

Coordinating and integrating state-of-the-art Earth Observation Activities in the regions of North Africa, Middle East, and Balkans and Developing Links with GEO related initiatives towards GEOSS



Deliverable D2.1 User Need Analysis

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Acronyms and Abbreviations

Acronym	Description
DAB	Discovery and Access Broker
DM	Dissemination Manager
EM	Exploitation Manager
EO	Earth Observations
GAW	Global Atmosphere Watch
GCI	GEOSS Common Infrastructure
GGO	Greek GEO Office
LO	Liaison Office
LOR	Liaison Officer
LOs	Liaison Office Secretary
NOA	National Observatory of Athens
OB	Objective
PC	Project Coordinator
PCT	Project Coordination Team
PO	Participating Organization
RC	Regional Coordinators
RDH	Regional Data Hub
RoI	Region of Interest
WMO	World Meteorological Organization



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1 Objective of this document

This document will:

- Report on the activities and results achieved so far, on the methodology adopted and the obstacles and lessons learnt to be taken into account in the follow-up work.
- Describe the content of the inputs received from partners, in particular taking stock of what is missing to be covered in the follow-up work.
- Outline the steps forward for the next reporting period.

2 Rationale of task 2.4

The end-user needs analysis will offer a structured snapshot of the potential EO uptake in the region. It may act as a reference point in mapping the capacities of the value-adders to cater for those needs, as well as the gaps in the current availability of skills and capacities.

The rationale for acquiring a solid overview of the demand is this: unless the capacities mobilised by GEO-CRADLE are solidly anchored in market needs, there is a high risk that the impact of the project will be insufficient.

This rationale coincides with that of the European Commission itself: investments in infrastructures (Copernicus, Galileo and others) should generate growth, jobs and socio-environmental benefits outside the space sector.

Demand from the public sector is expected to translate into an ever larger number of services from both public and commercial companies. This explains the bottom-up approach to mapping needs in the three regions covered by GEO-CRADLE.

The T2.4 analysis should also inform national policies on EO take-up by end-users, so that top-down measures to consolidate the sector should be complemented by bottom-up ones.

3 Main activities carried out in the reporting period

The activities carried out so far in task 2.4 are listed below:

- Defined the **target for the analysis** (value-added chain scheme), and negotiated with partners the exact scope of 2.4, i.e. limiting it to end-users and in-house GIS providers
- Defined and provided the involved partners with **methodologies and tools** (stakeholder map, interview guidelines, and interviews, bottom-up approach)
- “Trained” and supported the partners in approaching and talking to the interviewees
- Collected the interviews conducted by the partners
- Gave feedback to the partners: correct or incorrect interviewee profiles, relevance of the questions and responses to the interviews, completeness
- Qualified the profiles of the interviewees in the stakeholder map
- Conducted a partial analysis on the content of the interviews in terms of user profiles themes covered etc.

4 Methodology and tools

4.1 Defining “end-users”: rationale and risks foreseen

The cutting point between “offer” and “demand” in the geo-information chain is not an obvious one. Every actor in the value-added chain defines their “client” as a “user”, and has little visibility of the subsequent user of the geo-information product derived from the product they provide.

The necessity that partners agree on a common reference and use the same terms to define the same actors was immediately apparent: all input from partners should converge towards outlining the needs of those actors which we have defined as “end-users”, rather than different types of stakeholders. See [end-user definitions here](#).

The definition of terms to be used also aimed to orient partners on how to speak to the interviewees; namely, on the kind of questions they should or should not ask them. According to the agreed definitions, the end-users were positioned completely outside the data value adding chain. Indeed, end-users do not share the mission of actors along the value-added chain to produce an information product based on a less refined one, or on data. This means end-users are not familiar with geo-information technologies, nor should they be. Consequently, they do not speak the same “language” and belong to different professional communities.

In conclusion, the set of common definitions helps to ensure that:

- The stakeholders across the GEO-CRADLE countries are comparable against a common classification
- Engagement is better targeted and adapted to the intended interlocutors
- Partners have an easy go-to document for their benchmarking exercises

The importance and the complexity of this exercise have been confirmed in the first roll-out of the interviews. Several problems became apparent during the process so far. More details are given in the following chapters.

4.1.1 Stakeholder map

While outside the value-added chain, end-users are inherently defined by their relation to the former. This means it was not enough to define the end-users, without offering definitions for the value-added chain and the actors that compose it.

This was represented in the following scheme (also used for capacity mapping in T2.1-T2.3). The value-added chain is understood as the sequence of actors which work to produce the geo-information product for an end-user.

