

Deliverable 4.2 – Report on supporting local and national networks for forest management model alternatives

Project Title	Alternatives models and robust decision-making for future forest management
Project Acronym	ALTERFOR
Project Coordinator	Ljusk Ola Eriksson, Swedish University of Agricultural Sciences (SLU)
Scientific Coordinator	Vilis Brukas, Swedish University of Agricultural Sciences (SLU)
Project Administrator	Giulia Attocchi, Swedish University of Agricultural Sciences (SLU)
Project Duration	1 April 2016 – 30 September 2020
Project Duration in months	54
Authors, organizations (short name)	<p>Lead Authors: Mirjana Stevanov and Max Krott (UGOE)</p> <p>Contributing authors (for Case Study Areas):</p> <p>Germany – Mirjana Stevanov and Max Krott (UGOE), Peter Biber and Fabian Schwaiger (TUM).</p> <p>Ireland - Anders Lundholm (UCD)</p> <p>Italy – Mauro Masiero, Giulia Corradini and Davide Pettenella (TESAF - UNIPD) and Alex Pra (Etifor Srl)</p> <p>Lithuania - Ekaterina Makrickiene and Gintautas Mozgeris (VMU), Nerijus Pivoriunas and Martas Lynikas (SFE)</p> <p>The Netherlands - Marjanke Hoogstra-Klein, Geerten Hengeveld, Jim van Laar, Bas Arts (WUR)</p> <p>Portugal - Carlos Caldas, Marlene Marques and José Borges (CEF/ISA/UL).</p> <p>Slovakia - Yvonne Brodrechtova</p> <p>Sweden – Isak Lodin (SLU)</p> <p>Turkey - Mehmet MISIR and Uzay KARAHALİL (KTU); Uğur KARAKOÇ (OGM)</p>
WP No., WPL(s)	WP4, Max Krott
Date of delivery by Coordinator	February 2020
Date of delivery according to DoA	March 2020
Reviewed by (see list of abbreviations used)	
PC, PCC, PA	
Type of Deliverable	
Report	X

Demonstration	
Websites, patents, filings, etc.	
Dissemination level	
Public	X
Confidential, only members of the consortium (including the Commission Services)	
Other	



Contents

List of Tables and Figures	4
Abbreviations used	4
Summary	6
Objective of the deliverable:	8
1. Introduction	9
2. Which actors has alterfor informed in particular CSAs?	10
3. Which actors has alterfor engaged in particular CSAs?	14
4. Activities triggered by ALTERFOR in particular CSAs	19
5. Conclusions: local and national capacity building for FMM alternatives	27
References	30

List of Tables and Figures

Table 1: The WP4 Reports – Deliverables (D).....	9.
Table 2: ALTERFOR countries and respective Case Study Areas (CSAs).....	10.
Table 3: Dates, participant numbers of 20 ALTERFOR workshops: September 2017 to December 2018.....	11.
Table 4: Number of participants in ALTERFOR workshops per country and actor group.....	12.
Table 5: Examples of workshop organisation modes within ALTERFOR:.....	14.
Table 6: Engagement of Academic (A) and Non-Academic (N-A) actors in ALTERFOR workshops.....	15.
Table 7: Role of country's multiple Non-Academic actors around workshop preparation/organization.....	19.
Table 8: Workshop follow-up activities per actor group and country.....	20.
Table 9: Examples of ALTERFOR workshop follow-up activities.....	21-23.
Table 10: Facilitating political steering by ALTERFOR follow-up activities.....	24.
Table 11: Groups of actors and political steering instruments within ALTERFOR	25-26.
Table 12: Groups of actors and follow-up activities within governance and government steering.....	27.

Abbreviations used

AELF – Food, Agriculture and Forestry Agency Augsburg (Amt für Ernährung, Landwirtschaft und Forsten Augsburg)

aFMM – Alternative Forest Management Model

AFP - Lowland Forest Association (Italy)

AFVS - Forest Owners Association - *Associação Florestal do Vale do Sousa* (Portugal)

ASU - Aleksandras Stulginskis University (Vytautas Magnus University since 2019)

CAB - County Administrative Board

CEF/ISA/UL - Forest Research Center, School of Agriculture, University of Lisboa

CSA – Case Study Area

D – Deliverable

ES – Ecosystem Service

Etifor – University Padova spin-off

FA – Forest administration and management

FO – Forest owner associations

FSC – Forest Stewardship Council

FMM – Forest Management Model

GER - Germany

GFS - German Forest Society

IIASA – International Institute for Applied System Analysis

ICNF - State Forest Authority (Portugal)

IRL - Ireland

IT- Italy

KTU - Karadeniz Technical University (Turkey)

Lesy SR - State owned forest enterprise of Slovak Republic
LIT - Lithuania
LVMI - State Forest Inventory and Management Planning Institute (Lithuania)
MLUL – Ministry for rural development, environment and agriculture Brandenburg (Ministerium für Ländliche Entwicklung, Umwelt und Landwirtschaft des Landes Brandenburg)
MS – Milestone
N-A – Non-Academic
NL – Netherlands
NCA – Nature conservation administration
NGO – Non-governmental organisation (NC-Nature conservation; R-Recreation; H-Hunting)
OGM - General Directorate of Forestry (Turkey)
O – Other
PA – Public Administration
PLA – BR Poľana - Protected Landscape Area – Biosphere Reserve Poľana (Slovak Republic)
PO – Public organisations
PT - Portugal
RIU – Research, Integration, Utilisation
SFE - Lithuanian State Forest Enterprise
SR – Slovak Republic
SLU - Swedish University of Agricultural Sciences
SÖDRA -Southern Sweden Forest Owner Association
SWE - Sweden
TUZVO - Technical University Zvolen
TeSAF - University of Padua, department of Land, Environment, Agriculture and Forests
TI – Timber Industry
TR - Turkey
TUM - Technical University Munich
UGOE – University of Goettingen (Germany)
UCD - University College Dublin
WP – Work Package
WPLs – Work Package Leader(s)
WUR - Wageningen University & Research

SUMMARY

ALTERFOR project focuses on forest management models (FMMs) in ten Case Study Areas (CSAs) from nine European countries for the purpose of optimizing these models in regard to future provision of (robust) Ecosystem Services. The sound scientific knowledge on FMM alternatives was created in cooperation of Work packages WP3 (landscape level FMMs), WP1 (stand level FMMs) and WP2 (European analysis and scenario modeling). The Work Package 4 was assigned the task of *facilitating the process of transferring knowledge* on modelling results to the actors in CSAs and so enhance implementation potential for FMM alternatives. This report gives an overview of this process.

While assuming that specific FMM alternatives will be supported by particular local and/or national actors and their networks, the WP4 examined those actors in CSAs and their different capacity to elicit political support for enabling implementation of FMM alternatives. Capacity means actors with resources supporting particular FMM alternative and the capacity of specific actors to elicit political support was evaluated by their set of political steering instruments. The discrimination into informational, economic and regulatory instruments showed important trends in knowledge transfer and facilitating political support (see below). Further, we discriminated between the use of these instruments within the non-hierarchical governance or hierarchical government context. Together with that, this report summarizes activities triggered by ALTERFOR in respective CSAs (actor's activities are used as an indicator for the capacity building).

The basis for current Report is data collected from nine ALTERFOR countries and their ten CSAs. The main empirical research method was analysis of written documents. Researchers from each CSA compiled documents called Workshop documentation, supplemented by the information presented and discussed in the ALTERFOR project meetings (Padua and Dresden 2019). Besides, 16 interviews were held with the country experts and additional valuable insights have been collected through participatory observation.

The theory-based RIU-Model (Boecher and Krott 2014, 2016; Stevanov et al. 2013) was used to examine all actors together with their capacity to elicit political support for implementing FMM alternatives. According to the RIU-Model (Research-Integration-Utilization), knowledge transfer belongs to the Integration sphere, which starts after scientific results are ready (Research sphere) and selected findings are transferred to the target actors (or groups of actors) in practice (Utilization sphere). That process can be organized through different modes. The mode selected in the case of ALTERFOR project was stakeholder workshops (workshops onwards).

