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Reflections of the Extended Consortium

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Working method and purpose of this document

GNU has assembled its Extended Consortium in that each Consortium member invited one or two persons interested in collaborating with the project. A well balanced group was formed representing different kinds of national and regional level stakeholders including users who are not members of the Consortium, and service providers, researchers and policy makers, who contributed their different and complementary perspectives to the planned joint undertakings.

The GNU Consortium and Extended Consortium have conducted two joint conferences, in January 2009 in Barcelona, Spain, and in January 2010 in Rome, Italy. Either conference consisted of two parts, the first of which was dedicated to disseminating GNU's results and to gather the Extended Consortium member's personal reflections and related experiences on these outcomes. At either conference, four parallel splinter sessions were formed, each related to a particular deliverable. Participants chose one of the sessions based on their personal expertise and interest. Each of the groups consisted of both Consortium and Extended Consortium members. These groups were facilitated by GNU Consortium members. Discussions focussed on

- gaining a deeper understanding of the deliverable
- providing feedback and adding value to GNU's outcomes, and
- recommending tangible solutions for already identified problems

The outcomes of these discussions were documented on pin walls and/or flip charts and, subsequently, included in updates of the respective GNU documents.

This document summarises the joint work. More detailed conference outcomes, including lists of breakout groups participants are available from the project website www.gmes-network-of-users.eu.

The second part of each conference was dedicated to work on specific further issues together, thereby taking advantage of the complementary views of the stakeholder representatives present. Again, based on the personal preferences of the participants, splinter sessions related to specific topics were formed. The results of these sessions are the subject of other deliverables. Besides the mentioned splinter sessions, the conferences also contained a plenary programme of introductory presentations and a concluding general discussion.

First Conference

1. General remarks

The following deliverables were discussed by the breakout groups: *GMES – A Users' Approach* (two groups covered different aspects of this comprehensive document), *GNU Experiences Report*, and *GNU Previous Projects Report*.

The participants highlighted that experiences by the Extended Consortium members go along with those of the Consortium members, which indicates that the various reports very well reflect the current situation in the GMES process. In various cases, the texts show unfulfilled expectations which are caused by communication problems and technical limitations. Additionally, the GMES focus has shifted during the process. Some participants felt that some of the GNU documents are too negatively biased, whereas most of the participants underlined the correct perception of the stakeholder involvement and, indeed, some frustration on the users' side. It was also found important that users face barriers when they intend to become part of a GMES project. It was recommended to elaborate and determine the role of the in situ component and to analyse the pros and cons of top down and bottom up approaches and of a possible compromise.

2. Services

The provided services were discussed regarding scale, quality and utility. The participants identified that the GMES services currently are not sufficiently linked to reporting obligations. Especially addressing current data gaps would be sensible. Some service providers did not sufficiently or not at all investigate users' current practices, including in situ work.

EO products focus too much on the international level. Often the core services cannot be effectively linked to existing methods and non-GMES services on regional and national level. It is hoped that the Downstream Services will provide this interface.

Additionally, stakeholders criticised that methods developed through GMES projects were rarely applied outside the particular project's context. Also options to use the raw data for other applications at the user premises were frequently not taken into account.

Products that provide more insight than final maps would increase users' understanding and acceptance of GMES. Likewise, GMES should put more

emphasis on the dynamic aspects of the products (considering time series, for example) than putting the efforts in developing reference data (because in the majority of the cases users have more accurate data anyway).

The products and services should take into account the integration of different ongoing initiatives. This focus on new products will provide a real added value to the GMES process in general, which will be higher if it could be closer related to different initiatives such as INSPIRE, GEOSS, SEIS, etc.

Some service providers have promised more than they can achieve and oversold their services. More honesty would increase users' trust in GMES. In general, services rarely are the all-in-one solution of EO and in situ data that was initially anticipated.

3. User needs and requirements

The success of GMES depends on articulating reasonable user requirements that services can be built upon, and it is crucial that all agreements between providers and users are observed.

When users articulate their needs, they are often incapable to directly express these in the form of technical requirements the data producing community can relate to. The same is true the other way round, in that services are often described in too technical a way to be understood by prospective users. All participants should consider this distinction between user needs and requirements. Users' needs can best be approached through an ongoing dialogue and in that service providers repeatedly update the inferred requirements. Dialogues have especially been neglected if user input is much deviating from the service providers' expectations.

