

Key elements of the GMES EC Draft Action Plan

Initial Period 2001-2003

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1. INTRODUCTION

GMES is aimed at the establishment by 2008 of a European capacity for the provision and use of operational information for monitoring and management of the environment and for civil security¹. The initiative and the strategy for its implementation are described in the common EC/ESA document, "*A European Approach to Global Monitoring for Environment and Security (GMES): Towards Meeting Users' Needs*"², which was tabled at both the Research Council and the ESA Council in June this year.

In this context, a draft EC GMES Action Plan is now being finalised. The plan will cover activities for the initial period from 2001 to 2003. It will be complementary to the GMES implementation proposal of the European Space Agency³.

The present document contains key elements of this draft Action Plan, intended in particular to inform potential applicants to the EU Research Programme on Environment and Sustainable Development⁴.

¹ A sustainable Europe for a Better World: A European Union Strategy for Sustainable Development. Commission's proposal to the Gothenburgh European Council. COM(2001)264final of 15.5.2001.

² SEC(2001) 993 of 16/06/2001 Commission Staff Working Paper - Joint document from Commission services and European Space Agency.

³ ESA/PB-EO(2001)57, rev. 1 - European Space Agency - Earth Observation Programme Board - The ESA Implementation Proposal for GMES.

⁴ <http://www.cordis.lu/eesd>

2. OBJECTIVES OF THE ACTION PLAN

- Answering users information needs by delivering information products and pilot services on priority environment and security topics.
- Assessing the current capabilities, organisational elements and policies influencing the supply of information.
- Preparing proposals of technical, scientific and institutional or organisational nature for the establishment by 2008 of a European capacity for GMES.

3. WORK PROGRAMME

The joint EC/ESA Implementation Strategy⁵ foresees three Strands of activities:

1. Deliver specific information and information services on the basis of user driven applications and learn from these;
2. Assess the information production processes and structure the demand and supply sides;
3. Develop the required infrastructure and the knowledge base in order to secure and improve a sustainable approach to the delivery of information.

The Action Plan 2001-2003 will address mainly the first two strands of activities.

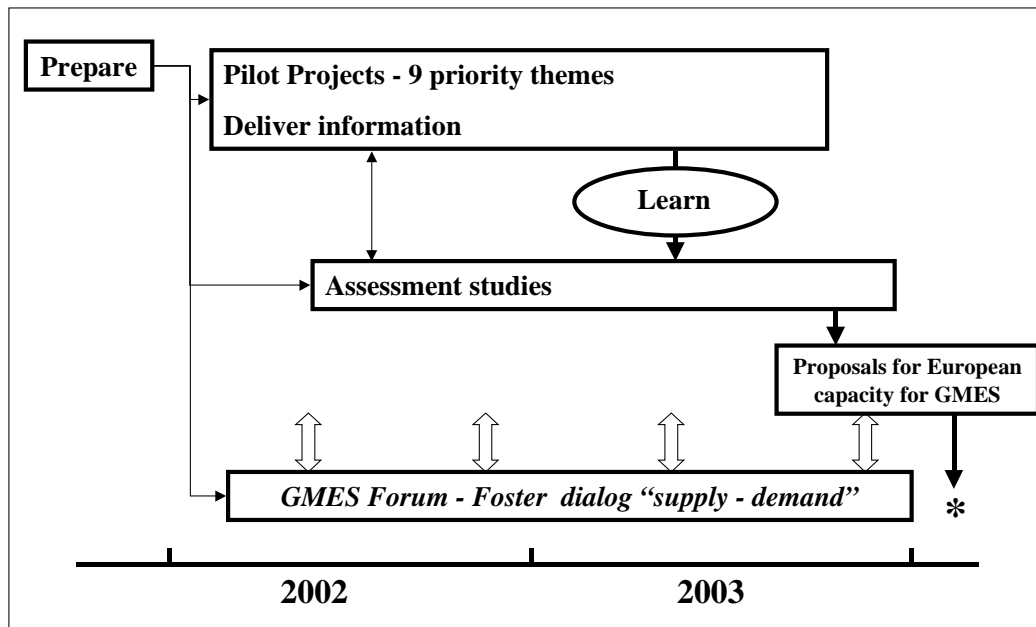


Figure 1: GMES Action Plan 2001-2003

⁵ See note 2.