In total 20 workshops took place from September 2017 to December 2018, with 706 participants directly involved and comprehensively informed about alternative FMMs targeting their particular CSAs. In these workshops selected scientific findings about FMM alternatives were presented to the actors in the form of future projections. Despite the focus within the group of public actors was in forestry administration the workshop participation spread over general administration and nature conservation administration as well. In regard of private actors, the range was even larger, comprising hunting associations, outdoor recreation associations, students and young researchers (students included under Other, Table 4), even though the focus was on forest owners and timber industry. The share of workshop participants from the public forest administration and/or organizations managing federal/state/municipal forests in respective CSAs was amongst the highest (32.3%), which together with the private forest owners (8.5%) and timber industry (7.4%) made nearly the half (48.2%).

ALTERFOR workshops aimed not only to inform actors about alternative FMMs but also to engage actors in workshop preparation/organization, enhancing that way the implementation potential for these FMM alternatives in practice. When Non-Academic (N-A) actors are engaged through preparation/organization of work-

shops (selecting, inviting and hosting workshop participants), this is recognized as an indicator for their respective support in enabling the implementation of alternative FFM. Examples from CSAs show that ALTERFOR was able to engage all N-A project partners into the preparation/organization of workshops and their involvement ranged from minor to dominant, depending on the workshop aspect in question. ALTERFOR workshop involved also new N-A actors as allies, identified as powerful by Jürges et al. 2017.

In order to reveal the capacity of participating actors to support particular FMM alternative, the workshop follow-up activities were observed (as a proxy for the respective capacity building). The follow-up activities in all nine countries were identified by the public forest administration/management actors, and in seven countries by private forest owners / companies. When also timber processing is taken into account then the majority of the workshop follow-up activities were undertaken by the actor groups from forestry. Majority of these activities is related to the non-compulsory informational instruments, 10 under governance and 3 under government steering, which is not surprising, since the main source of ALTERFOR is science-based information about FMM alternatives. These results recommend that an analysis of general networks on local or national level provides a first orientation only but for approaching the implementation process more closely it is useful to look into the instruments of political steering and the driving actors in detail.

Objective of the deliverable:

The objective of this document is to provide an overview on supporting local and national actor networks by presenting actors whom ALTERFOR was able to inform and engage in each Case Study Area (CSA). Most important are networks that comprise specific implementation activities related to forest management model alternatives.

1. Introduction

The Work Package 4 (WP4), named *Implementation capacity*, is about facilitating effective and efficient transfer of knowledge created within ALTEROR project to the actors with the aim of increasing implementation capacity for adopting alternative forest management models.

The WP4 has formulated five deliverables within the project lifetime, out of which four are in the form of reports D4.1 – D4.4. and the fifth includes related scientific (or other) publications. Reports D4.1 – D4.4 are listed in the Table 1 and the description of each can be found in the document “Methodological blueprint for WP4 work on implementation capacity” (Milestone MS15).

Table 1: The WP4 Reports – Deliverables (D)

Reports	
Report on actors driving forest management models in selected European countries (March 2017)	D4.1
Report on supporting local and national networks for forest management model alternatives (March 2020)	D4.2
Report on supporting international networks for forest management model alternatives (March 2020)	D4.3
Road map for implementing innovative forest management models in Europe (July 2020)	D4.4

Regarding the current Report D4.2 (Table 1, gray), the WP4 expectation formulated in the project proposal (Task T4.4 of the proposal, p.44) was that specific forest management model (FMM) alternatives will be supported by different local and/or national actors and their networks. Related **task was to examine actors and their different capacity to elicit political support for enabling implementation of alternative FMMs**. Thus, the first question of this report will be focused on examining actors in particular CSAs and the second question will handle the capacity of these actors to support particular FMM alternatives. The capacity means actors with resources supporting particular FMM alternative. Their activities are used as an indicator for the capacity building. The leading questions of this report are formulated as following:

- Which actors could ALTERFOR inform in the respective CSA?
- Which actors could ALTERFOR engage in the respective CSA?
- What activities were triggered by ALTERFOR among actors in the respective CSA?

The theoretical model that was used as a base for answering these questions was the **RIU-Model** (Boecher and Krott 2014, 2016; Stevanov et al. 2013). The strength of the RIU Model is that it draws attention to all actors and their networks. Such a broad participatory approach goes beyond the conventional practice, enlarging the traditional forestry networks and crossing coalitions of interest. The actors and their different capacity to elicit political support to enable the implementation of FMM alternatives can be examined, which further enables estimation on which national and local actor networks support specific FMM alternative when it comes to the practical implementation.

The basis of this D4.2 report is data collected from nine ALTERFOR countries and their **ten case study** areas – CSAs (Table 2). These CSAs are selected to portray the broad variety of socio-economic and bio-geographical conditions characterizing European forests. Main information about each country, its respective CSA and actors driving forest management can be found in the already accomplished

report D4.1. (see above Table 1). Particular results from this D4.1 report, about actors' interests, conflicts and resources in each CSA, were also used as a source of information for this analysis.

Table 2: ALTERFOR countries and respective Case Study Areas (CSAs)

Nr.	Country	Case Study Area (CSA)
1	Germany	<i>Bavaria (West Augsburg) & Brandenburg (Lieberose/Schlaubetal)</i>
2	Ireland	<i>Barony of Moycullen (County Galway)</i>
3	Italy	<i>Veneto</i>
4	Lithuania	<i>Telšiai</i>
5	Netherlands	<i>Netherlands</i>
6	Portugal	<i>Vale de Sousa</i>
7	Slovakia	<i>Podpolanie</i>
8	Sweden	<i>Kronoberg County</i>
9	Turkey	<i>Gölcük</i>

The main empirical research method was **analysis of written documents** conducted by case researchers (researchers and respective organizations are listed at the beginning of this document) under the guidance of WP4 coordinators from UGOE. In order to keep the process unified the Stakeholder Workshop Guideline (→ Milestone 17) was developed by UGOE and distributed to WP4 members. Following these guidelines, the researchers from each CSA compiled document called Workshop documentation. This 20 structured Workshop documentations, prepared by native researchers right after two rounds of stakeholder workshops were held, were supplemented by the information presented and discussed in the ALTERFOR Padua meeting (April 2019) and the Dresden meeting (May 2019), focusing in detail on the particular (groups of) actors and the observed follow-up activities in each CSA. In addition, 16 **interviews** were held with the country experts. Additional valuable insights have been collected through **participatory observation**. This included observation of actors before and during the workshops. In Germany participatory observation took 7 days including three preparatory meetings and four workshops (one-day meetings and workshops). During this time, ALTERFOR team was in close contact with the AELF and MLUL, in formal as well informal situations, developing that way ever finer perception and understanding of their attitudes, motivations and actions.

In all 10 cases the workshop follow-up activities are examined as strong empirical hints for the actor's support of different FMM alternatives.

2. Which actors ALTERFOR was able to inform in particular CSAs?

ALTERFOR assumes that enhanced scientific knowledge on FMM alternatives will not automatically lead to its adoption in practice. So, the WP4 is about **facilitating the process of transferring information on modelling results** to the actors in particular CSAs and so enhancing implementation potential for FMM alternatives. According to the RIU-Model (Research-Integration-Utilisation), facilitating as such belongs to the Integration sphere (Boecher and Krott, 2014, 2016; Stevanov et al., 2013). Integration starts after research results are ready and selected research findings get transferred to the target actors (or groups of actors) in practice. That process can be organized through different modes. The mode selected the case of ALTERFOR project was stakeholder workshops (workshops onwards).

The workshops were planned as to present selected research findings about FMM alternatives resulting from the Work packages WP3 (landscape level FMMs) and WP1 (stand level FMMs) to the

actors, whereas the work of the Work package WP2 (European analysis and scenario modeling) was indirectly included in the presentations based on the WP2 input to the WP3 (→ Milestone MS17). In each CSA the modeling of FMM alternatives resulted in particular future projections and this information has then been transferred to the actors participating in the workshops (→ Milestones MS18, MS19). From September 2017 to December 2018 the native researchers, knowledgeable in respective case study areas and having a good access to the field and its actors, initiated two workshops per CSA. In total **20 workshops** took place (Table 3), involving 706 participants (Table 3). These **706 participants¹ were directly involved in workshops and were comprehensively informed about alternative FMMs** targeting their particular case study area.

Table 3: Dates and participant numbers of 20 ALTERFOR workshops: September 2017 to December 2018.

