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

D6.11: Final Implementation Report on Stakeholder Engagement

Contract Number	H2020 SC5-18b-2015, Project GA number: 690133	**Acronym**	GEO-CRADLE
Full title	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.		
Project URL	http://geocradle.eu		
EC Project Officers	Ms Gaëlle LE BOULER		

Deliverable/Document	**Number**	D6.11	**Name**	Final Implementation Report on Stakeholder Engagement		
Work package	**Number**	WP6	**Name**	Communication, Dissemination and Engagement		
Date of delivery	**Contractual**		M34	**Actual**	30.11.2018	
Status	Final					
Nature	Report					
Distribution Type	Public					
Authoring Partner	IBEC					
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Executive Summary

This deliverable, entitled D6.11 "Final Implementation Report on Stakeholder Engagement", provides an overview of the outputs resulting from the actions performed under the task T6.3 "Stakeholder Engagement" (led by IBEC & CEDARE), from M15 until the end of the project, as well as providing an overview of the actions encompassing the entire project's life. The majority of the work presented here is directly relevant to tasks T6.1 "Communication strategy and tools", (led by NOA) and T6.2 "Dissemination", (led by EURISY).

The stakeholder engagement strategy was the cornerstone for the fruitful execution of the project's objectives. It thus stood at the epicentre of all actions, and involved many aspects of the project's implementation, including but not limited to:

- The establishment and development of the Regional Networking Platform and of the Regional Data Hub, and other networking tools, which were a reference point in all of the engagements with the regional stakeholders

- The organization and implementation of the feasibility studies which addressed key regional challenges in a way that enables stakeholders to advance and uphold their findings and developed services

- The organization of regional workshops targeting audiences across the entire value chain to showcase the potential of Earth Observation particularly in areas with recognized gaps and to foster new synergies and collaborations

- Meeting the GEO's engagement priorities and assisting in the development of GEO offices in the region

Last but not least, the "upgrading" of GEO-CRADLE to a GEO Initiative, ensures the attraction of an even larger community, facilitating to further develop a more integrated ecosystem of EO stakeholders. In that regard, the project coordinator commits to convert the networking platform to an engagement tool with a sustainable effect by maintaining it beyond the project's life and integrating it in the EuroGEOSS (e.g. E-SHAPE). Moreover, the regional coordinators as well as the GEO offices (Greece, newly established in Albania) are going to intensify stakeholder engagement and liaison activities in alignment with GEO main pillars (SDGs, Sendai Framework etc.) by maintaining good traction with national key EO stakeholders (Statistical Offices). The partners (within the framework of the GEO-CRADLE Initiative) will organize and attend regional workshops and sustain their operation.

The document is structured as follows:

- The first part introduces the purpose and context of the engagement actions.
- The second part provides an overview of the actions in order to document the actions pertaining to the stakeholder engagement strategy
- The third part highlights the project's impact in terms of key performance indicators (KPIs) and key successes
- The fourth part draws the conclusions and suggests how the consortium should proceed to maintain and amplify the effects of the results achieved thus far.

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Acronyms and Abbreviations

Acronym	Description
ASIG	State Authority for Geospatial Information (ASIG)
CEOS	Committee on Earth Observation Satellites
EC	European Commission
EO	Earth Observation
EO4SDG	Earth Observations for the Sustainable Development Goals
FAO	Food and Agriculture Organization of the United Nations
GEO	Group on Earth Observation
GEOGLAM	Global Agricultural Monitoring Initiative
GEOSS	Global Earth Observation System of Systems
KPI	Key Performance Indicator
NAMEBA	North Africa, Middle East and Balkan region
PC	Project Coordinator
QC	Quality Control
RoI	Region of Interest
SDGs	Sustainable Development Goals
SENSE	Solar Energy Nowcasting SystEm
SME	Small and Medium enterprise
TSO	Greek Transmission System Operator
WP	Work Package

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1 Introduction

The Group on Earth Observation (GEO) recognizes that to realize its vision and maximize the benefits that GEO can bring to users, according to the GEO strategic Plan to Implement GEOSS through 2025 the focus should be placed on the following three major activities: (i) **advocating for the value of Earth observations** as a fundamental component of timely information, (ii) **engagement with stakeholder communities** to address societal challenges, and (iii) **delivery of critical data, information and knowledge** for informed decision-making. The GEO-CRADLE project, since the beginning, was fully committed to promote the delivery of EO-generated services across multiple application domains in the North Africa Middle East and Balkan (NAMEBA) region, building on the GEO's strategic objectives **"Advocate-Engage-Deliver"**. Thus, GEO-CRADLE designed a **concrete engagement strategy (D6.5)** and led several activities (D6.8 and current document) towards an effective engagement of a regional ecosystem during the 3 years of its life.

It is widely recognized that the effective delivery of services enabled by the EO-based technologies relies on the capacity of users to integrate the provided information into their operational workflows and for service providers to design, develop and deliver solutions that effectively meet user needs. Based on the findings (D6.8) of the firth half of the GEO-CRADLE project, in order to build such capacity the systematic engagement of users is a real necessity in order to effectively "map the landscape of their needs", and "translate" them into EO based services that fit their demands and address their needs. During a period of 34 months, GEO-CRADLE undertook a series of stakeholder activities to promote the outcomes of GEO-CRADLE, disseminate the potential of adoption for its feasibility studies in their respective regions, and promote the efficient and harmonious cooperation amongst the relevant stakeholders. These activities were coordinated and performed in a systematic way in order to maximize their impact, following a concrete strategy laid out by the project's management team.

It should be noted that much of the work presented here is also directly relevant to, and analyzed in detail in D1.6 "Regional Coordination Report (II)", D6.9 "Final Report on Communication Strategy and Action activities" and D6.10 "Final Report on Dissemination Activities". Further details on the deliverables are available on the GEO-CRADLE web page.

2 Overview of the Implemented Engagement Strategy

The **ineffective engagement of the user community and stakeholders** in the region till now, **the low involvement** of industries, SMEs and other key players and the **limited public awareness** on the benefits that EO can bring to the market and into people's everyday lives was highlighted as crucial obstacles for engagement of the complete EO ecosystem in the GEO-CRADLE's gap analysis (D3.1) and in the insights provided in the form of country maturity cards (D3.4).

As a first tangible step towards addressing these challenges and facilitating further stakeholder engagement, GEO-CRADLE, since the beginning of its life, adopted smart and efficient networking tools, as have already been discussed in the "Stakeholder Engagement Strategic Plan" (D6.5). However, acknowledging that both Copernicus and GEO offer a platform for international cooperation between businesses, users and researchers, it becomes apparent that a regional effort supporting that components was a necessity. In this context, GEO-CRADLE designed and implemented a set of activities focussing not only on building capacities but also on enhancing the stakeholder engagement in the NAMEBA region (i.e. via the GEO-CRADLE networking platform and the Regional Data Hub).

2.1 Networking platform

The GEO-CRADLE's Networking Platform was not just a project's deliverable but it is an ongoing procedure providing useful information about the profile and the capacities of **270 stakeholders** (public profiles: 192) from **29 countries** across the entire value chain (Figure 1).

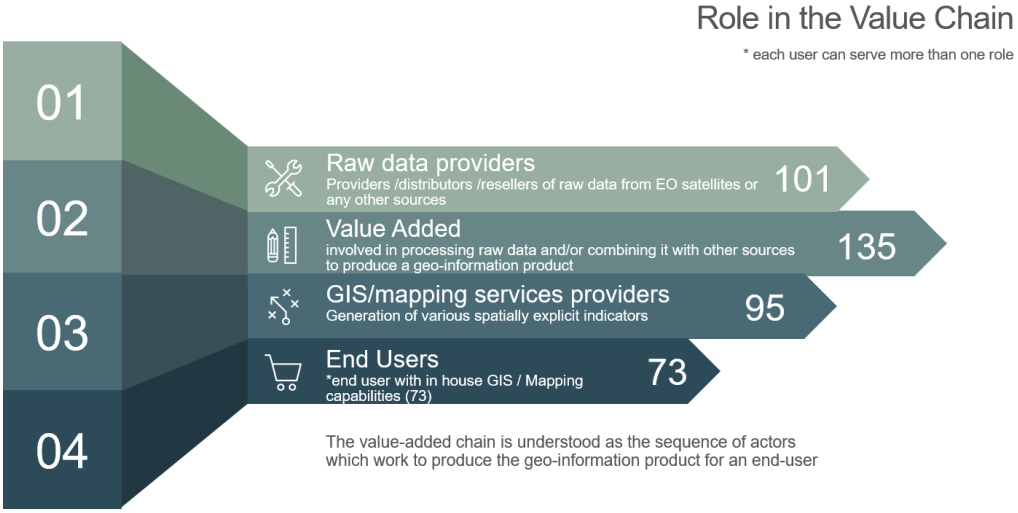

Figure 1: Summary statistics of the groups engaged in the networking platform

The Networking Platform (Figure 2) is acting as a sustained tool ensuring further engagement of stakeholders across the region focussing on:

- exchange of know-how
- bringing organisations together
- facilitating further the team up/partnering process at regional level for identifying and solving common challenges
- setting up consortia for addressing priorities of regional calls (successful examples: EuroGEOSS Call)

