



GROUP ON
EARTH OBSERVATIONS

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Report of the Capacity Building Committee

Document 14

For information.

Report of the Capacity Building Committee (CBC)

1 MEMBERSHIP

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

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 Organisations: 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 CAPACITY BUILDING COMMITTEE'S PRINCIPLES

The Capacity Building Committee (CBC) principles come from the CBC Strategy developed in 2006 and adopted by Plenary in 2007. The guiding principles are:

- Build on existing efforts and best practices;
- Focus on user needs;
- Foster collaboration and partnership;
- Have a holistic view! I³, End-to-End (E2E) in all SBAs, at the global, regional and local levels;
- Enhance the sustainability of Earth observation capacity building efforts.

3 MAIN ACTIVITIES: 2009-2010

3.1 Committee Meetings

3.1.1 11th CBC Meeting – Enschede, Netherlands

The Capacity Building Committee (CBC) held its 11th Meeting on 21 and 22 January 2010 in Enschede, The Netherlands, at the invitation of the Faculty of Geo-Information Science and Earth Observation (ITC) of the University of Twente.

The meeting focused on the Committee's plans for the 2010 Ministerial Summit, including ideas for a CBC booth at the GEO-VII Exhibition and a short video with personal testimonials about how GEOSS concretely assists people in the developing world.

It was decided that the Committee's proposed showcase for the Ministerial would be built around the use of GEONETCast and other information delivery systems such as CBERS and SERVIR. The main idea is to demonstrate that GEO initiatives provide the means by which data and information are transferred from providers to users, who then either use the information directly or build it into applications in order to provide services.

The meeting also reviewed the implementation of capacity-building tasks and provided an opportunity for participants to share information on Earth observation activities in their respective regions and organizations. The USA reported that two SERVIR nodes are operational in Panama and Kenya. The Central American node responded to more than 37 extreme events during the last two and a half years, including providing a very quick response to the recent Haiti earthquake. The African node is providing ecosystem maps, risk assessment maps and other products that have been developed with the Nairobi-based Regional Center for Mapping of Resources for Development (RCMRD) and other partners, such as the US Geological Survey.

Brazil presented an overview of the new regional center of Brazil's National Institute for Space Research (INPE), which has been established in Belém in the Amazon region. The center aims to become a world reference in the monitoring of tropical forests. Cooperation agreements have been signed with France's IRD (research institute for development), the Japan 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). The first four-week course on tropical forest monitoring is scheduled to be held in Belém in July 2010 for Spanish-speaking students and in November 2010 for English-speaking students.

3.1.2 12th CBC Meeting – Pretoria, South Africa (co-located and GEO Symposium)

The Capacity Building Committee (CBC) held its 12th Meeting on 20 May 2010 in Pretoria, South Africa, with 27 participants from 16 GEO Members and Participating Organizations attending this meeting. CBC reviewed the main outcomes of the Work Plan Symposium and discussed plans for the 2010 Ministerial Summit, including ideas for a capacity-building exhibit and showcase.

The Committee's proposed showcase for the Ministerial will be a 3-5 minute movie promoting the importance of capacity building for GEO and the benefits it brings to society, in particular in developing countries. It will feature storylines centred on how people reap benefits from new information chains that empower local players (authorities and citizens) to address local issues. The video script will focus on food security and crop monitoring, showing the full information chain (data assembled and analysed to produce ready-to-use information) in developing countries in the three regions of South America, Africa and Asia.

3.2 Implementation of the 2011 Work Plan

With respect to the revision of the 2011 Work Plan, the CBC examined each Task in order to decide whether the task should continue and what is actually needed for its implementation next year. The CBC recommended that all tasks should continue in 2011. Tasks were also presented at the work plan symposium.

Summary of points discussed under each of the tasks and of the progress reported:

3.2.1 CB-09-01 Resource Mobilisation

Work Plan: More help and more awareness is needed. A supplementary co-lead has volunteered (South Africa). Increased awareness will come through GEONETCab and increased support is hoped for following the UIC-CBC Call for Proposals.