Table 3: Dates and participant numbers of 20 ALTERFOR workshops: September 2017 to December 2018.									
Country		Workshop 1			Workshop 2			TOTAL	
		Date	Participant nr.		Date	Participant nr.		Actors (workshop 1 +2)	ALTERFOR
			Actors	ALTERFOR		Actors	ALTERFOR		
1	Germany	18.10.2018	13	5	30.10.2018	10	5	80	20
		24.10.2018	12	5	15.11.2018	45	5		
2	Ireland	24.09.2018	7	4	25.09.2018	5	4	12	8
3	Italy	29.09.2017	47	6	21.04.2018	72	6	119	12
4	Lithuania	29.03.2018	36	4	15.11.2018 (05.12.2018)	175 24	4 4	235	12
5	Netherlands	05.07.2018	18	2	13.12.2018	5	3	23	5
6	Portugal	22- 23.11.2017	35	6	06.11.2018	28	9	63	15
7	Slovak Rep.	16.05.2018	30	5	25.10.2018	39	5	69	10
8	Sweden	08.05.2018	14	5	03.10.2018	10	6	24	11
9	Turkey	28.09.2018	28	7	13.12.2018	53	8	81	15
			240			466		706	

The strength of the RIU-Model is that it draws attention to all actors and their networks. For analytical purposes all workshops participants were grouped in ten categories 1-10 (Table 4), as applied in the Deliverable D4.1 compiled by Jürges et al. (2017). Actors division into groups relies on Schusser et al. (2014) theory-based definition² of an actor as any entity that has a distinct interest and the possibility of influencing policy or issues related to it. The following ten groups proved to fit to the most CSAs, whereas in some cases also additional grouping was required (e.g. sub-groups in Italian case):

- (1) general public administration, politicians (abbreviation: PA)
- (2) public forest administration & forest enterprises managing public forests - federal, state, municipality (FA),
- (3) private forest owners, private companies operating in forestry (FO);
- (4) nature and environment conservation administration (NCA),

¹ Number of participants is not to be mixed with the number of persons, as in some cases one person visited two workshops.

² This definition allows for different possibilities for what an actor can be, e.g., an individual person, or a composite actor, like a government institution. It associates the term "actor" strictly to a specific type of policy only if it is possible for the actor to influence it (Schusser et al., 2014).

- (5) other public/state forest-related organizations (e.g. water, research institute), except FA or NCA (OP),
 (6) timber processing industry, wood retailers (TI),
 (7) hunting associations (H-NGO);
 (8) outdoor recreation associations (R-NGO);
 (9) nature and environment conservation associations (NC-NGO);
 (10) other (O).

Table 4: Number of participants in ALTERFOR workshops per country and actor group.

Countries	Actor groups										ALTERFOR *
	General public administration	Public forest administration/management	Private forest owners, companies	Nature & environment protection administration	Other state/public organisations	Timber industry, wood retailers	Hunting associations	Outdoor recreation	Nature and environment protection associations	Other	
	PA	FA	FO	NCA	OP	TI	H-NGO	R-NGO	NC-NGO	O	
Germany (GER)	0	41	7	1	12	3	1	0	10	5	20
Ireland (IRL)	0	4	1	3	3	0	0	1	0	0	8
Italy (IT)	6	10	2	0	0	0	0	13	2	86	12
Lithuania (LT)	0	88	5	13	0	25	0	0	0	104	12
Netherlands (NL)	0	6	6	0	8	0	0	0	1	2	5
Portugal (PT)	0	9	26	0	1	13	0	0	7	7	15
Slovak Republic (SR)	0	15	3	23	0	0	0	0	0	28	10
Sweden (SWE)	0	5	8	3	0	6	0	0	0	2	11
Turkey (TR)	0	50	2	7	8	5	0	0	1	8	15
TOTAL:	6	228	60	50	32	52	1	14	21	242	108
	0.8%	32.3%	8.5%	7.1%	4.5%	7.4%	0.1%	1.9%	3%	34.2%	
	706 (100%)										108

*One separate group is ALTERFOR project participants, 108 in total. This number of participants is not to be mixed with the number of persons, e.g. in Germany there were five persons visiting four workshops, which makes 20 ALTERFOR participants together. **Legend:** PA – Public Administration; FA – Forest Administration; FO – Forest Owners; NCA – Nature Conservation Administration; OP – Other Public; TI – Timber Industry; NGO – Hunting (H), Recreation (R), Nature Conservation (NC) Associations; O – Other.

As one can see from the Table 4, **all actor groups were represented in ALTERFOR workshops**. The share of participants from the public forest administration and/or organizations managing federal/state/municipal forests in respective CSAs is amongst the highest (32.3%), which together with the private forest owners (8.5%) and timber industry (7.4%) makes nearly the half (48.2%). It means that specific actors being part of the forestry advocacy coalition attend the workshops individually

most frequently. Despite this individual dominance the forestry advocacy coalition is well balanced with other coalitions and individual actors overall. Within advocacy coalitions actors have shared beliefs and coordinated actions (Jenkins-Smith et al., 2014). ALTERFOR made division into two (major) advocacy coalitions - forestry and nature conservation/protection – by following the results of the Milestone M17 (as explained below).

Alternative workshops for different advocacy coalitions?

According to the RIU-Model, the selection of generated knowledge proceeds with regards to the target group(s). By following the Milestone M17, different target groups can be divided into two major advocacy coalitions: forestry and nature conservation/protection (Table 5). The option of organizing workshops for different advocacy coalitions separately is based on the assumption that the participants would keep their focus on the workshop content and not on the mutual conflicting aspects that would otherwise result in discussion based on empty formulas (→ Milestone MS17). Yet, workshops can also be organized for comprehensive audience (Table 5). On the examples of Germany, Ireland, Slovakia and Sweden we illustrate these different approaches within the ALTERFOR project, as being well documented in respective case-study reports. Summary is given in the Table 5, with concluding remarks afterwards.

Germany: The aim of the ALTERFOR workshops was to provide actors with the science-based information regarding provision of ES under implementation of different forest management projections calculated at the landscape level and over 100 years with the SILVA model for the CSAs in Bavaria and Brandenburg by the TU Munich. The two workshops in Bavaria were organized for separate target groups - nature protection and forestry actors (Table 5), including max. 20 participants per workshop. In Brandenburg the two workshops differed in their setting. The first (smaller) workshop was focused on discussing the model and calculated projections between scientists and forestry experts (focus on silvicultural alternatives and risks - forest fire management and firefighting), in order to improve the model. The second (bigger) workshop included a wide pallet of diverse forest-related participants, encompassing also a press-conference with the state secretary in charge of forestry. As together with the majority of forestry and wood-related participants also nature conservation actors were taking part, this workshop has been considered under the category “joint workshop” (Table 5).

Ireland: The workshop invitees were divided into two categories to closely match their interest in ecosystem services. This division was done to facilitate more meaningful and focused discussion on specific topics. The first workshop focused on biodiversity, water quality and recreation, the second focused on forest management, timber assortments, productivity, and carbon sequestration. The stakeholders were invited to the workshop corresponding to their main interest in ES: BIO for the biodiversity workshop and FM for the forest management workshop. In the cases of the partners Coillte, the Forest Service and forest researchers it was felt that their scope is so wide that they were invited to both workshops, with the option to attend one or both.

Slovakia: the two workshops held in Zvolen involved 30 and 39 participants respectively. The workshop participants varied from the forestry to nature and environmental conservation administration, industry and education. They were accordingly categorised as joint (Table 5). The focus of the first workshop was not only on presenting current models and IIASA scenarios but also on methodology being used to design alternative management models. In addition, the forestry related challenges were jointly discussed. In contrast, within second workshop were presented and discussed results on current and alternative models proposed by TUZVO team, which included also data collected during

the first workshop on preferences concerning ES and forest management models wanted in CSA Podpoľanie. Within the second workshop environmental conservation concepts and challenges were furthermore jointly discoursed.

Sweden: from the two Swedish workshops the first was focusing on nature conservation, addressing the County Administrative Board's ongoing work with green infrastructure in Kronoberg County, thereby providing knowledge and support that can help them in the practical implementation. The second event focused on issues related to wood production, more specifically on how the climate change mitigation capacity of the forests in the CSA can be increased by implementing measures to increase production. It was organized with the with the ALTERFOR non-academic partner SÖDRA.

