

Overview of CEOS and GEO Priorities for 2013

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CEOS Executive Officer
WGCV-36 Meeting

Shanghai, China (via remote participation)
14 May 2013





- **2012 CEOS Plenary Outcomes and 2013 CEOS Work Plan**
- **CEOS Participation in GEO Work Plan Management Structure**
- **SIT-28 Outcomes**




2012 CEOS PLENARY OUTCOMES AND 2013 CEOS WORK PLAN



CEOS Agencies will continue and enhance their cooperation to support more effective societal decision-making in the areas of climate change, forest monitoring, sustainable development, food and water security, and disaster risk management.

- Development and provision of climate data records, in support of climate monitoring and research
- Coordinated observations to support the effective monitoring and management of the worlds' forested regions
- Development of a strategy for observing and assessing the global carbon cycle
- The application of space-based Earth observations to support research in agricultural productivity and an improved understanding of the global water cycle
- Development of a more integrated approach in the application of Earth observations for the purposes of disaster risk management
- Close collaboration with all countries, especially developing countries, to share new sources of EO satellite data and enhance their governments' capacity to apply these data for societal benefit



CEOS Committee on Earth Observation Satellites

Bangalore Statement
26 October 2012

We, the assembled participants of the 26th Plenary meeting of the Committee on Earth Observation Satellites (CEOS), taking place in Bangalore, India, on 25-26 October 2012:

Building upon our collective commitments to coordinate our Earth observation satellite missions in response to needs expressed by the United Nations Commission on Sustainable Development (UNCSD), the UN Framework Convention on Climate Change (UNFCCC), the Intergovernmental Group on Earth Observations (IGEO) and the Group of 20 Industrialized Nations (G20):

Confirming our commitments to advance the use of space-based Earth observations to advance scientific knowledge, economic and social development, and environmental protection of all societies; and:

Recognizing the major investments made by CEOS agencies in developing the space-based components of the Global Earth Observation System of Systems, and global observing systems operated under the auspices of the United Nations:


Declare that:

CEOS Agencies will continue and enhance their cooperation to support more effective societal decision-making in the areas of climate change, forest monitoring, sustainable development, food and water security, and disaster risk management. This cooperation will be expressed through a number of global level initiatives and projects, including:

- Development and provision of climate data records, in support of climate monitoring and research
- Coordinated observations to support the effective monitoring and management of the worlds' forested regions
- Development of a strategy for observing and assessing the global carbon cycle
- The application of space-based Earth observations to support research in agricultural productivity and an improved understanding of the global water cycle.
- Development of a more integrated approach in the application of Earth observations for the purposes of disaster risk management; and,
- Close collaboration with all countries, especially developing countries, to share new sources of EO satellite data and enhance their governments' capacity to apply these data for societal benefit.

CEOS will accomplish these activities through its Virtual Constellations of satellite missions focused on seven thematic areas: atmospheric composition, land surface imaging, ocean colour, ocean surface topography, ocean surface wind, precipitation, and sea surface temperature. Specialized Working Groups will continue to address user needs for data quality, data discovery and access, climate applications, and capacity building.

CEOS plays a vital role in ensuring coordination of Earth observations to enable decisions for securing a prosperous and sustainable future for humankind.

<http://www.ceos.org> 



2013 CEOS Work Plan 2 February 2013

Introduction

The 2013 CEOS Work Plan has been developed by the CEOS Executive Officer (CEO) under the guidance of the CEOS Chair (CSA), in consultation with the CEOS Strategic Implementation Team Chair (NASA), CEOS Secretariat, CEOS Working Groups, Virtual Constellations, the CEOS membership at large, and CEOS's external stakeholders. The purpose of the document is to set the priorities and outline the activities of CEOS during the 2013 calendar year. Given the anticipated implementation of recommendations from the CEOS Self Study (CSS), the expressed priorities and outlined activities of this Work Plan are expected to remain consistent over a three-year time frame. Therefore, this Work Plan is likely to need only minor revisions on an annual basis.

Overview

The mission of CEOS is to:

- Optimize benefits of spaceborne Earth observations (EO) through cooperation of its Members in mission planning and in development of compatible data products, formats, services, applications and policies;
- To serve as a focal point for international coordination of space-related EO activities; and,
- To exchange policy and technical information to encourage complementarity and compatibility of observation and data exchange systems.