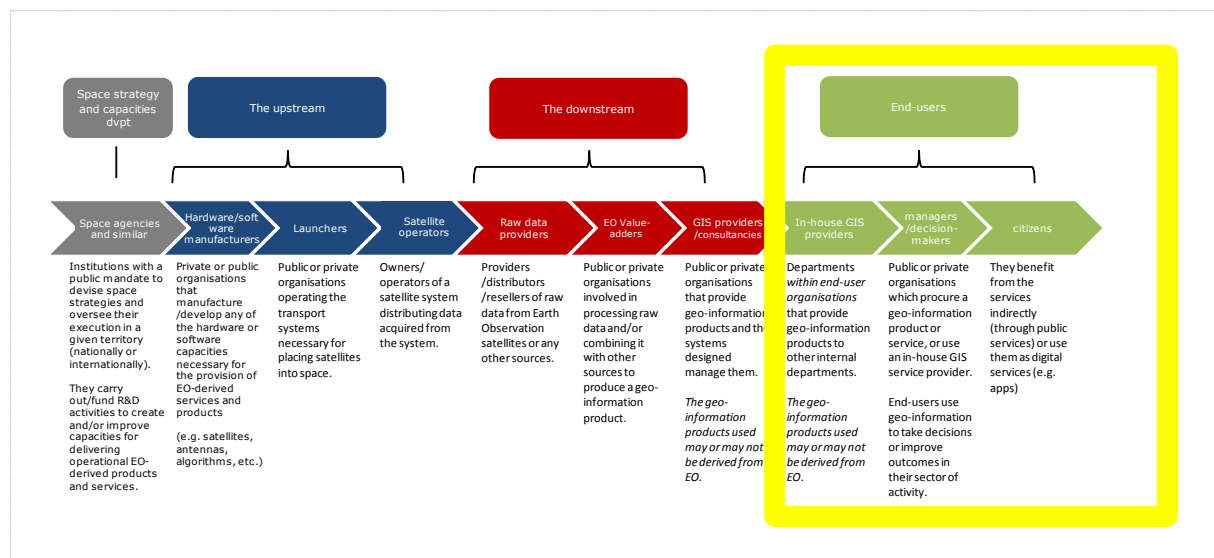


Fig. 1. T2.4 tool: drawing of the position of the end-users relative to the value-added chain



4.2 Data collection

4.2.1 The spreadsheet of key actors' contacts

On the basis of the stakeholder map, Eurisy prepared and introduced a spreadsheet to the project ([link here](#)). It further consolidated the common reference defined in the stakeholder map and streamlined the exchange of information between the project partners.

The spreadsheet has been adapted to match the needs of all WP2 tasks, ranging from capacity and skills mapping to the end user needs. It could be also used as a starting point for the assessment of the EO market maturity, identify existing gaps and possible synergies across the regions of the project.

The types of stakeholders were qualified thanks to drop-down menus allowing partners to position stakeholders in one of the categories defined in the stakeholder map, rather than using their individual terminology.

4.2.2 The end-user interviews

▪ A qualitative approach

The T2.4 partners agreed on a qualitative rather than quantitative research. Rather than sending an online questionnaire for the end-user organisations to fill in on their own, partners were asked to identify, approach and interview the end-users themselves on their needs, in an exploratory mode, without limiting responses to what the interviewer knows.

The rationale for this approach stems from the difficulties outlined above: potential end-users do not necessarily define themselves as “end-users”, and are not part of the same professional community as those who collect information from them. This means that the targeted (potential) end-users must be guided by the interviewer, who must explain the background and objective of the interview in a language the end-user understands.

Furthermore, also because the potential end-user is not part of the same professional community as the interviewer, they do not see it in their direct interest to fill in a questionnaire since they do not stand to have any direct gain from it. A personal approach counters this obstacle.



▪ *The interview guidelines for partners*

The members of GEO-CRADLE share the same professional culture to the extent that they are all involved in some way in the production and distribution of data and geo-information products and services.

For this reason, there was a risk that it may be difficult for the interviewers to completely extract themselves from their background and shape their questions in a language suitable to a professional community they were not necessarily familiar with.

To counter that, partners were provided with guidelines and an extensive list of examples of interview questions. The list included examples of potential end user profiles for the four thematic areas: climate change adaptation, access to raw materials, energy, and food security.

Such guidelines sought to empower partners to be completely autonomous in identifying and carrying out the interviews, with the task leader playing only a supporting role. We also aimed to facilitate the workflow by smoothing out language and cultural barriers between interviewers and interviewees. Indeed, partners were advised to use their local knowledge and tailor the interviews according to their needs.