Table 5: Examples of workshop organisation modes within ALTERFOR.

Country	Separate workshops for different advocacy coalitions		Joint workshop for all actors
	Forestry	Nature protection / conservation	
Germany	✓	✓	✓
Ireland	✓	✓	0
Slovak Republic	0	0	✓
Sweden	✓*	✓*	0

Legend: in Sweden several actors from Forestry coalition participated in the Nature protection workshop and vice versa.

Workshop documentations and remaining empirical evidence reveal that workshops for comprehensive audience of competing advocacy coalitions (examples of a bigger workshop in Brandenburg and two workshops in Slovak Republic) turned out to have simple information flow between scientists and participants. They produced inputs, which were to a huge part contradictory. A deeper discussion of what is comparable and why, did not emerge. Whereas workshops focusing mainly on one advocacy coalition (examples of Ireland, Sweden or three workshops in Germany) triggered deeper, more constructive discussion. Good example is a (smaller) workshop in Brandenburg, focusing on fire risks and prevention. It made not only several modelling deficits visible but also the ways of how to improve the model for both, science and practice. It is important to underline that actors who are part of a specific advocacy coalition may discuss and disagree strongly in details but in general they share a common trust as the case in Sweden shows. On the other hand, actors belonging to different advocacy coalitions typically mistrust each other and therefore use the discussion mainly strategically, to weaken other actors as the second larger forum in Brandenburg shows.

3. Which actors could ALTERFOR engage in particular CSA?

The ALTERFOR workshops aimed not only to inform actors about alternative FMMs but also to **engage actors in workshop preparation/organization**, enhancing that way the implementation potential for these FMM alternatives in practice. The RIU-Model assumes that the **right integration of powerful actors and their interests is necessary for achieving scientific knowledge transfer**³. When accordingly, Non-Academic actors are integrated through preparation/organization of workshops

³ It has been assumed that the transfer of scientific knowledge happens if scientific results became part of a decision and action of an actor in practice. This means, the actor selects specific scientific results and adds his interest-driven judgment to that, which together makes the basis for his/her action. It is the actor who gives normative orientation to the selected scientific result, science cannot provide this.

(selecting, inviting and hosting workshop participants), then this we recognize this as an indicator for their respective support in enabling the implementation of alternative FFM.

Relying on workshop documentations, actor's engagement into the aspects of agenda setting, hosting, selection and invitation of participating actors to the workshops is first country-wise described and then summarized in table forms (Tables 6 and 7). Actors involved into workshop preparation/organization are divided into Academic (A) and Non-Academic (N-A) actors (Table 6). Researchers involved in workshop organization as ALTERFOR project partners are considered under Academic (A) and the actors from practice as N-A. The role of the non-academic actors is in focus here. These N-A actors are further divided into two groups - the N-A ALTERFOR project partners (meaning those involved into the project activities from the project application), and the N-A allies (=actors from practice involved into the ALTERFOR project in the course of workshop preparation/organization). In the Table 6 engagement of both groups together is estimated in comparison with the engagement of the Academic partners (A). The Table 7 on the other hand is only about the N-A actors. In this context in some countries (e.g. Germany, Italy, Slovak Republic, Sweden) it is multiple N-A actors that became involved into ALTERFOR project whereas in others (e.g. Netherlands, Portugal) this was not the case. Table 7 summarizes information for countries involving multiple actors only, and shows estimates of the contribution of county's N-A actors to particular tasks relative to each other. For example, in Germany the GFS, AELF and MLUL was judged as having the same equal role in the aspects of agenda setting and workshop preparation/organization, whereas for stakeholder selection and invitation the AELF and MLUL had the same dominant role (Table 7).

Table 6: Engagement of **Academic (A)** and **Non-Academic (N-A)*** actors in ALTERFOR workshops.

Legend: (●) minor, (●) equal, (●) dominant, (X) no engagement.

Country		Workshop preparation/organization							
		Agenda setting		Organizing and hosting the event		Selection of stakeholders		Invitation of stakeholders	
		A	N-A	A	N-A	A	N-A	A	N-A
1	Germany	●	●	●	●	X	●	X	●
2	Ireland	●	X	●	X	●	X	●	X
3	Italy	●	●	●	●	●	●	X	●
4	Lithuania	●	●	●	●	●	●	●	●
5	Netherlands	●	●	●	●	●	●	●	●
6	Portugal	●	●	●	●	●	●	●	●
7	Slovak Republic	●	●	●	●	●	●	●	X
8	Sweden	●	●	●	●	●	●	●	●
9	Turkey	●	●	●	●	●	●	X	●

*Note: Under Non-Academic actors (N-A) it is here both categories together, ALTERFOR project partners and other actors from practice.

Germany: there were four workshops in total – two in Bavaria and two in Brandenburg (Table 3).

Bavaria: The two workshops in Bavaria took place at the 18. and 24.10.2018 (Table 3). They were prepared jointly by the researchers of the TUM (Technical University Munich, Chair of Forest Growth and Yield Science) and UGOE (University of Goettingen, Chair of Forest and Nature Conservation Policy) with the Non-Academic actors (N-A). From the N-A it is GFS (German Forest Society) which is ALTERFOR's N-A project partner (from the time of project application) and the Food, Agriculture and

Forestry Agency Augsburg (AELF), which is N-A actor from practice that became involved in the project through the workshops. After multiple distance communication (phone, Emails) taking part among all four, the two preparatory meetings followed in Augsburg (prior to workshops). Both, chiefs of GFS and the AELF were present at the first preparatory meeting, and the AELF chief at the second. The AELF is as a powerful actor from practice (→ D4.1) whose role was dominant in the selection/invitation of stakeholders (Table 7). In organisational matters GFS and AELF contributed in diverse aspects but their role was perceived as equal (Table 7). Agenda has been set jointly among researchers and N-A partners GFS and AELF, who contributed equally (Table 7).

Brandenburg: The two workshops in Brandenburg were held at the 30.10.2018 and 15.11.2018 (Table 3). The core-group in charge of workshop preparation was the same as in Bavaria, only the powerful ally from practice was in this case the Ministry of rural development, environment and agriculture of the state Brandenburg (MLUL). The core-group had multiple distance communication (telephone, e-mail) prior to the two preparatory meetings - one in Potsdam and one was held in a form of a telephone-conference. Dates and location of the workshop, the workshop formats, the draft title, the draft agenda so as targeted participants were jointly defined (Table 7). The MLUL was in charge of selecting and inviting stakeholders (through invitation letter in the case of the first (smaller) workshop, whereas the second (bigger) workshop was bound to the announcement of the MLUL's press-office and required registration). In the second case the MLUL press-department distributed the workshop announcement to the network of its forest-related stakeholders (including hunting, nature protection) so as media representatives (e.g. local/regional newspapers).

Ireland: Workshops took place at the 24.09.2018 and 25.09.2018 (Table 3) at the Creggan Court Hotel in Athlone (County Westmeath). The dates were jointly decided upon the availability of researchers and key workshop actors (who participated in the Travellab panel). Prior to workshops, organizational aspects were defined through e-mails and coffee-meetings between the Irish ALTERFOR team. Coillte was well-informed about the workshop planning, but not involved in organising the workshop and preparing the presentation. Irish organisation team decided not to make it a "Coillte Workshop" to avoid stakeholders to think the workshop is focused on how many ecosystem services does Coillte forests produce. Researchers from the University College Dublin (UCD) decided that the workshop should include presentations of the CSA, forest management models (FMM), what the global projections contain, how the ecosystem services are measured, and the main focus of the workshop would be on presenting results from the model runs using current and alternative FMMs, followed by a discussion about what ES the stakeholders envision seeing more from in the future.

