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Deliverable 11.1

Research outputs as needed by stakeholders

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ECOPOTENTIAL Deliverable D11.1

Content

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1 Introduction

The ECOPOTENTIAL project aims to improve future ecosystem benefits in protected areas (PAs) through the use of earth observation (EO). The ECOPOTENTIAL framework distinguishes tree main connecting lines:

1. The concept of ecosystem services connects the natural environment to the socio-economic domain. For example, food production and flood protection are services that benefit human society.
2. Quantification of ecosystem services connects earth observation, in-situ measurements and environmental modelling. Management and (spatial) planning of PAs require reliable and practical indicators to be used in communication, weighing of alternatives and/or legal reporting.
3. PA managers and environmental scientists are connected through the development and knowledge transfer of reliable and practical indicators. This science-policy interface connects people facilitating the two-way flow between information need and information supply.

The main objective of work package (WP) 11 'EO supported policy development and integration' is to facilitate and enhance the use of EO and in-situ data, tools/services and of modelling results in decision-making, in particular, at the level of management of targeted PAs. Thus, WP11 focuses on connecting scientific results to practical use and integration in policy and decision making processes.

The synthesis study D11.2 will be released at the end of the first year of the ECOPOTENTIAL project. Major input to it will be generated by D11.1 'Research outputs as needed by stakeholders'. The synthesis study focuses on PA management and PA managers. It investigates the following main questions:

I. What are the needs and wishes of PA managers for the application and quantification of ecosystem services?
II. What is the current use of EO in policy, management and decision-making of PAs?
III. What research needs should ECOPOTENTIAL address?
IV. How should research results be designed and communicated?

The present deliverable, D11.1, focuses on the fourth question, while the questionnaire sent out was designed to receive answers to all questions and the results will be further elaborated in D11.2.

Results from this deliverable will be fed back to the other work packages and will set the format for how PA managers may be engaged in ECOPOTENTIAL research and how research results will be communicated.

2 Methodology

Twenty-two PAs and their managers are at the centre of ECOPOTENTIAL and of the present survey. The PAs are divided over mountain ecosystem types, arid/semi-arid ecosystems, coastal and marine ecosystems. Information was gathered from each PA through completing a questionnaire. The questionnaire was accompanied by an introduction to the ECOPOTENTIAL project and to the concept of ecosystem services and the use and possibilities of EO. As such, this introduction creates a shared terminology and framework. The questionnaire was completed by the relevant PA managers/ personnel together with the ECOPOTENTIAL partner responsible for that specific PA inside the project.

The questionnaire covered three thematic areas focussing on

- *goals, challenges and management of the PAs* (Section 1)
- *data collection practices and needs* (Section 2)

- *collaborating with ECOPOTENTIAL and communicating results* (Section 3).

This analysis for Deliverable D11.1 elaborates on the assessment of the communication and collaboration with stakeholders in the PAs and their scientific partners of the ECOPOTENTIAL project. In doing so, the analysis only addresses the responses in Section 3 of the questionnaire. This section addresses the overall research question of how ECOPOTENTIAL results should be communicated as well as how results can be co-created by PA resource managers and ECOPOTENTIAL scientists. Section 3 covered nine semi-closed questions. The other sections will be analysed in other ECOPOTENTIAL deliverables, especially D11.2.

The questionnaire was completed by 19 stakeholders of PAs, representing 16 of the 22 participating PAs, see Appendix. Eleven of the represented PAs are located within ten EU member states, the other four PAs are located in Norway, the Former Yugoslavian Republic of Macedonia, Switzerland, Israel and South Africa.

The questionnaires were answered to a varying degree of length and detail, also due to technical difficulties. It was evident, that PA managers had limited time resources. It can be stated, however, that there is a great interest in the contribution and collaboration of the PA managers with the ECOPOTENTIAL project. The template of the questionnaire and a table of respondents are attached in the appendix of this document. The raw data are available within a data table, supplied.

3 Questionnaire Results: Data evaluation

3.1 Question 3.1: Would you be interested to interact with other PAs in the ECOPOTENTIAL network? How?

Almost 80% of the interviewed PA stakeholders (15) are interested to strongly interact with other PAs in the ECOPOTENTIAL network, whereas only two stakeholders did not agree with this aim and two stakeholders were indifferent (Fig. 1).

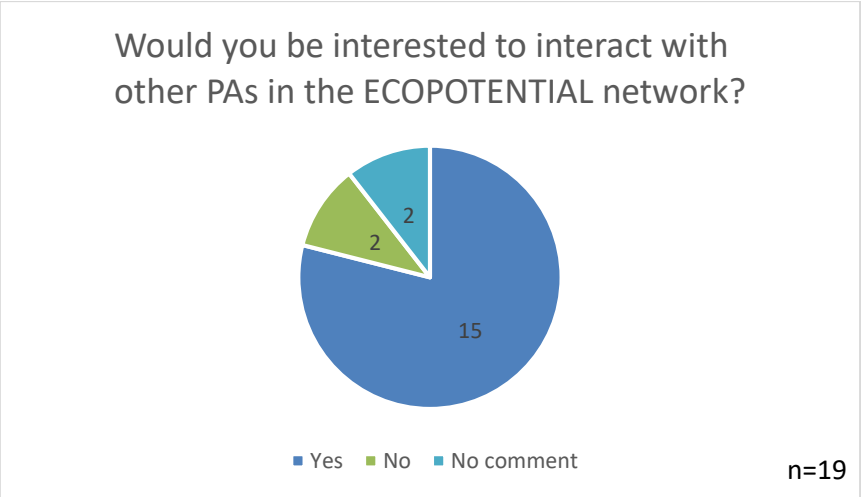

Fig. 1: Interest of interaction with other PAs in the ECOPOTENTIAL network

With regards to format of interaction expressed in the questionnaire, there is great consent on the importance of three major thematic fields: exchange, collaboration and communication (Tab. 1).

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Exchanging general experience as well as personal knowledge between the PAs is deemed highly relevant as well as the exchange of data and information. The potential of collaborations between the partners is highlighted and can be realised in the formats of future projects, workshops and meetings, mutual study visits as well as intensified partnerships and collaborations. As a further aspect of interaction there is also the focus on communication among the PAs that can be fostered by networking and virtual communication platforms. As one salient thematic aspect, the stakeholders emphasize the importance of comparing and sharing common patterns, processes and targets in their regional PA in order to elaborate on best-practice scenarios relevant and applicable for all PAs. However, also the awareness for the limited capacity of PA managers and staff is expressed. Most PA managers are overburdened with workload of other tasks that take priority and thus little time and energy can be allocated for improving interactions with other PAs. Further, there are also established initiatives that have already improved ECOPOTENTIAL interactions, such as international collaborations, and future actions can build upon these. Five stakeholders did not specify their viewpoints on the format of interactions. Generally, it can be stated that there is a will for interaction within the ECOPOTENTIAL network.

