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SYDNEY 2014

*Parks, people, planet:
inspiring solutions*

The LIFE+ MGN project (MAKING GOOD NATURA): Payments for Ecosystem Services with a participatory approach

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life+mgn
making good natura

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<http://www.lifemgn-serviziecosistemici.eu>





life+mgn
making good natura

Life + Making Good Natura

Making public Goods provision the core business of Natura 2000

LIFE11 ENV/IT/000168



LIFE + Environmental Policy and Governance

PARTNERS

CURSA - University Consortium for Socioeconomic and Environmental Research

WWF and WWFRP

EURAC European Academy of Bolzano

SASSO SIMONE AND SIMONCELLO NATURAL REGIONAL PARK

POLLINO NATIONAL PARK

REGIONE SICILIA DRARFD – Forestry Agency

REGIONE LOMBARDIA

CILENTO, VALLO DI DIANO AND ALBURNI NATIONAL PARK

ERSAF LOMBARDIA - Regional Agency for Agriculture and Forestry

MIPAAF - Ministry of Agriculture and Forestry

MATTM - Ministry of Environment



NATURA 2000 NETWORK (EUROPE)

Natura 2000 is not a system of strict nature reserves where all human activities are excluded. Whereas the network will certainly include nature reserves most of the land is likely to continue to be privately owned and the emphasis will be on ensuring that future management is sustainable, ecologically, economically and socially.

