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**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

**on the European Earth monitoring programme (GMES) and its operations (from 2014
onwards)**

(Text with EEA relevance)

1. INTRODUCTION

The European Earth monitoring programme called GMES was established by the GMES Regulation (EU) No 911/2010¹ of the European Parliament and the Council. GMES is a flagship of the European Union space policy² in line with article 189 of the Treaty on the Functioning of the European Union enabling the EU to conduct space related activities. GMES is also one of the programmes to be delivered under the Europe 2020 strategy for smart, sustainable and inclusive growth³ and it was included in the industrial policy initiative of Europe 2020, given its benefits to a wide range of Union policies.

In order to respond to ever growing challenges at global level Europe needs a well-coordinated and reliable Earth observation system of its own. GMES is that system.

GMES is a long-term programme built on partnerships between the Union, the Member States, the European Space Agency (ESA) and other relevant European stakeholders. It is also a programme where the EU can play a more effective role than individual Member States in international cooperation through bilateral collaborations with other space faring nations or participation to global efforts in the field of Earth Observation (e.g. the Group on Earth Observations).

GMES will deliver a better understanding of how and in what way our planet may be changing, and how this might influence our daily lives. GMES will ensure an uninterrupted provision of accurate and reliable data and information on environmental issues, climate change and security matters to decision makers in the EU and its Member States. This information is needed by public authorities in the Member States and regions who are in charge of the policy conception and implementation. The Commission also needs this information for evidence based policy making and monitoring. GMES will also contribute to economic stability and growth by boosting commercial applications in many different sectors through full and open access to Earth observation data and information services.

Since 1998 and until 2013, funding has been allocated to GMES by the EU and the European Space Agency (ESA) mainly for development activities. In addition, first operational funding has been allocated for the transition to initial operations in the period 2011-2013. As of 2014, GMES will enter its full operational phase.

The European Parliament Resolution of 20 November 2008 on the “European Space Policy: how to bring space down to earth” highlighted the importance of the timely implementation of GMES. In its Communication of 4 April 2011 “Towards a space strategy for the European Union that benefits its citizens”², the Commission highlighted the importance of having a fully operational GMES programme by 2014. At its meeting of 31 May 2011, the Competitiveness Council invited the Commission to present by the end of 2011 a proposal for the operations and to clarify the governance of GMES from 2014 onwards.

In its Communication entitled “A Budget for Europe 2020”⁴, the Commission indicated that given the limits of the EU budget, it was proposed to fund GMES over 2014-2020 outside the

¹ OJ L 276 , 20.10.2010, p. 1.

² COM (2011) 152 final of 04.04.2011

³ COM (2010) 2020 03.03.2010

⁴ COM (2011) 500 final of 29.06.2011

multi-annual financial framework. Nevertheless, the Commission is still committed to ensuring the success of GMES, and in this context, it has elaborated this Communication in view of defining the appropriate governance and long term funding of the GMES programme from 2014 onwards. This Communication will launch the debate with the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions on the future of the GMES programme.

2. GMES: A USER DRIVEN EARTH MONITORING PROGRAMME

GMES is an Earth monitoring programme that allows for the collection of information about planet Earth's physical, chemical and biological systems. GMES services provide benefits to a wide range of users, from local to international levels. They have been designed to meet user requirements: their scope has been progressively fine-tuned through regular and consistent interactions with user communities. Under the GMES Regulation, a User Forum has been established to formalise this mechanism.

GMES provides crucial information for managing our environment in a more sustainable manner, enhancing the protection of biodiversity, monitoring and forecasting the state of the oceans and the atmosphere composition, understanding the drivers and the impacts of climate change, responding to natural and man-made disasters, supporting the development policies and strengthening the security of European citizens. It helps to improve decision-making and the implementation of a wide range of Union policies (transport, agriculture, environment, energy, regional policy, humanitarian aid, civil protection, development assistance to third countries ...). To address this wide range of applications, GMES architecture is based on three components: one service component that delivers information in support of environment and security policies, and two observation components (space-based and in situ infrastructures) that provide the data needed for operating the services.

3. EU ADDED VALUE

In the last thirty years, substantial R&D efforts in the field of Earth observation have been made in Europe, through national or international programmes, with a view to developing infrastructure and applications. However, existing capabilities are insufficient due to infrastructural gaps and lack of guarantees on their availability in the long term. Through the establishment of a consistent political framework at European level for structuring communities of users, consolidating their needs, and organising the European response, GMES was designed to ensure the provision of required data and services on a long term and sustainable basis, building on top of existing assets.

