

Introduction to first steps

After a short introduction to the different categories of elements that are to be analyzed, the future coaches got involved in the creation of their conceptual model for the exemplary area of the Schorfheide-Chorin Biosphere Reserve.

Human wellbeing, social systems, social services

The MARISCO-workshop participants experienced the process of an actual workshop. Starting off with the human wellbeing it was explained that “picking up the participants” from where they are and what their needs comprise is a very helpful starting point. A stronger spotlight on the social sphere has proven to be a crucial new field of focus in order to make the approach more holistic. Therefore, social systems and their social services to the human wellbeing were analyzed as well.

Feedback

The first workshop day was concluded with a relatively extensive feedback round. The participants were asked to recapitulate the steps they had been going through during the day and express their positive and negative feedback.

The following issues were put forward:

Scope	Conceptual model: Human w., social services, social systems	Vision
Dedicate an adequate amount of time to discuss criteria, priorities & criteria to decide upon the scope	Starting by human wellbeing makes the relation to ecosystem services easier	Focus groups vs. Simplifying process (language)
Process is dynamic (open for discussions)	Provide some guidance to trainers on how to understand "human wellbeing", "social services", "social systems"	Meta level: Instructor learns about group and "how strategic" the group is
Build consensus	Clarify certain concepts before doing the exercise	Operationalization of the vision (How?)
Different methodology → maybe use first step group work		Rationale was clear
Ask resource persons (participants) to identify important aspects/points on the map		
Confusing: Need clarification about the expected result (mgmt. plan? Stakeholder engagement/ awareness?)		
Background information		
How far it should be expanded? How much information is enough?		
Work within interest groups and then with all stakeholders		
Scoping = step supporting the analysis, not the management directly/ immediately		
Scope is not hindering analysis process		
Pre-defining (emptying) of scope by list of invited stakeholders		

The conceptual model

The second workshop day started out with a short recapitulation of the accomplished results from the day before. This was also made a point of discussion: It is necessary to get the participants back into the working mode and into their model. Usually, a few structural changes are administered by the coach(s) after having closed the workshop the preceding day. To explain these changes and to obtain the participants' agreement, this point is always to be mentioned.

Ecosystem services, biodiversity objects, key ecological attributes

The upcoming tasks contained the further development of the situation analysis within the agreed-upon scope. The focus lied on ecosystemic elements (biodiversity objects), which services they have to offer to the human wellbeing of the local population as well as on bigger scales, and their key ecological attributes (KEA) that make the whole ecosystem function properly. Biodiversity objects and their ecosystem services were collected in plenary sessions, followed by a short group-work in which the future coaches discussed about the KEA of certain ecosystemic elements.

Meanwhile the coaches attempted to cluster and structure the biodiversity objects and afterwards asked the participants if they felt comfortable with the outcome. A short debate concerning the categorization of wetlands occurred and was settled quickly after.

The next step was to collect the KEA which had been come up with throughout the group-work. For this phase, again, two participants (Britta and Anna) were asked to take over as a moderator. A very complete concept of what ecosystems need in order to survive with their highest functionality was achieved.

Introduction to next steps

After the bare analysis of the area of interest the next phases included the identification of stresses and threats. A short introduction to these two categories was given, starting with a short “stress-test” for Antonia. She was asked to answer several questions quickly one after another and was supposed to explain her condition afterwards. This example showed how stress occurs within a human body and how symptoms of disturbances express themselves. Comparable processes are true for ecosystems: If threats occur in the system and distract it in its usual behavior, they cause particular manifestations (stresses) within.

Stresses and threats

As a great variety in stresses and threats occur for different biodiversity objects and their KEA, group-work seemed to be the most productive working mode. Three groups identified numerous stresses and threats for a limited collection of KEA.

The participants organized and presented their results to the rest of the group which led to an extremely comprehensive list of stresses and threats. Through the constant exposure to presenting and explaining the potential future MARISCO-coaches developed further experiences and skills.

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To create a more tangible connection to the practical geographical sphere the participants were asked to indicate the location of certain threats in the map. As the participants had limited knowledge and information about the region of interest, they had to guess according to the content of all maps provided.

Contributing factors

To complete the conceptual model for the SCBR, the future coaches continued their work in groups. They were asked to discuss about underlying problems that actually cause threats to our ecosystem. Aspects from all possible spheres were to be included: Spatial, political, governance-related, cultural, institutional, demographic, socioeconomic, infrastructural, natural, natural resource-use related, and industrial factors.

Afterwards, the outcomes were collected in the conceptual model and causal webs were indicated.

Feedback

At the end of the second workshop day another feedback round was held. The results are to be considered for future MARISCO exercises and coachings for choaches.

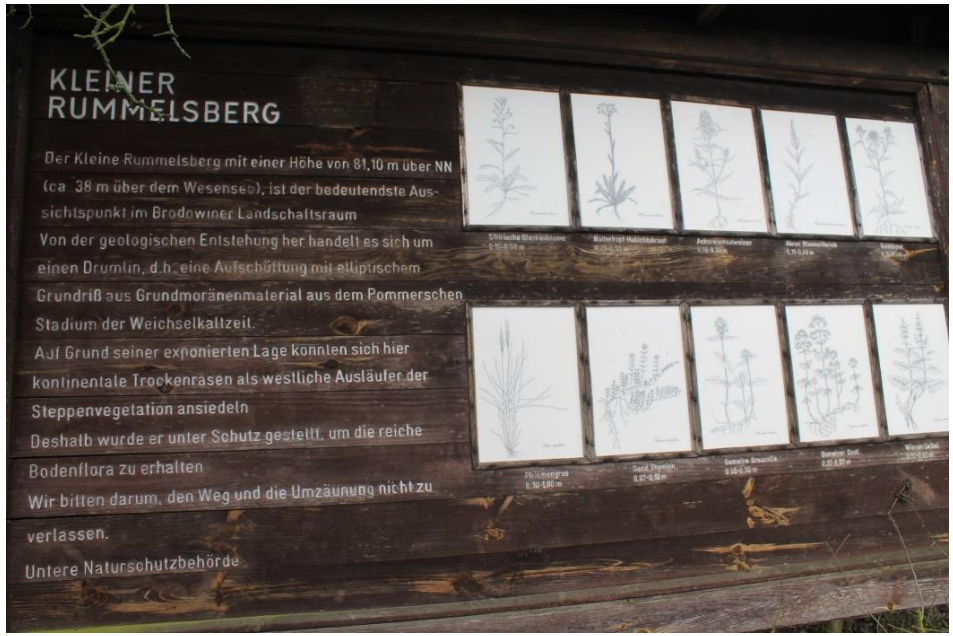
The following aspects were mentioned:

General wishes	Conceptual model: Ecosystem services	Conceptual model: Biodiversity objects	Conceptual model: Key ecological attributes	Conceptual model: Stresses + Threats	Threats mapping	Conceptual model: Contributing factors
Provide examples for coaches for framing in different contexts	Provide list of guiding questions	Have more time to make a bigger list of species, habitats of the PA	Providing clear frame + definition of KEA	Encourage precise formulation of threats/ stresses to maintain scope + relevance	Maps are not always available in some countries	Understanding the own position in the model/ system
Provide some key background/ guidance (e.g. handout/ key terms & guiding questions on flip chart)			Help participants in the process of identifying KEA like providing guiding definitions using their language		Take more time to validate and for discussion	
Trainers' manual						
Workshop time is longer than "coaching for coaches"-time						
Constant time management, make sure that important steps can be achieved						
Brief introduction to headings prior to details						