LEGISLATION

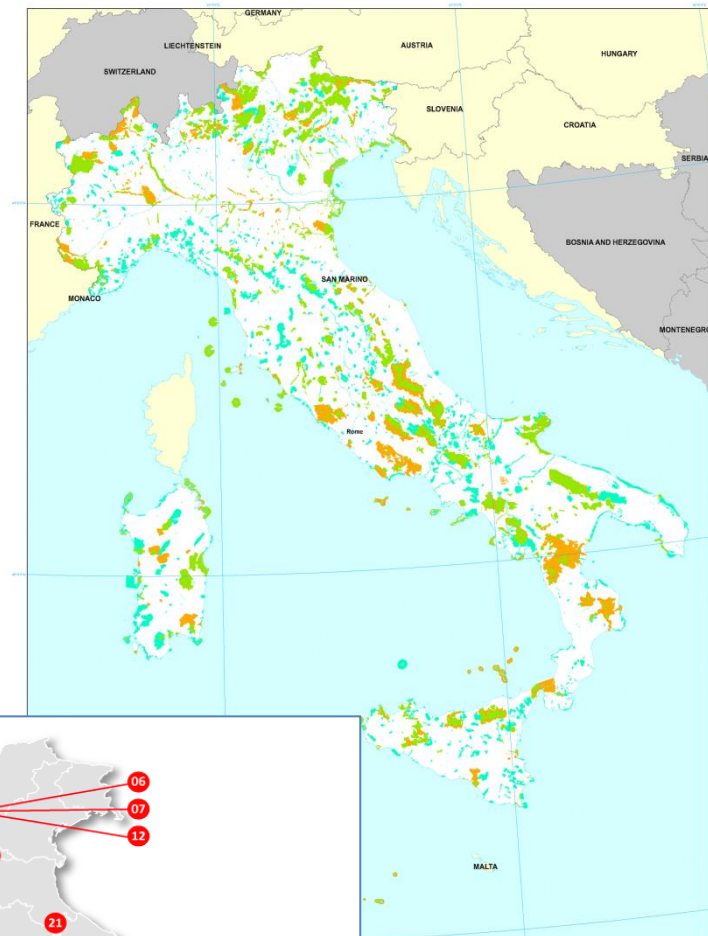
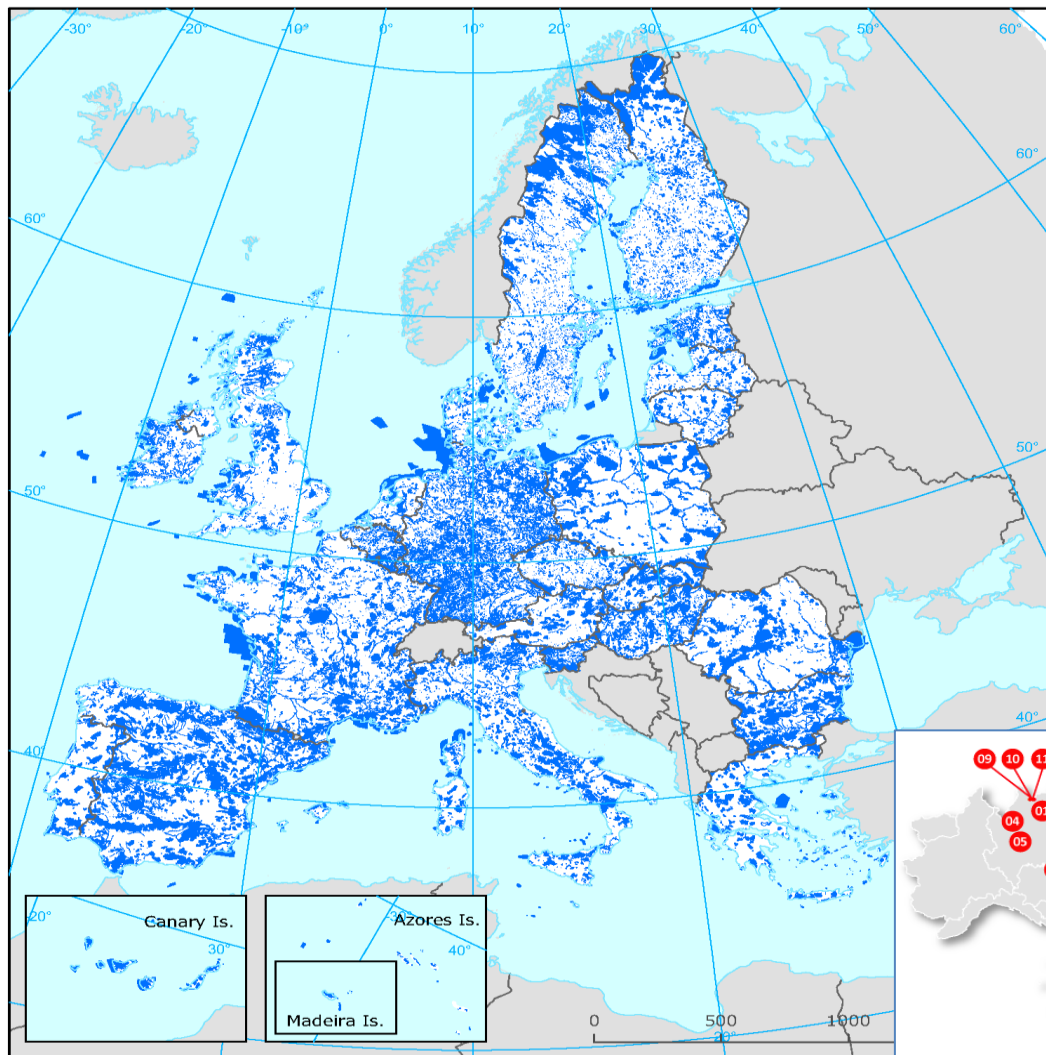
Habitat Directive (92/43/CEE-1992) for habitat and species (flora and fauna) protection; identify SACs (Special Areas of Conservation)

Birds Directive (2009/147/CE-1979) for birds protection; identify SPAs (Special Protection Areas)



4.300.000 km² EU
950.000 km² N2KN (22%)
26.100 sites





European Environment Agency  
 Natura 2000 - 50 000, compiled from data from the Member States
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COSTS AND BENEFITS ASSOCIATED WITH NATURA 2000

Overall cost: **€ 5,8 billion/y**

Current amount of funding: **€ 550 - 1,150 million/y**

Benefits : **€ 200 - € 300 billion/y**

In a context of stagnant and uncertain funding for biodiversity new governance and management tools, such as PES or PES-like schemes, should offer a considerable potential to raise new funds.