The EU investment aims at filling the observation gaps, providing access to existing assets and developing operational services. The European dimension of GMES leads to economies of scale, facilitates common investment in large infrastructures, fosters coordination of efforts and observation networks, enables harmonisation and inter-calibration of data, and provides the necessary impetus for the emergence of world-class centres of excellence in Europe.

Harmonisation and standardisation of the geospatial information at European level is a major challenge for the implementation of a wide range of Union policies. Many areas of environmental concern – such as climate change mitigation and adaptation policies – require thinking globally and acting locally. With GMES, the EU is ensuring its autonomous access

to reliable, traceable and sustainable information on environment and security, contributes through the GEOSS international initiative (Global Earth Observation System of Systems) to build global observational datasets and information and increases its influence in international negotiations and treaties such as the three Rio Conventions, the post-Kyoto Treaty, and other bilateral or multilateral agreements. GMES is recognised as the European contribution to building the Global Earth Observation System of Systems, developed within the framework of the Group on Earth Observations (GEO).

4. COSTS AND BENEFITS

Since its beginning in 1998 the overall funding allocated to GMES until 2013 by the EU and ESA has reached over €3.2 billion for the development and initial operations of the services, and of the space and in situ infrastructures. For the service component, the EU has provided funding resources of up to € 520 million, and ESA up to € 240 million. For the space component, ESA made some €1,650 million available and the EU €780 million (FP7 and GMES Initial Operation) including access to space data from national satellites.

After 2013, full continuity of all GMES components will include their full deployment, maintenance, evolution and upgrades and will require an estimated budget of €5 841 million⁵ for the period between 2014 and 2020, of which € 1091 million⁶ for the services, € 350 million⁷ for the in situ component and € 400 million (ESA estimates) for the space component, including access to contributing missions. GMES has not shown cost overruns in the past and is not likely to have cost overruns in the future since it is based on a structure that allows, if necessary, reprioritisation of the content and objectives of its different components in order to remain within foreseen costs.

According to a cost benefit analysis⁸, GMES is expected to deliver benefits worth at least twice the costs of investments for the period up to 2020 and four times the costs up to 2030. It represents a huge potential for economic growth and job creation with the development of innovative services and commercial applications in the downstream sector.

Earth observation, is a domain where the EU plays an important role that is recognised worldwide. If the EU investment is not guaranteed, the level playing field for Member States and European companies risks being lost to the emerging nations (e.g. Brazil, India, Russia and China) that are investing heavily in Earth observation.

5. FUNDING

On the basis of the Commission Communication entitled “A Budget for Europe 2020”, the Commission has proposed that GMES should be funded outside the financial framework from 2014 onwards.

⁵ 2011 prices

⁶ Figures based on precursor services (projects funded by FP7)

⁷ Figures based on EEA estimates in the frame of the FP7-funded GISC project <http://gisc.ew.eea.europa.eu/gisc-project>

⁸ Figures based on Booz & Company, Cost Benefit Analysis for GMES, final version, 19 September 2011.

Among the possible GMES funding solutions, the Commission considered three options: a specific GMES fund (similar to the model chosen for the European Development Fund), an enhanced cooperation option (which would involve Member States with a strong interest in the programme) and finally, the option of industry participation where responsibilities and funding would be shared with economic actors. In its assessment the Commission does not favour the latter two options since on one side enhanced cooperation would put the EU-27 dimension of the programme at risk and, on the other side, the experience gained with the Galileo project has already shown that attracting and retaining the private sector will be difficult in the short term and not in line with the public good dimension of the programme.

It is therefore proposed to set up a specific GMES fund with financial contributions from all 27 EU Member States based on their gross national income (GNI). The management of the fund will be delegated to the Commission. This will require an intergovernmental agreement between the EU Member States meeting within the Council. An outline of the agreement is presented in Annex I of this Communication. Management of the fund will be done under a set of financial rules to be adopted by the Council on the basis of a proposal from the Commission.

In order to ensure continuity of the programme, certain provisions of the internal agreement should be applied on a provisional basis from 1 January 2014 pending ratification by the 27 Member States.

Following the cost estimate detailed in chapter 4, the maximum financial envelope needed for the GMES activities (2014-2020) is €5 841 million⁵.

6. GOVERNANCE

The governance of the GMES programme requires political coordination and supervision, management of tasks and budgets, and technical coordination of the implementation. From 2014 onwards, an appropriate governance scheme has to be put in place to accommodate the needs of the operational phase.