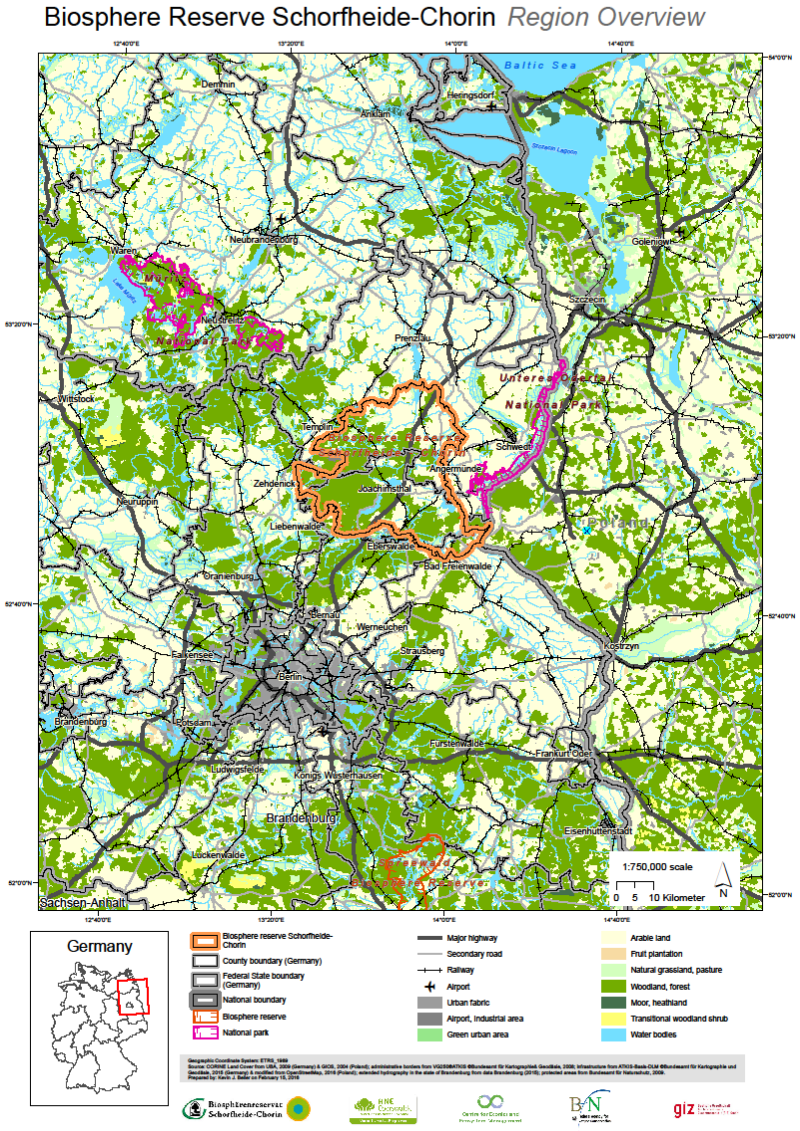
Excursion to Schorfheide-Chorin Biosphere Reserve

After two days of intensive work the participants had deserved some outdoor experience. As the Schorfheide-Chorin Biosphere Reserve was our exemplary conservation site, the group boarded a bus in the morning and was accompanied by Beate Blahy. She is an expert for almost all aspects concerning the Biosphere Reserve. She passionately answered all questions that came up and had many interesting facts to tell. The excursion began with a short stop-over at the eco-village Brodowin at which different kinds of sources for economic income within the SCBR were discussed.

Afterwards the group of future MARISCO-coaches made their way up the “Kleiner Rummelsberg”. They had an astonishingly far view over the SCBR and were answered several questions about original vegetation and measures to maintain the cultural vegetational cover.



The next stop was taken at a field of wind turbines just outside the BR. Implications for the regional avifauna, especially considering those migrating from and to the close-by National Park “Unteres Odertal”, were discussed.



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The agenda brought the group to these next stops: The visitor information center in “Alktkuenkendorf”, focusing on the World Natural Heritag site “Grumsin”, one of the few left over beech forests in Europe; “Grumsin” forest itself; a pine tree plantation. The visitor centre was established and is organized by villagers, who are committed to support the management of the UNESCO site as well as the entire Biosphere Reserve. Explanations were given by Hans-Jürgen Bewer, mayor of the village.

Criticality analysis

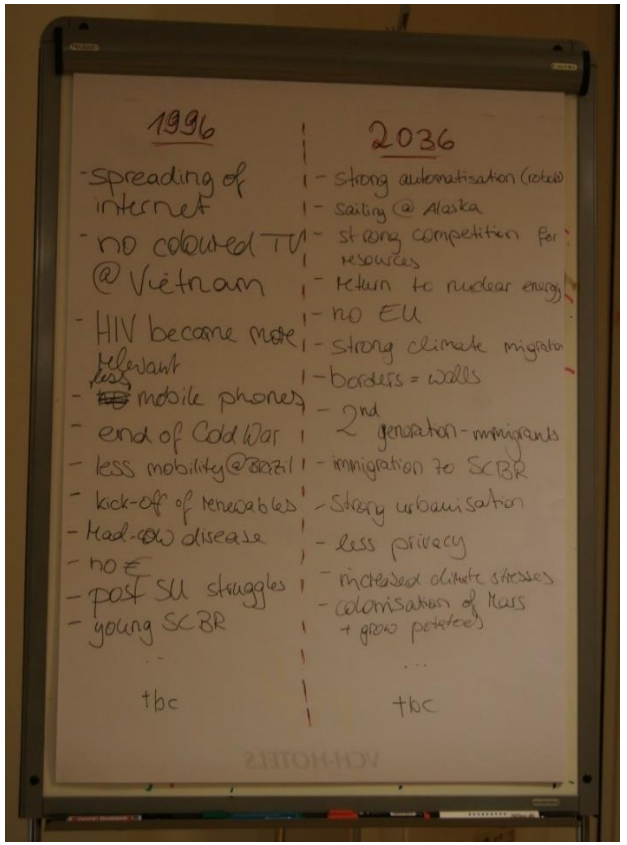
After a morning full of fresh air and outdoor impressions the team attempted to get back into working mode by doing a little energizer, led by Nadia (threat coming in, trying to occupy an empty chair, and dysfunctional social system proved to be unable to manage the threat …), and which was ‘analyzed systemically’.

In the following afternoon several next procedures were explained and exemplarily conducted. After having revisited the structured conceptual model, now encompassing all element categories necessary, the group was introduced to the criticality assessment of the stresses, threats, and contributing factors. Starting off with the current criticality, scope, severity, irreversibility as well as the overall current criticality were assessed for two exemplary elements (one stress, one threat).

The second coach explained how the current criticality is to be calculated from the three ratings. All steps were conducted in a plenary working mode. Constantly occurring questions were answered right away and a common understanding was achieved.

Time machine

Current criticality was not the only criticality to be rated: Manageability, knowledge, past and future criticality as well as the current trend of change were also analyzed. In order to “feel into” the past and the future the participants experienced a travel in the time machine. This is a regular procedure in all MARISCO exercises. Here, the participants are asked to think back 20 years as well as imagine the social/ cultural/ political situation in 20 years’ time. What did our planet, country, scope, life look like and how do we imagine the future? The results were documented on a flipchart.



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They were also digitized afterwards:

1996	2036
- Spreading of internet	- Strong automation (robots)
- No coloured TV in Vietnam	- Sailing in Alaska
- HIV became more relevant	- Strong competition for natural resources
- Less mobile phones	- Return to nuclear energy
- End of Cold War	- No EU
- Less mobility in Brazil	- Strong climate migration
- Kick-off of renewables	- Borders = walls
- Mad-cow disease	- 2nd generation-migrants
- No Euro (currency)	- Immigration to BRSC
- Post SU-struggles	- Strong urbanisation
- Young BRSC	- Less privacy
	- Increased climate stresses
	- Colonisation of Mars

How to process workshop results and typical outputs

Workshop day number four was begun with the introduction to the different ways of processing the workshop results of the situation analysis (workshop 1). One of the coaches explained and showed the following documents:

Excel-table:

As the moderating team seeks to figure out which of the stresses, threats, and contributing factors seem to be the most pressing ones in the system, it has proven to be easiest and comprehensible to save all the results digitally.

Stresses, threats, and contributing factors are listed and the corresponding ratings entered into this overview. The color-code is translated the following way:

- = 1
- = 2
- = 3
- = 4

Example of Excel-table:

ID	Type (Stress, Threat, Factor)	Element XXX	Element ENG	Scope	Severity	Irreversibility	[AUTOMATICALLY] Magnitude	Criticality 20 years ago	Overall criticality	Trend of change (of current criticality)	Criticality in the next 20 years	[AUTOMATICALLY] Systemic activity (level of activity)	[AUTOMATICALLY] Systemic activity (no. of influenced elements)	[AUTOMATICALLY] Systemic Activity	[AUTOMATICALLY] Strategic Relevance	Manageability	Knowledge
1	Stress		Soil degradation														

Matrix:

In a matrix the causal connections between all stresses, threats, and contributing factors are identified in a binary code (1 and 0) and ultimately summed up to calculate the systemic activity of an element.

Example of Matrix:

MARISCO - Country Abbreviation (e.g.DE) Region of interest (e.g. SCBR)	Soil degradation			
Soil degradation				

Ranking of stresses, threats, and contributing factors

In order to identify the most urgent or most critical stresses, threats, and contributing factors the ultimate overall ratings of each element (strategic relevance = summing up current criticality, current trend of change, future criticality, systemic activity) is compared in a ranking list. This overview is a crucial base to work from when developing strategies during a second MARISCO-workshop.

