



GROUP ON
EARTH OBSERVATIONS

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Report of the Capacity Building Committee (CBC)

Document 16

For information

Report of the Capacity Building Committee (CBC)

1 MEMBERSHIP

Co-Chairs: European Commission, Brazil, South Africa, Spain and Austria

Member Countries: Argentina, Australia, Bangladesh, Brazil, Canada, China, Croatia, Egypt, European Commission, France, Germany, Greece, India, Iran, Italy, Japan, Korea, Madagascar, Moldova, Morocco, Netherlands, New Zealand, Niger, Portugal, Russia, South Africa, Spain, Switzerland, Thailand, Uganda, Ukraine, USA, Uzbekistan.

Participating Organizations: AARSE, APN, CEOS, EEA, EIS-Africa, EUMETSAT, EuroGeoSurveys, FDSN, GCOS, IAG, ICIMOD, IEEE, IGBP, IOC, ITC, ISCGM, ISPRS, POGO, UNECA, UNEP, UNESCO, UNOOSA, WCRP (START), WMO.

2 IMPLEMENTATION OF THE 2009-2011 WORK PLAN

From Beijing to Istanbul the Capacity Building Committee has continued its work supporting GEO in enhancing the coordination of efforts to strengthen individual, institutional, and infrastructure capacities of all countries, particularly in developing countries, to produce and use Earth observations and derived information products in a sustainable manner and to contribute observations and systems to GEOSS. The specifics of the report refer to the overall GEO Capacity building target reflected in the current work plan (2009-2011). Here follows the main achievements of last 12 months for all overarching tasks:

2.1 CB-09-01: Resource Mobilization (Seville Roadmap)

The main activities were to push for advancing in the GEO Call for Proposals (CFP) process with the co-participation of the User Interface Committee and a support team from the GEO Secretariat. A webpage was developed to facilitate the outreach to possible donors. It contains key information on the selected proposals, such as their abstracts and teams involved. The full proposals are password protected but can be accessed by eventual donors as long as a link to the Principal Investigators is established. This will be completed by a one page flyer for each proposal adding marketing contents to the abstract (now being reviewed).

The GEO CFP was issued in February 2009 inviting organizations to propose or participate in **projects that apply Earth observations to decision-support activities**. The CFP focused on projects in 4 Societal Benefit Areas with 72 full proposals submitted by September 2010: 18 in Agriculture, 2 in Energy, 13 in Health, and 39 in Water. Proposals were reviewed by CBC, UIC and Community of Practice representatives as well as GEO Secretariat experts who provided feedback to the proposal teams. The final selection of proposals was announced on 1 October 2010.

A key project for resource mobilization is the GEONetCab, which is funded by the European Commission's Framework Programme (FP7). It aims at improving the effectiveness and efficiency of GEO-related capacity-building activities and to broker support for capacity-building projects and activities. The project puts a special emphasis on developing countries, new EU member states and EU neighboring states. And, while it addresses all GEO societal benefit areas, it also includes a particular focus on climate monitoring. Practical examples of solutions provided by Earth observation applications are gathered in the form of success stories. The success stories show applications of earth

observations that work well and can be replicated in other parts of the world without too much investment. The success stories target an audience that is not necessarily familiar with earth observations and their potential. They are therefore written in a non-technical language and are very brief (2 pages) and well illustrated.

The success stories have been disseminated in various ways, including the Capacity Building Portal, inside the GEONetCab website (<http://geonetcab.espace-dev.fr/>). A great deal of time and effort has been dedicated to building the theoretical framework and business model of this Capacity Building Portal. This facility is now almost ready to go live and will be linked to the GEO web portal. It will be the entry point for people interested in, but not necessarily familiar with, Earth observation examples of applications (such as these success stories) and information on where to find affordable training and low-cost or free software solutions.

Promotional activities have started, and a promotional toolkit is being developed. Visits to the World Bank, the Inter-American Development Bank, International Food and Policy Research Institute, World Resources Institute and Organization for Economic Cooperation and Development have been undertaken. The focus is on building partnerships in general, but the topics of Water and Food Security have thus far received special attention. The general activities were complemented by targeted promotion activities in the four regions (French-speaking, Southern Africa, Poland and Czech Republic) of the scope of this project.

2.2 CB-09-02: Building Individual Capacity in Earth Observations

China (CMA) joined the USA (NOAA) and EUMETSAT in creating a **GEONETCast training channel**. Training channels are now in operation for EUMETCast, GEONETCast Americas, and CMACast covering most of Europe, Africa, the Americas and Asia. However the **usage of training channels remains low**.

The Netherlands (ITC) partnered with the DevCoCast project to provide training and capacity building opportunities to potential GEONETCast users in Africa and Latin America. ITC also helped set up a GEONETCast receiver in Nairobi, Kenya. In Brazil, INPE led distance-learning opportunities for use of GEONETCast stations and data across Latin America. Training materials will be available on the upgraded GEONETCast Product Navigator, which is compliant with GEOSS Architecture and Data specifications. Training materials developed through the DevCoCast project will also be shared via the EUMETCAST training channel.

UNOOSA supported regional training and capacity building programs related to disaster management and emergency response. The main focus was on developing individual **capacity in drought, desertification, landslides and earthquake management**, and establishing regional network of practitioners in Latin America.

The International Research Institute for Climate and Society (IRI, USA), Center for International Earth Science Information Network (CIESIN) and the Mailman School of Public Health organized a “Summer Institute on **Climate Information for Public Health**” (16 May – 27 May 2011, New York, USA). The 2011 course exposed participants to data, methods and tools for integrating climate considerations into public health decision-making processes. It included hands-on experience with decision tools and targeted professionals who play a role in public health-care planning.

2.3 CB-09-03: Building Institutional Capacity to Use Earth observation

The Netherlands (ITC) developed an essential tool for international capacity-building networks in Earth science & geo-information provision: the GEONETCast Toolbox. Coupled to an open source data handling and analysis system, the Toolbox permits **open, direct and real-time access to GEONETCast data**. Online since June 2009 (<http://www.itc.nl>; keyword “GEONETCast”), and updated in June 2010 building upon interoperability with the CMA and Envisat data dissemination systems, available as open source (<http://52north.org/communities/earth-observation>), it became

operational in several educational and research institutions in Europe and African countries such as **Kenya, Rwanda, South Africa, Ethiopia, Uganda and Tunisia**. Demonstrations and hands-on training on the use of the toolbox were carried out at the AARSE 2010 post-conference two-weeks refreshers course (1-12 November 2010, Addis Ababa, Ethiopia) and in other countries such as Brazil, Argentina, Kenya, Thailand and Indonesia in 2011.