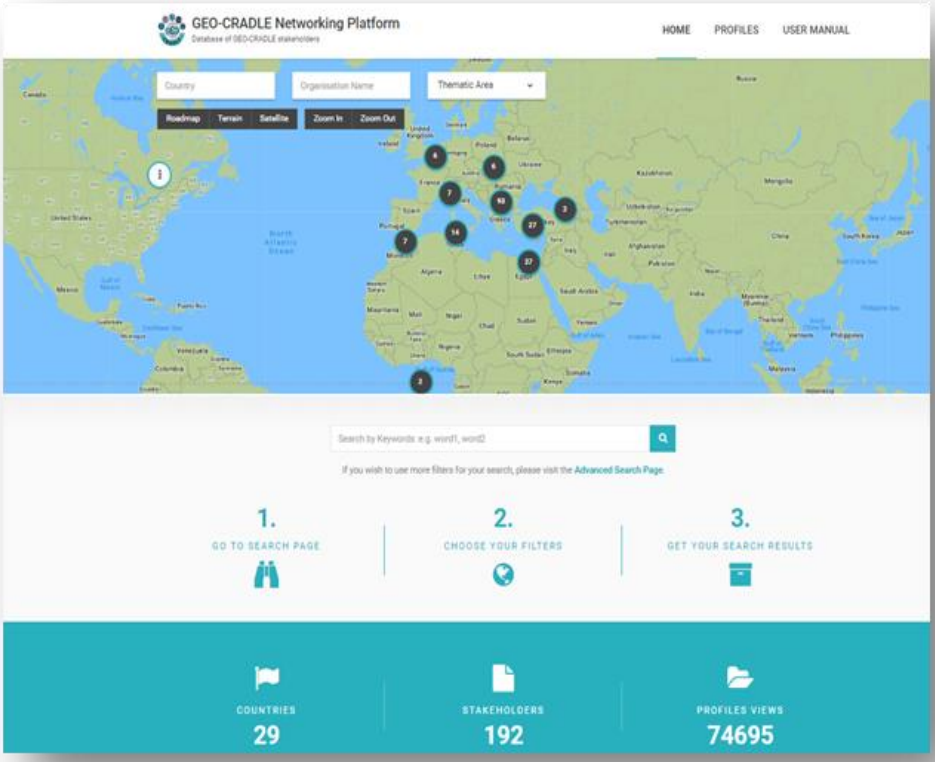

Figure 2: The GEO-CRADLE Networking Platform (access: 28/11/2018)

In the light of the above, it is obvious that GEO-CRADLE engaged a critical mass of EO stakeholders (**82% coverage of the countries in the NAMEBA region**) along the complete value chain, across different thematic areas (**access to raw materials: 50, Climate change: 108, Energy: 57, Food Security:83, and Other: 96**).

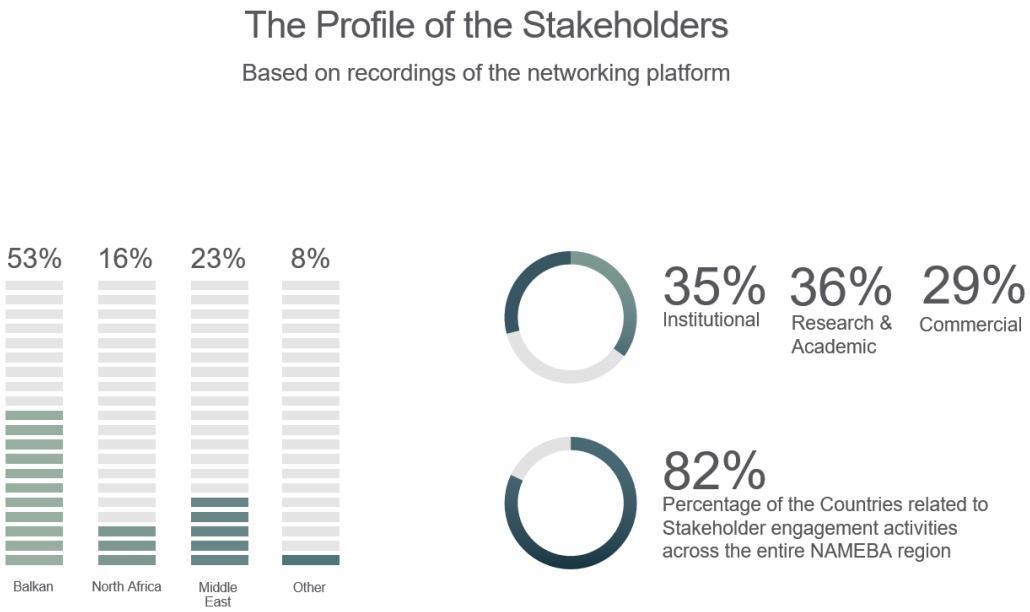

Figure 3: Overview of the GEO-CRADLE stakeholders' profiles

During the 3 years of the project's life, we ensured the continuous enrichment of the database of regional actors with additional profiles, due to the provision of funding opportunities allowing new R&D collaborations on EO-related projects and the presentation of any region-relevant news and developments on the portal. In this context, Figure 3 provides an overview of the engaged stakeholders and their corresponding roles in the Value Chain (regional network of raw data providers, intermediate users/service providers, end-users from Industry, Academic and Public Sector) based on their recordings into the networking platform.

2.2 Regional Data Hub

The importance of high quality data as the lifeblood of informed decision making cannot be overstated (UN secretary General, 2014). In this context, GEO-CRADLE since its first development was driven by the aforementioned statement and is focused on creating the following **two high value propositions:**

i) addressing fundamental gaps in collection and sharing of data in the region, and
ii) utilizing appropriate data sharing infrastructure.

The implementation of the GEO-CRADLE Regional Data Hub is considered a milestone in that direction, identifying and linking numerous datasets from the region onto the GEOSS Platform (Figure 4). The GEO-CRADLE Regional Data Hub aspired to be the main vehicle of regional data provision in GEOSS (engagement with the wider GEO ecosystem) and a node for the **creation of an ecosystem of data holders, researchers, end-users, and industrial sector** (engagement with the regional EO ecosystem).

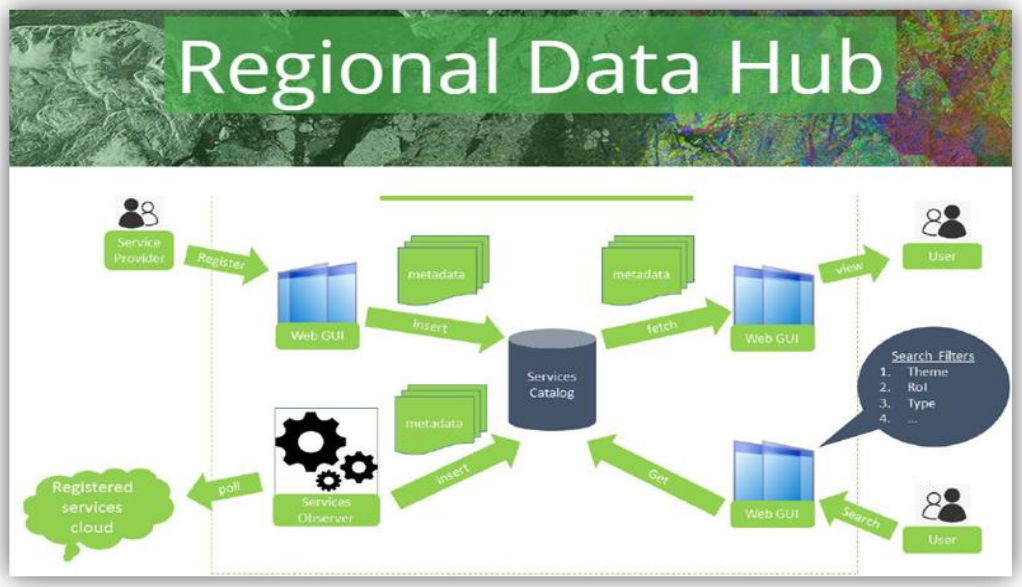

Figure 4: GEO-CRADLE Regional Data Hub

Continuous population of data on the GEO-CRADLE Hub has already produced tangible results, having resulted in significant research publications utilizing data from it, and is expected to expand on further research topics and bring together a wider EO research ecosystem not only multiregional but even globally (see section 2.8 expansion of GEO-CRADLE Soil Spectral Library to Brazil and China).

2.3 Feasibility Studies

A great range of end-users has been already engaged in GEO-CRADLE from the beginning of the project until the end. They have given valuable input for the inventory of EO capacities and user needs, the gap analysis, the maturity indicators and the priorities setting. Moreover, they were actively involved in the decision-making process **regarding the design and implementation of the feasibility studies**, which were selected in order to address regional challenges, such as their own real needs. More specifically the following end-users (Table 1) were engaged in the context of the four pilots, and they will also be involved in the initiative for the development or enhancement of services and products tailored to their specific needs.

Table 1: Stakeholders engaged during the feasibility studies

Adaptation to Climate Change:
National Technical University of Athens – Greece; Department of Meteorology – Cyprus; University of Belgrade – Serbia; Balloonera Company – Serbia; SOLEA company for solar energy – Switzerland; Ministry of Electricity and Renewable Energy – Egypt; Agence du Bassin Hydraulique du Sebu – Morocco; Office National de la Meteorologie – Algeria; Institute for Scientific Research – Kuwait.

Improved Food Security and Water Extremes Management:
Agricultural cooperative of Nestos (NESPAR), Xanthi, Eleftheroupoli and Volvi – Greece; Ministry of Economic Development, Tourism, Trade & Entrepreneurship – Albania; Ministry of Environment – Albania; Golan Heights Winery – Israel; GEO's Secretariat.

Access to Raw Materials:
Ministry of Environment and Energy – Greece; Municipality of Alexandroupolis – Greece; GSD-FD-Ministry of Agriculture, Rural Development and Environment – Cyprus; Hellenic Copper Mines Ltd – Cyprus; JADE Association of Geological Researches – Turkey; JeoDijital Bilisim Teknoloji Madencilik – Turkey.

