



GROUP ON
EARTH OBSERVATIONS

GEO-VI

17-18 November 2009

GEOSS Monitoring and Evaluation

Document 13

As accepted at GEO-VI

GEOSS Monitoring and Evaluation

1 INTRODUCTION

At GEO V, the Plenary agreed to establish the Monitoring and Evaluation Working Group (M&E WG) and to task the Executive Committee with defining the Terms of Reference and moving the process forward.

The M&E Working Group was established, it has today 26 components, representing fifteen GEO Members and two Participating Organizations, with three Co-Chairs appointed by Canada, Greece and USA respectively. The composition of the M&E WG is reported in [Annex 1](#).

The Working Group held its first meeting in Geneva on 26-27 March 2009 and, as a result of the meeting, three documents were generated (the proposed Terms of Reference for the WG, the Draft GEOSS Monitoring and Evaluation Framework Document and an annotated Outline of the Plan for the First Evaluation of GEOSS).

The Executive Committee, during its 15th meeting, approved with some modifications the Terms of Reference and provided comments to the other two draft documents. (the approved Terms of Reference for the M&E Working Group have been added to the amended Rules of Procedures, doc 22 for GEO-VI)

The Working Group held its second meeting in Geneva on 22-24 July 2009 to finalize the documents and the plans to be reviewed by the Executive Committee and approved by GEO-VI. The Co-Chairs actively interacted with the Secretariat to review and improve the format and the functions of the tools at the basis of the monitoring function, such as progress reports and task sheets.

At this meeting, the M&E Working Group,:

- reviewed the “GEOSS Monitoring and Evaluation framework Document”, incorporating Executive Committee remarks,
- issued the “GEOSS Summary Plan for the First Evaluation”,
- defined a strategy to recruit the Evaluation Team for the first evaluation;
- defined a plan of actions and associated timeline to ensure that the mid-term assessment will be performed in time for its submission to the 2010 Ministerial Summit.

The Executive Committee, during its 16th meeting, endorsed the documents and the plans proposed by the Working Group for their presentation to GEO-VI.

The Executive Committee authorized the recruitment of the Evaluation Team for the First Evaluation, in order to have it in place just after GEO-VI. The GEO Secretariat has therefore sent a letter to GEO principals on October 6, 2009 to ask for nominations.

2 M&E WORKING GROUP PROPOSALS

The overall approach to GEOSS Monitoring and Evaluation, as well as the related organization and the key actors to involve, is contained in the “GEOSS Monitoring and Evaluation framework Document”, reported in [Annex 2](#));

The document constitutes the reference for the definition of objectives and plans for the subsequent evaluations that will start with the “mid-term assessment” in 2010 and continue until the final assessment in 2015.

The Working Group has also developed a “GEOSS Summary Plan for the First Evaluation” (reported in [Annex 3](#)) that identifies the objectives and the associated planning to perform the first evaluation

that will constitute the above mentioned “mid-term assessment”, requested in the Ministerial Declaration from the Cape Town Earth Observation Summit.

The strategy to recruit the Evaluation Team for the first evaluation, already activated, and a timeline to ensure that the mid-term assessment will be performed in time for its submission to the 2010 Ministerial Summit are described in chapters 5 and 6, respectively.

3 PROPOSED MONITORING AND EVALUATION APPROACH

This chapter gives a short summary of the content of the “GEOSS Monitoring and Evaluation Framework Document”.

3.1 M&E Organization and key actors

To accomplish the monitoring and evaluation of GEOSS implementation, it is proposed to establish the following mechanism.

The M&E Working Group, according to its Terms of Reference, will be responsible for design and coordination of the M&E process, for providing general oversight over the execution of M&E and will ensure Interface to the GEO Executive Committee.

The Secretariat will perform the monitoring of the progress of GEOSS implementation by relying on existing GEO processes and mechanisms as improved upon by the recommendations provided by the M&E WG.

An Evaluation Team newly appointed for each evaluation, will perform evaluations of the GEOSS implementation, in accordance with the summary plan for each evaluation, as defined by the M&E WG and approved by GEO Plenary.

The Plenary is the body that will direct the activities of the M&E WG. The GEO Plenary will approve the M&E products or return them to the M&E WG with directions for additional action(s).

The Executive Committee will be the interface between the GEO Plenary and the M&E WG. It will receive the M&E products, coordinate response to the recommendations of the Evaluation Team and present them to the GEO Plenary.

The Evaluation Team will engage the user community, as the intended beneficiaries of the GEOSS implementation.

3.2 Monitoring

The purpose of monitoring is to track the progress of the completion of the tasks in the GEO Work Plan, and to measure overall organizational progress in terms of “performance indicators” developed by the M&E WG. Monitoring will be conducted on an ongoing and systematic basis to coincide with the GEO Work Plan reporting process established by the GEO Secretariat.

The M&E WG will ensure that Progress Reports will contain progress “figures” directly usable for the Evaluations, by addressing the above “performance indicators” developed by the M&E WG.

3.3 Evaluation

The purpose of the evaluation is to inform improvement of GEOSS implementation by conducting the assessment of the progress towards achieving GEOSS strategic targets, including intended outputs and outcomes of the specific Task activities and taking also account of other contributing activities that are not included in the GEO Work Plan, but are attributable, at least in part, to the implementation of GEOSS.

Data collection and analysis for each evaluation will be conducted by the Evaluation Team that will develop a Detailed Evaluation Plan and will develop and use various tools, in compliance with the Summary Plan for each evaluation developed by the M&E WG.

Sources for data collection are identified in chapter 3.2 of the Document.

The M&E WG, recognizing the requirement to complete the first evaluation of the GEOSS implementation in time for the GEO Summit in 2010 and recognizing the need to conduct the evaluation within the GEO perimeter with limited voluntarily contributed resources, proposes a phased implementation of subsequent evaluations, as follows:

- The first one, the “mid-term assessment” to be presented to 2010 GEO Summit;
- A number of “interim” evaluations, one per year from 2011 to 2014, each one dealing with a limited number of GEOSS SBA’s and “transverse areas”;
- A final evaluation in 2015, addressing all GEOSS implementation aspects.

