

D.T4.2.1 Report on 'Improved RIU model'

GREEN RISK 4 ALPS



WP T4 - ACRI: Acceptance raising for Ecosystem-based risk control

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GreenRisk4Alps Partnership

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LWF - Bavarian State Institute of Forestry (GER)

MFM - Forestry company Franz-Mayr-Melnhof-Saurau (AT)

SFM - Safe Mountain Foundation (ITA)

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1. Introduction

The expanded theory of the RIU model (GreenRisk4Alps Project Report, 2020b) reveals feasible methods and tools for its application in the GreenRisk4Alps PARs. The established concept of selection fora gives urgently required recommendations concerning the organization of stakeholders' involvement processes and the development of related tailored strategies to address the most relevant actors for implementing scientific solutions. Based on a set of pre-analysis, the concept allows us to involve selected actors in bi-directional activities inside a specific selection forum. Here, we are able to guide and target the stakeholder involvement inside the GreenRisk4Alps project which makes the practical relevance of the GreenRisk4Alps research results more realistic. Therefore, we aim in the present report to identify different promising selection fora in the test PARs of Brenner region and Oberammergau.

2. Identification of promising actors

2.1 Pre-analysis

The first rounds of the partner integration process were conducted in autumn 2018 in all PARs (GreenRisk4Alps Project Report, 2019b). Thereby, selected local and regional stakeholders were informed about the GreenRisk4Alps project and its aims and expected results. Stakeholder involvement was executed through a mutual exchange of expectations and information from both sides in a personal contact by 1-2 key persons, like mayors, the regional head for forestry, head of natural park and regional torrent and avalanche control organisations. Additionally, a questionnaire surveyed the exchange and specified which actors need to be involved for the next round of partner integration. Partner integration process second round was held in spring 2019 in 4 of 6 PAR's with an extended number of actors, especially experts with local knowledge on the hazard situation (GreenRisk4Alps Project Report, 2020a). Here, listening what the situation is at present and what the problems are was in focus of the researchers as well as the projects need of data from the individual PARs. Key actors were to be informed in detail about the project and the added value for the PAR region.

Originating from these established trustful collaborations within the partner integration process, the three components of the pre-analysis were carried out (GreenRisk4Alps Project Report, 2020a, 2019b, 2019c). Detailed surveys were conducted on the base of observations, interviews and literature review (GreenRisk4Alps Project Report, 2019b). The resulting social network analysis (GreenRisk4Alps Project Report, 2020a), the interest analysis (GreenRisk4Alps Project Report, 2019b) and the power source analysis (GreenRisk4Alps Project Report, 2019c) were used to select actors which have medium or strong evaluations. We considered only those interests in Ecosystem Services (ES) where the research results of the project are able to contribute, with main focus on regulating and provisioning ES. Building on the identified first set of promising actor categories, specific actors were selected, for instance the main representative of the category of State Agencies of Protection of Risks which is in Austria the Forestry Technology Services for Torrent and Avalanche Control. Additionally, the selection took place with regards to the actors power (GreenRisk4Alps Project Report, 2019c) to implement ecosystem-based solutions for natural hazard mitigation and to the project's first research results of modelling, e.g. the forest effect as the degree in which the surrounding ("uphill") forest offers natural hazard protection in a certain area (GreenRisk4Alps Project Report, p.9). For the latter, a coordination process between the involved research fields was necessary.

2.2 Coordination process

The data about existing selection forums was collected by expert interviews and targeted questions to the issue, by observations and already known processes from other research projects or formal

procedures by law. We will demonstrate on selected examples how existing selection forums could be identified and which allies might be addressed with them.

The coordination process, for instance, was held in the Austrian Brenner region. Here, social science exchanges information about actors and their interests as well as their power sources with project partners who established the models and applications. For this, a questionnaire was carried out which gives a short overview and description about the focus and the main innovative results of the model or application. Therein, the scholars were also asked on which ES the results will have influence and which actor could be influenced. The possible and expected influence of the results on the interests of actors were estimated if it was possible for the natural scientists and useful for certain main interests. Based on that questionnaire, the pre-analysis components and an open discussion process between social- and natural scientists opponents and supporters of the innovative science-based information were determined. In this process, the interrelations of interests of actors with the potential application of the research results were clearly visible. Afterwards, we had empirically verifiable entry points which actor, with which science-based information and with which target-group oriented communication might be addressed for knowledge transfer aims.