Access to Energy
Independent Power Transmission Operator – Greece; Attica Group (Superfast Ferries & Blue Star Ferries) – Greece; Ministry of Electricity and Renewable Energy – Egypt; Magdi Yacoub Heart Foundation – Egypt; Pre-Tect.

2.4 Other engagement tools and mechanisms

Considering the above, a series of networking tools (including among others social media networks) further contributed to stakeholder engagement, as illustrated in Figure 5 and described in detail in D6.5.

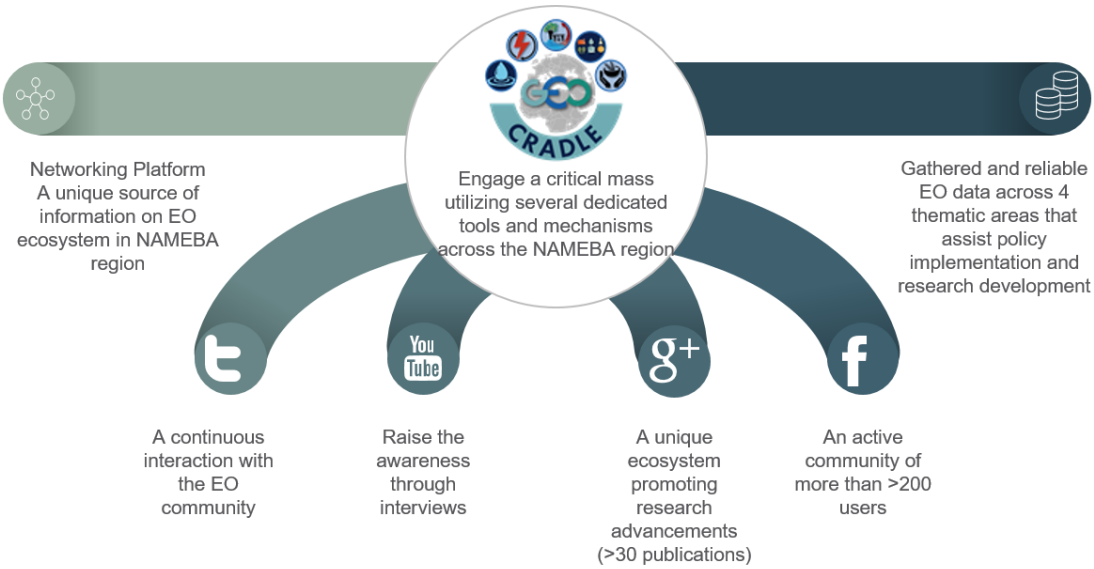

Figure 5: Overview of GEO-CRADLE engagement tools

Moreover, a dedicated website, used mainly for the dissemination and communication purposes has been utilized as a tool for engagement, since it included updated information about the project, news, events, and downloadable material. The website is linked from and to the partners' web-sites and relevant scientific communities and due to the **multilingual consortium and to ensure its widespread reach is translated in five languages (English, Serbian, Albanian, Turkish and Arabic)**. Detailed description of the website can be found in the deliverable D6.2: GEO-CRADLE website.

In addition, under this category fall all other activities which utilize electronic media of any form, such as: i) Social media (e.g. Facebook, Twitter), ii) TV / interviews, and iii) Scientific publications and open source data / software.

As an example, NOA and the two regional coordinators (IBEC and CEDARE) were very active in their presence in local media, conducting newspaper and television interviews to inform the public and discuss with stakeholders the tremendous opportunities offered by COPERNICUS and GEOSS in order to be exploited to address problems at daily life.

2.5 Stakeholder regional workshops

GEO-CRADLE has organized and implemented **16 workshops (12 regionals),** as illustrated in the Figure 6. These workshops offered a unique opportunity to exchange with various stakeholders representing the national, regional and international EO ecosystem. Overall, the workshops have made a valuable contribution to support knowledge sharing / capacity building, engage more stakeholders and end users, provide participants with a unique cross-sector networking opportunity, enhance growth and innovation in the EO sector, and motivate more informed decision making.

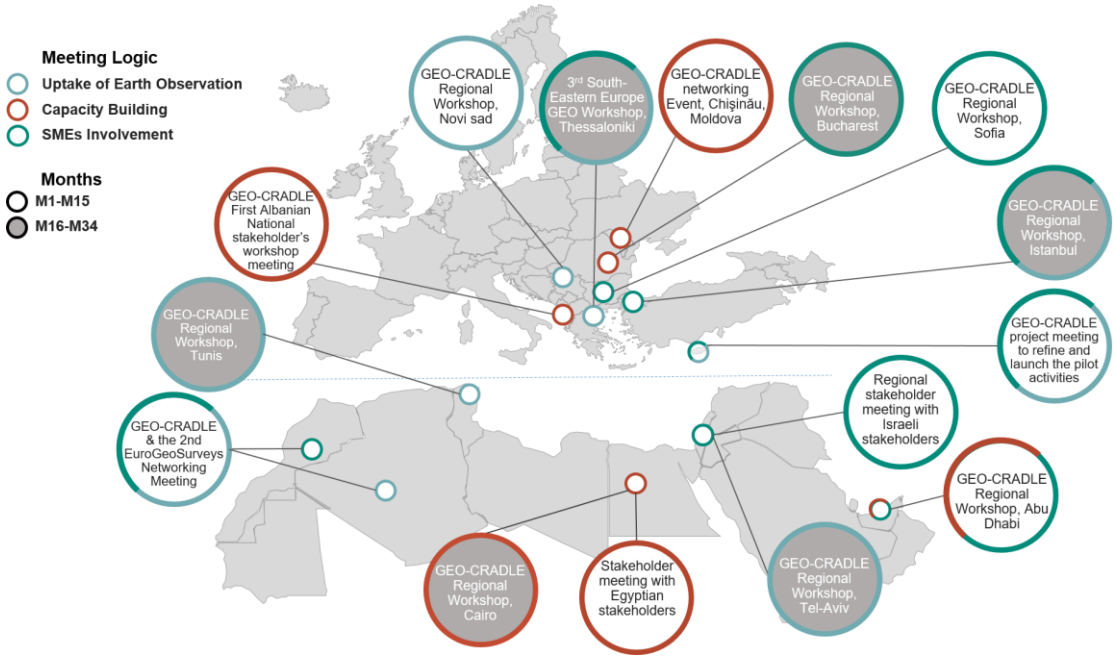

Figure 6: The location of the 16 GEO-CRADLE regional workshops

The workshops in the first half of the project (M1-M16) highlighted the prospects for wider industrial cooperation (**SME's and users' involvement**), the need for **uptake of EO Services** and targeted **capacity building** efforts towards understanding and addressing the regional challenges in an effective manner (D6.8). The successful approach tested in the first 15 months (10 regional workshops across several countries) was adopted to carefully structure the regional workshops in the second half of the project's life (M16-M34). In this context, six regional workshops were carried out to inform potential stakeholders outside the consortium and receive feedback, input and direction at strategic points. Using the findings and outcomes of the workshops, GEO-CRADLE enhanced its position to securely attempt to answer some key questions with regards to. the provision of a meaningful roadmap.

In the section below, the main findings and outcomes of the regional workshops implemented in the second phase of the GEO-CRADLE project are presented.

2.5.1 Uptake of Earth Observation

GEO-CRADLE Regional Workshop, Bucharest, Romania

Engagement Level	Tier Approach
	Sustain, Enhance, Expand

Objective

This workshop convened **on 7 December 2017** in Bucharest.The workshop brought together players from research and industry domain to discuss how EO could address important societal challenges (Figure 7).

Findings and Outcomes

Welcome notes were given by Dr. Doina Nicolae, the Leader of the Remote Sensing Department of INOE, who highlighted the need for the project's sustainability, and Dr. Haris Kontoes, the Coordinator of the GEOCRADLE project and Research Director of the Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing of NOA, who emphasized the importance of EO uptake based on GEO and Copernicus products and services to cover real needs of end-users. Overall, the workshop has offered strong evidence that the local markets are ripe with business opportunities, even if realising them requires a persistent approach. This was well exemplified by the keen interest of local EO companies to understand and pursue business opportunities in the wider North African region. Many of these companies have built strong networking, during the workshop, with key actors in the region to facilitate in successful bids against international tenders (e.g. ESA tender for open science) but also direct B2B contracts.

The main outcomes and findings of this workshop include *inter alia*:

- Local companies and research organizations introduced products that they are developing, addressing especially their possible contribution to several sectors, such as water management, and climate adaptation.
- The participants discussed the proposed solutions and the desired results and forms of innovation with the public bodies and academic community.
- Participants were interested in the Scientific Data Hub and agreed to join the Regional Networking Platform, while significant EO capacities in terms of EO portal, processing tools and data archives presented, highlighting the rapid growth of EO in Romania.

Figure 7: GEO-CRADLE Regional Workshop, Bucharest

GEO-CRADLE Regional Workshop, Tel Aviv, Israel

Engagement Level	Tier Approach
	Sustain, Enhance, Expand

Objective

The workshop was held on **14 September 2017** in Tel Aviv by the hosting partner TAU and the project coordinator NOA. The Israeli regional workshop focused on identifying the local challenges and needs that can be addressed with the EO, enabling more informed decision making, while seeking solutions to enhance growth and innovation in the geo-information sector. In this context, the workshop aimed to facilitate the support knowledge sharing, capacity building and an enhanced cooperation between academia and industry (Figure 8).