Exemplary extract from Namibia:

Kukengurura mulyo ya ngenditito - Ovyo vyakwatetangako
Evaluation of strategic relevance - Contributing factors - Muduva Nyangana

Mbunga Group	Tu mbunga ghona Sub-Group	Ovyo vyakwatetangako Contributing factor	Ghukaro dona wakare (murumwaka 25 dakapito) - (Past criticality)	Ghukaro dona paweno ngoli (Current criticality)	Likushinto ghukaro (ghudona ghunakarapo weno) (Trend of change)	Ghukaro woghudona kumesho (murumwaka 25 dakuya) (Future criticality)	Likukwamo lyovihepwa (kuni vina kuyendera vihepwa) Systemic activity (level of activity)	Likukwamo lyovihepwa (muvantu wo vinka vina kuvi yitlapo) - Systemic activity (number of influenced elements)	Likukwamo lyovihepwa (Systemic activity)	Kuhononapo maudona (Strategic relevance (value))	Kuhononapo maudona (Strategic relevance (final range))	Liyendito nawa (Manageability)	Maghano (Knowledge)
Vishoroka vya shorokango pavyene Biophysical factors	Vishoroka vya shorokango pavyene Biophysical factors	Eli Jjindjo lyo ukaro mpepo Climate change issues	4	4	4	4	4	4	4	16	4	4	1
Vishoroka vya shorokango morwa liruwanito livhu murupe rongandi Land-use related factors	Mpire (Livhu lya kuruwanita) Fire-related factors	Mundiro ghoku tundilira muma parambo Botswana ogho vadira kukeverera Transboundary uncontrolled wind fire from Botswana	1	4	4	4	3	3	3	15	4	2	1
Vishoroka vya shorokango morwa dimukaro damaparu Socio-economics	Vishoroka vya shorokango morwa dimukaro damaparu Socio-economics	Mukonda kwato ndya No food	4	4	4	4	1	2	2	14	4	4	1
		Eligwederero lyepaparo nondya kumus nomapya Increasing demand for food/fields	4	3	4	2	3	2	3	12	3	1	1
		Ruhepo Poverty	4	4	2	2	4	4	4	12	3	2	2
Vishoroka vya shorokango pavyene Biophysical factors	Vishoroka vya shorokango pavyene Biophysical factors	Kupira maremo keguru Because lack of cloud at the sky	3	3	2	2	4	4	4	11	3	4	1
		Upyu unene High pressure of sunshine	1	2	2	3	4	3	4	11	3	4	1
		Kwato kuyimika muma Cannot hold water (e.g. large soil particle)	1	2	2	3	4	3	4	11	3	2	1
Vishoroka vya shorokango morwa dimukaro damaparu Socio-economics	Vishoroka vya shorokango morwa liruwanito livhu murupe rongandi Land-use related factors	Kungura vriwa konda yama kutji ndjo ukaro (mushiro ngo) Increasing agricultural area due to climate change	4	3	3	1	4	4	4	11	3	2	1
		Kunuagura virwa konda rukukutu Increasing area for agriculture	1	3	2	3	1	4	3	11	3	1	1
Vishoroka vya shorokango morwa liruwanito livhu murupe rongandi Land-use related factors	Mpire (Livhu lya kuruwanita) Fire-related factors	Kutundilira kumatita, vakoki makanya, kuvashani vikorama nakumaruha ghapandje yalikungironitjitwe Bush fire , smokers, illegal hunters from outside of the CC cause fire	1	3	3	1	4	3	4	11	3	2	1
Vishorokwa vashorokango mukonda ya avshani Hunting-related factors	Vishorokwa vashorokango mukonda ya avshani Hunting-related factors	Mukondashi pashakare kapi lya kalire ko likungonitjitwe Because in the past there was no animal protection/ Conservancy	1	1	3	4	3	2	3	11	3	2	1
		Kupira kugikigamo sinka somasano mokudira kuruganesa yinema Lack of hunting demand > quota was not used	1	4	3	1	3	2	3	11	3	2	1

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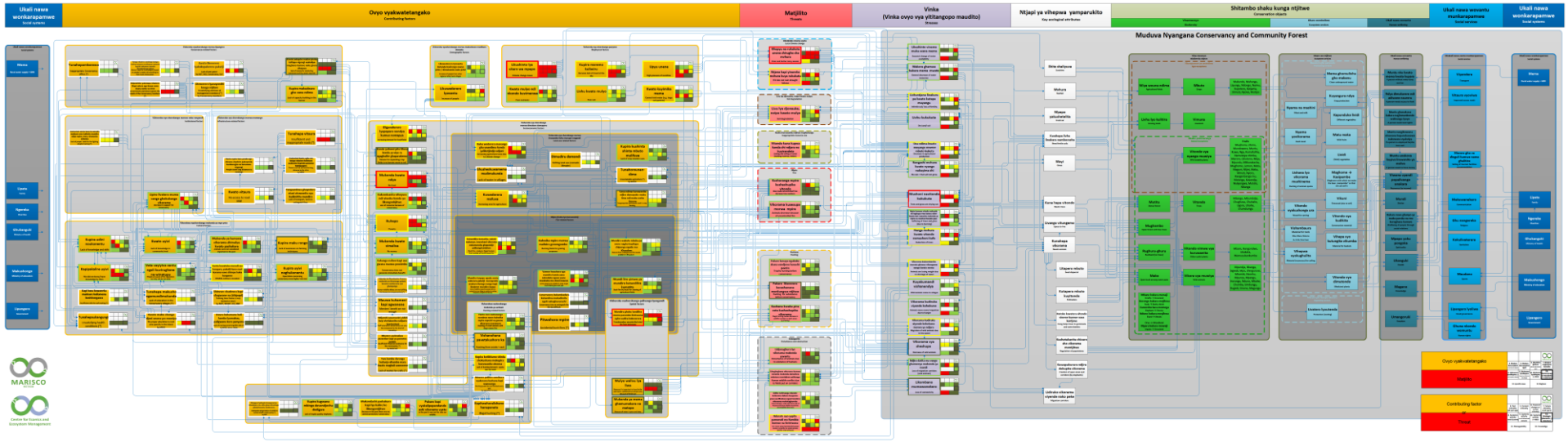
Conceptual model

The conceptual model is usually digitized using the software MS Visio. After all elements have been documented thoroughly in Word- or Excel-documents, it is much easier to copy and paste the wording into the digital conceptual model. Visio is able to read the information from Excel-sheets which eases this step immensely, if the Excel-table is cleanly compiled. The conceptual model can finally be plotted in a large size and enables the workshop participants to continue their work on a comprehensible base.

Example from Namibia:



Discussion

The seemingly overwhelming amount of work after the first MARISCO-workshop led to a heated conversation about the necessity and extent of these steps.

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About tactics and strategy

As an introduction to the ongoing treatment of the conceptual model and its utilization for the identification of existing and potential future strategies, the coach presented some theoretical input on tactics and strategy.

He also explained that both the conceptual model as well as the ranking tables can be used in order to think of and map strategies.

How to develop strategies

As none of the potential future MARISO-coaches had been involved with the SCBR before, it should not have been easy to collect strategies. But the group thought herself into the task very quickly and could master this step accurately.

Existing strategies

As an introductory source of information two future MARISCO-coaches were asked to function as representatives of the SCBR (Britta and Michel), together with one of the trainers. A short pretended interview was held to feed the rest of the participants with existing strategies in the area of the SCBR. Several aspects from renaturation, via large-scale organic farming, to regular stakeholder meetings were mentioned.

Based on the knowledge obtained, the participants were able to formulate different existing strategies which were collected in a first step.

Afterwards the participants attempted to place the existing strategies into the conceptual model and closely to the issue they were tackling.

Of course, a peer review followed this step and the group recapitulated together whether the strategies actually tried to make a positive change directly at the stress or threat or if they were seeking to tackle an underlying contributing factor. They acknowledged that many existing strategies already approach a change among the latter.

Stakeholder analysis

The following step was the naming, evaluating, and mapping of stakeholders in the region.

The participants tried to make up their minds as well as possible and compiled a comprehensive list of stakeholders:

☺	☹
Organic animal farmer (e.g. Brodowin)	Farmer (animal mass production)
Forestry and agriculture department Biosphere Reserve	Energy sector Transportation sector
EU-subsidies for extensive farming methods	
Regional development planners	Timber producers

Biosphere Reserve management	Regional development planners
Forestry university (institution)	
Local nature conservation agency	
Local population	State ministry of agriculture
Organic farmer Conservationists (extensive grazing)	Conventional farmer
Biosphere Reserve	Investors
Profamilia (institutions that help birth control) Schools Universities	Church Conservative politicians
"Good" private forest owners	"Bad" private forest owners
Brodowin ecovillage community	Monsanto Discounter
Environmentalists General population scientists Green parties Media	Industry Fossil fuel companies OPEPC non-renewable energie cias. Bad politicians
Hydrologists State government	Shop owners
Regional development planners Biosphere Reserve management	Farmers
Proof siegels (Reserve) Milk venture (dairy ind.) Wind powerplants investor Local government	Biofuel investors Conventional farmers Wind powerplants investor Local government
Local population Conventional tourism (big investors) Eco-tourism provider Organic farmer	Local population Conventional tourism (big investors)

Visitors Tour operators Guides Local producers Communities	Constructors Big agrobusinesses Power lines Energy companies Shipping companies Elevators
BRSC management Local associations Scientists Regional PA managers	Land Brandenburg Local government

In a peer review situation, the participants presented and justified their ideas.