These three elements of the CEOS mission have significant dimensions of internal, interagency coordination, and external consultation and coordination of outputs in response to the needs of key stakeholders. These stakeholders consist of national governments, including their participation in the Group of Eight (G8) and the Group of 20 (G20) Industrialized Nations, the intergovernmental Group on Earth Observations (GEO), and treaties and global programs affiliated with the United Nations.¹ CEOS works closely with these stakeholders and their constituent organizations to achieve common objectives.

CEOS Priority Objectives for 2013

As decided at the 2012 CEOS Plenary meeting in Bangalore, India, CEOS Agencies will continue to enhance their cooperation to support more effective societal decision-making in the areas of climate monitoring and research, carbon observations, including observations to support the effective monitoring and management of the world's forested regions, food security, disaster risk management, capacity building, and data availability and access. CEOS Working Groups and Virtual Constellations will expand their technical and scientific coordination to support these objectives, and improve the overall level of complementarity and compatibility of their

¹ These treaties, international organizations, and international programs include the UN Framework Convention on Climate Change (UNFCCC), the UN Commission on Sustainable Development (UNCSD), the UN Office for Disaster Risk Reduction (UNISDR), and the UN Convention on Biodiversity (UNCBD), among others.

Purpose: to set the priorities and outline the activities of CEOS during the 2013 calendar year



- **CEOS Agencies will continue to enhance their cooperation to support more effective societal decision-making in the areas of climate monitoring and research, carbon observations, including observations to support the effective monitoring and management of the world's forested regions, food security, disaster risk management, capacity building, and data availability and access.**
- **CEOS Working Groups and Virtual Constellations will expand their technical and scientific coordination to support these objectives, and improve the overall level of complementarity and compatibility of their Earth observation and data management systems for societal benefit.**
- **CEOS will consider other requests from external stakeholders and determine what, if any, support is possible and appropriate. CEOS will also continue its outreach and communications efforts.**
- **CEOS will continue its consideration of 2011 CEOS Self-Study recommendations, with near-term (e.g., 1-3 years) decisions anticipated on its organization, structure, decision-making processes, and stakeholder relations.**



- 1. Climate Monitoring and Research**
- 2. Carbon Observations, including Observations to Support the Effective Monitoring and Management of the World's Forested Regions**
- 3. Food Security**
- 4. Disaster Risk Management**
- 5. Capacity Building and Data Availability and Access**
- 6. CEOS Support to Further Key Stakeholder Initiatives**
- 7. Continued and Enhanced CEOS Outreach to Key Stakeholders: GEO, UNFCCC, UN ISDR, UN CBD, G8/G20, and Others**
- 8. Adoption of Recommendations from the 2011 CEOS Self-Study**



1. Climate Monitoring and Research

- **Development of Climate Data Records (CDRs) and related datasets addressing Essential Climate Variables established by the Global Climate Observing System (GCOS);**
- **Continued cooperation with GEO, GCOS, the World Meteorological Organization (WMO), and the Coordination Group for Meteorological Satellites (CGMS) in the development of a space-based system to support climate information and adaptation; and,**
- **Further alignment of the Virtual Constellations objectives as building blocks of the space-based climate information strategy and as contributions to facilitating the observation of ECVs, as defined in the *CEOS Response to the Satellite Supplement of the 2010 GCOS IP*.**



2. Carbon Observations, including Observations to Support the Effective Monitoring and Management of the World's Forested Regions

- CEOS leadership within and support to GEO Global Forest Observation Initiative (GFOI); and
- Publication of the *CEOS Strategy for Carbon Observations from Space*.

3. Food Security

- Continued support to the Joint Experiments on Crop Assessment and Monitoring (JECAM) initiative.

4. Disaster Risk Management

- Enhanced support for Disaster Risk Management (DRM); and
- Continued support to the Geohazards Supersites and Natural Laboratories initiative



5. Capacity Building and Data Availability and Access

- 5.1 Advancement of CEOS Data Democracy activities;
- 5.2 Continued support to the development and operationalization of the GEOSS Common Infrastructure (GCI) and its CEOS-related elements; and,
- 5.3 Continued CEOS leadership of, and support to, the Quality Assurance for Earth Observations (QA4EO) initiative.