3.4 Evaluation team

The Evaluation Team will execute the evaluation processes. Members of the Evaluation Team will need:

- Expertise in evaluation process;
- Adequate understanding of the nature of GEOSS, including the SBAs, Strategic Targets and the activities planned to implement GEOSS;
- Not be current task leads and/or heads of Committees.

4 SUMMARY PLAN FOR THE FIRST EVALUATION

This chapter gives a short summary of the content of the “GEOSS Summary Plan for the First Evaluation”.

The primary purpose of the Summary Evaluation Plan is to serve as guidance from the M&EWG to the Evaluation Team which will conduct the actual evaluation.

After the definition of the purpose of the evaluation, here included the expected audience/users of the evaluation report and the expected use of its findings, the document recalls the activities to be evaluated and details the scope of the first evaluation. It starts from what was requested by the Cape Town declaration and introduces the GEOSS Strategic Targets for 2015 as the key reference the evaluation, especially with respect to clarifying the intended priorities and outcomes for GEOSS.

Chapter 5 defines the “Evaluation Matrix” that will be applied to each of the priorities derived from the statements of the Cape Town declaration in terms of questions, criteria and indicators.

The Matrix identifies, for each proposed evaluation question, what should be observed (evaluation criteria) and what information is required to support these observations.

Chapter 6 defines the key provisions for data collection and analysis, as well as the data sources that the Evaluation Team will use, ranging from GEO documents to surveys, interviews and case studies.

Chapter 5 and 6 constitute the key inputs for the Evaluation Team to develop the detailed evaluation work plan, the associated tools and each of the actual evaluation activities.

Chapter 7a defines the respective roles and responsibilities of the M&E WG and of the Evaluation Team for evaluation planning, implementation and presentation of the report. It also includes what type of support to be provided by the GEO Secretariat.

Chapter 7b identifies the proposed timeline for the submission by the Evaluation Team to the M&E WG of the different documents/reports concerning the first evaluation.

Chapter 7c states that all resources necessary to conduct the evaluation, except the support requested to the Secretariat, will be directly covered by voluntary contributions by GEO Members and Participating Organizations participating to the evaluation process

5 RECRUITMENT STRATEGY FOR THE EVALUATION TEAM

The Monitoring and Evaluation Working Group proposes the following strategy for recruitment of members of Evaluation Team, as the best suited to ensure availability of the Evaluation Report for the 2010 Summit.

- Upon approval of this recruitment strategy by the Executive Committee, the Secretariat will send a call for nominations for members of Evaluation Team, according to proposed desired qualifications for Evaluation Team members:
 - Expertise in evaluation process;
 - Adequate understanding of the nature of GEOSS, including the SBAs, Strategic Targets and the activities planned to implement GEOSS;
 - Not be current GEO task leads and/or GEO Committees Co-Chairs.
- The Members of the M&E Working Group will coordinate the process of nomination of members of Evaluation Team within their own countries/organizations;
- GEO Members and Participating Organizations will submit their nominations to the GEO Secretariat;
- The Secretariat will then request the GEO-VI Plenary, when approving the GEOSS M&E Framework Document and the Summary Plan for the First Evaluation, to endorse the composition of the Evaluation Team;
- The M&E Working Group will appoint the Chairperson of the Evaluation Team from the confirmed nominations;
- The Evaluation Team will elect a deputy chairperson to provide support to the chairperson;
- M&E WG recommends that the total number of Evaluation Team members be set at fifteen (15) members.

Once the GEO-VI Plenary approves the composition of the Evaluation Team, the M&E Working Group will quickly move to organize a joint M&E Working Group and Evaluation Team meeting in early January 2010 to provide orientation about monitoring and evaluation of GEOSS implementation to the Evaluation Team. Immediately following this joint meeting, the Evaluation Team will meet to kick off the evaluation process.

6 KEY MILESTONES FOR EXECUTION OF THE FIRST GEOSS EVALUATION

The following milestones are proposed by the M&E WG based on its understanding of the duration of the evaluation activities and in meeting the proposed logic of interaction among the Evaluation Team, the M&E WG, the GEO Secretariat, Plenary and Executive Committee.

The bulk of the evaluation activities is expected to take place between February and June 2010.

These milestones will be linked to the planning of GEO 2010 activities, mainly concerning Secretariat progress reporting cycles, to provide the most updated information to the Evaluation Team and Executive Committee meetings to ensure proper guidance to the M&E WG.

Documents Finalization & Approval	Date
Call for Membership for Evaluation Team	06 October 2009
Secretariat receives proposals for Evaluation team membership	07 November 2009
GEO-VI approves documents and endorses Evaluation Team composition	18 November 2009
Evaluation Team issues the draft Detailed Plan for the First Evaluation	End January 2010
M&E WG approves the Detailed Plan for the First Evaluation	Mid February 2010
Evaluation Team issues Interim Report on findings	Mid April 2010
Evaluation Team issues Final Evaluation Report to M&E WG	Mid June 2010
M&E WG submits Final Evaluation Report for Executive Committee review and coordinated response to the recommendations of the Evaluation Report	3 weeks prior to Executive Committee summer meeting 2010
Evaluation report + Executive Committee response submission to Plenary and Summit (WG)	End August

7 CONCLUSIONS

The GEO Plenary is asked to approve the proposed approach for GEOSS Monitoring and Evaluation and the GEOSS Summary Plan for the first evaluation, as described in the documents in Annex 2 and 3 and to request GEO Members and Participating Organizations to provide their full support to the execution of the first and subsequent evaluations.