AIM OF THE PROJECT

*Creating tools for **qualitative and quantitative valuation of ecosystem services** in NATURA 2000 sites in order to **develop innovative approaches of environmental governance** and **improve NATURA 2000 sites management effectiveness**.*

For each NATURA 2000 pilot site, the specific actions are:

- ✓ Data collection and preparation of spatial datasets (GIS);
- ✓ Application of the model to evaluate the ES qualitatively and quantitatively: assessment of the supply and demand for associated ES and identification of different fluxes from “providershed” and “benefitshed”, evaluating in monetary terms all costs and benefits;
- ✓ Application of PES scheme mechanism with emphasis on self financing and financing mechanism and strategies.
- ✓ Implementation of a management effectiveness evaluation system together with management authorities and stakeholders.

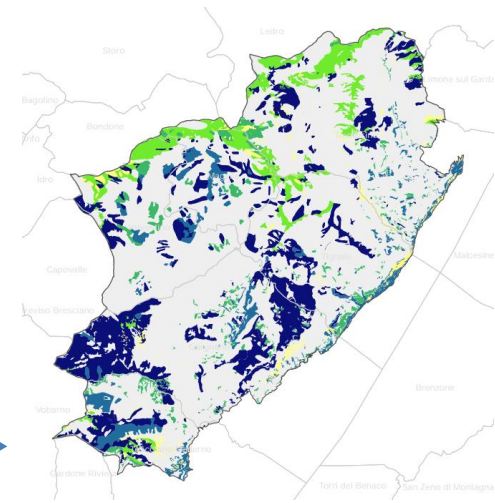


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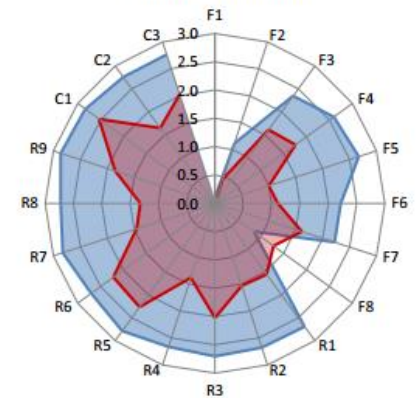
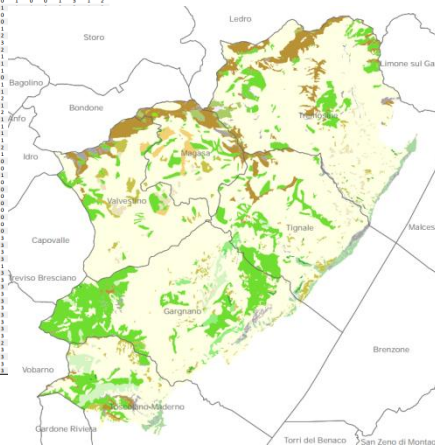
The challenge is how to integrate ES assessment in managing NATURA 2000 sites and encourage local communities and other stakeholders to adopt sustainable environmental practices in order to protect habitats and species



Tabella 3: Valore del SE per tipologia di copertura CORINE

[illegible]Tabella 4: Valore dei SE per tipologia di habitat

COD	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
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GIS-BASED ES ANALYSIS



SITE MANAGEMENT AUTHORITY QUESTIONNAIRES



The questionnaire was divided into five sections including both closed and open format questions:

1. General information:
2. General framework:
3. Economic-financial framework:
4. Economic, environmental and social aspects
5. Ecosystem Services (ES)

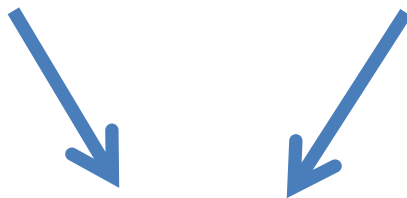
STAKEHOLDERS MEETINGS



- ✓ Presenting objectives and structure of the project
- ✓ Debating local environmental issues and perception of ES
- ✓ Identifying main ES

STAKEHOLDERS-BASED ES ANALYSIS





	Z/PS IT2040401	Z/PS IT20A0402	Z/PS IT20B0501	SIC IT2020002	Z/PS IT2020301	Z/PS IT2070303	SIC IT2070021	SIC IT2070022	Z/PS IT2070402	Z/PS IT2040601	SIC IT2040019	SIC IT2040020	SIC ITA020007	SIC ITA020008	SIC ITA0600006	SIC IT9310014	SIC IT9310008	SIC/Z/PS IT8050055	SIC IT8050025	SIC IT8050006	Z/PS IT4090006
	Regione Lombardia			ERSAF									Regione Siciliana			PNP		PNCVDA		PNSSS	
F1						P								P		P		P			
F2	P																				
F3																					
F4																					
F5																					
F6			P																		
F7																					
F8																					
R1																					
R2																					
R3																					
R4																					
R5																					
R6																					
R7																					
R8																					
R9																					
C1																					
C2																					
C3																					