The Working Group on Calibration and Validation (WGCV) will work closely with the GEO Secretariat to encourage widespread adoption of QA4EO principles (including quality indicators and confidence levels) within future and, where possible, current CEOS activities. Initial focus will be on QA4EO implementation in the areas of Forest Carbon Tracking, climate/ozone, and global elevation data. Routine project facilitation and support to CEOS Agencies will be provided by a dedicated QA4EO Secretariat.



6. CEOS Support to Further Key Stakeholder Initiatives

- Decision on whether and how CEOS Agencies may provide coordinated data acquisition support to the GEO Global Agricultural Monitoring (GEOGLAM) initiative;
- Continued dialogue on potential CEOS contributions to Integrated Water Cycle products and services;
- Continued dialogue on potential CEOS contributions to the GEO Biodiversity Observation Network (GEO BON);
- Dialogue on potential enhanced CEOS-level coordination to support improved research and monitoring of the Earth's polar regions; and,
- Determine the level and scope of engagement of the four ocean-related Virtual Constellations in the GEO Blue Planet Task



7. Continued and Enhanced CEOS Outreach to Key Stakeholders: GEO, UNFCCC, UN ISDR, UN CBD, G8/G20, and Others

- Engagement, attendance, and where appropriate, strategic involvement , reporting on CEOS achievements, and presentations at key meetings
- Maintenance to CEOS online services such as the CEOS website and Missions, Instruments and Measurements (MIM) database
- Publication of the CEOS Newsletter

8. Adoption of Recommendations from the 2011 CEOS Self-Study

- Development of strategic guidance documents, stemming from participative analysis and options proposed by the CEOS Self-Study Implementation Initiative (CSSII) Topical Teams
- Plenary review and adoption of CSSII proposed options for refinement



CEOS PARTICIPATION IN GEO WORK PLAN MANAGEMENT STRUCTURE



- **Still Three Thematic Parts**
- **Still 26 Tasks**
- **Now 58 Components**

GEO 2012-2015 WORK PLAN

17 December 2012

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CEOS is identified:

- **As a Component Lead for seventeen (17) Components**
- **As a Component POC for four (4) Components**
- **As a Contributor for ten (10) Components**
- **As Task Coordinator for three (3) Tasks**
- **As Implementation Board Member for two (2) Boards**
 - **Two on IIB and one on SBIB**



▪ Infrastructure

- IN-01
- IN-02
- IN-03
- IN-05

▪ Institutions and Development

- ID-01
- ID-02
- ID-04

▪ Information for Societal Benefits

- SB-01
- SB-02
- SB-03
- WA-01
- DI-01
- HE-01
- EN-01
- BI-01
- CL-01
- CL-02
- AG-01

For More Information, including proper and descriptive titles of the Tasks, please refer to the **special edition** CEOS-relevant highlighted GEO Work Plan PDF (available from CEO, free of charge)



INFRASTRUCTURE

IMPLEMENTATION BOARD	IVAN PETITEVILLE, ESA BRIAN KILLOUGH, NASA
TASK COORDINATOR	BRIAN KILLOUGH, NASA
TASK TEAM	BRIAN KILLOUGH, NASA SATOKO MIURA, JAXA
COMPONENT LEADS	BRIAN KILLOUGH*, NASA SATOKO MIURA*, JAXA SATISH SRIVASTAVA, CSA JOHN FAUNDEEN, USGS
* DENOTES COMPONENT POC	



INSTITUTIONS AND DEVELOPMENT

IMPLEMENTATION BOARD	N/A
TASK COORDINATOR	N/A
TASK TEAM	HILCEA FERREIRA, INPE
COMPONENT LEAD	HILCEA FERREIRA, INPE JACOB SUTHERLUN, NOAA



SOCIETAL BENEFITS

IMPLEMENTATION BOARD	GUY SÉGUIN, CSA
TASK COORDINATOR	STEPHEN WARD, DCCE GUY SÉGUIN, CSA
TASK TEAM	MARK DOWELL, EC-JRC PETER REGNER, ESA STEPHEN WARD, DCCE FRANK MARTIN SEIFERT, ESA PER ERIK SKROVSETH, NSC GUY SÉGUIN, CSA STU FRYE, NASA RICHARD ECKMAN, NASA DIANE WICKLAND, NASA OSAMU OCHIAI, JAXA PRASAD THENKABAIL, USGS