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Tab. 1: Expressed willingness of PA managers to engage in different interaction formats

Format of interaction	**Description of format/content of interaction**	**Counts**
Exchange	experience	6
Exchange	personal knowledge	2
Exchange	data	1
Exchange	other information	1
Collaboration	comparing similar environmental issues, identify common targets/developments, best practice	5
Collaboration	partnerships	3
Collaboration	workshops, meetings	3
Collaboration	study visits	2
Collaboration	future projects	2
Communication	networking	2
Communication	communication platform	2
NA (missing value)		5

3.2 Question 3.2: What is your degree of interest in participating in the following aspects of the ECOPOTENTIAL project?

Regarding the degree of interest in participating in six different phases of the ECOPOTENTIAL research process, the PA stakeholders answered to divergent extent (Fig. 2). Ranking the importance of the different aspects on a scale from 1 (not at all interested) to 5 (very interested), it can be seen with accordance to the average value that data collection (4,4), communication and dissemination of results (4,4), as well as application of results in management (4,3) are perceived as most interesting for the PA stakeholders. Identifying research questions (3,8) as well as designing research processes (3,7) appears to be of less interest, however, is still considered relevant overall.

Generally, it can be concluded that engagement in all phases and aspects of the research process is relevant for PA stakeholders, especially with regard to the collection of data and the communication of results derived from these data.

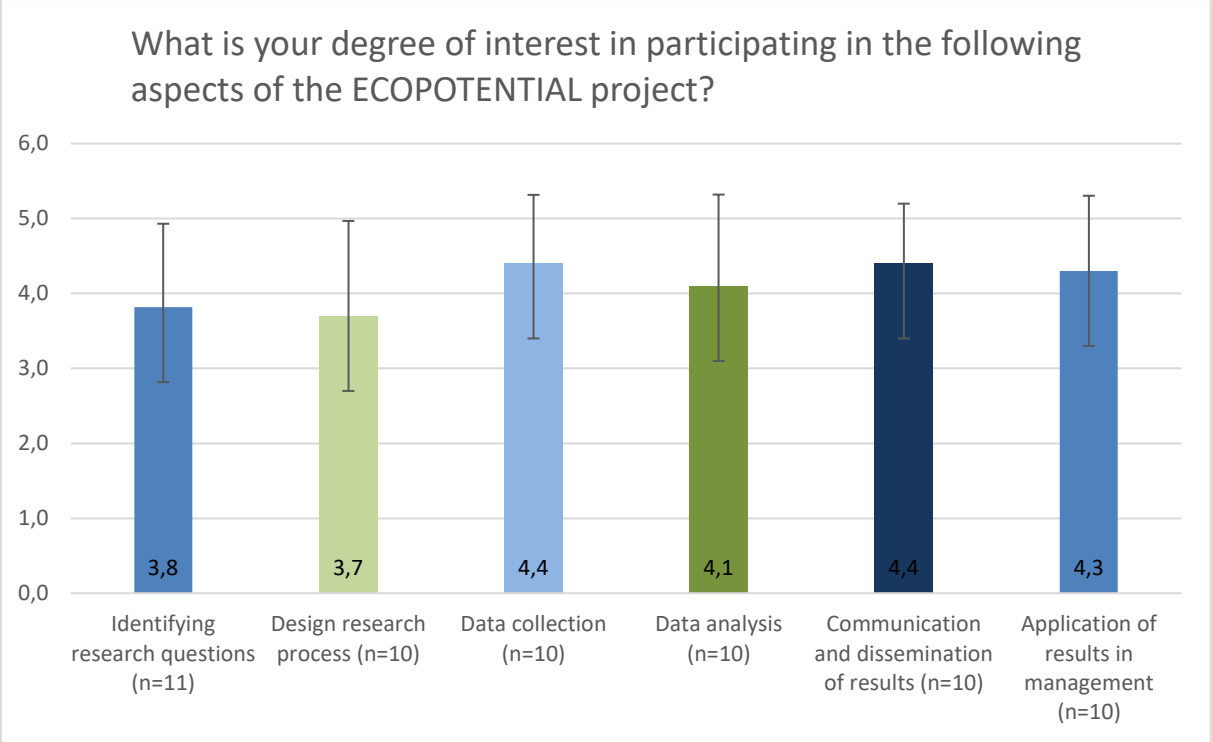

Fig. 2: Degree of interest in participating in the six aspects of the ECOPOTENTIAL research process (average value, standard deviation)

3.3 Question: 3.3: Would you be able to travel and attend relevant meetings under the ECOPOTENTIAL project?

Regarding the potential ability to travel as well as the general willingness to attend meetings, over two thirds of the respondents (13) answered affirmatively. However, one out of five stakeholder has no possibility to travel in order to attend relevant meetings abroad. Two stakeholders were indifferent to this question (Fig. 3).

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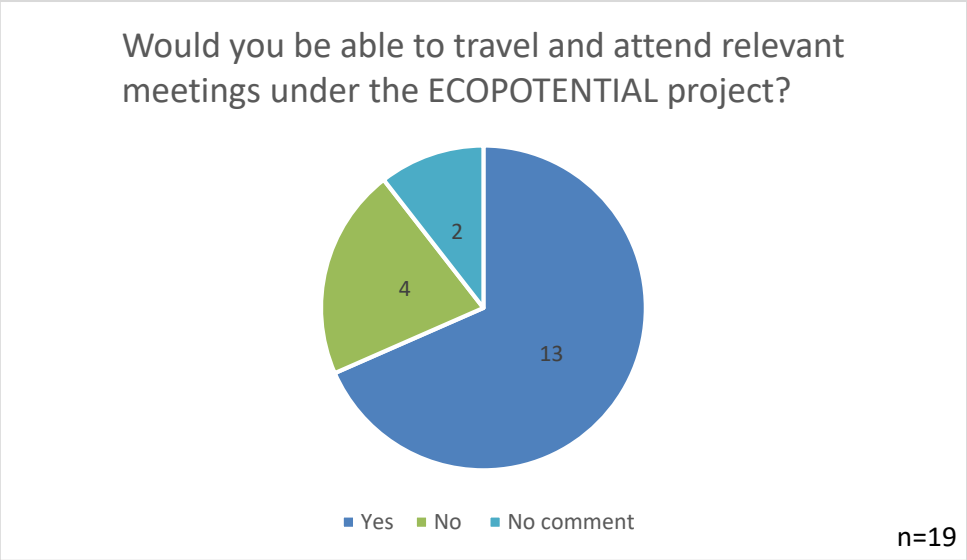

Fig. 3: Ability to travel to relevant meetings

Tab. 2: Qualitative categories of relevant meetings and potential obstacles as seen by the PAs

Relevancy of meeting purpose	**Counts**
Applied (workshop, excursion, trainings)	3
Data (in situ, modelling)	2
All	2
General assembly	1
Sharing results	1
NA (missing value)	9
Potential obstacles to attendence	**Counts**
General funding	3
ECOPOTENTIAL funding	1
Non-EU member funding	1

Considering potential obstacles as well as the importance of relevant meetings according to their format, the PA stakeholders depict a relatively homogeneous view (Tab. 2). Generally, availability for travel funding is seen as an obstacle, especially with regard to non-EU members interested in participating in ECOPOTENTIAL activities. One stakeholder also expressed the view that the ECOPOTENTIAL project should provide funding for addition travel expenses. The stakeholders also indicated thematic aspects of meetings that would justify intensified travel effort and expenses, or meetings to improve knowledge on data usage and practical know-how. Around half of the respondents, however, did not answer this question in more detail.