3.1. Delivering Information and Services - Strand 1

3.1.1. Priority themes

During the initial period, information products relating following EU priorities in the fields of environment and security will be delivered (details, see annex):

European Regional Monitoring

- A: Land Cover Change in Europe⁶
- B: Environmental Stress in Europe

Global Monitoring

- C: Global Vegetation
- D: Global Atmosphere
- E: Global Ocean

Environmental Security

- F: Support to Development Aid
- G: Systems for Risk Management
- H: Systems for Crisis Management and Humanitarian Aid.

Horizontal Support Actions

- I: Reference data and Information management tools; and contribution to the development of a European Spatial Data Infrastructure.

3.1.2. Projects requirements and outputs

GMES projects should meet the following requirements:

- (1) Correspond to one of the thematic priorities as described in Annex.
- (2) Deliver information for supporting policy implementation, policy development or policy monitoring, at a scale relevant to European policies (from the global to the local level), in the perspective of the development of the supply of regular services after the Initial Period.
- (3) Preferably complement and add value to ongoing or planned activities of information production in support of policy implementation, development or monitoring.
- (4) Able to deliver results within the timeframe of the Initial Period.
- (5) Appropriate to support the assessment of the technical, political, socio-economic, institutional/organisational and scientific requirements and obstacles for the development of fully operational services beyond the GMES Initial Period.
- (6) Based on an active involvement of the actors, both users and service/information providers. Where possible and relevant involve pan-European partnerships including partners from various sectors.

The following outputs are expected:

⁶ Especially European Union and Candidate Accession Countries

- (1) Information services, products or systems, responding to users' needs and validated by them, leading to the provision of operational services
- (2) Reports on obstacles to information production identified in the course of the project and suggestions for solutions. These reports will feed Strand 2 assessments on data/information requirements, data policies, infrastructures, research needs, institutional and organisational aspects, etc.

3.1.3. Origin of projects

The projects which will feed the GMES Initial Period may be of different origins, consisting of:

- projects financially supported by EU and ESA programmes,
- stakeholders projects funded from other resources.

Particular attention will be paid to ensure the complementarity of EU and ESA funding sources, e.g. by explicit cross-referencing in the respective calls.

a) Projects financially supported by EU and ESA programmes:

FP5: The 5th EU Programme for Research, Technological Development and Demonstration in particular:

- The Work programme for Energy, Environment and Sustainable Development (**EESD**)⁷. Sections of this Work Programme are directly in line with the objectives of the GMES Initial Period. In particular the section “Development of generic Earth observation technologies” under the activities of a generic nature, as well as the section “European component of the global observing systems” under the Key Action Global Change, Climate and Biodiversity. Project proposals in scope with other sections of the Work Programmes may also be relevant and allow for the setting up of a project proposal fully dedicated to GMES or of dedicated work packages within a wider project.
- The work programme for User-friendly Information Society (**IST**). The section on Cross Programme Actions - CPA 3 - Use of Geographic Information.⁸

The last call for proposals under EESD and IST Research Work Programme is currently open with a deadline for submission of proposals of 15 October 2001 (EESD) and 17 October 2001 (IST).

⁷ EESD work programme: <http://www.cordis.lu/eesd/src/research.htm>

⁸ IST - CPA 3: http://www.cordis.lu/ist/bwp_en6.htm

It should be noted that the duration of a typical EU FP5 supported project is superior to the GMES Action Plan period. This means that applicants interested to submit GMES targeted projects should make sure that their proposals include work packages and deliverables falling within the Action Plan time table.

