GMES & Africa Baseline Study M&C Areas Chapter - Chronology of Comments 2009

W.Wiedemeyer

TEMPLATE FOR THE DRAFTING - THE GMES & AFRICA ACTION PLAN

Complementary explanations and slight revision for harmonization purposes, based on inputs received

30/07/2009

Note: this template is provided for drafting the GMES & AFRICA action plan document in a homogeneous manner. The consultants have to ensure that the text of their contribution for the thematic area they are in charge of:

- *does not exceed 10 full pages (A4 size) of Arial 10 characters with 2 cm margins;*
- *Responds, in the same sequence, to the headings listed below. It is expected that the size of each section will reflect the relative importance of each heading.*
- *is drafted as clearly as possible; and*
- *is described according to the following paragraphs:*

1. **TITLE: THEMATIC AREA**
2. **NAME OF THE EXPERTS** (EU, AFRICA)
3. **INSTITUTIONS** (address, tel., fax, e-mail)
4. **INTRODUCTION:** ***General introduction of the thematic context (and not of GMES & Africa or of EO in Africa), of the situation related to access to information and to information for decision making in support of development policies; pressures (or constraints), i.e. explanation of why it is important to further address the problem, to improve the current situation and to make use of EO technologies and integrate them with other information. To be addressed to non technical readers.***
5. **POLICY DRIVERS AND NEED ANALYSIS**: The **policy drivers** and their specific needs with regard to GMES and Africa, who GMES-Africa will help in your thematic area (end users), what is the expected impact on Africa's socio-economic development. ***The need analysis should draw clear objectives to address and improve the thematic situation. The needs are different when referred to different scales. National, regional and continental levels – and their articulation – should be considered.***
6. **IDENTIFICATION OF COMMUNITIES:** The identification of European and African users communities and stakeholders to be engaged in "GMES and Africa";
7. **MAPPING EXERCISE:** ***For clarity purposes, the information should be presented in form of a table.*** A mapping exercise aiming at the identification of relevant past and current activities:
   - Capacities in Africa as well as in Europe on which "GMES and Africa" can build on (including the work done by GMES, the GEO capacity building committee and other relevant international experiences) in the areas of infrastructure, projects and services;
   - Capacity building (education, training and research)

   Key institutions (at national, regional and continental levels), incl. networking (thematic, geographic,…). ***Institutions should be grouped by category of activity and mandate (Research, Operational centre, training, policy) and by geographical level.***

8. **IDENTIFICATION OF GAPS AND OF EXISTING OR PLANNED FUNDING PROGRAMMES:** ***for clarity purposes it is requested to address "gaps" and "funding programmes" (already foreseen in the template) in two separate sub-paragraphs***

8.1 GAPS: Identification of gaps where action is needed. ***This part should be carefully developed. For clarity purposes, the information can be provided in table format. It is necessary to address not only EO gaps but also "in-situ observation needs" and the articulation between EO and in-situ observation at different scales (continental, regional, national).***

8.2 EXISTING OR PLANNED THEMATIC FUNDING PROGRAMS: ***whenever possible and to the knowledge of the experts, identification of existing or planned funding programmes in the theme of interest, from different funding instruments and schemes in support to relevant activities for E.O. and for the "GMES and Africa" partnership*** (e.g., in the context of GMES, EC research and development programmes, GEOSS, AMESD, ESA and EUMETSAT programmes, EDF, regional initiatives, bilateral cooperation, etc.), when local African capacities and infrastructures are not sufficient and having in view the harmonisation of all assets for the long term sustainable development of services and the regional capabilities. Exploration of the typical communitarian instruments used for the general development of GMES, as well as the typical mechanisms in line with the EU external relation and cooperation policies, shall be pursued;

9. BUILDING GMES –AFRICA SERVICE

Due to the confusion by many authors between section 9 (building GMES Africa Services) and 10 (Structure of the Euro-African Cooperation), we recommend merging the two sections into a single one, keeping the title of Section 9.