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3.4 Question 3.4: Would you like to have telecommunication exchange?

Considering the willingness for telecommunication with ECOPOTENTIAL partners, there is high approval, of almost 70% of the PAs, to use tele- and online-communication in order to improve exchange within the network. Six of the stakeholders were not interested or were indifferent (Fig. 4).

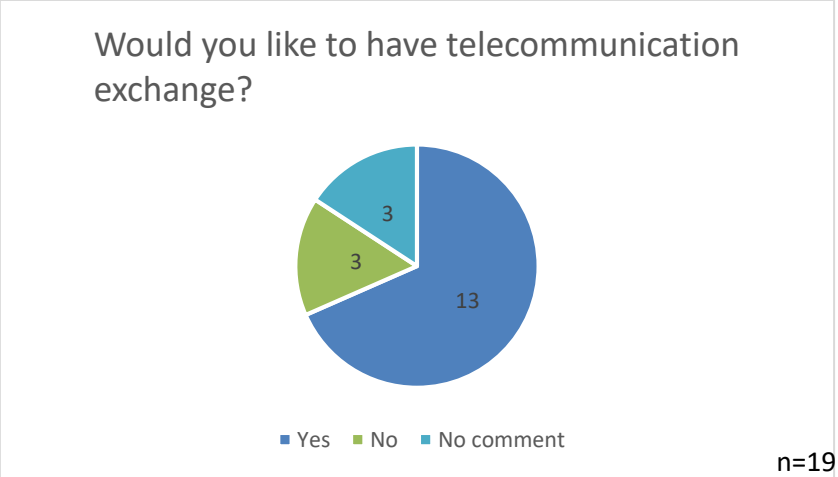

Fig. 4: Favoured telecommunication exchange

The preferred tools for communication are online-based such as skype or telephone conferences as well as email correspondence. Also passive forms of communication such as newsletters are seen as effective communication tools. Eleven stakeholders were indifferent to the channel of communication.

3.5 Question 3.5: What kind of training/capacity building workshops for the use of ECOPOTENTIAL data and toolkits do you think would be most useful to the PA staff? Who should be trained?

Considering potential required training for the ECOPOTENTIAL PAs, all four suggested types of data workshops appear to have high relevance. Especially the training in analysing and processing EO data (12) as well as collecting EO data on site (12) seems very important to the majority of the PA stakeholders. Moreover, some respondents would also like to have some software training in order to increase expertise among the PAs, although five of the PA respondents were unsure [“maybe”] and another four PAs did not opt for this option. This may require a site-specific approach, also depending on the capacities of the resource managers (time / technical expertise). Other potential training formats are online manuals, e-learning courses/platforms as well as contextual with regards to modelling (Fig. 5).

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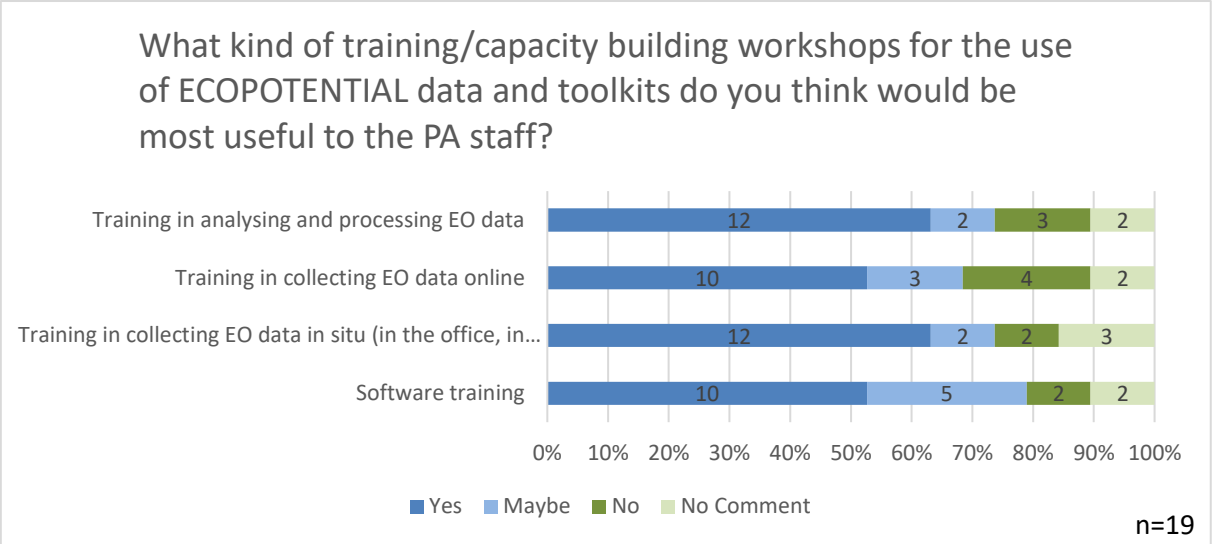

Fig. 5: Utility of different formats of training/capacity building workshops for the use of ECOPOTENTIAL data and toolkits to the PA staff, absolute count and cumulated in percentage

According to the free comments regarding the potential target groups for trainings especially PA staff (holding general or specific positions) as well as young scientists and students should have easier access to supplementary training. In addition, also the local community should be included in training sessions.

3.6 Question 3.6: How can ECOPOTENTIAL work be mainstreamed into relevant policy/decision-making processes related to your PA?

Considering the opportunities to incorporate the ECOPOTENTIAL work into relevant policy/decision-making processes, there is generally a very optimistic attitude among the surveyed PA stakeholders. The potential of mainstreaming is seen on a multitude of societal and organisational levels. It is emphasised that there is an increasing need and also opportunity to foster collaboration between National Park-management as well as local authorities. Further, the potential of scientific input based on ECOPOTENTIAL data is highlighted, so that the scientific evidence can provide an objective basis for further decision-making processes. Especially important is also the formulation of clear deliverables and targets by the stakeholders as well as an increasing focus on the implementation of training as well as analysis tools. Generally, the ECOPOTENTIAL results are hoped to have a positive impact on local decision-making processes.

3.7 Question 3.7: In what format would you like ECOPOTENTIAL results to be communicated a) to the PA staff? b) to the general public?

Looking at the potential formats for the communication of ECOPOTENTIAL results to PA staff, three media formats (online, printed and oral communication) were evaluated. PA stakeholders ranked the formats from 1 (not useful) to 4 (very useful). The results show that online format of communication is slightly more efficient than printed and oral communication. Especially maps and graphics are seen as useful when provided online. Short policy briefs appeared to be more useful than reports, both printed and online. However, also talks and training workshops were indicated as useful tools for communication to the PA staff, while this varies between different locations and PA teams (Fig. 6).

