sincere

Innovating for Forest Ecosystem Services

Spurring INnovations for forest eCosystem sERvices in Europe

Project no. 773702

Start date of project: 1 January 2018

Duration of project: 48 months

H2020-RUR-05-2017 Novel public policies, business models and mechanisms for the sustainable supply of and payment for forest ecosystem services

D1.2

Inventory of Innovative Mechanisms in Europe

Due date of deliverable: **March 31th, 2019**

Actual submission date: **May 15th, 2019**

Organisation name of lead beneficiary for this deliverable: **University of Padova**

Dissemination level: **Public**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 773702.

www.sincereforests.eu

Authors

Giorgia Bottaro, Paola Gatto and Davide Pettenella, TESAF Department, University of Padova, Agripolis, Viale dell'Università, 16. 35020 Legnaro (PD), Italy

Reference

Bottaro G., Gatto P. and Pettenella D. (2019). DELIVERABLE 1.2 Inventory of Innovative Mechanisms in Europe. H2020 project no.773702 RUR-05-2017 European Commission, 72 pp.

Executive summary

The deliverable synthesizes the results of the Inventory of Innovative Mechanisms at a European scale undertaken as part of Task 1.1 in Work Package 1. Initially, it illustrates the structure of the framework that has been used to systematize the information, its rationale and its components. Then it describes the methodology of data collection and presents the results of the Inventory and attempts at a first systematization of its information. Finally, it concludes with an analysis of the policy instruments used by the Innovative Mechanisms and offers an analysis of innovation types included in the IMs.

Contents

Table of Contents

Acronyms

CDM	Clean Development Mechanism
C&C	Command and Control
CICES	Common International Classification of Ecosystem Services
EKN	Ecosystems Knowledge Network
EMP	Ecosystem Market Place
ESP	Ecosystems Services Partnership
EU	European Union
FCP	Forest Carbon Portal
FES	Forest Ecosystem Service
IM	Innovative Mechanism
MBI	Market Based Instrument
NGO	Non-Governmental Organization
NUTS	Nomenclature des unités territoriales statistiques
NWFP	Non-Wood Forest Products
PES	Payment for Ecosystem Services
PGI	Protected Geographical Indication
PPP	Public Private partnerships
SB	Species Banking
SINCERE	Spurring INnovations for forest eCosystem sERvices in Europe
TEEB	The Economics of Ecosystem and Biodiversity
TESAF	Dipartimento Territorio E Sistemi AgroForestali
UNECE	United Nation Economic Commission for Europe
VCS	Verified Carbon Standard Project Database

1. Introduction

The EU Horizon 2020 project SINCERE "Spurring INnovations for forest eCosystem sERvices in Europe" aims at providing a support structure to develop Innovative Mechanisms (IMs) for improving the provision of Forest Ecosystem Services (FES) in Europe. As already pointed out in D1.1 (p.12), the growing demand for environmental conservation has stimulated research and policy responses aimed at encouraging landowners to deliver ecosystem services. An increasing number of programmes and projects for environmental conservation and enhancement of ecosystem services has been implemented in the last decades, as reflected by the scientific and operational literature. Just to give an example of the growing rate of initiatives in this field, in 2002 Landell-Mills and Porras counted 287 cases of schemes for biodiversity conservation, carbon sequestration, watershed protection, and landscape beauty worldwide. In 2017, the number of schemes reported by Ecosystem Marketplace thematic Reports (Bennett et al., 2017; Bennett and Ruef, 2016; Hamrik and Gallant, 2017) was more than fourfold, counting 1,230 programmes for biodiversity, water and carbon without even landscape beauty.

The increased complexity originating from some decades of policy-making in the field of ecosystem services delivery calls for a systematization of the experience on existing initiatives, which can help the identification of best practices and their replication elsewhere. It also highlights the need to study if and how the mechanisms for FES provision are evolving, what role innovation plays in the evolution, and which type of innovation is being introduced.

Based on these considerations, as part of Task 1.1 in Work Package WP1, the SINCERE project has surveyed existing information and has developed an Inventory of IMs at a European scale. This report presents the results of this work. Initially, it illustrates the structure of the framework that has been used to systematize the information, its rationale and its components. Then it describes the methodology of data collection. Finally, it presents the results of the Inventory, attempts at a first systematization of its information, and concludes with an analysis of the innovation included in the IMs.

Two additional components of the work undertaken for this report are the Excel file of the Inventory and the map of IMs, which spatially locates the IMs by making reference to the seat of the responsible administrator body.

2. Conceptual notes on the framework

2.1. Rationale

The criterion that has guided the preparation of the framework of IM for WP1 is threefold:

1. *Easiness of use:* the systematization of the information collected needs to be simple enough to gather the required information for those who compile the Inventory and to retrieve such information for those who uses it. Indeed, the SINCERE proposal states that the Inventory needs to be 'user-friendly'
2. *Completeness:* the Inventory needs to provide the SINCERE research group with sufficient analytical detail to build a reliable picture of the situation on the ground. Indeed, the Inventory is crucial to the development of further tasks in WP1 as well as to the development of the whole SINCERE project.
3. *Relevance:* the Inventory should add novel information to the already existing literature on MBIs and policy tools in the field of FES provision in general.

Two preliminary points needs to be discussed prior to describing the Inventory structure: i) the unit of survey; and ii) the boundaries of the Inventory

2.1.1. Unit of survey

The Inventory aimed at gathering information about IMs – including, but not restricting to, Payment for Ecosystem Services (PES) – to support the provision of FES. Hence, the unit of survey and analysis for the Inventory is an individual case where a specific IM is applied. To this end, the intended meaning of 'mechanism' was already defined in D1.1 (p.12): "a specific case, example, or model characterised by structural and relational features". This means that the cases surveyed need to have specific structural features like defined spatial and time scales, specific targets in terms of FES, must allow identification of providers and users of FES and show at least some relational features.

2.1.2. Inventory boundaries

By reference to the definition provided above and previous discussion in the SINCERE WP1 group, we have demarcated the boundaries of the Inventory and have consequently chosen which cases to include and which to exclude. Necessary criteria for inclusion are:

1. Cases that are connected to forests or trees
2. Cases that are located in the European countries
3. Cases that are innovative.

Innovation is a fundamental feature of the cases surveyed, as it is embedded in the very own definition of 'Innovative Mechanism'. A mainstream definition of 'innovation' by the Oslo manual states that 'innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practice, workplace organisation or external relation' (OECD/Eurostat, 2005). However, innovation is also a broader and multifaceted concept, including other dimensions like institutional innovation, meant as the development of new institutional policies and structures (Davis and North, 1970; Hargrave and Van de Ven, 2006) or the recently emerged social innovation, with its focus on cooperation practices, learning processes and 'the change in social practices that produce change in social relationships, systems and structures' (Edwards-Schachter, 2018, pp. 73-74).

For the purpose of SINCERE Inventory, we have chosen to focus on a new or significantly improved good or service, process, marketing methods, organizational methods or communication, cooperation and networking practices, while we have given less emphasis to the side of the innovation concept dealing with changes in public institutions' organisation. This can be explained with the need of having a stronger focus on the supply side of FES and on the willingness to highlight the opportunities represented by IMs for forest owners and managers. Regulatory and institutional changes are seen in the Inventory as exogenous drivers of innovation rather than as an innovation itself.

Hence, for the purpose of defining 'innovation' in the Inventory, we have made reference to the four broad innovation scenarios already presented in SINCERE D1.1, p.15, i.e.:

A. Provision of a new FES supported by an already existing mechanism
B. Implementation of a new mechanism supporting an already existing FES
C. Provision of a new FES supported by a newly-implemented mechanism
D. An already existing mechanism or FES used for the first time in a different spatial context (relative innovation).

The Inventory surveyed individual measures, actions, projects, initiatives, events, cases having the features of an IM as described above. An exception is represented by individual cases that are part of a broader network supported by the same mechanism. In this case, the unit is the mechanism and not the individual case, as we were specifically interested in the network.

In case of individual initiatives that are part of an overarching umbrella scheme (e.g. Clean Development Mechanism, or Rural Development Plan), they can be reconnected to such umbrella scheme through some specific sub-dimensions in the framework (see below).

2.2. Framework for the IM Inventory: dimensions and sub-dimensions

The framework of the IM Inventory in SINCERE consists of five dimensions – Identification, Spatial and temporal scale, Targeted ecosystem and ecosystem services, Description of IM, Innovation – which in turn are divided in a number of sub-dimensions (Table 1). The structure of the framework is a result of a literature review and has been specifically inspired by work undertaken by Sattler *et al* (2013), further elaborated by Leonardi (2015). Both these frameworks were developed for classifying specifically PES mechanisms; they have been adapted and further elaborated here to include a broader range of mechanisms and to highlight the innovation dimension.

Identification dimension (ID): the sub-dimensions under this heading refers to basic attributes of the IM connected to its identification: the country where it is located (ID1), its name both in original language (ID2) and in English (ID3), the name and address of the organisation which manages the IM and its typology – whether private, public, semi-public, NGO or other types of organisations (ID4). The sub-dimensions from ID5 to ID10 connect the IMs to overarching programmes or scheme (if the case) and provide the coordinates for these broader schemes.

Spatial and temporal scales (ST): the scale of the mechanisms is an important feature always considered in the literature. With this dimension we take into account both spatial and temporal scales. Different FES can have different optimal spatial scales at which their benefits and impact occur, which often transcend the ecosystem boundaries. The spatial scale at which the mechanism is implemented can affect its effectiveness and efficiency and is, therefore, a very important feature. We have coded the spatial scale information (ST1) by the NUTS code at three levels - NUTS1, NUTS2 and NUTS3 – which allow the geo-localisation of the IM with an univocal key – and by a qualitative attribute of the institutional scale at which the IM is applied – whether at an international, national, regional or local scale. The time scale of the IM is measured through the year of establishment (ST4) and the duration of the IM (ST5): long-term IMs last for more than 10 years, medium term between 5 and 10 years, short term ones less than 5 years. Finally, we tracked the status of the IM by considering if it is active on a full implementation phase, active as a pilot, active in a design phase, or if it was active in the past but is now abandoned (ST6).

Targeted Ecosystem and Ecosystem Services (TES): this dimension aims at defining the ecological context in which the IM is implemented and the targeted FES that it aims to provide. Given for granted that the targeted ecosystem is by definition the forest, the sub-dimension TES1 looks at whether the IM targets other ecosystems in addition to forests, while TES2 defines the type of forest subsystem where the mechanism is implemented (whether a natural forest, a plantation, or an agro-forestry system). TES3 reports on the type of bioclimatic region – boreal, temperate oceanic, temperate continental, mediterranean, alpine – and TES4 on the type of setting - urban, peri-urban, rural, Natural Park where the IM takes place. Sub-dimension TES5 identifies the FES provided by the IM by making reference mostly (even if with small adjustments for a better clarity and immediacy of FES description connected to the project's context) to CICES V5.1 sections (provisioning, regulation or cultural FES),

groups and classes considering only the biotic FES. Finally, sub-dimension TES6 analyses whether the IM provides, in addition to the targeted FES, also other bundled FES.

Description of IM (MD): this section reports crucial narrative information that describes the IM: first of all, its rationale, way of functioning, legal and institutional background, main stakeholders, beneficiaries, degree of voluntariness, type, amount and frequency of payments, additionality, and connection with other instruments are analysed (MD1). Then sellers/provides of the targeted FES are identified with their names and role according to pre-defined categories – i.e. public or private forest owners/managers, collectively owned forests, public private partnership, local forest communities, other (MD2). MD3 defines the demand side of the IM by investigating the name and typologies of stakeholders involved as buyers, making again reference to their role – whether they are a public utility company, the government, a local institutions, the regional government, a municipality, a public private partnership, an international cooperation initiative, an NGO, the civil society, a private company, fund, a joint stock company, or others. The sub-dimension MD4 investigates specifically whether there are intermediaries and/or facilitators involved in the IM implementation and who they are. Finally, MD5 identifies the names and roles of final beneficiaries/recipients of the FES produced by the IM. Clearly, the rationale and the language of this section are inspired by the PES literature, but they are suitable for the systematization of other types of IM. This dimension allows also understanding of the relational features characterizing the IM.

Innovation (IN): in the last section of the framework, the dimension of innovation is analysed: two descriptive sections define the features of the innovation with reference to the four innovation scenarios (IN1) and to the endogenous and exogenous drivers that lead to the design and implementation of the mechanism (IN2).

Table 1. Framework for the IM Inventory in SINCERE

Dimensions	Code	Sub-dimensions	Definition
ID – Identification	ID1	Country	Any European country
	ID2	Mechanism name (in original languages)	*Open answer*
	ID3	Mechanism name (in English)	*Open answer*
	ID4	Mechanism administrator	Private, public, semi-public, NGO or other
	ID5	Overarching programme or scheme	Y/N
	ID6	if YES, name	*Open answer*
	ID7	administrators	*Open answer*
	ID8	scale (institutional)	The cell refers to a list of NUTS 1, NUTS 2 and NUTS 3 codes
	ID9	Location	The name of area to which the overarching scheme or programme refers
	ID10	Is the mechanism including different cases?	Y/N
	ID11	Source of information	References: databases, grey literature, website scientific literature, other.
ST – Spatial and temporal scales	ST1	Mechanism Scale (institutional)	NUTS 1, NUTS 2 and NUTS 3 codes; international, national, regional or local scale
	ST2	Mechanism Location	Location of the administrator
	ST3	Name of the forest	*Open answer*
	ST4	Mechanism Year of establishment	*Year*
	ST5	Mechanism Duration (time horizon)	long term (>10 years), medium term (btw 5 and 10 years), short term (< 5 years), unknown
	ST6	Mechanism Status	active, pilot, design phase, abandoned, unknown
TES – Targeted Ecosystem and FES	TES1	Other ecosystems involved besides forests	wetland, meadow, agricultural land, other
	TES2	Type of forest subsystem	natural forest, plantation, agro-forest
	TES3	Type of bioclimatic region	boreal, temperate oceanic, temperate continental, mediterranean, alpine
	TES4	Type of setting	urban, peri-urban, rural, natural park
	TES5	FES targeted by the mechanism	provisioning, regulating and cultural; improved quality, increased quantity, both
	TES6	FES bundling	Same as above
MD – Description of IM	MD1	Short narrative description	Descriptive: rationale, way of functioning, legal and institutional background, main stakeholders, beneficiaries, the degree of voluntariness, type, amount and frequency of payments, additionality, connection with other instruments
	MD2	Sellers/providers of FES	public or private forest owners/managers, collectively owned forests, public private partnership, local forest communities, other
	MD3	Buyers/demanders of FES	public utility company, government, local institutions, regional government, municipalities, public private partnership, international cooperation, NGOS, civil society, private companies, funds, joint stock companies, other
	MD4	Intermediaries/facilitators	*Open answer*
	MD5	Beneficiaries	civil society, local communities, households, firms, forest owners, other
IN – Innovation	IN1	Mechanism innovation features	Descriptive: the reasons why the mechanism is considered innovative.
	IN2	Innovation drivers	Descriptive: the main drivers that lead to the design and the implementation of the IM, whether endogenous or exogenous

Source: modified from Sattler et al (2013) and Leonardi (2015)

3. Methodology

3.1. Process of data collection

The identification of IM implemented at European level to be included in the Inventory required a three-step process. Initially, publicly available information e.g. through literature and web pages was consulted and a preliminary list of cases was compiled. In the next step, this preliminary list was sent to the project's partners, considered as 'experts' for the cases located in their own country. Starting from the list, each partner was asked to fill the dimensions and sub-dimensions of the framework. This experts' consultation allowed to validate the cases already included in the list, to remove those cases that were not considered innovative and to add new cases. The final result is the Inventory in an Excel file and an interactive map. The whole process is described below with more detail.

1. *Survey of publicly available information.* In the first step, scientific literature, grey literature, already existing web-based database and other information available on the internet were consulted. The information searched was related to the implementation of cases, at different development stage, aiming at improving Forest Ecosystem Services provision. The Inventory boundaries defined in 2.1.2 guided this search. Several databases have been consulted: Ecosystem Market Place (EMP), Forest Carbon Portal (FCP), Ecosystems Services Partnership (ESP), The Economics of Ecosystem and Biodiversity (TEEB), Ecosystems Knowledge Network (EKN), Alpine Convention, Species Banking (SB), Domestic Carbon Initiative in Europe, Verified Carbon Standard Project Database (VCS), United Nation Economic Commission for Europe (UNECE), Oppla, and ECOSTAR. Once basic information for each case was obtained, the webpages or reports of each individual case have been consulted whenever available. This survey ended up in a preliminary collection of 121 individual cases.
2. *Experts' validation and extension of Inventory.* In this step, 18 experts (researchers and practitioners) forming the SINCERE network were involved. They are from Belgium, Croatia, Denmark, Finland, Germany, Italy, Portugal, Spain, Switzerland and United Kingdom. The experts were asked first of all to validate the preliminary list by checking whether the cases located in their country, or in other countries where they are experts, were suitable to be included in the final Inventory, considering mostly their characteristic of innovativeness. Indeed, while being crucial for the definition of the SINCERE Inventory boundaries, this dimension cannot be fully elicited from the publicly-available information and is difficult to capture for those unfamiliar with the local context in which IMs are embedded. Experts' local knowledge and experience is particularly important in the case of D scenario for innovation (relative or contextual innovation) but also to gather more detailed contextual information on A, B or C innovation scenarios. In the case of Belgium, Denmark, Spain and United Kingdom experts could not validate all cases included in the Inventory. In addition to the validation task, experts were also asked to extend the Inventory by adding new cases not identified by the survey of publicly-available information because e.g. they were described in local literature or in local languages. Of the 18 partners, one did not answer, while three others stated that they had not

enough knowledge on the further existence of IMs in their countries. Of the remaining 14 partners, 4 just confirmed the information already included in the preliminary list, while the remaining 10 provided more input by adding new cases.

3. *Consolidation of Inventory.* After the cases were returned by the project's partners, a further internal check was performed, especially on the new cases added by partners. During this check, cases that (1) that were deemed well established in the country and therefore not enough innovative; or (2) had poor information available or whose description was too vague to allow the identification of a precise mechanism; or (3) referred to spot events instead than to continuous processes; or (4) referred to other ecosystems then forests, were dropped from the list. This polishing ended up with dropping 38 cases and the resulting definition of the final version of the Inventory which includes 83 cases. These cases were included in the final Inventory because of their innovative features and because it has been possible to find the needed information for filling framework. Of the 83 cases, 60 have been validated while 23 have not been validated, being in countries not covered by the SINCERE network expertise. They were not dropped from the list in order not to lose any valuable information but were kept on a separate list (non-validated cases) from the validated cases. Among the total 83 cases, 56 came from the initial list, while 27 were added by the partners. The Inventory information was organised in an Excel spread sheet, where each case is represented in a row. This information is available in the SINCERE website.
4. *Mapping.* Following the SINCERE WP1 objectives and deliverables, an interactive map (link) has been developed using the Google free-software MyMaps. A map is indeed a user-friendly and effective tool for visually describing the spatial distribution and accessing basic information on cases with immediacy and easiness. A selection of the relevant sub-dimensions to represent in the map has been made considering that the map has to provide only an essential picture of the cases, while the full information can be downloaded from the Excel spread sheet in case more detail is needed. The sub-dimensions available in the interactive map are: Mechanism name, Mechanism administrator, Mechanism Scale, Year of establishment, Mechanism Duration, Mechanism Status, Other ecosystems involved, Type of forest subsystem, Type of bioclimatic region, Type of setting, Forest Ecosystem Services (FES), Short narrative description, Seller/provider of FES targeted, Buyers/demanders of FES targeted, Intermediaries/facilitators, Beneficiaries, Type of innovation, Innovation features and Innovation drivers. Following the logic of the Inventory, two layers are also available in the map, one layer with the set of validated cases and another layer with the set of non-validated ones. A more detailed description of the map is reported in Chapter 5.

3.2. Limitations and critical issues

Although the aim of the Inventory is to cover as much as possible the entirety of the IMs existing (or which have existed) at European level, fulfilling completely this objective is very hard. Some limitations were already clear since the beginning of the survey, other appeared later during the process; some limitations were easily solved, but others made the identification of cases rather difficult.

The first limitation lay in the language used to search the cases to be included in the preliminary list. Given that the Inventory was mostly implemented by TESAF, indeed, we were able to identify and to gather information from databases, grey literature, etc. only for those cases which were reported either in English or Italian or, in a second step, on cases in other local languages spoken by the TESAF team (French, Portuguese and Spanish). This language-related limitation is responsible for a bias connected to a higher presence of Italian cases. New cases were added in other languages known by the team of partners, but the possible wealth of local cases described in local languages in countries not covered by the research team remains unexplored to an extent that is difficult to define. Hence, the Inventory is not exhaustive.

Another issue that emerged since the beginning of the research was related to where to place the conceptual boundaries of the research, especially in terms of the innovation potential. The initial approach based on collecting the highest possible number of cases while defining their innovation features in an inductive way, based on the characteristics of the cases deemed 'innovative' by the experts. However, this strategy revealed difficult to be pursued, as there was no guiding principle to include or exclude some mechanism. Hence, we were forced to change it towards a more deductive approach and to define some *a priori* main features of innovation to guide the research effort.

Considering the validation process, a further limitation is given by the fact that not all the European countries are represented in the project: this is why the validation of cases was possible only in some countries and not in all of them.