HABITAT ANALYSIS
CORINE LAND COVER



QUESTIONNAIRES TO MANAGEMENT AUTHORITIES
STAKEHOLDERS MEETINGS



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STAKEHOLDERS-BASED ES ANALYSIS

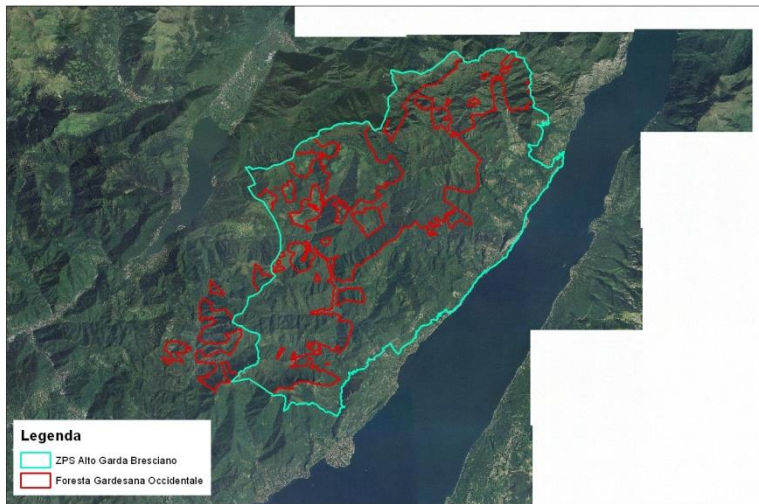
		ZPS IT2040401 PR Orobiche V	ZPS IT2040402 Lanca di Gerole	ZPS IT2040501 Viadana	SIC IT2020002 Sasso Malacarpa	ZPS IT2020301 Triangolo Lariano	ZPS IT2070303 Val Grigna	SIC IT20700021 Valvestino	SIC IT20700022 Corno della Marogna	ZPS IT2070402 Alto Garda BS	ZPS IT2040601 Bagni Masino, Val di Mello	SIC IT2040019 Bagni Masino	SIC IT2040020 Val di Mello	SIC ITA020007 Ficuzza	SIC ITA020008 Busambra	SIC ITA060006 Sambughetti	SIC IT9310014 Fagosa	SIC IT9310008 Petrosa	SIC/ZPS IT8050055 Monti Albani	SIC IT8050025 Monte Stella	SIC IT8050006 Balze di Teggiano	ZPS IT4090006 Monte Carpegna	
		Regione Lombardia			ERSAF								Regione Siciliana			PNP		PNCVDA			PNSSS		
		ZPS	ZPS	ZPS	SIC	ZPS	ZPS	SIC	SIC	ZPS	ZPS	SIC	SIC	SIC	SIC	SIC	SIC	SIC	S/Z	SIC	SIC	ZPS	
		ORO	LAN	VIA	SM	TL	GRI	VAL	COR	AGB	MM	MAS	MEL	FIC	BUS	SAM	FAG	PET	ALB	STEL	TEG	CARP	
Coltivazioni	F1																						F1
Foraggio, pascolo	F2	3					1								2							2	F2
Risorse faunistiche e alieutiche (specie cacciabili/pesci)	F3	2	2																	2	3		F3
Materie prime (legno, fibre,...)	F4			2						2						1							F4
Funghi, frutti di bosco, prodotti non legnosi	F5						2								2				2				F5
Piante medicinali	F6																						F6
Risorse genetiche	F7								3								2				1		F7
Acqua potabile	F8							3						2	1		1			1		1	F8
Sequestro del carbonio	R1					3			2	3									3				R1
Regolazione del clima locale/purificazione dell'aria	R2																						R2
Regolazione delle acque (ricarica delle falde)	R3	1			2			2			3	1	1										R3
Purificazione dell'acqua	R4			3																			R4
Protezione dall'erosione e dissesti geologici (frane, instabilità)	R5											3	3						1				R5
Protezione dai dissesti idrologici (piene, inondazioni)	R6		1	1	1																		R6
Impollinazione	R7																						R7
Controllo biologico (insetti nocivi)	R8																						R8
Habitat per la biodiversità	R9																						R9
Valore estetico	C1		3		3					1	2							2					C1
Valore ricreativo (ecoturismo,...)	C2					1		1	1		1	2	2	1			3		2	3			C2
Ispirazione per cultura, arti, valori educativi e spirituali,	C3					2	3											1					C3
		ORO	LAN	VIA	SM	TL	GRI	VAL	COR	AGB	MM	MAS	MEL	FIC	BUS	SAM	FAG	PET	ALB	STEL	TEG	CARP	