ANNEX 1

MONITORING AND EVALUATION WORKING GROUP COMPOSITION

Co-Chair	Family Name	First Name	Organization/Institution	Representing
	Hipp	Roberto	CONAE	Argentina
	Varotto	Conrado	CONAE	Argentina
	Zillman	John	Bureau of Meteorology	Australia
	Rahman	Mafizur	Department of Civil Engineering, Bangladesh University of Engineering and Technology	Bangladesh
✓	Larlee	Craig	Corporate Management Directorate Environment Canada	Canada
	Korporal	Kenneth D.	Canadian Group on Earth Observations Secretariat	Canada
	Zhang	Xingying	China Meteorological Administration	China
	Zhao	Datong	China Meteorological Administration	China
	Lowson	Robert	European Environmental Agency	EEA
	Pulliainen	Jouini	Finnish Meteorological Institute	Finland
	Pulliainen	Jouni	Finnish Meteorological Institute	Finland
	Vidal-Madjar	Daniel	Ministère de l'Enseignement supérieur et de la Recherche	France
	Koßmann	Meinolf	Deutscher Wetterdienst (DWD)	Germany
	Eleni	Christia	Greek GEO Office, National Observatory of Athens	Greece
✓	Petrakis	Michael	Institute of Environmental Research and Sustainable Development, National Observatory of Athens	Greece
	Dunkel	Zoltán	OMSZ - Hungarian Meteorological Service	Hungary
	Dalla Costa	Maria	ISPRA (Institute for Environmental Protection and Research)	Italy
	Fukasawa	Masao	Japan Agency for Marine-Earth Science and Technology(JAMSTEC)	Japan
	Tanabe	Rio	Ministry of Education, Culture, Sports, Science and Technology (MEXT)	Japan
	Wata Sama	Issoufou	ROSELT	Niger
	Muofhe	Mmboneni	Department of Science and Technology	South Africa
✓	Baker	Charles S.	NOAA	USA
	Gevorgyan	Yana	NOAA	USA
	Reams	Greg	U.S. Department of Agriculture Forest Service	USA
	Howard	Roe	Partnership for Observation of the Global Ocean	POGO

ANNEX 2

GLOBAL EARTH OBSERVATION SYSTEM OF SYSTEMS (GEOSS) MONITORING AND EVALUATION FRAMEWORK DOCUMENT

1 INTRODUCTION

1.1 Background

The GEOSS Ten Year Implementation plan that summarizes the essential steps to be undertaken during 2005-2015 by a global community of nations and intergovernmental, international, and regional organizations, to put in place a GEOSS, recognizes as one of its functional components the **monitoring of performance against defined requirements and intended benefits**¹. It also calls on the international Group on Earth Observations (GEO) to develop **performance indicators for GEOSS**².

Similarly, the ministerial resolution of the Third Earth Observation Summit in Brussels, Belgium and the ministerial declaration of the Fourth Earth Observation Summit in Cape Town, South Africa, pronounced the ministers' commitment to **conducting a midterm (by 2010) assessment**³ of the progress of the GEOSS implementation and provide guidance on its further implementation.

The commitment of GEO to conduct a midterm assessment of GEOSS Implementation was formalized by the GEO V Plenary held in 2008 in Bucharest, Romania. At this meeting, the main body of GEO principals representing GEO Member States and Participating Organizations, decided to establish a GEOSS Monitoring and Evaluation Working Group (M&E WG) and task this group with putting in place a framework for monitoring and evaluating the implementation of GEOSS.

The primary target audience for the M&E is the GEO Plenary and the Ministers of the GEO member countries. The secondary audience of the M&E are the GEO bodies responsible for implementing GEOSS. Balanced and objective evidence of progress in the implementation of GEOSS and in achieving the expected benefits for the global community will inform decisions by both of these audiences regarding future directions of GEOSS and may serve to broaden support for the initiative.

The GEOSS M&E framework described in this document is designed to describe the way forward in realizing these requirements. It is the product of the first M&E WG meeting on March 26-27, 2009 at the GEO Secretariat in Geneva, Switzerland, and subsequent discussion in the reconciliation process.

1.2 GEOSS characteristics

1.2.1 The purpose of GEOSS is to achieve comprehensive, coordinated and sustained observations of the Earth system, in order to improve monitoring of the state of the Earth, increase understanding of Earth processes, and enhance prediction of the behaviour of the Earth system.

GEO works to implement the vision of the international community for GEOSS by playing a role of a facilitator and advocate for advanced cooperation between communities of providers and users across

¹ GEOSS 10-Year Implementation Plan, Section 5, pg. 5

² Ibid, pg. 11

³ In this document, terms “assessment” and “evaluation” share the same meaning.

nine Societal Benefit Areas and the related five Transverse Areas of **architecture**, **data management**, **capacity building**, **science and technology**, and **user engagement**.

GEO is a group of willing member states and participating organizations that have agreed to promote an integrated approach to earth observations, sharing of data and building capacity of individuals, institutions and systems on a voluntary and non-legally binding basis. Membership of GEO is open to any country or international organization that supports the vision for GEOSS and agrees to support the key principles of GEOSS, including data sharing principles. GEO assesses no membership fees and operates on a modest budget from the voluntary contributions by the GEO members.

Although GEO activities are initiated, funded and carried out by member states and/or participating organizations, GEO bridges complementary and related activities and provides a unified framework for their implementation. By building bridges among projects and programs that benefit from such interconnectivity, GEO seeks to ensure that these initiatives reach mission partners and users on a wider scale.

The approach to monitoring and evaluation must take account of these characteristics.

2 PRINCIPLES

A set of principles has been developed by the M&E WG based on the outcomes of the discussion by GEO members at GEO V Plenary. These principles are presented and elaborated on below.

2.1 M&E will be conducted within the perimeters of the GEO community

GEO is characterized by its non-legally binding and voluntary nature. It is funded strictly from voluntary contributions from the member countries and participating organizations. As such, it operates on a very modest budget and has limited resources to fund a broad array of activities. Therefore, it is not feasible for GEO to outsource evaluation of GEOSS implementation to an external professional program evaluation entity. The monitoring and evaluation of GEOSS will be organized with internal resources from voluntary contributions of monetary and human resources by GEO members and participating organizations.

2.2 M&E will take into account the non-binding nature of GEO

The monitoring and evaluation of GEOSS implementation will recognize the special nature of GEOSS as a voluntary initiative. Many tasks in the GEO Work Plan are voluntary contributions by member countries and participating organizations to GEO in support of GEOSS and their progress and success are often dependent on circumstances outside the influence of GEOSS, such as international cooperation, national budgeting cycles, and competing national priorities.