Further networking activities relate to (i) the Europe-funded DevCoCast project to build a GEONETCast user network in Africa and Latin America, (ii) the AMESD project (a pan-African partnership and networking for the **monitoring of the environment for sustainable development in Africa**), (iii) the TIGER-2 project (an ESA initiative on Earth observation, climate and water resources for Africa), and (iii) the SERVIR project network extension.

ITC and partners also focused on developing **distance education courses** using GEOSS components and demonstrating the relevance of Earth observations through education, training and awareness-raising. Outputs include two e-learning courses (40 and 65 people, respectively) organized for AMESD project partners in Southern Africa and ITC with network partner RCRMD/Nairobi in East Africa. Numerous institutions supported and benefited from those courses. These include the: Institut de Recherches Agronomiques, Medenine, Tunisia; University of Maidaguri, Nigeria; University of Makerere, Kampala, Uganda; Universities of Addis Ababa and Bahir Dar, Ethiopia; Cetrad, Nanyuki, Kenya and University of Zimbabwe, Harare.

A **global network of operational oceanography** capacity building was established, involving major operational and research centers worldwide. International cooperation progressed among (i) China-Korea-Denmark on the **Western Pacific forecasting System**, (ii) Chile-France-USA on the **Latin America coastal** forecasting system, (iii) South Africa-Norway on the **African coastal** forecasting system, and (iv) the EU on GMES Marine Core Services (MyOcean; the latter's potential is yet to be realized within GEO). Products and applications were developed, all of which were openly shared for research. Typhoon forecasts from Denmark (DMI) for the North-West Pacific region started being verified and broadcasted to Asian users in the framework of the DevCoCast project.

3 CB-09-04: CAPACITY BUILDING NEEDS AND GAP ASSESSMENT

A series of actions unfolded to engage users of Earth observations with providers of capacity building. The GEO Network for Capacity Building (GEONetCab) project was launched to create conditions for the **improvement and expansion of GEO capacity-building activities**. Initial focus was on the development of success stories, mentioned earlier, for capacity building in Earth observation. Another project of the kind is the GEO Capacity Building Initiative in Central Asia (SEOCA). SEOCA follows a similar approach to GEONetCab, however it is focused on **Central Asia and Europe**.

A first analysis of opportunities and bottlenecks in earth observation applications, carried out in the framework of the GEONetCab project, resulted in the report "Marketing of earth observation products and services, part 1". The study describes the different categories of earth observation products and services and how they relate to the business process of organizations and to the various GEO societal benefit areas. The maturity of these products and services and the regional spread of applications are then considered, leading to advice on the optimum marketing mix of capacity building and brokerage for promoting the use of earth observation solutions.

In addition to this broader report, four regional studies were carried out in the Czech Republic, Poland, Southern Africa and French-speaking Africa. Each study describes the situation with respect to applications of earth observations and the level of capacity, combined with an analysis of bottlenecks and opportunities. The case studies are extremely valuable, not only for their emphasis on particular regions, but also in terms of providing practical examples of problems and solutions.

Morocco (Centre National de Recherches Météorologiques) led efforts to develop reliable and widely accepted **qualitative and quantitative metrics** for measuring (i) the efficacy of Earth observation

capacity-building programs, and (ii) the implementation of GEO capacity-building strategy. Recent outputs include capacity building indicators compiled from 119 Task Sheets of the GEO Work Plan. Indicators are now being used to assess the links between the Capacity Building Strategic Target and the efficacy of the GEO capacity building process. The report resulting from this assessment was presented for validation during the 13th Capacity Building Committee meeting in March 2011. The report is now finalized and there should be a further development of a new set of Performance indicators more focused on quantitative information to be implemented on the 2012-2015 GEO Work Plan. The report on Performance Indicators attached as is annex 1.

3.1 CB-09-05: Infrastructure Development and Technology Transfer for Information Access

Brazil (INPE), China (CRESDA) and South Africa (SANSA) established and upgraded ground stations to receive, process, store and distribute **CBERS imagery**. The Hartebeeshoek station, near Pretoria, turned fully operational to receive CBERS-2B images with assistance and funding from China with respect to the pre-processing system. A new Memorandum of Understanding was signed with SANSA for CBERS-3 in December 2010. Currently 70% of the data can be ordered through the online catalogue at <http://catalogue.sansa.org.za/>. Efforts are underway to fill the CBERS-2B gaps in South Africa Data Center with similar data from the INPE catalogue to evaluate the feasibility of developing image mosaics over some selected countries covered by the station footprint. Gaps are still expected even after this exercise.

Progress was also made on the **ground station** of Maspalomas, operated by the Spain National Institute for Space Technology (INTA) and a MOU for CBERS 3 reception was signed on June 2, 2011. The CBERS image catalog in Maspalomas is operational and images can be obtained at the website: <http://crepad-cbers.cec.inta.es/catalogo/>. A field survey was conducted in Gabon to define the appropriate location for a future CBERS antenna in the Congo Basin. Discussions are ongoing with CRESDA (China), ASI (Italian Space Agency) and University of Rome, La Sapienza, for an agreement for reception of CBERS-3 and CBERS-4 in Malindi, Kenya. The existing station in Aswan, Egypt, needs a big investment for receiving CBERS3 and CBERS-4, including the acquisition of a new antenna. Negotiations between INPE and NASRS are ongoing. The CBERS2-B operations ended in April 2010. CBERS-3 is due for launch in the fourth quarter of 2012.

Brazil (INPE) and the Committee on Earth Observation Satellites (CEOS) progressed on the implementation of the “**Data Democracy**” initiative and related activities (open-source solutions and CBERS capacity building). Data Democracy is to strengthen the Earth observation data-utilization cycle by: (i) Broadening in-situ data/information access; (ii) Increasing data dissemination capabilities; (iii) Sharing software tools; and (iv) Transferring technology to end-users. Moreover Data Democracy is about **unhindered access to Earth observation information**; open-source software and open systems; adequate dissemination models that reflect the realities of bandwidth in developing countries; and locally initiated cross-border projects and intensive capacity-building programmes.

After his inauguration in late 2010, INPE Amazonia advanced its operations in 2011, focusing on Capacity Building for monitoring tropical forests. INPE Amazonia has been offering training on tropical forest monitoring in three languages (Spanish, English and French), using the open-source system TerraAmazon: the Amazon rainforest monitoring system of the Brazilian PRODES project.

In this context, cooperation agreements have been signed with France’s IRD (Research Institute for Development), the Japanese International Cooperation Agency (JICA), the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA), the Food and Agriculture Organization (FAO), the Constellation of small Satellites for the Mediterranean basin Observation (COSMO-SkyMed), and the Brazilian Agricultural Research Corporation (Embrapa), and they resulted in the following training courses in 2011:

- 3 Courses, in English, 37 people trained from: France / Guyana / USA / Mexico/ Ecuador/ Papua New Guinea / Democratic Republic of Congo / Vietnam / Thailand / Indonesia / Cambodia;
- 1 Course in Portuguese, 12 people trained from: Paraguay / Mozambique / Angola;
- 1 Course in Spanish, 12 people trained from: Peru / Ecuador / Guatemala/ Colombia.