Participants reported that well conducted training sessions have aroused interest in GMES services in several instances. Therefore training should not only be given to the core users in the GMES projects/services, but also to the final end users and decision makers addressed by the respective products. For the definition, consolidation and further harmonisation of requirements, user involvement has to be adequately related to the project resources allocated to service provision.

All splinter groups in one or the other form recommended to establish user groups or bodies with a political mandate. These expert groups should influence GMES not only regarding the services but also regarding the overall process and define strategic issues.

4. The broader political frame

GMES has paved the way for users to interact across borders. Nevertheless, a range of open issues exists between the various political levels among users and among users and other stakeholders. This includes the way how the Implementation Groups have defined the Core Service requirements which appears unclear to users on the national level. Likewise, the GMES in situ component is ambiguous in the frame of land monitoring. A formal way to define user requirements across the political levels is, thus, needed.

In the past, the process was more research dominated, but with the developments of operational Core Services and Downstream Services, a strategic partnership has to be agreed between EU and Member States (MS), particularly since GMES was meant to serve EU policies and directives. Such support for the MS (e.g. via harmonised products in Europe-wide coverage) was not realised although the MS are responsible for the implementation of most EU regulations.

Additionally it would also be of interest to perform a user consultation process before calls (e.g., FP7) are prepared in order to establish priorities and give to the users a role in the selection of future services.

It was recommended to establish national GMES focal points and National Reference Centres (NRC) for GMES in analogy to the network of EIONET-EEA.

The user influence on GMES is strongly correlated to user funding. To build the needed capacity, user organisations require budgets they currently do not have. This would also include recruiting new specialist (e.g., hybrid) staff to work with GMES products. Moreover, if the user organisation is involved in production, costs arise for satellite images and the time-consuming processing and other work needed.

One keyword that often appeared in the discussions was affordability. For several services the costs for users are not known. Investments for new services cannot be allocated and political decisions regarding the inclusion of GMES products in environmental monitoring will not be reached before a financial frame exists. Thus, it is crucial to clearly and transparently communicate all costs associated with GMES to national decision makers.

Second Conference

5. Quality criteria for GMES products

Synopsis of GNU findings

Data and service quality is a multidimensional matter, involving applicability (e.g. coverage and scale and timeliness), support of work (e.g. policy relevance, integration in users' procedures, fulfilment of users' needs), reliability (e.g. independent control, authenticated data sources, specified limitations), service orientation (e.g. transparent service chain, easy to handle technology, competition and market), and data systems (e.g. stability, interoperability, sound meta data).

Breakout group outcomes

The respective breakout group discussed the information provided in the deliverable *GNU Quality Criteria* and, as an additional source, in the document *Information Quality Criteria for Public Services* by Stefan Kleeschulte.

In general the extended stakeholder group confirmed the findings of the GNU project. Good quality of products made available to the user is a key element for acceptance of a product or service. The group confirmed that quality is not only related to an accuracy value derived during product validation, but quality has several facets.

In order to be acceptable (i.e. of good quality) a product needs to support the user in its daily work, e.g. in terms of ease, knowledge, and cost efficiency. Products are considered most useful if they provide additional information not yet available to the user (i.e. fill existing gaps) and if they can be linked to / combined with existing information (e.g. in-situ data) already available to the user.

It is obvious that a product to be integrated into the user's work flow must be provided at regular intervals by an operational, sustainable service.

To judge on the usefulness of a (new) product the user is interested in the details how the product has been derived: what are the input data, the methods used and how the final product has been evaluated. The information provided to the user should also contain any limitations of the product which are known a priori to the provider of the data.

During the development phase of a new product, good and intense communication between the user and the provider of the information is required to a) understand the requirements and the intended use of a product, b) the processing method and c) how the user will evaluate the fitness for purpose (i.e. which quality criteria might take precedence over other ones).

In the discussion on quality, the participants stressed that there is a difference between research and operational products. During the research and development phase of a product the user should closely accompany the production process (to know what he gets in the end). Once a product has reached operational status the role of quality changes – the quality is already known to the user and a product does not have to prove its quality anymore to the user.

The extended stakeholder group expressed also an opinion with respect to “multi-purpose” products. While multi-purpose seems to be desirable with regard to synergies and cost efficiency, it can also be problematic as the product will not meet any specific needs of the user and therefore will not be used.