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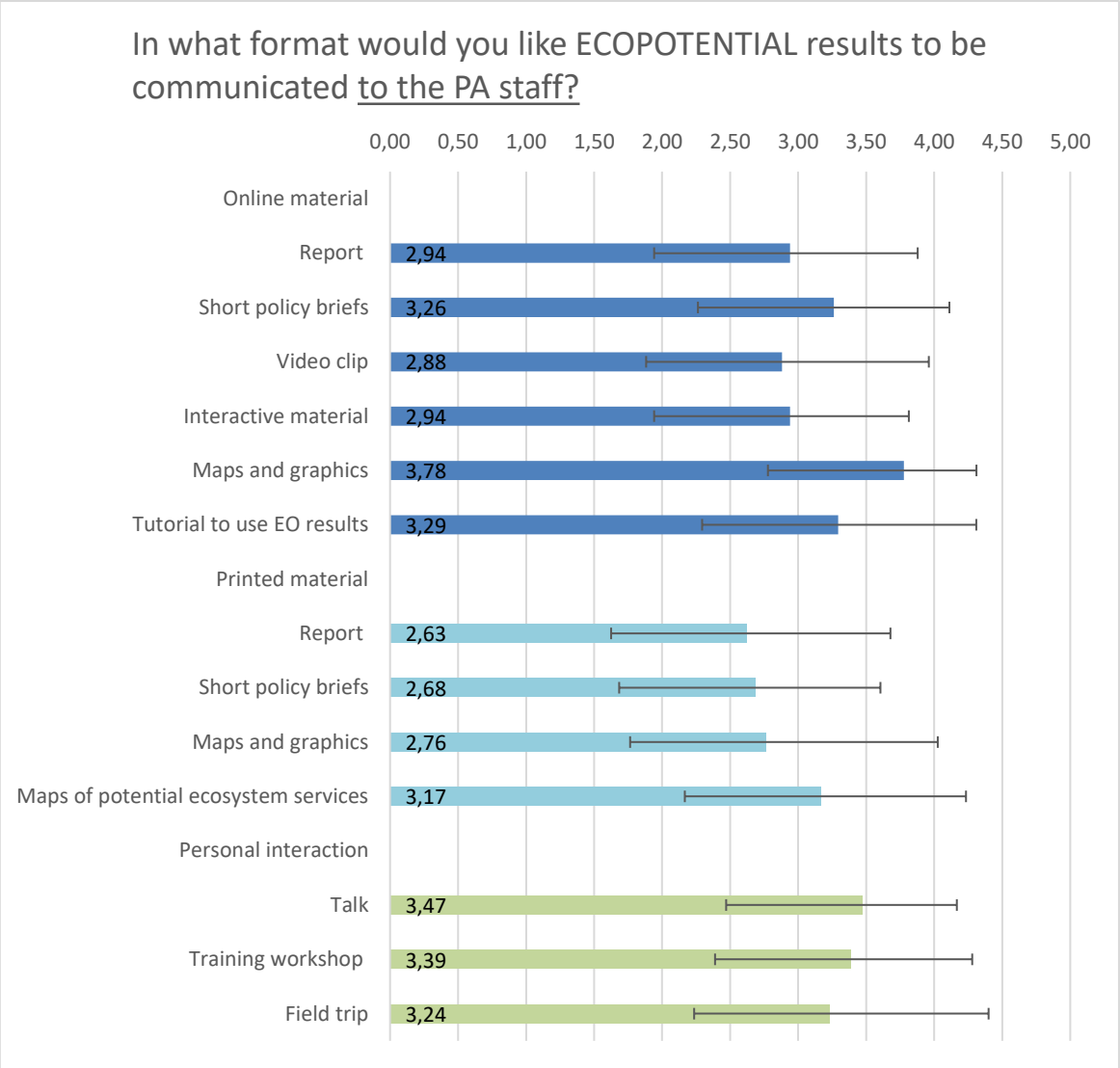

Fig. 6: Usefulness of formats of online, printed and oral communication of ECOPOTENTIAL results to the PA staff (average value, standard derivation)

In contrast, the evaluation of potential formats for the communication of ECOPOTENTIAL results to the general public provides a more diverse picture. Generally, the potential tools are judged to provide a less effective way of communication to a broader audience. Yet, online maps and graphics are still valued as the most useful tool for public communication of results. Moreover, especially short policy briefs, video clips and interactive material would provide good opportunity to effectively communicate results (Fig.7).

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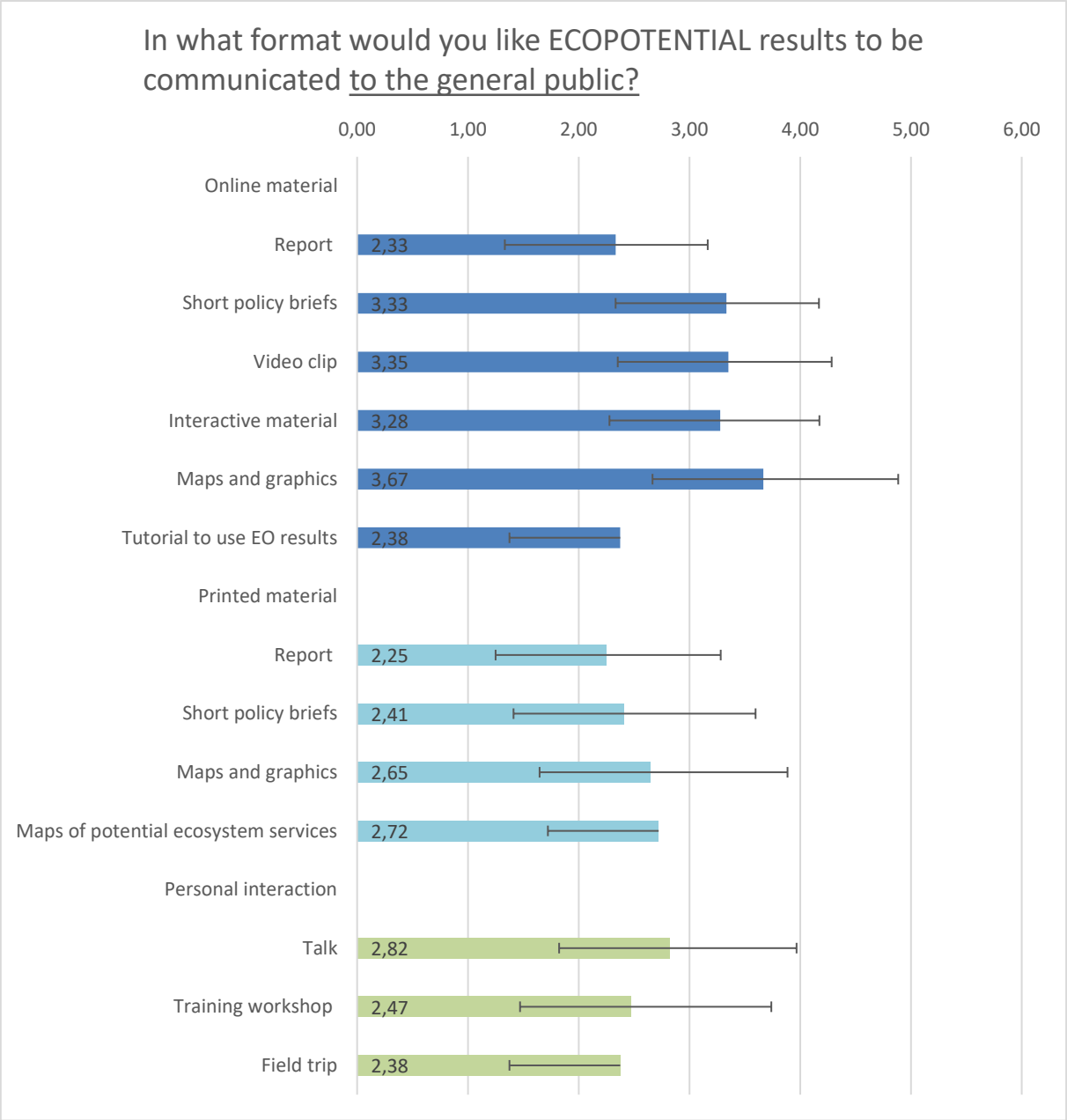