QUALITATIVE AND QUANTITATIVE EVALUATION OF THE PRIORITY ES

Offer assessment – Demand assessment – Monetary evaluation

THE CASE OF TWO STUDY SITES WITHIN THE LOMBARDY FOREST “ALTO GARDA BRESCIANO”

Alto Garda Bresciano (ZPS IT2070402)

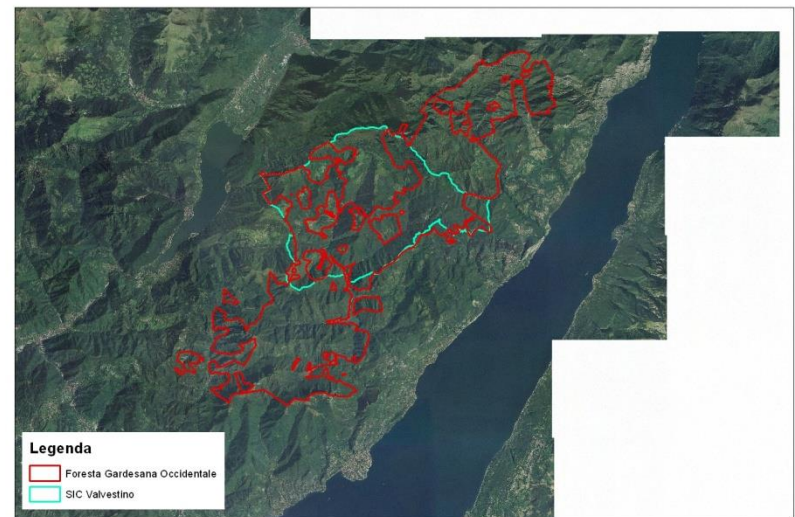


Aesthetic value

Raw materials (Timber, fuel wood...)

Freshwater

Valvestino (SIC IT2070021)



Recreation

Water regulation (aquifer recharge)

Carbon sequestration



Alto Garda Bresciano (ZPS IT2070402)

Aesthetic value

DEMAND

Real Estate Market analysis

OFFER

MONETARY VALUE

Hedonic pricing

In progress

Raw materials (timber, fuel wood...)

DEMAND

Average wood consumption

OFFER

Annual harvest of wood products

MONETARY VALUE

Market pricing

18.175,88 €/year

Freshwater

DEMAND

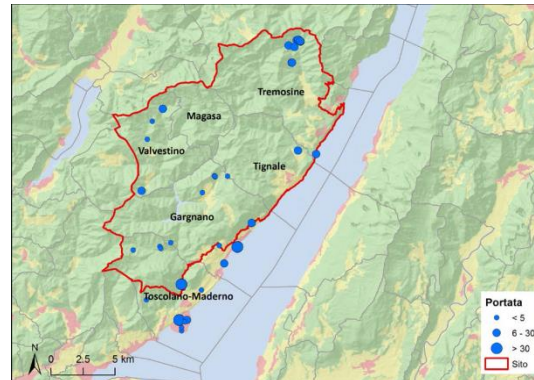
Freshwater consumption data

OFFER

MONETARY VALUE

Market pricing

4.918.433,79 €/year



Recreation

DEMAND

Tourist Survey

+

OFFER

Key Stakeholders Delphi Survey



MONETARY VALUE

Willingness To Pay/Travel Costs

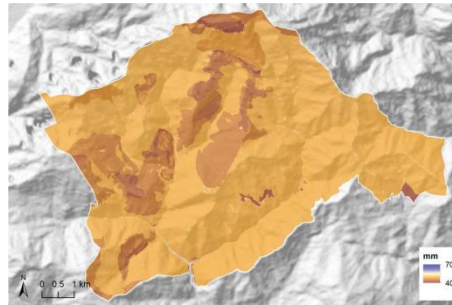
In progress

Water regulation (aquifer recharge)

