Decision Document on CEOS participation to GEOGLAM

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Purpose

To provide CEOS SIT members with information on the GEOGLAM initiative, and facilitate a formal decision on a suggested CEOS partnership with GEOGLAM during its initial implementation phase.

Reference documents

1. Ministerial Declaration: "Action Plan on Food Price Volatility and Agriculture," Meeting of the Group of Twenty ("G20") Agriculture Ministers – June 22-23, 2011

2. March 19, 2012 draft GEOGLAM Work Plan – with CEOS edits supplied

CEOS Context

As part of the Lucca Statement, CEOS Agencies have agreed to look at the definition and implementation of new activities in support of sustainable development and environmental management. More specifically, to help address food security and hunger relief, CEOS is continuing its support of the GEO Joint Experiments for Crop Assessment and Monitoring (JECAM) project. CEOS is also in an initial dialogue with GEO on the latter's efforts to support the G20's stated intent to develop a global agricultural monitoring "system of systems".

G20/GEO Background

Economic, demographic, and environmental trends point to the prospect of greater food scarcity in many regions of the world. In response to these worrisome trends, G20 Agricultural Ministers adopted an Action Plan on Food Price Volatility and Agriculture in June 2011 (ref 1). The Plan calls for wide-ranging cooperation among member states and external partners to address the issues of food price volatility, agricultural productivity, and food security. It called for a combination of enhanced cooperation among existing programs, and new initiatives to ensure a safe, sufficient, and nutritious food supply for the World's population.

Ensuring the full and open exchange of timely data and information about crop status, crop yield forecasts and food-commodity supply predictions can lower uncertainty and increase the

transparency of global food supply. Enhanced understanding of global production would contribute to reduced price volatility by allowing local, national and international operators to make decisions and anticipate market trends with reduced uncertainty. These developments would improve national agricultural policies and further the cause of food security.

Accordingly, the G20 endorsed a new initiative, outlined in Annex 3 of the Action Plan, the "Global Agricultural Geo-Monitoring Initiative". Following further consultation and coordination with GEO, this became known as the GEO Global Agricultural Monitoring Initiative (GEOGLAM). The goal of GEOGLAM is to "reinforce the international community's capacity to produce and disseminate relevant, timely and accurate forecasts of agricultural production at national, regional and global scales" with the overarching goal to improve operational global and national crop production estimates using Earth observation data. This will be achieved by: 1) enhancing national agricultural reporting systems, including through a global remote sensing and geo-spatial education curriculum to ensure training of participants worldwide; 2) establishing a sustained international network of agricultural monitoring and research organizations and practitioners; and, of most relevance to CEOS, ***3) creating an operational global agricultural monitoring system of systems based on both satellite and in situ observations.***

Under Mexico's G20 Presidency, which includes a priority focus on "Enhancing food security and addressing commodity price volatility…", GEOGLAM is under continued development. Its first draft Work Plan (Ref 2) will be provided to a G20 Agricultural Preparatory Meeting of experts in Mexico in mid-April. More information regarding GEOGLAM's planned implementation structure, deliverables, and governance can be found in this document. CEOS had significant comments on Component 4 of the Work Plan, "Earth Observations (satellite and in situ)," and expects to remain in dialogue with GEO for further iterations.

Analysis

GEOGLAM remains a work in progress, and more will not be known about its scope, direction, and schedule until it is further defined in connection with key G20 meetings this year. That being said, two elements of GEOGLAM are of particular importance to CEOS: 1) its intention to provide a framework for data acquisition, and 2) its intended organization and governance.

Space-based Earth observation (EO) data sets are expected to play a foundational role in the successful achievement of the GEOGLAM objectives. Therefore, while it is understood that CEOS has not yet committed support to GEOGLAM, CEOS has agreed to be involved in the early planning process of the initiative. CEOS involvement is required in order to better understand: 1) what type of data and information would be expected from the CEOS Agencies; and, 2) if CEOS were to support GEOGLAM, how interested CEOS Agencies may cooperate in the most efficient and effective manner.