Fig.7: Usefulness of formats of online, printed and oral communication of ECOPOTENTIAL results to the general public (average value, standard derivation)

3.8 Question 3.8: Could results be communicated through your channels (e.g. print media, website, meetings)? How – please let us know how we could work together?

Considering the joint engagement of PAs in communicating ECOPOTENTIAL results through already established communication platforms and tools, 16 of the PA stakeholders are willing to facilitate and utilise channels such as print media, websites and communication at meetings. This depicts great opportunities for enhanced communication as an extensive infrastructure has already been established by the PAs that the ECOPOTENTIAL project could engage with. Only a minority of the surveyed stakeholders seem to not have access or the potential to provide communication infrastructure (Fig. 8).

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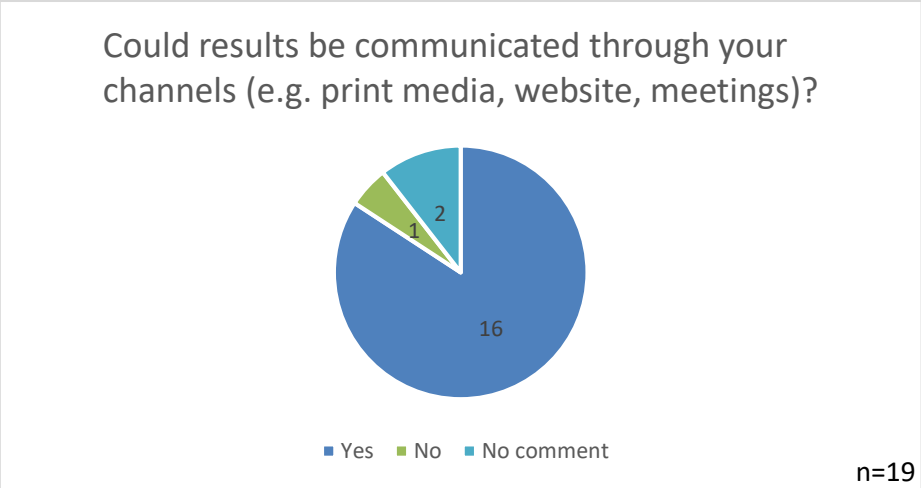

Fig. 8: Communication through established PA communication channels

There is great potential to engage the PAs for effective communication through their established communication channels: the PAs could provide ECOPOTENTIAL information through the National Park channels (11) as well as in collaborating among the PAs. Also conventional outreach tools (7), such as newspaper articles, PA magazines or press conferences seem to provide an opportunity for joint communication. However, platforms to communicate with the scientific or local communities are considered less developed. Considering potential common strategies, especially communication via websites seems to provide the most useful platform. Also geo portals and having a joint communication strategy seems to be helpful for comprehensive outreach communication. Generally, there is a multitude of different communication channels considered helpful for collaboration by the PAs, while five of the surveyed PAs were indifferent (Tab.3).

Tab. 3: Qualitative categories of the potential collaborations of actors and strategic tools as seen by the PAs

Actors of communication	**Counts**	**Strategies/channels of communication**	**Counts**
PAs	11	Joint communication strategy	3
Local municipality	1	PA magazine	2
Outreach	7	Video clip	1
Scientific	3	Website	9
NA (missing value)	5	Scientific publications	2
		Geo portal	3
		Press conference	1
		Scientific talks	1
		Newsletter/leaflets	2
		Meetings	1
		NA (missing value)	5

3.9 Question 3.9: In what language(s) would you prefer results from ECOPOTENTIAL? Which products should definitely be in the local language?

English is considered as the preferred communication language by 13 out of 19 PA stakeholders. Yet, six of the respondents also see advantage by providing and communicating the ECOPOTENTIAL results in the local language (Fig. 9).

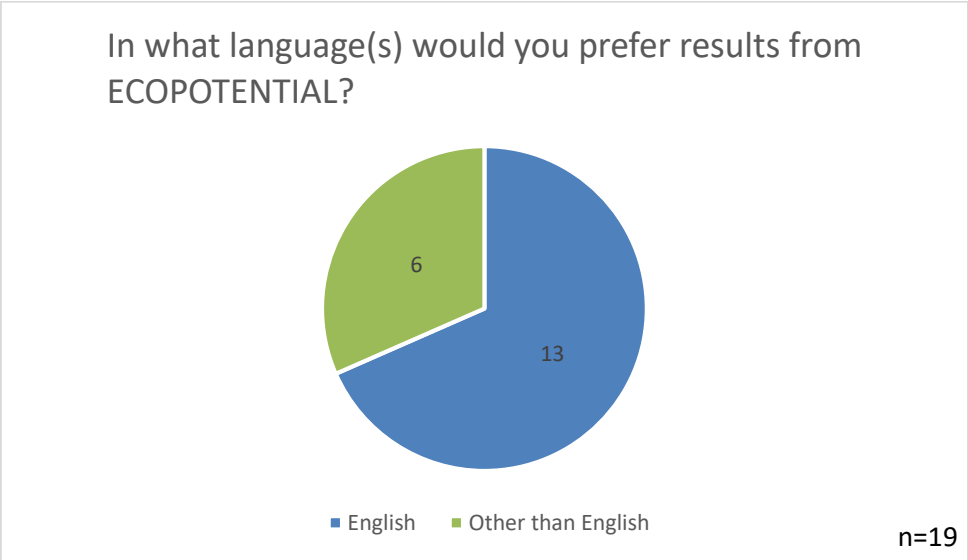

Fig. 9: Preferred language to communicate ECOPOTENTIAL results

Considering products that should definitely be provided in the local language, this refers especially to products designed for use by local communities. Thus, practical and interactive materials, promotional information, short policy briefs and maps should, if possible, also be provided in the local language. Regarding the online communication, it would be preferable to also have access to manuals, reports, video clips and tutorials on EO use in the local languages. However, two of the surveyed PA stakeholders strongly promote providing all elaborated material in both English as well as the local language, whereas five stay indifferent. In general, most stakeholders mentioned several products that should be in provided in the local language. Mainly outreach communication is dependent on the local language.