Findings and Outcomes

The event in Tel Aviv further increased the stakeholders' engagement in a region with a great level of maturity and significant industrial achievements, bringing together high-level Ministerial officers, academia representatives, local space operators and EO-related companies. The event provided participants with a unique cross-sector networking opportunity and with information on available EU funding in the EO sector. The main outcomes and findings of this workshop presented below:

- Provided project partners and stakeholders with valuable knowledge on the identified regional EO capacities and skills in the domain of food security and especially the need of a precise and frequent soil cover mapping
- Provided opportunities to exchange know-how and information taking into account the needs and shared best practices in using EO services to facilitate precision agriculture and monitoring of geo-hazards, within the framework of the amplified climate change, in support of the roadmap's development, including solutions to improve innovation in the geo-information and EO sector.
- The need for an active and sustained engagement of the local stakeholder ecosystem as a key driver for the sustainable uptake of the proposed EO-based solutions (w.r.t. the GEOCRADLE pilot activities) and their integration in the SDGs monitoring, evaluation and implementation mechanisms.

Figure 8: Participants from Regional stakeholder meeting with Israeli stakeholders

2.5.2 SME's Involvement

GEO-CRADLE Regional Workshop, Tunis	
Engagement Level	**Tier Approach**
, Collaborate, Empower	Sustain, Enhance, Expand

Objective

This GEO-CRADLE Regional Workshop was held **7 December 2017** in Tunis. The event aimed to connect the dots across the EO value chain, by providing the ground for key players from public sector, academia and local SMEs to consider challenges, opportunities, and new approaches in EO on a regional scale, based on the project's preliminary pilot results (Figure 9).

Findings and Outcomes

This workshop brought experts from the countries of the North African region to better understand the EO capacities in a scientific and commercial perspective by sharing respective knowledge, challenges and opportunities to achieve EO adaptation in that specific region. In this line, the discussions included both confirmed and potential users of geo-information services, promoted knowledge transfer and cross-sector fertilization of good practices in the environmental monitoring applications, in the agricultural sector and informed crop management using very high spatial resolution data, and natural resources management in drylands ecosystems. Concurrently, the workshop recognized that water, energy and food security form a mutually interdependent nexus (WEF nexus), in which changes in one area have direct consequences for others. Climate change threatens the nexus as a whole, and exacerbates the influence of the components on each other. In this context, there was a realisation among the participants that an EO systematic approach could be the key to resolving challenges (e.g. food security), and monitoring the implementation of climate agreements in regional level, as well as supporting the 2030 Sustainable Development Agenda. Furthermore, the workshop presented the existing operational solutions in the region and funding opportunities for start-ups and SMEs interested in using geo-information. It also aimed to build a professional network between the participants to promote further active engagement on cross-sectoral integration and the thematic priorities of GEO-CRADLE project.

Figure 9: Participants from Regional workshop in Tunis

GEO-CRADLE Regional Workshop in the Middle East, Istanbul, Turkey

Engagement Level	Tier Approach
, Collaborate, Empower	Sustain, Enhance, Expand

Objective

The workshop convened on **15-16 March 2018 in Istanbul**, Turkey. The overarching objective of the meeting was to introduce the Copernicus Sentinel Data Hubs and showcased GEO-CRADLE's project pilot results and user cases in order to highlight cross-sector cooperation on transversal topics (e.g. water management, adaptation to climate change or food security) and pave the way to move from "research to market" (Figure 10).

Findings and Outcomes

The one-and-a-half workshop was well attended. There were about 70 participants, representing the complete EO ecosystem in Turkey (e.g. scientists, researchers and policy makers interested in environmental issues). The workshop was a great opportunity for both private and public stakeholders, to discuss transformational issues affecting the uptake and use of geo-information services. Local and regional project partners introduced the pilot projects implemented within Geo-Cradle's four thematic areas (access to raw materials, adaptation to climate change, energy and food security) demonstrating the use of Copernicus EO and relevant in situ data in these fields. Simultaneously, the obstacles (e.g. **skills shortage, less access to private funding**) for further push of EO services. The last one stated by confirmed and potential users (Centre Royal de Teledection Spatiale, TÜBİTAK UZAY Space Technologies Institute, Prime Ministry Disaster & Emergency Management Authority, TÜBİTAK BİLGEM BTE Information Technologies Institut, Ministry of Forestry and Water Affairs, Turkish State Meteorological Service) in a roundtable discussion titled "Using geo-information services in the region" share their experience and practices in using EO products and share their needs. Furthermore, the event showcased innovation incubators, Horizon2020 and other funding opportunities for stakeholders interested to develop geo-information services, as well as the big picture of the GEO ecosystem and the expected benefits as presented by Steven Ramage (GEO Sec).

Figure 10: Presentation of GEO-CRADLE pilot results in the Regional Workshop in Turkey

3rd South-Eastern Europe GEO Workshop, Thessaloniki, Greece

Engagement Level	Tier Approach
, Collaborate, Empower	Sustain, Enhance, Expand

Objective

GEO-CRADLE organized the 3rd South-Eastern Europe GEO Workshop under the theme "**Uptake of GEO and Copernicus in South - Eastern Europe, North Africa and Middle East**". The main objective of the event was to offer a prime opportunity for key players across the EO ecosystem (institutions, industry and end-users) to share their insights and vision on long-term actions in order to maximize. The Workshop took place in **Thessaloniki on 4 and 5 June 2018 (**Figure 11).

Findings and Outcomes

Within the framework of the 3rd South-Eastern Europe GEO Workshop it was widely highlighted that the GEO-CRADLE data and services can support the informed implementation of numerous policies, help in addressing key societal challenges, contribute to achievement of Sustainable Development Goals and boost the NAMEBA region economy's competitiveness and growth. Moreover, the importance of sustained EO data and innovative EO-based services was highlighted, since it becomes even greater in a period marked by the advent of Big Data – spearheaded by Copernicus free, full and open data policy, and the emergence of new business models to move from research to market. The workshop tried to show and capture a wealth of information and key findings as derived by keynote speeches (e.g. ESA, DEC, GEO Secretariat) and roundtables highlighting the need for a meaningful roadmap to facilitate the improved implementation of GEO/GEOSS and the increased uptake of Copernicus in the Balkans, Middle East and North Africa. Below we summarized the most valuable outcomes providing evidence-backed answers to critical questions (**Where are we now?, Where do we want to be?, How can we get there?)** of the final GEO-CRADLE roadmap (D5.7). The presentation of the maturity of EO activities in NAMEBA region and the well-defined regional challenges illustrated the current state-of-play with regards to EO activities in the region, as well as the ways to overcome the challenges still facing (e.g. lack of funding, lack of coordination etc.). Furthermore it was stated that the maturity of EO activities in the NAMEBA region is closely tied to the footprint of international and national initiatives (e.g. GEO membership are quite apparent in the region, several key activities undergone within GEO flagships and EC funding). Finally, a series of recommended actions that will facilitate in realising the future have been drawn in two dedicated roundtables, where scientists and SMEs' representatives recognized among others the need for ecosystem capacity building and uptake, leveraging of current infrastructure, and the role of EO in support to decision making.

Figure 11: Participants from 3rd South-Eastern Europe GEO Workshop, Thessaloniki

2.5.3 Capacity Building

GEO-CRADLE Regional Workshop, Cairo, Egypt

Engagement Level	Tier Approach
, Collaborate, Empower	Sustain, Enhance, Expand

Objective

This workshop convened **on 25 March 2017** in Cairo.The workshop brought together players from research and industry domain to discuss how EO could address important societal challenges.

Findings and Outcomes

The one-day workshop was attended by **more than 60 participants from different public institutions** (the Ministry of Water Resources and Irrigation of Egypt, NARSS etc.). Valuable input was given, such as the evaluation of the existing EO capacities in Egypt, and the governmental objective to ensure the three cornerstones of sustainable development (2030 Egypt vision). Overall, GEO-CRADLE was considered as a very significant project in terms of EO, and it was indicated as very well fitted for the Egyptian situation – Access to Solar Energy. In this line, the participants expressed their will to collaborate (beyond the lifetime of the project) to utilized project's outputs, for the development of synergies in relation to national priorities in order to enhance the country's capacity. In this context, the role of NARSS, the National Authority for Remote Sensing & Space Sciences in Egypt, who is leading the Data & Infrastructure Coordination team for AfriGEOSS, should be explored in order to exploit e-infrastructure towards fostering EO data dissemination. Among others the findings below highlighted:

- Egypt has significantly reduced their expenditure in national space programmes as priorities had been shifted;
- In Egypt uptake and awareness are major problems. Data sharing is highly restrictive on paper and in practice;
- Funding schemes need to be shifted to allow for more opportunities to talk with targeted stakeholders;
- A common website was developed for the dissemination of the real-time and climatological solar energy products of SENSE pilot. Moreover, an analytical Egyptian Solar Atlas Book was published in conjunction with Egyptian Ministry of Electricity and Renewable Energy.

Figure 12: GEO-CRADLE participants in the Regional Workshop in Cairo

2.6 Summary of workshops

In overall, the GEO-CRADLE workshops supported the dialogue among the participants with regards to applications and innovations in order to address the specific challenges as presented in the GEO-CRADLE Feasibility Studies, and beyond. For instance, the importance of GEO-CRADLE dust service activities has been highly recognized by end-users from public authorities including: The Ministry of Electricity and Renewable Energy of Egypt where the SOLAR ATLAS of EGYPT was produced and adopted by the relevant authorities. The last one was rather a side-effect of its strong networking and engagement capabilities.