LONG-TERM DIALOGUE AND GOVERNANCE ISSUES (to be skipped)

These two sections were considered in very different meanings by the authors. Due to frequent duplications and to the limited added value for the Drat 0 document, we kindly ask you to remove from your contribution expected for the 24th of August both sections of the initial template (discussed in Ispra in March), i.e. Section n° 9.1, "Long-term dialogue", and Section n° 10.1, "Euro-African cooperation – governance issues". Whenever relevant we will make use of your contributions provided in the chapter you sent in June for the overall chapter of Draft 0.

9.1 SERVICE DEFINITION AND PROVISION – identification of African requirements and needs and their integration in the proposed GMES services in Africa. Identification of the expected societal benefits of the services. Action plan for the development and implementation of sustainable services to African and European users, including interfaces with on-going GMES Europe and other relevant initiatives, such as national, multilateral and pan-African programmes and proposals related to space and derived applications (i. a. AISS, ARMC).

9.2 CAPACITY BUILDING: ***for clarity purposes it is requested to address "necessary elements" and "strategy" (already foreseen in the template) in two separate sub-paragraphs***

The identification **(9.2.a)** of the necessary elements to provide GMES services to Africa and to develop the complementary regional capabilities, and **(9.2.b)** of a strategy to implement them. Duly mandated institutions, data infrastructure initiatives in Africa, training programmes and capacity building, including research aspects, on Earth Observation (e.g., in the context of GEO, AMESD, TIGER, regional initiatives and etc..) shall be fully identified and exploited;

9.3 PRIORITISATION OF REQUIREMENT AND ACTIONS :

This section is crucial, probably the most important of the whole chapter as it will draw/outline the main needs and link them to the action, i.e. how to address them? Which steps to be done to make things operational and to ensure they work? Which to be addressed first? This section

will be based on the consultation with, and federation of, the African user communities and on the available portfolio and identified assets resulting from relevant projects, programmes, infrastructures and others. ***Focus on process (i.e. the whole chain) rather than on services and refer to the necessity to think in terms of "production chain" rather than on mere "service delivery" and in terms of sustainability of the production chain***;

9.4 ORGANISATIONAL SCHEME***: description of the possible organisation the system to be put in place to improve the current situation and seriously address the gaps/needs (category of institution, mandate, articulation between geographical scales).***

9.5. TIMETABLE: The setting of a timetable for long-term future actions in the development of "GMES and Africa" partnership.

9.6. INDICATIVE DEVELOPMENT PLAN AND BUDGET ESTIMATE: The development of a budgeted business plan for the thematic area. ***The order of magnitude is sufficient***

10. RECOMMENDATIONS: ***This section explains in summary what should be done and how it should be implemented (who does what). In other terms it is envisaged to summarize here the way the priorities identified in chapter 9 should be implemented***.

11. SUMMARY

Provide a one-page summary that will be used in the development of the project summary.

12. ANNEXES Additional explanatory material can be provided as annexes

2010

1. William Westermeyer -Global Climate Observing System

Senior Scientific Officer in the GCOS Secretariat Manager of the completed GCOS Regional Workshop Programme Facilitated development of the Climate for Development in Africa programme