4 Conclusions

The responses on the needs and priorities of PA staff on participation and communication tools will enhance the ability of ECOPOTENTIAL to design new communication products. The spread of responses on preferred communication formats could indicate that a variety of communication tools are desired. Further discussion in WP 11 and 12 will determine how the needs and desires of the PAs can be met with the resources available. With regards to the communication products already planned, it will guide the creation of their content and delivery. For these, it is also positive that the reach of ECOPOTENTIAL communication tools will be enhanced by the willingness of the PAs to make their established communication channels available.

The following communication tools were already planned for the upcoming period (2016/2017):

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(1) A leaflet explaining the aims and methods of ECOPOTENTIAL, targeting practitioners and stakeholders in general.
(2) An animated video introducing ECOPOTENTIAL, aimed at the general public.
(3) A series of story maps based on stories of PAs and their benefits to society. Story maps are interactive online products, which allow the audience to explore a storyline, or topic, through maps, graphics and other embedded media.
(4) A photo exhibition with images provided by the PA personnel.

The videos and story maps (2, 3 and 4) reflect the interest of the participants for online communication tools. There seems to be a slight preference for videos targeting the general public as opposed to PA staff, but videos targeting PA staff were also of significant interest. Furthermore, the results indicate that maps and graphics could be prioritised content in all planned communication products. These results will form a basis for discussions within ECOPOTENTIAL to design desired outputs relevant to ECOPOTENTIAL stakeholders.

5 APPENDIX

5.1 Questionnaire for synthesis study

Cover page – Integration of EO tools in decision making for Protected Areas

Questionnaire for workshop for ECOPOTENTIAL
D 11.1 (Research outputs) 11.2 (Synthesis study)

Workshop information	
Organizer:	
Date/Time:	
Location:	

Basic information about the Protected Area (PA)		
Name of PA:		
Out of the following, what is the main ecosystem type in your PA?		
Mountain ecosystem		☐
Water-limited ecosystem		☐
Coastal and marine		☐
PA Category type (according to IUCN)		
☐ Ia/Ib Wilderness Area/Strict Nature Reserve	☐ II National Park	☐ III Natural Monument or Feature
☐ IV Habitat/Species Management Areas	☐ V Protected Landscape/Seascape	☐ VI Protected Area with Sustainable use of natural resources
PA category (in own national system)		

Basic information about respondent of questionnaire:	
Name:	
Role at PA:	
Email:	
Further contacts	

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Part 1: Identifying the goals, challenges and management of the PA

1.1 Vision and purpose

1.1 What is aimed to conserve or protect at your PA?	
1	
2	
3	
4	
4	
5	
6	

1.2

1.1 Why was this area designated a PA? Can you provide the historical circumstances leading to the creation of the PA? Was there evidence provided throughout Earth Observation tools/data to support this?

1.3

What are the most damaging environmental pressures or threats to your PA?				
Environmental pressures	High pressure	Medium pressure	Low pressure	No pressure
Agriculture, please specify how:	☐	☐	☐	☐
Forestry, please specify how:	☐	☐	☐	☐
Climate change	☐	☐	☐	☐
Invasive species	☐	☐	☐	☐
Eutrophication	☐	☐	☐	☐
Tourism, please specify how:	☐	☐	☐	☐
Pollution	☐	☐	☐	☐
Hunting	☐	☐	☐	☐
Fishing	☐	☐	☐	☐
Other biological resource extraction (e.g. shells, berries), please specify:	☐	☐	☐	☐
Transport	☐	☐	☐	☐
Landscape fragmentation	☐	☐	☐	☐

Please fill in if others:	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐

Governance and funding

1.4

What type of PA management regime is in place? (e.g. government led, decentralized governance, community, private)

1.5

What is the property regime in the PA area?[1]	
	Percentage area
Private property (please specify major landholders, e.g. water companies, forestry	
Public property	
Common Property	
Open Access	
comment: How much of the areas is openly accessible, e.g. can be visited?	

1.6

What are the sources of funding?	Total funding per source: (estimate/year)
Public funds	
Private donations	

1.7

[1] Kinds of property regimes: **Private property** occurs when the strands of the property rights bundle are held by a natural or legal person. **Common property** exists where property rights strands are shared among members of a community or association. **Public property** is established when the property is concentrated, held and managed by the government. **Open access** occurs where either no specific rights to land or natural resources have been assigned or claimed by holders.

Does the PA generate revenue? (Funds generated directly from users or beneficiaries of the PA)	Yes ☐	No ☐
If yes, how:	How much per activity:[2]	
Entry fees		
Payment for ecosystem services		
Rental of space/venues		
Extractive industries		
Visitor centres / guided tours		

1.8

What are your connections with existing networks of PAs?	
PA Networks	Member
EUROPARC	☐
Natura 2000	☐
Sub-regional networks: e.g. Carpathian Network of Protected Areas (CNPA), ALPARC Please specify:	☐
LTER Europe	☐
Others	☐
	☐
	☐

1.9

What are the policy and normative frameworks (laws and relevant policies) most relevant to the management of your PA? (Please fill in where appropriate and specify also the relevant law gazette)
Supranational: EU-level (EU-Directives, etc.)
Sub-regional (e.g. Alpine Convention, Carpathian Convention)
National level
Provincial level
Municipal / local level
Other:

[2] Please use any currency.

1.10

What are the key stakeholders you engage with in decision making processes?					
Stakeholders	Very involved	Involved	Somewhat involved	Unknown	Not relevant
Municipal government(s)	☐	☐	☐	☐	☐
Regional government(s)	☐	☐	☐	☐	☐
National government(s)	☐	☐	☐	☐	☐
Private companies	☐	☐	☐	☐	☐
Local community	☐	☐	☐	☐	☐
Visitors	☐	☐	☐	☐	☐
Downstream communities	☐	☐	☐	☐	☐
NGOs, civil society representatives	☐	☐	☐	☐	☐
Scientific institutions	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐

1.11

What are the mechanisms of exchange with stakeholders?

Ecosystem Services

Overall question for this section: What are the needs of PA managers for monitoring ecosystem services?