Assessment and prioritization

The mere naming and mapping of strategies does not yet include possible risks and uncertainties that come with them. In order to compare the strategies amongst each other and evaluate which strategy would be more effective under certain circumstances, an assessment according to several criteria is necessary.

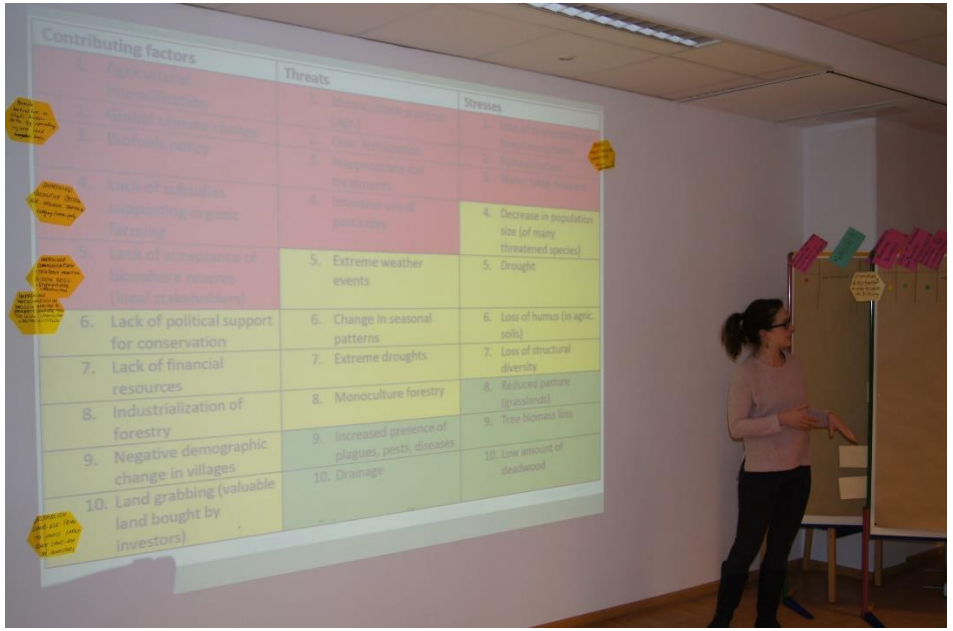
The different criteria were written on pink cards and handed out to smaller groups of participants. Each group was given three criteria to discuss about. The goal was to find a common understanding of the different aspects to consider and ultimately debate with the whole group whether every group member had the same impression about each criterion. Thus, the future MARISCO-coaches presented their discussion outcomes to the rest of the group and agreed on joint ideas.

Finally, the possibility to rate these strategies according to the same color-code utilized for the other assessments, was explained. Each strategy can be evaluated considering 12 criteria.

Afterwards, the group had a conversation about possible adjustments to these criteria. Felipe mentioned that he had developed several similar assessment-classifications. The team figured that appropriate amendments of this assessment are very legitimate and valuable and could be more effective on a local scale.

Complementary strategies

The creative part had arrived. The future MARISCO-coaches got together in three groups and brainstormed about further possibilities to trigger a positive change in the region of the SCBR. Two groups worked at the conceptual model and directly mapped their strategies close to the stresses, threats, and contributing factors. One group was asked to orient themselves according to the assumed ranking list that had been prepared. Through these different approaches, the future coaches were able to experience the different but equally valuable strategy developments.

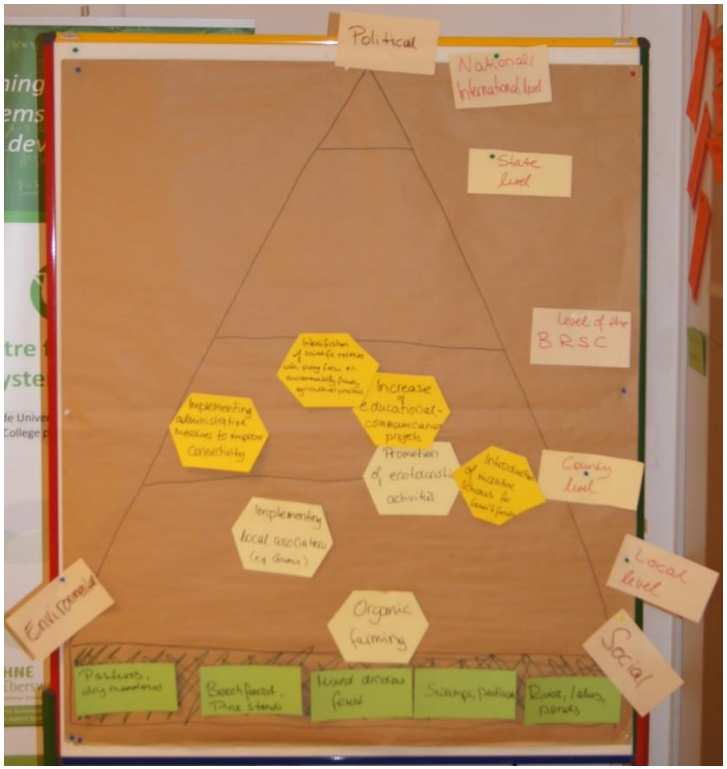


Finally, the groups presented their results in a peer review. The list of complementary strategies was incredibly diverse and creative. About twice as many complementary strategies were identified compared to the existing ones.

Existing strategies	Complementary strategies
Participatory methods (information sessions) + passive participation	Research center invest in information production & dissemination
Support villages in creating voluntary associations	Improving communication strategy for the Biosph. Resv. - differentiating stakeholders
Implementing visitor center	(Re)Establish land-use plan to avoid large-scale land-use by investors
Human-wildlife-conflict management (Education/ information)	Integrate Biosphere Reserve activities into local school curricula
Participatory methods (board meetings) + active participation	Zero-carbon Biosphere Reserve
Advisory board meetings (regional PA managers Brandenburg)	Promote horticulture in schools, kindergarten by spreading regional seed bags
Visitor management	Car-free Brodowin
Lobbying against infrastructure development (powerline, wind turbine)	Develop zero-emission region
Promotion of eco-tourism in order to create jobs & income	Introduce incentive scheme to reward foresters with good practices
Regional brand: Biosphere Reserve Schorfheide-Chorin Prüfzeichen	Invasive species control plan
Hum. wildlife conflict man. admin. - compensation	Renaturation of river beds
Supporting local initiatives	EbA measures! - synergies w/ other adaptation strategies
Restoration activities (e.g. rewetting)	Improve public transportation to mitigate impact by traffic
	Forest restoration plan
	Improve forest ecosystem connectivity (analysis, implementation, corridor replanting)
	Biotope connection plan
	Improving participation in decision making & benefit sharing for the local communities (representation)
	Horse carriage-shuttle from Chorin-Brodowin
	Community awareness campaign on health impacts of pesticides/ chemical fertilizers
	Value chain promotion through diversification strategy
	Beavers compensation program
	Enhance network in the tourism sector through local associations/ advisory board meetings
	Improving incentive system for organic farming (lobbying/ review policy)
	Best practice award
	Agriculture training centre for organic farming
	Local composting strategy (waste & sanitation)
	Applied research on productive but more environmentally friendly agric. practices
	Create water retention areas

Working with strategies

The last active workshop day dealt with the continuation of the processing of the results from the strategy identification. The coaches presented a possible method how to organise and “play” with different options to structure the often great variety of strategies. During the mission to Namibia a new depiction had been developed: The strategic pyramid. As an alternative to “mere lists of strategies”, it seeks to cluster the strategies according to their level of management and responsible institutions as well as in-between the spheres of “strategies tackling environmental issues”, “strategies tackling political issues”, “strategies tackling social issues”. Based on this structure it is helpful to take a look into the (un)even distribution of responsibilities and opportunities that would still need to be considered. It reflects the ecosystem-based nature of the exercise – the ecosystems are the fundament of the pyramid.



Adaptive loop: Revisiting scope and vision

To conclude a second workshop, the whole group usually revisits the scope and the vision that all participants agreed upon by the beginning of the sessions. Also our group of potential future MARISCO-coaches reconsidered the geographical dimension of the area of analysis and defined its borders a little more concrete, without enlarging or reducing the scope noteworthy. The former idea to formulate a more concrete common vision was solidified.

