

## **Data Sharing Principles – White Paper for Plenary**

Task DA-06-01 of the 2007-2009 Work Plan is entitled “Invite experts to identify steps required to further the practical application of the agreed GEOSS data sharing principles”.

Guidelines on data sharing have been drafted by the Task team in the form of a “white paper” that identifies options for implementing the agreed GEOSS data sharing principles. The first draft of the Executive Summary of this White Paper on Data Sharing Guidelines for GEOSS is attached for information and comment. The draft full paper will be available at the 9<sup>th</sup> Executive Committee meeting. It is based on findings from a dedicated Workshop, organised by ICSU-CODATA, and several subsequent meetings of Task members.

The Task Team is looking for further enhancement of the Team membership and plans a benchmark Workshop to be held in October this year to further these guidelines and achieve wider acceptance by the GEO community. An updated version of the White Paper including a course of action for the practical application of the principles will be available for the GEO Plenary and the Ministerial Summit.

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**WHITE PAPER AND IMPLEMENTATION GUIDELINES FOR  
THE GEOSS DATA SHARING PRINCIPLES**

*EXECUTIVE SUMMARY*  
**[Preliminary Draft]**

**CODATA, Paris**  
**2007**

## EXECUTIVE SUMMARY

According to the Global Earth Observation System of Systems (GEOSS) *10-Year Implementation Plan*, the purpose is “to realize a future wherein decisions and actions for the benefit of humankind are informed via coordinated, comprehensive and sustained Earth observations and information”. GEOSS is seen by its participants as an important contribution to meeting the United Nations Millennium Development Goals and to furthering the implementation of international treaty obligations. GEOSS will encompass all areas of the Earth, with a particular emphasis on addressing the needs of developing country users. GEOSS will incorporate *in situ*, airborne, and space-based observations and address the integration of observations with models to support early warning and prediction. It is anticipated that GEOSS will focus initially on information needs in nine societal benefit areas, ranging from disaster management to sustainable agriculture to climate variability and change.

The GEOSS *10-Year Implementation Plan* explicitly acknowledges the importance of data sharing in achieving the GEOSS vision and anticipated societal benefits. The Plan, endorsed by nearly 60 governments and the European Commission at the Third Earth Observation Summit in Brussels, highlights the following GEOSS Data Sharing Principles:

- 1. There will be full and open exchange of data, metadata, and products shared within GEOSS, recognizing relevant international instruments and national policies and legislation.**
- 2. All shared data, metadata, and products will be made available with minimum time delay and at minimum cost.**
- 3. All shared data, metadata, and products free of charge or no more than cost of reproduction will be encouraged for research and education.**

All new members of GEO are required to endorse the Plan and therefore these Principles. The Plan notes that “use of data or products does not necessarily imply agreement with, or endorsement of the purpose behind the gathering of such data.”

In 2006, the GEO Secretariat requested the Committee on Data for Science and Technology (CODATA), an interdisciplinary committee of the International Council for Science (ICSU), to recommend implementation guidelines and draft a background white paper. Based on the CODATA Task Group's analysis of the *GEOSS 10-Year Implementation Plan*, applicable international agreements and practice, and extensive consultation with experts on data policy from around the world, the following guidelines are recommended for further implementation of the GEOSS Data Sharing Principles:

- 1) In order for a system to become an official component or element of GEOSS, it must provide access to data, products, or services—and associated metadata—in compliance with the GEOSS Data Sharing Principles and with other technical requirements established by GEO.**
- 2) For GEOSS to realize its full potential, it is essential that the “full and open exchange of data” called for in the Data Sharing Principles apply to GEOSS data, metadata, and products even after such data are disseminated to users. Users need to be able to reuse, re-disseminate, and revise data and information with minimal restrictions in order to achieve maximum benefits.**
  - a. Further, GEO should encourage all GEOSS components that are developed and operated by governmental, public-sector organizations to provide most if not all of their data, products, and services without any use, reuse, or re-dissemination restrictions.**
  - b. GEO should also encourage all other GEOSS components that are developed and operated in whole or in part with private-sector support to provide at least a useful subset of their data, products, and services without any use, reuse, or re-dissemination restrictions.**
  - c. Procedures need to be established by GEO to monitor the compliance of GEOSS elements with the GEOSS Data Sharing Principles and to take actions needed to address any noncompliance issues.**

- 3) **In accordance with the Data Sharing Principles, GEOSS needs to allow for appropriate restrictions on data use and dissemination based on international instruments and national policies and legislation. Such restrictions pertain mainly to concerns regarding the protection of: national security, intellectual property, privacy, confidentiality, indigenous rights, and conservation and protection of sensitive ecological, archaeological, or cultural resources.**
  - a. **GEO needs to establish a strong focal point for coordinating and simplifying these restrictions to avoid the development of a confusing array of vague and inconsistent use policies and approval procedures.**
  - b. **GEO Members should establish single points of contact to coordinate information on and interpretation of restrictions applicable to their GEOSS elements.**
  - c. **GEOSS should utilize machine-readable, common-use licensing approaches that place primary responsibility for compliance on data users rather than on technical controls on data access.**
  
- 4) **GEO should set standards for “minimum cost,” ranging from the cost of reproduction for research and education activities to no more than the recovery of the cost of the data system operations.**
  - a. **The costs of data collection and system development and integration into GEOSS should not be considered an allowable part of cost recovery.**
  - b. **Although the Data Sharing Principles in theory allow for recovery of minimum costs for access to metadata, in practice, metadata should generally be made available openly at no cost, to enable users to discover sources of data and information without restriction.**
  - c. **GEO should encourage development of flexible, online cost recovery mechanisms that allow users of different types to understand their access costs.**
  - d. **GEO should encourage cost recovery models that minimize costs for developing country applications and users not covered by the research and education principle.**

- e. **GEO should strongly discourage cost recovery approaches and licensing arrangements that require payments for reuse of data and products already acquired.**
- 5) **GEO should set standards for “minimal time delay” within GEOSS, depending on the type of data and application and the need for appropriate quality control.**
    - a. **For operational systems, time delays should be minimized through automated quality control procedures.**
    - b. **For research data, time delays may need to include a limited period of quality control by the data provider. These should reflect the norms of the relevant scientific communities or data processing centers.**
  - 6) **GEO should develop and adopt clear definitions of “research” and “education,” preferably focused on the planned use of data rather than the status of the user.**
    - a. **Cost reductions provided for research and educational activities and for support of developing country applications should be documented, if possible.**
    - b. **Users receiving data at reduced or no cost should be strongly encouraged to provide impact metrics and information regarding their use of the data.**
  - 7) **GEO should develop minimum standards for data attribution and usage metrics to ensure that the overall utility and impact of GEOSS data, products, and services can be objectively documented.**
    - a. **Data attribution should include recognition of all significant data sources or authors and of the GEOSS component that enabled access and delivery of the data.**
    - b. **Usage metrics should capture not only the “throughput” of data, products, and services enabled by GEOSS, but also the quantitative and qualitative impact of GEOSS data, products, and services across the nine societal benefit areas and in other important realms.**