2.3 Selected actors

In regard to the improved RIU model, the resulting promising actors of the pre-analysis as well as the coordination process should be addressed within the three types of selection fora. Actors might occur as target actors or key actors. Both are relevant for the choice of the selection fora.

Actors category	Actors name
<ul style="list-style-type: none"> State agencies for forests 	<ul style="list-style-type: none"> Forest inspection of the district Steinach a.B. Forest Research Centre (BFW) Bavarian State Ministry of Agriculture, Food and Forestry State Institute of Bavaria for Forestry and Silviculture The Department for Food, Agriculture and Forestry Bavaria - Weilheim i.OB
<ul style="list-style-type: none"> State agencies of protection of risks 	<ul style="list-style-type: none"> Austrian Forest Technical Service for Torrent and Avalanche Control Geological Survey of Tyrol
<ul style="list-style-type: none"> State agencies of protection of risks/ State agencies for forests 	<ul style="list-style-type: none"> Austrian Federal Ministry for Agriculture, Regions and Tourism
<ul style="list-style-type: none"> Municipality 	<ul style="list-style-type: none"> Municipality Gries Municipality Vals Municipality Oberammergau
<ul style="list-style-type: none"> Provider traffic Infrastructure 	<ul style="list-style-type: none"> Austrian Federal Railways
<ul style="list-style-type: none"> Forest owner 	<ul style="list-style-type: none"> Austrian forest owners' association Austrian Federal Forests Private forest owner Municipality Gries
<ul style="list-style-type: none"> Hunter 	<ul style="list-style-type: none"> Tyrolean Hunting Association

Table 1: Selected promising actors for knowledge transfer

3. Identification of selection fora

With the selection fora concept, we aim to encounter the selected actor in the real world as well as to gain him as an ally. The selection fora as a formal or informal settings of practitioners and/or political actors, exchanging science-based information, empower actors to enforce own interests and therefore support the knowledge transfer process. Thus, research results become part of the decision making process through the choice of the most appropriate selection forum. This often depends on the

administrative level where the actor is located and the research results should be addressed. In the following, we describe examples of selection fora of the German and Austrian test PAR's.

3.1 Existing selection fora in the test PAR's

The scientific information is a result of modelling gravitational processes. In work package 3 spatial hazard models and classified assets were used to identify hot spots in the area and visualises interactions between the processes and the forests (D.T3.2.1). While the forest development plan only locate protective forests in their intended function does the modelled protective effect - based on several simulation inputs like topographical or geographical data, land use, forest data, past events or process areas, municipality assets and climate data (GreenRisk4Alps Project Report, 2019a) - visualise the real potential of provided protection by forests. This specific protective effect of a certain area might be of high interest for the municipality as forest owner, the building authority or the responsible for civil protection. Forest owners are a conceivable important actor to implement specific measures in their property. Advisory function and ensuring compliance by law will be perceived by the forest inspection of the district and the local forest ranger. All actors might be addressed in a foreseen annual routine of forest constitution/statutes (Forsttagsatzung). Here, the forest inspection and the municipality invite representatives of the forest owners to present results of forestry management from the last year and approve timber cutting for the next year (Tyrolean Forest Act, 2019). Both, the forest inspection of the district as well as the major reveals confidence and expert knowledge. At the same time, they are powerful formal actors arising out of the Austrian and Tyrolean Forest Acts (Tyrolean Forest Act, 2019; Austrian Forest Act, 1975) and due to the fact that the municipality is an important forest owner and is able to enforce their property rights. Selected scientific information might target relevant actors' interests in this promising existent selection forum.