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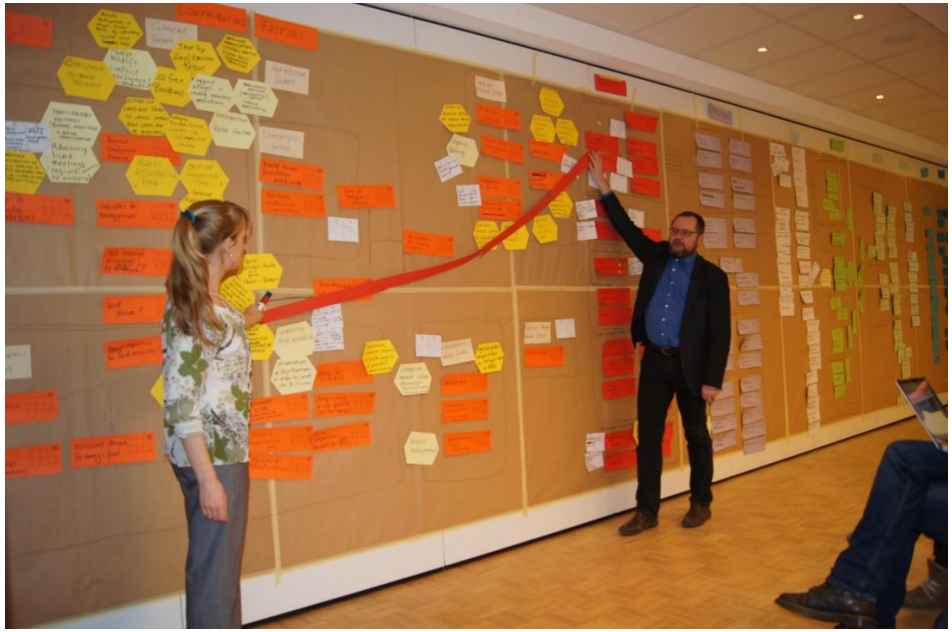
Systemic relationships

For the last workshop day, we had invited a colleague, Anja Krause, from the Centre for Econics and Ecosystem Management (CEEM). She had conducted several steps that occur later on in the MARISCO-cycle throughout her project management focussing on a Transboundary Biosphere Reserve in the Altay Mountains in Central Asia.

She supported the group with the identification of systemic relationships. These describe positive and negative impacts in-between the strategies and other contributing factors and threats which were originally not considered during the strategy identification. It seeks to visualise negative influences through red arrows and positive influences through green arrows. There are several ways to conduct this step (cut out paper arrows, overlay foil which can be drawn onto etc.) but it is usually achieved through digital processing.

The whole group of participants followed the explanations of the coaches and constantly asked questions.



Overall consistency and plausibility

To get a more hands-on impression on how to check on the overall consistency and plausibility of the portfolio of strategies, Anja presented her project about the development of a management plan for a Transboundary Biosphere Reserve in the Altay Mountains, Central Asia. She explained the complex communication tasks when moderating the cooperation process between Kazakh and Russian institutions. Different methodological analyses and comparisons of strategies were carried out in order to identify the most urgent and effective ones in the implementation of a Biosphere Reserve across boundaries.

Analysis and processing of relationships

To analyse the actual effectiveness of strategies in the whole system, it is very helpful to develop a results web. Here, the strategies are mapped into the conceptual model and the tackled problems are translated into positive results – a results web is created. Through this step it becomes clear, what can be reached with the implementation of certain strategies and whether expected outcomes can be achieved. To encourage the actual realization, for each strategy that is to be put into practice, intermediate goals and final objectives are formulated.

For this purpose, an extract of the conceptual model of the SCBR was copied onto an extra wall. In the plenary, results deriving from particular strategies were formulated.

Afterwards the participants worked together in groups to formulate goals and objectives (including possible indicators) for selected contributing factors, threats, and stresses.

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After this intensive working step, the groups presented their results to each other. It became clear that this is a very helpful, well-structured, and ultimately easy way to critically revise the potential effectiveness of strategies.

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Monitoring design, implementation and (non-) knowledge management

As MARISCO-exercises so far have not often reached this point of management and planning, very few examples and cases could be presented to the workshop group. The MIRA App, developed by a former student of the Eberswalde University for Sustainable Development, Laura Geiger, was introduced. She invented the idea of an application for smartphones, with which anybody can map stresses, threats, and contributing factors all over the world via GPS.

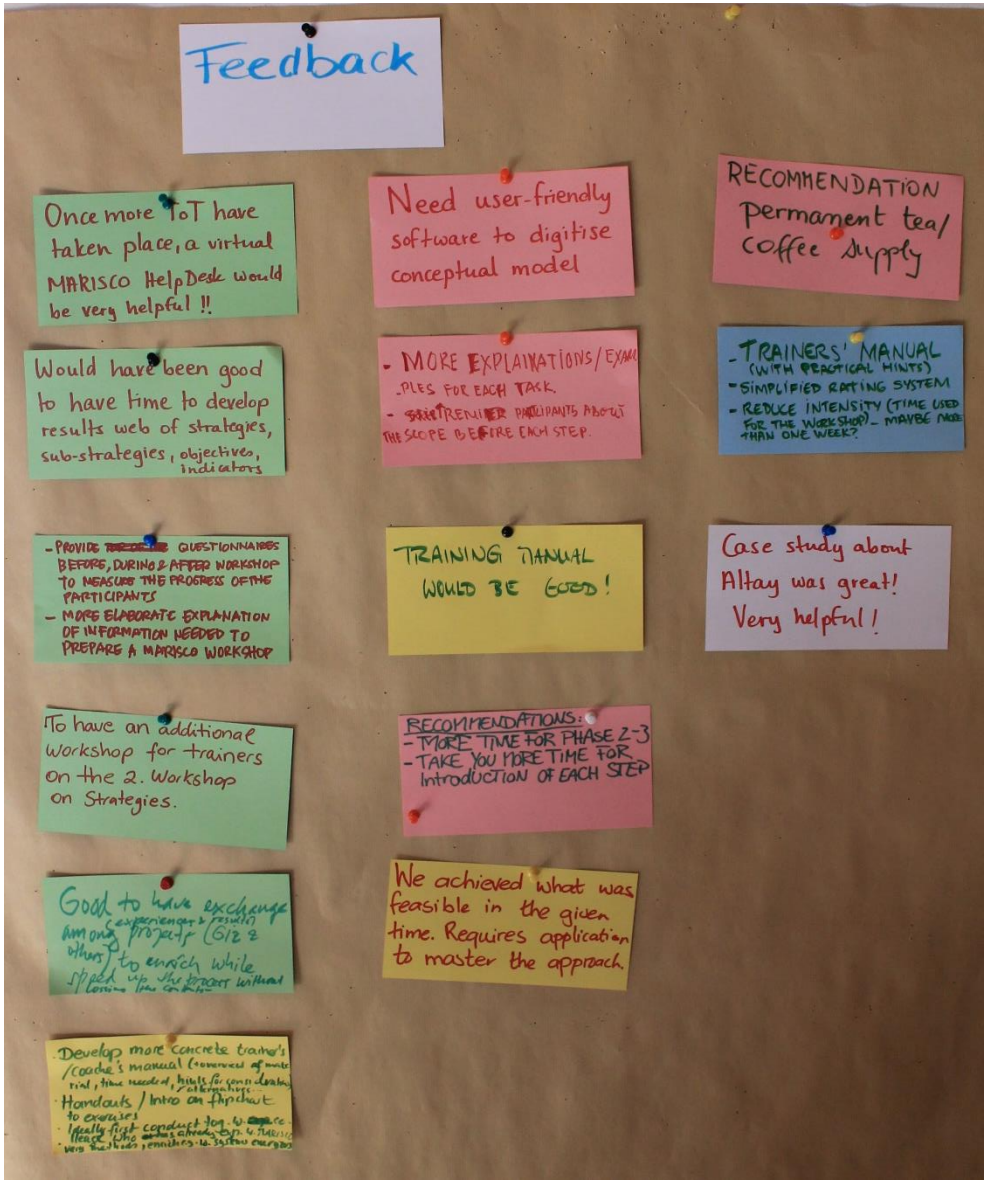
Limitations to adaptive management

In a final conversation between the coaches and the workshop group, a discussion about the limitations of MARISCO exercises established. The participants exchanged their thoughts on possible reasons for the only small number of examples in which phase four of the MARISCO cycle (Implementation and (non-) knowledge management) was conducted.

Case studies

Sunday was the last day of the MARISCO-event in Chorin. The participants were able to listen to several presentations on case studies, in which MARISCO was applied. Christina began the day with sketching out her first MARISCO-project she was able to participate in, in Georgia. Following her, Christiane and another colleague from the CEEM, Sara Silva de Oliveira, who had jointly conducted a MARISCO-application in Brazil, gave an insight into their preparation, implementation and outcomes of a first multiplier workshop. Afterwards, Anja presented the exercise in Namibia, followed by a detailed demonstration of an Ecuadorian example by Nadia. Finally, Christina showed some pictures and results from a project week with school children and Pierre displayed the latest adapted utilization of MARISCO: ECOSEFFECT. With these practical impressions of MARISCO-applications, the workshop week was closed with a final feedback from all participants.