6.1. Political supervision and management

It is considered that the Commission should remain responsible, on behalf of the Union, for the overall political coordination, including the negotiation of international agreements, the consultation of user communities based on the experience gained with the existing user forum, the adoption of the work programmes, ensuring links with sectoral policies, defining security and data policy aspects, and international cooperation aspects. However appropriate arrangements are necessary to accommodate the increase of programme management activities in the operational phase, requiring the involvement of specialized staff that are difficult to recruit within Commission central services. Setting up a new agency in the allowed time frame is not considered realistic so these tasks could be delegated to an existing European body. The possibility to delegate the management of the overall programme to the European Space Agency was discussed but seems not appropriate for several reasons: first, ESA is a research & development agency; second, ESA is a space agency whereas a large part of GMES goes beyond activities in space; and third, taking into account the fact that GMES should benefit citizens across the EU, the Commission favours a Community approach that involves all 27 Member States. Consequently, also in order to allow future synergies with the management of the Galileo programme, certain tasks relating to programme management,

such as evaluation, negotiation and follow up of contracts, could be delegated to the European Global Navigation Satellite System (GNSS) Agency (GSA).

It is proposed that, under the political supervision of the Commission, the programme management activities entrusted to the European GNSS Agency do not include operations and are related to, inter alia, the management of funds allocated to the programme and the supervision of the implementation of tasks. The administrative costs of the European GNSS Agency related to the management of the GMES programme should be covered by the GMES fund mentioned in chapter 5.

6.2. Technical coordination and implementation of the operations

In support to the Commission, the technical coordination of services could be entrusted to European entities having appropriate knowledge and expertise in related fields. The quality control and validation of products related to the implementation of sectoral policies will remain the responsibility of the Commission.

(1) The operations of the GMES service component would include:

(a) Operational activities:

- i) Global systematic/routine activities for monitoring and forecasting the state of the Earth's subsystems at regional and global levels covering in particular marine environment, atmosphere and air quality, global land and climate change monitoring services;
- ii) Regional/local on-demand activities covering in particular, emergency management, security and pan-European land monitoring services.

(b) Development activities consisting in improving the quality and performance of existing services, developing new service elements and fostering the downstream uptake.

The technical coordination of the land monitoring service may be entrusted to the European Environment Agency (EEA).

The technical coordination of the emergency management services may be entrusted to the European Emergency Response Centre (ERC)

The technical coordination of the atmosphere service may be entrusted to the European Centre for Medium-range Weather Forecasting (ECMWF).

The technical coordination of the other services (climate change, marine environment monitoring, and security) is under preparation in order to ensure timely and high quality services in line with the specific needs they are meant to cover. For their implementation, the Commission services and other European entities (for instance the European Maritime Safety Agency (EMSA), the European Union Satellite Centre (EUSC), the European Agency for the Management of Operational Cooperation at the External Borders (FRONTEX) or the European Defence Agency (EDA) could be involved.

(2) The operations of the GMES space component would include:

- (a) Operational activities: operations of the dedicated space infrastructure (i.e. Sentinel missions); access to third party missions; distribution of data; technical assistance to the Commission for federating service data requirements, identifying observation gaps, contributing to the specification of new space missions.

The operational activities of the GMES space component may be entrusted to:

- (1) The European Space Agency (ESA), ad interim, for the high resolution imagery observations over land and target-specific areas;
 - (2) The European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) for the systematic and global observations of the atmosphere and oceans.
- (b) Development activities: design and procurement of new elements of the space infrastructure; provision of technical support to the Commission for the translation of service requirements into specifications of new space missions with the support of space infrastructure operators; coordination of the development of space activities, including developments aiming at modernising and complementing the GMES Space Component.

The development activities maybe entrusted to the European Space Agency, with technical engagement of relevant European Commission services.

- (3) The operational activities of the GMES in situ component would include:
 - (a) Coordination of the provision of in situ data to GMES services with ad hoc administrative arrangements with the in situ operators;
 - (b) Coordination of the provision of third party in situ data at international level;
 - (c) Provision of technical assistance for the translation of GMES service data requirements into specifications of in situ observation infrastructure and networks;
 - (d) Interaction with in-situ operators to promote consistency of development activities related to the GMES in-situ component.

The technical coordination of the GMES in-situ component may be entrusted to the European Environment Agency (EEA) within the terms of its mandate.

For all the three components the implementation of GMES operations should be entrusted to operating entities through public procurement schemes, service level agreements or grants where appropriate.