The Austrian forestry educational system provides several paths for professional training of staff, including the forestall training centre Traunkirchen and Ossiach. Here, the BFW organises the educational content of these courses (BFW ACT, 2020) and at the same time, it is the lead partner in the GreenRisk4Alps project. In this powerful double position, they are able to implement 'bricks' of scientific information into relevant courses. Undoubtedly, the educational way of implementing scientific information will take more time than other selection fora. But it provides the opportunity for basic scientifically-founded changes of the professional behaviour of foresters when dealing with protection forests.

In the German PAR Oberammergau, the Bavarian State Institute for Forestry and Silviculture (LWF) follows consequently the approach of existing selection fora. As a project member and departmentally applied research organisation the Bavarian State Ministry of Agriculture, Food and Forestry is involved embedded in the scientific sphere as well as in the political sphere. The ministry and its Regional Offices for Food, Agriculture and Forestry are the responsible bodies for managing protection forests and are excellently equipped with resources to fulfil this task. Professional expertise in forestry and forest protection management, administrative routines to implement, distribute and control monetary subsidies or access to forestry related data as well as official tasks to maintain and to improve the different ES of the Bavarian forests are countable as resources and characterises the actors as powerful and potential allies to implement scientific information. The LWF decided to make use of an existing and functioning selection forum to implement promising results of the GreenRisk4Alps project. The Mountain Forest Initiative, established in 2008 as funding program for climate change adaptation in protective and mountain forests (Arzberger, 2014), was linked with the project and targeted relevant actors like forest owners, farmers, municipalities, hunters, tourism actors and relevant organisations

on the regional level. This program initiates participating processes that make the attempt to involve all relevant parties (Böhling and Arzberger, 2014) to adapt mountain forests to climate change and to maintain or improve the stability of endangered stands and their resilience. Natural hazard protection measures are directly and indirectly covered by several activities within the Mountain Forest Initiative. For participating actors, it gives different advantages of increased subsidies for forest regeneration and fostering as well as aimed consulting and integrated planning within bundled measures (Bavarian State Ministry for Food, Agriculture and Forestry, 2020). According to the Actor-Centred power theory (Krott et al., 2014) all three elements of power, especially incentives in the Mountain Forest Initiative, might develop mechanism to force actors to follow the powerful one (GreenRisk4Alps Project Report, 2019c, p.20). It might be reasonably assumed that the main function of this connection should revive the activities around the Mountain Forest Initiative in this region by the GreenRisk4Alps project again. Besides this, the usage of an existing selection forum could arise a positive effect for causing practical relevance due to the involvement of powerful actors with own strong interests and additional allies, like the new Nature Park founded in 2017, as facilitator. The present success of this existing forum and its involved allies was demonstrated by a high participation rate of relevant actors in the conducted GreenRisk4Alps workshops.

3.2 Hybrid and new selection fora in the test PAR's

In the Austrian PAR Brenner region, we identified several auspicious actors and allies which could be successfully integrated for knowledge transfer tasks by establishing bilateral discussions like the Austrian Federal Railway, the Austrian Federal Forests, the Austrian Forest Technical Service for Torrent and Avalanche Control and on the highest administrative level the Austrian Federal Ministry for Agriculture, Regions and Tourism. Bilateral discussions between our well acquainted researchers for a certain issue and practical actors as well as politicians form the method of choice for implementing scientific information into a selection forum where scientists have no access.

The Austrian Forest Technical Service for Torrent and Avalanche Control is an outstanding important actor in natural hazard protection with a priority interest in technical prevention ES and a main interest in green prevention ES. Additionally, the actor disposes of strong and medium power sources which could be used for knowledge transfer activities in regard to the RIU theory. The organised bilateral discussion was held in Vienna. Because of a limited access of actors, a bilateral discussion unfolds a trustful mutual atmosphere between practitioners and researchers. This allows a broad scientific exchange of scientific information and a freer discourse about current occurring issues in the prospect of the practical actor. Several auspicious ongoing and future projects for integrating the research results of the GreenRisk4Alps project were identified and discussed. In doing so, the focus of the researcher was also on the identification of further selection fora and key actors. Therefore, more hybrid fora could be identified and already identified fora could be confirmed. Traffic provider, like the Austrian Federal Railway as well as the Autobahn and Highway Financing Stock Corporation (ASFINAG), have strong interests to acquire protection forests to ensure the safety of the traffic. For that aim, research results like the modelling of gravitational processes which identifies hot spots in the area and visualises interactions between the processes and the forests due to the calculation of the protective effect in a certain terrain (GreenRisk4Alps Project Report, p.4) could be relevant for these actors. The latter might be of high interest for the traffic provider in regard to the aim of acquiring protection forests. The GreenRisk4Alps project does not have access to potentially existing selection fora within the traffic providers, but to initiate a bilateral discussion with key actors could open it for the GreenRisk4Alps project. Forest owner organisations as well as the single forest owner could also