4. Feedback of the participants concerning the methodological process



The potential future MARISCO-coaches gave a very positive feedback for this last session of the workshop week. They stated, that after having seen these positive examples it became very obvious that MARISCO is a very valuable tool for an adaptive analysis and management of certain (conservation) sites. They felt very encouraged to give it a try themselves.

The general verbal as well as written feedback for the complete week turned out to be very positive and stimulating. One participant even stated this to be the best workshop he had ever been to – very motivating!

Final feedback
We achieved what was feasible in the given time. Requires application to master the approach.
Case study about Altay was great! Very helpful!
Handbook for future trainers
Trainers' manual (with practical hints)
Training manual would be good!
Develop more concrete trainer's / coach's manual (+overview of material, time needed, hints for considerations/ alternatives…)
Longer, deeper introductions to each model step (less content/background, rather operational)
Instruction sheet (1-pagers)
More explanations/ examples for each task
More elaborate explanation of information needed to prepare a MARISCO workshop
Handouts/ intro on flipchart to exercise
Would have been good to have time to develop results web of strategies, sub-strategies, objectives, indicators
Recommendation permanent tea/ coffee supply
Reduce intensity (time used for the workshop) - maybe more than one week?
Vary methods, enrich e.g. w.[ith] systems energies
Provide questionnaires before, during & after workshop to measure the progress of the participants
To have an additional workshop for trainers on the 2. workshop on strategies
Recommendations: more time for phase 2-3; take you more time for introduction of each step
Have a completed model ready for later steps to follow steps quicker
Ideally first conduct tog.[ether] w.[ith] colleague who has already exp.[erience] w.[ith] MARISCO
Simplified rating system
Train participants about the scope before each step
Need user-friendly software to digitise conceptual model
Once more ToT [training of trainers[have taken place, a virtual MARISCO help desk would be very helpful
Good to have exchange among projects (experiences & results) (GIZ & others) to enrich while speed up the process without losing the contents

The written feedback implied that the development of further learning material, especially for future coaches, is necessary – a coach's manual was an initial idea.

Also, many workshop participants requested more intensive introductory explanations concerning each working step throughout a MARISCO-session as well as fact sheets for the different categories of elements of the conceptual mode.

Most hints were given on how to improve the training of trainers. As this was one of the very first attempts to conduct a such a training, this feedback is of great value to the MARISCO-team.

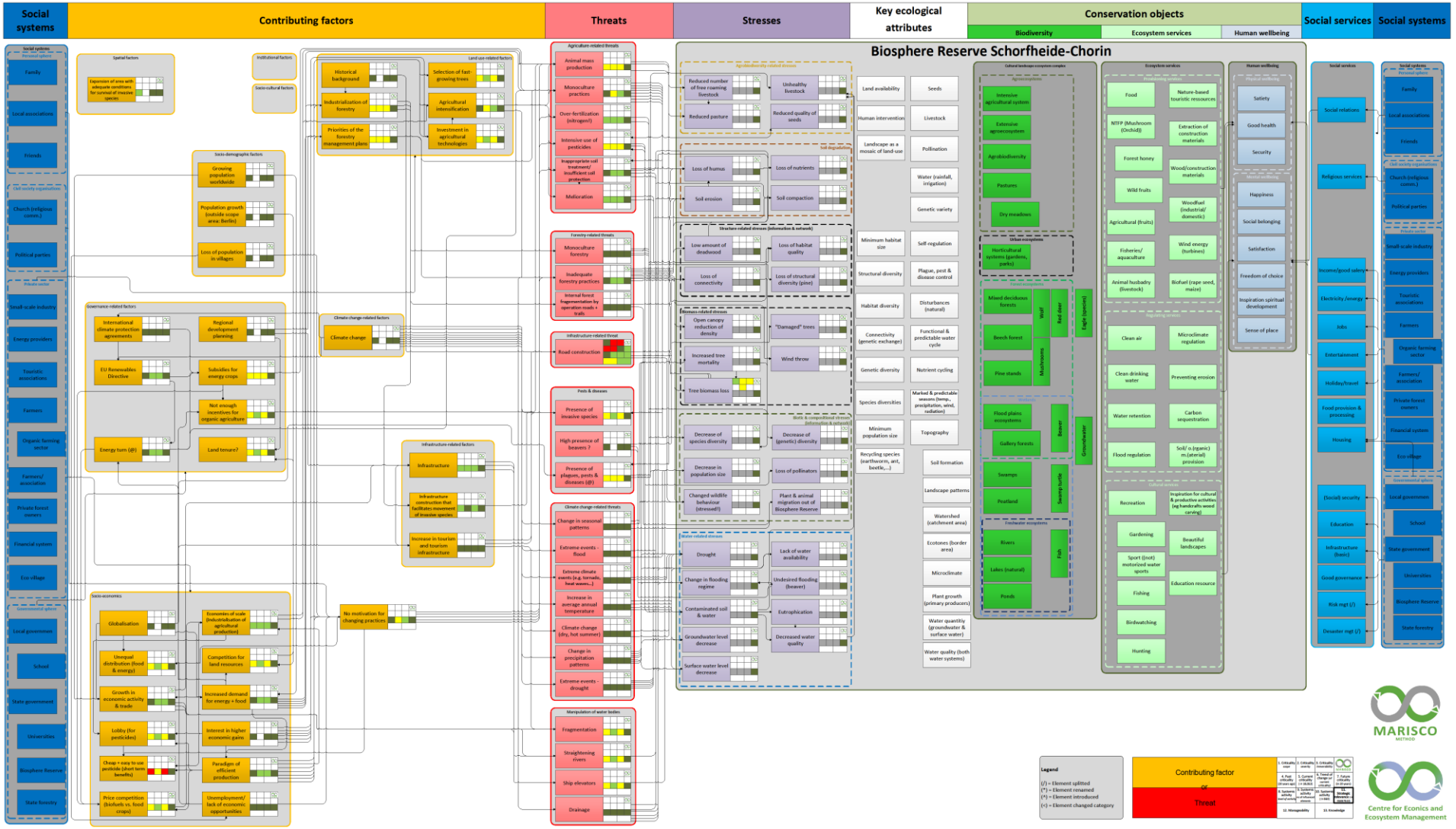
Furthermore, a few tips were mentioned on how to enhance the general application of MARISCO-workshops.

Future ideas which could be implemented after MARISCO has established itself even further, were also put down.

5. Results

The following models are based on the conceptual model developed throughout the MARISCO-workshop. They are not exhaustive.