2.3 M&E will make extensive use of existing M&E tools and practices used in GEO

The monitoring and evaluation of GEOSS implementation will take account of the voluntary contribution of the activities as tasks to the GEO Work Plan, as well as of human and financial resources to GEOSS by member countries and participating organizations. The M&E process will make extensive use of existing monitoring and evaluation tools already used within the GEO community to not overburden the respondents with additional new work and will take into account available evaluations performed by national governments and participating organizations.

2.4 M&E will address the full spectrum of GEOSS implementation activities

The 10-Year GEOSS Implementation Plan is a key high level document adopted in 2005 that summarizes steps to be undertaken during 2005-2015 by the GEO community to put in place GEOSS. The 10-Year Plan provides a foundation for the GEO Work Plan(s) which provides a framework for achieving the goals set forth in the 10-Year Implementation Plan. A GEO Work Plan covers a three-

year time period and is structured around GEO activities – Tasks – that, when implemented, will contribute to achieving the Strategic Targets of GEOSS in the SBAs and in the Transverse Areas. Recognizing the three-year span of the GEO Work Plan, the monitoring and evaluation of activities whose outputs and target outcomes are set in 2015 will determine the incremental progress of their implementation.

2.5 M&E will use performance indicators for monitoring

M&E WG will develop a small set of performance indicators for monitoring the implementation of GEOSS. The indicator data may also be useful in the evaluation process

The GEOSS Performance Indicators will be developed in keeping with the general guidance for developing the GEOSS M&E process; performance indicators will be **relevant** to GEOSS, **clearly defined** with simple unambiguous terms, **verifiable** and **cost-effective**⁴, i.e. data collected from the use of the performance indicators justifies the resources spent to collect them.

2.6 The M&E process will engage the user community

The benefits of GEOSS will be realized globally by a broad range of user communities. Monitoring and evaluation of the progress towards meeting the needs of the user communities and delivering the intended benefits through successful implementation of GEOSS should involve communication with the users of GEOSS in order to collect their input. To reach out to the user community the monitors and evaluators will take advantage of the established GEO organizational structure, particularly the GEO User Interface Committee. By asking the users questions specifically designed to collect information on the progress GEOSS has made towards addressing user needs, a more effective communication process between GEO and its intended users will be facilitated.

2.7 M&E will provide feedback towards improvement of future GEOSS planning and implementation

The GEOSS M&E process will facilitate collection and analysis of data regarding the implementation of GEOSS. Evaluation findings will reveal both those areas where particular progress has been made and those areas where improved efforts are required. The review will identify specific aspects of GEOSS implementation that require more attention from the GEO community to increase progress. The results of the evaluation will input into subsequent planning efforts (Figure 1); for example, emphasis on specific activities can be included in the Tasks of the development and/or update of the subsequent Work Plan(s), or recommendations to the appropriate GEO Committees to address issues that fall in their purview.

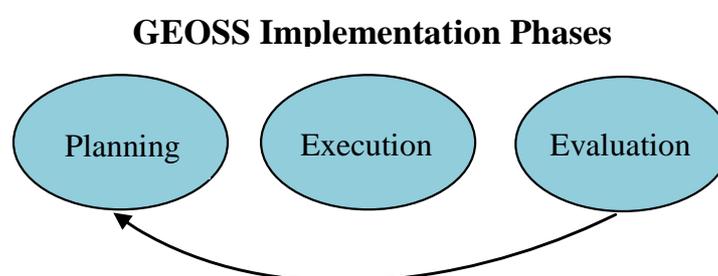


Figure 1

⁴ Performance indicators should be designed so as to minimize the costs associated with assembling the information. Cost-effectiveness refers to the collection of information and not to the implementation of GEOSS.

2.8 Lessons learned from the conducted evaluation will inform improvements to the subsequent evaluation processes

The M&E process will involve the generation of “lessons learned” reporting, identifying weaknesses in the established process and recommending changes for improvement to be applied during subsequent evaluations. This should reflect input from all participating parties, including the user community.

3 APPROACH

GEOSS M&E process is based on a logic model that has been adapted for use in the context of GEOSS. Figure 2 shows the GEOSS logic model, the processes of monitoring and evaluation and where they occur.

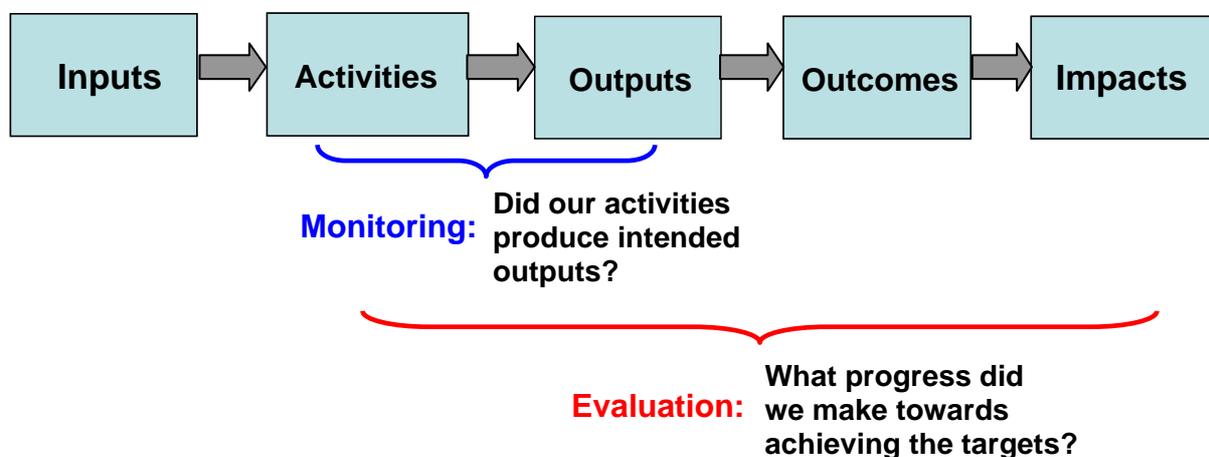


Figure 2

To accomplish the monitoring and evaluation of GEOSS implementation, the following mechanism will be established. Participants with key responsibilities for carrying out the M&E are identified in this section. A detailed overview of participating bodies and their responsibilities with regard to M&E is in Section 4 on “Organization” of this document.