As a measure of success, the Democratic Republic of Congo (DRC) adopted the technology developed by INPE, for its satellite-based forest monitoring system.

The USA (NASA and USAID) established SERVIR regional hubs in Panama and Kenya. The SERVIR African node provided **ecosystem maps and risk assessment maps** that were developed with the Regional Centre for Mapping of Resources for Development (RCMRD) and the US Geological Survey. A **SERVIR Himalaya** is under development.

The last AEGOS Phase 1 technical meeting, steering committee and public conference were held on 14-19 April 2011 in Dakar, Senegal. Final results were presented to the national and regional stakeholders as well as the way forward for AEGOS subsequent development and implementation through a second phase. Fruitful discussions took place with the AEGOS advisors including representatives from GEO Secretariat, UNESCO/International Hydrology Programme, IUCS-International Council for Science/Regional Office for Africa, EuroGeoSurveys, Organisation of African Geological Surveys, Geological Society of Africa, ACP (African, Caribbean and Pacific Group of States) Secretariat, African Union/Human Resources, S&T, UN Economic Commission for Africa/Information and S&T.

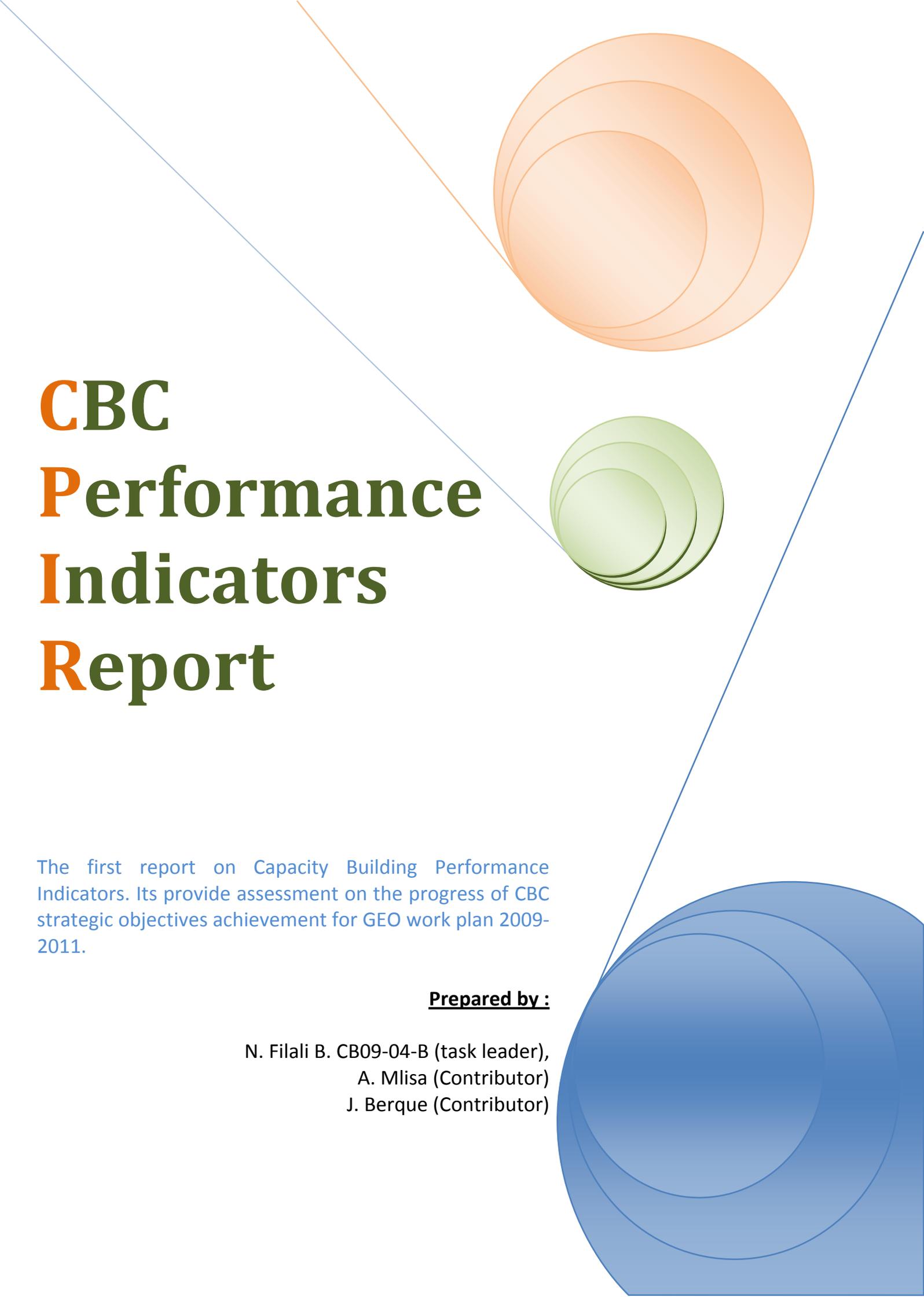
Since AEGOS SDI and associated capacity building programmes aim at being one of the georesources component of geo-information development initiatives in Africa, these results were presented in regional meetings organized by the (ACP) Secretariat and the UN Economic Commission for Africa: “First meeting of ACP Ministers in charge of the development of Mining Resources” (Brussels, Belgium) and “Second Meeting of the Committee on Development Information Science and Technology-CODIST-II” (Addis Ababa, Ethiopia). The resolutions record that the Member States should develop transparent, shared and interoperable systems of public geoscientific information for decision makers, investors, education, research, national and international institutions. Accordingly, the Development Partners should support the operationalization of systems such as AEGOS and associated transfer of know-how, in synergy with comparable platform for public data and georesources information sharing.

3.2 CB-10-01: Building Capacity through Outreach and Awareness Raising

UNEP contributed their **Atlas of our Changing Environment** series to GEOSS as an outreach tool for capacity-building. Recent Atlas outputs include the Uganda Atlas of our changing environment; the Atlas of **water resources for Africa**; and regional atlases for the Arab states, Europe, and Latin America & the Caribbean. The Atlas of Our Changing Environment is a series of publications focusing on the global, regional and national levels. They draw the attention of governments to environmental issues and strengthen their **capacity to monitor their resources through Earth observations**.