The effort of the data collection and of the overall validation and Inventory compilation resulted to be very time consuming, more than what estimated at the beginning of the process. This required a considerable effort both from TESAF and the project partners to provide robust information. This is the main reason why the process of data analysis and deliverable writing were delayed.

Finally, it is worth keeping in mind that the development and implementation of IMs is a dynamic process where new mechanisms continuously arise. For this reason, a progressive updating of the Inventory will be necessary, while the present Inventory includes the cases identified and analysed until the submission date of this deliverable. New cases which will be provided afterwards will be analysed for the final WP1 Deliverable.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 773702.

4. Results of the Inventory of IMs

4.1. Innovative Mechanisms included in the Inventory

The Inventory includes 83 cases of IMs, listed and shortly described in Table 2.

Table 2. List of IMs in the Inventory

N.	Country	Name in original language	Short description
1	IT	Bosco Limite	Establishing a farm woodland for aquifer recharge
2	IT	Ecopay-connect Oglio Sud	FSC certification scheme in a protected area
3	IT	Fungo di Borgotaro	IGP certification and picking permit scheme for mushrooms
4	IT	Fungo Magnifica Comunità di Fiemme	Picking permit scheme for mushrooms
5	IT	Trentinerbe standard	Wild herbs standard and brand
6	IT	Arte Sella	Land Art in the forest
7	IT	Bosco dei 100 Passi	Carbon offset scheme on land confiscated by organized crime
8	IT	Boschi Vivi	Funeral forest
9	IT	Cooperativa Valle dei Cavalieri	Cooperative community initiative for tourist development
10	IT	I Luoghi del Cuore	Adoption of high environmental-value land by citizens
11	IT	GAS Bosco	Carbon-neutral ethical purchasing group
12	IT	Albo opportunità di compensazione Regione Lombardia	Register of land compensation opportunities
13	IT	Fondo sanzioni per danni ai boschi Regione Lombardia	Green fund using fines from forest damages for forest restoration projects
14	IT	Fondo Aree Verdi Regione Lombardia	Green Fund for offsetting land use changes
15	IT	Gestione del demanio forestale regionale da parte di privati	Management concessions of regional-owned forests for private initiatives
16	IT	Mosaico Verde	Corporate Social Responsibility Scheme
17	IT	Diventare Alberi	Funeral forest
18	IT	Servizi ambientali erogati dai Consorzi Forestali Regione Lombardia	Incentive scheme for Forest Consortiums providing ESs
19	IT	Associazione Forestale di Pianura (AFP)	FSC certification scheme for Ecosystem Services
20	IT	Asilo nel Bosco di Ostia	Forest Kindergarten
21	IT	Bosco del Sorriso	Forest bathing initiative
22	DK	Drastrup Pilot Project	Water protection land acquisition scheme with public funds
23	DE	Niedersachsen, OOWV	Groundwater Protection scheme
24	UK	Bassenthwaite Vital Uplands - Ecosystem Services Pilot Project	Multi-fund Woodland Scheme Pilot Project
25	DE	Rotkernige Buche	Marketing initiative in timber processing industries for red-core beech
26	DE	Wilde Buche	Forest protection and Carbon offsets through CSR in wild beech forest
27	DE	Waldaktie Mecklenburg-Vorpommern	Forest offsetting scheme for tourists' carbon emissions
28	DE	Wasserentnahmegeld / "Wasserpfennig"	Water extraction fee ("water penny")
29	HR	"Uživam tradiciju" - ENJOYHERITAGE	Sustainable tourism project in a transnational area
30	HR	Šumska bioenergija u zaštićenim sredozemnim područjima	Improving bioenergy value chains from protected mediterranean forests
31	HR	Doprinos za općekorisne funkcije šuma	Green tax paying for Forest Ecosystem Services
32	ES	Bosques maduros	Management agreements for intact forest preservation
33	ES	Agrupacions de Defensa Forestal (ADF)	Forest Fire Defence Groups
34	ES	Xarxa Custodi de Territori (XCT)	Land stewardship Network - management contracts and land purchase
35	DE	Bionade-Trinkenwasserwald	Bionade cooperation with Drinking Water Forest Association
36	DE	Kaufering scheme	Municipality scheme for establishing a water protection area
37	DE	FriedWald	Funeral forest network
38	DE	RuheForst	Funeral forest
39	DE	Ecosia	Search engine for afforestation initiatives
40	FI	WildOulanka	Forest-based tourism enterprise
41	FI	METSO – Etelä-Suomen metsien monimuotoisuusohjelma	Forest Biodiversity Programme for Southern Finland
42	FI	Luonnonperintösäätiö	Finnish Nature Heritage Foundation
43	CH	Himmlische Eichen	Funeral forest
44	CH	Bois de mon coeur	Renting forest space and resting place through the web
45	CH	Waldlabor Zürich	Forest Lab for research and citizen science
46	CH	Oberallmeindkorporation Schwyz	Climate Protection Project – Voluntary Carbon Credit Scheme

47	CH	Payments for drinking water from forested catchments Canton Basel-Stadt, Switzerland	Payments for drinking water from forest catchments
48	CH	Gamskopf	Marketing initiative for low-class timber
49	CH	R20	Marketing initiative for local timber
50	CH	Waldtherapie Rheinfelden	Forest Therapy initiative
51	CH	Audioguide to the Forest	Forest Audioguide
52	PT	Green Heart of Cork	Compensations for sustainable oak forest management
53	BE	Charte Forestière de Territoire	Contracts for environmental protection, sustainable tourism development
54	BE	Natuurwaardeverkenner	Online tool for ecosystem services spatial assessment and evaluation
55	BE	Bosforum	Forest Forum initiative on promoting sustainable forest management
56	BE	Bosgroepen	Non-profit organisation supporting forest owners
57	BE	Eerste Vlaamse Houtpark	Organised sale of high-quality timber through auctions
58	BE	Integrated Forest and Nature Management	Integrated Forest and Nature Management
59	DK	Til-Tops Aktivitetsparker	Adventure park
60	DK	MTB-sporet Hammel	Local agreement btw forest owner, municipality and cycling club
61*	NO	Voluntary forest conservation program	Voluntary forest conservation program and compensation scheme
62*	DK	Copenhagen Energy Scheme	Forest Scheme for groundwater protection
63*	DK	Water Supply Act Reforestation Levy	Reforestation scheme through water fee
64*	AL	Assisted Natural Regeneration of Degraded Lands in Albania	CDM – Forest afforestation/reforestation project
65*	BG	Rusenski Lom pilot	Donations from tourism operators for natural park conservation
66*	BE	Nationaal Park Hoge Kempen	Coalition of local stakeholder to manage a protected area
67*	ES	Adeheco Dehesas Ecológicas	Marketing and FSC certification of Non-Wood Forest Products
68*	ES	Refo-resta CO2	Carbon offset scheme through reforestation
69*	ES	Génesis	Carbon offset scheme through reforestation
70*	FR	Duramen	Association promoting afforestation for Carbon sequestration
71*	FR	Sylv'Acctes	Association promoting afforestation for Carbon sequestration
72*	FR	CDC Biodiversité	Branch of public bank supporting biodiversity offset projects
73*	FR	Golfe de Saint Tropez fire protection scheme	Forest fire protection scheme
74*	FR	Volvic Catchment Protection Partnership	Catchment Protection Partnership and fund to ensure water quality
75*	MD	Moldova Soil Conservation Project	CDM for erosion reduction and Carbon sequestration
76*	MD	Moldova Community Forestry Development Project	CDM for community forest
77*	RO	Drumul Moştenirii Maramureşene	Heritage trail project
78*	RO	Parc Aventura Brasov	Adventure Park
79*	RO	Carpathia	Land acquisition programme by donations and sale of hunting rights
80*	SE	KOMET Programme	Forest habitat conservation scheme
81*	UK	The Mersey Forest	Network for reforestation initiatives
82*	UK	Local Nature Partnerships (LNP)	Local Nature Partnerships
83*	UK	Woodlands From Waste	Woodland scheme for Carbon offsets

*Non-validated cases

The 83 cases are distributed in 17 European countries as shown in Table 3.

Table 3. Number of cases found in the different European countries

	Countries																	
	BE	**CH**	**DE**	**DK**	**ES**	**FI**	**HR**	**UK**	**PT**	**IT**	**AL**	**BG**	**FR**	**MD**	**NO**	**RO**	**SE**	**total**
validated	6	9	10	3	3	3	3	1	1	21								60
non-validated	1			2	3			3			1	1	5	2	1	3	1	23
total	7	9	10	5	6	3	3	4	1	21	1	1	5	2	1	3	1	83

4.2. Cases distribution in the framework sub-dimensions

In this part, a descriptive picture of the data included in the Inventory is provided. The analysis is carried out for each sub-dimension of the framework by reporting two sets of data: the first set includes data for all the 83 cases, the second set only data for the 60 validated cases, which have undergone a more thorough process of reliability and validity check.

4.2.1. Identification of cases

Figure 1 shows the distribution of the source of information for the cases. As information for the same case may come from more than one source, the totals in the figure exceed the total number of cases surveyed.

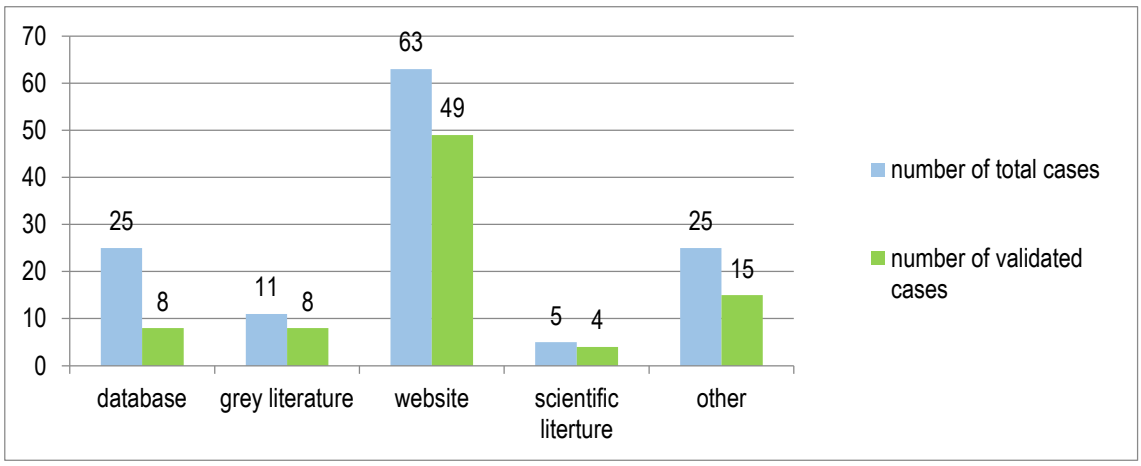

Figure 1. Source of information

The bar chart of Figure 2 shows the distribution of the type of mechanism administrators. Public and private administrators are the most represented category.

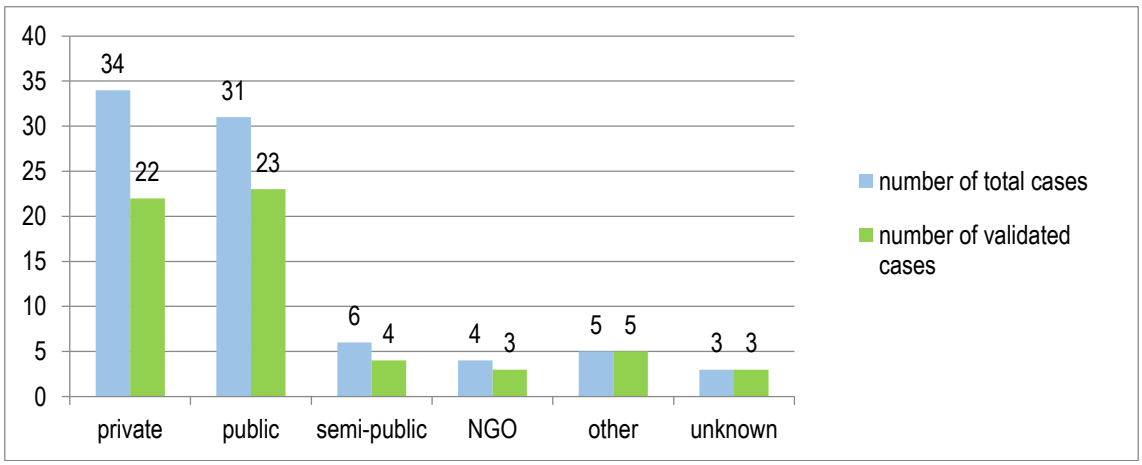

Figure 2. Categories of mechanism administrators

Out of the total 83 cases, 14 are actions or an overarching programme which integrates different initiatives in broader objectives, while 24 other cases can be described as reiterations of the same mechanism in different parallel implementations.

4.2.2. Spatial and Time Scales

Figure 3 reports the distribution of cases according to their spatial scale. Most of cases are local ones, but regional and national cases are also well represented. The Inventory includes also 4 international cases, i.e. a project stimulating responsible tourism in the transboundary area between Croatia and Slovenia (EnjoyHeritage project), another one aiming at the sustainable development of rural areas using the forest biomass of protected areas (ForBioEnergy), the creation of a network among funeral forest between Germany and Austria (FriedWald), and the creation of a search engine that supports reforestation/afforestation projects across the world, including Europe (Ecosia).

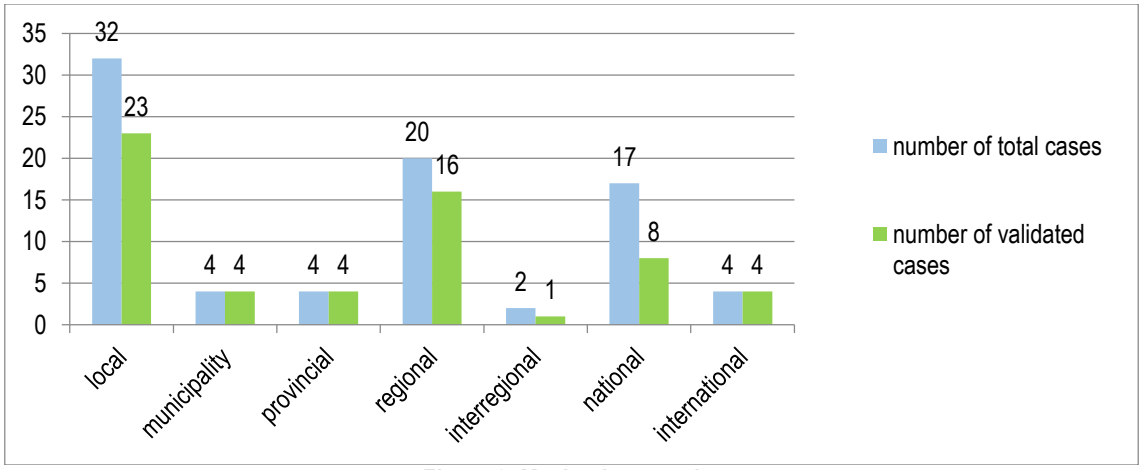

Figure 3. Mechanisms scale

Figure 4 presents the distribution of cases according to the period when they were established, Figure 5 reports the information on their duration, while Figure 6 gives information on their present status of implementation.

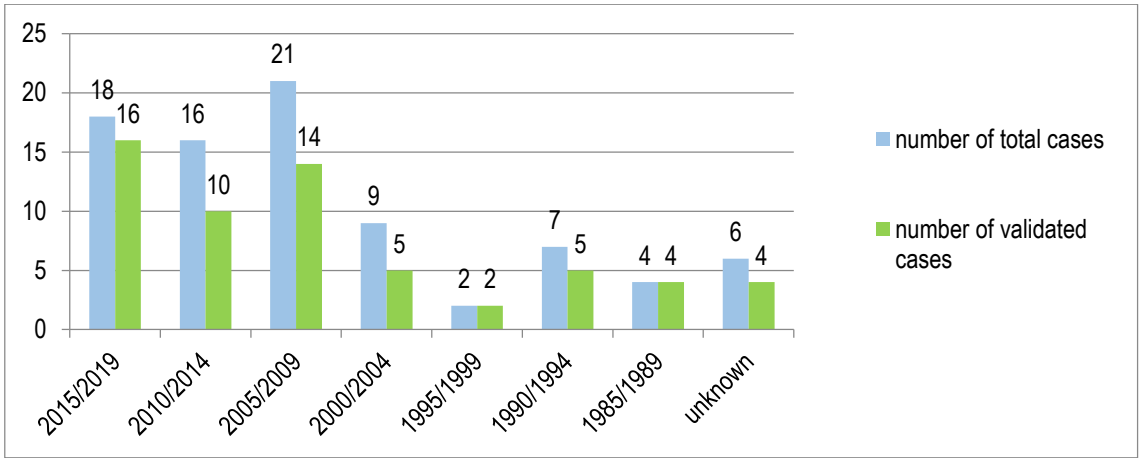

Figure 4. Year of establishment

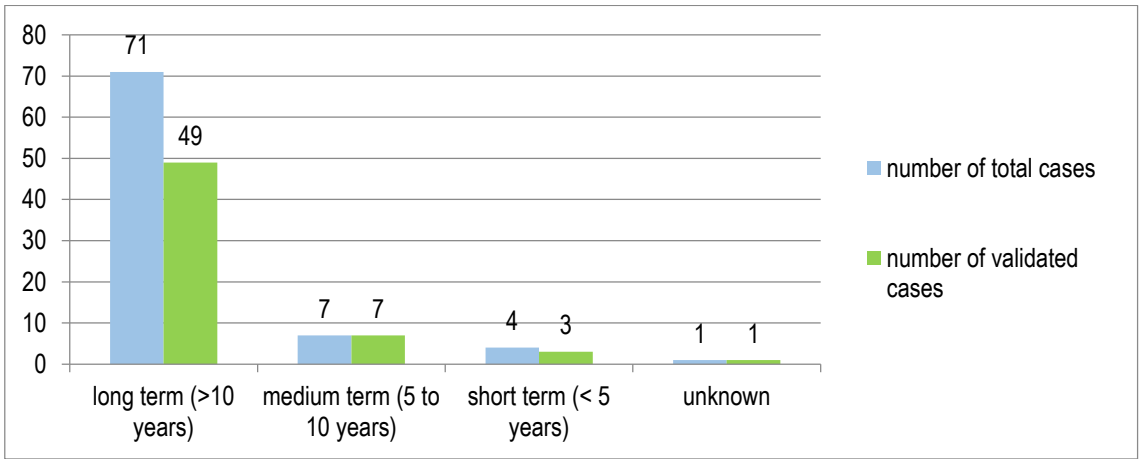

Figure 5. Mechanisms duration

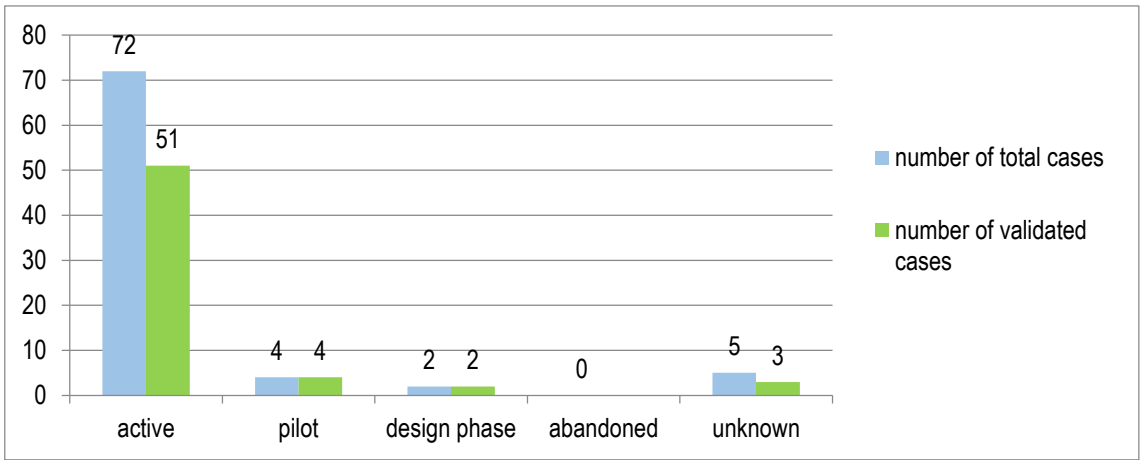

Figure 6. Mechanism status

Figure 4 shows that the majority of the cases started after 2000, but also that few cases surveyed have been running for more than thirty years. Regarding duration, the majority of cases were designed to be working for more than 10 years (Figure 5) and are still active at a full implementation

scale, sometimes at pilot or design phase (Figure 6). Unfortunately, no abandoned/terminated cases have been identified.

4.2.3. Targeted Ecosystems and Forest Ecosystem Services (TES)

While the provision of FES was a precondition for the inclusion of cases in the Inventory, it might be the cases that some of the IMs surveyed involve also additional ecosystems then forest. Table 4 reports the distribution of cases according to the type of ecosystem involved by the IM. In 48 cases, the IM regards exclusively forest ecosystems; while other 55 cases involve more than one ecosystem (hence the total number of ecosystems involved can exceed the total number of cases).