- Design and coordination of the M&E process will be the responsibility of the M&E WG. M&E WG will also provide general oversight over the execution of M&E.
- Monitoring of the progress of GEOSS implementation will be performed by the GEO Secretariat relying on existing GEO processes and mechanisms as improved upon by recommendations from the M&E WG.
- Evaluation of the GEOSS implementation will be conducted by an Evaluation Team that will be newly appointed for each evaluation.

Members of the Evaluation Team will be recruited from within the GEO community by way of a formal call to GEO Members and Participating Organizations to nominate individuals to participate, on a voluntary basis, on the Evaluation Team. The Evaluation Team will need expertise in evaluation process; adequate understanding of the nature of GEOSS, including the SBAs, Strategic Targets and the activities planned to implement GEOSS; and not be current task leads and/or heads of Committees.

The Evaluation Team will conduct the evaluation of GEOSS implementation in accordance with the established mechanism and will provide updates at least once every two months on the progress to the M&E WG. A draft evaluation report will be distributed to the individuals with relevant subject-matter expertise for factual review. M&E WG will transmit a complete evaluation report to the GEO Executive Committee and, in doing so, the M&E WG may, at its discretion, append to the report its own analysis or remarks concerning the evaluation process, findings and recommendations. The GEO Executive Committee will coordinate a response to the recommendations and lessons learned and transmit the report and the GEO Executive Committee response to the GEO Plenary. The report will also be presented for discussion at the GEO Summit in the years when GEO Summit(s) occurs.

3.1 Approach to Monitoring

The purpose of monitoring is to track the progress of the completion of the tasks in the GEO Work Plan, and to measure overall organizational progress in terms of performance indicators developed by the M&E WG. Monitoring will be conducted on an ongoing and systematic basis to coincide with the GEO Work Plan reporting process established by the GEO Secretariat, currently done twice a year.

The GEO Secretariat will implement monitoring, building upon the Secretariat's current experience in preparing the twice-yearly Progress Reports. As the focal point for the Task Sheets, the Work Plan, the GEOSS Roadmap, and the Progress Reports, the Secretariat is uniquely positioned to monitor the progress of GEO activities. Because the Secretariat already performs most of the functions associated with monitoring, workload on the Secretariat is not anticipated to increase.

Information to support the monitoring process will be collected through the existing mechanism of Task Sheets. To make the Task Sheets more useful for monitoring progress, the M&E WG will work with the Secretariat to implement improvements to the Task Sheet Template and the Task database to:

- Identify key milestones, with expected dates for their achievement;
- Identify quantitative indicators of progress where those are appropriate and available. These may form the basis for developing output performance indicators;
- Collect information on the use of portals;
- Clearly distinguish planning information from reporting information;
- Link the tasks more closely to the Strategic Targets that they support.

The M&E WG will also work with the Secretariat to ensure that the Progress Reports clearly indicate how the scoring of an overarching task is determined relative to the scoring of its subordinate sub-tasks. The distribution list for the Progress Report will also be expanded to ensure that all parties involved in proposing, executing, or reviewing corrective actions are fully informed at all stages of the process.

In addition to scoring the tasks, the Secretariat will include in future Progress Reports an overall score for each of the Strategic Targets, taking into account both the scores of the Work Plan tasks that relate to that Target and any gaps that exist in the Work Plan (i.e., critical areas requiring work but for which no task is yet underway). It is anticipated that the revised GEOSS Roadmap database will provide critical information for assessing progress toward achieving the Targets.

The M&E WG will develop performance indicators for GEOSS implementation during late 2009 and early 2010 with the goal of presenting a draft set of indicators to the GEO Executive Committee for approval in late spring 2010. Once these indicators are established, the Secretariat will expand the Progress Reports to include a report on each of the indicators.

The M&E WG expects the Evaluation Team to make extensive use of the Progress Reports and the GEOSS Roadmap database as it conducts its evaluations.

3.1.1 Approach to Evaluation

The purpose of the evaluation is to inform improvement of GEOSS implementation by conducting the assessment of the progress towards achieving strategic targets, including intended outputs and outcomes of the specific Task activities. The evaluation will take note of other contributing activities that are not included in the GEO Work Plan, but are attributable, at least in part, to the implementation of GEOSS. Results of the evaluation will help determine what, if any, difference the implementation of GEOSS has made in the areas that were evaluated.

Data collection and analysis will be conducted by the Evaluation Team using various tools to be developed by the Evaluation Team. The sources for data collection and analysis will include review of GEO documents; evaluations, audits and reviews conducted by GEO Members or Participating Organizations; key informant interviews; sample surveys of selected communities; performance measurement data; and case studies. Findings of the evaluation will become a basis for recommendations and lessons learned to improve the implementation of GEOSS. The evaluation report presented to the GEO Plenary will include these recommendations and the response of the GEO Executive Committee to these recommendations.

Recognizing the requirement to complete the first evaluation of the GEOSS implementation in time for the GEO Summit in 2010 and recognizing the need to conduct the evaluation within the GEO perimeter with limited voluntarily contributed resources, the evaluation process will be phased.

3.1.2 Mid-term Evaluation

The first evaluation of the implementation of GEOSS will constitute the “mid-term assessment” requested in the Ministerial Declaration from the Cape Town Earth Observation Summit. The primary focus of the mid-term evaluation will be on assessing the extent to which the priorities identified in the Cape Town Ministerial Declaration are being realized. The Ministers said:

“We confirm our common view that:

- The sustained operation of terrestrial, oceanic, air-borne, and space-based observations networks is critical for informed decision making;
- Data interoperability is critical for the improvement and expansion of observational, modelling, data assimilation, and prediction capabilities;
- Continued research and development activities and coherent planning as essential for future observation systems;
- Continued cooperation and dialogue will establish GEOSS as a powerful means to support informed decision making;
- Coordination, at national, regional and global levels, continued investments, scientific and technological advances and innovative approaches to financing will be vital for upgrading and expanding Earth observations and building the capacity of individuals, institutions and systems, particularly in developing countries;

“We support the establishment of a process with the objective to reach a consensus on the implementation of the Data Sharing Principles for GEOSS to be presented to the next GEO Ministerial Summit. The success of GEOSS will depend on a commitment by all GEO partners to work together to ensure timely, global and open access to data and products;”

“We commit to explore new ways and means for the sustained operations of the shared architectural GEOSS components and related information infrastructure;”

“We commit ourselves to working together to improve the interoperability of and access to observation and associated prediction and information systems towards the continued strengthening of GEOSS and the full realization of the 10-Year Implementation Plan.”