Progress: The inventory of existing capacity (individual, infrastructure & institutional) in earth observation is to be finalized by October 2010; the report on opportunities and bottlenecks by December 2010. The prototype toolkit for awareness raising and dissemination should be ready by the Beijing Ministerial Summit. GEONETCab will contribute to this. A co-task lead has volunteered from South Africa.

3.2.2 *CB-09-02 Building Individuals*

Work Plan: Sub-task CB-09-02d "CBERS/GEO Capacity Building Network" should be merged into CB-09-05e – "Data democracy".

Progress:

- Progress should be noted in bringing together providers, experts and professionals in earth observation and geo-information sciences, to exchange knowledge and exchange of education products and materials across borders and continents;
- The 2010 ISPRS COM VI Symposium was held in June 2010 at ITC (Netherlands) and attended by 100 experts from Europe, Asia, Africa, America (report to be available at www.itc.nl);
- Lack of funding has hindered the implementation of remote-sensing applications using CBERS images; one student from Mozambique was accepted for a Masters Degree at INPE's Remote Sensing Postgraduate Program with fellowship provided by Brazilian Government;
- INPE's new regional centre has been established in Belém in the Amazon region, aiming at becoming a world reference in the monitoring of tropical forests; the first 4-week course on tropical forest monitoring will be held in July 2010 for Spanish-speaking students and in November 2010 for English-speaking students;
- The GEONETCast Training Channel is now operational over Europe, Africa and the Americas; the Asian capability is to come online this year. However it is currently under-used. Task Leads emphasized the need for input and cooperation from the GEO community to determine requirements, users and data for broadcast;
- ITC (Netherlands) in partnership with DevCoCast project provided training and capacity building opportunities to potential users in Africa and Latin America. ITC has also helped set up a GEONETCast receiver in Nairobi, Kenya;
- In Brazil, INPE is leading distance learning opportunities for the use of GEONETCast stations and data across Latin America. The latest virtual workshop was held from 3 to 7 May 2010.

3.2.3 *CB-09-03: Institutions*

Work Plan: Possible revision of the OAT description to bring it into line with the provisional CB Strategic Roadmap. The overarching description of Institutional Capacity to use Earth Observations (CB-09-03) should be revised to better align with the GEO Capacity Building Strategic Roadmap

Progress:

- A new co-lead (Peter Zeil, Austria) joined the sub-task CB-09-03a "Building National and Regional Capacity";
- Training events on "risk and vulnerability assessment" and "biodiversity and disaster management" are scheduled for 2010 and 2011;
- There is a need for more aggressive outreach towards policy and decision makers; for example, participation at Eye on the Earth Summit, Abu Dhabi, December 2010, could be considered;
- The interoperability of the GEONETCast Tool Box with Envisat Data Dissemination System and Fengyun data is now ensured. The Toolbox new version is expected to be launched in June 2010. Demonstrations and hands-on training on the use of the toolbox were scheduled at

the AARSE 2010 post-conference two-weeks refreshers course (01-12 November in Addis Ababa, Ethiopia) and in other countries including Brazil, Argentina, Kenya and Thailand;

- A global operational oceanography network was established with partners from Denmark, IOC/GOOS, China, France, Germany, South Korea, Chile, Norway, South Africa and the US. Several regional operational oceanography demonstration projects are also ongoing (W. Pacific forecasting system; Chile-EU-USA cooperation on LA West Coast/shelf prediction system; South Africa-Norway initiative - OceanSAfrica). Users meetings were organized in China and South Korea;
- Following the EC's Call for Proposals for the identification and networking of EO activities in the Balkan area, two projects were selected for funding earlier this year and are currently negotiating contracts. It is expected that these projects (OBSERVE and BALKANGEONET) which will cluster some of their activities, will carry out a comprehensive review and gap analysis of the needs, potential and prospective contribution of the Southeast European region to GEO. They will make a contribution to relevant GEO 2009-2011 Work Plan tasks including CB-09-03 b.