Interview guidelines are available for reference [online here](#).

▪ *End-user needs VS technical specifications*

For end-users, data or geo-information challenges are mere tools in achieving the goals linked to their mission: e.g. farmers need to get more crop per drop, urban managers need to improve air quality and so on. They assess any geo-information product against the ability of the latter to respond to such challenges, and in their own context.

The adoption of innovative services will largely be dependent on non-technological factors, such as social norms, socio-economic conditions (e.g. effects of the financial crisis), etc.

The interview guidelines sought to support interviewers in exploring all these aspects of the potential end-user experience, rather than limiting themselves to “needs for geo-information”.

For this reason, the interview guidelines explored types of constraints the user may typically face in terms of organisational constraints, economic conditions, industry constraints (does the end-user need to comply with industry standards and so on), regulatory (does the end-user have reporting obligations), natural environment constraints (farmers have to work with the variables of the regional climate), and so on.



This focus aimed to move the interviewer away from focusing merely on the geo-information needs, and help instead the end-users to formulate them as relevant in their own context and language.

Users were also asked about information sources they already use. However, one must note that the relevance of this question is limited: the development of the downstream sector does not imply the one-to-one replacement of existing sources of information.

Finally, beyond constraints and needs, the interviews were also an opportunity to assess the regional user's awareness of the Copernicus and GEO initiatives and programmes.

▪ *End-user interviews implementation*

In view of this intermediary report, each partner was asked to interview four potential end-users. Partners will interview four more potential end-users before M6. Partners were also asked to write a report of maximum 2,500 words, loosely following the interview guidelines.

The inputs from the partners and the methodology used for task 2.4 were systematically assessed. The lessons learnt will be used to shape the methodology for the second phase of T2.4 and beyond.

4.3 Lessons learnt on methodology and way forward

The task methodology, goals and timeline were discussed during the [project first meeting in Athens](#). All partners committed to conduct the expected interviews (either face to face or by phone). At the end of the M03 reporting milestone, here are some of the lessons learnt from the implementation of task so far.

Lesson learnt	Solution/action
<i>“End-users” (still) means different things to different partners:</i> The definition of “end-user” was much discussed before conducting the interviews (face to face, or by phone). Only 71% (30 out of 42 interviews) of end-users complied to the given definition	Reaching a fully shared definition of the “end-user” is an on-going process. For the second round of interviews, and future purposes too, the process will require sustained efforts in bringing the end-user needs to the fore.



<p><i>R&D focus and drive:</i></p> <p>Among the 42 organisations interviewed, 6 were research organisations (including universities).</p>	<p>Universities and research organisations are not “end-users” or “in-house GIS providers” according to the project definitions, since they do not take decisions or manage operational activities in the fields covered by the project.</p> <p>For this purpose, except exceptional cases, the needs of research organisations will not be included in the end user needs analysis in T2.4.</p>
<p><i>End-users were hard to reach:</i></p> <p>Certain partners were not able to conduct the foreseen number of interviews in their own territory of responsibility, while some others returned more interviews than strictly required.</p> <p>Certain interviews were replaced with general syntheses of publicly available information.</p> <p>Indeed, the effort required in reaching the end-users on a personal level was and continues to be, in the next phase, quite considerable (but it was chosen for the reasons above).</p>	<p>Eurisy in its role as coordinator of T2.4 will continue to collect interviews, outline the gaps in the information received, and communicate them to the partners responsible and the project leaders. Eurisy will carry out extra interviews, as relevant.</p> <p>Some of the end-users should be invited in the fore-coming events, as they offer a good opportunity for partners to establish direct links and receive more feedback.</p> <p>Desktop research to complement interviews by M6 and beyond should not be excluded. However, it cannot be a substitute to the interviews to be carried on in the second round and beyond.</p>
<p><i>Questions were often data oriented/responses minimal</i></p> <p>The information (VS “data”) needs of the end-user were not always clearly reflected. Very often constraints (technological, natural, industry specific) were scarcely described, if at all.</p>	<p>The project will insist on complementing the interviews in some countries, or else resolve on putting less focus on them.</p> <p>However, since T2.4 does not aim to cover fully, and in-depth the potential end-users from across the countries, but rather to explore a few more in-depth, in the manner of case-studies, this is a very</p>