Other aspects of GEOSS implementation will be evaluated within the context of the priorities stated in the Cape Town Declaration. Attention will be given to identifying potential areas for improvement to GEO planning, monitoring and task management processes.

The document *Strategic Targets: GEOSS Implementation of 2015* will serve as a key reference for the evaluation, especially with respect to clarifying the intended priorities and outcomes for GEOSS.

At the end of the evaluation process, the Evaluation Team will prepare recommendations for improving the evaluation process and provide them to the M&E WG. The M&E WG will use these recommendations to develop a detailed plan for the next evaluation prior to beginning the process.

3.1.3 Interim Evaluations

The second evaluation will begin the transition to a regular cycle of evaluating the implementation of GEOSS by assessing progress made towards achieving strategic targets in SBAs and Transverse Areas.

The second and following interim evaluations will assess progress towards delivering outputs and achieving outcomes under selected SBAs and Transverse Area targets as described in Figure 3. The selection of the SBAs and Transverse Areas will be based upon the degree of completeness of the target definition, including the definition of the intended outcomes.

The interim evaluations will also take account of other accomplishments that are not identified in the GEO Work Plan, as well as areas emphasized in future ministerial statements.

The Evaluation Teams conducting these evaluations will also develop recommendations for improving the evaluation process based on the lessons learned and provide them to the M&E WG for use in the development of subsequent detailed evaluation plans.

3.1.4 Final Evaluation

The final evaluation will have a wide scope and will aim to assess the final status of the progress made in the implementation of GEOSS.

Year	Phase	SBA	Transverse Area
2010	Mid-term evaluation	Cape Town Declaration priority areas	
2011	Interim evaluations	1	1
2012		3	2
2013		3	2
2014		3	2
2015	Final evaluation	Overall evaluation	

Figure 3

4 ORGANIZATION

4.1 M&E Working Group

In compliance with the Terms of Reference:

- M&E WG will ensure coordination of the M&E process and will provide general oversight over the execution of M&E;
- M&E WG will develop this M&E Framework Document to serve as the main reference document to guide the execution of M&E process. M&E WG will develop a Summary

Evaluation Plan template that will be the basis for the preparation of detailed evaluation plans for subsequent evaluations;

- M&E WG, working with the Task Leads and GEO Committees, will develop GEOSS performance indicators;
- M&E WG will coordinate the process of nomination of Evaluation Team members at the national level, following the call for nominations by the GEO Secretariat;
- M&E WG will provide oversight of the execution of M&E process by holding update briefings and process reviews with the Evaluation Team at least once every two months;
- M&E WG will update the GEO Executive Committee twice a year and will engage in frequent liaison with the GEO Secretariat throughout the year.

4.2 GEO Secretariat

The GEO Secretariat will conduct monitoring. The Secretariat will also provide administrative assistance to the M&E WG and Evaluation Team, as necessary, acting as the interface between the M&E WG, the Evaluation Team and the Task Leads, GEO Committees and other GEO organizations.

4.3 Evaluation Team

The Evaluation Team will execute the evaluation processes. Members of the Evaluation Team will need:

- Expertise in evaluation process;
- Adequate understanding of the nature of GEOSS, including the SBAs, Strategic Targets and the activities planned to implement GEOSS;
- Not be current task leads and/or heads of Committees.

With guidance provided in this framework document and working with the GEO Secretariat, GEO Committees and Task Leads, both at the sub-task and overarching task levels, the Evaluation Team will develop tools and mechanisms for performance data collection (surveys/questionnaires, interview questions and list of interviewees, etc.).

4.4 GEOSS User Community

The Evaluation Team will engage the user community, as the intended beneficiaries of the GEOSS initiative, to provide input regarding the progress towards achieving Target outcomes. The Evaluation Team will cooperate with the GEO User Interface Committee to develop a proper mechanism to reach out to the user community.

4.5 GEO Plenary and GEO Executive Committee

The GEO Plenary is the body that will direct the activities of the M&E WG. The GEO Plenary will approve the M&E products or return them to the M&E WG with directions for additional action(s).

The GEO Executive Committee will be the interface between the GEO Plenary and the M&E WG. It will receive the M&E products, coordinate response to the recommendations of the Evaluation Team and present them to the GEO Plenary.

ANNEX 3

GLOBAL EARTH OBSERVATION SYSTEM OF SYSTEMS (GEOSS) SUMMARY PLAN FOR THE FIRST EVALUATION

1 INTRODUCTION

This Summary Evaluation Plan is intended to describe the purpose, design, implementation and reporting of the first evaluation of GEOSS.

The Summary Evaluation Plan is a product of the Monitoring and Evaluation Working Group (M&EWG) of the Group on Earth Observations. The M&EWG was established by a decision of the GEO-V Plenary in November 2008.

The primary purpose of the Summary Evaluation Plan is to serve as guidance from the M&EWG to the Evaluation Team which will conduct the actual evaluation.

2 PURPOSE OF THE EVALUATION

There are two principal drivers for the first evaluation of GEOSS. At a general level, the first evaluation is an initial step in the implementation of a comprehensive strategy for the “monitoring of performance against defined requirements and intended benefits” as stated in the *GEOSS 10-Year Implementation Plan* and in the *10-Year Implementation Plan Reference Document* and as further defined in the *GEOSS Monitoring and Evaluation Framework Document*. More specifically, the first evaluation is also a direct response to the ministers’ declaration of the Fourth Earth Observation Summit in Cape Town, South Africa to conduct “a midterm (by 2010) assessment” of the progress of GEOSS implementation and provide guidance on its further implementation.