Table 4. Additional ecosystems involved by the mechanisms

	exclusively forest	wetland	meadow	agricultural land	Other*
number of total cases	48	14	17	18	6
number of validated cases	37	10	9	12	5

* water bodies and green urban areas

Table 5 provides more detail on the forest subsystem covered by the IM. Indeed, some IMs are connected only to a type of forest sub-system, and could not exist otherwise: for example, promoting integrated forest management is mostly connected to natural forests, while enhancing the Carbon sequestration service is often obtained through plantations. The data in table 5 show that natural forests are the most targeted ecosystem, followed by planted forests and agro-forestry systems.

Table 5. Type of forest subsystem in which the mechanisms were implemented

	natural forest	planted forest	agro-forestry
number of total cases	59	30	7
number of validated cases	49	20	6

The geographical distribution of IM according to the bioclimatic areas in which they are implemented is reported in Figure 7, from which it appears that the temperate continental region is the most represented one, followed by the Mediterranean and the temperate oceanic regions. Conversely, boreal and alpine regions seem more scarcely targeted by the implementation of IM. This distribution, however, is partially biased by the location of the SINCERE team (cfr § 3.2).

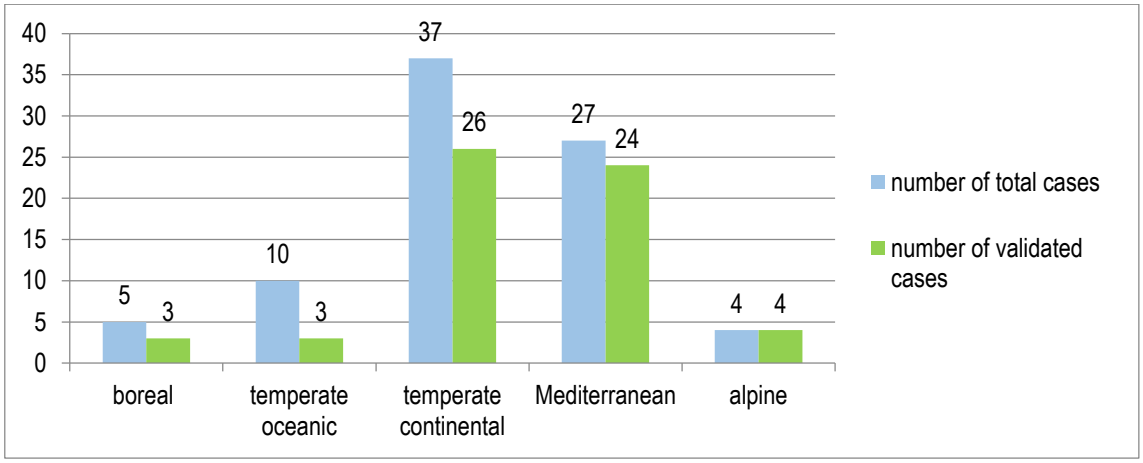

Figure 7. Type of bioclimatic region in which cases are implemented

Cases of the Inventory were applied both in a single setting – an urban, peri-urban, rural or a natural park area – and in different settings at the same time. Figure 8 gives this detail highlighting how the implementation in a single setting was preferred. Figure 9 provides more detailed information about the type of setting involved.

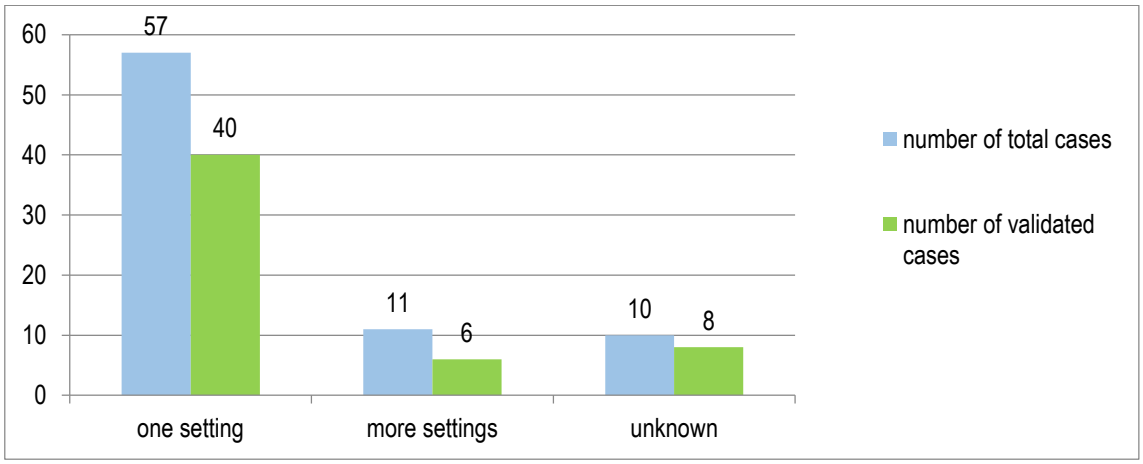

Figure 8. Number of cases implemented in a single setting or in more than one setting

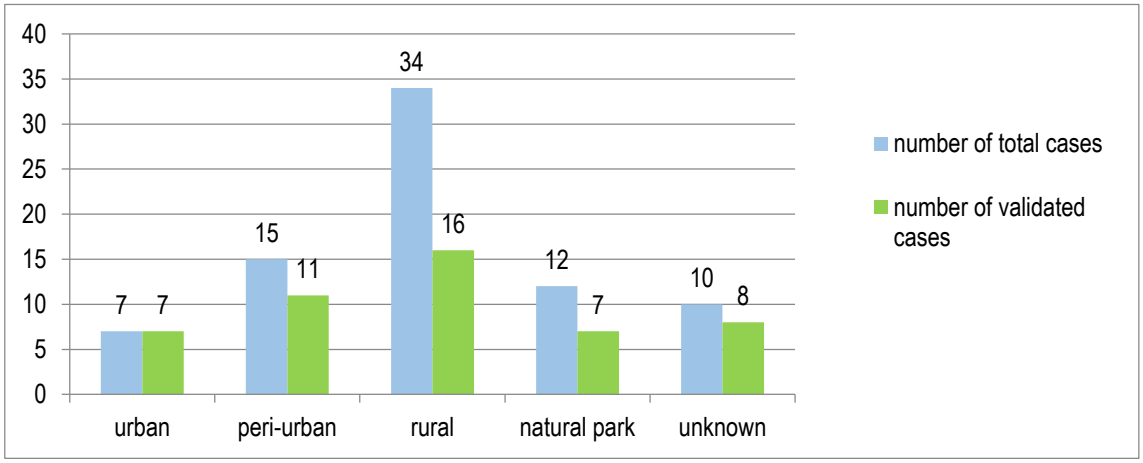

Figure 9. Number of cases implemented in the different type of settings

Focusing on the FES targeted by the IMs, the cases can be initially clustered in three groups. The first and largest group includes 32 IMs that target only one specific FES. The second group includes 26 IMs that prioritize a specific FES but also explicitly address additional secondary FES. The last group includes 25 cases that intentionally target a bundle of FES without any priority.

The further sub-dimensions dealing with FES analyse whether the IM objective is to increase FES quantity, to improve its quality or both options. Here, for better clarity of presentation, the cases are analysed without distinguishing among the three different groups named above.

FES can be grouped into three sections (Haines-Young and Potschin, 2018): i) provisioning FES, which include material and energetic forest outputs; ii) regulation and maintenance FES, which include the ways in which forests mediate or moderate the environment; and iii) cultural FES, which include the non-material outputs of forest ecosystems. Taking into account all three groups of IMs together (IMs targeting only one FES, IMs with prioritized and secondary FES and IMs targeting a bundle of FES), it emerges that regulation FES are the most represented with 100 cases, followed by 76 cases addressing cultural FES. Finally, provisioning FES are the least considered, with 39 cases (Figures 10, 11 and 12).

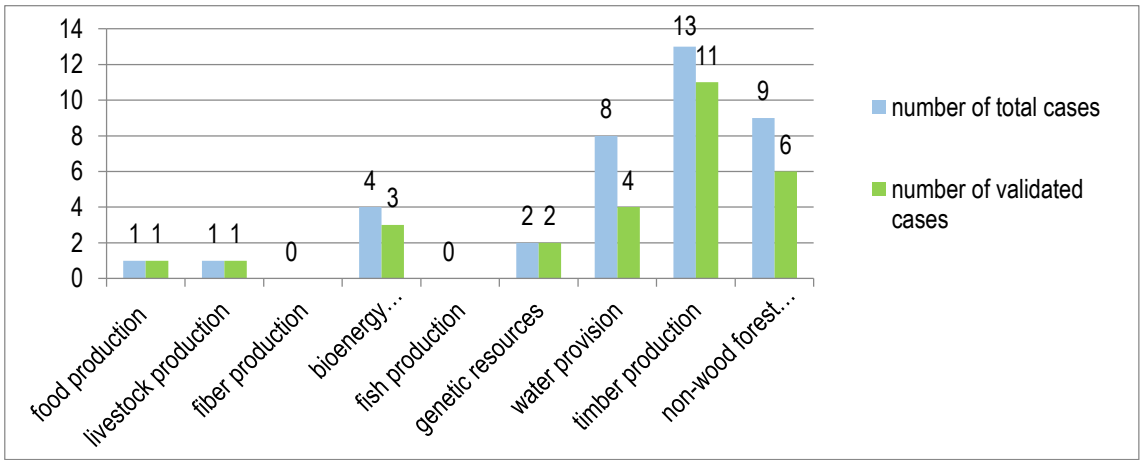

Figure 10. Provisioning Forest Ecosystem Services

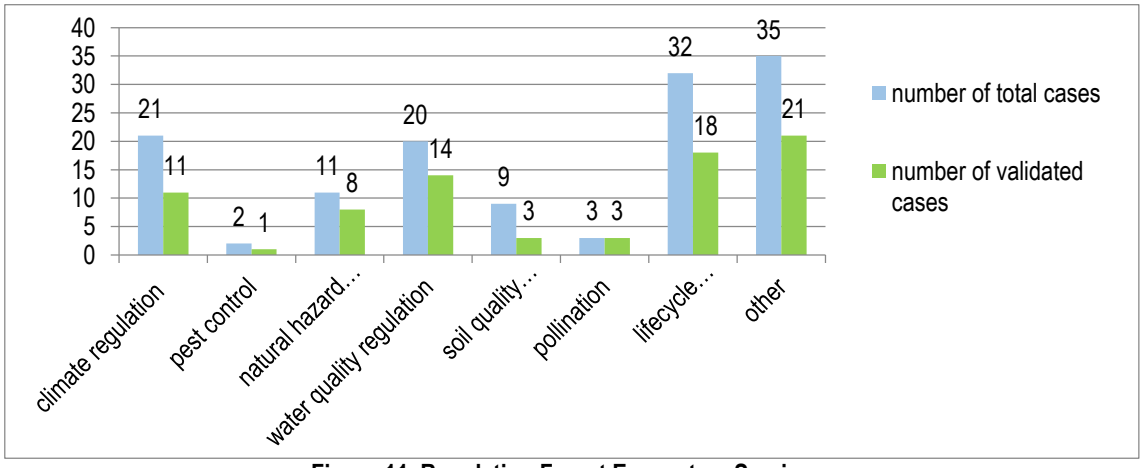

Figure 11. Regulating Forest Ecosystem Services

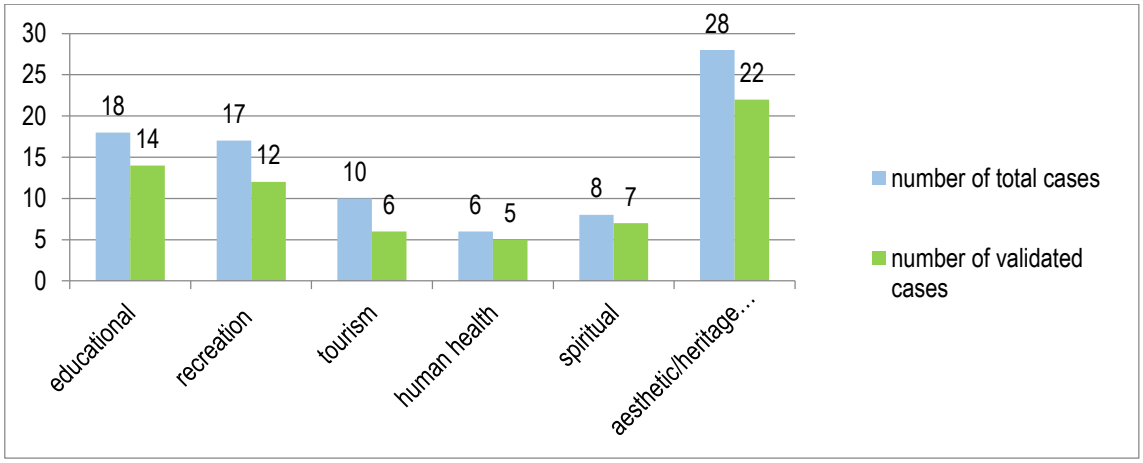

Figure 12. Cultural Forest Ecosystem Services

Concerning the focus of the IM on increasing the quantity or improving the quality of the targeted FES, our data show that show that there is not a clear pattern for provisioning and regulating FES (Figures 13 and 14), while cases aimed to both increase quantity and improve quality prevail for cultural FES (Figure 15).

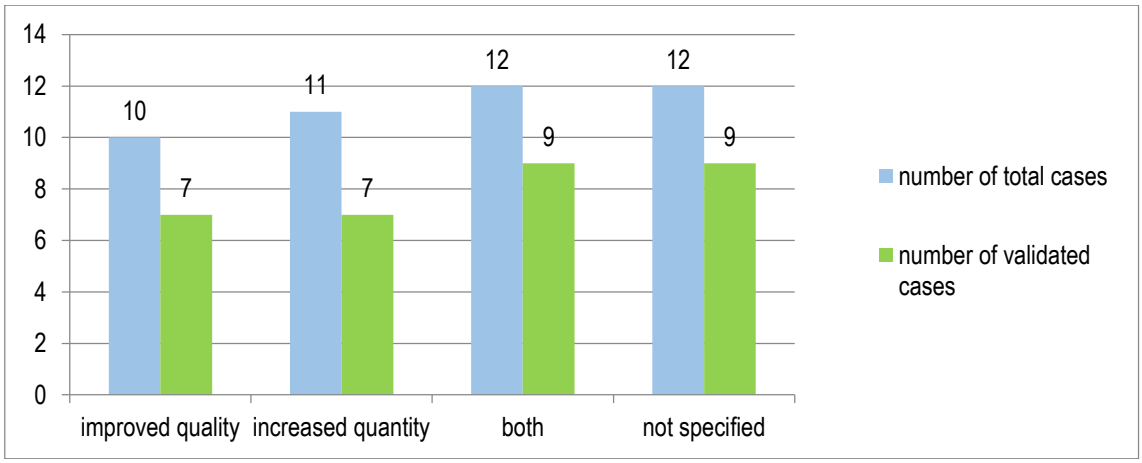

Figure 13. Provisioning Forest Ecosystem Services: mechanisms aim

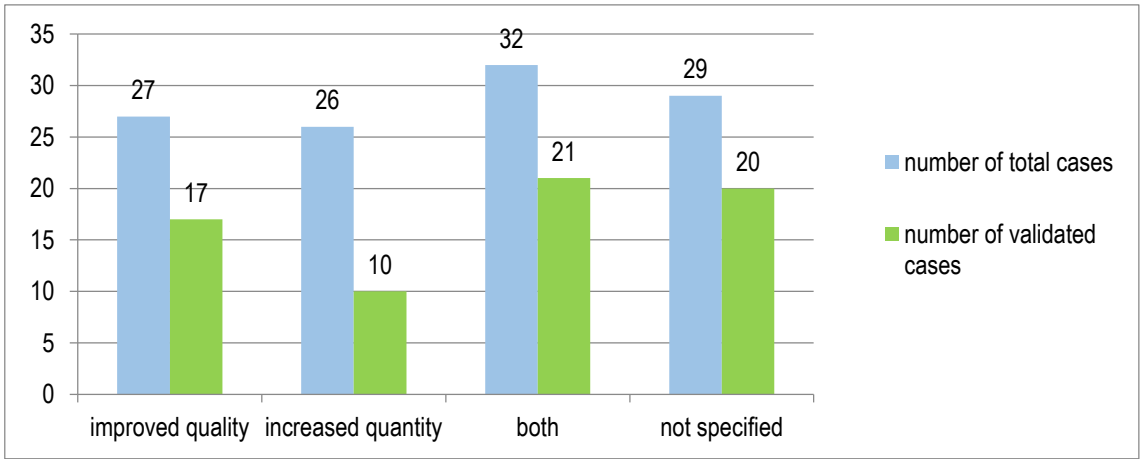

Figure 14. Regulating Forest Ecosystem Services: mechanisms aim

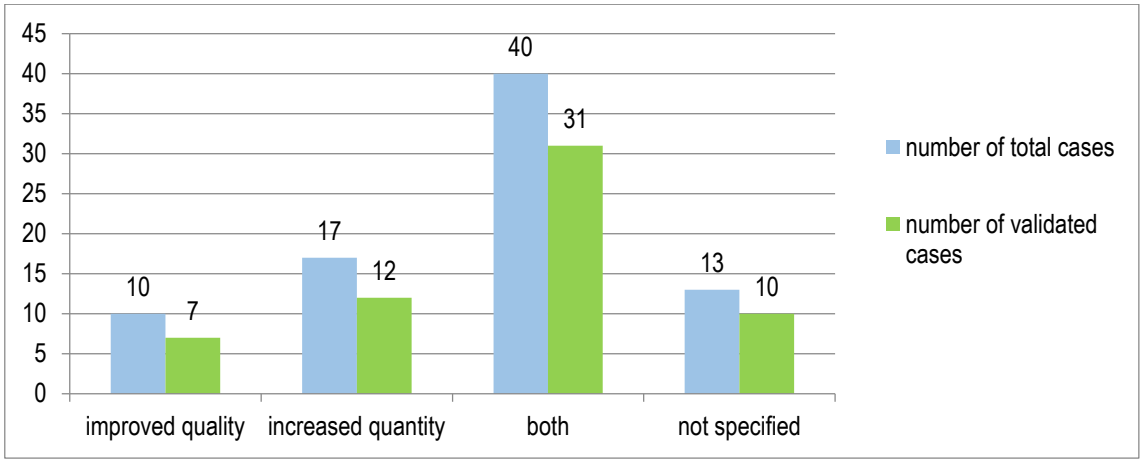

Figure 15. Cultural Forest Ecosystem Services: mechanisms aim

4.2.4. Mechanism actors, payments, and governance structure

Figure 16 provides information on how the IMs surveyed are distributed according to the typology of providers of the FES. Figure 17 reports data on the demanders, while Figure 18 has information on the final beneficiaries.