a. Conceptual model



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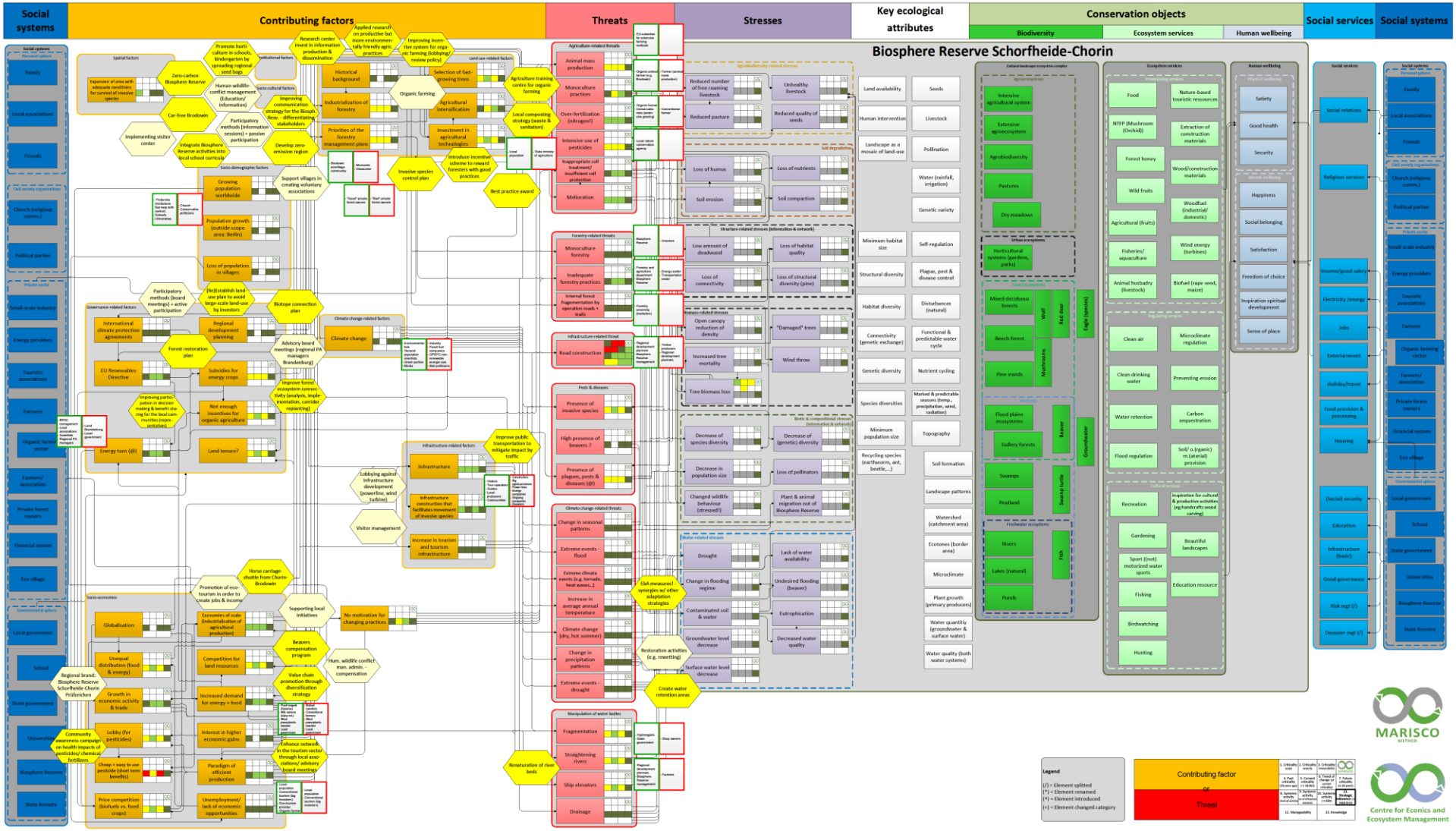
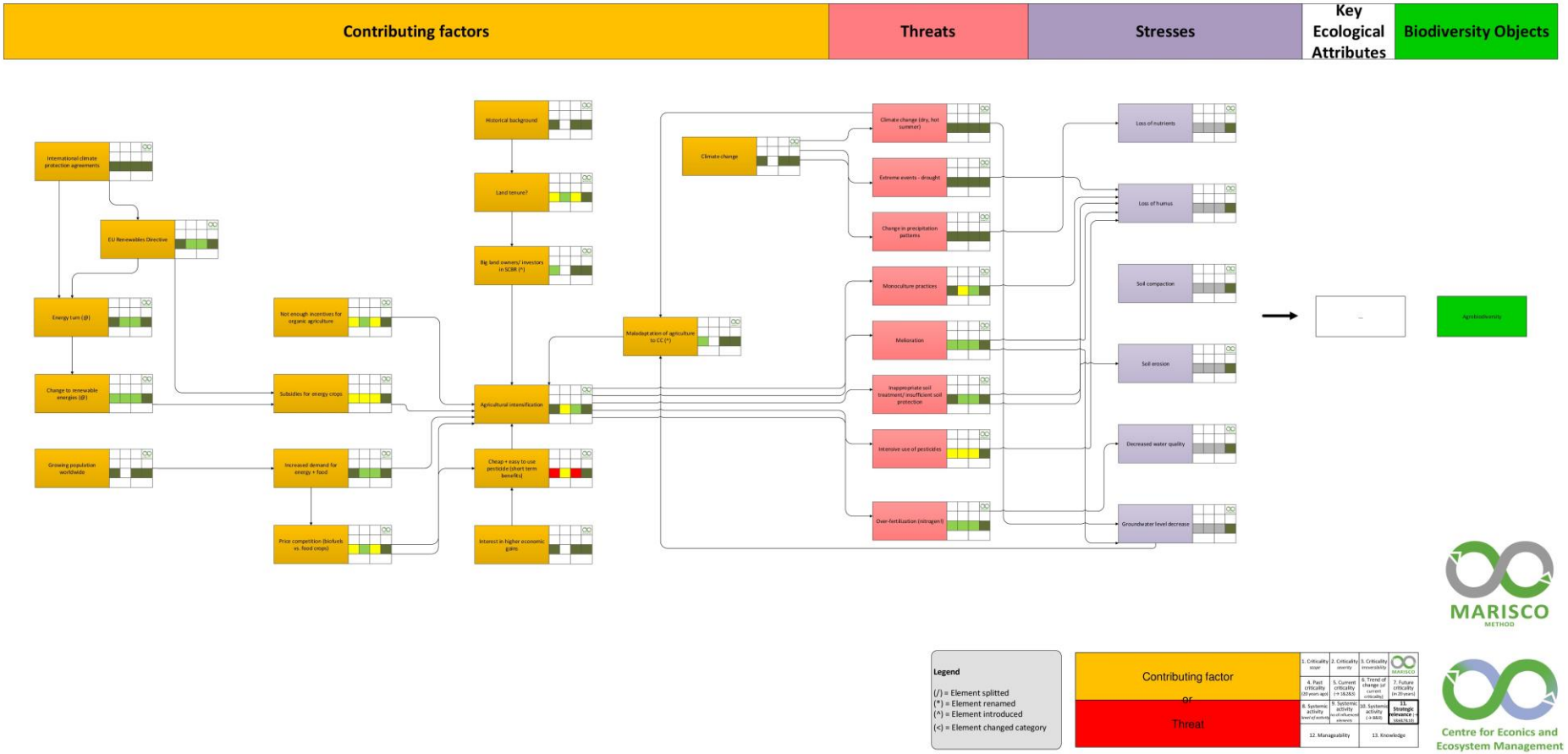
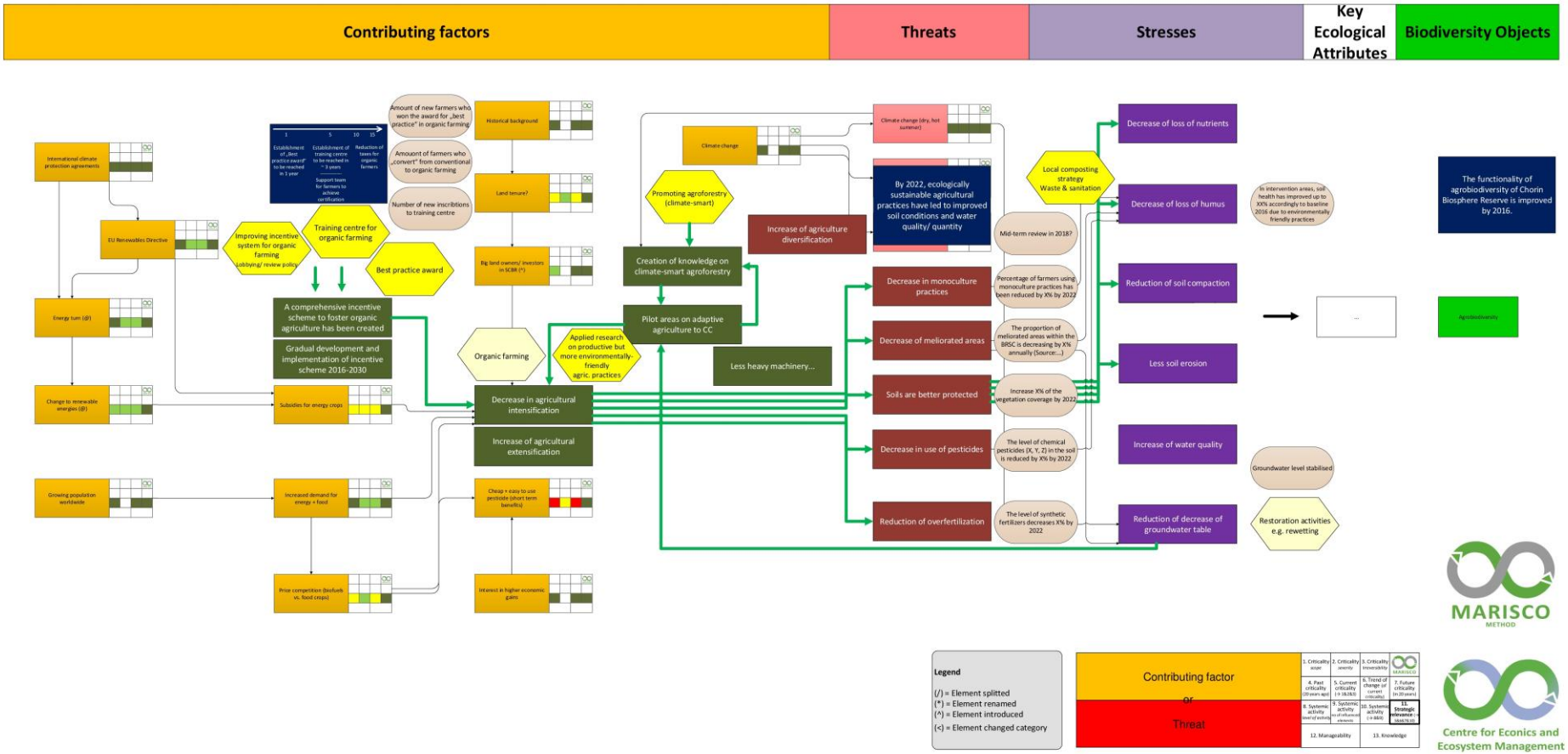
b. Conceptual model with stakeholders and strategies