DEMAND

Water consumption data

OFFER



MONETARY VALUE

Substitute Costs
(Benefit transfer approach)

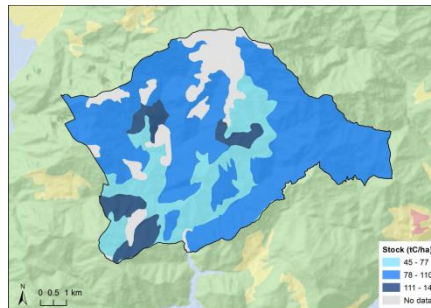
137.142.220 €

DEMAND

Not quantifiable

Carbon sequestration

OFFER



MONETARY VALUE

Social Value

Tol, RSJ (2005)

15.478.836,84 €

(stocking)

+ 293.089,09 €/year

(sequestration)



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Ecosystem services			Sites	Value	Sites	Value	Sites	Value
Provisioning	P1	Crops						
	P2	Forage, pasture	IT4090006	173 208 K€/yr				
	P3	Game/Fish	IT2040401	1M €/yr	IT4090006	10 – 16K€/yr		
	P4	Raw materials (timber, fiber, etc.)	IT2070402	18K €/yr				
	P5	Wild food (fruits, mushrooms, etc.)	IT8050025	1,2 M€/yr				
	P6	Medicinal resources						
	P7	Genetic resources	IT2070022	10K €				
	P8	Freshwater	IT2070402	5 M€/yr	IT4090006	385 K€/yr	IT8050025	682K€/yr
Regulating	R1	Carbon sequestration	IT2020301	1,4 M€, 29K €	IT2070021	15 M€, 293K €	IT8050055	43 M€, 1 M€
	R2	Air quality and climate regulation						
	R3	Water regulation (aquifer recharge)	IT2020002	7,5 M€	IT2040601	220 M€	IT2040019	61 M€
	R4	Water purification						
	R5	Erosion regulation	IT2040019	47 – 266 K€	IT2040020	105 – 584 K€	IT8050055	33 – 190 M€
	R6	Flood mitigation	IT20A0402	91 – 117 M€	IT20B0501	696 – 703 M€	IT2020002	3,2 M€
	R7	Pollination						
	R8	Biological control						
	R9	Habitat for biodiversity	IT9310014	1,2 – 1,6 M€;				
Cultural	C1	Aesthetic value	IT9310008	37 K€				
	C2	Recreation						
	C3	Cultural/Spiritual/Ethical values						

First results
from ES evaluation
(in progress)

First stakeholders meetings:

Alto Garda Bresciano Park
Mountain Community
ERSAF (Regional Forest
Authority)
CL Garda 2
Garda Canyon Association
GEV
Forestry holdings
National Alpini Association
Della Noce farm
LACUS Association
Legambiente (environmental
association)
CAI Salò (Alpine Club)

Next stakeholders meetings:

Alto Garda Bresciano Park
Mountain Community
ERSAF (Regional Forest
Authority)
3 Alpine huts
Il Vittoriale foundation
Alpe del Garda dairy factory
Castello Stale
Pastorizia Association
AGRI COOP Cooperative
L'Albero Cooperative
9 Municipalities
LAG (Local Action Group)
Forest Consortium
Turistic Association
Hoteliers Consortium
2 Turistic Consortium

