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Case studies database for testing ASFORESEE

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WP4 - Deliverable D.T4.4.1

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Interreg
Alpine Space



ROCK the ALPS 
EUROPEAN REGIONAL DEVELOPMENT FUND

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Alpine Space Project 462: RockTheAlps

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Turin, Italy - March 2019

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30 1. Introduction

31 In previous deliverables of the Interreg Alpine Space project: "RocktheAlps", our working group
32 (WP4) first investigated the topic of "Economic assessments of the rockfall protection service",
33 referring to the Alpine Space (Deliverable D.T4.1.1 "State of the Art of Forest Protection Service
34 Economic Assessment"). More than 20 case studies have been identified in the literature, which are
35 however characterized by a wide inter-variability, both in terms of the economic method adopted
36 for the evaluation and in terms of the form of expression of the result (Bianchi et al., 2018). This
37 non-standardisation in the evaluation process raised the question of which was the most suitable
38 economic method, easily reproducible, transparent and, above all, in which context.

39 In the second deliverable – D.T4.2.1 "Economic Concepts for Evaluation of Risk Mitigation
40 Strategies" - therefore, Bruzzese et al. (2018) described economic evaluation methods present in
41 the literature in order highlight their pros and cons and provide, where possible, examples of case
42 studies.

43 This report constituted the information base for the realization of the main product of WP4: the
44 ASFORESEE model. The methods adopted, i.e. the Replacement Cost and the Avoided Damages,
45 were found to be the most suitable for the aims of the evaluation, given their replicability and the
46 easily understandable outputs. For further details on principles underlying the two methods and on
47 the functioning of the model, see report D.T4.3.1 (Accastello et al., 2019).

48 In order to test and validate the ASFORESEE model, each project partner was asked to contribute
49 selecting one or more case studies within their respective countries. These study sites had to be
50 identified on the basis of three fundamental elements: the presence of a protection forest, of a
51 rockfall risk and one or more exposed assets. Therefore, the objective of this report is to list the case
52 studies selected by the ROCKtheALPS partners, their progress in data collection and the economic
53 methods applied, in order to have an overview on the advancement of the ASFORESEE application
54 over the whole Alpine Space.

55 2. Case studies Database

56 The case study database, presented below (Table 1), lists the main features of the case studies selected for the application of the ASFORESEE
 57 model. Last update: 01/09/2019.

Table 1 - identification of case studies, the economic method chosen and their state of progress.

ID	Partner	Country	Case Study Name	Adopted Method	Input data	Protection Forest Area	Asset type	Monetary Value
1	IRSTEA	France	Kaysersberg	Replacement Cost	Completed	16.40 ha	road	106,492 €, 6,493 €/ha, 203 €/ha/y
2	BRGM		Massif du Jura	-		-	-	-
			Montpellier	-		-	-	-
3	Alp'Géorisques	France	-	-	-	-	-	-
4	SFS	Slovenia	Most na Soči	Avoided Damages	Still collecting	-	-	-
5	UL	Slovenia						-
6	SFI	Slovenia						-
7	TESAF - UNIPD	Italy	Auronzo di Cadore	Replacement Cost	Almost completed	20.20 ha	regional road	-
			San Vito di Cadore	Replacement Cost	Almost completed	16.53 ha	roads	-
			Colcuc	Avoided Damages	Almost completed	12,27 ha	mountain rail, local road and regional road	-
8	DISAFA - UNITO	Italy	Cesana	Avoided Damages	Almost completed	6 ha	primary road	-
9	ERSAF	Italy	Valdidentro	Avoided Damages	ERSAF/ETIFOR	-	-	-
			Cevo		ERSAF/ETIFOR	-	-	-
10	PAT	Italy	Cogolo	Avoided Damages	Almost completed	5.20 ha	road	-
11	POLITO	Italy	-	-	-	-	-	-
12	BFW	Austria	-	-	-	-	-	-
13	BLFUW	Austria	-	-	-	-	-	-
14	BLW	Germany	Seewände	Avoided Damages	Completed	1.67 ha	road	100,492 €, 60,211 €/ha, 1,880 €/ha/y
			Strailach	Replacement Cost	Completed	1.97 ha	forest road	567,682 €, 288,398 €/ha, 9,004 €/ha/y
15	HAFL	Switzerland	-	-	-	-	-	-

58 3. Database Description

59 The table in the previous section shows key elements useful for the implementation of this deliverable,
60 below:

- 61 ▪ ID: is the identification/unique code of each partner, as defined in the project;
- 62 ▪ Project partner name;
- 63 ▪ Country: origin of project partners;
- 64 ▪ Case study name: location of the case study;
- 65 ▪ Adopted method: the economic approach adopted to evaluate the forest protection service,
66 alternatively Replacement Cost method or Avoided Damages method;
- 67 ▪ Input data: indicates the state of progress of data collection, which can be "-", i.e. missing
68 data, "still collecting" most of the data is still missing, "almost completed" if only few data
69 are missing, "completed" whether all information have been collected.
- 70 ▪ Protection forest area: indicates the extent of the protective forest section directly involved
71 in the protection of the exposed asset;
- 72 ▪ Asset type: define the typology of exposed assets, e.g. road, trail, railway, building, ...;
- 73 ▪ Monetary value: the value of the rockfall protection service is reported in its various forms
74 of expression – overall value (€), unitary value (€/ha) and income (€/ha/yr).

75 4. Discussions and Conclusions

76 As shown in the database, case studies completed or almost completed are eight, specifically: Kaysersberg
77 (FR), Auronzo di Cadore (IT), San Vito di Cadore (IT), Colcuc (IT), Cesana (IT), Cogolo (IT), Seewände (DE),
78 Strailach (DE).

79 French partners are working on the same case studies and two of them, out of three, are still in the process
80 of collecting data. Slovenian partners are also in the same situation, a unique case study that is still in the
81 data collection phase. The Politecnico di Torino was not asked to provide case studies, since they focused
82 more on other aspects of the project; while no case studies were provided by the Austrian and Swiss partners.

83 The last part of the ROCKtheALPS project will mainly focus on the finalisation of the case study application,
84 in order to acquire as many information as possible of the ability of ASFORESEE to perform the economic
85 evaluation of the forest protection service.

86 Moreover, in parallel with the advancement of the application of ASFORESEE in the case studies, it is planned
87 to integrate the results within the webgis platform created by the University of Ljubljana (*D.T1.5.1 - ROCK-*
88 *EU : Harmonised GIS based rockfall release and runout models*). This will allow to couple relevant economic
89 data with the information already attributed to the different rockfall sources located in the platform.

90 Finally, in order to test and validate the ASFORESEE model, the last deliverable required by the research
91 project (*D.T4.5.1 - Approved examples of operational deployments of ASFORESEE*) will report a critical analysis
92 of the model coming from its application on the case studies, where the outputs obtained feedback will be
93 illustrated as well.

94 5. References

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