SOCIETAL BENEFITS – CON'T

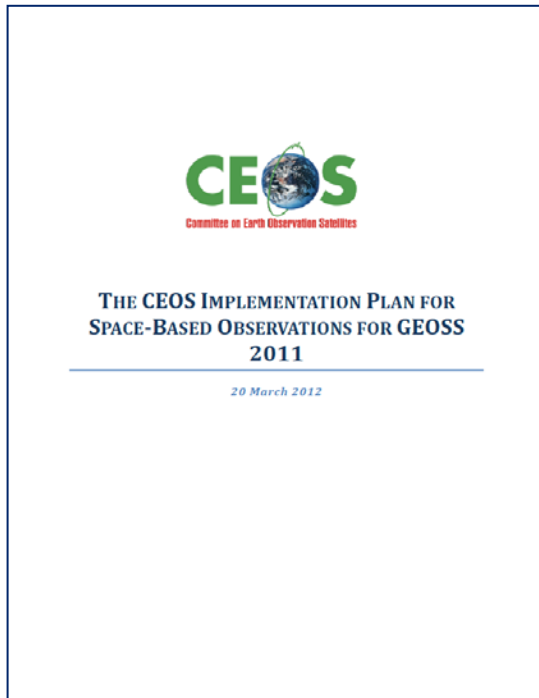
COMPONENT LEADS

MARK DOWELL, EC-JRC
~~PETER REGNER, ESA~~
STEPHEN WARD, DCCE
FRANK MARTIN SEIFERT, ESA
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RICHARD ECKMAN, NASA
DIANE WICKLAND, NASA
OSAMU OCHIAI, JAXA
RIKO OKI, JAXA
SHIZU YABE, JAXA
PRASAD THENKABAIL, USGS

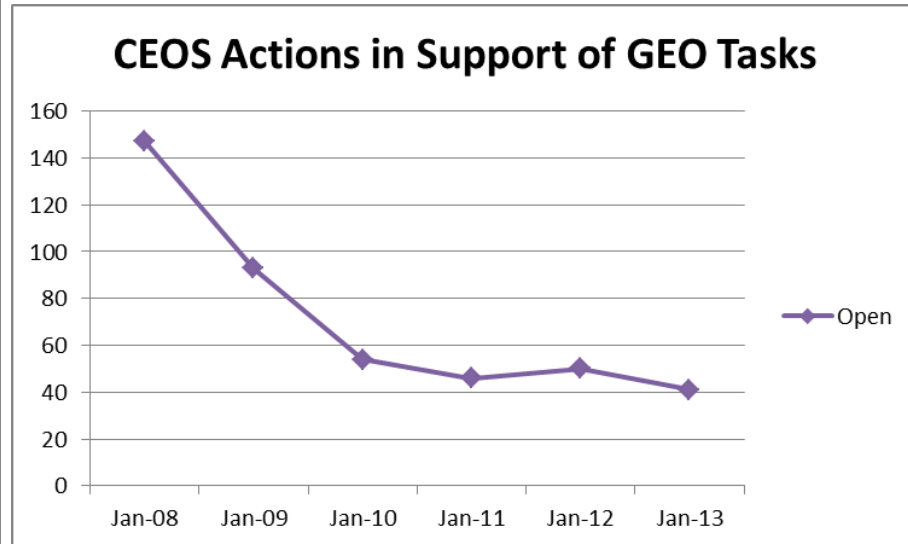
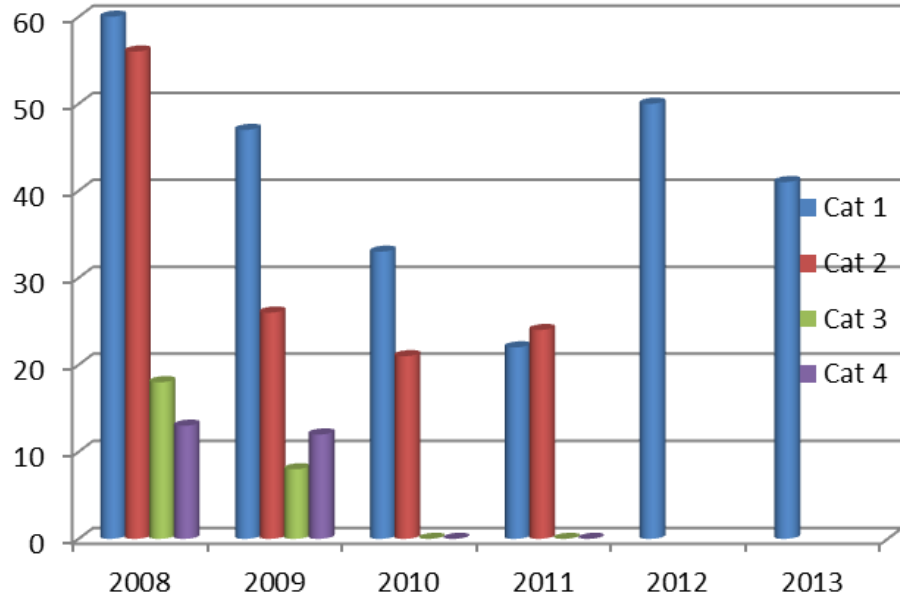
* DENOTES COMPONENT POC