<p>In certain obvious cases the questions were driven by the interest of the interviewer in the geo-information data and services, and did not reflect directly the end-users' information needs.</p>	<p>likely course of action.</p>
<p><i>Bureaucracy creates delays:</i></p> <p>Some partners stated that red tape made it hard to reach end-users. Several partners asked for official invitations, letters, project description templates, etc. As a result, it was hard for some of them to meet the deadlines put in task 2.4.</p>	<p>The process has been launched and is on-going, so that much more progress, and the full picture of the end user needs is expected to be achieved before M6.</p>
<p><i>Privacy issues:</i></p> <p>In some countries, some public authorities refused to share information because of the privacy policies and security rules applied (even when the information requested by the interviewer was public). Or else, they shared insufficient information for the input to be useful.</p>	<p>Just as with the other problems, this will have to be overcome by putting more effort into searching for willing end-users in the next phases of the task 2.4.</p> <p>In some cases the partners conducting the interviews were advised to emphasise that none of the data collected would be used for purposes other than the ones stated in the guidelines document and the project objectives.</p>
<p><i>Cultural differences:</i></p> <p>...were noticed during interactions. Some countries were happy to interact by email/written text etc.; others have required closer, more direct and personal contacts (though not informal): phone, face to face interviews and in most of the cases by partners speaking the local language.</p>	<p>This comes to show that a “one size fits all” does not work. It also confirms partners are in the best position to interview, despite bottle necks. The intervention of regional coordinators throughout proved vital in facilitating exchanges and this will continue to be so. The cultural ease is then counterbalanced by the differences in <i>professional</i> culture which may hinder dialogue (as above).</p>

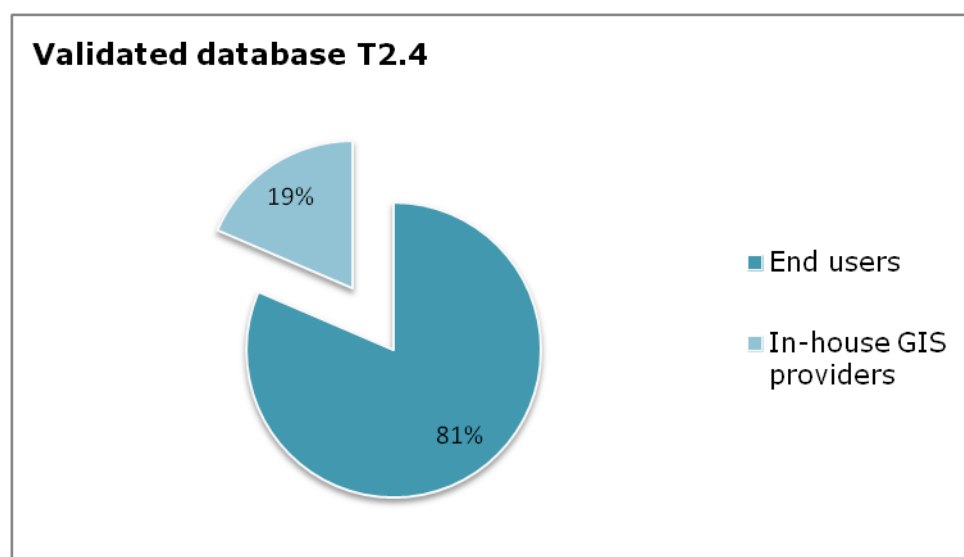
4.4 Inputs received from partners

4.4.1 End-user contacts in the Key Actor spreadsheet

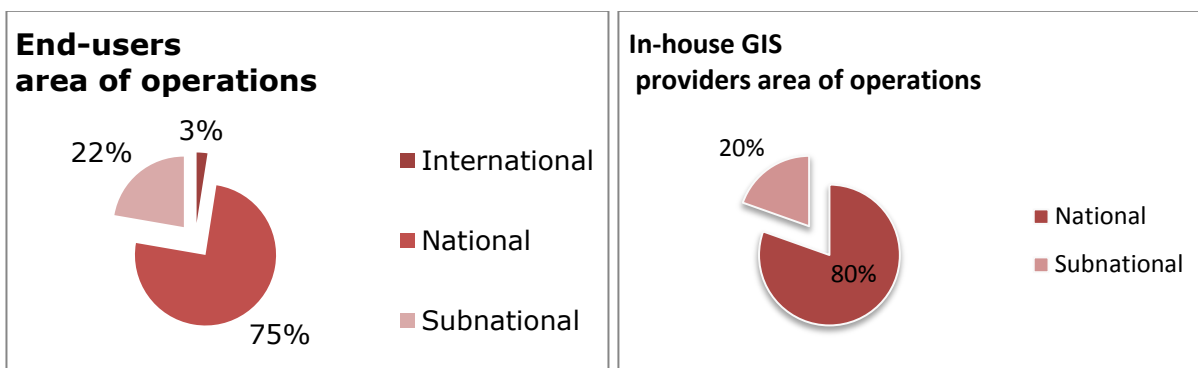
Between March and April, 935 contracts were provided by partners across the project consortium. Drawing on the definitions, partners submitted 312 contacts that they considered as “end users” (255) and “in-house GIS providers” (57) categories. The two categories represented 33% of the complete stakeholder map. At first glance, “in-house GIS providers” represented 18% of our sample. The data submitted covers 24 countries from the Balkans, Middle East and North Africa, including non-project partner countries.