- **Expected audience / users of the evaluation report**

The primary audience for the evaluation report is the GEO Plenary and the ministers of GEO member countries. The final report of the first evaluation will be made available to this audience through the normal channels of distribution of Plenary and Summit documents.

The secondary audience of the first evaluation is the various GEO bodies responsible for implementing GEOSS.

- **Expected use of the evaluation findings**

The findings and recommendations of the first evaluation are expected to be used to inform decisions concerning possible changes to GEO governance, planning and reporting processes, or other aspects of the implementation of GEOSS.

3 DESCRIPTION OF THE ACTIVITY TO BE EVALUATED

The purpose of GEOSS is to achieve comprehensive, coordinated and sustained observations of the Earth system, in order to improve monitoring of the state of the Earth, increase understanding of Earth processes, and enhance prediction of the behaviour of the Earth system.

GEO works to implement the vision of the international community for GEOSS by playing a role of a facilitator and advocate for advanced cooperation between communities of providers and users across the nine SBAs and the related five transverse areas of architecture, data management, capacity building, science and technology, and user engagement.

GEO is a group of willing member states and participating organizations that have agreed to promote an integrated approach to earth observations, sharing of data and building capacity of individuals, institutions and systems on a voluntary and non-legally binding basis. These agreements are expressed in the *First Summit Declaration*, the *Second Summit Communiqué*, the *Third Summit Resolution*, and the *Cape Town Declaration*.

Membership of GEO is open to any country or international organization that supports the vision for GEOSS and agrees to support the key principles of GEOSS, including data sharing principles. GEO assesses no membership fees and operates on a modest budget from the voluntary contributions by the GEO members. Although GEO activities are initiated, funded and carried out by member states and/or participating organizations, GEO bridges complementary and related activities and provides a unified framework for their implementation. By building bridges among projects and programs that benefit from such interconnectivity, GEO seeks to ensure that these initiatives reach mission partners and users on a wider scale.

4 SCOPE OF THE EVALUATION

The primary focus of the first evaluation will be on assessing the extent to which the priorities identified in the *Cape Town Declaration* are being realized through GEO.

Other aspects of GEOSS implementation will be evaluated within the context of the priorities stated in the *Cape Town Declaration*. Attention will be given to identifying potential areas for improvement to GEO planning, monitoring and task management processes.

The document *Strategic Targets: GEOSS Implementation by 2015* (hereafter referred to as the “Strategic Targets document”) will serve as a key reference for the evaluation, especially with respect to clarifying the intended priorities and outcomes for GEOSS.

5 EVALUATION MATRIX (QUESTIONS, CRITERIA AND INDICATORS)

The evaluation questions in the following table will be applied to each of the priorities and commitments for GEOSS, as confirmed in the *Cape Town Declaration*. These priorities and commitments are as follows:

“We confirm our common view that:

- The sustained operation of terrestrial, oceanic, air-borne, and space-based observations networks is critical for informed decision making;
- Data interoperability is critical for the improvement and expansion of observational, modelling, data assimilation and prediction capabilities;
- Continued research and development activities and coherent planning are essential for future observation systems;
- Continued cooperation and dialogue will establish GEOSS as a powerful means to support informed decision making;
- Coordination at national, regional and global levels, continued investments, scientific and technological advances and innovative approaches to financing will be vital for upgrading and expanding Earth observations and building the capacity of individuals, institutions and systems, particularly in developing countries;”

“We support the establishment of a process with the objective to reach a consensus on the implementation of the Data Sharing Principles for GEOSS to be presented to the next GEO Ministerial Summit. The success of GEOSS will depend on a commitment by all GEO partners to work together to ensure timely, global and open access to data and products;”

“We commit to explore new ways and means for the sustained operations of the shared architectural GEOSS components and related information infrastructure;”

“We commit ourselves to working together to improve the interoperability of and access to observation and associated prediction and information systems towards the continued strengthening of GEOSS and full realization of the 10-Year Implementation Plan;”

Evaluation Questions	What Should be Observed (Evaluation Criteria)	Information Required
To what extent do the Strategic Targets (and the associated outcomes) adequately reflect the priorities and commitments in the <i>Cape Town Declaration</i> ?	Strategic Targets include all significant aspects of the priorities and commitments in the <i>Cape Town Declaration</i> .	<i>Cape Town Declaration</i> Strategic Targets document Evidence supporting the interpretation of the above documents.
To what extent are the Work Plan Tasks reflective of the actions required to achieve the Strategic Targets?	All Tasks are necessary to the achievement of the Strategic Targets. Processes are in place to identify gaps in the current Work Plan where additional Tasks are required to achieve Strategic Targets and to solicit offers to fill these gaps.	Strategic Targets document <i>GEOSS Roadmap</i> Completed Task Sheets (current and past versions) Evidence regarding the relationship of Tasks to Targets. Evidence regarding work planning and gap analysis processes.
To what extent are the Tasks being implemented as intended?	Statement of targets and milestones in GEO planning documents in a form that permits objective verification against actual performance Actual performance reflects substantial achievement of performance expectations	Completed Task Sheets (current and past versions). Work Plan Progress Reports and other information regarding the status of all Tasks. Information concerning the actual conduct of work planning, Task management, and reporting processes

Evaluation Questions	What Should be Observed (Evaluation Criteria)	Information Required
To what extent are expected outcomes of GEOSS being realized?	<p>Clearly stated expected results that inform work planning and performance monitoring</p> <p>Achievement of near-term outcomes in some domains, although likely of limited scope</p>	<p>Statement of expected outcomes for GEOSS in a form that depicts the logical relationships between GEOSS Tasks and the expected outcomes at various levels and/or time scales and between the expected outcomes and the ultimate intended impacts of GEOSS</p> <p>Evidence that statements of GEOSS outcomes influence the selection of Tasks</p> <p>Information regarding processes for the monitoring and assessment of outcomes related to GEOSS</p> <p>Evidence regarding the achievement of near-term GEOSS outcomes</p>
Are there significant unplanned benefits or unintended negative consequences of GEOSS?	<p>Documentation of unplanned benefits of GEOSS</p> <p>Absence of any significant negative unintended consequences.</p>	<p>Information concerning the existence and magnitude of unintended consequences of participation in GEO, GEO Tasks or of GEOSS operations</p>

6 DATA COLLECTION AND ANALYSIS

The following will be the principal sources of data and information that will be used to answer the evaluation questions. Not all sources will be used for every question, however, multiple sources will be used wherever possible as a control against the inherent biases of any particular source or method (triangulation).