ESA: existing and new programmes to be adopted at the ESA Council at Ministerial level in November 2001 (EO Envelope Programme – 2d period and first batch of ‘Earth Watch’ elements). These programmes collectively cover – till 2006/2007 - both the R&D and the operational dimensions embedded in GMES. Calls for GMES dedicated projects may be expected in the first quarter of 2002.

b) Stakeholders projects funded from other resources:

Various projects corresponding to the GMES priority themes, funded under previous calls of the 5th FP, other EC financial instruments, or directly by stakeholders, may be currently running or may be launched in the near future. The integration of such projects, provided they answer or are willing to adapt to meet the GMES projects' requirements, may extend significantly the experiences on which the GMES assessments and recommendations will be based. In addition, this mechanism would allow to involve stakeholders closer in the preparation of proposals for future GMES operation.

Resources would be made available to support the integration of such projects in the GMES assessment process along with EU supported ones.

3.2. Assessments and Recommendations - Strand 2

3.2.1. Content

The assessment and recommendation tasks will study the various conditions of establishing by 2008 a European capacity for GMES, including the organisational aspects.

On the basis of the Strand 1 projects and existing knowledge the following actions will be pursued:

- To assess the obstacles to long term monitoring and efficient production and delivery of information for environment policies, and to identify solutions.
- To establish a structured and continuous dialogue on requirements and services between all those involved in the processes of data acquisition, production, delivery and use of information.

Assessments

The relatively low efficiency of the processes of production of information for environment and security policies finds its origin in obstacles of different nature (technical, scientific, socio-economic and institutional) which need to be assessed.

Technical and scientific assessments:

- The formulation of requirements for data and information, including data needs common to environmental and security issues.
- The data acquisition and measurements methods and infrastructures; data quality including the needs for standardisation and the gaps in data availability.
- Identification of gaps in scientific knowledge on environmental processes and the limitations of existing models and methods used to turn data into information.
- The current capabilities of information technologies to ensure the identification, access, retrieval and use of data and information.

Socio-economic aspects:

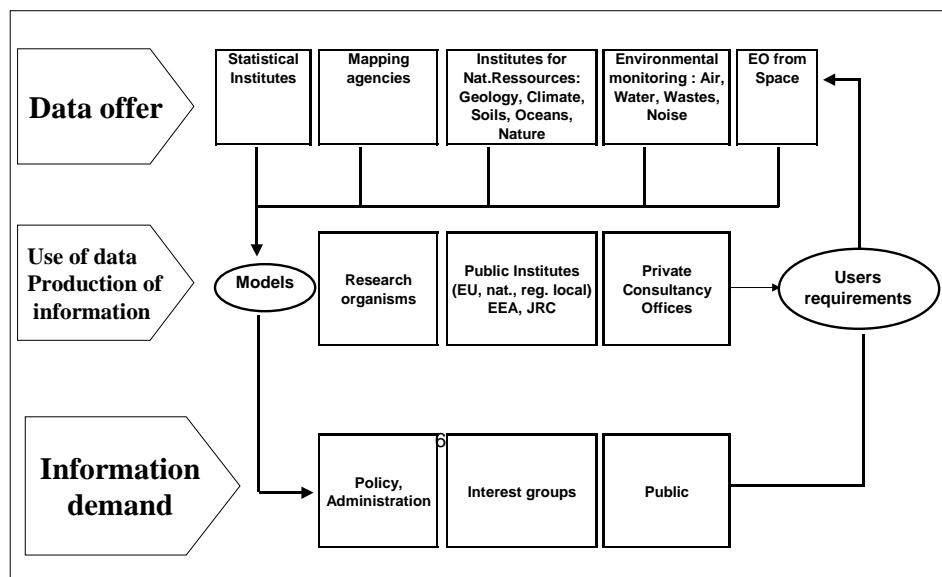
- The role of public funding, private initiatives, combined PPP approaches.
- Economic costs and societal benefits.
- Assess the capacity building for information production and use.