Italy: The two Italian workshops took place at the 29.09.2017. and the 21.04.2018 (Table 3). The first workshop was held in parallel with the Forest Stewardship Council® (FSC®) Friday. It was prepared and organised in partnership of TESAF researchers (University of Padua, department of Land, Environment, Agriculture and Forests) and the Non-Academic (N-A) actors. These actors were the N-A project partner Etifor, the Lowland Forest Association (AFP), the FSC Italy and the companies E-ON Energy and Azzeroco⁴, all N-A allies from practice that ALTERFOR could involve in the course of workshops. The second workshop was organised in combination with a bigger event as well (Olmè forest celebration- four days for discovering and living the symbol of Cessalto - *Bosco Olmè in festa- Quattro giorni per celebrare, vivere e scoprire il simbolo di Cessalto*), and as a partnership of TESAF

⁴ <https://www.azzeroco2.it>

researchers with the N-A actors Etifor, AFP and the Municipality of Cessalto (Treviso). In both workshops, ALTERFOR's N-A partner Etifor contributed not only to the creation of contacts with the mentioned N-A actors from practice, by approaching them via e-mail and phone calls, but also taking over a dominant role also around other workshop aspects through administrative and communication staff (Table 6). Agenda was set jointly (Table 6) and the AFP and Municipality were the local hosts. The mutual role of multiple Italian N-A actors was estimated in the Table 7, having Etifor as dominant in selection and invitation of participants, whereas agenda and organisation were more-less shared responsibilities.

Lithuania: The workshops were held at the 29.03.2018 so as 15.11.2018 + 05.12.2018 (Table 3). The activities of both workshop were defined through e-mails, phone calls and personal meetings between the researchers of ASU (Aleksandras Stulginskis University) and the ALTERFOR's N-A partner LVMI (State Forest Inventory and Management Planning Institute). In the course of reforms, the LVMI was merged with the 42 forest management enterprises into one big Lithuanian State Forest Enterprise (SFE). Both, researchers and LVMI agreed to organise two big workshops, structuring the agenda in two parts: a conference plus a round table discussion with stakeholders (for the first workshop) and the more general forest-related public event combined with the forest-specific annual conference of ASU's Institute of Forest Management and Wood Science (for the second workshop). A list of stakeholders to be contacted for the first event was defined based on contacts provided by LVMI. All invited stakeholders got the e-mails with the invitation, signed by the head of LVMI, and the preliminary seminar program. The event took place at the venue provided by the LVMI in Kaunas. The second workshop took place in two locations - the first location was the conference hall in one of the ASU buildings (suburbs of Kaunas) and the second was the SFE's Radviliškis branch office. The first part of the workshop was planned for wider participation (including for example forestry students, environmental NGOs, state authorities, forest owner associations), so invitations were sent through different channels. The second part (with the seminar, followed by the round-table discussion) was dominated by the actors from different regional branches of Lithuanian SFE so that invitations were sent internally.

Netherlands: The workshops were organized at the 05.07.2018 and 13.12.2018 (Table 3). The first event was organised in cooperation of researchers of the Wageningen University & Research - WUR (Wageningen Environmental Research Institute WENR - research group working on the Forest Reference Level project and Forest and Nature Conservation Policy group FNP), and the Ministry of Agriculture, Nature and Food Quality (commissioner of the Forest Reference Level Project). The second workshop was a targeted expert event and thus made of Wageningen researchers only (WUR). A list of stakeholders to be contacted for the first workshop was defined based on the Dutch professional networks provided by FNP, WENR and the Ministry. Stakeholders were reached via e-mail, signed by the representatives of all three institutions. The preliminary program and contents for the workshop were defined during a meeting between FNP and WENR staff, and finalised after the Ministry confirmed. Second workshop was of a very small format and included only researchers so that agenda and invitations were structured internally (in the below table these two aspects were not weighted by the judgment). Both workshops were held at the Wageningen University campus and the researchers were taking main role in organisational aspects.

Portugal: The two workshops took place at the 22-23.11.2017 and the 06.11.2018 (Table 3). The researchers of ALTERFOR's academic partner CEF/ISA/UL (Forest Research Center, School of Agriculture, University of Lisboa) and the N-A partner AFVS (Forest Owners Association - *Associação Florestal do Vale do Sousa*) cooperated in both workshops. AFVS contributed to the venue organization while establishing a partnership with a third-party Institution UCP (Portuguese Catholic University - *Universidade Católica Portuguesa*, Porto), where the workshops were held. AFVS also participated in the joint selection of stakeholder participants. The initial list of stakeholders was developed based on the list used by the ALTERFOR actor analysis (see D 4.1) and extended for additional stakeholders. All potential participants were invited by email two months before workshops and whenever pertinent a direct phone call was made in the following weeks. The final Workshop programme was sent one month before the workshop due date by ALTERFOR's academic partner.

Slovak Republic: two Slovakian workshops were organized on 16.05.2018 and 25.10.2018 (Table 3). The TUZVO researcher team (Technical University Zvolen) cooperated with the powerful actor – state owned forest enterprise *Lesy of Slovak Republic* (Lesy SR) in the course of preparing the first event and with the *Protected Landscape Area – Biosphere Reserve Poľana* (PLA – BR Poľana) for organizing the second workshop. The reason behind this distribution was due to special focus of the first workshop – more on forestry related problems, challenges and actors, while the special focus of the second workshop was placed next to forestry on nature and environmental matters, conflicts and actors. In the Slovak case there was no officially appointed N-A partner by ALTERFOR involved in the project, but Lesy SR and PLA – BR Poľana became allies in the course of workshop preparation and organisation. Both allies were consulted about the workshop topic and agenda in addition to who to invite and who should be the speaker. All potential participants were invited via emails/mail, which were followed up by additional phone calls. The final workshop programme was sent with the invitation via email or mail by the research team of TUZVO. The whole TUZVO researcher team and one person from Lesy SR and PLA – BR Poľana respectively, were involved in the organization and implementation of the workshops. When mutually compared, the role of Lesy SR and PLA – BR Poľana did not differ in none of the workshop aspects presented in Table 7.

Sweden: Two workshops were held at the 08.05.2018 and 05.10.2018 (Table 3). The ALTERFOR's academic partner and project coordinator SLU (Swedish University of Agricultural Sciences) was tightly cooperating with the County Administrative Board - CAB Kronoberg (project leader for green infrastructure) regarding the first event and with ALTERFOR's N-A partner SÖDRA (forest owner association in southern Sweden) regarding the second workshop. The agenda settings for both workshops were joint effort of academic (ALTERFOR researchers), but non-academic actors CAB and SÖDRA played a dominant role. The same holds also for the aspects of organizing and hosting the workshops, selecting and inviting actors to participate (Table 6). SÖDRA has been identified as the most powerful actor in forest management within the Swedish CSA (→ Deliverable D4.1), and has been involved in the project from the very beginning. The Swedish ALTERFOR team also succeeded in involving another strong ally CAB Kronoberg. The mutual role of these two Non-Academic actors was estimated as the same, with regards to all four workshop aspects (Table 7).

Turkey: The Turkish workshops were organized at the 28.09.2018 and 13.12.2018 (Table 3). They had similar formats and so workshop preparation as well: the researchers of the academic partner Karadeniz Technical University (KTU) were cooperating with the N-A partner General Directorate of Forestry - OGM. OGM's contribution extended from the venue organization (in the city of Kocaeli at

Emex Hotel and in the city of Ankara at OGM's main campus) to the selection of stakeholder participants. The focus was on covering a broad range of stakeholders interested in Gölcük forests and a list of stakeholders to invite was developed based on the institutions and key stakeholders determined by ALTERFOR actor analysis (→ Deliverable D4.1). Whereas the first workshop concentrated on the local stakeholders (project introduction and actor analysis followed by the policy and development of alternative forest management pathways based on the current implementation), the second covered a broad range of national level stakeholders interested in the management, planning and intervention (introduction, development and implementation of DSS through scenario analysis, including the global projections, with management options focusing on the ALTERFOR ES). The ALTERFOR researcher team and the OGM developed agenda jointly. It was sent out to the potential participants by e-mail and post by the OGM, who organized all related correspondence (to confirm the potential participants, additional direct phone calls were made before workshops).

Table 7: Role of country's multiple* **Non-Academic** (N-A) actors around workshop preparation/organization. Legend: (●) minor, (●●) equal, (●●●) dominant, (X) no engagement.