6. Data catalogues / portals

Synopsis of GNU findings

The GNU partners have reviewed 20 mostly international data portals, mainly for EO and GIS data. In general users need a lot of data or products and data portals should give a structured overview on existing services and / or data (raw or value-added). With respect to user friendliness and functionality there is a wide range from specialist tools (e.g. EO data ordering tools) to applications for lay people and the general public (e.g. Google Earth).

Breakout group outcomes

As to be expected, the stakeholder representatives were aware of and used several additional (often regional and national) portals that had not been reviewed by the GNU partners.

The main comments made by the extended stakeholder group confirmed the findings of the GNU partners. Most valued functions of the data portals were the availability of data and the possibility to query and search for data.

Most critical comments related to the insufficient description (i.e. lack of meta data) of the data. Geographic coverage, temporal reference and contact information of the service provider were considered most important meta data elements.

The usability of the portals strongly depends on the structure and user friendliness, as 50% of the participants found the portals easy to handle while the other 50% considered them as too complicated.

7. Calibration / validation approaches

Synopsis of GNU findings

Currently validation does not have a very prominent and visible role in various GMES projects. Despite that validation is part of all projects, information on validation and their results are not always obvious from the different project web sites. So far, all projects developed their own validation documents and guidelines. But there is a strong need for harmonisation and common guidelines. Knowing that it is not feasible to dictate detailed guidelines, at least an inventory of user requirements concerning the validation should be made and these requirements should be met within the validation protocol and process. Further to the reporting of accuracy figures (including their ranges), validation reports should provide links to examples of practical use of the product. One element to build trust is to clearly state who was involved in the validation process, the method applied and to be clear and open about the outcomes of the validation process. This should be reflected in the validation report.

Breakout group outcomes

The group discussed the information provided in the deliverable *Assessment of Validation Practices*. The session focussed on the discussion of these results and a formulation of additional recommendations to the European Commission.

The group confirmed the relevance of the GNU findings and stressed the importance of good, transparent validation procedures and results to build customer confidence. As users are different and have different needs, detailed information about all validation steps would be useful.

The group expressed a fear that lots of experience on validation gained in FP6 and FP7 projects might get lost without a common action to provide this experience in a concise manner to the European Commission who then would disseminate the information in a formal way back to the GMES projects. As such recommendations would need a clear political decision to be accomplished, validation guidelines should be defined and provided by the EC. The definition should be based on experiences and suggestions gained in the individual projects. A list of concrete recommendations / guidelines has been made.

One important recommendation, apart from otherwise mostly technical points, is that service provider and the user need to be aware that validation is an important feature on the road to service acceptance. This includes good specifications of user requirements and intended use of the product as well as open discussion of product strengths and weaknesses on provider side.

8. International / Global opportunities

Synopsis of GNU findings

The international stakeholder group expressed a range of interests in as well as expectations from the GNU project. Expectations towards the GNU project range from organising the user community in an operational phase of GMES, better specification of user requirements through consensus building among various user groups, via links to GEO or INSPIRE to providing considerations on GMES governance.

Breakout group outcomes

The group discussed the summary of different interests in the GNU project that were expressed by the international stakeholder group in the Vienna meeting in March 2009 and which are documented in the deliverable *GNU International Stakeholders Group*.

The group discussed GMES on the international process level, thereby focussing on additional information needed to improve the overall knowledge of different international programmes and on current data and information gaps.

In fact most participants did not request more information on the existing and up-coming programmes, but better structured information (e.g. high level summaries), cross-cutting elements and guidance where to find the respective information, possibly packaged for different audiences' needs.

Main data and information gaps that urgently need to be addressed are access to EO data (i.e. licensing policies), service sustainability (in terms of finance as well as guaranteed availability of input data) and funding of in-situ data collections.

Specifically, data quality must be maintained in the long term, ideally with at the same time free data. Data continuity is a key quality especially for users in the field of the environment, because they work on long-term monitoring and reporting. Owing to current financial constraints, even for in situ data, long term funding is in many cases not secured. Moreover, GMES is not well balanced in this regard, since 2.6 Billion € are planned for the space segment, whereas currently only 3 Million are planned for in situ work.

This report and the other reports by GNU which are mentioned in the present document can be downloaded at the project website:

www.gmes-network-of-users.eu