benefit from these research results. Here, the scientific information is useful to demonstrate the hazardous situation. Attracting forest road development in protection forests due to changed forest funding opportunities has to be the political aim of the forest owner organisation. Legislative initiatives could be triggered by the organisation and the internal link to research could be established, in a first step, by bilateral discussions.

Further bilateral discussions were established in the Austrian PAR Brenner region with the Tyrolean Hunting Association. Hunting in general might affect green prevention strategies for natural hazard mitigation significantly (positively or negatively) due to its impacts on game species densities. Natural regeneration, or the well growing of young stands is endangered by inadequate densities of game species as well as incorrect hunting management and might occur due to browsing and debarking of trees (Ammer, 1996). From this arises a well-known conflict between different preferred functions of forests between hunters and forestry authorities (Ammer et al., 2010) which had also been observed in the case study area as a crucial conflict (GreenRisk4Alps Project Report, 2019c). The latter is reflected by different interests in ES (green prevention, wood provision vs. game provision) of actors and visualised in the interest analysis (GreenRisk4Alps Project Report, 2019b). Strong interrelations between the different ES which are flanked by conducted measures to maintain, improve or use the ES (planting of trees, shooting quota, ...) are the background of this conflict. Its regulation is resolved by available means of power for each actor. Therefore, forest authorities are able to apply coercive power through the forest act and its competences (Tyrolean Forest Act, 2019) for controlling and enforcing measures. Additionally, they provide a wide range of financial support for forest owner to perceive their public tasks (Region of the Tyrol, 2019) and thereby, set incentive power. These selected examples of legally-based activities reveal that power and its features are used to regulate the conflict.

Hunters also perceive their interests through applying power instruments. For instance, the Tyrolean Hunting Act (2004) assigns hunters' coercive power by different features like the exclusive right for hunting in an area or the preparation of wildlife management plans. Both interact strongly with the dominant power mechanism. Most of the other actors are not able to check the basis of wildlife management plans, namely the game count. All mentioned features are evaluated with a strong or medium level of power and could be considered as having practical relevance inside the knowledge transfer process. In this outlined conflict, the declaration of forests as protective forests (Austrian Forest Act, 1975) plays an important role, because this is an often used argument by forest authorities to intervene in hunting through strong regulative measures. Existing maps of forest functions will be continuously criticised from hunters' side. They argue, that officially declared protective forests often have in reality no protective function and the areas are very huge (GreenRisk4Alps Project Report, 2019b). Hunters expect support from the researchers' side for their assumptions and have therefore, a strong interest in the outputs of the GreenRis4Alps project and its aimed maps about the forest protection effect (and other maps) which define the mitigating role against the modelled gravitational hazards of each forest on raster sharp resolution on a certain point in the project area. The Tyrolean Hunting Association was informed about the GreenRisk4Alps project and its aim in a bilateral discussion. Our knowledge transfer strategy aims to implement scientific findings in an existing conflict that actors are obliged, opponents as well as supporters, to deal with the new scientific argument. Our expectation is that new innovative results will meet competitive actors which argue with competitive scientific arguments. In this way, this strategy (or the scientific information alone) may cause, or appear as an urgent need, to have a new discourse about the conflict. From knowledge transfer view then, it can be considered as successful effort which is not feasible without addressing the scientific information in a new and well prepared selection forum.

Workshops and round table formats should be also considered as new fora for addressing selected actors. This is especially conceivable in less conflicting issues between actors or with actors with shared interests. In so far, workshops and round tables with experts must be carefully distinguished from existing expert rounds with well-defined function. Subsequently, a directed selection of actors could take place, based on the pre-analysis and the scientific information, and workshop or round table formats can develop impact due to interested and powerful allies. The allies themselves should organise means for integration by establishing and organising new selection fora (Jürges and Krott, 2018, p.10).