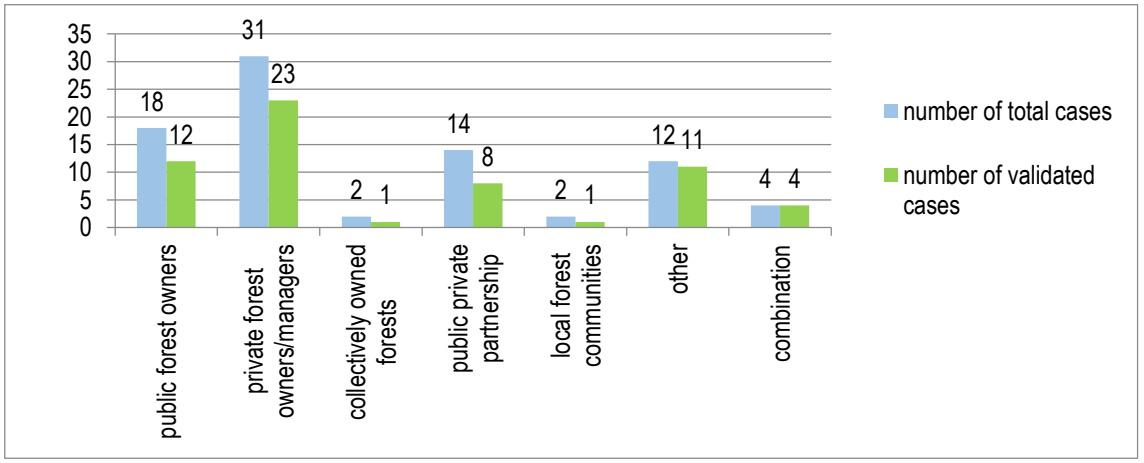

Figure 16. Number of cases according to the typology of providers

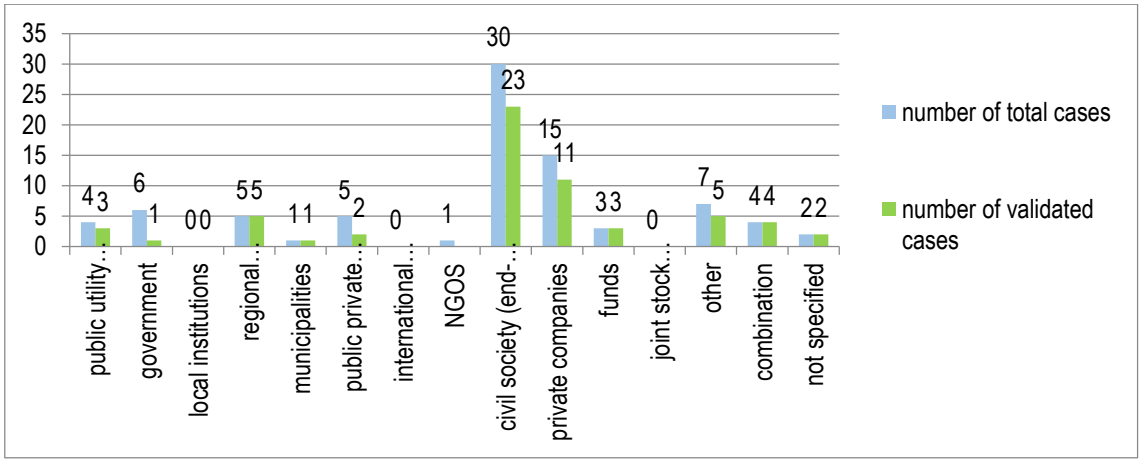

Figure 17. Number of cases according to the typology of demanders

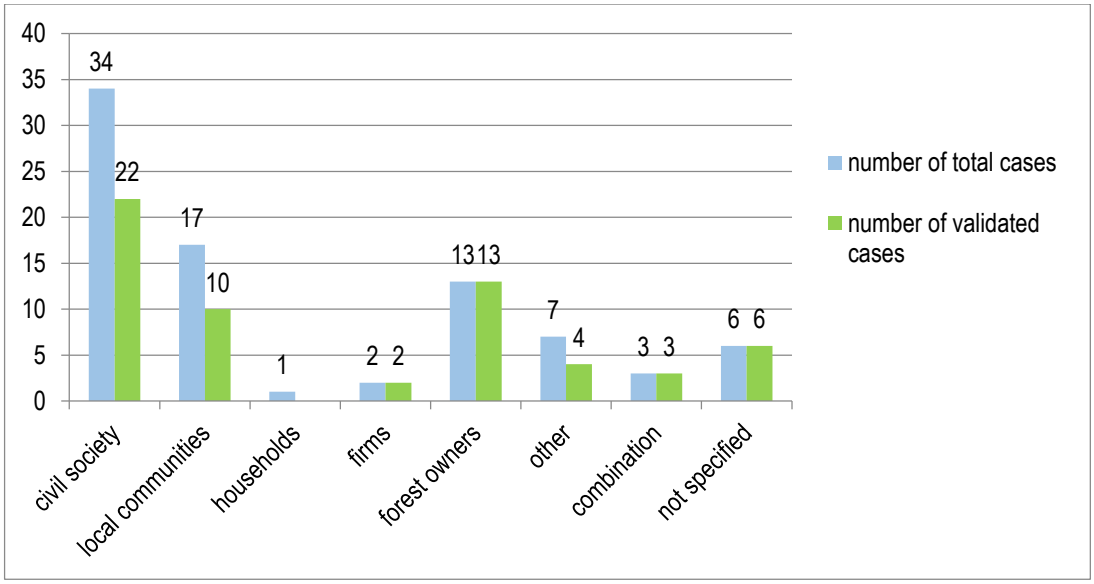

Figure 18. Number of cases according to the typology of final beneficiaries

Figure 16 shows that the majority (37%) of the FES providers are private forest owners or managers; 22% of cases are covered by public forest owners and 17% by public-private partnerships.

Considering the buyers' side, Figure 17 shows that 36% of them belong to the civil society; a smaller contribution is given by private companies (18% of the cases).

Figure 18 shows that the final beneficiaries of the FES are mainly the civil society in general and the local communities.

Finally, it is worth noticing that 40% of the overall 83 cases actively involve intermediaries in the implementation of the IM.

When analysing data on the providers and buyers together, the significant role of the private sector shows clearly on both sides. This highlights the importance of these stakeholders and the potential

for involvement of the public sector within public-private partnerships (PPP) initiatives, which, at present, have been found only in 6% of cases.

4.2.5. Mechanism Innovation

This last dimension dwells on the innovative features of the mechanisms implemented, which provides a preliminary view on innovation, based simply on the innovation scenarios defined for the purpose of the inventory boundaries (crf § 2.2.1).

Figure 19 below shows the distribution of the total number of cases according to the four innovative scenarios.

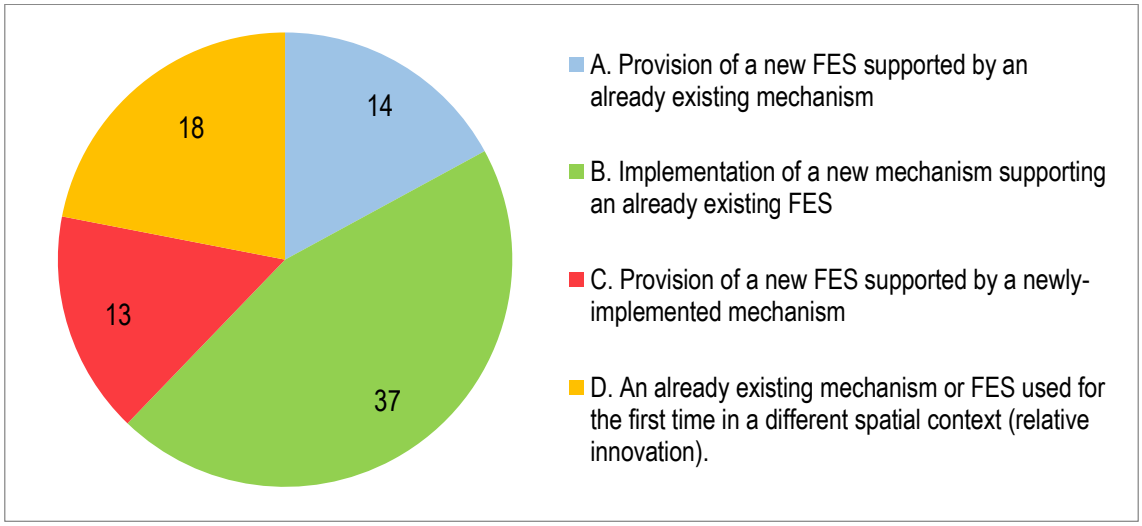

Figure 19. Number of total cases according their scenarios of innovativeness

Scenario A - Provision of a new FES supported by an already existing mechanism. The 14 cases targeting a new FES or bundled FES though an already consolidated mechanism, include different kinds of FES and mechanisms. Some cases can be brought as example. Referring to provisioning FES, one case involves the use of second-class wood in the production of high value final products for a new market. Considering regulating FES two cases implemented in Finland deal with lifecycle maintenance, habitat and gene pool protection; a case deals with a voluntary-based conservation agreement between forest owners and authorities. These cases dealing with habitat conservation are considered new approaches in country historically addressed to forest production. Finally, considering cultural FES, several cases are present specifically embracing specific aesthetic, recreational, health, and spiritual values.

Scenario B - Implementation of a new mechanism supporting an already existing FES. This category has the majority of the cases, i.e. 37. The elements of novelty of these cases vary widely amongst different aspects. The majority of the cases have been considered innovative because they succeeded in improve the already existing networks of stakeholders by involving actors

outside the decisional and implementation processes, or because they managed in changing the relations among the stakeholders by improving actors' participation and involvement. Another large group of cases refers to a different use of tools, already applied before within the same mechanism. A further group deals with the use of already existing strategies applied for a different purpose or with different application than before. Other cases involve the use of a new communication strategy or are the result of a new legislation. Finally, some cases fall in this innovation scenario because they brought about the inclusion of new funding sources or targeted a new bundle of FES. These changes stimulated a reorganization of the mechanisms implemented.

Scenario C - Provision of a new FES supported by a newly-implemented mechanism. The cases belonging to this scenario are 13, the majority of the cases deal with the target of a bundle of FES (that were included in the "new FES" definition, sub-chapter 5.2). The only case that targets a FES (not bundled with other FES) through a newly implemented mechanism is "Forest of my Heart". In this case the targeted FES belongs to the recreational division. The initiative involves the placement of a theatre and some sofas in a forest that can be rented via web. They can be used by school for their activities into the wood and, additionally, by groups who want to rest or to find shelter from bad weather during their forest visit. The theatre offers the possibility to perform shows in a natural and uncommon context. "Forest of my Heart" delivers a multifaceted offer joining together natural design and a new communication strategy.

Scenario D - An already existing mechanism or FES used for the first time in a different spatial context (relative innovation). 18 cases were included in this section. The FES covered by these mechanisms are different. Some of them deal with the creation of adventure parks, an already consolidated strategy in some country but an innovative implemented instrument in some others, as Denmark and Romania. Regarding regulating FES, the cases deal with community forest certification, forest habitat conservation supporting the creation of natural parks or encouraging the introduction of sustainable forest management, enhancement of water quality and flood protection by payment of a direct fee from final users, implementation of carbon offsets by private companies in countries where buyers of carbon credits are usually public actors. Finally, cases belonging to cultural FES include the launch of forest kindergarten, the creation of non-profit foundation aims to preserve and enhance the artistic, historic and environmental heritage of Italy, inspired to the British National Trust, and the establishment of a funeral forests.

Keeping well in mind the caveats already discussed in 3.2, especially the bias in terms of country coverage, a bird's eye view of the most frequent characteristics emerging from the Inventory information can be attempted. Following the order of the Inventory sub-dimensions, it appears that, most frequently, the IMs are managed either by private or public bodies, while semi-public bodies or NGOs are still underrepresented as mechanism administrators. The IMs are more often local, while fewer have a national or international scale: this local character may indicate a general preference towards IMs that target specific FES (or specific bundles of FES) and specific profiles of actors. The IMs are mainly located in rural areas, but this was expected given the focus on forest ecosystems. Most of the IMs have been implemented after the new millennium, however recentness is also connected also to our selection criteria, that focus solely on IMs carrying innovative features. A large majority of the IMs are designed with duration of 10 years or more: this

is a very positive aspect that possibly connects to a parallel long time delivery of FES. We found that IMs do not focus solely on forests; indeed, several of them extend their effect also on other targeted ecosystems such as agricultural land or wetlands. The spectrum of FES targeted by the IMs is wide and diversified, but some FESs are more represented than others in the Inventory: timber, water provision and NWFP are the most frequently targeted provisioning FES; climate regulation and lifecycle maintenance-habitat protection are the most frequently targeted regulation FES and aesthetic, educational and recreational services are the most frequently targeted cultural FES. Regarding the IM actors types, FES sellers/providers are mostly either private or public forest owners, while local communities and public-private partnerships are unfortunately still not very often involved from the FES supply side. Buyers/users include more often end-users or individual private companies, while more complex organisations are still lacking.

While these considerations are interesting for synthetizing the information stemming from the inventory, they must be taken with caution, as they come from just a simple and descriptive data analysis, whereas specific and robust information on FES provision patterns and actors' profiles can emerge only through sound and appropriate statistical analysis techniques, which will be performed at later stages.

5. Analysis of innovation and definition of innovation types

With reference to WP1 objectives, the purpose of this section is to further examine the mechanisms surveyed by the inventory with an analytical focus on the nature, type and degree of innovation. From this analysis, a framework for interpreting and systematizing innovation in ecosystem service provision is developed. Indeed, while four operational innovation scenarios were initially proposed for the purpose of defining the inventory boundaries (cfr § 4.2.5), the final characterisation of innovation is carried out through a bottom-up, inductive process based on the analysis of the Inventory results (cfr D1.1, pag. 15).

This chapter is organised as follows. Initially, the 83 IMs surveyed have been recognised and assigned to an existing typology of the spectrum of economic instruments for ecosystem service provision in order to understand what type of instruments have been used by the IMs and if they rely on more traditional (i.e. C&C) or more innovative (e.g. MBI) instruments. This step provides a first understanding of innovation at the policy scale.

Then, the cases of the Inventory have been analysed in more detail in order to extract the innovation existing in them, understanding its nature and proposing a classification of innovation types. Both these analyses are based mostly on the information included in the sub-dimension MD1 – Short narrative description of IM.

5.1. Economic instruments used by the IMs in Inventory

The classification of the type of instruments used by the IMs in the Inventory is based on the works by Stavins (2001), Windle *et al*. (2005) and Prokofieva and Wunder (2014) and is presented in Table 6. The classical categories of Command and Control (C&C), Market-based Instruments (MBIs) and Information and Education have been used. C&C instruments include *regulation instruments*, by which public authorities mandatorily regulate resource use by the public or by owners by means of prescribed or prohibited activities or licences and permits and *direct control instruments*, through which the provision of FES is guaranteed directly by the public authorities through land acquisition or direct management of land, such as in parks or conservation areas. MBIs include a wide range of instruments that can be divided in three categories: quality-based instruments, price-based instruments and market-friction reducing instruments. *Quantity-based instruments* focus on ensuring set quantities of FES and work through specification, modification and re-allocation of rights or obligations associated with the use of natural resources. They define conservation targets or emission caps that can be met through direct offsetting or trade of development or emission rights. The logic of *price-based instruments* is based on changing market relationship by modifying prices in existing markets, through, for example, subsidies, incentives or tax reductions. *Market-friction related instruments* is a wide category of instruments that include a set of instruments – i.e. land acquisition by private bodies, public-private management contracts, PES and PES-like schemes – that, in order to achieve environmental outcomes, attempt at making existing markets work better, for example by enhancing market information or lowering transactions

costs, or by creating completely new markets, as is the case with most Payments for Ecosystem Service schemes. A second set of market-friction related instruments comprises instruments that stimulate leverage of funds. One example is Corporate Social Responsibility (CSR) that works through cause-related marketing when charities or donations to environmental conservation activities are connected to the business field of the company and are expected to yield a return, or broader environmental conservation philanthropic actions. Finally, the instrument category *Information and Education* includes tools that operate through awareness raising, capacity building, ethical behaviour and persuasion.

The last column in Table 6 shows the results of the assignment of the 83 IMs of the Inventory to a type of economic instrument for FES provision.

Table 6. Distribution of IMs in the Inventory per economic instrument for FES provision

Category	Instrument	Number of cases in the Inventory
C&C Command and Control	***Total C&C***	***6***
	Regulation instruments	*4*
	Prescribed or prohibited activities	3
	Licences/permits	1
	Direct control instruments	*2*
	Public ownership and land acquisition	1
	FES provision through direct public management	1
MBIs Market-based instruments	***Total MBIs***	***64***
	Quality-based instruments	*15*
	Mitigation banking	0
	Offset schemes	12
	Cap-and-trade schemes	3
	Price-based instruments	*4*
	Subsidies and grants	3
	Tax exemption and rebates	0
	Soft loans	0
	Competitive tenders/auctions	1
	Market-friction reducing instruments	*45*
	Land acquisition by private bodies	2
	Public-private management contracts	8
	PES and PES-like schemes	26
	Public Procurement Schemes	1
	Corporate Social Responsibility	0
	Definition of standards, certifications, eco-labelling	5
	Other initiatives like branding, promotion, sponsoring	3
IE Information and education	***Capacity building/awareness raising instruments***	***7***
	Technical assistance	1
	Education and training	5
	Consumers' awareness raising	1
Total C&C + MBIs + IE		***77***
Development of the social-organizational environment		6
Total number of cases in the Inventory		**83**

Modified from Windle *et al.* 2005, Stavins 2001, Prokofieva and Wunder, 2014

The data show that 64 cases, i.e. the vast majority of cases are MBIs, a more modern type of economic instrument than C&Cs. Of these 64 cases, 26 were recognised as 'PES and PES-like schemes', in absolute the most represented type of instrument in the Inventory. 7 cases are

information and education instruments. Finally, 6 cases are more traditional C&C instruments, including 4 cases of regulatory instruments and 2 cases of control instruments.

Altogether, the number of cases assigned to the three main instrument categories of C&C, MBIs and IE sums up to 77, with 6 cases still missing to meet the total 83 cases of the Inventory. Indeed, 6 cases have some essential features that cannot be pigeonholed to any of the three main instrument categories. These cases are N. 9 'Cooperativa Valle dei Cavalieri' IT, N. 33 'Agrupacions de Defensa Forestal' ES, N. 55 'Bosforum' BE, N. 66 'Nationaal Park Hoge Kempen' BE, N. 81 'The Mersey Forest' UK, and N. 82 'Local Nature Partnerships' UK. The *Cooperative Valle dei Cavalieri* is a community cooperative has the primary objective to enhance the welfare of a whole community in a marginal rural area of Italy. The *Agrupacions de Defensa Forestal* are voluntary associations of forest owners, local volunteers and municipal councils' representatives who work together to prevent and fight against forest fires. *Bosforum* is a grassroots initiative of actors of forest-timber, urban and spatial planning, agriculture, healthcare organisations and civil society that aims to stimulate the adoption of multifunctional forest policy with a long-term vision and raise general awareness on the positive effects of forest. *NGO Nationaal Park Hoge Kempen* is a coalition among local government, nature conservation organizations, local stakeholders and local communities of a conservation area which created a protected area through a bottom-up approach and made it an opportunity for local economic development. The *Mersey Forest* is a network of different private and public actors and community sector organisations in Merseyside and North Cheshire aiming at increasing forest cover and establishing community forests. *Local Nature Partnerships (LNP)* are setup to embed nature in the decision-making processes and local policies for the benefit of people, environment and the economy and are recognised by the national Government of UK.

The shared distinctive features of these 6 cases is the effort of developing the social-organizational environment through the creation of new networks amongst a wide number of actors, especially local communities and civil society. This appears not a fully mature instrument *per se*, but rather as the development of social preconditions, the establishment of a fertile ground where the seeds of innovation that can later emerge and grow.

Another perspective under which the Inventory can be explored is the adoption of more than one policy instrument in the same IM. The use of a policy mix logic is indeed considered an innovation in policy design (Flanagan et al., 2011) and has shown to be successful in several cases of environmental policy-making. From this point of view, data in Table 7 show that a total 25 IMs in the inventory do not rely on a single policy instrument to provide FESs, but on an additional one or even on two additional ones (second and third column respectively – the table omits rows with zero results). The most frequent additional instrument used in addition to the main one is Corporate Social Responsibility.

Finally, it might be interesting to see how policy instruments distribute across other sub-dimensions of the Inventory. Cross-tables A2.1-A2.6 in Appendix 2 report such information, that will be further analysed in the next months as part of the WP1 final report.

Table 7. IMs using more than one instrument for FES provision, per instrument type

Instrument	Cases with one additional instrument	Cases with two additional instruments
Licences/permits	1	1
Public ownership and land acquisition	1	-
Public provision through direct management	1	-
Offset schemes	3	-
Tax exemption and rebates	1	-
Land acquisition by private bodies	1	-
Public-private management contracts	1	1
PES and PES-like schemes	2	-
Corporate Social Responsibility	9	-
Definition of standards, certifications, eco-labelling	1	-
Other marketing initiatives	1	-
Education and training	1	-
Consumers' awareness raising	2	-
TOTAL	**25**	**2**

5.2. Analysis of innovation in the Inventory and definition of a framework of innovation types

As anticipated, the preliminary analysis of innovation was based on four broad innovation scenarios: 1) creation of a new FES, 2) creation of a new mechanism, 3) a combination of both a new FES and a new mechanism, and 4) a scenario in which an existing mechanism or FES is used for the first time in a different spatial context 'relative innovation'. However, innovation is a more complex and multifaceted concept, often much subtler than these broad scenarios and also not always immediately perceivable or visible. The awareness of innovation features in the IMs, hidden but certainly pivotal for FES provision, led to a deeper analysis into the IMs so to capture with more detail the type of innovation. To this end, an inductive approach was used, with some elements of a deductive approach connected to relevant innovation literature (cfr § 3.2 in D1.1).

In the literature, the meaning of innovation is typically seen in terms of *product* innovation, *service* innovation and *process* innovation. The concept can also be applied to introduction of a *new technology* or a *new business model* for the firm. However, innovation can also be less tangible and refer, for example, to a change in social practices. In this case, it is presented as *social* innovation. On a different perspective, innovation can be *incremental* when it introduces small and gradual improvements, for example in the technology, or *radical* when the change is discontinuous, wipes out an existing product, technology or process and replaces it with a completely new one (Edwards-Schachter, 2018).

All these meanings and features of innovation have been developed initially in the domains of industry and economic development. However, innovation is becoming now a more interdisciplinary

and integrated field of research, contaminated by meanings and concepts coming from newly emerging economic sectors like social economy, green or blue economy. Its different meanings can be transferred and adapted to our field of interest, that is: 'innovation embedded in mechanisms for the provision of FES'. We start by extracting this knowledge from the IMs in the Inventory and end with the proposal for a SINCERE classification of types of innovation.

Product and/or service innovation. A new product/service translates, in our context, with the provision of a new FES that did not exist or was not provided before. Several cases exist in the Inventory that introduce this type of innovation. One example is case N. 21, "Bosco del Sorriso", a forest bathing path which provides a cultural FES connected to health, mindfulness and wellbeing. This FES, which arises from the contact with a forest ecosystem, is new for the European culture and approach to healthcare. Another case, N. 41 "METSO - the Forestry Biodiversity Programme for Southern Finland" provides lifecycle maintenance and habitat protection, a regulation FES that is not an absolute novelty in the European context, but it is a novelty in Finland, where forest management is traditionally productive-oriented. A third case, N. 73 "Golfe de Saint Tropez fire protection scheme" in France, provides a new bundle of FES, that is to say two FES – i.e. wildfire protection and water quality improvement – together at the same time. Based on this knowledge emerging from the examples, we can code four sub-types of product and or service innovation according to the FES provided: (1a.) a new provisioning FES, (1b.) a new regulation FES, (1c.) a new cultural FES and (1d.) a new bundle of FES.