IEEE and various partners furthered efforts to organize GEOSS outreach workshops in all Societal Benefit Areas. **5 user-oriented workshops were carried out in 2011** from April to December. The workshops typically expose regional and local stakeholders to best practices in capacity-building and to the benefits of using the GEONETCast dissemination system in combination with open-source web-based applications for a variety of societal benefit areas. This year included a focus on Drought, Hydrology, Oceans, Climate, and sensor web/rural communications. The workshops originally planned in Sendai, Japan was relocated to Vancouver BC, Canada and conducted in July.

WWW.Earthzine.org <<http://WWW.Earthzine.org>> is an on-line, open-access outreach media dedicated to increasing interest in Earth science, Earth sensing and information technologies, expand the public's understanding of the role Earth observation plays in improving our knowledge of Earth, increase participation of citizen scientists through open invitation to post articles, reviews and opinion essays, and to engage public discussion of the benefits of utilizing Earth information in decision making through Earthzine's open access blog.. In January 2011, Earthzine hired two new part-time staff to support operations and editorial throughput, and to expand readership and contributor base. Earthzine's readership has doubled approximately every year since its inception in November 2007. Earthzine presently attracts an international audience of about 7500 readers per month in more than 120 countries.



CBC Performance Indicators Report

The first report on Capacity Building Performance Indicators. Its provide assessment on the progress of CBC strategic objectives achievement for GEO work plan 2009-2011.

Prepared by :

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List of Acronym:

GEO	Group on Earth Observation
GEOSS	Global Earth Observation System of Systems
UNCED	United Nations Conference on Environment and Development
CBC	Capacity Building Committee
CB	Capacity Building
SBA	Societal Benefit Areas
WP	Work Plan
PI	Performance Indicator

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Summary

This is the first report on Capacity Building Performance Indicators. It provides information about Capacity activity within GEO tasks in terms of geographical distribution, involvement of Developing Countries, CB approaches and tools and CB within SBA's tasks.

A set of six performance indicators has been defined from the analysis of the information on capacity building activities reported on GEO task for GEO work plan 2009-2011.

These indicators were quantified for the GEO WP 2009-2011 and used to assess CBC strategic objectives achievement in order to measure the efficacy of GEO capacity building programs.

These reports represent the first deliverables of the CBC 09-04-b task and achieve the first cycle of this task which will continue on the GEO work plan 2012-2015 taking into account the recommendations and learned lessons from the first phase of this task.

The last chapter of this report gives a vision about how this task should continue for the Work plan 2012-2015 and the mechanism of coordination with the GEO work Group on Coordination and evaluation.

1. Introduction to GEO Capacity Building

The Group on Earth Observation (GEO) envisions a future where earth observation capacity building efforts are coordinated, and the access to and availability of capacity building programs to users in all of GEO's societal benefit areas are enhanced.

This coordination should increase access to Earth observation data and products and seeks to encourage decision makers worldwide to use these tools to guide their decisions in sustainable development planning and policymaking.

The GEO definition of capacity building embraces UNCED's (define the acronym) aspirations and focuses on three elements of clearest relevance to Earth observations: human, institutional and infrastructure capacity:

- Human capacity building refers to the education and training of individuals to be aware of, access, use and develop Earth observation data and products.
- Institutional capacity building is focused on developing and fostering an environment for the use of Earth observations to enhance decision making. This includes building policies, programs and organizational structures in governments and organizations aimed at enhancing the understanding of the value of Earth observation data and products.
- Infrastructure capacity building is related to the hardware, software and other technology required to access, use and develop Earth observation data and products for decision making.

Rather than only create new Earth observation capacity building efforts, GEO seeks to coordinate and build upon existing efforts worldwide to increase the efficient use of limited resources. Such coordination can help fill gaps in access and use of Earth observation.

2. Capacity building strategic objectives and outcomes

Before 2015, GEO aims to enhance the coordination of efforts to strengthen individual, institutional, and infrastructure capacities, particularly in developing countries, to produce and use Earth observations and derived information products.

The objectives of GEO Capacity Building (CB) Strategy, developed in 2006, seek to guide the implementation of priority actions and should serve as milestones in pursuing the vision of this strategy.

These objectives are:

- i. Identify, coordinate and build synergies between existing and future efforts.
- ii. Encourage and enable developing countries to identify and address their capacity building needs to access, use and produce Earth observation data and products on a sustainable basis.
- iii. Enhance access to data and information, especially on a real-time and near real-time basis and encourage information and infrastructure sharing.
- iv. Prioritize the inclusion of capacity building as a component of all GEO societal benefit and transverse areas.

Facilitate coordination among GEO Members and Participating Organizations as they seek further resources for identified capacity building priorities.

3. Performance Indicators Task

There is a large diversity of groups conducting capacity development activities in Earth observations and its applications, and one of the roles of GEO is to ensure that these efforts are coordinated.

The Capacity Building Strategy has defined its goals; the Performance Indicators (PI) task will help to define and measure progress toward these strategic goals.

In this context, Performance Indicators are one of the tools that are useful to help identify how much capacity building is conducted, in which area and where it is missing, and how effective it is. Therefore, the PI task (CB-09-04-b), identified as a component of Capacity Building Strategy, aims to develop reliable and widely accepted qualitative and quantitative metrics for measuring:

- (i) the efficacy of Earth observation capacity building programs and
- (ii) The implementation of GEO capacity building strategy.

The development of these metrics will require the engagement of the entire GEO community to ensure buy-in.

In support of this task the Committee Co-Chairs (previously C4) and Executive Committee agreed for questions related to capacity building be included in the task sheet (appendix 1), but stipulated that they should not be overly burdensome.

As an answer to this recommendation, task leaders began provide information on Capacity Building activity within their tasks on the tasks sheets as an answer to the two questions on CB:

- i. In accordance with the above definition does this Task have a capacity-building component? If so, please provide a short description of this component including a description of end users.
- ii. Have any additional CB needs for this Task been identified? Please provide a short description.

The information provided by GEO task leaders on CB component within their tasks is the raw materials that was analysed in order to define what kind of indicators can be deduced from this information in order to assess the progress of achievement of CBC strategic objectives.

4. Methodological approach

For the achievement of this task, the PI task team decide to proceed through an iterative process (figure 1):

1. The first step of this process consists of analysing information provided on CB activity on each task sheet and reported them on the framework developed for this aims (figure 2) to quantify Indicators.
2. Trough the cross analysis of these indicators and CBC strategic objectives, we tried to assess progress on the achievement of CBC' strategic Objectives.
3. Based on lessons learnt from the first phase of analysis, improvements in the way the questions are asked in the task sheets may be proposed to ensure more accurate and detailed information is received.