During the process of involving stakeholders in GEO-CRADLE (and beyond), particular attention was paid to policy makers and local administrations. In order to ensure their involvement right from the beginning, GEO-CRADLE had foreseen a number of (bilateral) meetings with stakeholders (e.g. key policy maker(s) from ministries, and/or government agencies responsible). It should be mentioned that not only these meetings enabled an early involvement and interest of key decision makers in the project, but they also enabled feedback opportunities during the project where the project partners can update stakeholders' needs and discuss with them whether and how earlier project recommendations could be considered and/or incorporated in stakeholders' decision making. Several examples are presented in the deliverables of regional coordination (D1.5: Regional Coordination Progress Report I and D1.6: Regional Coordination Progress Report II).

The list below summarizes the workshops that were implemented in the GEO-CRADLE lifespan (in chronological order).

GEO-CRADLE Workshops at a Glance

main outcomes and findings

Regional stakeholder meeting with Egyptian stakeholders

28/4/2016

Strengthening the application of systematic approaches to water management in 5 countries of MENA region

GEO-CRADLE Regional Workshop, Novi sad

14-15/7/2016

Presentation of existing incubators dealing with geo-information

Engage regional players

GEO-CRADLE First Albanian National stakeholder's workshop meeting

26/9/2016

Establishment of an Albanian national network of key stakeholders

Common conclusion that GEO-CRADLE is very ambitious for the Albanian situation

GEO-CRADLE & the 2nd EuroGeoSurveys Networking

17/10/2016

State-enterprises attended the meeting

Critical mass of EO stakeholders (>200) in the field of EO and geology

GEO-CRADLE project meeting to refine and launch the pilot activities, Cyprus

16-17-11/2016

Presentation of data services providers, decision makers and SMEs

Final decisions on the proposed refined scope and discussion among stakeholders with proven scientific excellence

GEO-CRADLE networking Event, Chişinău, Moldova

3/1/2017

Identify local challenges

Foster link for future cooperation in a country outside NAMEBA region

GEO-CRADLE Workshops at a Glance

main outcomes and findings

Regional stakeholder meeting with Israeli stakeholders

31/1/2017

Engaged industrial key players in transnational level

Various SMEs expressed interest in GEO-CRADLE feasibility studies

GEO-CRADLE Regional Workshop, Abu Dhabi

2/2/2017

Identified local challenges hindering the EO market place

Built synergies in a region with well defined gaps (GEO)

Enhanced cooperation between academia and industry

GEO-CRADLE Regional Workshop, Sofia

24/3/2017

Enhanced cooperation between academia and industry

Funding schemes need to be shifted to allow for more opportunities to talk with targeted stakeholders

Industry Workshop (EARSC), Brussels

26/4/2017

Improving EO services industry involvement in EU space programmes and initiatives

Engagement of GEO-CRADLE with the private sector

GEO-CRADLE Workshops at a Glance

main outcomes and findings

More exploitation of EO technologies and data in the curriculum

Local companies and research organizations introduced products that they are developing, addressing especially their possible contribution to several sectors

Engagement of high level administrations and decision makers

Business opportunities generated in response to SENSE pilot for further exploitation in NEA countries

Presentation of GEO-CRADLE, and discussion regarding future EO-related projects stemming from GEO-CRADLE (ISA, and several research institutes participated)

Connection of GEO-CRADLE pilots with the agricultural domain and climate change adaptation

Brought experts from the countries of the North African region to better understand the EO capacities in a scientific and commercial perspective

Pave the ground for the implementation of a GEO office in the region

A considerable number of stakeholders engaged across the Middle East

Opinions exchanged regarding the future uptake of GEO and Copernicus in Turkey

Need for the emergence of new business models to move from research to market

More exploitation of EO technologies and data in the curriculum

2.7 Meet the GEO's Engagement Priorities

Engagement with stakeholder communities is one of the three strategic objectives of GEO as outlined in the GEO Strategic Plan 2016-2025: Implementing GEOSS. GEO-CRADLE focused its priorities around proposed activities under this strategic objective in order to further broaden its engagement with relevant stakeholders. More information for some of key successes is provided in this section, illustrating activities that serve to:

- United Nations Agencies, Treaties and Conventions engagement
- Capacity Building development
- Private Sector engagement

2.7.1 United Nations Agencies, Treaties and Conventions

In the era of the United Nations 2030 Agenda for Sustainable Development, GEO-CRADLE pilot activities have built on the integration of available capacities (infrastructure, datasets, models, etc.) and skills to provide improved EO Services supporting several targets and indicators. Thus, GEO-CRADLE built strong relationships with Earth Observations for the Sustainable Development Goals (EO4SDG) Initiative to further facilitate its work to organize and realise the potential of EO and geospatial information to advance the 2030 Agenda and enable societal benefits through achievement of the SDGs.

At the national level, the Greek GEO Office, in close collaboration with EO4SDG, has been the first active GEO national structure in the NAMEBA region to have reached out to the Greek National Statistical Office (ELSTAT), to present the benefits of using EO for SDG reporting and **set up a working group to support the relevant activity**, aiming at delivering a best practice example to replicate in the region. In recognition of its efforts, Greek GEO Office was invited to present its activities in the Scaling Successful Practices panel "*Sharing of Good Practice Country Examples*" of the EO4SDG dedicated session, during the GEO Week/GEO Plenary 2018, in Kyoto, Japan (Figure 13).

Figure 13: Panel presentation of the GEO-CRADLE's Liaison Officer w.r.t. national and regional efforts towards twinning with NSOs, during the Kyoto GEO Week 2018 Side Event, EO4SDGs, GEO Work Programme Efforts and Opportunities for Scaling Successful Methods.

2.7.2 Capacity Building

GEO-CRADLE recognizes that building capacity, as well as sustaining and enhancing existing capacity, is a prerequisite for further stakeholder engagement and greater uptake of EO solutions by them in support of international directives and national priorities. However, the integration of EO services in the decision-making processes requires collaborations with key government and regional entities. In this context, GEO-CRADLE built on the means for capacity building, as provided by GEO Strategic Plan 2016-2025, to:

- Assist countries (exceeding the countries within the RoI) in increasing their capacity to acquire, share, store, maintain, and utilize EO data and information;
- Be engaged with international development and donor organizations to identify country-specific opportunities for demonstrating the value of EO and pursuing opportunities to work with the appropriate national and sub-national entities to develop activities towards improving decision-making;
- Promote regional cooperation through national and regional mechanisms.

Relevant activities have already initiated in the Balkan region, where the Inter-Balkan Environmental Center (iBEC, GEO PO), in collaboration with two ministries and two regional authorities organized a high level conference entitled "*1st Round table focusing on the implementation of Sustainable Development Goals in the Balkan Peninsula*" to identify and set up a regional (Balkan) network that will have a key role in the engagement and collaboration with user stakeholders. The conference organized under the auspices of GEO with the participation of Albanian, FYROMian and Bulgarian representatives. The participants concluded to an action plan in order to enhance awareness about the value of EO information, facilitate the development of national GEO offices (see Section 3.2) and EO Infrastructures, and assist in the development of technical and human capacity to fully utilize these resources.

In the MENA region, GEO-CRADLE also presented substantial achievements. The Solar Atlas of Egypt was adopted and published as official government document from the Ministry of Electricity and Renewable Energy of Egypt. Moreover, developers of the solar Atlas also collaborated on another enhancing existing capacity project that was submitted to the Financial Institute (Islamic Bank) that supports innovation projects. The team is planning to develop Solar Energy applications for North East Africa (SENEA). SENEA project we aim to extend this knowledge to the four NEA (Chad, Egypt, Soudan and Lybia) countries developing further solutions focusing on i) the assessment of PV tilted angles for maximum solar energy reception based on real data, ii) effect of dust including deposition, and iii) calculation of solar maps for optimum tilt angles/surfaces. Persistent and long-lasting visibility and sustainable use of project's outcomes are also clear and ensured via the use of the myDEWETRA (including soil spatially explicit indicators as derived by EO and regional SSL data) platform to help visualize the water extremes data which may be utilized by the Albanian Ministry of Environment, Forestry and Water Administration.

Building on the exiting collaboration that proved to be quite effective, the GEO-CRADLE team from North Africa and Gulf was able to join forces and apply to a joint grant and was successful through GMES and Africa program. The establishment of the Copernicus Academy and Relays networks, as well as of other open networks for geodata-driven innovation (e.g. Fab Space 2.0) considered as a great opportunity to promote regional cooperation. There was several activities in which GEO-CRADLE members participated. It should be mentioned that partners (>5) from GEO-CRADLE participated in the proposal submission for EUROGEOSS call, which is Europe's contribution to the Global Earth Observation System of Systems (GEOSS). Its goal is to

bring together European players interested in and actively contributing to GEOSS and to look for synergies among the participants and to discuss how Europe can contribute to this international effort, by moving from a data-centric approach to a user-driven one. The successful feasibility studies showcased exactly that aspect and thus the experience gained from GEO-CRADLE is valuable for the EuroGEOSS initiative.

2.7.3 Engagement with the private sector

GEO recognizes that the private sector has the capacity to be a critical contributor to making substantive progress towards achieving GEO's Strategic Objectives. Building on the work done by GEO-CRADLE in the context of the **four feasibility studies, networking platform** and Regional Data Hub, concrete efforts have been carried out with regards to engagement of the private sector by GEO-CRADLE partners. The feasibility studies outputs can serve private sector's needs in a wide spectrum of areas, such as agriculture, energy and resource extraction, while the projects' tools provide not only access to new types of data/models in these domains, but also broader community networks. The establishment of the Regional Data Hub can facilitate the further development of applications for end-users by the private-sector and can ergo directly contribute towards the development of the EO market.