1.12 Ecosystem Services Card for the PA: Which ecosystem services are important?

	7. How important are the following ecosystem services to the beneficiaries of the PA? ***(Relative to the other ecosystem services, on a scale from 1 (least important) to 5 (most important) ?=unknown)***							
	Ecosystem service	1	2	3	4	5	?	#
Provisioning services	Agriculture, meat	☐	☐	☐	☐	☐	☐	1
	Agriculture , grain	☐	☐	☐	☐	☐	☐	2
	Fisheries	☐	☐	☐	☐	☐	☐	3
	Farmed sea food	☐	☐	☐	☐	☐	☐	4
	Genetic resources	☐	☐	☐	☐	☐	☐	5
	Timber	☐	☐	☐	☐	☐	☐	7
	Wild land meat	☐	☐	☐	☐	☐	☐	9
	Wild non meat food products (e.g. berries, mushrooms, kelp)	☐	☐	☐	☐	☐	☐	10
	Fresh water	☐	☐	☐	☐	☐	☐	11
	Energy production (e.g. hydropower, wind farms)	☐	☐	☐	☐	☐	☐	12
	Please fill in if others:	☐	☐	☐	☐	☐	☐	13
		☐	☐	☐	☐	☐	☐	14
		☐	☐	☐	☐	☐	☐	15
		☐	☐	☐	☐	☐	☐	16
		☐	☐	☐	☐	☐	☐	17
Regulating services	Carbon sequestration and storage	☐	☐	☐	☐	☐	☐	18
	Erosion prevention (coastal or inland)	☐	☐	☐	☐	☐	☐	19
	Lifecycle and habitat protection	☐	☐	☐	☐	☐	☐	20
	Pollination	☐	☐	☐	☐	☐	☐	21
	Pest and disease control	☐	☐	☐	☐	☐	☐	22
	Water treatment	☐	☐	☐	☐	☐	☐	23
	Flood prevention	☐	☐	☐	☐	☐	☐	24
	Please fill in if others:	☐	☐	☐	☐	☐	☐	25
		☐	☐	☐	☐	☐	☐	26
		☐	☐	☐	☐	☐	☐	27
		☐	☐	☐	☐	☐	☐	28
Cultural services	Spiritual significance	☐	☐	☐	☐	☐	☐	29
	Recreation	☐	☐	☐	☐	☐	☐	30
	Education	☐	☐	☐	☐	☐	☐	31
	Aesthetic qualities	☐	☐	☐	☐	☐	☐	32
	Research	☐	☐	☐	☐	☐	☐	33
	Please fill in if others:	☐	☐	☐	☐	☐	☐	34
		☐	☐	☐	☐	☐	☐	35
		☐	☐	☐	☐	☐	☐	36
		☐	☐	☐	☐	☐	☐	37
Other	*Please fill in if others:*	☐	☐	☐	☐	☐	☐	38
		☐	☐	☐	☐	☐	☐	39
		☐	☐	☐	☐	☐	☐	40
		☐	☐	☐	☐	☐	☐	41
		☐	☐	☐	☐	☐	☐	42

		☐	☐	☐	☐	☐	☐	43
		☐	☐	☐	☐	☐	☐	44
		☐	☐	☐	☐	☐	☐	45
		☐	☐	☐	☐	☐	☐	46

1.13

Is a ecosystem service framework used in the management of your PA?	Yes ☐	No ☐

If no, why not? And if yes, why?

1.14

Who are the main beneficiaries (direct and indirect) of the PA ecosystem services? And how do these groups benefit from the PA?	
Stakeholders	Which ecosystem services benefit the stakeholders? (use numbers from ES list, from 1.12)
Local communities	
Downstream communities	
Government	
Local farmers	
Other private industries (please specify)	
Others please specify:	

Part 2: Data collection practices and needs – Earth Observation(EO) and other research

Overall question: *What is the current use of EO data, research practices and research needs?*

2.1

Which quantitative or qualitative indicators are used to monitor progress towards the main goals of the PA listed above (question 1.1)? (e.g. habitat mapping using aerial photographs, bird surveys, water quality, visitor counts - if none, please indicate NA)	
1	
2	
3	
4	
4	
5	
6	

2.2

What environmental and socio economic data is /has been collected in situ?
Environmental data:

Socio economic data:

2.3

Do you use modelling? Please list and briefly describe most used models.

2.4

Do you need further modelling? If so, please list and describe modelling needs.

2.5

Please list reports or publications based on data from the PA:

2.6

Do you use the above collected data to quantify ecosystem services? If yes, please specify which ecosystem services.

2.7

Would you like to further monitor ecosystem services? If yes, please specify which.

2.8

To which Earth Observation (EO) data sources do you have access?	
Radar images	☐
Satellite images/optical	☐
Plane images	☐
Drone images	☐
Airborne platforms	☐
Buoy based instruments	☐
Snow gauge	☐
Wind gauge	☐
Others, please specify:	☐
	☐
	☐
	☐
	☐

2.9

Which EO-resources and tools are currently in use for the management of your PA?

2.10

Are further EO resources or tools needed for the management of your PA?

2.11

What hardware and/or software do you employ to collect and analyse EO data?

2.12

How many staff members use EO data?		
Do you have specific staff members working mainly with monitoring?	Yes ☐	No ☐
What skills do they have specific to EO data collection, analysis and application?		

2.13

How are EO data and/or models used to inform the following processes in your PA:
Indicators, assessments and reporting obligations

Policy frameworks
Management (including elaboration and revision of management plans) and decision making

2.14

What are the challenges you face with respect to EO data/tools in decision making?

2.15

How could ECOPOTENTIAL or other potential science projects help to tackle the challenges above (question 2.14)? *We cannot guarantee to follow all suggestions within ECOPOTENTIAL but where applicable we can aim to adjust the planned work programme.*

2.16

Are there EO science policy interface dialogues happening in your PA (and if so what types)?

3: Collaborating with ECOPOTENTIAL and communicating results

Overall question: *How should ECOPOTENTIAL results be communicated, and results be co-created between your PA and ECOPOTENTIAL?*

ECOPOTENTIAL already provides a website http://www.ecopotential-project.eu/
ECOPOTENTIAL is also developing a service-based platform for a virtual (i.e. online distributed) and open (i.e. accessible) laboratoryto study ecosystems and contribute to GEO/GEOSS: the ECOPOTENTIAL Virtual Laboratory Platform. Through the platform, different user categories are able to publish and access resources according to their profile. Users interact with the platform through a set of resource sharing services including: Web-based data services, open archives, scientific models accessible as web services, semantic assets, and analytics services.

Knowledge generated by the whole project will be synthesized and shared with a wide group of stakeholders (PA managers especially) as well as policy makers. Relevant platforms such as GEOSS will be actively used, as well as the project's online ECOPOTENTIAL Virtual Laboratory Platform and partners' (thematic) networks (e.g. Carpathian Network on PAs, Alpine Network on PAs, Mediterranean Lagoons Network). Development of innovative/interactive outreach tools and dissemination activities with a strong focus on visual components and networking will be designed in close collaboration with the users: printed material, online products (in particular providing synthesized information on targeted PAs built up with content gathered over the duration of the project.), short documentary film(s) (link to YouTube/other platforms), and public awareness activities such as exhibitions. Brochures and information on ECOPOTENTIAL in multiple European languages will be produced. In particular for targeted practitioners, specific tools will be developed to enhance the use of existing EO tools and data, e.g. instructional videos for PA management using Earth Observation data/tools; dissemination and experience sharing conference for practitioners will be organised. A detailed communications and knowledge management plan will be elaborated at early stage of project implementation and this questionnaire helps to target communication.

We would like to achieve these outcomes in a collaborative research process!

Collaborating with ECOPOTENTIAL

3.1

Would you be interested to interact with other PAs in the ECOPOTENTIAL network?	Yes ☐	No ☐
How?		