Technological innovation. This type of innovation translates into our domain as the implementation of a new technology that is used to provide or enhance the provision of a FES. The technology improvement resides within a mechanism which can have other aspects that are more traditional or consolidated. For example, in case N. 4 "Fungo della Magnifica Comunità di Fiemme", the local community has improved the mechanism of selling mushroom picking permits (that is not new *per se* in the area) by introducing a technological change (buying permits through the ATMs of local banks) that facilitates the sale of the permits. In another case, N. 39 'Ecosia' digital innovation has enabled the implementation of an online platform that raises funds to support forestation and reafforestation actions around the globe. Again, what is new in this mechanism, is not the idea of raising funds for reafforestation, but the technology which has greatly expanded the marketplace for transactions. The technological innovation type is coded in our classification with "2a."

Process innovation. The innovation along the production process can materialise in a "new way to capture value", e.g. a novelty in how the FES is produced that enhances its value in a way that is recognised by consumers. For example, case N. 67, "Ecological Dehesas Association" aims at introducing FSC certification for the forest owners' member of the association in order to improve the value of their products, to gain new market shares or segments. Another type of process innovation occurs when forest management is reoriented towards more sustainable or multifunctional models where regulation or cultural FES provision gain importance. This is the example of case N. 58. "Integrated Forest and Nature Management" in Belgium, where zonation and introduction of *ad hoc* management strategies could maximize the specific economical, ecological and recreational value of each zone. The innovation type "new way to capture value" is

coded in our classification as 2b., while the "new or more sustainable management" type is coded as 2c.

Business plan innovation is related to novelties introduced in the business plan context. This can materialize, for example, in a new or renewed internal organization of the firm, in a fully new canvas business model, or in a new or revised component of the canvas. For example, case N. 24 'Bassenthwaite Vital Uplands - Ecosystem Services Pilot Project' was able to successfully implement a new internal organisation by integrating several funding schemes, including agricultural support, the England Woodland Grant Scheme, the water utility's sustainable catchment management programme (ScaMP2) and a visitor payback scheme. Case N. 29 "ENJOYHERITAGE project" in Croatia explicitly decided to target two new and specific consumer segments represented by families with kids and by young people, to which tailored services were offered. In contrast, the "red-core beech" project in Germany (case N. 25) invested in a campaign supported by forest administrations and local development organizations to increase the value of red-core beech timber through communication and educational activities. The communication strategy was capable of stimulating people's awareness of the target ES and, hence, to increase its diffusion. We have coded three types of innovation under this heading: 2d. "new internal organization", 2e. "new targeted consumers" and 2f. a "new communication strategy".

Social innovation. As highlighted by Edwards-Schachter (2018), another important issue in the discussion of the meanings of innovation, is the idea that "changes in social practices […] contribute to broader changes in socio-technical systems". This focuses the analytical attention not only on the process through which the changes are implemented but also on "who innovates". This is at the core of the concept of social innovation, that is pivotal in the whole discussion turning around the introduction of Innovative Mechanisms, given our view of 'mechanisms' as a model characterised not only by structural but also by relational features, i.e. actors and governance structures (cfr § 3.2 in D1.1). Several cases in the Inventory are connected to social innovation. For example, in the "Bionade-Trinkenwasserwald" case in Germany (N. 35), the Bionade Corporation (a producer of organic non-alcoholic refreshment drinks), started a new cooperation with the drinking water forest association Trinkenwasserwald. This cooperation aims at increasing the number of public or private forest owners in the water catchment area willing to change their forest composition from conifers to broadleaves to improve the water quality. This innovation is an example of "new actors involved" in an already existing mechanism. In another case, the "Forest Lab Zürich" (N. 45) a new network involving different stakeholders, such as research institutions as well as forest owners and forest NGOs, has been set-up to learn about forest regimes and forest resource management by using citizen science. On another aspect, the already quoted case "Local Nature Partnerships" in United Kingdom (N. 83) has invested in partnerships that specifically focus on the attempt to embed nature in the decision-making processes of local policies to the benefit of people, environment and economy. This objective is achieved by approaching the management of the local natural environment in a long-term strategic view and with an integrated approach at a new scale, from the individual to the landscape one. Another experience of social innovation is reflected by the experience of the funeral forests' trans boundary network between Germany and Austria called "FriedWald" (case N. 37). Even most of the cases already identified as 'other types

of instruments' in 5.1 fall into the social innovation type and refer to new networks based on the active involvement of actors from civil society. We have thus coded five types of innovation under this heading, i.e.: 2g. "new actors involved" referring to the introduction of new suppliers in an already existing network; 2h. "new networks", meaning the creation of a completely new network for the provision of a FES; 2i. a "landscape approach", indicating mechanisms that are not focused just on a small area or on a single ecosystem but that function at a landscape scale; 2j. "transboundary project" referring to innovation that is not constrained by political boundaries but includes different countries under a single mechanism.

By integrating all the types of innovation emerging from the analysis of the inventory, we have developed a framework for describing and interpreting innovation in IM for FES provision in the context of the SINCERE project. This framework, presented in Figure 20, is a more refined elaboration of the four innovation scenarios described in D1.1, but is, at the same time, aligned and consistent with it.

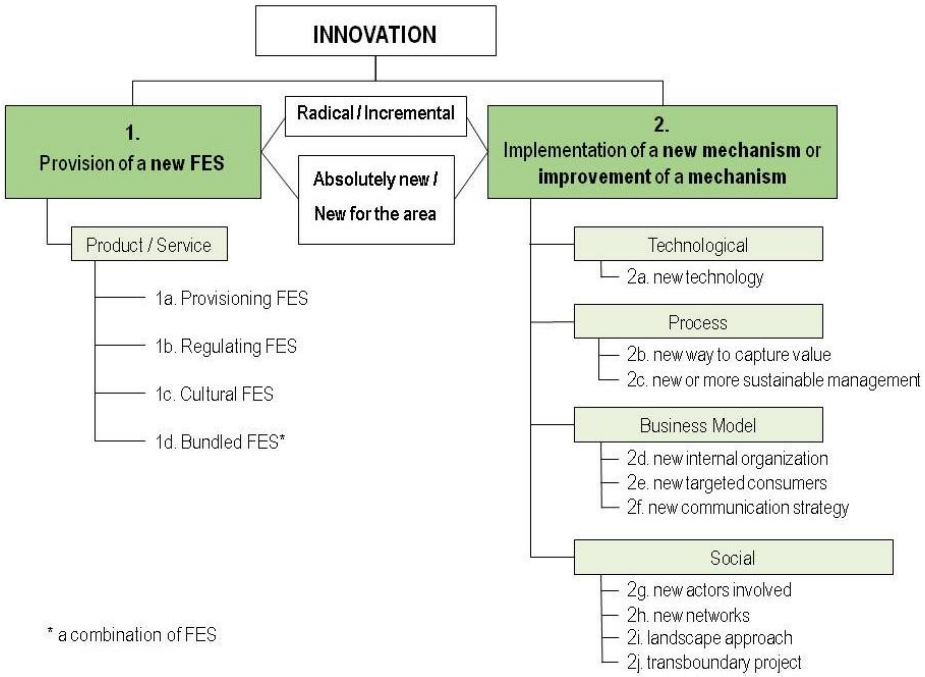

Figure 20. Proposed framework for defining innovation in IM within SINCERE

Besides typologies and sub-typologies, better referred to as 'attributes', the framework integrates also the other important perspectives of innovation (white boxes in the central part of the framework). One is the possibility that innovation can be either radical or incremental; another acknowledges the possibility that innovation can be "absolutely new" or simply "new for the area" (relative innovation). In an Inventory which has the ambition to cover and analyse innovation at a European scale, where spatial distribution of innovation is uneven, we believe that this further information helps to better capture all the possible aspects and values of innovation, even the tiniest and hidden ones. The left hand side of the framework reconnects the initial A scenario (provision of a new FES) with the first innovation typology (Product/Service innovation), while the right hand

side reconnects the B scenario to the other types of innovation connected to the implementation of a new mechanism or to the improvement of a mechanism'.

A first reflection stemming from the exercise of identifying and classifying innovation included in the IMs, is that defining innovation under one attribute or another is not always easy and is sometimes dependent on which perspective is used to interpret the meaning or the focus of attributes. For example, the example of case 67 under 2b. 'a new way to capture value' might also be interpreted as 2e. 'new targeted consumers'. In other words, boundaries of innovation attributes can sometimes be fuzzy or overlapping.

A second reflection is that our data point to a type of innovation in FES provision which seem to lie more on the introduction or modification of some elements – like a different use of already existing marketing strategies or with the implementation of networking relationships which had not existed before – than on the establishment of a completely new mechanism. This seems to highlight that the current trend in the implementation of IMs for FES provision and enhancement mainly relies on incremental innovation rather than on radical innovation.

A third point is that many cases appear as having inherent qualities of innovation that are not mutually excludible, but rather combined and integrated with each other. This is the idea of 'hybrid' innovation, where bundles of different products or services, technologies, processes, actors, institutions and sources of knowledge contribute together to the development of innovation systems (Rametsteiner and Weiss, 2006; Edwards-Schachter, 2018).

A last point reflection connects the findings on innovation attributes to the analysis of policy instruments carried out before (cfr § 5.1). We have spoken of preconditions of innovation rooting in the establishment of a social-organizational environment, which enables innovation. This may suggest that innovation does not only take the form of 'hybrid' innovation, but also that of 'cascade' innovation.That is, where one type of innovation, in our case a social innovation, generates in turn other innovations in the shape of product and/or process innovation or, *vice versa*, technical or product innovation stimulates social innovation through involving new actors, establishing new actors or enlarging the scale of action.

6. Mapping IMs

Access to the more important information of the Inventory is enabled by an interactive map which shows the location of cases gathered in the Inventory. The map has two different layers: the green layer visualises the validated cases (Figure 20a), while the orange layer displays non-validated cases (Figure 20b). Both layers can be displayed on the same map (Figure 20c). This map allows for distinguishing cases provided or confirmed by the experts (the validated cases) and those which have been obtained by consulting publicly available information (the non-validated cases).

a) b)

c)

Figure 21. Map of the cases included in the Inventory. a) validated cases b) non-validated cases c) all cases

As already highlighted, the information reported in the map does not perfectly overlap with that of the Inventory. For some sub-dimensions the data were reprocessed and turned in a more readable

way; for some other sub-dimensions, the information was not inserted in the map because it was too complex to be represented. Table 6 reports the list of sub-dimensions used in the map.

The map is available at this link.

Table 8. Sub-dimensions of the framework represented in the Inventory map

Dimensions	Code	Sub-dimensions
Identification	ID3	Mechanism name (in English)
	ID4	Mechanism administrator (name and address)
	ID11	Source of information
Spatial and time scale	ST1	Mechanism Scale (institutional)
	ST4	Mechanism Year of establishment
	ST5	Mechanism Duration (time horizon)
	ST6	Mechanism Status
Targeted Ecosystem and FES	TES1	Other ecosystems involved
	TES2	Type of forest subsystem
	TES3	Type of bioclimatic region
	TES4	Type of setting
		Forest Ecosystem Services (FES)
IM Description (actors, payment and governance structure)	MD1	Short narrative description
	MD2	Seller/provider of FES targeted
	MD3	Buyers/demanders of FES targeted
	MD4	Intermediaries/facilitators
	MD5	Beneficiaries
Innovation		Type of innovation
	IN1	Innovation features
	IN2	Innovation drivers

7. Conclusive remarks

In order to extend the knowledge on the existing IMs for the provision and the enhancement of FES at European level, an Inventory of IM cases was developed as one of the initial Tasks of WP1. The Inventory is an initial attempt to identify and to systematise the IMs. Because of the novelty of this research, we started from a definition of innovation as inclusive as possible.

This Inventory represents a starting point for future research within SINCERE and is open to further updates within at least the project duration, through adding new cases, fine-tuning their description and monitoring the evolution and the development of the existing cases and the innovation features they might introduce in the future. D1.4 will contain an expanded and updated version of the Inventory.

The Inventory also provides essential information for T1.2 and D1.3, which aims at assessing how different IMs overlap with FES demand and supply at the spatial scale in Europe.

References

- Bennett G., Gallant M. and ten Kate K. (2017) *State of Biodiversity Mitigation 2017. Markets and Compensation for Global Infrastructure Development*. Ecosystem Marketplace.
- Bennett G. and Ruef F. 2016 Alliance for Green Infrastructure. Watershed Investments. Ecosystem Marketplace and Forest Trends.
- Davis, L., North, D. (1970). Institutional Change and American Economic Growth: A First Step Towards a Theory of Institutional Innovation. The Journal of Economic History, 30(1), 131-149. doi:10.1017/S0022050700078633
- Flanagan, K., Uyarra, E., Laranja, M. (2011). Reconceptualising the 'policy mix' for innovation. Research policy, 40(5), 702-713.
- Edwards-Schachter, M. (2018). The nature and variety of innovation. International Journal of Innovation Studies. 2, 65-79.
- Haines-Young, R., Potschin, M. (2018) Common International Classification of Ecosystem Services (CICES) V5.1 and Guidance on the Application of the Revised Structure
- Hamrik K. and Gallant M. 2017 Unlocking Potential. State of the Voluntary Carbon Markets 2017. Ecosystem Marketplace and Forest Trends.
- Hargrave T. J., Van de Ven A.H., 2006. A collective action model of institutional innovation. Academy of management review, 31.4: 864-888.
- Landell-Mills, N., and Porras, I. T. (2002). Silver bullet or fools' gold?: a global review of markets for forest environmental services and their impact on the poor. Instruments for Sustainable Private Sector forestry Series. International Institute for Environment and Development, London.
- Leonardi, A. Characterizing Governance and Benefits of Payments for Watershed Services in Europe. (2015) Ph.D. Dissertation, Università degli Studi di Padova, Padova, Italy, 30 January 2015. Available online: http://paduaresearch.cab.unipd.it/7832/
- OECD/Eurostat (2005), *Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data, 3rd Edition*, The Measurement of Scientific and Technological Activities, OECD Publishing, Paris, https://doi.org/10.1787/9789264013100-en
- Prokofieva, I., Wunder S. 2014. Designing Economic Instruments for Ecosystem Service Provision. In: Jellesmark Thorsen B., Mavsar R., Tyrväinen L., Prokofieva I., Wunder S. (eds) The Provision of Forest Ecosystem Services. Vol II Assessing Costs of Provision and Designing Economic Instruments for Ecosystem Services. EFI Series What Science Can Tell Us (5). Joensuu: European Forest Institute.
- Sattler, C., Trampnau, S., Schomers, S., Meyer, C., Matzdorf, B., 2013. Multi-classification of payments for ecosystem services: How do classification characteristics relate to overall PES success? Ecosystem Services. 6, 31–45.
- Stavins, R., 2001. Experience with market-based environmental policy instruments. Discussion Paper 01-58, Resources for the Future.
- Windle, J., Rolfe, J., O'Dea, G. (2005). Selecting market-based incentives for natural resource management. Report prepared for the Burnett Mary Regional Group, Central Queensland University, Rockhampton, Australia.

Appendix 1 Full description of IMS included in the Inventory

N.	Original name	English name	Description	Country	Valid. Y/N
1	Bosco Limite	Limite woodland	In the last 30-40 years, the risks for aquifers in the upper plains of Veneto have become clear. The decline of water table levels as result of overexploitation has led to the disappearance of wetlands and springs, while the impacts of agriculture activities have reduced the quality of groundwater. Bosco Limite was created in response to these issues. It is a 2.35 hectares plantation forest (2,300 trees and 55 different plant species) on a private land previously under farming. The design of the forest area aims at maximizing water services (the measured data show encouraging results in the range of 20 - 50 l of water/s/ha in terms of infiltration capacity per hectare) and producing other ecosystem services like refuge for wildlife in the middle of an intensive agriculture area, local climate regulation and environmental education. The project is sustainable from an economic viewpoint only through the sale of the services provided by the woodland. In fact, the owner calculated an annual loss of €744/ha. In fact the average profit matches that coming from the previous land use because landowner receives: €1,500 per year from the Municipality of Carmignano for daily opening the land to the local community and enabling recreational and educational activities and events and €1,200/ha per year from the Brenta Land Reclamation Consortium for providing the infiltration water service. Other local companies have been involved in the project to mitigate part of their CO2 emissions. The stakeholders' network and new local partnerships are keys for the success of the project.	IT	Y
2	Ecopay-connect Oglio Sud	Ecopay-connect Protected area of Oglio Sud	The conservation area of Park Oglio Sud is intensively farmed by large dairy farms and connected feed crops. This has led to landscape simplification and water pollution by fertilizers and pesticides. The more marginal areas (e.g. along riverbanks) are cultivated with poplar trees, feeding an active wood value chain (important at a national scale). The Ecopay Connect project aimed at stimulating farmers, forest owners and wood processing companies to plant more trees in order to strengthen the ecological connectivity of the area and reduce agricultural pollution. At the beginning of 2018, an FSC certification process started at one of the large poplar farm (300 hectares). The FSC certification requires that at least an area equal to 10% of the forest area under certification is set aside for renaturalisation. To this end, the farm agreed to support the costs for the renaturalisation of land owned by the Park authority and this land would be offset for complying with the certification standards. The amount paid annually is of some thousand euros and the contract will last 5 years. This will help biodiversity conservation at a local and sub-regional scale.	IT	Y
3	Fungo di Borgotaro	Mushrooms of Borgotaro	In the region of Borgotaro (Northern Apennines) mushrooms (especially ceps, i.e. the gender Boletus) are renewed for their huge quality and taste. Hence, in early 90's, the local community owning the forest where the mushrooms grow wild created an association with the other actors of the mushroom value chain. This association manages a system of permits sold to non-local mushrooms pickers. In addition, local community has promoted the certification of local mushroom under the PGI EU territorial certification. The revenue from the sale of mushroom permits is used for sustainable forest management focused on maintaining the best forest ecological status, to maximize the connected mushrooms production and helps promoting the area.	IT	Y

4	Fungo della Magnifica Comunità di Fiemme	Mushrooms of Fiemme Forest Common	The 'Magnifica Comunità di Fiemme' is a common forest where land is owned undivided by a community. It exists since nearly one thousand years and is renewed as a model of sustainable forest management. It owns 20,000 hectares of land (forest and pastures). A valuable non wood forest product is wild mushrooms. Like other cases, the Comunità has set up a system of sale of mushroom picking permits. These types of mechanisms are well spread all over Italy, but often face the difficulty of organising the sale of the permits to the public in an efficient way. In the Magnifica Comunità di Fiemme, permits can be bought also at local ATMs. In additions, hotels offer special services for the pickers like the cleaning and drying of the mushrooms they pick from the forest.	IT	Y
5	Trentinerbe standard	Trentinerbe standard	TRENTINERBE is a local standard that regulate the harvesting, the processing and the sale of wild medicinal plants guaranteeing the quality and traceability of the products coming from the Province of Trento. In order to adopt these standards and to be included in the register of the qualified operators, the companies have to reside in the Province of Trento and have to attend a course, with final exam, delivered by the Province. Adopting the standard companies can use the trademark for their final products. TRENTINERBE ensure the geographical provenience of the medicinal plants and the sustainability of the production process. The standard is an attempt to fill the gap in the national legislation on wild plants collection.	IT	Y
6	Arte Sella	Land Art in Sella Valley	In 1986, three friends -a philosopher, an artist and a town planner- living in the municipality of Borgo Valsugana started this unique Land Art initiative, joining art and nature in the forest. The founders found a suitable location in Val di Sella and asked famous contemporary artists to create and install pieces of art in the forest. They were inspired by some principles: nature must be part of the piece of art, the artist is not at the centre of the work, nature must be protected as it conserves the memories of land, nature is interpreted, the pieces of art must be made with natural materials, coming from the landscape and going back to it: so they are not maintained, but left to decade naturally. Visitors pay a ticket for visiting the forest paths where the pieces of art are displayed. The management of the permanent contemporary Land Art exhibition is carried on by the Association Arte Sella.	IT	Y
7	Bosco dei 100 Passi	Woodland of the 100 steps	The Bosco dei 100 Passi is a forest land confiscated from the organized crime in a highly urbanised area and nowadays an urban park with multiple functions: landscape improvement, biodiversity enhancement through a new pond being created for amphibians and birds, carbon sequestration through tree planting. The whole project is supported by Europe Assistance, the biggest private insurance company in Italy, which has adopted the park and buys the carbon credits generated by it. The park trees were named after the victims of the mafia, acting as a natural monument to their memory.	IT	Y
8	Boschi Vivi	Living Woodlands	Boschi Vivi is a private company managing 11 ha burial forest. The company offers to bury the ashes of the dead under a chosen tree in the forest, with four main burial options: a community tree, an individual tree, a family tree and a couple tree. The cost varies, according to the chosen tree, on its diameter, accessibility, position and GPS tracking. The company offers additional services like the ceremonial setting and the provision of a commemorative plate, which cost €250. Part of the company revenues are reinvested in management of the burial forest and in initiatives supporting the environmental rehabilitation of the regional woodland.	IT	Y