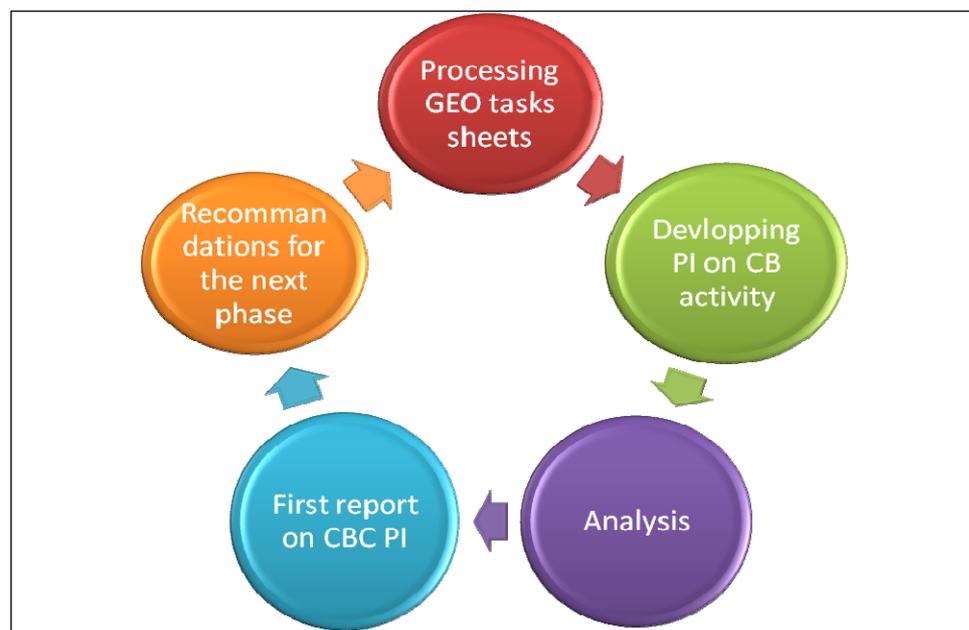


Figure 1: Performance Indicators tasks Process

To achieve this, an action plan has been developed by the task team consisting in:

- i. Developing a framework to synthesize information contained in the CB task sheets (sheet1),
- ii. Analyzing the 119 sheets of GEO tasks and carrying information on the IP[define] framework,
- iii. Compilation of information and development of graphics performance indicators,
- iv. Analysis of the information extracted related to the objectives of the CBC
- v. Synthesis of this analysis,
- vi. Recommendations on the second phase of the task performance indicator,
- vii. Preparation of a report on Performance Indicators GEO / CB

	A	B	C		D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	
			CB reported task	need	component	know how transfer	Data acquisition and transfer	Technology transfer	conferences, seminars, workshops	e-learning	Training	public awareness raising	organizational structures	policies, program,	Africa	Asia	Latin America	Eastern europe	All	Individual Level	Institutional Level	Infrastructure Level	
1																							
2		GEO TASK NAME																					
3	Agriculture	AG-06-02: Data Utilization in Fisheries and Aquaculture																					
4		AG-07-03a: Global Agricultural Monitoring System		1				1	1					1	1	1				1			
5		AG-07-03b: Agricultural Risk Management	1		1						1				1	1	1				1	1	
6		AG-07-03c: Expanding Earth Observation Applications in Agriculture and Promoting Capacity Building in Developing Countries	1	1	1				1	1					1	1	1				1	1	1
7		AR-06-1f: Radio Frequency Protection																					
8		AR-09-01A: Enabling Deployment of a GEOSS Architecture		1	1		1													1	1		
9		AR-09-01B: GEOSS Architecture Implementation Pilot																					
10		AR-09-01C: GEOSS Best Practices Registry		1	1															1		1	
11		AR-09-01D: Ontology and Taxonomy Development		1					1											1	1		
12		AR-09-02A: Virtual Constellations		1		1														1		1	
13		AR-09-02B: WIS	1								1				1	1	1			1	1		

Figure2: the framework used to quantify the PI

5. Description of the Performance indicators

Capacity Building information provided on GEO task sheets vary considerably from one task to another but remains generally confined to qualitative information rather than quantitative.

Several set of indicators should be developed to assess the progress on achieving CBC's Objectives. However, considering the information provided on CB activity, we limited ourselves to the following indicators because of their clarity, measurability and relevance.

The processing of the 120 GEO tasks sheets allows measuring these indicators.

	title	Definition	Measurement
PI 1	CB within GEO	Determine the GEO tasks with CB component (provide or needed)	Ratio of GEO task with CB activities planned or needed.
PI 2	CB activity within GEO committee	Gives an idea about CB for each GEO committee	Number of task with CB component for each committee;
PI 3	Target area Distribution:	Gives an idea about how CB activities are distributed in the developing countries.	Ratio of the tasks with CB component for each area (Africa, Asia, Latin America and Eastern Europe)
PI 4	Participation of DC to GEO tasks	Gives an idea on those GEO tasks that involves actively DC.	Ratio of the tasks that involves actively at least one DC representing
PI 5	CB approach and instruments	Inform about the approach and tools used for CB.	Ratio of tasks with using a specific approach/instrument for CB.
PI 6	CB within SBA	Inform on GEO task with CB component for each SBA	Number of tasks with CB component for each SBA

6. Analysis

a. CB activity within GEO task

The percentage of GEO tasks capacity-building component is about 86% which inform about the interest given to Capacity Building in GEO.

This graph also shows the dynamic of GEO committees in the initiation of CB activities (44%) and the synergy that may rise from this dynamic which can give an idea about the progress of CBC's objective 1.

However, it should be noted the lack of quantitative information (how many people, what tools, what country, etc.) on capacity building activity reported in GEO task sheets.

The need of communication about this tasks and its important role for setting GEOSS beside the task leaders seems priority action to do for this tasks.

In increasing awareness of the importance of the task, presentations were given to the GEO community at the May 2009 Work Symposium in Pretoria and at the November 2010 Ministerial Summit in Beijing.

It is hoped that these presentations and this report will increase awareness and motivate task leads to start populating information on their activities more accurately in the task sheets.