Country, N-A actors	Workshop aspects			
	Agenda setting	Organizing/hosting the event	Selection of stakeholders	Invitation of stakeholders
1 Germany				
GFS (project partner)	●	●	X	X
AELF (ally)	●	●	●●	●●
MLUL (ally)	●	●	●●	●●
3 Italy				
Etifor (project partner)	●	●	●●	●●
AFP (ally)	●	●	●	X
FSC, E-ON, Azzero CO ₂ (allies)	●	●	●	X
6 Slovak Republic				
Lesy SR (ally)	●	●	●	X
PLA-BR Poľana (ally)	●	●	●	X
8 Sweden				
CAB Kronoberg (ally)	●	●	●	●
SÖDRA (project partner)	●	●	●	●

*Multiple – more than one Non-Academic actor involved into workshop preparation/organization. As not in all countries this was the case the table contains only those countries where multiple actors were involved. Estimation is made as a contribution of country's N-A actors to the particular task, relative to each other (e.g. ●● means that two actors had more-less equal role regarding aspect in question) and based on available empirical material (workshop documentations, short interviews, part. observation).

In conclusion, ALTERFOR was able to engage all N-A project partners into the preparation/organization of workshops. In addition, some N-A allies, identified as powerful actors (→ Deliverable D4.1) became involved (e.g. AELF and MLUL in Germany). Involvement of all these N-A actors ranged from minor to dominant (Table 6), depending on the workshop aspect in question. Nevertheless, all cases indicated actor's support in enabling the implementation of alternative FFMs.

4. Activities triggered by ALTERFOR in particular CSAs

The third question of this report (formulated in the introductory part) is about the capacity of participating actors to support particular FMM alternatives (capacity means actors with resources supporting particular FMM alternative). Due to the limiting factor of available project time, it is workshop follow-up activities that are observed as proxy for the respective capacity building.

Table 8: Workshop follow-up activities (✓) per actor group and country

Countries	Actor group										ALTERFOR researchers
	General public administration	Public forest administr./manag.	Private forest owners, company	Nature&environm. protection ad-ministr.	Other public/state organisations	Timber industry wood retailers	Hunting associations	Outdoor recreation	Nature/envir. protection associat.	Other	
	PA	FA	FO	NCA	OP	TI	H-NGO	R-NGO	NC-NGO	O	
Germany (GER)		✓			✓				✓		✓
Ireland (IRL)		✓		✓							
Italy (IT)		✓	✓					✓	✓	✓	
Lithuania (LT)		✓	✓	✓		✓					
Netherlands (NL)		✓	✓		✓					✓	✓
Portugal (PT)		✓	✓		✓	✓					
Slovak Republic (SR)		✓	✓	✓						✓	✓
Sweden (SWE)		✓	✓	✓							✓
Turkey (TR)		✓	✓							✓	

Sources: ALTERFOR workshop documentations from SCAs & ALTERFOR meetings Padua, Dresden.

Table 8 displays the existence of follow-up activities by actor group and country, and Table 9 presents the same activities in detail, per type and with country examples. Sources of this information were mainly presentations given by the country representatives in the ALTERFOR Padua and Dresden meetings but also important insights were gathered through conversations with these country experts (short interviews).

As one can see in Table 8, in all nine countries the follow-up activities are identified by the public forest administration/management actors, and in seven countries by private forest owners / companies (Table 8). When also timber processing is taken into account (Lithuania, Portugal) then one can conclude that the majority of the workshop follow-up activities were undertaken by actor groups from the forestry advocacy coalition (Table 8). In some countries ALTERFOR researchers will or are using the country-based, workshop-related information for publishing. This and other types of activities are presented in detail in Table 9 and the remaining part of this chapter.

Whereas the Table 8 provided augmented information in the Table 9 it is the same follow-up activities presented in detail, per type and country example. As one can see, it is in total **16 types** of activities and **38 particular actions** undertaken after the workshops in the nine ALTERFOR countries.

Table 9: Examples of ALTERFOR follow-up activities

Nr.	Type of follow-up activity	Country examples	
1.	Delivering strategic options for action to the actors in the field	Via Bavarian State Forest Agency (AELF, Augsburg) / Ministry in charge of forestry (MLUL, Brandenburg).	GER
		Guidelines on FM and cultural ecosystem services (silviculture, normative framework, business models), dissemination (video, news...)	ITA
		Via ICNF (State Forest Authority) and AFVS regarding information about alternative FMM.	PT
		General Directorate of Forestry will take action to disseminate ALTERFOR approach to its departments, enterprises, or planning units	TR
2.	National web page	Web page hosted by Technical University in Zvolen: planned demo-sites, maps, photo documentation, written descriptions, graphs, tables, guidelines for implementation, discussion section (inspired by Pro-Silva), educational videos.	SR
3.	Writing joint article or book	Professional article addressing owners and managers specifically, and others interested in forest management, related with the ES provision	NL
		More detailed actor analysis will be published in national language book "Actors and their power and influence on forest management – empirical evidence and experiences from Podpopanie"	SR
		Publications in national scientific/professional journals planned, contributions on conferences, etc.	SR
		Plan to write a paper with involvement from the SFA/Helgeå model forest: "Futures of Helgeå Catchment Area – a comparison of four foresight projects"	SWE
4.	Demonstration site / FM guidelines	Field: Gymnasium Diedorf (Augsburg, Bavaria) - local network for environmental education will include adapted ALTERFOR projections into existing activities; TUM sample plots (Augsburg, Bavaria).	GER
		Field: Coillte and National Parks and Wildlife Services implemented most of the aFMMs in a special project, their practical knowledge is valuable to ensure successful implementation elsewhere.	IRL
		Virtual: creation of a virtual platform for the demonstration of FMM projection outcomes in time on the landscape level.	LIT
		Together with Wageningen Environmental Research Institute, addressing owners and managers	NL
		AFVS will check with Navigator, Floresta Atlântica, Junta of Sebolido the possibility of installing demo-sites for aFMMs	PT
		Field: possible collaboration with state owned enterprise Lesy SR.	SR
		Virtual: forest stands visualized in facility of virtual cave at TUZVO.	SR
		Field: in collaboration with Södra, ongoing	SWE
		Field: Gölcük state forest enterprise and Sakarya regional forestry directorate will adapt ALTERFOR-projections into already existing activities.	TR

Table 9 (continued)

Nr.	Type of follow-up activity	Country examples	
5.	Further follow-up discussing of particular ALTERFOR scenarios with the practice / model improvement	Inputs from forest stakeholders experienced in fire risk prevention and firefighting towards improved ALTERFOR projections (Brandenburg).	GER
		Coillte provided new reforestation costs and recommendations on how to improve model accuracy by using different productivity.	IRL
		Trying to use the current changes and fluctuations in Lithuanian forest policy to present the research results and apply them in practice.	LIT
		Inputs from forest stakeholders experienced in biodiversity and non-wood forest products towards improved ALTERFOR projections.	TR
6.	Further cooperation of ALTERFOR with regional/other research	Regional: with the exiting research of the Forest research center on forest risk management (Brandenburg).	GER
		BIOECOSYS, MODFIRE, NOBEL projects: update of inventory (more area burned, further classification of forest owners, auctioning platform to get payments for non-market services, new landscape-level FMM to address wildfire risk).	PT
		With the exiting research of Forest research center on forest modelling.	TR
7-	Applied and collaborative research and innovation actions	Involving multiple actors (mediated/inspired by the N-A partner Etifor).	ITA
8.	Follow-up events	Present main ALTERFOR outcomes/results to AFP & other actors.	ITA
		Final national workshop (cca.05/2020): present project results to actors.	SR
9.	Serving specific information needs of actors	Providing particular stakeholders (CAB Kronoberg) with more detailed results (tree species composition in the border zones)	SWE
		With the idea of particular target group(s), but no their request, as a basis for providing more detailed and especially robust results.	NL
10.	Linking with national policy windows	Contacts with CAB to try to stay onboard on green infrastructure. A bit difficult, as the former project leaders future at the CAB is uncertain	SWE
11.	Further development of research activities	No particular stakeholder request/site or area, but researcher develop further activities with idea of target group(s), as a basis for providing actors from this target group(s) with more detailed or robust results.	NL
12.	Use of the aFFM projections, developed within the ALTERFOR project, for national cases	The Dutch case: interest from the Ministry of Agriculture, Nature and Food Quality	NL
13.	Further develop forest policy to allow aFMM implementation in the field	After the workshops the Forest Service became more open for the aFMMs.	IRL
14.	Further cooperation of ALTERFOR with regional market actors	Update of market prices and costs to compute NPVs associated with alternative landscape-level FMMs	PT

Table 9 (continued)

Nr.	Type of follow-up activity	Country examples	
15.	Triggering resistance	Resistance of recognized conservationist, further steps can be expected (Brandenburg).	GER
		Resistance by the bureaucrats - strong traditions and habits limit the opportunities to introduce new practices	LIT
16.	National sites for implementation	NPWS have found sites with natural regenerating native species: mapping these areas would be useful to increase native species share in area and increase knowledge of natural regeneration on peatlands.	IRL

Sources: ALTERFOR workshop documentations from SCAs; ALTERFOR meetings Padua, Dresden.