9	Cooperativa Valle dei Cavalieri	Cavalieri Valley Cooperative	The Cooperative Valle dei Cavalieri was founded by a group of residents of the Cavalieri valley as a response to the gradual abandonment of the rural area (Northern Apennine). The community cooperative was the first one in Europe and they started to work for the revival of the area by creating a suitable environment for touristic activities. With "community cooperative" is meant a cooperative that has not only the objective to maximise the benefit for its members but for the whole community trying to answer to the need of an extended group of people. Community cooperatives are understood within the umbrella of social innovation initiatives. Born 28 years ago nowadays the cooperative is formed by 56 members and employs 7 people and it runs a restaurant, which offers local food, and a wellness centre. In collaboration with the National Park they have developed new offers for tourists: guided excursions, environmental didactic activities becoming the visitor centre of the National Park. Thanks to the new opportunities developed to attract tourists the community cooperative was able to revitalise the valley and the fruition of its forests.	IT	Y
10	I Luoghi del Cuore	The places of the heart	FAI is a non-profit foundation inspired to the experience of the British National Trust. It aims to preserve and enhance the artistic, historic and environmental heritage of Italy. FAI has a special initiative, called "I Luoghi del Cuore" (the places of the heart), which involves citizen in reporting on threatened areas. Citizens vote their preferred site through a public web survey. Then the most voted sites will be adopted and by the foundation and actions will be taken for their conservations. The project has a budget of 400.000 € coming from FAI and from the Intesa Sanpaolo Bank.	IT	Y
11	GAS Bosco	Bosco ethical purchasing group	The GAS Bosco is an ethical purchasing group which started to plant and manage trees in order to offset the carbon emissions produced by the transportation of their non-locally produced purchases. The area where they plant trees is located within the Serio Natural Park and is owned by a farmer who has leased it for free to the Serio Natural Park as long as the land is used for reforestation.	IT	Y
12	Albo delle opportunità di compensazione Regione Lombardia	Lombardy Register of land compensation opportunities	This initiative refers to the creation of a register where demand and supply of land for undertaking offsetting actions can meet. The demand is represented by forest owners who need to offset a land use change from forest to other uses (an offset which is mandatory under the regional law of Lombardy). The supply side is represented by those forest owners who need financial resources for managing their forest or plant new forests on their land. The forest owners that have to compensate for land use change can have difficulties in finding a place where to implement the appropriate actions. In order to facilitate the search of a suitable area the register was created and the forest owner in there can find the areas that need an external support in order to be managed in a sustainable way.	IT	Y
13	Fondo sanzioni per danni ai boschi Regione Lombardia	Lombardy funds of sanctions for forest damages	The Lombardy region law 31/2008 provides sanctions for damages to forests or other areas contrasting soil erosion. According to the regional regulation 5/2007, the revenue from sanctions must be used for forest management, reforestation activities, maintenance of the hydraulic engineering works which regulate runoff and for educational and dissemination activities. Since 2010, the Lombardy Region has started to monitor the use of such revenues. Although it is not compulsory, most of funds recipients provide the information to the region, which is also made available to citizens upon request.	IT	Y

14	Fondo Aree Verdi Regione Lombardia	Lombardy Green Fund	The Green Fund of the Lombardy Region was started in connection with the introduction of regional law 12/2005 establishing that any permanent land consumption needs to be compensated. Hence, all urban or industrial developmental initiatives using agricultural land have to be compensated by paying an increased fee known as "contribution for construction", higher than the 1.5 to 5%. These fees' increments are collected in a Green Fund that has to be used for forest conservation and/or for increasing the number of hectares of natural areas within the Region.	IT	Y
15	Gestione del demanio forestale regionale da parte di privati	Private management of the regional government-owned forests	The Ligura Region decided to make a call to give the regional government-owned forests in concession, for 12 years, to private entities. The winners of the call would have to manage the forest in a sustainable way and would have to provide Ecosystem Services improving local communities' livelihood. The call was open to private forest and agricultural enterprises and social cooperatives. Because the property remains to the regional government the forest management has to follow the indications referred to the public-owned forests. This means that the winners of the call, that will manage the forest for 12 years, have to reinvest the 15% of the total annual revenue in the sustainable management of the forest and preserving its natural heritage. The setting aside of a higher percentage for this purpose has been considered positively in the establishment of the final ranking. Among the criteria for the projects evaluation the following elements were considered as priority: (1) water regulation, (2) forest road network, (3) management of touristic paths, (4) natural engineering and (5) trees planting. Moreover, the participants that are aimed to ensure forest multifunctionality, supporting the provision of different Forest Ecosystem Services (FES) than timber extraction, received a higher score depending on the type of interventions proposed. Additional points are given to participants that express the intention to certify the forest with FSC standard. These elements, which are higher evaluated by the commission, highlight the way in which the regional authority is intending the most important objectives of forest management: a management able to provide also those services able to respond to societal demand.	IT	Y
16	Mosaico Verde	Green Mosaic	Often municipalities and natural parks that own land have to face with the lack of financial resources for increasing or improving their green areas. This project joins municipalities and natural parks with private companies. The latter can finance reforestation projects or support forests/parks management activities of the former in order to achieve their corporate social responsibility objectives. Nowadays 7 municipalities, 5 natural parks and 9 companies are joining the project. The companies can sustain public owners in: (1) planting trees in order to clean the air, reducing the pollutants and increasing forest surface, (2) maintaining the paths system to enhance the touristic and recreational function of the forest, (3) implementing actions to reduce wildfire risk, (4) acting to ameliorate the forest habitat and (5) starting the FSC certification process. MOSAICO VERDE allows also private citizen to support the project making donations to plant trees in the natural park/municipalities present in the network.	IT	Y
17	Diventare Alberi	Becoming Trees	The project is implemented in an urban Community Forest in the municipality of Bologna (the Certosa park), where it is possible to spread the ashes of departed persons in a public area. Permaculture techniques will be applied in order to establish and manage the funeral forest.	IT	Y

18	Servizi ambientali erogati dai Consorzi Forestali Regione Lombardia	Ecosystem Services supplied by Lombard Forestry Consortium	This is a programme of regional incentives given to Forest Consortia for implementing actions to enhance the provision of Forest Ecosystem Services in their areas. Consortia in this case is meant as voluntary and temporary associations of forest owners and forest enterprises for managing directly private and public forest areas given to them through usufructs, concessions, etc. The incentives granted to the consortia cannot be higher than the 100% of the total allowable costs, for a maximum of € 100.000,00 per consortium per year. The actions allowed are the ones that are aimed to: (1) enhance o restore forest habitat, (2) enhance water outflow, (3) ameliorate path and trails improving the fruition of the forest and (4) reduce wildfire risk.	IT	Y
19	Associazione Forestale di Pianura (AFP)	Lowland Forests Associations	Lowland Forests Associations (AFP) is the first association among lowland forests owners. It was created in order to spur and facilitate the sustainable and responsible use of forest resources. They act as a certified group, in fact all forests have been certified FSC after and thanks the creation of the association. In AFP are present private companies (that nowadays are the main financing sources), consultant partners, such as ETIFOR, a spin-off of the University of Padova working on forest sustainable management, and the University itself, specifically in the department of Land Environment Resource and Health (LERH). Within the association it is also present a regional park (Regional Park Oglio-Sud) that thanks its participation to the AFP was able to be certified FSC. This is one of the unique cases in Italy. Thanks to the collaboration with FSC the association was able, for the first time at world scale, to certify its forests for the provision of Ecosystem Services. FSC developed several standards for the certification of different Ecosystem Services (biodiversity, carbon sequestration, water regulation, soil protection, recreation) in addition to the certification for the sustainable management and of the value chain.	IT	Y
20	Asilo nel Bosco di Ostia	Forest Kindergarten of Ostia	The project Asilo nel Bosco di Ostia was born in 2012 as an experimental project hosting 40 children from 2 to 6 years, in a rural context close to "Ostia Antica" archaeological park and close to Tevere river. The project was one of the first forest kindergarten in Italy where children spend the entire day out in the nature. Asilo nel Bosco is now a well-established project, the kindergarten host 70 children, another project "Piccola Polis" host 42 children from 6 to 11 years, and they organize training courses on outdoor education and forest kindergarten all over Italy. The project has no public funds, has diversified fees based on income and availability to pay of the families. The activated also a crowdfunding.	IT	Y
21	Bosco del Sorriso	The woodland of happiness	Oasi del Sorriso born in 2012 is a forest bathing path designed by Marco Nieri with his Bioenergetics Landscapes technique. The trees whose electromagnetic radiations are most beneficial for our bodies are identified, the benefits explained in panels, so the visitor is leaded to increase his awareness and spend a relaxing and healing time in the forest. Bosco del Sorriso is accessible free of charge, except for special events where a fee is requested in order to pay the expert/guide. The project is part of the biggest Oasi Zegna born in the '30s when Ermenegildo Zegna, the textile industrialist, launched a big patronage program of environmental reclamation around Trivero (Biella), where the Ermenegildo Zegna wool mill is still operating. Oasi Zegna, a freely accessible nature park covering around 100 km2 between Trivero and Valle Cervo in the Biella Alps, in Piemonte, was created in 1993 as a natural development of Ermenegildo Zegna's "green thought".	IT	Y

22	Drastrup Pilot Project	Drastrup Pilot Project	The Drastrup Pilot Project in the City of Aalborg in Denmark aims to protect groundwater sources from pollution caused by dominantly agricultural purposes. The approach consists of a publicly funded payment scheme to purchase agricultural land in the drinking water catchment area for conversion to broadleaved woodland. Farmers wishing to continue with conventional farming methods are offered land outside the catchment area. Nitrate concentration in groundwater has decreased from 120 mg/l to less than 10 mg/l since land has been converted. An estimated € 440,000 per year is saved due to reduced water treatment requirements. The forestation of new areas close the city led to the creation of a urban forest with also an important recreational function in addition to the water quality enhancement.	DK	Y
23	Niedersachsen, OOWV	Lower Saxony, Groundwater Protection	The Water Association of Oldenburg and EastFrisia (OOWV) in Lower Saxony is the drinking water supplier of an area of 8,000 km2 managing 15 waterworks. Intensive agriculture affects water quality in some areas of the catchments. In order to improve water quality and quantity (recharging groundwater bodies), OOWV offered an extra compensation to those owners that implement actions in order to enhance water quality and quantity. "Extra compensation" because the German Basic Law already establishes a compensation for those private owners that, in order to implement actions as part of their social responsibility, exceed the standard of good forest management practice. The beneficiaries of these actions have to compensate them. The intensification of restrictions and obligations asked by OOWV involved the avoidance of clear-cutting, changing from conifers to broadleaves or application of liming. Forest owners can participate voluntary to these “additional” activities. The agreements are made between the district administration, OOWV and the forest land owners with additional advice by the Camber of Agriculture. In order to finance this project OOWN introduces an extra charge to final water users: 5 cent/m3 for private users and a much lower amount for industrial and agricultural users. Moreover, OOWV bought around 2,000 ha of land in water supply areas, 800 ha were given to state forestry administration of the provincial state for afforestation actions.	DE	Y
24	Bassenthwaite Vital Uplands - Ecosystem Services Pilot Project	Bassenthwaite Vital Uplands - Ecosystem Services Pilot Project	The pilot aims to enhance ecosystem services within Bassenthwaite area through integrated work with farmers and land managers. One of the main actions of the Plan is to increase the wood-land cover to provide multiple benefits such as water provision, flood regulation, erosion control and many more. Woodland is planted on the least agriculturally important areas, as well areas that connect existing woodlands and areas that could reduce downstream flood risk. From 2013 until 2016, woodland was successfully planted through effectively working in partnerships and using several funding schemes, including agricultural support, the England Woodland Grant Scheme, the water utility’s sustainable catchment management programme (ScaMP2) and a visitor payback scheme.	UK	Y
25	Rotkernige Buche	red-core beech	The joint initiative of the forest administration of the district Höxter, the forest administration of North-Rhine Westphalia and an organization for local development started in 2001. Together with local carpenters and representative of timber-processing industries they started a campaign to re-value the timber of the red-core beech. Red-core beech timber was seen as less valuable for a long time despite the fact that only the colour was different but not its stability. With teaching and advertisement for these timber products the value was increased by almost 100%.	DE	Y

26	Wilde Buche	wild beech	Since 2011 a 750 hectares area in northern Rhineland Palatinate (district of Hümmel) is managed as a natural undisturbed forest (kind of primeval forest). It's financed by privates and companies that pay for the closing of the forest for 50€ (4-5€/m²). The project motivates companies to include the protection of forest (thus ecosystem services like CO^2 fixation) in their Corporate Social Responsibility (CSR) strategies.	DE	Y
27	Waldaktie Mecklenburg-Vorpommern	forest share Mecklenburg Western Pomerania	Since 2007 the tourism agency and the federal administration of Mecklenburg-Western Pomarania offer so-called "Waldaktien" (=forest shares) as a tool for off-setting CO^2 - emission during vacations. Formally it's not a really share like at stock market, because "investors" receive no returns and are no shareholders.	DE	Y
28	Wasserentnahmegeld / "Wasserpfennig"	water extraction money / "water penny"	The "Wasserpfennig" in Baden-Wuerttemberg is a fee/tax that is raised for the extraction of surface and groundwater. It was established in 1988 and novelized in 2015. Since then the income from the "Wasserpfennig" has to be used directly for water and watershed related management. As it is directly linked to the European Water Framework Directive, afforestation and forest-protection along streams is on major purpose of use.	DE	Y
29	"Uživam tradiciju"	ENJOYHERITAGE project	The main objective of the project is the development of sustainable tourism in the border area, between Croatia and Slovenia, based on the attractive interpretation of natural and cultural heritage. Through the project, a common strategy will be developed to address the sustainable management of protected areas on both sides of the border through exchange of practices and knowledge, which will upgrade existing expertise bases and set up guidelines for cross-border connectivity with a view to managing visitors and target groups of stakeholders. The aim is to draft innovative approaches that will primarily target families and young people during different periods of upbringing. Each partner in their area will cover some of the content that enables connectivity as a whole, into a new cross-border tourism product. The main outcomes of the project are: (1) a common cross-border tourism product including paths, (2) the implementation of practical activities to raise visitor's awareness on the importance and relevance of the relationship between natural and cultural heritage, with the aim of encouraging the interest of the young to protect the protected areas in the future, (3) the creation of a platform with sustainable touristic attractions based on the park's natural capital and (4) the development of guidelines for the proper exploitation of natural and cultural heritage and the improvement of the sustainable touristic attractions. The project is co-financed by the European Union from the European Regional Development Fund under the Interreg VA Slovenia - Croatia program. The total value of the project is €1,221,554.00 EUR. The project will run from 1.10.2016 to 31.3.2019.	HR	Y

30	Šumska bioenergija u zaštićenim sredozemnim područjima	Forest bioenergy in the Protected Mediterranean areas	ForBioEnergy is an innovative and ambitious project because it bets on the sustainable development of the rural areas using the forest biomass of the protected areas as driving force and at the same time acts to preserve biodiversity. Most of the forest areas are included in the protected areas, so, they represent a great opportunity for the production of sustainable energy from biomass. But the current regulatory restrictions as well as the lack of appropriate plans impede and slow down the forest biomass exploitation. And this is exactly the overall objective of the project: fostering the bio-energy production in the protected areas providing transnational solutions for reducing barriers that hinder the development of the sector and planning models in order to exploit the full potential of biomass and at the same time to preserve the biodiversity of the natural areas. This objective will be achieved through the definition of: (1) an Action Plan for shaping new regulatory framework and permit route aimed at removing technical and administrative barriers that hinder the energy use of biomass (2) a multi-level planning process: regional, local and operating (3) a set of sustainability requirements and quality standards of forest biomass. The project activities will be implemented through a transnational process for highlighting the most significant gaps as well as the best practices. Furthermore, key actors (who propose/change norms, regulations and plans, and who deal with Bioenergy and biodiversity issues) will be actively involved.	HR	Y
31	Doprinos za općekorisne funkcije šuma	Payment of fees for the use of the FED	Croatian Forest Law NN 94/14 and Forest Law NN 68/18 stipulate that all natural and legal people carrying out economic activities in the Republic of Croatia and with a annual total income higher than 3,000,000.00 HRK, are obliged to pay compensation for the use of beneficial functions of forests. The fee is calculated in the amount of 0.0265% of the total revenue and receipts. The resulting budget is used by the state in order to cover: (1) the costs of the management of protective forests and forest land, (2) the costs to draft and to approve forest management plans, (3) the management costs of small forests except for the activities involving wood exploitation, (4) the management costs in public forests owned by institutions, legal entities and, (5) in medium and large forests, the costs of a) raising new forests on afforest land, b) restoring forests affected by biotic and abiotic factors, c) source and well maintenance of cisterns d) livestock and forest land improvement e) technical and expert work in the field of forestry and f) fire brigade activities.	HR	Y
32	Bosques maduros	Mature forest reserves	Forest land preservation agreement for 25 years, maintaining selected forest stands in natural evolution. Specific criteria apply to be eligible (such as presence of autochthonous or climax vegetation and good genetic quality trees). Forest stands must have been left intact for 80-100 years prior to the agreement. Annual public tenders for the contracts until the budget end. Forest owners are proxy compensated for timber profit loss based on the forest management plan (ha of protected forest, not based on the additional ecosystem service provided). Non-compliance is monitored, there is a penalty for non-compliance (5,000€). Public funds of the Disputació of Giron are mainly addressed to public forests owners, that is why it was important the introduction of private donations (even if discontinuous) that allowed the extension of the programme to private forest owners.	ES	Y

33	Agrupacions de Defensa Forestal (ADF)	Forest Defence Groups	Forest Defence Groups (ADF) are associations of forest owners, local volunteers (firemen) and representatives of municipal councils formed with the aim to prevent and fight against forest fires. ADFs participate in the elaboration and execution of fire prevention programmes, conduct vigilance, support fire extinction activities and run public awareness campaigns. For that they acquire necessary equipment, and receive training coordinated by professional technicians. The costs of the activities are covered from public funds of regional, provincial and local administrations on the basis of annual calls. Payments are intended as reimbursement of annual expenses.	ES	Y
34	Xarxa Custodi de Territori (XCT)	Land stewardship (LS)	A system of more or less (private) voluntary agreements within forest owners and Land Stewardship (LS) entities aimed to enhance biodiversity and recreation by means of land purchase or other activities. There are three types of agreements: (1) land purchase (full rights transferred to a Land Stewardship entity); (2) management rights are transferred to a LS entity; (3) forest owner retains full property and management rights. The terms of the contract are negotiable in order to accommodate with the needs of the parties. Different types of activities are covered. Most contribution is in-kind. A third actor is involved: the Land Stewardship Network (XCT), born in the 2000s, that provides administrative and technical assistance to LS entities. However, they are not included in the LS contracts. Funds come from donations to LS.	ES	Y
35	Bionade - Trinken wasser wald	Bionade-Trinkenwasserwald	Bionade corporation produces organic non-alcoholic refreshment drink. The firm already support organic farming in the area from where the raw material they use come from. More recently they start to cooperate with the NGO Trinkwasserwald e.V. (Drinking Water Forest Association) in order to regenerate, compensate, in a sustainable way the drinking water they use each year for their production. Bionade in collaboration with Trinkwasserwald aimed to generate 130 ha of “drinking water forests” throughout Germany thanks forest conversion from conifer monoculture to broadleaved forests. The NGO is coordinating the involvement of private and public forest owners (through private contracts for 20 years period) willing to reserve at least 18 ha of their property for the conversion process. The expenditure for converting one hectare of conifer monoculture into drinking water forest, and thus the generation of 800,000 l/year, will cost one-time € 6,800 per hectare. The payments by the NGO to the forest land owners are made as the actual costs occur.	DE	Y

36	Kaufering scheme	Kaufering scheme	In Kaufering municipality, a high nitrate pressure exist on groundwater due to intensive agriculture. Studies saw that under conifer stands (pure spruce) the nitrates concentration results to be higher than under mix forest with beech and even lower under pure beech stands. Article 14 Paragraph 2 of the German Basic Law restricts the use of private land in favour of public benefit. In the law is also stated that the owner under restriction has to be compensated. That is why the municipal waterworks signed voluntary agreement with private forest owners, which own property within the established water protection area, to compensate them for economic disadvantages due to the transformation from coniferous to deciduous forests. Details of the payment: At the planting of water protection forest a onetime payment of € 250 is made. In addition, yearly payments are made of: (a) up to € 230/hectare for a forest consisting of 95% of broadleaf species and of 5 % spruce (Picea abies), or (b) up to € 275/hectare for 100% broadleaf forest. For an energy forest (afforested agricultural area) a onetime payment of € 650 is made for its planting. In addition, yearly payments of € 230/ha are made for an energy forest. Incentives are paid directly by the waterworks to the forest owners. The resources to compensate the forest owners derived from the increase of the water bill paid by the final water users.	DE	Y
37	FriedWald	Forest Cementery	Network of funeral forests in Germany and Austria. The burial site FriedWald is an alternative to the classic cemetery. The cemeteries were approved under public law. A place in the FriedWald is available from €490 and a tree can be purchased from €2.490, then price vary depending if the tree is for a single person or for a partner/community/family etc. Burial costs currently amount to €350. Exceptions are presented in water protection zones were burial costs is currently €625.The cost related to the name board amount from €20 to €125. The resting place is acquired since to up to 99 years. In the website users can individuate the closest forest cemetery and the different prices of the services.	DE	Y
38	RuheForst	Woodland burial site	RuheForste offer resting places in selected forest areas, which are characterized by site-specific tree species. The forest with all its features is preserved. Forests are targeted by habitat and graveyard at the same time. Thanks to the funeral concept RuheForst, these forests can now develop undisturbed for at least 100 years. Thanks to the preservation of a specific area for resting purpose, RuheForst is able to preserve different biotopes within the so called "quite forests" for up to 99 years. For managing their forests, they implement a "close-to-nature" silvicultural system following also the FSC and PEFC certification guidelines. Moreover, within the guided tours on the forest in order to select the rest place, visitors received also information about the specific forest ecosystem present on the site and its development after the management implementation. Because German legal regulations do not allow cemeteries to be private owned, the realization of RuheForst always takes place as cooperation among forest owner, municipality or the church.	DE	Y