- **Held Successful *Virtual* CEOS-GEO Actions Workshop, January 23 and 24, 2013**
 - **Almost 45 participants over the two-day meeting**
 - **Addressed nearly all 2012 CEOS-GEO Actions, closed a number of them, and remapped the remaining into 2013 Actions.**
 - **Proposals for 17 new Actions, which is quite impressive.**
 - **Since the Actions are a living document, we will entertain proposals for additional Actions throughout the year so if anyone is interested in proposing a new Action, please do so.**



- **Highlight the commitment of Space Agencies to implement the Global Earth Observation System of Systems (GEOSS)**
 - **Actions focus exclusively on space segment aspects and efforts of Space Agencies to implement Components of the GEO Work Plan and GEOSS**
- **Captured in the annual CEOS Implementation Plan**



	2008	2009	2010	2011	2012	2013
Cat 1	60	47	33	22	50	41
Cat 2	56	26	21	24		
Cat 3	18	8	0	0		
Cat 4	13	12	0	0		
Total	147	93	54	46	50	41



- 1. Execution requires the cooperation of at least two CEOS Agencies¹**
- 2. Execution requires a “significant” level of effort and good coordination (e.g., publication of an article does not need to be followed as an action. The article might be published on www.ceos.org)**
- 3. Significant and citable benefits towards meeting societal needs**
- 4. Needs to be “Actionable” (properly described, feasible with Lead Agencies (or WG, VC), at least one Contributor, clear Milestones and Deliverables, potential support might be indicated)**

¹ WG and VC considered “multi-agency” group



2013 CEOS-GEO Actions

REMAPPED ACTION

GEO Work Plan Task and Component	IN-02-C1_3: Advances in Life-cycle Data Management
Description	Develop a CEOS Quality Assurance Framework for Earth Observation (QA4EO) and implement processes and structure for CEOS data and information. (Remapped from IN-02-C1_3)
POC(s)	Satish Srivastava, CSA, CEOS WGCV; Niall Origo NPL/UKSA (QA4EO) secretariat
2013 Milestones/Deliverables	<ol style="list-style-type: none"> 1. Develop CEOS QA4EO Implementation Pilots and Showcases for key priority CEOS efforts 2. Fit for purpose documentation related to system/data/and product capability and accuracy 3. Quality parameter measurement and process guidelines for each quality definition 4. Support LTDP and Data Management efforts 5. Incorporation of information in the process and definitions above into CEOS electronic database for all CEOS data and information QA flags and data/metadata fields
Comments	



2012 CEOS-GEO Actions

NO STATUS

Action Number	IN-02-C1_4
Description	
POC(s)	Philippe Goryl (ESA) and Gyanesh Chander (USGS)
2012/13 Milestones/ Deliverables	
Main 2012 Accomplishments	
Status	
Comments	

Complete update of this Action is required – no information has been provided on this action and need to update due date, among other information