Institutional, organisational and policy issues

- The impact of data policy on the access and the cost-efficient use of information services.
- The links of monitoring requirements and legislation and policy.
- The independence of data, monitoring infrastructures, knowledge and of information.
- The consistency between the programmes of the many institutions and organisations involved in data acquisition and information production; the potential for organisational initiatives to allow the current and planned capacities to better meet the user requirements. The potential for 'dual-use' – environment and security - of existing and planned infrastructures.

The GMES Forum

The lack of coherence in monitoring programmes generates data sets that are



not comparable between countries and regions, and not consistent between themes and over time. At the other end of the information flow chain, the demand side is extremely scattered and is not in a position to send clear messages to the data suppliers on the user needs. All these actors and organisations (see figure below), acting more or less independently, need to become partners of a much better structured and organised information production process.

Figure 2: GMES Forum

The GMES Forum aims to rally the community of actors concerned with environment and security information. It provides a single setting where all those concerned within the various activities can meet to exchange experience and ideas. It may be augmented by tools such as web-sites, exchange servers, etc.

Through the Forum the stakeholders and interested parties will be kept informed on the progress of the GMES Initial Period and will have the possibility to contribute to the further development of the GMES initiative.

Intermediate and final reports on the obstacles to information production obtained through Strand 1 projects will be analysed within Strand 2. In particular, data requirements, data policies, monitoring infrastructures, research needs, institutional and organisational aspects will be assessed. The overall synthesis of these assessments will provide the basis for the elaboration of proposals of technical, institutional and budgetary nature for the establishment by 2008 of a European capacity for GMES.

3.2.2. Implementation

Intermediate and final reports on the obstacles to information production obtained through Strand 1 projects will be cross-analysed and processed into a small number of thematic assessments on, in particular, data requirements, data policies, monitoring infrastructures, research needs, institutional and organisational aspects. The overall synthesis of these assessments will provide the basis for the elaboration of proposals of technical, institutional and budgetary nature for the establishment by 2008 of a European capacity for GMES.

The assessment and overall synthesis, as well as the preparation of GMES Forum Conferences will be performed through studies, workshops and seminars, conferences, scientific and technical meetings. Resources are foreseen for such activities under the accompanying measures of the current Research Work Programme on Environment and Sustainable Development (next cut-off dates: 19/9/2001 and 15/02/2002).

3.3. Develop to Improve - Strand 3

It is not planned to develop Strand 3 activities under the Action Plan 2001-2003. However the assessments activities are expected to generate, among others, the

preparation of specific proposals on monitoring infrastructures, data services, IT developments and related research to be dealt with under the subsequent GMES period of work.

Annex: GMES Priority Themes.

EUROPEAN REGIONAL MONITORING:

A. LAND COVER CHANGE IN EUROPE

Goal: A characterisation of land cover changes (1950-2000) in the European Union and accession countries (EU 15+) of representative nature protection sites, ecosystems and landscapes; urban areas; coastal zones.

Relevance: 6th Environment Action Programme; European Convention on the protection of landscapes; Common Agricultural Policy agri-environment measures; the European spatial development perspective; EU coastal zones recommendation.

Potentials Users: Natura 2000 Committee; European Commission; EEA; European contribution to Millenium Assessment; networks of European cities and regions; European spatial planning Observatory; NGOs.

B. ENVIRONMENTAL STRESS IN EUROPE

Goal: Identify, map and characterise current “hot spot” areas of EU 15+ environmental stress, with respect to: oil spills; organic pollution in European seas; coastal erosion; soil degradation and desertification.

Relevance: International Conventions on seas; 6th Environment Action Programme; Coastal zones Recommendation; Convention on desertification.