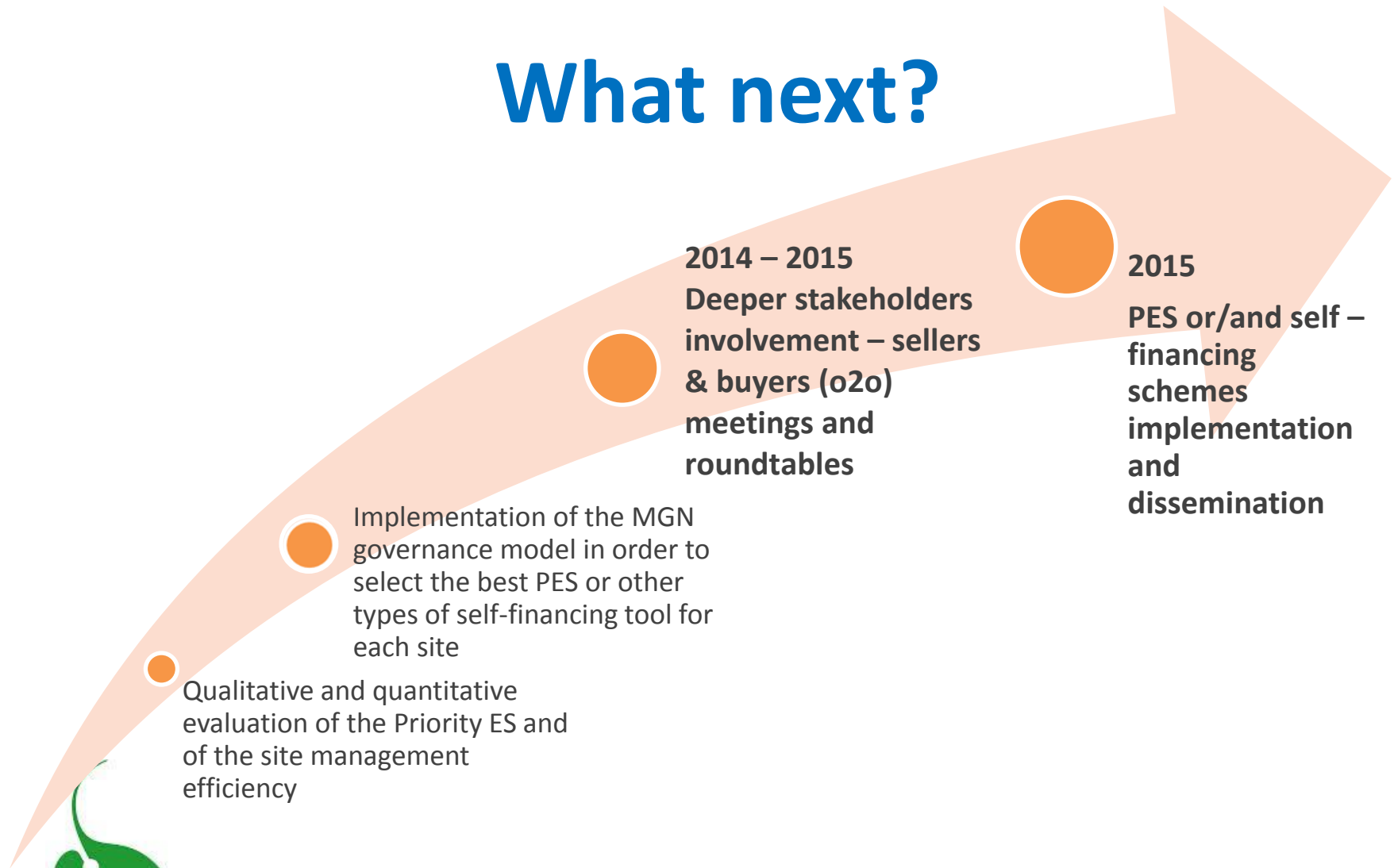
Lago di Garda Consortium
iGarda Association
La Melagrana Association
Costa Nostra Association
4 Pro Loco
5 National Alpini Association
Alpine guides
Environmental guides
CAI (Alpine Italian Club)
LACUS Association



Enhanced stakeholders participation



What next?



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FIRST INSIGHTS, LESSONS LEARNED AND CONCLUSIONS

- Data unavailability and poor accounting system
- Difficulty to organize PES for some ESs
- **Different perception about ES (prioritarization) beetwen parks manager and local communities**
- Difficulty to identify sellers and buyers in protected areas with scarce human activities and pressure
- **Complexity of stakeholder analysis for a multi ES approach**
- **Difficulty to define and implement a multi ES-based governance with a single community**



Thank you!

<http://www.lifemgn-serviziecosistemici.eu>

<http://www.facebook.com/ProgettoLifeMakingGoodNatura>

<https://twitter.com/LifeMGN>