However, following a thorough data check, which included removal of duplicates and cross checks on the organisation’s position within the data value added chain, **only 303** contacts were considered for further analysis (including interviewed organisations). Further on, **54** contacts were invalidated by Eurisy as incompatible with the scope of T2.4. The invalidated contacts were either incorrectly labeled as end users by partners or were the R&D organisations (11,5 % of the submitted profiles).

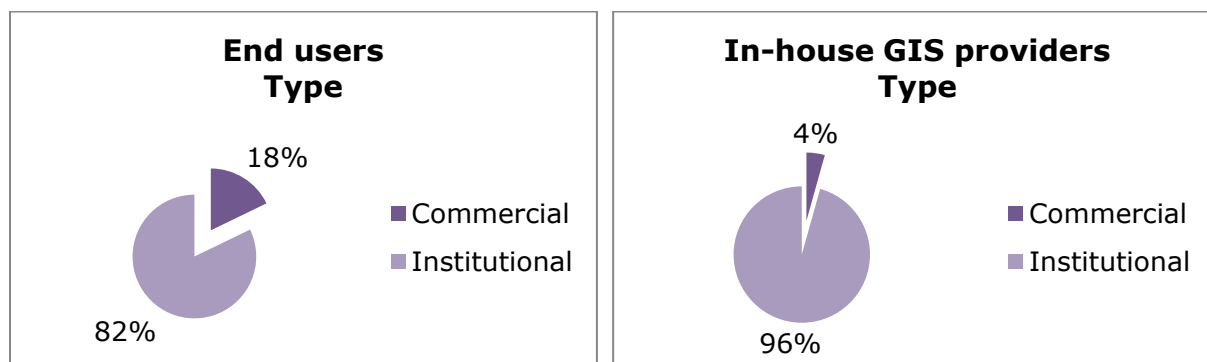
After the data validation, the initial database shrunk to **248 valid contacts** for the analysis — both end-users and in-house GIS providers as follows:



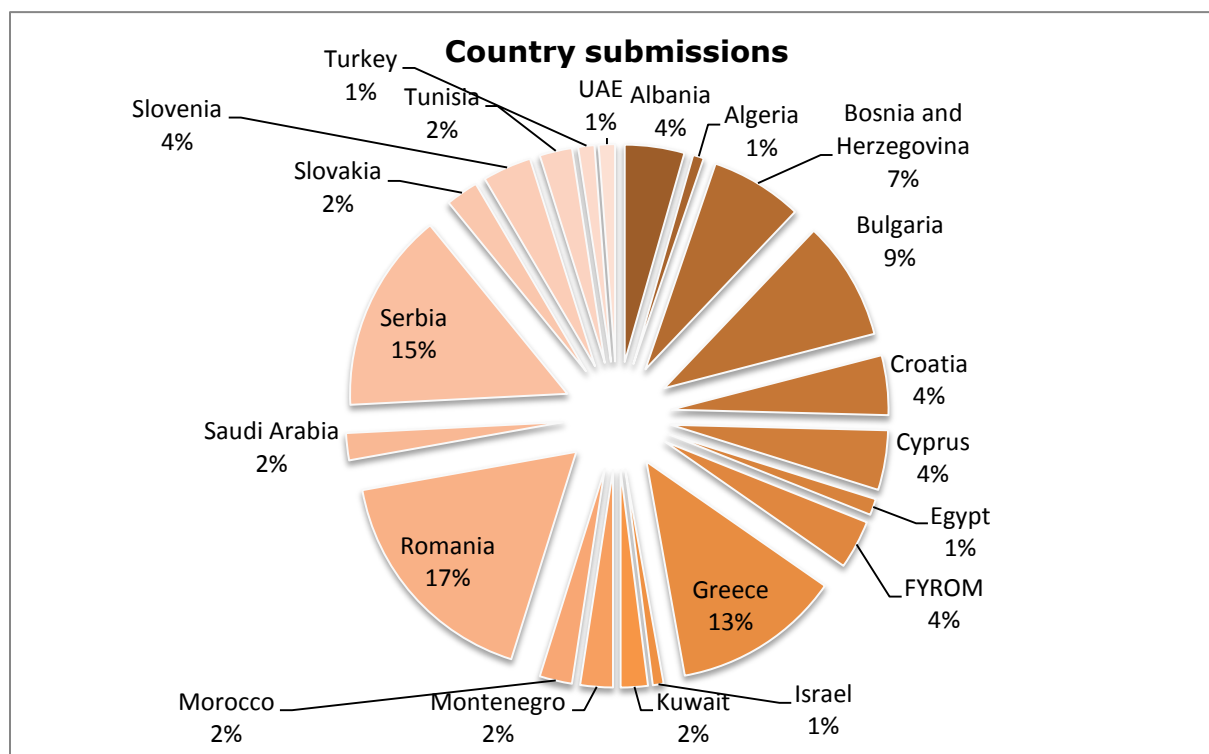
75% of the database consists of national authorities, 22% are sub-national. These percentages could be explained considering that partners usually fulfill a national mandate. Additionally, we can assume a stronger peer-to-peer cooperation between national authorities. In-house GIS providers are mostly national as well. The underrepresentation of sub-national actors should be addressed in the next phases of the task.