Facilitating political steering by follow-up activities

ALTERFOR aims to facilitate implementation of FMMs. The key to implementation are the political means, i.e. instruments, which push the practice toward actions in the forest (Krott, 2005). There are three types of instruments: informational, economic and regulatory instruments. All three can either be used in hierarchal intervention (=government) or in a non-hierarchical negotiation (=governance), which together results in the six types of instruments (❶ - ❾) for political steering (Table 10). A key of the political steering by ALTERFOR is governance processes because the project is strongly based on stakeholder involvement. Nevertheless, national forest policies are mainly driven by hierarchical steering (Krott 2008, p.15), with government still playing a very strong role (Giessen et al, 2016; Stevanov et al., 2018). It is therefore both, governance and government, that are considered in combination with the instruments, resulting in a Table 10. In this table all 16⁵ types of ALTERFOR follow-up activities (listed in the above Table 9) are assigned to their respective instrument group: in the left part of the Table 10 are instruments related to governance and in the right part of the table instruments related to government (Table 10).

As one can see from the table 10, majority of activities belong to the informational instruments, followed by regulatory and economic ones. Within the informational instrument type, it is 10 activities under governance (❶) and 3 under government steering (❷). As the steering compulsoriness increases from ❶ to ❾ (by following definition of Krott 2005, compulsoriness is increasing from informational governance to regulatory government instruments), one can conclude that the most follow-up activities belong to the non-compulsory informational instruments (Table 10).

⁵ Triggering resistance is considered as one type of follow-up activity (see below footnote for the explanation of Resistance). Depending on the actors involved, being public or NGOs for example, it may however be assigned either to the hierarchical or non-hierarchical steering (Table 10).

Table 10: Facilitating political steering by ALTERFOR's follow-up activities.

	Political steering	
	Governance (non-hierarchical negotiation)	Government (hierarchical intervention)
Dominant information	Informational instruments	
	① *Delivering strategic options for action *Demonstration site / FM guideline *Follow-up discussion with practice / model improv. *Writing joint article / book *Further cooperation with regional / other research *Ongoing/future applied, collaborative research *Follow-up events *Serving specific information needs of actors *Linking with national policy windows *Triggering resistance (NGOs)	② *Further development of research activities *Use of aFFM projections for national cases *National web page
Economics res.	Economic instruments	
	③ *Further develop forest policy to allow aFFM implementation (subsidies) *Further cooperation with regional market actors	④ /
Coercion	Regulatory instruments	
	⑤ *Further develop forest policy to allow aFFM implementation (deregulation) ⁶	⑥ *Triggering resistance (public actors) *National sites for implementation

Sources: Krott, 2005 and Krott, 2008 (modified); ALTERFOR CSA workshop documentations, Dresden and Padua meetings.

Whereas Table 10 assigns the ALTERFOR follow-up activities into the six groups of political steering instruments, the next Table 11 specifies these activities by adding respective actors. These actors are grouped into public forest administration and management, private forest owners, etc., as explained in Chapter 2 and above Tables 4 and 8.

⁶ Opening for more options has an impact on regulation, also in terms of deregulation.

Table 11: Groups of actors and political steering instruments within ALTERFOR.

	Political steering			
	Group of actors	Governance	Government	Group of actors
Dominant information	Informational instruments			
	Public forest admin./ manag. (GER, ITA, PT, TR); Recreation, Nature cons. association, Other (ITA)	① *Delivering strategic options for action	② *Further development of research activities	Uni-researchers targeting private forest owners, Other public actors, Other actors (NL)
	Public forest admin. /manag. (IRL, LIT, NL, SR, TR), Private forest owners (LIT, NL, PT, SWE), Timber ind. (LIT), nature cons. admin. (IRL, LIT), Nature cons. association (GER), Other public actors (GER, NL), Other (NL)	*Demonstration site / FM guideline	*Use of aFFM projections for national cases	Public forest administration (NL)
	Public forest admin./manag. (GER, IRL, LIT), Private forest owners (LIT, TR), Other (TR)	*Follow-up discussion / model improvement	*National web page	Other actors – state university (SR)
	Research with public forest admin/manag., private forest owners, others (NL, SR, SWE)	*Writing joint article / book		
	Private forest owners (TR), Other public actors (GER, PT), Other actors (TR)	*Further cooperation with regional/ other research		
	All actor groups (ITA)	*Ongoing/future applied, collaborative research/ innovation		
	Public forest adm./manag. (ITA, SR), Private forest owners (ITA, SR), Nature conserv. admin. (SR), Other actors (ITA, SR)	*Follow-up events		
	Nature cons. administration (SWE)	*Serving actors' specific information needs		
	Nature cons. administration (SWE)	*Linking with national policy windows		
	Nature cons. association (GER)	*Triggering resistance		

Table 11 (continued)

	Political steering			
	Group of actors	Governance	Government	Group of actors
Economics resources	Economic instruments			
	Public forest administration (IRL)	③ *Further develop forest policy to allow aFFM implementation	④ /	/
	Private forest owners, Timber processing (PT)	*Further cooperation with regional market actors		
Coercion	Regulatory instruments			
	Public forest administration (IRL)	⑤ *Further develop forest policy to allow aFFM implementation	⑥ *Triggering re-sistance *National sites for implementation	Public forest admin. / manag. (LIT), Nature cons. administration (IRL)

Sources: Krott, 2005 and Krott, 2008 (modified); ALTERFOR CSA workshop documentations; ALTERFOR meetings Padua, Dresden.

Whereas in the Table 11 parallel to instruments all actor groups were introduced separately, the Table 12 summarizes these groups of actors either per country (e.g. within the non-hierarchical governance the ALTERFOR project facilitated informational steering with regard to the nature conservation administrations of Ireland, Lithuania, Slovak republic and Sweden) or the total number of cases, e.g. in all ten cases the Forest administration and management organizations forest administration were engaged into non-hierarchical governance by the means of informational steering.

Table 12: Groups of actors and follow-up activities within governance and government steering.

Group of actors (number of cases)	Political steering		Group of actors
	Governance (non-hierarchical negotiation)	Government (hierarchical intervention)	
FA (10), FO (8), OP (7), NCA (4), O (4), NC-NGO (2), R-NGO (1), TI (1)	Informational instruments		OP (2), FA (1)
	① *Delivering strategic options for action *Demonstration site / FM guideline *Follow-up discussions / model improv. *Joint article / book *Cooperation with regional / other research *Future applied, collaborative research *Follow-up events *Serving specific information needs of actors *Linking with national policy windows *Triggering resistance	② *Further develop research activities *Use of aFFM projections for national cases *National web page	
FA (1), FO (1)	Economic instruments		/
	③ *Develop forest policy to allow aFFM impl. *Cooperation with regional market actors	④ /	
FA (1)	Regulatory instruments		FA (1) NCA (1)
	⑤ *Develop forest policy to allow aFFM impl.	⑥ *Triggering resistance *National sites for implementation	

Sources: Krott, 2005&Krott, 2008 (modified) & ALTERFOR CSA workshop documentations & ALTERFOR meetings Padua, Dresden. **Legend:** FA – Forest Administration; FO – Forest Owner associations; NCA – Nature Conservation Administration; TI – Timber Industry; OP – Other (specialised) Public Organisations; NGO – Nature Conservation (NC), Hunting (H), Recreation(R) Associations; O – Other

5 Conclusions: local and national capacity building for FMM alternatives

The main goal of ALTERFOR workshops was to **facilitate capacity building for FMM alternatives**. Based on the RIU-Model the multiple stakeholder involvement should: (i) draw attention to a broad range of actors, (ii) evaluate their different capacity to elicit political support and (iii) link them with support for specific FFM alternatives.