39	Ecosia	Ecosia	Ecosia is a search engine that support reforestation/afforestation projects across the world thanks its advertising revenues. At least the 80% of their revenues are reinvested in reforestation actions implemented by Ecosia's partners. If their tree planting partners don't need the resources Ecosia provide them, they will be parked them in the Tree Planting Fund until partners have enough planting capacity. This money is only reserved for tree planting and will not be used in any other way. Ecosia is working with experts and communities to reforest areas of the world that need it most. Sustainable, high-impact planting strategies mean improvements to the environment, local economies and social stability. Since 2014 they are also certified as B-corporation. In Europe Ecosia supports an association in Southern Spain called AlVelAl.	DE	Y
40	WildOulanka	WildOulanka	BaseCamp Oulanka tourism enterprise has rented a large forest area (around 1000 hectares) from Kuusamo's largest landowner (Kuusamon yhteismetsä). Intensive forest management is restricted (e.g. clear cuts are soil preparations) and the area is used for wildlife watching and other nature-based tourism activities designed mainly international tourists. The funding is collected from clients governed by WildOulanka foundation.	FI	Y
41	METSO – Etelä-Suomen metsien monimuotoisuusohjelma	METSO – Forest Biodiversity Programme for Southern Finland	The objective of the programme is to ensure that Finnish forests will continue to provide suitable habitats for endangered and declining species conserving and enhancing the conditions of forest ecosystems. In order to achieve this goal METSO aims to activate voluntary-based conservation agreements between forest owners and authorities. Landowners get full financial compensation for conserving forests (equivalent to the value of timber at the protected site that they cannot exploit entering in the programme). Moreover, their income is tax free if they ensure the permanent protection of their forest. In fact, the actions METSO offers to forest owners are: (1) permanent protection, (2) temporary protection, (3) nature management in forest habitats. In protected sites is allowed nature-based tourism and recreation. In addition METSO offers tools for sustainable forest management and provide green image. The program is set to run until 2025. Another key element of the programme is Research. In fact, the annual fund destined to research and development amount to around €2 million.	FI	Y
42	Luonnonperintösäätiö	Finnish Nature Heritage Foundation	Natural Heritage Foundation is a private found that aim to preserve Finnish old forest. Thanks to donation done by private, companies or thanks the sales of fixed and movable property (such as real estate, shares, securities, etc.) that the found receives, they are able to purchase forested land in order to permanently preserve them according to the Nature Conservation Act. They buy not only the forest but also the soil where forests grow ensuring them protection over time. Concerning the public right, only the picking of berries and mushrooms is allowed. Areas are protected by Nature Conservation Act and the foundation law. The foundation's activities and the observation of their rules are supervised by the National Board of Patents and Registration. The presence and the respect of inner rules ensure that protected forests are kept in time even if changes in policies occur. There is the possibility to become a sponsor of the Foundation for Natural Heritage doing an annual donation of €120 (€60 for students). Nowadays the foundation own 58 protection forests.	FI	Y

43	Himmlische Eichen	Funeral forest Lenzburg	The forest owner integrated a funeral forest in the existing forest management system. The forest enterprise is managing the funeral forest as a part of the whole forest resource including the communication and additional services. The service is economically self-sustained (customers buy the service).	CH	Y
44	Bois de mon coeur	Forest of my heart	The forest is a well-known area for all kind of recreation uses. The forest owner together with local partners set up a special recreation area in the forest including a forest theatre or forest sofas that can be rented via web. The service is provided and funded by private (local) and public (local and regional) partners.	CH	Y
45	Waldlabor Zürich	Forest Lab Zürich	The forest lab of Zürich is an initiative by research institutions as well as forest owners and forest NGO's. The aim is to learn about forest regimes and forest resource management. The forest lab shows all possible forms of forest regimes, is a bases for research (e.g. on climate change) as well as a place for citizen science. The finances are provided by a variety of private and public partners.	CH	Y
46	Oberallmeindkorporation Schwyz	Oberallmig Climate Protection Project	In order to increase the carbon sequestration of its forest the forest corporation OAK decides to increase the standing trees volume harvesting less timber. In 30 years, they plan to increase trees volume from 280 to 300 m3/ha. The owners belonging to the cooperation are compensated for the loss of income thanks the sale of the carbon credits on the voluntary market.	CH	Y
47	Payments for drinking water from forested catchments Canton Basel-Stadt, Switzerland	Payments for drinking water from forested catchments Canton Basel-Stadt, Switzerland	12% of the canton of Basel-Stadt is forested. The broadleaved dominated stands cover an area of 429 hectares, of which 90 hectares are the property of 330 private forest owners. Approximately half of the drinking water for the canton of Basel-Stadt is supplied from the Langen Erlen catchment area. By redirecting water from the Rhine into forested recharge areas, drinking water is gained in a unique, natural and sustainable way with the help of the forest. All the desired functions of the forest require continuous and goal-oriented forest management. This also required changes in species composition, such as replacing hybrid poplars, which have damaged the soil, with willows and prunus (wild cherry tree). Water consumers pay for the sustainable management of forests belonging to the city of Basel through an additional charge in their water bill.	CH	Y
48	Gamskopf	Gamskopf	The forest enterprise developed a new product using second class wood, which normally would only be marketable with a very low price. The wood is fabricated with a special design and marketed with a special brand. The wooden products can be sold for a much higher price on local and regional markets.	CH	Y
49	R20	R20	R20 stands for "Radius 20 km". The forest enterprise guarantees that this wood - which is presented with the special label R20 - is grown and produced within a radius of 20 km around the city of Bern. The idea is that every tree can be traced back to its original place where it grew up. The wood is sold with a higher price than the normal wood (without label).	CH	Y
50	Waldtherapie Rheinfelden	Forest Therapy Rheinfelden	A consortium of health clinics, community NGO's together with the forest enterprise are establishing special offers for forest therapy. The offers are as well health oriented (heart diseases and psychic diseases) as well as forest management oriented (special silvicultural treatment). The costs will be covered by the clients (market based).	CH	Y

51	Audioguide to the Forest	Audioguide to the Forest	The audio guide to the forest of Baden is linked to special places in the forest and leads the visitors to known forest areas and gives them information and sounds of the forest ecosystem services as well as information about the forest management and the cultural dimension of the forest. The themes are especially dedicated to the forest spots and give an insight into the otherworld. The audio guide is free of charge. The funding is based on a public-private partnership.	CH	Y
52	Green Heart of Cork	Green Heart of Cork	The Green Heart of Cork (GHOC) Project aims to promote the conservation of the world's largest continuous patch of cork oak woodlands, spanning over half a million hectares, which is located in the Tejo and Sado river basins. This forest area harbors high levels of biodiversity and also coincides with the larger aquifer in the Iberian Peninsula, the T3-Aquifer. The project aims to compensate rural landowners practice sustainable forest management and to contribute to the conservation and the improvement of the key ecosystem services provided by cork oak woodlands, such as carbon storage, erosion prevention, water cycle regulation and aquifer recharge. The project is supported by three private companies that operate in the catchments: Coca Cola (beverage company) provides payment for those forest owners implementing sustainable forest management, while Jerónimo Martins (a retailer) and Grupo Onyria (hotel company) finance the GHOC Project. Both public and private entities can participate. In order to adopt sustainable forest management practices and to be certified Forest Stewardship Council (FSC), forests landowners formed an association (APFCertifica). Within the certified area, covering 16,000 ha, 600 ha were considered areas with High Conservation Value (mostly for watershed protection). In these 600 ha Coca Cola pays 17 €/ha to forest landowners in order to protect the natural capital present in their properties.	PT	Y
53	Charte Forestière de Territoire	Territorial Forest Charter	Contractual commitment (the charter) among public and private actors (public authorities, private and public forest owners, users of the forest, businesses inhabitant) and actors dealing with environmental protection and tourism. As a voluntary and voluntarism approach, the Territorial Forest Charter is a tool of contractual nature in the service of a territory, which makes it possible to valorise the local and multifunctional resource that constitutes the forest. Whether economic, social or environmental issues, the Forest Charter makes it possible to implement strategic objectives and operational actions, in a dialogue with the partners of the territory. This kind of charter enables to approach the forest in a multifunctional perspective, to coordinate actions and policies on the forest and the timber sector of a territory and contribute to the sustainable development of this territory. As a spatial planning approach, it is initiated by elected officials/ public authorities and covers both public and private forests. It therefore associates forest owners. All dimensions of the forest are taken into account, both economic and social or environmental.	BE	Y

54	Natuurwaardeverkenner	Nature Value Explorer	The tool is freely available online. How it works: In April 2018, the latest version was launched: a spatially explicit version. Because the calculation of ecosystem services is not a standard exercise within existing planning processes, it is important that the tool gives results in a simple and fast way. As a user, you draw your measures on a map and then the tool does the rest of the work. All spatial information is collected and entered without the user having to intervene. You have a result within half an hour. This result consists of a qualitative score and quantitative values (both in biophysical terms and monetary terms). To make the results easier to communicate, we also translated them into manageable indicators such as emissions of x number of car kilometres, number of doctor visits, and number of jobs. The methods are a pragmatic translation of statistical models or expert judgement. The downloadable document of the results explains in detail how the results for your specific case are calculated. A manual explains this in general and give more scientific background. The user goes through the following steps: Drawing the contours of the study area Drawing the contours of measures (creation of forest, cutting for heathland, etc.) to be taken Answering a number of additional information questions Choice of ecosystem services to be calculated Run the calculation Export of the results (optional) Although the maps and key figures used in the tool are largely focused on the Flemish region, the methods can also be used for other locations where comparable ecosystems can be found. Then the user must collect and enter the required input data himself. The tool can be used in many existing processes such as the preparation of climate adaptation plans of cities and municipalities, socio-economic evaluation of nature development projects, cost-benefit analyses, We will enter into a dialogue with the users of our tool to determine how the results can be of assistance in their specific processes and see how we can improve the applicability.	BE	Y
55	Bosforum	Forest Forum	The Forest Forum is a spontaneous initiative of experts from the forest and timber sector and strives for an ambitious multifunctional forest policy, supported by a balanced long-term vision. Forest policy must be moved from the margin to the centre of decision-making. Started as an initiative from the base, Bosforum gradually gained the support of the Flemish government. An additional added value was that for the development of the Future Vision there was very intensive cooperation with actors outside the forest sector, such as experts in urban planning and spatial planning, the agricultural sector and healthcare organizations. By also including their input in the Future Vision, the multifunctionality of forests could be fully exploited. Moreover, the process itself also resulted in certain awareness among those external sectors about the positive effects of forest. From this vision, 11 concrete policy sites emerged, 11 challenges for forest policy and management in Flanders. Bosforum will now continue to work on this. Together with partners from the business community, government and civil society, we want to gradually realize this. The forest forum is an organization without a legal structure. The work is done thanks to volunteers.	BE	Y

56	Bosgroepen	Forest groupings	The Bosgroepen are non-profit organizations that support private and public forest owners in the management of their forest. Every forest owner can join the Bosgroepen for free and without obligation. He or she will receive advice, information and help with forest administration. In addition, the Bosgroepen also coordinate management work and organize training courses and excursions. In this way they strive for sustainable forest management in Flanders with healthy forests, more and better nature, recreation and wood production. Background: In the beginning they got full financial support from the Flemish government. A part of this financial responsibility shifted to the Provinces. Stakeholders: In Belgium, forest policy is the responsibility of the Flemish government. Therefore, the Flemish Agency for Nature and Forest (Natuur en Bos van de Vlaamse overhead) is one of the stakeholders. Secondly, the five Flemish provinces are also involved as they provide financial support to the Bosgroepen. Beneficiaries: The beneficiaries are private forest owners and public forest owners (such as municipalities). Voluntariness: As mentioned above, everybody can join the Bosgroepen without any obligation. The forest owner has a total voluntariness. Payment: Each Bosgroep depends for its payment on the funding of the province. When there are several Bosgroepen within one province, the payment is not the same. The way how this is calculated differs also. The Bosgroepen have to send a planning and a report. They are paid every year, but often with a delay. Some of the Bosgroepen have an open-ended contract, while others for a determined period of 3 years.	BE	Y
57	Eerste Vlaamse Houtpark	First Flemish Timber Park	Year D-1 the trees, with the best wood quality of all trees to fell, are selected. In autumn of year D-1 these selected trees are felled by a specialized company, under supervision of our own services, and transported to the location of the Timber Park. There the timber is presented in the best possible way and the logs are individually measured. A catalogue is edited and widely spread among potential buyers in Belgium, Netherlands, France and Germany. Buyers are asked to submit their written submissions before a selected moment after which the submissions are opened, and the lots are assigned to the highest bidder. Legal: Selling wood from public forest must be a public process. Therefore, all possible buyers can participate. Stakeholders: ANB/Natuurinvest organizes the sale, but every forest-owner can participate. There is only one condition, the wood-quality. Beneficiaries: Forest-owners and local (wood-transforming) industries. Frequency: The objective is to organize yearly this kind of sale. Additionally: This mechanism is in addition to the traditional way of selling our wood products.	BE	Y

58	Integrated Forest and Nature Management	Integrated Forest and Nature Management	100 years ago, most of the area was degraded heathland. After that, it was massively planted with pine plantations for mining wood. Pine stands getting older and show undergrowth of native bushes and trees, without any timber quality. So, the areas is winning ecological value, but loosing economic and possibly recreational value. The research division Forest, Nature & Landscape was appointed to manage the forest belonging to the Catholic University of Leuven (KU Leuven). First intervention was a detailed strength/weakness analysis of every part of the forest, evaluating the current and potential value for economy, ecology and recreation. Based on that, a zonation of the forest was established and integrated in the management plan: some areas, mainly wetlands have very high nature values that are harmed by the forestry activities. Nature is being restored, and conservation management is installed. By making a strong case about the exceptional nature values, two areas were recognized by the government as reserves, and generate 150 euro/ha subsidy for conservation purposes, which compensates the loss of timber incomes from those lands. In contrast to other private owners, we welcome hikers on the paths, and went into an accession plan with the government, giving us subsidies for recreational use + free insurance against possible damage to visitors. Large efforts are made to perpetuate wood incomes into the future. Most pine forests in the area are unmanaged or only thinned until no valuable timber is still standing. We make sure to continue to have pine of different diameter classes in the future, to keep old trees, and use natural regeneration to create new cohorts. We drastically reduce costs of silviculture by reducing interventions in young stands, and concentrate costs in very limited amounts of trees, so called plus trees, which are pruned and set free from competition once they have a branch free bole. Costs of tree planting are drastically reduced by replacing full area planting to clump planting. The last important element of the mechanism is sharing with peers. Inviting forest managers from government and private forest owner groupings to show the different new options and to show the importance of the integrated strength/weakness based landscape approach. The innovative approaches are also integrated in the theoretical and practical courses of silviculture at university. This integrated management approach was awarded the Inbev-Baillet Latour Award for the Environment in 2011. Phases in the innovation: phase 1 : sustainable forest management (from 1997): focus on reducing costs, wood marketing, conversion of stands, integration of the approach in the academic training of students phase 2 : landscape management (since 2000): focus on restoration of management of tree lanes in the agricultural land, optimization of the game management, organisation of recreation and communication to visitors phase 3 : nature management (since 2003) : focus on management and recognition as nature reserve and forest reserve of two high value areas, start of subsidy flow phase 4: integrated management (since 2005):	BE	Y

			integration of all the previous actions in one overall management plan phase 5 : optimization (2009-now): installation of monitoring, installation of permanent logging trails, introduction of clump planting with rich litter, FSC certification, etc.		
59	Til-Tops Aktivitetspark er	Til-Tops outdoor activity parks	Til-Tops is a company that established tree climbing facilities in forest areas where public can pay to enjoy the service. They own the forest areas where develop nature-based outdoor activities. They also offer consultancy to who want to start a similar business. Finally, they offer franchise contracts being able to establish four climbing areas in Denmark. The parks are open from April to October. The entrance price differs according to the park and to the period selected, going from 89DKK (€12) to 299DKK (€40). They offer different discounts to groups depending if they are schools, companies, clubs, private, families.	DK	Y
60	MTB-sporet Hammel	MTB track Hammel	A local agreement among forest owner, municipality and a local cycling clubs on the enhanced the supply of recreational goods and services for the public. The Hammel Cycling Club in collaboration with Frijsenborg Forest District, Favrskov Municipality, Team Gummiben (a local team of cyclists aimed to voluntarily build mountain bike tracks), has establish a new track for mountain bikes in forests close to urban areas. Specifically, the trails were built in Hammel Mølleskov, a private forest, and on Klintholm, owned by Favrskov Municipality. The municipality is renting the private forest in order to allow the trails establishment while the Hammel Cycling Club and the Team Gummiben are responsible of tracks maintenance. The Hammel Cycling Club is also responsible for the daily management of the trails. In order to access the trails, the Club membership and the rider licence are needed. The price for the membership goes from €27 (DKK 200) to €67 (DKK 500), while the price for license goes from €27 (DKK 200) to €100 (DKK 750).	DK	Y
61	Voluntary forest conservation program	Voluntary forest conservation program	Governmental voluntary project aimed to spur non-industrial forest owners to protect their forest avoiding forest exploitation. One-time payment is given to those owners that adhere to the initiative as compensation incentive. Owners can join the project considering their whole forest or a part of it. After the assessment of the biological features of the proposed area an agreement between the private owner and the county governors, regarding the compensation for timber loss, is signed. Forest owners maintain the ownership over their properties but renounce to all rights to forestry activities for perpetuity.	NO	N

62	Copenhagen Energy Scheme	Copenhagen Energy Scheme	In order to secure the quality of the groundwater resources on the considered area, Copenhagen Energy and the owner of the forest sign an agreement. Through this voluntary agreement the private forest owner is obliged to set aside 95 ha of his forest where no pesticides can be used. In addition, Copenhagen Energy was able to buy 530 ha of farmland on which broadleaf trees were planted. Afforestation activities were implemented and managed by the state and local municipalities. Private forest owner and private farmers were compensated by Copenhagen Energy costumers that paying drinkable water provision contribute to the Copenhagen Energy's found used to buy farmland to be afforested and to compensate forest owner that avoid pesticides. Copenhagen Energy settled up a fund in order to finance the provision of the environmental services. The average consumer pays about 75 kroner (ca. €10) per year to the fund. For setting aside 95 hectares of private forest, Copenhagen Energy has calculated to pay 10 million kroner (ca. € 1.5 million) in total. The forest owner will be paid on a yearly basis. In case of non-compliance with his contract obligations, the forest owner will be fined.	DK	N
63	Water Supply Act Reforestation Levy	Water Supply Act Reforestation Levy	Public water companies signed a contract with public land owners (the Danish state and local municipalities) who change their forest management practices or engage in large scale afforestation projects in watershed areas so that they preserve water quality. In this new forest recreational activities can be implemented, as well as the ones to protect drinking water resources. The time frame of the agreements between the state, the municipalities and the waterworks are 30 years, since groundwater abstraction licenses usually run for the same period of time. Because licenses can be extended, the financial agreements can also be extended. A periodical review of the contract is generally carried out every 5 years. Based on the Water Supply Act, water consumers pay a levy on the water price, formally buying the environmental service of water purification, the Danish state and the local municipalities are the actors which provide to this service through their public forests, and water supply companies or waterworks corporations act as intermediary working together with the public forest owners in order to develop and implement the afforestation plans. The agreement among the state and the waterworks company is about € 2 million per year, paid to buy agricultural land and to start afforestation. The farm land can be bought at around € 10-15 per hectare and afforestation costs may be another € 5.000. For changing the diversity of existing forests, up to € 100 per hectare has been paid to forest owners, depending on the particular contract. In order to fund these activities.	DK	N