More than 80% of the profiles are public institutions. This seems to confirm that the public sector is seen as one of the main backers and clients of geo-information data. Since one of the aims of the EC is that the private sector should be better involved, this imbalance between private and public should also be addressed in the next phase of T2.4.



Submission covered 21 countries, of which Romania, Greece and Serbia provided the most contacts for the stakeholder map. Eurisy will support partners from other countries to obtain a greater regional balance in the next phase.



The presented data will be revisited for the next user needs report to see whether and how it can be used as a maturity indicator later on for T3.3.

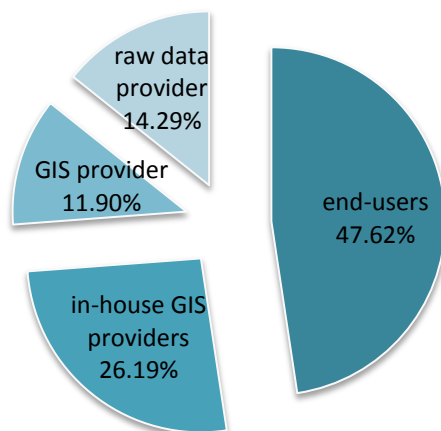
4.4.2 End-user interview reports

▪ Reports received

A total of 42 reports were received from 17 organisations, of which the 13 were consortium partners. The goal was successfully achieved for this first period as it was foreseen to collect up to 40 interviews. EGS activated its regional offices to conduct end user interviews and complete the stakeholder database. Moreover, it was agreed that partners CIMA and EARSC will carry out more end-user interviews during the second stage, by activating their own regional networks to close specific gaps in certain countries. Moreover, Eurisy has delegated the task to the Royal Centre for Remote Sensing (CRTS).

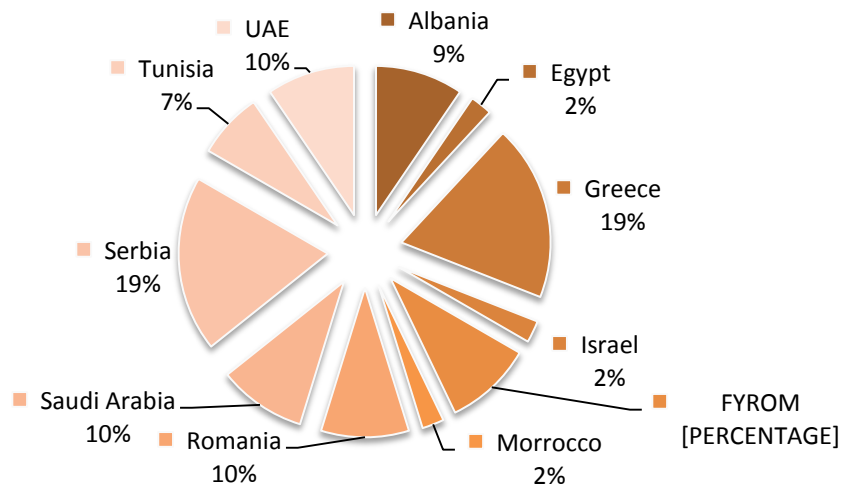
Among the 42 interviews received, the distribution was as follows:

Position in the value-added chain

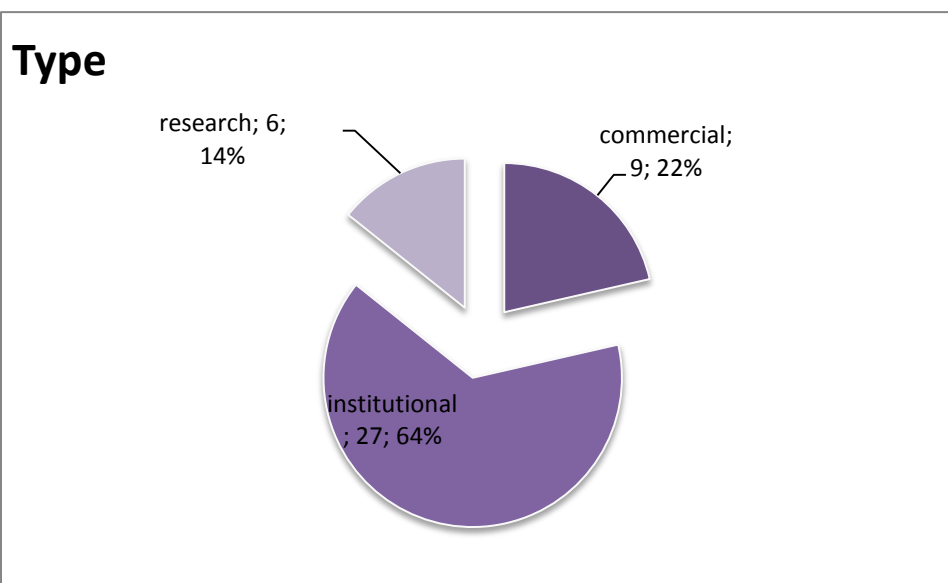


From the 42, for the purposes of task T2.4, only interviews of end-users and in-house GIS providers will be taken into account. Overall, 73% is considered a good percentage. GIS providers may not be completely discounted, if there are any particularly interesting conclusions to be drawn from the report.

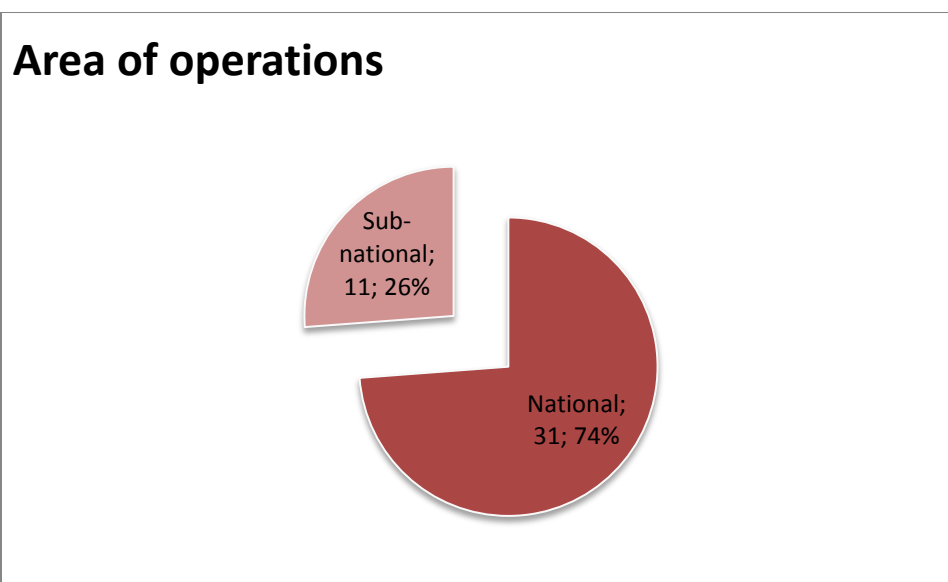
Countries of interviews



In the first round of interviews, no submissions were received from Bulgaria, Turkey and Cyprus.



As explained above, research organisations will not be taken into account for the analysis, unless they use geo-information products to take decisions and actions in one of the fields of the project, according to a national/regional mandate.



A large percentage of national organisations must be noted. In reflection of the pilots in 2.4, the participation of very large national entities may be less suitable. The analysis of the internal



business of the entity and of its external context, its challenges, would be too complex for a complete business case for a new service.

▪ *Thematic distribution*

Many of the entities interviewed can fit several of the themes of the project. After a first assessment the interviews fall in the following main sectors:

- Environment
- Water
- Agriculture
- Oil and gas
- Renewables
- Land and city planning



Below is a table of interviewed organisations related solely to the themes of the project.