In April 2017, GEO-CRADLE and EARSC worked in close cooperation with DG GROW and DG RTD of the European Commission to organize a special workshop on "Improving EO Services Industry involvement in EU Space Programmes and Initiatives". This brought together a critical mass of actors across the value chain and raised awareness on opportunities in the NAMEBA region. In addition, the GEO-CRADLE workshops through dedicated sections engage the provider-user spectrum, triggering several collaborations for calls and tenders.

The GEO-CRADLE's Solar Energy Nowcasting SystEm (SENSE) pilot stimulated the interest of the **energy related private sector** in the RoI. In particular, in the Balkan Peninsula, the Greek Transmission System Operator (TSO) which is a joint venture of the private (50%) and public (50%) sectors co-designed and used the SENSE for efficient energy management and integration of the produced energy from solar plants into the electricity grid. Attica group was interested in a health-related SENSE output (UV index) and they showed this real-time information through commercial monitors on board the Bluestar and Superfast Ferries (13 ships in total) with routes to the Adriatic and Aegean Sea. In the MENA region, in Egypt, the SENSE was used in order to produce the first Solar Atlas of Egypt in support to the local public and private energy managing authorities. Finally, for the Magdi Yacoub Heart Foundation in Aswan SENSE was applied for the development of an analytical business plan for the establishment, operation and exploitation of a solar farms that will cover the energy needs of the hospital and the residential area. As a result, the engagement of the private sector to the SENSE customization was essential in order to fulfill the specific solar energy related requirements. Moreover, the dissemination of SENEA results to public and national bodies in the four countries could forward the release of funds and be a starting point for short future investments related to solar energy products and activities, envisioning innovative high-end applications and technologies.

Last but not least, it should be mentioned that great business opportunities were generated utilizing the data and applications provided online with free and open access by the Regional Data Hub. For instance, two successful projects which are concrete examples on how the data hub can accelerate the market development, with special emphasis on agriculture, were presented by Sinoche S.A., a spin-off company of the Inter-Balkan Environment Center, in the

context of the Copernicus Masters initiative (2nd position, 2016) and EO Entrepreneurship Initiative of the European Space Agency (ESA). Figure 14 illustrates the GEO-CRADLE engagement activities with the private sector at a glance.

Figure 14: Overview of GEO-CRADLE engagement with the private sector

2.8 Stakeholder engagement activities at regional and global level

Besides the important progress in the NAMEBA (as illustrated through project's outputs), GEO-CRADLE recognized several critical gaps in the Black Sea region. The identification of these gaps has been captured in a feasibility study implemented by IBEC (ESA – No. 400114423/15/NL/FE/as) to assist the development of a Land Monitoring System utilizing space borne capacities. More recently, these gaps (and proposed solutions) was the central topic of the "Space-based services for regional strategies in the digital economy: Balkan & Black Sea perspectives" jointly organized by the Bulgarian Academy of Science and the European Space Agency, in 2018 with the participation of NOA and IBEC. Based on the conclusions and insights as derived from aforementioned activities, IBEC in co-operation with Aristotle University of Thessaloniki implemented the Black Sea Universities 2018 Congress: UN 2030 Sustainable Development Goals in the Black Sea Region – From Science to Implementation, in Thessaloniki (Figure 15). In this line, IBEC (over passing the role of the regional coordinator) has brought together a critical mass of universities (>10) across the Black Sea, combining a wealth of experience in EO-related activities and proven scientific excellence, with the aim to raise their awareness in response to GEO-CRADLE and to pave the ground for an extension of project in this very particular region.

Figure 15: GEO-CRADLE facilitated the engagement of the Black Sea University Network

Furthermore, members of GEO-CRADLE (NOA, CUT) envisioned the establishment of a Centre of Excellence, namely EXCELSIOR, for conducting basic and applied research and innovation in the areas of the integrated use of remote sensing and space-based techniques for monitoring the environment. The EXCELSIOR proposal was ranked 1st on a pan-European scale, among 208 proposals submitted to Programme "Teaming for Excellence" Phase 1, while now its members aspire to create new job positions in Cyprus (taking into account the wider Middle East and Mediterranean area) expanding the thematic work of GEO-CRADLE pilots (Figure 16). In a similar way, building on the exiting collaboration that proved to be quite effective, the team from North Africa and Gulf was able to join forces and apply to a joint grant and was successful through GMES and Africa program. The team is now working towards Developing an Earth Observation Operational Application for Coastal Ecosystems Mapping, Monitoring and Assessment of the Northern African Coastal Zone, NafCoast. The consortium is covering Egypt – Mediterranean and Red Sea coastal zone, Tunisia - Mediterranean coastal zone, Morocco - Mediterranean and Atlantic Ocean coastal zone and Mauritania – Atlantic coastal zone.

Figure 16: Presentation of the 'EXCELSIOR' Teaming project at the Copernicus Relays and Copernicus Academy meeting in Brussels, Belgium. All members included the 'ERATOSTHENES Research Centre' of the Copernicus Network met in Brussels to receive the official welcome from the European Parliament and Commission.

From its very conception and throughout its implementation, the GEO-CRADLE Soil Spectral Library has been in accordance with and driven by the strategic priorities laid out in the Global Soil Spectral Library, regarding the implementation of an open access data base linked to information on the soil's composition. Following the successful implementation of a regional database and also its integration into the GEO-CRADLE Data Hub, the Improved Food Security pilot leaders (IBEC and TAU, Figure 17) demonstrated its value and underlined its contribution to the global vision during the 21st World Congress of Soil Science (12-17/08/2018, Rio de Janeiro).

Figure 17: GEO-CRADLE partner during the World Soil Science promoted the adoption of Soil Spectral Library at a global level

Worldwide researchers from Brazil (University of Sao Paolo), Germany (German Research Centre for Geosciences - GFZ-Potsdam) argue for the need to develop a harmonized and open Soil Spectral Library and recognized that existing GEO-CRADLE SSL could be the "lighthouse" and further scaled up activities should be implemented for the benefit of a wide spectrum of stakeholders. Similar, conclusions were generated during the International Workshop of China Ecological Forum 2018.

2.9 Support actions

The mission of GEO-CRADLE can only be achieved through a coherent engagement and a continuous interaction with stakeholder communities. In this context, the structured stakeholder engagement process (Engagement tools and mechanisms and Stakeholder meetings and workshops) supported by a series of supplementary actions that were not included in the initial strategic plan to expand and **formalize the relationships with other key EO players and high-level organizations.** In this line, it was decided to foster ongoing exchange with other EO projects, GEO initiatives and political stakeholders (Figure 18). Therefore, the current section describes the activities that have been undertaken related to stakeholder engagement strategy and it is structured as follows:

- Cooperation with other European projects and other activities
- Cooperation with GEO activities

Figure 18: GEO-CRADLE partners at various events around the world; Upper figures illustrates the active participation of GEO-CRADLE partners in the GEO Week 2018, Kyoto; the image down left depicts GEO-CRADLE coordinator during the INSPIRE Session, while the image down right illustrates the "interaction" of GEO-CRADLE with other key EO projects such as ECOPOTENTIAL, SMURBS, Africultures within the framework of European GEO workshop in Geneva, 2018

3 Overall evaluation of GEO-CRADLE engagement strategy

3.1 Evaluation of engagement strategy against key performance indicators

To gain a more in-depth understanding of the project's impact, already at proposal stage and at the Stakeholder Engagement Strategic Plan (**D6.5, Table 5-1**), GEO-CRADLE has elaborated a preliminary list of KPIs to be monitored during and after its implementation that allow monitoring the impact of the engagement activities both in short-term and in long-term. In this context the progress of stakeholder engagement is presenting below in terms of selected KPIs:

Table 2: Assessment of KPIs

	Target Range		Achieved	
Title	T1	T2	M1-M16	Final
Regional/National workshops, technical meetings	7-10	15-20	10	19
Key decision makers engaged in GEO-CRADLE network	10-15	20-30	12	20
Spin-off and R&D projects built on GEO-CRADLE and its pilots	1-3	3-5	2	11
Private companies engagement to GEO-CRADLE	3-5	5-10	10	17
Regional EO actors profile available through GEO-CRADLE portal	50-60	100-150	100	190
Countries represented in GEO-CRADLE Network	14-15	20-25	26	29
Website unique visits-Social media Traffic			6201	>8000
GEO offices			0	1
Country (G)EO Maturity Profiles	14-18	20-25	11	11
Experimental campaigns from which data will be integrated	5-7	8-12	4	18

Note: The KPIs that defined at proposal stage and those that defined during the Stakeholder Engagement Strategic Plan are illustrated with grey and orange color, respectively. The full analysis of the KPI table is available in D7.5.

3.2 Key Successes

Concluding the 3-years of its activities, GEO-CRADLE demonstrated its value and underlined its contribution to the achievement of GEO and Copernicus goals in the NAMEBA region. However, based on the findings of the gap analysis and the useful insights provided by various experts, regional stakeholders and GEO Secretariat we are able to argue for the need to maintain the existing GEO-CRADLE coordination and networking mechanism alive and further scaled up for the benefit of GEO supported initiatives and Copernicus. To that end, a core team proposed the **"upgrading" of GEO-CRADLE to a GEO Initiative** with the overarching objective

to provide further impetus on its pilot activities and technological tools beyond the geographic and thematic coverage initially considered by GEO-CRADLE. During the GEO Week 2018 in Kyoto our application finally got approved and GEO-CRADLE moved from Community activities and it is one of the new GEO initiatives.