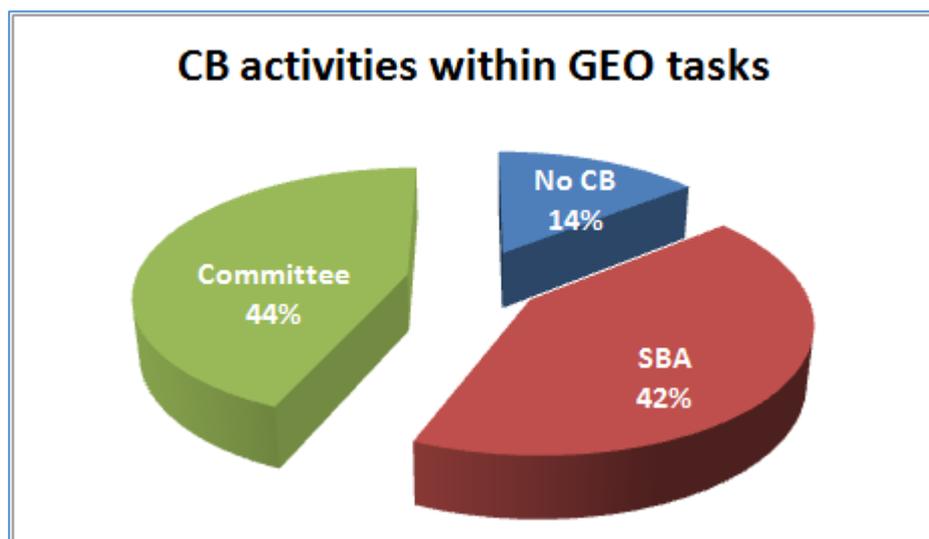


Chart 1: CB activities within GEO tasks

b. Good progress on Objective 3 of CBC strategy

Objective 3 of CBC strategy aims to enhance access to data and information, especially on a real-time and near real-time basis and encourage information and infrastructure sharing. The achievement of this objective seems to be linked to the progress of Data Sharing principles and architecture committee's tasks.

The chart n°2 shows the number of tasks initiated by each GEO committee with CB component. We can see that Data sharing principle and Architecture initiate more than 29 Tasks all of them with CB component.

In the next phase of PI tasks, the progress within each task and information can inform about the evolution of these objective.

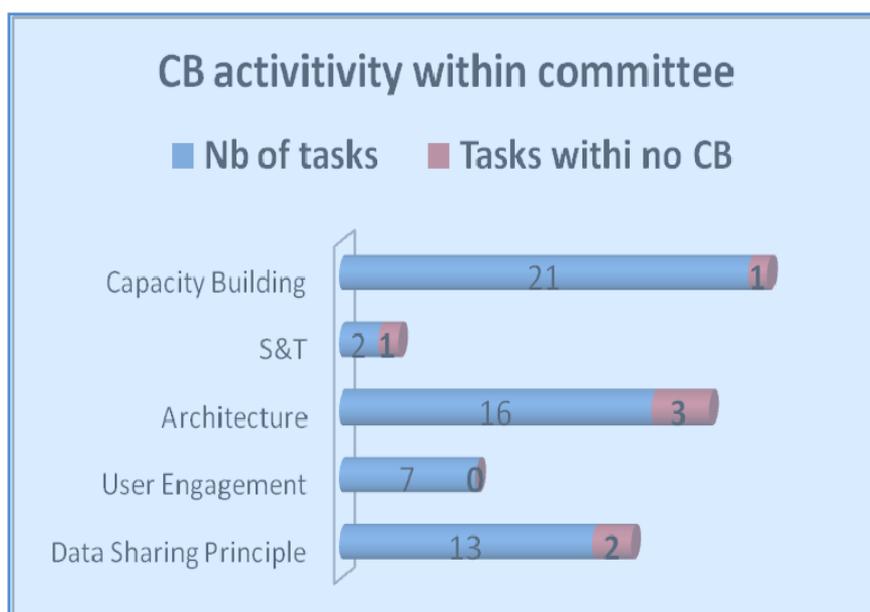


Chart 2: CB activities initiated by GEO Committees

c. Balanced CB target the distribution area.

The geographical distribution of the target area by the CB activity seems to be balanced considering the needs of this type of activity in each region.

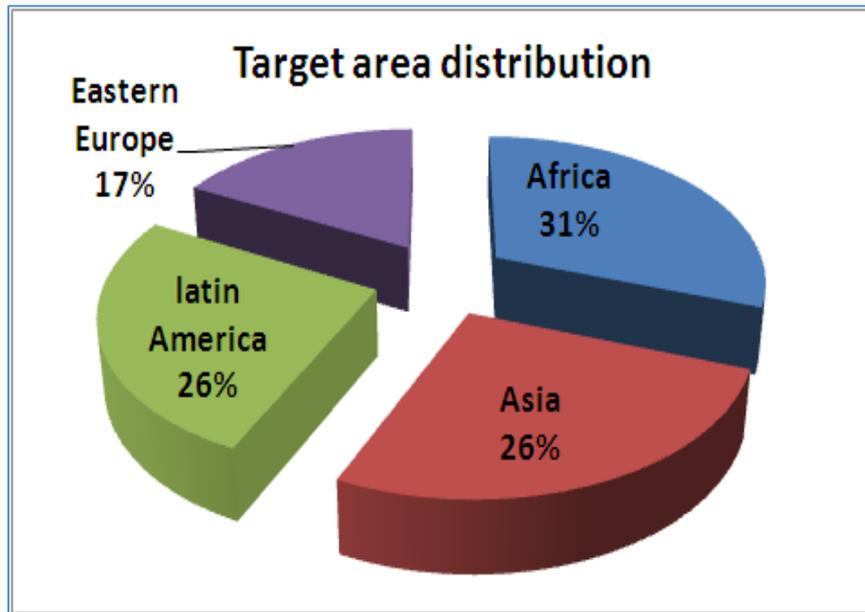


Chart 3: CB activities by Target area

d. Weak involvement of Developing Country in CB

The chart n°4 shows the tasks with CB component (red) where there is at least one contributors from the targeted Area (Asia, Africa, Latin America or Eastern Europe).

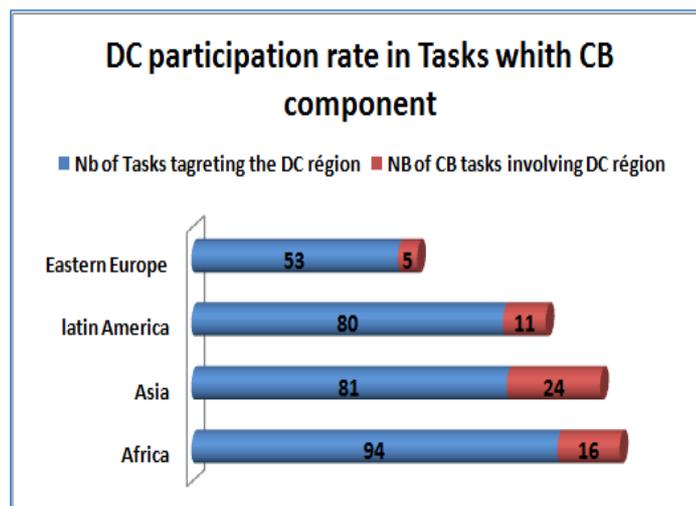


Chart 4: Participation of DC in the tasks targeting their area

This chart shows that the average rate of Developing countries contributing to GEO's tasks that targeted their area remains very weak. This rate varies from a region to another. The Asian countries are the most involved in tasks (30%), the Latin America (26%), and then the Africa (14%).