6.3. Data and information policy

The GMES data and information policy will continue to build on the principle of a full and open access (subject to legal and security restrictions) and taking into account existing legislation (e.g. directive on the re-use of public sector information and INSPIRE) to achieve the objectives defined in Regulation 911/2010, namely:

- (1) promoting the use and sharing of GMES information and data;
- (2) strengthening Earth observation markets in Europe, in particular the downstream sector, with a view to enabling growth and job creation;
- (3) contributing to the sustainability and continuity of the provision of GMES data and information;
- (4) supporting the European research, technology and innovation communities.

7. CONCLUSIONS

The present Communication responds to the request of the Competitiveness Council of the 31 May 2011 to present by the end of 2011 a proposal for the operations and a clarification of the governance of GMES in the period from 2014 to 2020 and it launches the debate with the other institutions. It also paves the way for the long-term, sustainable governance and funding of the GMES programme.

Annex

Outline for an **INTERNAL AGREEMENT**⁹

between the Representatives of the Governments of the Member States, meeting within the Council, on the financing of the European Earth monitoring programme (GMES) under the multiannual financial framework for the period 2014 to 2020

FINANCIAL RESOURCES of the GMES fund

- The Member States agree to set up a European Earth monitoring programme fund, hereinafter referred to as the "GMES Fund".
- The GMES Fund shall consist of:
 - (a) An amount of up to EUR 5 841 million⁵ contributed by Member States in compliance with the contribution keys based on Member States' gross national income (GNI)
 - (b) Any other voluntary contributions from other entities (e.g. a new State acceding to the EU, a third country wishing to participate to the programme, international organisations, and/or any other voluntary contributions) may be added to the amount indicated in point a.
- The GMES Fund shall be available from the entry into force of the multiannual financial framework.
- The total amount of resources of the GMES fund shall cover the period from 1 January 2014 to 31 December 2020.

USE OF THE FINANCIAL RESOURCES

- The GMES fund shall comprise actions in the following fields:
 - (a) Operations of the GMES:
 - i. service component (atmosphere monitoring, climate change monitoring in support of adaptation and mitigation policies, emergency management, land monitoring, marine environment monitoring, security)
 - ii. space component ensuring sustainable spaceborne observations for the services areas referred to in point (i)
 - iii. support for *in-situ* data collection
 - iv. data access
 - v. support take-up of services by users
 - vi. measures to ensure the protection of infrastructure.

⁹ The Annex here proposed aims to provide only the main elements and to suggest the main headings for an Internal Agreement, based on the current European Development Fund-type agreement (OJ L 247, p.32 of 9.9.2006). It does not prejudice the outcome of any discussion with Member State on a final text.

- (b) Support measures aiming to cover costs linked to the programming and implementation of the GMES fund. The resources for support measures may cover expenditure associated with:
- i. the preparation, follow-up, monitoring, accounting, audit and evaluation activities directly necessary for the programming and implementation of the resources of the GMES fund managed by the Commission;
 - ii. the achievement of these objectives, through development policy activities, studies, meetings, information, awareness-raising, training and publication activities; and
 - iii. any other administrative or technical assistance expenditure that the Commission may incur for the management of the GMES fund.

IMPLEMENTATION

- The agreement will provide for implementation as concerns programming, management and implementation of the GMES fund, harmonising as far as possible Union and GMES fund procedures. In this regard, a regulation will be adopted by the Council on a proposal from the Commission.
- The agreement will provide for a financial regulation laying down rules for the establishment and financial implementation of the resources of the GMES fund, and the presentation and auditing of the accounts. This regulation will be adopted by the Council on a proposal from the Commission.
- The Commission shall be assisted by a committee (the "GMES Committee").
 - (a) The Committee shall consist of Representatives of the Governments of the Member States; it shall be chaired by a Commission representative and its secretariat shall be provided by the Commission.
 - (b) The GMES Committee shall adopt its rules of procedure, including its voting rules and tasks, on the basis of a proposal from the Commission.
 - (c) The GMES Committee may meet in specific configurations to deal with concrete issues, notably those relating to security (the "Security Board").'

FINAL PROVISIONS

- Each Member State shall approve this Agreement in accordance with its own constitutional requirements. The Government of each Member State shall notify the General Secretariat of the Council of the European Union when the procedures required for the entry into force of this Agreement have been completed.
- This Agreement shall enter into force on the first day of the second month following the notification of the approval of this Agreement by the last Member State.
- This Agreement is concluded for the same duration as the multiannual financial framework 2014-2020.