3.2.4 CB-09-04 Needs and Gap Assessment

Work Plan: Possible revision of the OAT description needed to bring it into line with the CBC Strategic Roadmap. Austria, Brazil, Cameroon, the USA and the IEEE volunteered to assist. The Timeline on performance indicators (CB-09-04b) will be followed.

Progress:

- The European FP7 GEONetCab project was launched in January 2010 (Enschede, Netherlands). A dissemination toolkit should become available in 2010 (brochure, poster and an e-book of success stories) and 2011 (road show for investors, and a manual for successful brokerage);
- “Capacity Building Performance Indicators” is now under the leadership of the Centre National de Recherches Météorologiques/DMN (Morocco); the action plan is defined and a report with indicators of capacity building activities in the GEO Work Plan is in preparation (to be ready before the Summit). Recent outputs include capacity building indicators compiled from 119 task sheets of the GEO Work Plan.

3.2.5 CB-09-05 Infrastructure

Work Plan: CB09-05a (Open Source Software) to be merged into CB-09-05-e ("Data democracy") which will be lead by CEOS and INPE. Tasks from Individual capacities (CBERS/GEO Capacity Building Network) to be incorporated. Existing infrastructures like SERVIR to be expanded and GCI registration increased

Progress:

- New versions of TerraView, SPRING and other software will be issued in 2010 (all will be registered in the GCI);
- Progress was reported in establishing and upgrading ground stations in Africa to receive, process, store and distribute CBERS imagery. Recent achievements: Hartebeeshoek fully operational; Maspalomas image catalogue working (but still not public); first tests in Aswan, Egypt; agreements signed with Gabon and contacts with Kenya/Italy. CBERS2B operations ended in April 2010;

- The SERVIR nodes in Central America & Eastern Africa are operational. The Central American node responded to more than 40 extreme events during the last two and a half years. The Eastern African node developed ecosystem maps, risk assessment maps and other products. A Himalayan node is under development;
- AEGOS mid-term achievements include the analysis of existing situation and best practices and first test of GEONETCast-based broadcasting of geoscience data;
- “Data Democracy” initiative, launched by CEOS (Committee on Earth Observation Satellites) in 2008, became a GEO Task, within the Work Plan (CB-09-05e), in 2009. Some achievements include: Seminar and users needs assessments were held in Asia. A GCI components registration effort is ongoing e.g. face-to-face training held during the 2010 Work Plan Symposium. A Data Democracy Portal is to be developed in 2010;

3.2.6 *CB-10-01 Outreach and awareness:*

Work Plan: More help is being sought for the "EO Game for Youth" and articles are being sought for the "Earthzine" magazine.

Progress:

- Phase 1 of the “EO game for Youth” was concluded with 37 entries from countries such as Cuba, Netherlands, Turkey, US. There is a need to find advisors to work with teenagers;
- Earthzine published 69 original articles and 8 interviews in 2009, covering the nine Societal Benefit Areas. A first international student essay and blogging contest was launched. The number of hits has quadrupled attaining an international audience of approximately 4000 readers per month in more than 100 countries;
- 30 user-oriented workshops were conducted since 2005 with another 5 planned for 2010 (program available at http://www.earthobservations.org/meetings/meet_wss.html);
- Several Atlases of Our Changing Environment were published, including the Uganda Atlas delivered during the AfricaGIS 2009. 2010 deliverables include the Atlas of water resources for Africa; and regional atlases for the Arab states, Europe, and Latin America & the Caribbean.

The CBC is preparing a road map for the long term. Changes of leadership may be required for inactive tasks.

3.3 The 2012-2015 Work Plan

In order to come to a common view on the structure of the 2012-2015 Work plan, the CBC will continue to develop the CB Strategic Roadmap. As a part of this exercise the GEO Secretariat has mapped CB tasks to other Overarching Tasks (OATS). This exercise could be useful for other parts of the Work Plan. The CBC recognised that it is critical to develop better communication and co-ordination to ensure the implementation of effective cross-cutting links between all OATs, sub-tasks and all committee activities.