The current draft GEOGLAM Work Plan actually reads more like a framework/guidance document, and at this point, GEO does not intend to develop more specific implementation details. The GEO Secretariat's reasoning on this is that GEOGLAM is intended to serve a

bridging function among existing or new organizations, programs, and initiatives. Therefore, further implementation details (if needed) will be left to them.

In the opinion of interested CEOS representatives, while the Work Plan's Earth Observations Component (Deliverable 4) fits the GEO Secretariat's overall approach, many further details of implementation will need to be developed with the appropriate partners. Of particular interest to CEOS should be scoping effort for the types and amounts of EO satellite data from CEOS Agencies that is desired by GEOGLAM, and the costs for acquiring, processing, and making them available on a routine basis. While these costs remain to be estimated, they are certainly higher than the $1million per year figure provided in the current GEO Work Plan draft. Indeed, detailed cost estimates are required and should precede any specific GEOGLAM data requests to CEOS Agencies and commercial data providers. CEOS has informed GEO that these costs are important ones for its member agencies to account for, and would need to be factored into future implementation arrangements.

CEOS should also be interested in other details regarding GEOGLAM's organization, governance, timetable, and relationships with key stakeholders (e.g., FAO and WMO) and programs supported by CEOS Agencies. This could be done through CEOS representation in the GEOGLAM governance structure. GEOGLAM has informally notified CEOS of its interest in having CEOS serve on GEOGLAM's Steering Committee and its Earth Observations Implementation Team.

Recommendations and Requested Decisions

Understanding that GEOGLAM is on a fast track and that CEOS is being asked to play a critical role in its further development, we recommend the following steps:

1. That CEOS agree to serve as a full partner to GEO in GEOGLAM program development.

2. That CEOS work closely with the GEOGLAM task team and GEO Agriculture Community of Practice (CoP) to define the data requirements and related attributes (type of data, frequency and timing of acquisitions, geographical areas, etc.) for GEOGLAM operations. The first stop in this process would be for appropriate CEOS and GEOGLAM representatives to meet early in June/July 2012 timeframe, to discern and agree upon the various costs and levels of CEOS Agency effort involved in addressing GEOGLAM data requirements, in whole or in part. Results of this meeting would be provided to CEOS Principals and other appropriate groups (e.g., the Land Surface Imaging Constellation, Space Data Coordination Group, and CEOS Working Groups).

3. That CEOS agree to participate in the GEOGLAM governance structure (e.g., Steering Group, Earth Observations Implementation Team), though designation of appropriate representatives.

4. That CEOS work with GEOGLAM to develop a fluid, sustained and continuous framework for data provision and dissemination, to meet GEOGLAM needs in whole or in part. This would require CEOS Agencies' participation in the estimation of costs, and

efforts to secure internal or external funding, and system engineering and architecture development for robust GEOGLAM operations (on a best efforts basis).

5. That CEOS not consider this effort in isolation, but in tandem with ongoing or potential future CEOS efforts that involve similar EO data sets (e.g., GFOI, Geohazards and other disasters, GEO BON, etc.), to maximize efficiency and cost-effectiveness[1].

Conclusion

The G20 is moving ahead with GEOGLAM, and its member national governments (including space agencies) will be expected to support it. Rather than being done for the G20 on an agency-by-agency (or government-by-government) basis, it would seem appropriate for CEOS to play the role in coordinating the EO component among its supporting members. This approach has been successfully demonstrated with FCT and GFOI, and is on a solid initial footing with JECAM.

Much like FCT/GFOI, GEOGLAM offers CEOS Agencies the opportunity to demonstrate the value of coordinated space-based Earth observation missions in support of common societal objectives. Collectively, CEOS Agencies have the capacity to provide unique information that can demonstrate the fundamental value of EO to one of humanity's most urgent problems: food security. This will be an ambitious, expensive, and complicated undertaking – but one within the reach of CEOS to effectively support with appropriate coordination and engagement.

[1] It should be noted that crop-growing regions are a relatively small portion of Earth's land surface, and that the frequency of data acquisition would be limited to periodic coverage during their growing seasons.