Type of selection forum	Selection forum	Key actors	Target actors	Link to research
Existing	<ul style="list-style-type: none"> Forsttagsatzung (Austria) 	<ul style="list-style-type: none"> Forest inspection of the district Steinach a.B. 	<ul style="list-style-type: none"> Forest owner Municipality Mountain farmer 	External but access to research due to observer role
	<ul style="list-style-type: none"> Forestal Training Centre Traunkirchen/Ossiach – BFW (Austria) 	<ul style="list-style-type: none"> Forest Research Centre (BFW) 	<ul style="list-style-type: none"> Forest owner Forest ranger Forestry worker Future employees of the forest service 	Internal (Project coordinator BFW)
	<ul style="list-style-type: none"> Mountain Forest Initiative (Germany) 	<ul style="list-style-type: none"> Bavarian State Ministry of Agriculture, Food and Forestry 	<ul style="list-style-type: none"> Forest owner Mountain farmer Tourist sector Municipality Professional authority Hunter 	Internal due to own departmental research unit and which is a project partner State Institute of Bavaria for Forestry and Silviculture (LWF)
	<ul style="list-style-type: none"> Existing expert rounds – Monitoring and Advisory Board (Austria) 	<ul style="list-style-type: none"> Geological Survey of Tyrol 	<ul style="list-style-type: none"> Professional authority Tourist sector Citizen 	External
Hybrid	<ul style="list-style-type: none"> Bilateral discussion 	<ul style="list-style-type: none"> Austrian Federal Ministry for Agriculture, Regions and Tourism Austrian Federal Forests Austrian Forest Technical Service for Torrent and Avalanche Control Austrian Federal Railways Tyrolean Hunting Association 	<ul style="list-style-type: none"> Forest owner Citizen Mountain farmer Tourist sector Professional authorities Internal administration Forest owner association Forest authorities 	Internal/ External
	<ul style="list-style-type: none"> Expert rounds/ workshops (Austria) 	<ul style="list-style-type: none"> Austrian Federal Forests Austrian Forest Technical Service for Torrent and Avalanche Control Geological Survey of Tyrol Forest Inspection of the district Steinach a.B. Municipality 	<ul style="list-style-type: none"> Forest owner Citizen Mountain farmer Tourist sector Professional authorities Internal administration Forest owner association Forest authorities 	Internal/External

<p>New</p>	<ul style="list-style-type: none"> • Workshops • Round tables (Austria) 	<ul style="list-style-type: none"> • Forest Research Centre/Department of Natural Hazards 	<ul style="list-style-type: none"> • Austrian Forest Technical Service for Torrent and Avalanche Control • Geological survey of Tyrol • Forest Inspection of the district Municipality • Voluntary fire department • Local road mastery 	<p>External</p>
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Table 2: Summary of identified selection fora inside the Test PAR's Brenner region and Oberammergau.

4. Conclusion

With the improved RIU model and its application of the selection fora concepts within the test PARs several types of selection fora have been identified. These are places where the selected actors might encounter the 'bricks' of new scientific information. On the theoretical level, with the gained data of selection fora, the research results of the GreenRisk4Alps project can be closely linked to specific actor settings. These settings anticipate, besides the key actors and the target actors, the related interests as well as power structures between the actors. For the project, the fora selection concept provides recommendation of addressing and involving relevant actors. We actually prefer existing or hybrid fora due to the reason that actor compositions, especially the Austrian ecosystem-based natural hazard management (Weiss, 1999), are characterised by a relatively constant institutional setting of actors and rules. According to the RIU model, knowledge transfer is achieved by offering participation to practitioners only within the integration phase (Juerges and Krott, 2018). Here, they are involved in bi-directional activities inside a specific selection forum. The latter could be carefully selected or established according to the aforementioned examples of the test PARs. We will apply the concept in D.T4.3.1 for all PARs of the GreenRisk4Alps project.

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