The CBC is also reflecting on benefits of a revised structure for the 2012-2015 Work Plan. Including for example the grouping of sub-tasks into conceptual themes such as summer schools, training networks etc.

3.4 GEO Call for proposal

The call for proposals (CFP) was targeted at projects applying Earth Observations to improve policy and management decisions. The CFP also sought to identify and enable practical applications of Earth

Observation. The Call was focussed on four topics – Agriculture, Energy, Health and Water and there is a strong focus on developing countries and supporting end-users.

The deadline for the receipt of proposals was the 15 May 2010. 72 proposals were received (54% Water, 25% agriculture, 18% health and 3% energy). An eight-person co-ordination team is working alongside the Secretariat and the formation of review teams is nearing completion. The results will be announced on the 1st October and published on the GEO website. 45% of the proposals are projects from organisations with only limited or no experience (so-called type I), 46 % are from organisations with some experience (Type II) and the remaining 9% from organisations having already successfully applied Earth Observations (Type III).

The coordination team for the Call for Participation is in place, comprised of representatives from CBC, UIC and Secretariat. The CBC while recognising the significant achievement of the call in attracting these proposals, felt that, in future, in the absence of direct funding from GEO, a better terminology for such calls would be "call for participation". The Committee agreed that the GEO community faces a challenge in order to find the resources to match the expectations of the applicants which have been raised by the CFP. The applicants need to be supported in their engagement with possible donors and projects selected which can easily be supported. The CBC agreed that steps could be taken at this stage to start the brokerage process. Abstracts of proposals would be made available online and CBC participants encouraged to approach resource providing organisations and GEO members encouraged to propose potential resources providers to the coordination team. At the end of the review process, there would be a database with potential projects which would be ready to answer calls for proposals when they are launched. Applicants would be supported in the process of engaging with donors including with technical issues and language barriers. The CFP process will be continued and reinforced.

3.5 CBC Strategic Roadmap

The development of this roadmap is in response to the call made in the Strategic Targets: GEOSS Implementation by 2015 document. It attempts to provide guidance to and define the necessary steps for GEO Members and Participating Organisations to implement in order to meet GEO's capacity building goals and targets by 2015. The roadmap quantifies outcomes that:

- Networking activities that specifically build individual, institutional and infrastructure capacity are carried out through:
 - Geographic expansion of capacity building networks;
 - Thematic expansion of capacity building networks;
 - Joint training activities carried out by at least two thematic (societal benefit) areas.
- Leveraging dedicated resources for Earth observation capacity building efforts.
 - Resources raised for GEO and EO capacity building, : e.g. FP7 funds for GEO;
 - Distinguishing between resources allocated specifically for GEO strategic targets and those for CB activities that are related but not conceived / implemented within GEO, extra budgetary vs regular GEO resources;
 - Progress in implementing the Seville Road Map.
- Uptake of Earth observation in policy and decision making through successful/effective application of GEO in policies and decision-making;
- Enhanced participation of Developing countries in GEO and GEOSS:
 - Estimate of country representatives in GEO meetings;

- Financial ownership and participative analysis of limitations and propositions for way forward;
- Proportion/number of tasks that are effectively led and conceived by a developing / LDC member;

The measuring and monitoring methods for each of these outcomes is to be developed.

3.6 FP7 Projects Supporting GEO CBC

The European Commission's Seventh Framework Programme for Research (FP7) supports a number of projects which create conditions for the improvement and increase of GEO capacity building. These projects are:

- AEGOS (2007) (The African-European Georesource Observation System) will be capable of hosting and providing access to Africa's underground natural resources information. It will strengthen the capacity of those countries to promote and develop the use of georesources in an environmentally-friendly and sustainable manner;
- DevCoCast (2007) (GEONETCast for and by Developing Countries) builds on existing added-value environmental datasets from various sources in Africa, South America and Europe to disseminate earth-observation data and derived environmental information products to a broad user community in developing countries;
- CEOP-AEGIS (2008) aims to construct an observing system to determine how much water is going into seven major rivers of South-East Asia and to monitor snow, vegetation and surface fluxes as a precursor of intense precipitation and improve forecasts of extreme precipitation in the region;
- ENVIROGRIDS (2008) is implementing within the Black Sea hydrological catchment area a case study to test the capacity of integrating large datasets to assess vulnerability and sustainability issues related to freshwater resources at various scales;
- SEOCA (2009) (GEO Capacity Building Initiative in Central Asia) will further strengthen cooperation between Europe and the countries of central Asia in earth observation;
- GEONETCab (2009): The GEO Network for Capacity Building aims to create the conditions to reinforce GEO capacity building activities with particular emphasis on developing countries and new EU-Member States and neighbouring countries. The activities aim at the establishment of sustainable brokerage for earth observation products and services and capacity building initiatives to make sure that these resources are being used;
- OBSERVE (2010), which is due to start by the end of 2010, will collect and compile all the necessary information for producing an integrated analysis of the current state of earth observation activities and networks in the Balkans;
- BalkanGeoNet (2010) aims to identify existing earth-observation data providers and users in the wider Balkan region, to determine their status, potential and needs and to co-ordinate earth-observation players by establishing interfaces and networking between them. BalkanGeoNet and Observe will be working closely together.

3.7 Preparation for the GEO Ministerial Capacity Building Showcase and Exhibition

The Capacity Building showcase is prepared as a short movie of about 8 minutes, in the style of a documentary on capacity building success stories related to food security. The movie is structured in storylines focussed on food security improvements driven by geo-information, where local characters tell their experience in their words, with pop-ups providing views of the GEO capacity building

actions behind, notably GEONETCAST and Data Democracy. The following storylines are envisaged:

- The National Food Supply Agency of Brazil's Ministry of Agriculture contributes to the regularity of food supply and the income of agricultural producers. It supports local producers with bulletins providing information on the main Brazilian crops, including sugarcane, soybean, corn and coffee, using data obtained through GEONETCast. This information is used by local producers for making production, and thus their own incomes, more secure;
- Kenya's Regional Center for Mapping of Resources for Development (RCMRD) obtains data needed for building capacity in agriculture. The data are used to derive a number of indicators for prediction and for improving governance within local communities, which foster the security of food production. The results that have been achieved are also recognized at the political level;
- Water supply and use is a problem for many farming communities in Rajasthan, India. Scientists originating from the local communities support regular training and provision of information to farmers and others on the use of Earth observation to help those same communities to better manage water resources and so boost food-production security.

Concerning the contribution of the Capacity Building Committee to the exhibit, the booth would cover the following: Call for Proposals, Capacity Building success stories, GEONETCast, SERVIR, Data Democracy, AEGOS, and DevCoCast. In addition member countries and organisations have submitted exhibit material.

4 RECOMMENDATIONS TO THE GEO-VII PLENARY

Support for the CFP projects

GEO issued a Call for Proposals (CFP) in February 2009 inviting organizations to propose or participate in projects that apply Earth observations to decision-support activities. This effort to demonstrate the ability of GEO to build capacity for Earth observations is now reaching its critical final stage. The wider engagement of the GEO community in this effort is vital to ensuring its success.

The Capacity Building Committee and the User Interface Committee are co-managing this Call together with GEO Secretariat experts. The Call seeks to promote practical applications of Earth observations for improved decision making and to highlight specific examples of how Earth observations can benefit society. It focuses on projects in four societal benefit areas – Agriculture, Energy, Health and Water – and aims to increase the capabilities of end users, particularly in developing countries.

GEO received 133 concept proposals, from 44 different countries, mostly in the developing world. In response to a first round of review, 66 of the proponents developed and submitted full proposals, with two in the societal benefit area of Energy, 16 in Agriculture, 12 in Health and 36 in Water. The Committee members and the Secretariat organized panels of experts reviewed each of these full proposals and provided feedback to project teams. The final selections were announced in October.

The GEO Committees are now working to broker connections between project teams and resource-providing organizations. The entire GEO community is invited to participate in this effort.