Data and information collected in support of the evaluation will be maintained and made available to all members of the Evaluation Team and the M&E WG through an electronic registry.

Information provided through interviews or surveys will be secured to ensure confidentiality of informants/participants.

6.1 Review of GEO documents

Documents to be reviewed will include all GEO foundational documents, e.g. Ministerial declarations, the *GEOSS 10 year Implementation Plan* and the *10 year Implementation Plan Reference Document*, all Work Plans and Task Sheets, various versions of the *GEOSS Roadmap*, Progress Reports, meeting reports from Plenaries, Executive Committee and other GEO Committees, and other documents as required.

6.2 Evaluations, audits and reviews conducted by GEO Members or Participating Organizations

A call should be issued to all GEO Task Leads requesting any evaluations, audits or reviews relevant to the assessment of Task implementation of which they are aware.

6.3 Key informant interviews

Interviews should be conducted with a sample of: GEO Secretariat staff, members of GEO Committees, leads for GEO Tasks, non-lead participants in GEO Tasks, and members of user communities. Sample sizes, sampling methods and interview protocols will be developed as part of the Detailed Evaluation Plan. Interviews will generally be used for the qualitative identification of issues and themes rather than as the basis for statistical inference.

6.4 Sample surveys of selected communities

Surveys should be considered as a means for obtaining more representative data than is possible through other means. Given time and resource limitations, surveys will likely only be feasible for a few selected areas where preliminary analysis based on other methods suggests such an approach would be worthwhile. Electronic surveys should be used unless this approach is likely to significantly bias results.

6.5 Performance measurement data

Task Leads should be requested to provide any performance measurement data they have that may be relevant to the assessment of Task implementation or to the assessment of progress toward the realization of the priorities identified in the *Cape Town Declaration*.

6.6 Case studies

The use of one or more case studies may be considered as a means to address questions of attribution of outcomes to GEOSS activities, to identify best practices or to explore other aspects of the evaluation in greater depth than would be possible using other means.

7 EVALUATION WORK PLAN

7.1 Roles and responsibilities

The M&E WG is responsible for:

- Developing the overall strategy for GEOSS evaluation, as articulated in the *Monitoring and Evaluation Framework Document*.
- Preparing a Summary Evaluation Plan, as guidance to the Evaluation Team;
- Providing oversight of the execution of the evaluation process, including approval of a Detailed Evaluation Plan for the evaluation;

- Proposing a strategy to the GEO Executive Committee for the recruitment of the Evaluation Team;
- Transmitting the final evaluation report to the GEO Executive Committee. In doing so, the M&E WG may, at its discretion, append to the report its own analysis or remarks concerning the evaluation process, findings or recommendations.

The Evaluation Team is responsible for:

- Reviewing the Summary Evaluation Plan and discussing any potential implementation issues with the M&E WG.
- Preparing a Detailed Evaluation Plan for the evaluation that takes into account time constraints and available resources (including Evaluation Team membership) and submitting this Detailed Evaluation Plan for M&E WG approval;
- Conducting the evaluation as set out in the Detailed Evaluation Plan;
- Informing the M&E WG on a regular basis (at least every two months) of the progress in the implementation of the evaluation;
- Promptly and proactively raising issues affecting implementation of the evaluation with the M&E WG;
- Circulating the draft evaluation report (or portions of it) to individuals within the GEO community who have relevant subject-matter expertise for review of factual accuracy;
- Preparing a final evaluation report and transmitting it to the M&E WG. The Evaluation Team is solely responsible for the Findings, Conclusions and Recommendations contained in the evaluation report;

The GEO Secretariat is responsible for:

- Providing office space and support to the Chair of the Evaluation Team, if requested by the nominating Member;
- Providing reasonable access to documentation and files in the possession of the Secretariat, as required for the evaluation;
- Providing reasonable access to Secretariat staff to participate in interviews and other data collection processes where their personal knowledge is relevant to answering evaluation questions;
- Ensuring the availability of an internet-based tool to enable the secure sharing of documents and data supporting the evaluation process among members of the Evaluation Team;
- Providing support to the Evaluation Team in identifying and contacting GEO stakeholders (e.g. Task Leads, end users);
- Providing logistical support to the Chair of the Evaluation Team for meetings and teleconferences of the Evaluation Team.

7.2 Timeline

Submission of a Detailed Evaluation Plan for approval by the M&E WG	end of January 2010
Interim Report on Findings	mid May 2010
Completion of Draft Final Evaluation Report (for factual review)	end June 2010
Transmittal of the Final Evaluation Report to the M&E WG	end July 2010

7.3 Resources

Except for those services identified in 7a above, which will be provided by the GEO Secretariat, all resources (human, financial, etc.) associated with the evaluation will be covered as part of the voluntary contributions by GEO Members and Participating Organizations to the evaluation process.

8 STRUCTURE OF THE FINAL REPORT

The following are required elements of the final evaluation report. Other sections may be added at the discretion of the Evaluation Team.

- Executive summary:
 - Overview of the evaluation;
 - Summary of findings;
 - Conclusions and recommendations.
- Introduction:
 - Purpose and objectives;
 - Scope and description of activities evaluated;
 - Evaluation approach and methodology.
- Findings:
 - *sub-division to be determined by the evaluation.*
- Conclusions and recommendations;
- Appendices:
 - Details of documents consulted, persons interviewed, interview protocols, surveys, etc;
 - Case study reports (if relevant);
 - *other appendices as required.*