Drawing attention to a broad range of actors

As shown in Table 4, in total 706 private and public participants were informed of and partly engaged in ALTERFOR results and activities. Despite the focus within the group of public actors was in forestry administration the workshop participation spread over general administration and nature conservation administration as well. In regard of private actors, the range was even larger, comprising hunting associations, outdoor recreation associations, students and young researchers (students included under Other, Table 4), even though the focus was on forest owners and timber industry.

The participation triggered pure (one-way) information activities as well as engagement in preparing and organizing the workshops. By this RIU-based strategy, the one-way informing (dominated by researchers of ALTERFOR project) was turned into a bi-directional organization. Table 5 proves that the non-academic partners were even more active than academic researchers in agenda setting, organizing and hosting workshops and in selecting and inviting stakeholders.

Overall, in the cases of Germany, Turkey, Italy and Portugal the broader sets of actors could be successfully involved, covering more than half of all types of actors groups (Table 4).

Evaluating stakeholder capacity to elicit political support

The capacity of specific actors to elicit political support was evaluated by their set of political steering instruments. The discrimination into informational, economic and regulatory instruments showed important trends in knowledge transfer and facilitating political support. Further, we discriminated between the use of these instruments within the non-hierarchical governance or hierarchical government context (Tables 10-12).

Even one might say that the ALTERFOR project was able to facilitate nearly all types of political instruments (Table 10), the majority of genuine effects occurred within the informational instruments. This is not surprising, since the main source of ALTERFOR is scientific-based information about FMM alternatives. E.g. this information triggered strategic solutions for action in the field, demonstration sites, follow-up events, solutions for specific needs of actors or follow-up discussion with practice. Even some of those were (roughly) predefined by the project (e.g. demonstration sites) mutual interactions between scientists and actors facilitated innovative ideas for putting forward instrument design and real-world action. In two cases ALTERFOR was able to utilise policy windows in national discourses, namely green infrastructure in Sweden and fire disaster in Brandenburg, Germany.

In order to design and implement regulatory instruments however not only innovative scientific proposal is needed but also an actor who is willing to put his power and instruments behind the idea. Triggering such action is much more challenging. In addition, we consider effects of ALTERFOR on national research as informational instruments. This could be either cooperation of ALTERFOR with national researchers in a governance mode or specific national research projects. These projects enable national actors to decide on contents in a hierarchical manner and are therefore considered as government informational instruments. Starting a national web page, like in Slovakia (Table 11) is also a very important informational government instrument, because the national university decides about the content.

ALTERFOR even facilitated a very few economic and coercive instruments (Tables 10 and 11). The major opportunity to do so was a policy window in Ireland, existing within the general forest policy setting. The major actor is state forest service. Another option was further cooperation with regional market actors in Portugal. Both effects are based on non-hierarchical negotiations, meaning a governance mode (Tables 10 and 11). Open policy windows offer multiple opportunities for scientific knowledge transfer (Boecher, Krott 2016) but the opening of a policy window goes far beyond scientific opportunities.

A very important hierarchical instrument is “triggering resistance”⁷ (Table 10), by the example of state forest administration in Lithuania (Table 11). In this country the state forest administration is not willing to accept innovative solutions by ALTERFOR FMM alternatives. Keeping the old binding regulations and doing nothing is considered as a hierarchical regulatory instrument. It means national forest government is actively denying scientific solutions. This resistance was disappointing for ALTERFOR researchers but should be considered as a first push for maybe innovative policy reforms in the future. In this manner, it is more effective to trigger active resistance than to create harmonic and peaceful non-reactions of political actors. Resistance was also triggered by the conservationist in Brandenburg (Germany) and while the activity is assigned to the nature conservation association (NC-NGO, Table 11) this follow-up action has been considered under non-hierarchical negotiation (Tables 11 and 12).

Linking actors with support for specific FFM alternatives

The FMM alternatives address the diverse interests of many actors. Most important for forestry in Europe are the conflicts of interests between the two advocacy coalitions – on the one side forestry and on the other side nature conservation (Deliverable D4.1). In all cases some FMM alternatives fit very well into the forestry advocacy coalition, focusing on effective timber production within sustainable forest management. In addition, FMM alternatives were designed to also put more weight on biodiversity for example, addressing the nature conservation coalition directly. As shown in Table 5, in Germany, Ireland and Sweden separate workshops for different advocacy coalitions were organized. They offer option for the actors to select innovative science-based silvicultural solutions that serve their specific interests in forestry or in nature conservation. Based on RIU, offering options for such selection increases the relevance of science-based solutions for specific actor settings. This advantage was proven in the workshops mentioned above, where the participants draw the attention to scientific results because these results were selected in regard to their specific interests. This selection does not mean manipulating scientific results.

It is a specific strength of the ALTERFOR project that it is based on advanced silvicultural models, which results in different projections of ES provision at the landscape and higher scales, serving different interests in forestry and nature conservation. This flexibility increases the relevance for practice substantially.

Summing up, ALTERFOR facilitated a broad set of different steering instruments which are used by specific actors and actor networks. These results recommend that an analysis of general networks on local or national level (as done in Deliverable D4.1) provides a first orientation only. To approach the implementation process more closely it is useful to look into the instruments of political steering and the driving actors (respective their networks) in detail. E.g. in Slovakia the university (=actor) is creating a webpage deciding on the content by its own (=informational hierarchical instrument). In Ireland, the National Parks and Wildlife Services (=actor) found implementation sites according to the one ALTERFOR projection (=regulatory hierarchical instruments). This means, implementation of

⁷ Resistance means that the actor selects scientific result but after adding his interest-driven judgment he/she decides to continue acting as always. E.g. in Augsburg (Germany) the science provided information that 30% more sustainable harvesting would be possible during the next 100 years but the actor (state forest service) still prefers less but continuous harvests. It is while more dynamic harvesting of more volume (and income) would interfere too much with the existing bureaucratic routine.

ALTERFOR solutions will neither happen within general networks nor within forestry or nature conservation advocacy coalition. Instead, implementation needs specific steering instruments driven by specific actor networks embedded in the different national and local advocacy coalitions.

References

ALTERFOR Milestone MS17 „Stakeholder Workshop Guideline: linking FMMS with users in CSAs”.

ALTERFOR Workshop documentations, 2018 (project internal).

Böcher M, Krott M (2014). The RIU model as an analytical framework for scientific knowledge transfer: the case of the “decision support system forest and climate change”. *Biodiversity Conservation* 23, 3641-3656.

Böcher M, Krott M (2016). Science makes the world go round. Successful scientific knowledge transfer for the environment. Springer, Cham (Switzerland).

Giessen L, Burns S, Sahide MAK, Wibowo A (2016). From governance to government: The strengthened role of state bureaucracies in forest and agricultural certification. *Policy and Society*, 35(1): 71-89.

Jenkins-Smith, HC, Nohrstedt, D., Weible C, Sabatier P (2014). The Advocacy Coalition Framework: Foundations, Evolution, and Ongoing Research. In Sabatier, Weible (eds). *Theories of the Policy Process* (eds). Westview Press, 183-223.

Jürges et al. (2017) ALTERFOR Deliverable D4.1 “Report on actors driving forest management models in selected European countries”. URL: <https://alterfor-project.eu/deliverables-and-milestones.html>

Krott M (2005). *Forest Policy Analysis*. Springer.

Krott M (2008) Forest government and forest governance within a Europe in change. In: Cesaro, Gatto, Petenela (eds.) *The Multifunctional Role of Forests – Policies, Methods and Case Studies*, EFI Proceedings 55: 13-26.

Schusser, C., Krott, M., Yufanyi Movuh, M.C., Logmani, J., Devkota, R.R., Maryudi, A., Salla, M., (2014) Comparing Community Forestry Actors in Cameroon, Indonesia, Namibia, Nepal and Germany. *Forest Policy and Economics* 68: 81-87.

Stevanov M, Böcher M, Krott M, Krajter S, Vuletic D, Orlovic S (2013). The Research, Integration and Utilization (RIU) model as an analytical framework for the professionalization of departmental research organizations: Case studies of publicly funded forest research institutes in Serbia and Croatia. *Forest Policy and Economics* 37, 20-28.

Stevanov M, Krott M, Curman M, Krajter Ostoic S, Stojanovski V (2018). The (new) role of state forest institutions in Western Balkans. *Canadian Journal of Forest Research* 48(8): 898-912.