Considering the CBC strategic objectives n°2 that aims to Encourage and enable developing countries to identify and address their capacity building needs to access, use and produce Earth observation data and products on a sustainable basis we can conclude from this indicator **the weak progress in the achievement of this CBC strategic objectives and the urgent needs for more involvement of Developing countries in GEO tasks, especially with Cb component.**

e. Institutional CB activity still weak within the GEO

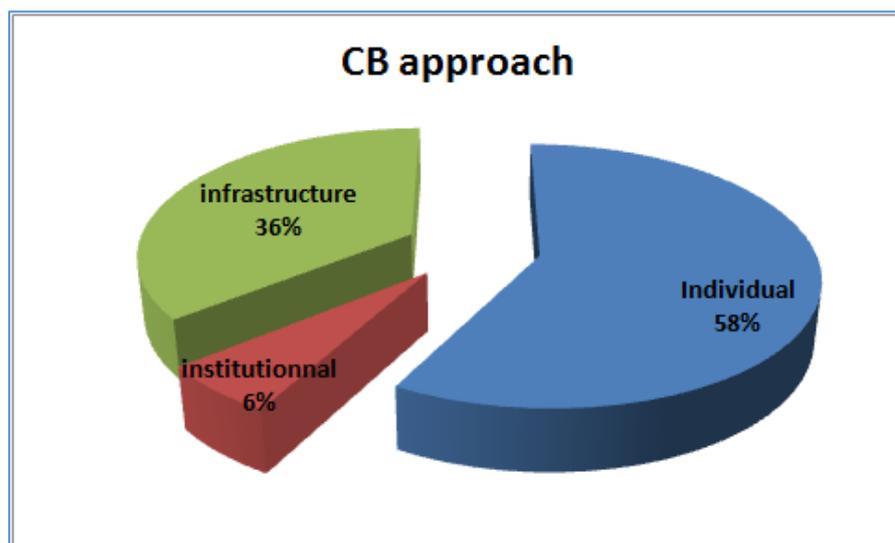


Chart5: rate of CB approach

The most CB activity within GEO task will be primarily achieved at the individual level by means of workshops, seminars, and training.

Few GEO tasks deals with Institutional CB and urgent the needs of initiating CB at the institutional level.

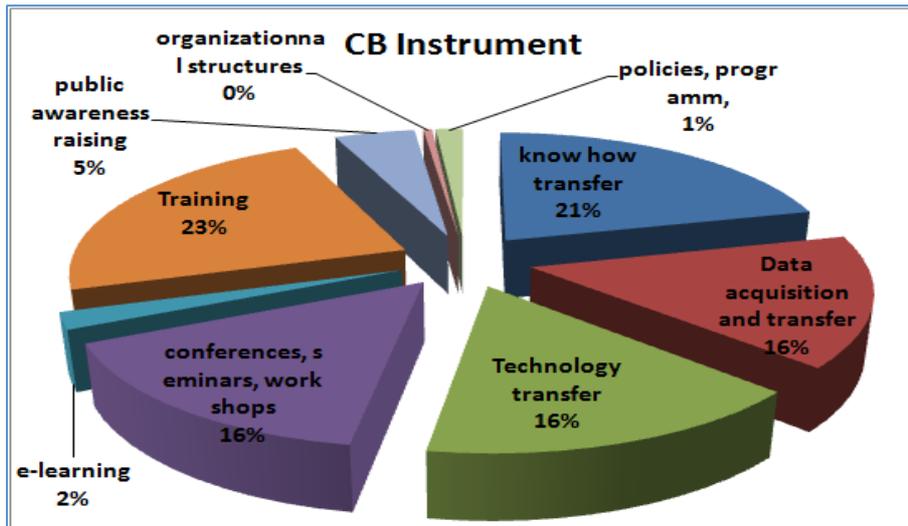


Chart 6 : rate of CB approach

The chart of the CB instrument, shows that the e- learning remains the least used tool of CB compared with the other instruments.

The use of Organizational, Policies and programmes instrument for Capacity Building implementation remains weak considering their important role to encourage and enable developing countries to identify and address their capacity building needs and therefore the achievement of the second goal of GEO CB strategy.

f. More CB activities needed within SBA Tasks

In general the GEO Capacity Building activities initiated within SBAs still remains low given the 4th strategic objective of CBC that aims to prioritize the inclusion of capacity building as a component of all GEO societal benefit and transverse areas.