Institution	Climate Change	Food security	Access to raw materials	Energy
Institut National de métrologie in a Public Non Administrative Establishment (EPNA)	X	X		X
Société Nationale d'Exploitation et de Distribution des Eaux SONEDE (National Water Distribution Utility)	X			X
Société Tunisienne d'Electricité et du Gaz (Tunisian Electricity and Gas Company)	X		X	X
Agence du bassin Hydraulique du Bouregreg et de la Chaouia (Bouregreg & Chaouia Water Basin Authority) Morocco	X			X
AC Nestos	X	X		
AC Nespar	X	X		
Croop Xanthi	X	X		
Local Agency for Environmental Protection, Romania	X	X	X	X
DaKia Association for Sustainable Development, Romania	X	X	X	X
Magurele City Hall, Romania	X	X		X
Tractebel Engineering SA GDF SUEZ			X	X
Secretariat for Agriculture, Forestry and Water, Government of the Autonomous Province of	X	X	X	X



Vojvodina, Serbia				
BioSense Institute, Serbia				X
Statistical Office of the Republic of Serbia				
Public company Vojvodina Sume, Serbia	X		X	X
Group of Viticulture and Wine Production, Ministry of Agriculture and Environmental Protection, Serbia	X	X		
Climate Change Unit (CCU) Ministry of Agriculture and Environmental Protection, Serbia	X	X	X	X
Ministry of Mining and Energy, Sector for Geological Research and Mining, Serbia			X	X
Secretariat for Environmental Protection, City Administration, City of Belgrade, Serbia	X	X		X
Ministry of Agriculture, forestry and water economy, FYROM	X	X	X	X
GDI Data, Macedonia	X	X	X	X
Spatial Planning Agency, FYROM	X	X	X	X
National Hydrometeorological service, FYROM	X	X		X
Abu Dhabi Planning Council	X	X	X	X
Abu Dhabi Environment Agency	X	X		X
Dubai Municipality - GIS Department	X		X	X

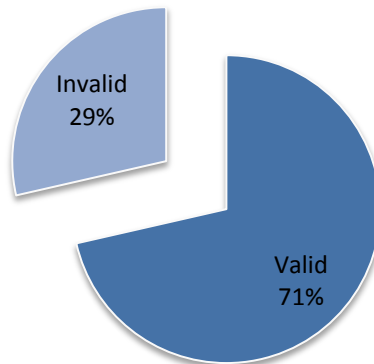


GISTEC Inc, UAE				
Sadat City University, Remote Sensing and GIS Unit, Institute of Environmental Studies and Research	x	x	x	x
Bank of Greece/Climate Change Impacts Study Committee	x			
CENTRE FOR RENEWABLE ENERGY SOURCES AND SAVING (CRES), Greece			x	x
National Food Authority, Albania	x	x		
Albanian Geological Survey			x	x
Ministry of Environment, Sector of Climate Change, Albania	x	x	x	x
National Agency of Natural Resources, Albania	x		x	x

▪ ***Reports validated for 2.4***

Overall, the quality of the inputs (in terms of completeness, relevance of the questions and of the replies) is quite variable. As mentioned before, several of the conducted interviews were relied to some extent on desktop search so as to complement the missing data. This is not futile, but cannot replace the face to face interviews.

Retained for T2.4



From among the conducted interviews, a selection will be made and some recommendations on the strongest candidates for pilots in WP4.

Eurisy with the needed support of partners were necessary will analyse the submitted reports as per defined targets. Conclusions will be drawn from interviews from other types of actors, if they can be of use in some way. Otherwise, such interview reports will be passed on partners who can use it in other tasks.



5 Steps forward

On the basis of the activities of the first reporting period, the following steps are planned:

5.1 Feedback to partners

The project partners will be provided with feedback on the first round of interviews, with emphasis on:

- Need to proceed with face to face interviews, and complete when necessary with web search
- Need to describe constraints outside geo-data needs
- Call to select in priority the following profiles, of which we have fewer of:
 - Sub-national organisations
 - Commercial

5.2 Second round of interviews

Project partners will be asked to provide the second round of interviews (15/06).

The work of the partners' activities will be followed more closely and a regular support system will be maintained in place for them.

The task leader assisted by the partners involved will analyse the reports and make recommendations on pilot candidates

5.3 Roadmap

Eurisy will propose a roadmap for the continuation of T2.4 in view of the desired outcomes for the end of the project.