2013 CEOS-GEO Actions REMAPPED ACTION

GEO Work Plan Task and Component	IN-02-C1_5: Advances in Life-cycle Data Management
Description	Enabling Data and Information Interoperability and Harmonization in CEOS and GEO. Develop an architecture and constituent elements needed for implementation of an operational system to insure the long term interoperability of EO data to meet the SBA needs, particularly climate; e.g. Methodologies, test sites, database infrastructure for quality. This is a key enabler to facilitate the implementation of QA4EO principles (remapped from IN-02-C1_5)
POC(s)	Satish Srivastava, CSA, CEOS WGCV ; Nigel Fox NPL/UKSA CEOS WGCV
2013 Milestones/Deliverables	<ol style="list-style-type: none"> 1. Complete full list of test sites needed across all space domains to underpin interoperability (May 2013) 2. Identify priority requirements – parameters and uncertainties needed by CEOS WGC and VCs and SBAs (Sep 2013) 3. Prototype pre-operational satellite to satellite (optical domain) bias correction service/database (based on an amalgam of agency developed systems) (Oct 2013) 4. Establish operational collection of cal data over CEOS test sites by agencies and their accessibility through automated services such as CWIC tools (July 2013) 5. Establish and publish methodologies to aid interoperability, Cal/Val particularly to aid developing space nations and harmonisation of others. (on going)
Comments	



2013 CEOS-GEO Actions

REMAPPED ACTION

GEO Work Plan Task and Component	IN-02-C2_1
Description	Global Datasets for an integrated Land-Continental shelf DEM at 1 arc-second ($\approx 30\text{m}$)
POC(s)	Jan-Peter Muller, UCL-MSSL
2013 Milestones/ Deliverables	<ul style="list-style-type: none"> • Draft plan for activities including timescales and CEOS member resources required by WGCV36 • Start work on examining technical issues for data fusion of land topography & continental shelf bathymetry • ISPRS-CEOS-GEO co-sponsored Workshop at “ESA Living Planet symposium” on these technical issues & latest results
Comments	



SIT-28 OUTCOMES



- 1. Provide specific input to the Post-2015 GEO Working Group relating to overall organisation structure for GEO (28-1), and prepare for CEOS inputs to the 2014 GEO Plenary and Ministerial Summit (28-3).**
- 2. Endorsement of the SDCG Global Baseline Strategy (Element 1), and agreement to follow-up with key implementing agencies. (28-4, 28-5, and 28-6)**
- 3. Endorsement of the SDCG's proposed development of the Element 2 (National Services) strategy for presentation at SIT-29 (28-7).**
- 4. Endorsement of WGCapD's capacity building inventory, and agreement of a series of actions (28-9, 28-10) to engage CEOS agencies in populating the inventory.**
- 5. Endorsement (during a mini-CEOS Plenary session) of JAXA and CSIRO as CEOS Chair for 2015 and 2016 respectively (28-10).**



- 6. Harmonise VC terms of reference and the description of expected 2015 accomplishments for the VCs and WGs (28-11, 28-12, 28-19) including information on 'Consistent Access' to data.**
- 7. Develop CEOS support to the GEO Blue Planet Task, and a proposal for the operational oceanography activity (28-14, 28-15).**
- 8. WGISS will focus CEOS's data access and discovery for GEO on the IDN (28-16, 28-17, 28-18).**
- 9. A study group to recommend the CEOS approach to land surface imaging (28-20).**
- 10. Concurrence on responses to the Essential Questions, and reports from the Topical Teams on Major Meetings, Roles and Responsibilities, and Decision Making (28-21).**
- 11. Agreement to work with CGMS on a proposal for a joint CEOS-CGMS Climate Working Group (28-23, 28-24).**



- 12. Support the CTF to conclude the CEOS Carbon Strategy (28-26, 28-27, 28-28).**
- 13. Progress to continue towards a DRM observation strategy, and towards coordination CEOS disaster-related activities (28-29, 28-30).**
- 14. To write expressing support of the Geodetic Observing Network (28-32, 28-33).**
- 15. Agreement that the *ad hoc* team on GEOGLAM continue its work, and report to Plenary (28-34).**