Potential Users: European Commission; EEA; Coastal protection agencies; national and international environment administrations; Research organisations.

GLOBAL MONITORING:

C. GLOBAL VEGETATION MONITORING

Goal: Monitoring the conditions of the world’s vegetation in view of:

- detecting events and measuring changes in global forest cover with particular attention to the tropical and boreal forests;
- contributing to assessment of food security world wide;
- assessing carbon fluxes and stocks in the biosphere.

Relevance: International Conventions; Development Aid; International Humanitarian Aid.

Potential Users: European Commission; G8; Administrations of international organisations and Conventions; EU associated states; NGOs.

D. GLOBAL OCEAN MONITORING

Goal: Expand European capacity to producing global ocean information based upon existing monitoring capabilities; in support to seasonal weather predictions, global

change research, commercial oceanography and defence.

Relevance: Existing operational models, climate studies, economic interests, global security.

Potential Users: European Commission; climate research organisations; meteorological services

E. GLOBAL ATMOSPHERE MONITORING

Goal: Deliver regular assessments of state of the atmosphere with particular attention to aerosols, UV radiation and specific pollutants in close co-ordination with ground based networks.

Relevance: EU Air pollution policy and Conventions, Health policies.

Potential Users: European Commission; Research organisations; local authorities; public.

SECURITY-RELATED ASPECTS:

F. SUPPORT TO REGIONAL DEVELOPMENT AID

Goal : Contribute to the generation and transfer of know-how and technology in the context of the PUMA programme (Meteosat 2nd generation) focusing on land applications in Africa.

Relevance: Agricultural management; natural disaster assessment; regional approach; exploiting existing technological investments.

Potential Users: Regional and governmental organisations in ACP; United Nations; European Commission; NGOs'.

G. SYSTEMS FOR RISK MANAGEMENT

Goal: To deliver operational systems of support to risk management (early warning, impact assessment and reaction) in European sensitive areas for: floods; forest fires; oil spills; stability of man made structures.

Relevance: Citizen's concerns; public security; pooling resources at EU level.

Potential Users: All level of government (national and regional civil protection agencies; water basin authorities).

H. SYSTEM FOR CRISIS MANAGEMENT AND HUMANITARIAN AID

Goal : Develop an information system to deal with crises management and humanitarian aid with particular attention to : basic cartographic data with relevant information layers; diffusion, use and updating of information through interactive systems.

Relevance : Information critical for planning the delivery of aid and relief operations.

Potential Users: European Commission; Aid and relief agencies; field operators; NGOs; local authorities.

HORIZONTAL SUPPORT ACTION:

I. INFORMATION MANAGEMENT TOOLS and CONTRIBUTION TO THE

DEVELOPMENT OF A EUROPEAN SPATIAL DATA INFRASTRUCTURE»

Goal: A set of actions on information management (acquisition, accessing, sharing and using environmental and geo-referenced data) and the creation of harmonised info-structures with common portals that enable harmonised access to common information services throughout the user community. The actions relate to technology, policies, criteria, standards and qualification necessary to enhance common environmental info-structures and tools, geo-spatial data collection and sharing throughout government, the private and non-profit sectors and academia.

- Data acquisition; emphasis will be on topography (digital terrain models, hydrological network) and land cover at a scale appropriate to support decision making from local to EU+15 scale.

- Infrastructures and tools; developments will focus on advanced tools and systems, data fusion, data warehousing, data mining, and topic maps based on platform and domain independent information and meta-information systems with the emphasis on open standards.

Relevance: data layers are indispensable for spatial and thematic analyses and integration with data collected from ground based networks (air, water, meteorology, etc.) and through space and airborne earth observation systems. Support to the standardisation of IT systems and tools, sustainable development strategy, the 6th Environment Action Programme and the EU environmental liability schemes.

Potential Users: This priority is in support to various Community actions. All levels of government; the private and non-profit sectors; standardisation bodies; research organisations.