Figure 19: GEO-CRADLE moved from community activities to GEO initiatives as announced within the framework of GEO Week 2018 in Kyoto

Within the tasks of WP5 on "Regional Contribution to GEOSS & Copernicus" and WP6 with respect to engagement of national authorities, the Liaison Office of GEO-CRADLE (encompassing coordinated actions by the Project Coordinator, the Liaison Officer and the Regional Coordinators), undertook the duty of triggering and facilitating the creation of national GEO focal points, in a number of countries from the consortium, but also within the extended RoI. A number of countries was selected with respect to their maturity and the existing access to their decision making centres, exploiting in most of the cases the opportunities for liaising during the regional GEO-CRADLE workshops. Specific instructions for first steps to be undertaken were communicated via the Liaison Office (Greek GEO Office), covering the necessary steps for the establishment of a GEO Office. Indicatively, we refer to the following countries that this interaction reached a quite mature stage and the process is still ongoing: Turkey, Tunisia, Egypt, Albania, Malta, Israel, UAE.

In November 2018, the first **GEO Office in the RoI of GEO-CRADLE was established in Albania**, as a result of the aforementioned activity of the project. The contact point has been designated at the State Authority for Geospatial Information (ASIG) by the Ministry for Europe and Foreign Affairs of Albania (in Annex 2 and 3) please find the invitation and acceptance letters exchanged between the two entities). Currently, ASIG, with the assistance of GEO-CRADLE's Liaison Office (Greek GEO Office), will inform accordingly the GEO Secretariat and will hopefully become an active member of the different GEO Boards, to follow closely the evolution of GEO and coordinate GEO relevant activities at the national level (Figure 20).

Figure 20: The "road" towards the establishment of the Albanian GEO office

4 GEO-CRADLE Engagement: conclusions and the way ahead

4.1 Conclusions and lessons learnt

GEO-CRADLE aimed at creating a **sustainable network** in order to enable the engagement of regional stakeholders across the complete EO value chain (end-users, service providers, scientists and policy makers), and to act as an interface to GEO, EC and other international initiatives. The **stakeholder engagement** was not only one of the main objectives of GEO-CRADLE but also **key enabler for the success of its activities**.

To do this, the GEO-CRADLE consortium has adopted and implemented an inclusive **stakeholder engagement strategy** (D6.5) supported by the coordination team consisting of NOA and the regional coordinators from Balkan (IBEC) and MENA (CEDARE) regions in order to achieve tangible results. The engagement of key stakeholders (e.g. private sector) has been strongly supported by the involvement of GEO-CRADLE "super-connectors" and multipliers namely EURISY and EARSC.

Moreover, a coherent **collection of stakeholders' and users' feedback** with regards to needs and priorities (D2.6), and a series of **dedicated side events** (>5) and **regional workshops** (12) offered a prime opportunity to **engage and exchange with various stakeholders** representing the national, regional and international EO ecosystem, across different business sectors and scientific domains (Table 3-2 D6.5). Gathering the outputs, conclusions and insights of these activities, we have been able to provide a synoptic overview of the engagement activities and evaluate the future challenges for the realization of wider opportunities of GEO-CRADLE (see extension to Black Sea). Thus, GEO-CRADLE:

- Informed and consulted the public service bodies by inviting them to events and raising awareness with regards to pilot activities to support SDGs and regional policies;
- Initiate and maintain an open "communication and engagement channel" with relevant stakeholders through the development of a regional networking platform (**270 stakeholders** in total, public profiles: 192 stakeholders from 29 countries);
- Carry out regular engagement with national governments and public agencies (**66**), maintain high level communication to promote the uptake of EO services and data in response to regional needs (see Solar Atlas of Egypt)
- Built up structured dialogue with commercial companies (**56**) towards ensuring their optimal involvement in project and post-project activities (including joint proposals **>5**);
- Provided regular information and consultation to Small and Medium Enterprises (SMEs), end users and citizens by highlighting how GEO-CRADLE helps to deliver EO-based benefits at local and regional level.

Taking into account the global picture, gaps in GEO membership are quite apparent in the NAMEBA region, and in response to this, the efforts of GEO are focused on further engaging with these countries. In this line, GEO-CRADLE undertook the duty of triggering and facilitating the creation of a new GEO focal in Albania. Taking into account these gaps, GEO-CRADLE moved from Community activities and it is one of the new GEO initiatives in order to further engage and sustain an EO network across the NAMEBA and Black sea region.

Last but not least, indicative examples of successful engagement are presented:

- The role of regional coordinator by partners with such specific mandate act as a catalyst for wider engagement activities within (see NEA countries, CEDARE) and beyond (see Black Sea countries, IBEC) the GEO-CRADLE RoI;
- Super-connectors such as EARSC could act as the main interface with the private sector and further foster the involvement of EO companies (see section 2.7.3)

4.2 The way ahead

The need to capitalize on, sustain and scale up the results mainly achieved during the implementation of the 3-year GEO-CRADLE project recognized by GEO through the "upgrading" of GEO-CRADLE to a GEO Initiative, we aim to attract an even larger community, helping to build a more integrated ecosystem of EO stakeholders. In this line, **GEO-CRADLE Initiative points the way ahead** for continuous engagement of stakeholders in North Africa, Middle East and the Balkans with a potential to expand to Black Sea.

GEO-CRADLE Initiative will be organized as a **complementary capacity building block** around the overarching EuroGEOSS initiative and other EU/GEO related projects, while its extension will be realized along the following dimensions:

- **Geographic:** The proposed Initiative will progressively embrace all Balkan countries, with potential to involve new areas (Black Sea) and maintain the involvement of Middle East (where major gaps in GEO memberships are encountered) and North Africa (in connection to AfriGEOSS).
- **Thematic:** On top of food security, energy, raw materials and climate change the Initiative will explore the incorporation of additional thematic areas such as disaster management and water resources management, in accordance to GEO priorities. These are areas identified as key priorities in the region and also strongly tied to the SDGs.
- **Operational Maturity:** In conjunction with the efforts being planned under EuroGEOSS, the proposed initiative will seek stronger involvement of the private sector and a clear orientation towards the operationalization of services to the various engaged users.

In view of initiative's overarching objective and its vision for extension, specific activities have already defined that will govern the respective actions carried out in the next years:

- Maintain the Networking platform by the enrichment of the database of regional actors with additional profiles, regular updates to the existing profiles, and the continued monitoring and presentation of funding opportunities allowing new R&D collaborations on EO-related projects and sparking new services for the end-users
- Follow the successful approach of regional workshops and organize more workshops (coincide with major national or international events)
- Implement a dedicated mapping of GEO-CRADLE pilots' contribution to SDGs in order to engage national statistical offices for integrating EO information and services in their operations;
- Build additional synergies towards operationalization with the engagement of the private sector (under the leadership of EARSC) with an ultimate vision for sustainable market uptake of (G)EO enabled services in NAMEBA showcased in the various EO Data Providers Workshops and presented at the GEO Symposiums. This could be achieved in close synergy with upcoming H2020 projects (e.g. EUROGEOSS, E-SHAPE) on commercial activities related to GEO.
- Develop strong links with GEO Flagship Programmes and Initiatives, such as GEOGLAM

(through the work of IFS pilot), GEOVENER (through the work of SENSE pilot), EO4SDGs, EUROGEOSS and more;
- Explore the possibility to compile Joint Action Plans in the context of Copernicus FPA and in conjunction with Copernicus UU Infrastructures (Relays, Academies)
- Foster the involvement of the private sector including the startup ecosystem in synergy with innovation development and business accelerator projects (e.g. FabSpace 2.0, KATANA etc.)
- Organize and attend (coordinator, regional coordinators and partners) regional workshops and sustain their results.

Based on the aforementioned points, the GEO-CRADLE initiative envisages a significant contribution to GEO's **ENGAGE** strategic objective as illustrated by the following actions:
- Develop synergies, encourage cross-fertilization, address common challenges across the RoI and enforce prioritization via flexible regional frameworks
- Involve the EO industry, institutions, governmental organisations and international initiatives, towards a sustainable network in the RoI for the benefit of GEOSS, EuroGEOSS, and Copernicus
- Identify funding gaps, enhance visibility of opportunities, explore new resources, urge national (or private) commitments, leverage new calls of regional interest
- Broaden the GEO, EuroGEOSS, and Copernicus user base through well-targeted dissemination and exploitation actions
- Support– through the diffusion of best practices – the greater participation of less developed countries in GEO and the establishment of regional GEO offices
- Demonstrate the power of GEOSS, and EuroGEOSS to uncover trends in the regional earth system, and design pathways to reach decision makers and assess progress towards policy goals

ANNEX

1 Table of Regional Workshops

Date	Title	Main Stakeholder (Host and Location)	Main points
28/4/2016	Regional stakeholder meeting with Egyptian stakeholders Report	Ministries of Electricity, Environment, Water Resources and Agriculture etc. (CEDARE, Cairo)	▪ The event was held back to back with R-KNOW[1] project national policy workshop ▪ Strengthening the application of systematic approaches to water management in 5 countries of MENA region
14-15/7/2016	GEO-CRADLE Regional Workshop, Novi sad Minutes	Private and public stakeholders (INS, Novi sad)	▪ Presentation of existing incubators dealing with geo-information ▪ Engage regional players
26/9/2016	GEO-CRADLE First Albanian National stakeholder's workshop meeting Agenda	Ministry of Economic Development, Tourism, Trade and Entrepreneurship, and Ministry of Environment etc (INCA, Tirana)	▪ 25 participants from different potential public institutions ▪ Establishment of an Albanian national network of key stakeholders ▪ Fill the online survey and the questionnaires for the evaluation of the existing EO capacities ▪ Common conclusion that GEO-CRADLE is very ambitious for the Albanian situation