**THANK YOU, WGCV, FOR
YOUR CONTINUED SUPPORT**

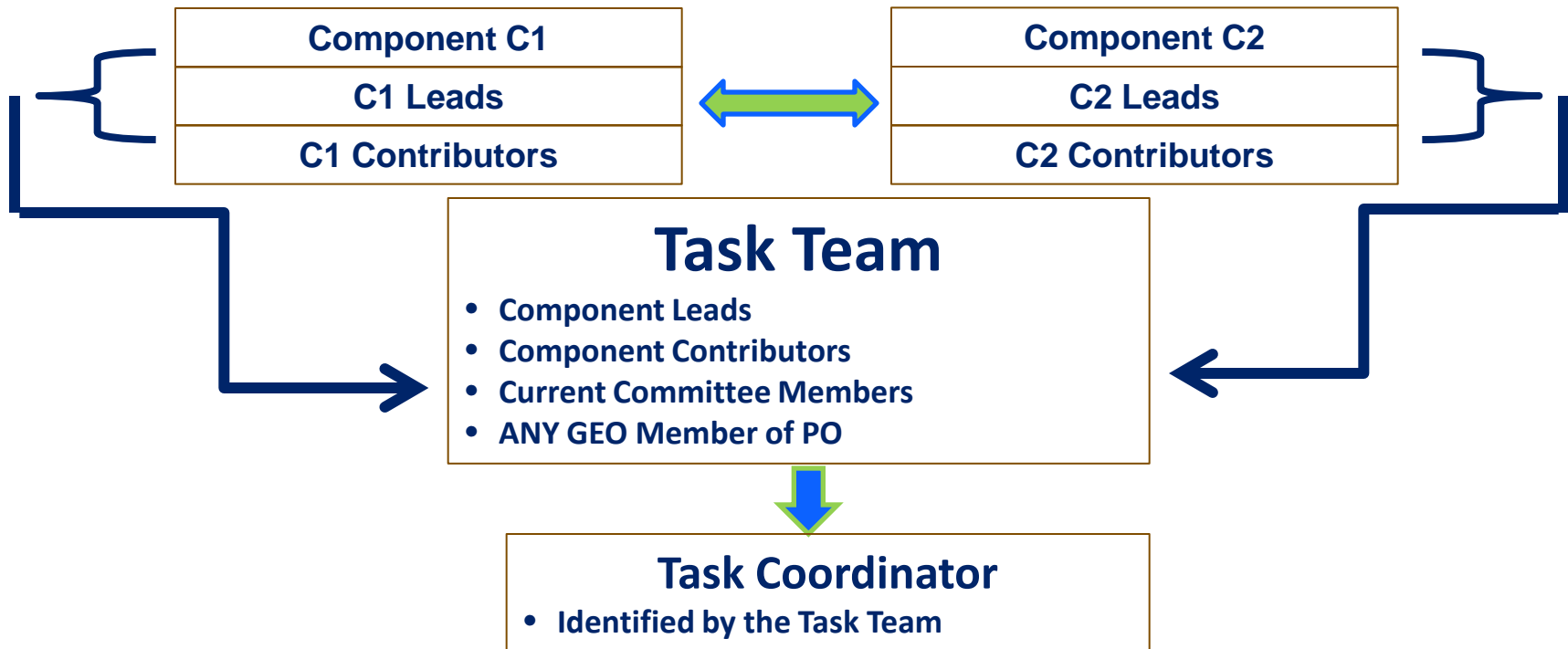


BACKUP SLIDES



Across Component Coordination

- Task Team
- Communities of Practice
- GEO Secretariat



- Each Component has one identified POC, which represents one of the Leads
- Task Team:
 - Management, execution, cross-coordination of the Task Components
- Task Coordinator:
 - Foster interaction, ensure cross-fertilization of Component activities



Three Boards:

- Infrastructure Implementation Board (IIB) ~15
- Institutions and Development Implementation Board (IDIB) ~20
- Societal Benefits Implementation Board (SBIB) ~25

Implementation Board Composition

- Current Committee Members
- One expert per each Thematic Task
- One member from each of the other 2 Boards
- Additional Members as appropriate, to fill gaps in coverage and/or expertise
- GEO Secretariat

Objectives of the Boards:

- Monitor progress towards 2015 GEOSS Strategic Targets
- Coordinate activities across Work Plan Tasks
- Advise on the implementation of Tasks