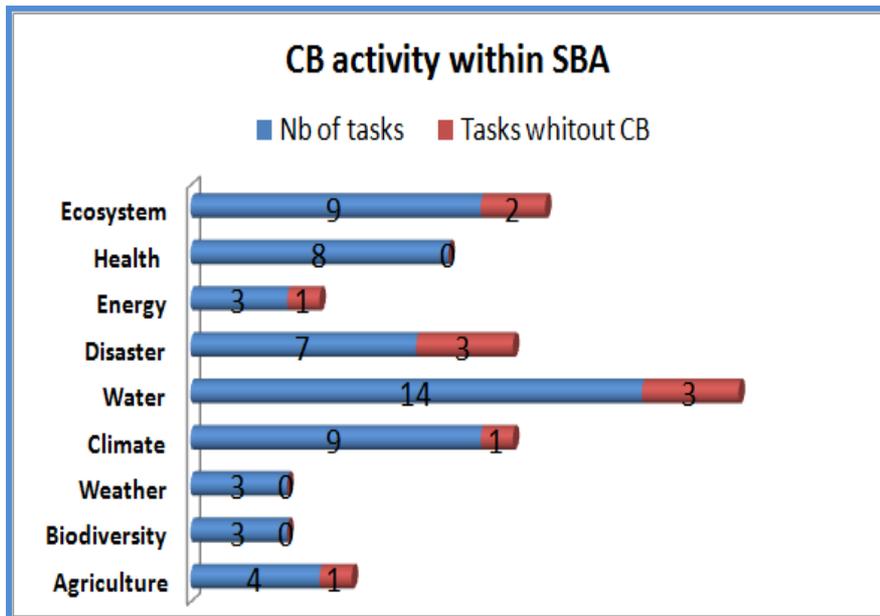
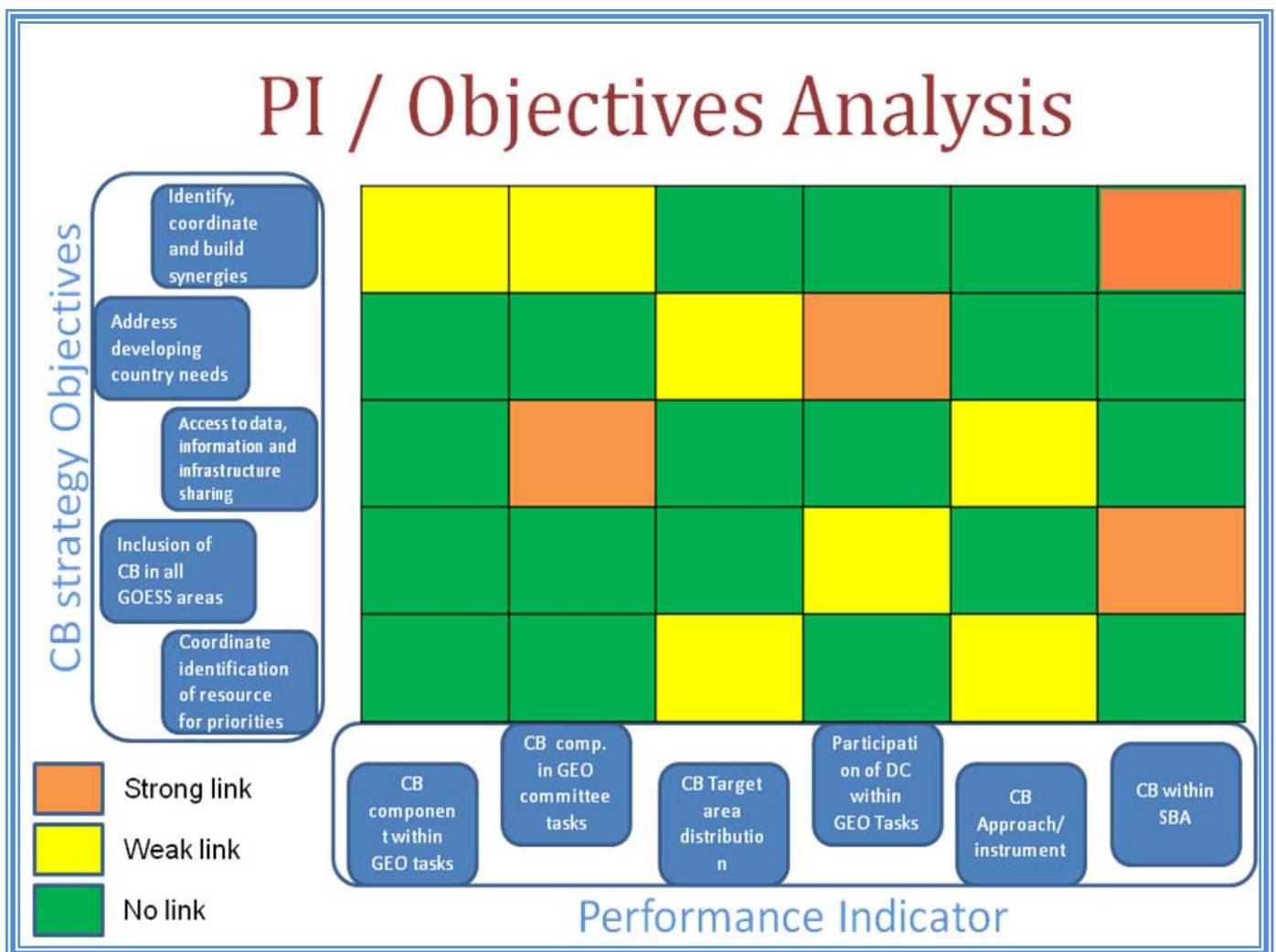


Chart 7 : CB activities within SBA

There is few tasks with CB component initiated in Energy, Weather and Biodiversity SBA seems. Considering for example the work done by WMO in strengthening capacities all around the role, we can conclude the work on **synergy and coordination that GEO/CBC should provide in order to make a progress on strategic objectives n°1.**

The cross analysis between the sixth indicators and the objectives of CBC strategy shows (figure below) :

- ❖ For the objectives 2, 3 and 4 strong linkage exist between with some indicators and the assessment of their progress can be informed using these indicators keeping in mind that the conclusion remains qualitative due the preliminary information provided in the Task sheet,
- ❖ The first Objective can be informed from some indicators.
- ❖ The fifth objective can't be informed using this set of indicators.



8. Synthesis

Considering the PI analysis and the PI/ CBC objectives, we can conclude the following:

- ✓ Although there is an important effort of CB within GEO tasks, there is a need of coordination between activities in some SBA (weather, energy and biodiversity).
- ✓ Developing countries especially from African and Eastern Europe region should be actively involved in order to achieve the 2nd objective of CBC's strategy.
- ✓ There is a good progress on the objectives 3 relative to access to data information and infrastructure sharing considering the number of tasks with CB component initiated by Data sharing and architecture Committee.
- ✓ There is a need on CB in some SBA activities (Weather, Biodiversity and Energy) to achieve good progress on the objectives 4 of CBS strategy.
- ✓ The assessment of the objectives n°5 can't be informed using this set of PI.
- ✓ The institutional CB approach remains very weak considering the number of tasks that use this approach for CB implementation.

9. Conclusions and Recommendations for the second Phase of PI tasks

Considering the quantity and quality of information on CB activity reported in the GEO task sheet, the CB-09-04-b task team succeeded to provide relevant information on capacity building activities within GEO tasks using six Performance Indicators.

Through PI/objectives analysis, this activity allowed to build up a pretty good idea on the progress of CBC strategic objective and to draw important conclusions about the involvement of developing countries in GEO programs and the need of more synergy and coordination to strengthen capacity in the SBA.

This first phase of this task has also shown interest to set up a system for measuring performance for CBC activities and carry out with recommendations on how to continue this task in the future.

10. Recommendations for the PI tasks in the Work plan 2012-2015

As the implementation of GEOSS is on the road, the need to measure more accurately the progress of CBC's activities felt more and more pressing for the 2012-2015 Work plan.

To achieve this, the quantification of CBC outcomes should be performed for the 2012-2015 and a set of SMART performance indicators (Specific, Measurable, Achievable, realistic, and Time-bound) should be defined.

Tasks leaders must provide regularly quantitative and qualitative information on the CB component in their tasks so that this set of PI can be informed.

An update on the framework of CB activity reporting should be done for the task sheet so that the task sheet processing can be performed automatically. With this in regard communication and awareness of performance indicators task should be fostered. The wide distribution of this report and is highly recommended.

Considering the new GEO structure proposed for the work plan 2012-2015, and in the case its adoption by plenary we propose that this task continues in the form of a new cross task (C3) that should be added to the ID 02 (Institutional and Individual CB) which mandate will be :

“Develop qualitative and quantitative Performance Indicators for measuring the efficacy of institutional and individual capacity building programs and the progress of achievement of CB outcomes in coordination with other tasks that deals with the same objectives.”