3.2

What is your degree of interest in participating in the following aspects of the ECOPOTENTIAL project? *(on a scale from 1(not at all interested)-5 (very interested)*					
Input of PA	1	2	3	4	5
Identifying research questions					
Design research process					
Data collection					
Data analysis					
Communication and dissemination of results					
Application of results in management					

Other please specify:					

3.3

Would you be able to travel and attend relevant meetings?	Yes ☐	No ☐
Please specify, which meetings would you find relevant:		

3.4

Would you like to have telecommunication exchange?	Yes ☐	No ☐
Please specify:		

3.5

What kind of training/capacity building workshops for the use of ECOPOTENTIAL data and toolkits do you think would be most useful to the PA staff? Kind of training	Yes	No	Maybe
Software training	☐	☐	☐
Training in collecting EO data *in situ (in the office, in the field)*	☐	☐	☐
Training in collecting EO data online	☐	☐	☐
Training in analysing and processing EO data	☐	☐	☐
Other please specify:	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
Who should be trained?			

3.6

How can ECOPOTENTIAL work be mainstreamed into relevant policy/decision-making processes related to your PA?

Communication

Overall question: *How should ECOPOTENTIAL results be communicated: What format is needed for the different outputs?*

3.7

In what format would you like ECOPOTENTIAL results to be communicated to the **PA staff**?				
	Very useful	useful	Somew hat useful	Not useful
Online material:				
- Report	☐	☐	☐	☐
- Short policy briefs	☐	☐	☐	☐
- Video clip	☐	☐	☐	☐
- Interactive material	☐	☐	☐	☐
- Maps and graphics	☐	☐	☐	☐
- Tutorial to use EO results	☐	☐	☐	☐
Printed material				
- Report	☐	☐	☐	☐
- Short policy briefs	☐	☐	☐	☐
- Maps and graphics	☐	☐	☐	☐
- Maps of potential ecosystem services	☐	☐	☐	☐
Personal interaction				
- talk	☐	☐	☐	☐
- training workshop	☐	☐	☐	☐
- field trip	☐	☐	☐	☐
Others, please specify:				
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
In what format would you like ECOPOTENTIAL results to be communicated to the **general public**?				
Online material:				
- Report	☐	☐	☐	☐
- Short policy briefs	☐	☐	☐	☐
- Video clip	☐	☐	☐	☐

- Interactive material	☐	☐	☐	☐
- Maps and graphics	☐	☐	☐	☐
- Tutorial to use EO results	☐	☐	☐	☐
Printed material				
- Report	☐	☐	☐	☐
- Short policy briefs	☐	☐	☐	☐
- Maps and graphics	☐	☐	☐	☐
- Maps of potential ecosystem services	☐	☐	☐	☐
Personal interaction				
- talk	☐	☐	☐	☐
- training workshop	☐	☐	☐	☐
- field trip	☐	☐	☐	☐
Others, please specify:				
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐

3.8

Could results be communicated through your channels (e.g. print media, website, meetings)?	Yes ☐	No ☐
How – please let us know how we could work together?		

3.9

In what language(s) would you prefer results from ECOPOTENTIAL?	
English	☐
Local language, please specify:	☐
Which products should definitely be in the local language?	

5.2 Questionnaire Respondents

Name	ES Type	Country	Partner	Type of Protection	Role of respondent at PA
Wadden Sea and Dutch Delta	Coastal and Marine Ecosystems	The Netherlands	Koninklijk Nederlands Instituut voor Onderzoek der Zee	UNESCO Biosphere Reserve (World Heritage)	NA
Danube Delta	Coastal and Marine Ecosystems	Romania	University of Bucharest	UNESCO Biosphere Reserve (World Heritage) Ramsar site, NATURA 2000 site	Contact person for PA in the ECOPOTENTIAL Project
Curonian Lagoon	Coastal and Marine Ecosystems	Lithuania	Klaipeda University	NATURA 2000 site, Curonian Spit cultural landscape is on UNESCO World Heritage List since 1999 Baltic Sea Protected territory by HELCOM	Vice director
Curonian Lagoon	Coastal and Marine Ecosystems	Lithuania	Klaipeda University	NATURA 2000 site, Curonian Spit cultural landscape is on UNESCO World Heritage List since 1999 Baltic Sea Protected territory by HELCOM	Environmental specialists
LME2: Mediterranean	Coastal and Marine Ecosystems	transnational	United Nations Educational, Scientific and Cultural Organization	Marine protected areas	Scientific Support (TETHYS Institute)
Doñana National Park	Coastal and Marine Ecosystems	Spain	Doñana National Park	National Park	Conservation Director of PA
Camargue	Coastal and Marine Ecosystems /Wetlands	France	Tour du Valat	UNESCO Biosphere Reserve, Regional Park, Natura 2000, Ramsar site	GIS Officer
Gran Paradiso	Mountain Ecosystem	Italy	Consiglio Nazionale delle Ricerche	National Park; Special Protection Area (Birds Directive); Site of Community Importance (Habitat Directive)	Biologist
Lakes Ohrid/Prespa	Mountain Ecosystem	Former Yugoslav Republic of Macedonia	PSI Hydrobiological Institute, Ohrid	UNESCO world heritage site / Ramsar site and Monument of Nature	Researcher

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Name (cont)	ES Type	Country	Partner	Type of Protection	Role of respondent at PA
Lakes Ohrid/Prespa	Mountain Ecosystem	Former Yugoslav Republic of Macedonia	PSI Hydrobiological Institute, Ohrid	UNESCO world heritage site / Ramsar site and Monument of Nature	Environment Sector, Department for water and natural resources, project coordinator of the project for Restoration and management of Prespa Lake,
La Palma Island	Mountain Ecosystem	Spain	University of Bayreuth	Biosphere Reserve (whole island), including a national park (Caldera de Taburiente), UNESCO starlight reserve,	Director of National Park
La Palma Island	Mountain Ecosystem	Spain	University of Bayreuth	Biosphere Reserve (whole island), including a national park (Caldera de Taburiente), UNESCO starlight reserve,	Biologist
Samaria	Mountain Ecosystem, Coastal and marine ecosystem	Greece	FORTH - Foundation for Research and Technology - Hellas	UNESCO Biosphere Reserve (World Heritage), National Park, Natura 2000 site	Contact person for PA in the ECOPOTENTIAL Project
Northern Limestone NP	Mountain Ecosystems	Austria	European Environment Agency	National park (IUCN Cat II); Natura 2000	Geoinformatic and IT
High Tatra Mts.	Mountain Ecosystems	Poland/Slovakia	United Nations Environment Programme	UNESCO Biosphere Reserve / national parks / N2000 (both SCIs and SPAs	Spatial Data Management Specialist
Hardangervidda	Mountain Ecosystems	Norway	University of Bergen	NATIONAL park (IUCN Cat. II) , and adjacent landscape protected area (IUCN Cat. V)	Post-doc on the Hardangervidda National Park part of the ECOPOTENTIAL project
Swiss National Park	Mountain Ecosystems	Switzerland	ETH Zürich	National park (IUCN Cat. Ia); UNESCO Biosphere Reserve	Researcher
Har HaNegev	Water-limited Ecosystems	Israel	Ben Gurion University	Natural reserve; UNESCO World Heritage site.	Researcher
Kruger National Park	Water-limited Ecosystems	South Africa	Council for Scientific and Industrial Research (CSIR)	National Park	Scientist