64	Assisted Natural Regeneration of Degraded Lands in Albania	Assisted Natural Regeneration of Degraded Lands in Albania	The project is inserted within the Clean Development Mechanism aimed to compensate carbon emission of industrialized countries through the implementation of projects in developing countries. The Italian environmental ministry in collaboration with the equivalent ministry in Albania start a collaboration in older to afforestate and reforestate degraded lands involving 6,316.7 ha in 5 different areas of the country, 24 different communes and covering 117 different villages. The additional aims of this project are to improve rural households' livelihoods, to reduced soil degradation, to improve water quality and to conserve biodiversity. The actions implemented are (a) to promote natural seed sources to enable natural regeneration or re-growth; (b) planting at 200-500 seedlings per ha to enrich species diversity and to stabilize highly eroded areas, and (c) silvicultural works. The areas were selected involving the local communities in order reach a common agreement regarding the areas that would allow having higher positive environmental and social impacts. The project takes place on communal forest and pasture owned by the state and give to community via a usufructuary right and on State forests and pastures are under public (state or communal) ownership. The project has been been carried out in parallel with the implementation of the World Bank Natural Resources Development Project (NRDP) during 2005 to 2010. The NRDP is a US$ 19.4 million project and includes funding from the following sources: (1) Government of Albania US$2.2 million, (2) International Development Agency (IDA) US$7 million, (3) Global Environment Facility (GEF) US$5 million and (4) Swedish International Development Agency (Sida) US$5.2 million.	AL	N
65	Rusenski Lom pilot	Rusenski Lom pilot PES scheme	In order to preserve the biodiversity and the habitats of the natural park, threatened by tourism, WWF and the administration of the park implemented a PES-like scheme. An intermediate body "Club Friends of Rusenski Lom People's Park" was created in order to manage the resulting from the incomes of Hotels, guest houses, tour operators and tourism companies that provide to the Club part of their income as donations in order to be used by the park to protect the ecosystems present and keep it attractive to tourists. Friends of Rusenski Lom People's Park every year proposes to the park's steering committee measures to protect nature's benefit for tourism; the steering committee can accept or reject the work plan. Friends of Rusenski Lom People's Park organise also the control and monitoring of the implemented actions by an independent body.	BG	N

66	Nationaal Park Hoge Kempen	Hoge Kempen National Park	The NGO is a coalition among local governments, nature conservation organization and all the local stakeholder of the park (hunters, farmers, tourism organisations, etc.). The establishment of the park, possible thanks the bottom-up approach used involving the local communities and all the other stakeholders, and the creation of cycling and hiking paths attracted more tourists in the area increasing the economic benefit of direct and indirect stakeholders. Moreover different activities were implemented in the park in order to reconnect people with nature, increase their awareness about environmental issues, reconnecting business to biodiversity and reconnecting policy to practice. The total investment amounted to 120 million euro; the annual economic benefits are about 20 million euro. The park started to create and sell its own products.	BE	N
67	Adeheco Dehesas Ecológicas	Ecological Dehesas Association	Adeheco is an association of oak forestland owners and managers and organic livestock farmers. The aim of the association is to increase management and production standards adopting marketing and promotional tools to value non-timber forest products. Moreover they spur Small and Low Intensity Managed Forest (SLIMF) towards responsible forest management and forest certification, in order to increase management and production standards. A private forest consultancy company (GEA Forestal) support those forest owners interested in being certified FSC. The owners certified FSC are located in Huelga province. Certification provides an additional revenue helping smallholders to have the access to new market segments. The increased revenue thanks the certification is reinvested by the owner in order to manage in a sustainable way their properties in order to enhance biodiversity and preserve their natural capital. They have also established some routes linked with the cork land use and management.	ES	N
68	Refo-resta CO2	Refo-resta CO2	The initiative started by the INCLAM enterprise and then it was enlarged to those enterprises that want to act similarly in order to compensate for the carbon emissions produced by their activities. INCLAM, in collaboration with the Castilla y León region, create and manage new forest areas in the region in order to increase the carbon storage capacity and the regional forest resources. The reforestation projects use native species and are supported by local experts. Refo-resta was validated in 2014 by Ministry of Agriculture, Environmental and Food, under the official Spanish "Voluntary Carbon Footprint Calculation, Reduction and Compensation in Carbon sequestration-based projects System". The benefits coming from these activities are reinvested in order to enlarge the reforested areas.	ES	N

69	Génesis	Genesis	Genesis is an afforestation project aimed to create a forest in a former agricultural land that, after about five year of abandonment resulted to be barren. The main aim of the afforestation is to contribute to climate change mitigation. Genesis project has been certified as carbon capture project by the Spanish Ministry of Agriculture, Fisheries and Food - Ministry for the Ecological Transition (Mapama). In order to collect the funds, Reforestum developed an App that offers the possibility to calculate the personal carbon footprint and to compensate the resulting emission selecting a certain amount of money or an area's extension to be afforested. Thanks to the contribution of the community born behind the App they are able to plant native trees (conifers and broadleaves) in order to convert the bare land into forests. The App lets also to design a very own forest like if it was a simulation game. But this time it gets real. The App takes the users' design (providing to them an interface to create and interact with their forests) and the Forest Engineers take on its implementation.	ES	N
70	Duramen	Duramen	Duramen is an association that allows companies and individuals to financing forest plantation. The aim of the reforestation/afforestation is to reduce greenhouse gasses in atmosphere. Duramen gives the possibility to act voluntarily supporting projects able to increase carbon sequestration, increasing forest cover. The projects supported by Duramen have also the objective to enhance forest resilience in order to face Climate Change, to support forest-related jobs and the sustainable production of renewable raw material (wood). The organization involves different stakeholders organized in three colleges and two committees. The colleges include contributors (entities that want to become sponsors: from companies to public institutions to individuals), project promoters and/or owners (public and private forest owners and those structures that represent them and that are carrying out carbon reduction activities) and other stakeholders (counsellors, facilitators, coaches, project managers, service providers, etc.). The committees aimed to evaluate and prioritize the projects to be supported (each project receives a score based on its relevance). The Scientific and Technical Committee validate the projects and the methods used, and monitor them. It is composed by professionals, not necessary member of the association. The Ethic Committee ensure the absence of conflicts of interest within association and committee and they are in charge to ensure the additionality provided by the projects. To be members is necessary to deposit an annual fee differentiated by stakeholders (€30 individuals, €50 non-profit organizations, €100 companies).	FR	N

71	Sylv'Acctes	Sylv'Acctes	Sylv'Acctes is an association that works in the mountain forests on different regional massifs in order to enhance forests capacity to stock carbon dioxide changing forest management and involving local communities. The actions implemented are aimed to have also positive impact on the ecosystem and on the livelihood of the local communities. In order to identify which are the best actions to be carry out in the forest areas and them priority, local stakeholders are consulted jointly with foresters and nature conservation associations. To guarantee the quality of the actions implemented, a network of forestry partners, research organisations and nature protection organizations developed three specific indicators for carbon (BAP), biodiversity (BBP) and socio-economic services (BCP). These indicators (validated by the scientific and technical committee) ensure the positive impacts beyond carbon sequestration. Another objective is to certify PEFC/FSC the targeted forests. Public and private actors can compensate for their activities financing these virtuous actions. Voluntary donations are also possible through the web site of the association.	FR	N
72	CDC Biodiversité	CDC Biodiversité	CDC Biodiversité gives support to those companies that have to compensate their unavoidable impacts on biodiversity. They find personalized financial solution developing a tailored project depending also to the duration of the commitment and the needs of the enterprise. For all the duration of the project CDC Biodiversité guarantee the management, the maintenance and the monitoring of the actions implemented and directly report to the authorities in charge for the control. CDC uses a territorial approach creating new network among different stakeholders (association, companies, land owners, foresters, etc.) and involving local communities ensuring their involvement and consequently, the acceptance and the sustainability of the project. CDC Biodiversité offers also courses in order to enable companies to integrate biodiversity in their business strategies.	FR	N
73	Golfe de Saint Tropez fire protection scheme	Golfe de Saint Tropez fire protection scheme	In order to implement actions for fire prevention in the La Verne watershed an agreement between the head of Forestry (SIVOM) and the Union for the drinking water distribution of the Corniche des Maures (SIDECM) has been signed for four years. In fact, SIDECM relies on the artificial lake to distribute water in nine municipalities. The occurrence of wildfire would negatively affect water quality. SIVOM is in charge to carry out works for the fire prevention, SIDECM ensured its contribution in funding these activities by 60% of total expenditures (20% for the establishment of the preventive measures and the other 40% for their maintenance). The total funding was around €50,000 covering 2,000 ha (6.25 €/ha).	FR	N

74	Volvic Catchment Protection Partnership	Volvic Catchment Protection Partnership	Danone is the owner of the Volvic Water Company and also the owner of the catchment of Volvic Water covering 3,800 ha in four different communes. It is an important presence in the area in terms of employment and tax sources. Since 2007 it initiated a catchment strategy in order to implement a collective management of the area in collaboration with public and private stakeholders leading to the creation of new governance arrangements. The Committee of Environment and Protection of the Volvic Impluvium (CEPIV), composed by representatives from Danone (3 people) and from the municipalities (6 people), was created. The fund used to implement actions that ensure water quality and provision derives from Danone (2/3) and from tax collected by the municipalities (1/3). Instead to buy other land over the aquifer to have a better protection, Danone decides to dialog with local actors (forest owners) in order to modify their management even if the participation of the forest owners in the governance structure is still not strong.	FR	N
75	Moldova Soil Conservation Project	Moldova Soil Conservation Project	The project is inserted within the Clean Development Mechanism (CDM) aimed to compensate carbon emission of industrialized countries through the implementation of projects in developing countries. The International Bank for Reconstruction and Development as trustee of the Prototype Carbon Fund in collaboration with MoldSilva (State Forest Agency). Through afforestation and reforestation, the project aims to restore degraded land at national level (20,289.91 ha) in order to reduce erosion, to restore land productivity, to enhance forest product supply to local communities and carbon sequestration. MoldSilva and public local entities usually have not the necessary amount to cover the costs for the implementation of degraded land restoration actions. The funds used derived from the sale of certificate emission reduction coming from the afforestation and reforestation project under the CDM.	MD	N
76	Moldova Community Forestry Development Project	Moldova Community Forestry Development Project	The project is inserted within the Clean Development Mechanism (CDM) aimed to compensate carbon emission of industrialized countries through the implementation of projects in developing countries. The International Bank for Reconstruction and Development as custodian of the BioCarbon Fund in cooperation with MoldSilva (State Forest Agency) implemented an afforestation and reforestation project aims to restore degraded land at national level in different community forest present in the country for a total of 8,468.84 ha. The overall objectives are: to reduce soil erosion, to restore land productivity, to enhance forest product supply and to enhance carbon sequestration. MoldSilva and public local entities usually have not the necessary amount to cover the costs for the implementation of degraded land restoration actions. The funds used derived from the sale of certificate emission reduction coming from the afforestation and reforestation project under the CDM.	MD	N

77	Drumul Moştenirii Maramureşene	Maramures heritage trail	Maramures heritage trail was created in order to improve and to enhance touristic attractiveness of the natural area in the Maramures region. The trail connects seven villages, seven protected areas, and two NATURA 2000 sites in a 45,000-ha area. The project was developed under the Danube PES project coordinated by WWF. A local association, asociaţia EcoLogic, manage the project and all the related touristic activities (trips, guidance, transport, rent, etc.). The Conservation and Sustainable Development Fund, managed by EcoLogic association, collects the revenues coming from the services bought by the visitors and the 10% of the total income is reinvested into conservation of the different habitats within the project area. The establishment of the trail created a network of different stakeholders (local communities, guesthouses, tour operators, tourists) that had been positive impacted by the project establishment.	RO	N
78	Parc Aventura Brasov	Adventure Park Brasov	The Adventure Park in Brasov is the first one in the country and it is the result of a successful partnership among local public and private actors. The project aims to combine recreational activities with nature conservation. Thanks to the collaboration of a small group of local investors, the park was initially financed allowing its establishment. Thanks to the entrance fee the park is able to maintain its activities and part of the revenue is reinvested in park maintenance.	RO	N
79	Carpathia	Carpathia	The Foundation for the Conservation of Carpathian (FCC) born with the intention to create a National Park in the Southern Romanian Carpathian. This is reached purchasing land by the foundation, thanks private and public money, and selling hunting right. The project consist in enlarge already existing natural parks and in the creation of a new network of enterprises aimed to enhance the environmental features of the selected area and supporting the project. The network involves already some small enterprises, linked with eco-tourism and sustainable agriculture that encourage their visitors to contribute with a donation to the FCC.	RO	N
80	KOMET Programme	KOMET Programme	KOMET is a programme initiated by the Swedish Forest Agency, the Swedish Environmental Protection Agency and the local County Administrative Boards in order to preserve Swedish forests with high conservation value. It is a voluntary programme in which forest owners are compensated if they cease those actions that affect forest habitat (e.g. forest exploitation). Owners can notify their interest in join the KOMET programme to the Swedish Forest Agency or to the local County Administrative Board, then is established if there are some suitable areas, with high conservation value, to be protected. After a discussion with the owners about the desired typology of protection, the proposed areas are ranked and the economic compensation is determined. The agreement can last from 1 to 50 years. Owners are compensated to limit the management in their forest, receiving a fixed-rate payment. The payment is based on timer market price and they receive the full compensation for the forgone income. Standard formulas are used depending on the type of protection. For instance compensation for "Habitat Protection" and "Nature Reserve" correspond to the net timber value (of the considered area) plus an additional 25%.	SE	N

81	The Mersey Forest	The Mersey Forest	The Mersey Forest (MF) is a network of different actors aimed to increase the forest cover in Merseyside and North Cheshire. The network is composed by seven local authorities, landowners, the Natural England, the Forestry Commission, the Environment Agency, and other public, private and community sector organisations. The network, in the establishment of the new planted forests, involves the local communities since the beginning of the design phase. Their objective is, in fact, the creation of community forests. The Mersey Forest Team (compose by representatives of each partner) deliver the Mersey Forest Plan, a long-term management plan including the work of the Mersey Forest team and partners. The focus of the management of the new forested areas is the provision of several Ecosystem Services, from the provision, to the recreational and the cultural ones. The funding sources are several: from public and private sectors, grant giving bodies, local and national government, European funds. Their funding can be grouped into four main categories: grants, consultancy work, corporate social responsibility and unrestricted donations. Using an investment model, rather than a more traditional funding model, MF is able for every £1 of core funding by local authorities' partners, to gain £2.60 of Gross Value Added and £10.20 of total economic benefits. For further information in how the partnership work and about the different implemented projects please referred to the Mersey Forest Plan available in the MF website.	UK	N
82	Local Nature Partnerships (LNP)	Local Nature Partnerships (LNP)	Local Nature Partnership (LNP) is an initiative of Defra, the UK Department for Environment, Food and Rural Affairs. LNPs are partnerships set-up to embed nature in the decision-making processes and on local policies for the benefit of people, environment and the economy. Nowadays 48 LNP are present at national level. Their scope is to manage, at landscape scale, the local natural environment in a long-term strategic view in order to be able to: (1) enhance and promote the local natural capital, (2) create a network able to actively involve actors dealing with economy, health and environment but also NGO, private and public sector, local authorities, land managers and the local communities, (3) raise the awareness of local decision makers about the value and the range of the ecosystem services provided by the local natural environment and (4) have an overview and to coordinate the actions of the partnerships, dealing with the sustainable management of the natural environment in their areas, working in collaboration to deliver the outcomes agreed within the same partnerships. Each LNP define its role in the way that best suits with its local conditions and needs. The areas in which the LNPs work are: (1) the sustainable land use management, (2) the growth of the green economy and (3) the amelioration of life, local health and wellbeing. The national Government recognises the LNP as important actor in the decision making and in the strategic planning of an area working in collaboration with the Local Planning Authorities and with the Local Enterprise Partnerships. Defra supports the LNPs, promotes them, helps them to network each other to share knowledge and experiences and funded them before their establishment. LNPs have to monitor and evaluate their activities and progresses, each LNP can decide the way to do it.	UK	N

83	Woodlands From Waste	Woodlands From Waste	Woodlands from Waste is a project between Lancashire County Council, Blackpool Council and Global Renewable Lancashire Ltd. (contractor). Woodlands from Waste is an initiative belonging to the Lancashire's Municipal Waste Management Strategy 2001-2020, it has a duration of 25 years and has as objective the establishment of woodlands in the Lancashire to mitigate carbon dioxide emissions resulting from the Lancashire Waste management and to increase the forested areas of the region with the consequent benefits for habitat creation and public access to open space. The costs of trees planting were incurred by the contractor. In planting operations, a product resulting from an innovative technology used for waste treatment was used: the Organic Growth Medium (OGM). OGM is a product derived from the residual fraction of the treatment of the organic content of waste that results to be rich of organic matter and methane biogas. OGM were used as soil improver in trees establishment in those areas with really poor soils. Moreover, the use of OGM reduced the amount of waste sent to landfills with consequential social, economic and environmental benefits. The targeted selected areas for the afforestation are both brownfields (abandoned land that needs to be reclaimed because was former used as industrial sites) and greenfields (land belonging to those owners that want to establish a forest on them but have not enough resources to do it). Sites may be owned by public owners or other public bodies, but the project support also private land owners. In future woodlands some services has to be provide to Lancashire population, such as public access, educational visits, research, ecological or landscape enhancements.	UK	N

Appendix 2 Cross-tables

Table A2.1 Instrument type per Scale

Instrument type	international	national	interregional	regional	provincial	municipality	local
Cap-and-trade schemes		3					
Civil society initiatives		1		1	2		2
Competitive tenders/auctions				1			
Consumers' awareness raising							1
Education and training	1	1		1			2
Land acquisition by private bodies		1					1
Licences/permits							1
Offset schemes		3		4		1	4
PES and PES-like schemes	1	4		4		2	15
Philanthropy							1
Prescribed and prohibited activities				3			
Public ownership and land acquisition					1		
Public provision through direct management							1
Public-private management contracts	1	4		1	1	1	
Subsidies and grants				1			2
Technical assistance					1		
Standard definition certifications, eco-labelling			1	2			2
Other marketing initiatives	1			2			
Total	4	17	1	20	5	4	32

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 773702.

Table A2.2 Instrument type per Duration

Instrument type	long	medium	short	unknown
Cap-and-trade schemes	3			
Civil society initiatives	6			
Competitive tenders/auctions				1
Consumers' awareness raising	1			
Education and training	3	1	1	
Land acquisition by private bodies	2			
Licences/permits	1			
Offset schemes	12			
PES and PES-like schemes	24	2		
Philanthropy	1			
Prescribed and prohibited activities	3			
Public ownership and land acquisition	1			
Public provision through direct management			1	
Public-private management contracts	7		1	
Subsidies and grants	1	2		
Technical assistance	1			
Standard definition certifications, eco-labelling	5			
Other marketing initiatives		2	1	
Importo totale	71	7	4	1

Table A2.3 Instrument type per Status

Instrument type	active	design	pilot	unknown
Cap-and-trade schemes	3			
Civil society initiatives	6			
Competitive tenders/auctions			1	
Consumers' awareness raising	1			
Education and training	5			
Land acquisition by private bodies	2			
Licences/permits	1			
Offset schemes	11			1
PES and PES-like schemes	23	2		1
Philanthropy	1			
Prescribed and prohibited activities	3			
Public ownership and land acquisition	1			
Public provision through direct management				1
Public-private management contracts	6		1	1
Subsidies and grants	1		1	1
Technical assistance	1			
Standard definition certifications, eco-labelling	5			
Other marketing initiatives	2		1	
Total	72	2	4	5

Table A2.4 Instrument type per FES division

Instrument type	provisioning	regulating	cultural	No info
Cap-and-trade schemes				3
Civil society initiatives		2		4
Competitive tenders/auctions	1			
Consumers' awareness raising	1			
Education and training			2	3
Land acquisition by private bodies		2		
Licences/permits	1			
Offset schemes	1	7	2	2
PES and PES-like schemes	3	6	15	2
Philanthropy				1
Prescribed and prohibited activities		2		1
Public ownership and land acquisition				1
Public provision through direct management				1
Public-private management contracts		5		3
Subsidies and grants		1		2
Technical assistance				1
Standard definition certifications, eco-labelling	3	1		1
Other marketing initiatives	3			
Total	13	26	19	25

Table A2.5 Instrument type per seller type

Instrument type	collectively owned forests	local forest communities	private forest owners/managers	public forest owners	public private partnership	other
Cap-and-trade schemes	1	1		1		
Civil society initiatives			1	1	2	1
Competitive tenders/auctions						
Consumers' awareness raising			1			
Education and training			1	1	2	
Land acquisition by private bodies			1	1		
Licences/permits			1			
Offset schemes			4	2	3	3
PES and PES-like schemes		1	11	3	6	5
Philanthropy				1		
Prescribed and prohibited activities			3			
Public ownership and land acquisition			1			
Public provision through direct management			1			
Public-private management contracts			3	2	2	1
Subsidies and grants	1					2
Technical assistance						
Standard definition certifications, eco-labelling			2	1	2	
Other marketing initiatives			1	1	1	
Total	2	2	31	14	18	12

Table A2.6 Instrument type per buyer type

Instrument type	civil society	funds	government	municipalities	NGOS	private companies	public private parnership	public utility company	regional government	other	No info
Cap-and-trade schemes			3								
Civil society initiatives	1				1		2		1		1
Competitive tenders/auctions						1					
Consumers' awareness raising						1					
Education and training	3										2
Land acquisition by private bodies	1	1									
Licences/permits	1										
Offset schemes	3	1				5				3	
PES and PES-like schemes	17		1			3	2	2		1	
Philanthropy						1					
Prescribed and prohibited activities										3	
Public ownership and land acquisition						1					
Public provision through direct management								1			
Public-private management contracts			2			1			3		2
Subsidies and grants				1				1	1		
Technical assistance											1
Standard definition certifications, eco-labelling	2	1				2					
Other marketing initiatives	2						1				
Total	**30**	**3**	**6**	**1**	**1**	**15**	**5**	**4**	**5**	**7**	**6**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 773702.

www.sincereforests.eu