c. Results-model

Base




Contributing factors
Threats
Stresses
Key Ecological Attributes
Biodiversity Objects
International climate protection agreements
EU Renewables Directive
Energy turn (@)
Change to renewable energies (@)
Growing population worldwide
Improving incentive system for organic farming
Lobbying/ review policy
Training centre for organic farming
Best practice award
Amount of new farmers who won the award for „best practice" in organic farming
Amouont of farmers who „convert" from conventional to organic farming
Number of new inscribtions to training centre
A comprehensive incentive scheme to foster organic agriculture has been created
Gradual development and implementation of incentive scheme 2016-2030
Subsidies for energy crops
Increased demand for energy + food
Price competition (biofuels vs. food crops)
Historical background
Land tenure?
Big land owners/ investors in SCBR (^)
Organic farming
Decrease in agricultural intensification
Increase of agricultural extensification
Cheap + easy to use pesticide (short term benefits)
Interest in higher economic gains
Climate change
Promoting agroforestry (climate-smart)
Creation of knowledge on climate-smart agroforestry
Pilot areas on adaptive agriculture to CC
Applied research on productive but more environmentally-friendly agric. practices
Increase of agriculture diversification
Less heavy machinery...
Climate change (dry, hot summer)
By 2022, ecologically sustainable agricultural practices have led to improved soil conditions and water quality/ quantity
Decrease in monoculture practices
Decrease of meliorated areas
Soils are better protected
Decrease in use of pesticides
Reduction of overfertilization
Local composting strategy Waste & sanitation
Mid-term review in 2018?
Percentage of farmers using monoculture practices has been reduced by X% by 2022
The proportion of meliorated areas within the BRSC is decreasing by X% annually (Source:...)
Increase X% of the vegetation coverage by 2022
The level of chemical pesticides (X, Y, Z) in the soil is reduced by X% by 2022
The level of synthetic fertilizers decreases X% by 2022
Decrease of loss of nutrients
Decrease of loss of humus
Reduction of soil compaction
Less soil erosion
Increase of water quality
Reduction of decrease of groundwater table
In intervention areas, soil health has improved up to XX% accordingly to baseline 2016 due to environmentally friendly practices
Groundwater level stabilised
Restoration activities e.g. rewetting
...
The functionality of agrobiodiversity of Chorin Biosphere Reserve is improved by 2016.
Agrobiodiversity
Legend
(/) = Element splitted
(*) = Element renamed
(^) = Element introduced
(<) = Element changed category
Contributing factor
or
Threat
1. Criticality scope
2. Criticality severity
3. Criticality irreversibility
4. Past criticality
5. Current criticality
6. Trend of change (of current criticality)
7. Future criticality
8. Systemic activity
9. Systemic activity
10. Systemic activity
11. Strategic relevance
12. Manageability
13. Knowledge
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6. Next steps

Considering the feedback given by the participants, a few amendments should be taken into account for further MARISCO applications as well as “trainings of trainers”.

First of all, it was stated that the introduction to the method as well as explanations and practical exercises were very helpful to get a better grasp of what MARISCO actually is and means. Therefore, further future trainings should be fostered. The participants criticized the limited amount of time (one week) for the workshop and hence, a very condensed schedule with a lot of content. An extension of the MARISCO-coaching of coaches would be an option which is usually rather problematic for future coaches to be scheduled into their daily routine. Therefore alternative formats of further coaching of coaches that extend over a one week-workshop would be an alternative. These could for example include ongoing coaching during shorter updating sessions, a constant feedback and exchange of questions and advice (backstopping by experienced coaches) or online tasks for “knowledge refreshment”.

Concerning the teaching of further future MARISCO-multipliers, a need for improvement of the learning material was mentioned. The current MARISCO-manual was said to be too theoretical and more information on the practical application are necessary. Therefore, a compilation of a “Coach’s Manual” could be considered. It would encompass more concrete practical experiences and case study extracts in combination with illustrative clarifications for each step of the MARISCO cycle.

As a great majority of participants criticized the complexity of certain steps and a lack of informative input to conduct particular tasks, it could be considered to develop fact sheets that are to be handed out at the beginning of each stage. They for example contain theoretical background information on the geographical scope, the different elements to be identified in the conceptual model or the concept of strategies. On top of that detailed hints for the conduction of each step should be included.

Further particular inventions could increase the simplification of future MARISCO-applications. Those would involve the improvement of the digital processing of workshop results. A Plug-in function for the MIRADI-software had been taken into consideration already, but should definitely be fostered. Also, a virtual platform for MARISCO-coaches would enhance the opportunities for communication and exchange of experiences among each other. Ideas for amendments and stories of success could be swapped and enhance MARISCO-applications worldwide.

7. Final remarks

Being one of the first applications in which potential future coaches were trained, this was the most intensive and detailed one. The team of the *Centre for Econics and Ecosystem Management* (CEEM) as well as the *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ) completed this week with solely positive impressions. The group of MARISCO coaches eagerly participating in each step, could follow every task, and gave very helpful feedback both for the method itself as well as the application of a “coaching of coaches” and future

improvements. This proves the MARISCO-training to be very effective and further training courses to be very recommendable.

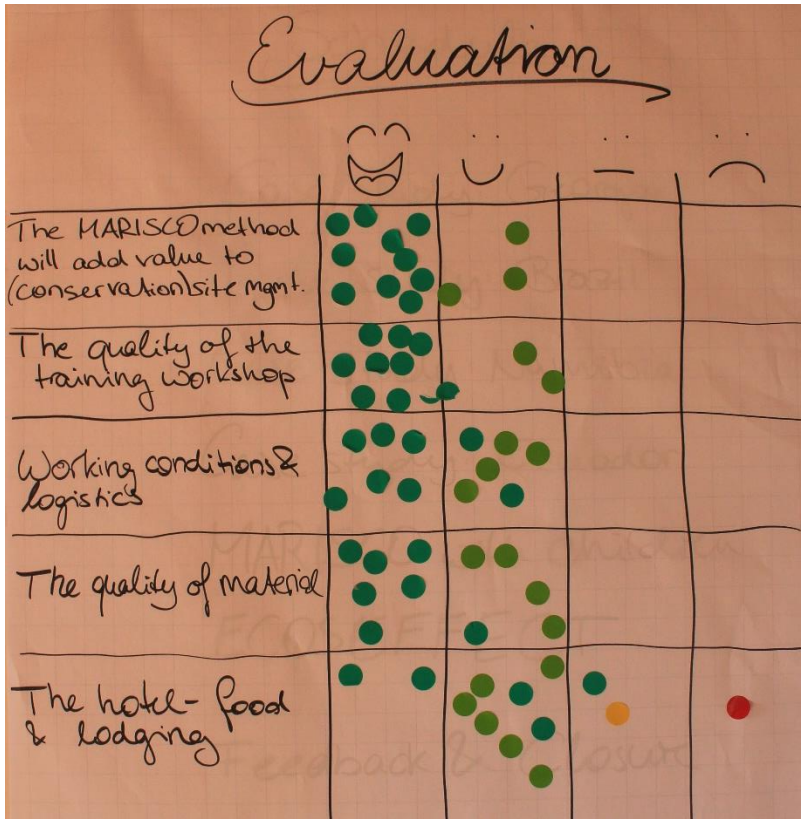
8. Sources

Hansen, M. C., P. V. Potapov, R. Moore, M. Hancher, S. A. Turubanova, A. Tyukavina, D. Thau, S. V. Stehman, S. J. Goetz, T. R. Loveland, A. Kommareddy, A. Egorov, L. Chini, C. O. Justice, and J. R. G. Townshend (2013): High-Resolution Global Maps of 21st-Century Forest Cover Change. Science 342 (15 November): 850–53. Data available on-line from: http://earthenginepartners.appspot.com/science-2013-global-forest.

Biosphären Reservat Schorfheide Chorin (BRSC) (ed.) (2016): Biosphärenreservat Schorfheide-Chorin. URL: http://www.schorfheide-chorin-biosphaerenreservat.de/ (09.03.2016)

9. Appendix

Evaluation



Feedback questions

- How did you feel while conducting this step?
- Do you think, you (as participant as well as a coach) could understand and fulfil this task appropriately? If not, please explain!
- Was this step effective? Did you achieve the information base you think is necessary?
- Anything to add?
- What will be difficult while moderating this step?
- Wishes & requests?

Workshop group