[1] R-KNOW: The Regional Knowledge Network on Water, link: http://www.rknow.net/index.php/en/

17-23/10/2016	**GEO-CRADLE & the 2nd EuroGeoSurveys Networking** **Meeting** **Minutes**	**Academia and Industry** **(EGS, Morocco & Algeria)**	▪ **State-enterprises attended the meeting** ▪ **Critical mass of EO stakeholders (>200) in the field of EO and geology**
16-17/11/2016	**GEO-CRADLE project meeting to refine and launch the pilot activities** **Minutes 1st day** **Minutes 2nd day**	**Academia and Industry** **(CUT, Limassol)**	▪ **Presentation of data services providers, decision makers and SMEs** ▪ **Final decisions on the proposed refined scope and discussion among stakeholders with proven scientific excellence**
3/1/2017	**GEO-CRADLE networking Event, Chişinău, Moldova** **Minutes**	**Public Authorities** **(SHS, Chişinău)**	▪ **Identify local challenges** ▪ **Foster link for future cooperation**
31/1/2017	**Regional stakeholder meeting with Israeli stakeholders**	**Israeli SMEs, Israel Space Agency** **(TAU, Tel Aviv)**	▪ **Engage industrial key players in transnational level**
2/2/2017	**GEO-CRADLE Regional Workshop, Abu Dhabi** **Minutes**	**Public Authorities, Academia, Industry** **(UAEU, Abu Dhabi)**	▪ **Identify local challenges hindering the EO market place** ▪ **Foster link for future cooperation** **Enhance cooperation between academia and industry**

24/3/2017	**GEO-CRADLE Regional Workshop, Sofia** **Agenda**	**Public Authorities, Academia, Industry and NGOs (SRTI, Sofia)**	▪ **Enhance cooperation between academia and industry** ▪ **Funding schemes need to be shifted to allow for more opportunities to talk with targeted stakeholders**

2 Nomination of a GEO focal point for Albania

Unofficial translation

VITI MBAREKOMBËTAR I GJERGJ KASTRIOTIT SKENDERBEUT · 2018 ·

REPUBLIKA E SHQIPËRISË
MINISTRY FOR EUROPE AND FOREIGN AFFAIRS

No. 15584 prot. Tirana on 10.10.2018

Subject: On the nomination of a GEO focal point for Albania

MR. HARIS KONTOES
GEO-CRADLE PROJECT COORDINATOR
RESEARCH DIRECTOR
NATIONAL OBSERVATORY OF ATHENS

Athens

Dear Mr. Kontoes,

Following your letter of 31.08.2018, on the request for the nomination of a GEO focal point for Albania, I would like to inform you that the Ministry for Europe and Foreign Affairs is the National Coordinator for all European Programs. Albania currently participates in nine European Programs, and each program has a National Contact Point at the responsible institution. The National Contact Point for Horizon 2020 is the National Agency for Scientific Research and Innovation (NASRI).

As part of your request, the nomination of the focal point/national institution for each Horizon 2020 project is not part of the Ministry for Europe and Foreign Affairs competencies. However, based on your letter, MEFA has no objection to the Contact Point being designated at the State Authority for Geospatial Information (ASIG), as long as the official representative of this institution agrees.

Sincerely yours,

SECRETARY GENERAL

Gazmend Barbullushi

MINISTRIA E EVROPËS DHE PUNËVE TË JASHTME TIRANË

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MINISTRIA PËR EVROPËN DHE PUNËT E JASHTME

Nr. 13584 Prot. Tiranë, më 10.10.2018

Lënda: Mbi përcaktimin e pikës së kontaktit për proceset GEO në Shqipëri

ZOTIT HARIS KONTOES
KOORDINATOR I PROJEKTIT GEO-CREDLE
DREJTOR I KËRKIMEVE
OBZERVATORI KOMBËTAR I ATHINËS

Athinë

I nderuar Z. Kontoes,

Në vijim të shkresës Suaj datë 31.08.2018, mbi kërkesën për përcaktimin e një pike kontakti për proceset GEO, me lejoni t'ju informoj se Ministria për Evropën dhe Punët e Jashtme është Koordinatore Kombëtare për të gjitha Programet Evropiane. Shqipëria aktualisht merr pjesë në nëntë Programe Evropiane, dhe secili program ka një pikë Kombëtare Kontakti pranë një institucioni përgjegjës. Pika Kombëtare e Kontaktit për programin Horizon 2020 është Agjencia Kombëtare e Kërkimit Shkencor dhe Inovacionit (AKKSHI).

Në kuadër të kërkesës suaj, shprehemi se përcaktimi i pikës fokale/instiucioni kombëtar për çdo projekt të Horizon 2020 nuk është pjesë e kompetencave të Ministrisë për Evropën dhe Punët e Jashtme. Gjithësesi, duke u bazuar në shkresën tuaj, MEPJ nuk ka kundërshtime që pika e kontaktit të përcaktohet pranë Autoritetit Shteteror për Informacionin Gjeohapësinor (ASIG), për sa kohë përfaqësuesi zyrtar i këtij institucioni shprehet dakord.

Duke ju falenderuar për bashkëpunimin,

SEKRETARI I PËRGJITHSHËM

Gazmend Barbullushi

MINISTRIA PËR EVROPËN DHE PUNËT E JASHTME, BULEVARDI GJERGJ FISHTA, TIRANË
TEL: (+355) 4 2 364090/EXT.79110, 79139. FAX: (+355) 4 2262085/2262084
http://www.punetejashtme.gov.al, info@mfa.gov.al

3 Request for Nomination of a GEO focal point for Albania

VITI MBARËKOMBËTAR I GJERGJ KASTRIOTIT SKENDERBEUT · 2018

REPUBLIKA E SHQIPËRISË
AUTORITETI SHTETËROR PËR INFORMACIONIN GJEOHAPËSINOR
DREJTORIA E GIS-IT KOMBËTAR DHE GJEOPORTALIT

Nr. 459/1 prot. Tiranë, më 16.11.2018

Lënda: Mbi kërkesën për përcaktimin e pikës fokale të GEO në Shqipëri.

INSTITUTIT PËR RUAJTJEN E NATYRËS NË SHQIPËRI
Tiranë

Në përgjigje të kërkesës tuaj me shkresën nr. 18 prot, datë 15.11.2018, protokolluar pranë Autoritetit Shtetëror për Informacionin Gjeohapësinor (ASIG) me nr. 459 prot, datë 15.11.2019, për përcaktimin e një pike fokale të GEO në Shqipëri, ju bëjmë me dije se:
Autoriteti Shtetëror për Informacionin Gjeohapësinor (ASIG), është institucion publik qendror, i krijuar me ligjin nr. 72/2012, datë 28.06.2012, *"Për Organizimin dhe Funksionimin e Infrastrukturës së Informacionit Gjeohapësinor në Republikën e Shqipërisë"*, misioni i të cilit është krijimi i Infrastrukturës Kombëtare të Informacionit Gjeohapësinor në Shqipëri, sipas standardet evropiane të Direktivës 2007/2/EC "INSPIRE" .
Sipas nenit 7, pikat gj, h, të ligjit 72/2012, ASIG:
"gj) përfaqëson shtetin në organizatat europiane dhe ndërkombëtare, anëtarësimi në të cilat i shërben funksionimit dhe modernizimit të infrastrukturës kombëtare të informacionit gjeohapësinor;
h) përfaqëson shtetin për çdo çështje tjetër që lidhet me infrastrukturën e informacionit gjeohapësinor."

Bazuar sa më lart japim konfirmimin tonë për emërimin e ASIG si pikë fokale e GEO, për Shqipërinë.

Duke ju falënderuar për bashkëpunimin,

DREJTOR I PËRGJITHSHËM
Lorenc Çala

REPUBLIKA E SHQIPËRISË AUTORITETI SHTETËROR PËR INFORMACIONIN GJEOHAPËSINOR TIRANË

Adresa: Rruga "Papa Gjon Pali II" Nr 3, Kati 2 E-mail : info@asig.gov.al, Tel: +355 42236762

Unofficial translation

REPUBLIKA E SHQIPËRISË
STATE AUTHORITY FOR GEOSPATIAL INFORMATION
NATIONAL GIS AND GEOPORTAL DIRECTORY

No. 459/1 prot. Tirana, on 16.11.2018

Subject: On the request for nomination of a GEO focal point for Albania.

INSTITUTE FOR NATURE CONSERVATION IN ALBANIA

Tirana

Following your letter of no. 18 prot, dated 15.11.2018, protocolled at the State Authority for Geospatial Information (ASIG), with no. 459 prot, dated 15.11.2018, on the request for the nomination of a GEO focal point for Albania, we would like to inform you that:
State Authority for Geospatial Information (ASIG) is a central public institution, created by law no. 72/2012, dated 28.06.2012, "*For the Organization and Operation of the National Infrastructure of Geospatial Information in the Republic of Albania* ", whose mission is the establishment of the National Infrastructure of Geospatial Information in Albania, in accordance with the European standards of Directive 2007/2 / EC "INSPIRE".
Pursuant to article 7, points gj, h, of law 72/2012, ASIG:
"gj) *represents the state in European and international organizations, membership in which it serves the functioning and modernization of the national geospatial information infrastructure;*
h) *represent the state on any other issues related to geospatial information infrastructure."*

Based on the above-mentioned we give our confirmation for the nomination of ASIG as the focal point of GEO for Albania.

Sincerely yours,

GENERAL DIRECTOR

Lorenc Çala

Adresa: Rruga "Papa Gjon Pali II" Nr 3, Kati 2 E-mail : info@asig.gov.al, Tel: +355 42236762

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