Thank you for giving me the opportunity to comment on the draft of the GMES and Africa Action Plan. I will restrict my comments at this time to the Climate for Development in Africa Programme (ClimDev Africa). The authors do indeed make several references to this very important programme at various places in the text. However, these are made almost entirely in passing. As I read the text, the authors do not appear to be aware of the nature and scope of this programme or of its potential importance to the GMES and Africa Action Plan. Although ClimDev Africa has taken considerable time to get off the ground, it is important to know that it has been endorsed by the Heads of State of the African Union and also by the Conference of African Ministers of Finance, Planning, and Economic Development. The Global Climate Observing System Secretariat had a not inconsiderable role in facilitating the launch of the Programme, but it is now entirely owned by the African Union Commission, the UN Economic Commission for Africa, and the African Development Bank. The Bank has recently announced an initial grant of some $37 million for institutional support for four African regional climate institutions to undertake initial activities. However, as envisioned, this is only a first tranche, as the Bank has plans to seek funding from prospective donors (among them, no doubt, the European Union) of several hundreds of millions more in the next few years. In short, the Programme already has momentum (now growing), some funding, and high-level political support. The GMES & Africa plan needs to consider ways to develop synergies with ClimDev Africa and not to compete with it. As ClimDev Africa encompasses climate policy, climate observations, climate services, and climate risk management, there are plenty of places in which to cooperate and collaborate. Hence, for starters, I propose that you include a much expanded discussion in your document about ClimDev Africa (not just passing references that mainly indicate your unfamiliarity with the Programme) and that you propose ways to bring the two programmes together. The real energy behind ClimDev Africa at this time is the African Development Bank, so you need to make some connections there.

Of lesser importance, but still worth noting are the following: 1) in the table on page 20 of Section 2, you don't even mention the African Development Bank, which has by far and away been the most active in the programme--and the one which has contributed funding. UNECA is not really coordinating the Programme. It is more complicated, as the Programme has essentially bifurcated into two parts at this point. 2) In the chapter on (??) Water Resources Management, section 8.1, the authors mention that "beneficial synergies do need to be created with...ClimDev Africa." Good! 3) In section 7.7.2 of the natural disasters chapter the authors mention that "GEO has strong links to Africa through UNECA and other Africa based participating organizations such as AARSE, EIS-AFRICA and ClimDev Africa." This is completely false insofar as ClimDev Africa is concerned. GEO is not involved in ClimDev Africa at all, although it might have heard about it. GEO could at some point usefully help to give ClimDev Africa visibility and to facilitate access to funding, but so far it has done neither of these things. 4) In the same chapter, section 8.2.1 it is again implied that GEO/GEOSS and ClimDev are somehow linked, as in: "the comprehensive GEOSS Climate programmes in particular the ClimDev Africa." This is completely false. There is no connection.

I find the commenting process difficult to use, but could be available for follow-up discussions through email, etc.

2. **Jo Lambert** -**Infoterra**

Project Coordinator for FP7 Project GARNET-E: GMES and Africa - Regional Network for information Exchange and Training in Emergencies

The FP7 GARNET-E Project Consortium strongly welcomes the GMES & Africa Action Plan developed by the GMES and Africa Coordination Team, and totally supports this important initiative for improving access to Earth Observation (EO) products and services across Africa.

Our consortium partners have reviewed the draft document and found it well organised and reflecting the EO needs of Africa. We further appreciate that the preparation of the document was in full partnership between African and European experts. We welcome now the opportunity to comment on the content. Our comments are organised in two parts: We will start with general comments that apply to all thematic areas, to be followed by specific comments on each thematic area.

GARNET-E Comments

General Comments

The document emphasises the weak utilisation of EO information in Africa, due to the cost of data, accessibility, usability, reliability, limited local expertise and infrastructure. Whilst acknowledging that these are problems, we believe the underlying challenge is the limited understanding and appreciation by decision makers (End Users) on the use of EO and hence EO is not prioritised in national planning. We suggest the document should reflect on how to enhance decision makers understanding of the use of EO data and get their full commitment to integrate it in their development plan.

1. Usually EO data users have limited knowledge and understanding of the usefulness of EO products to support their priority areas. EO data providers and existing relevant African institutions need to demonstrate the various applications of EO information and create awareness among end users. We suggest the document needs to give attention to this challenge. We believe that once end users become aware of the usefulness of EO data, they will increase their demand for EO information, as well as allocating the necessary resources.

2. The document highlights existing international and regional EO institutions and networks for capacity development and infrastructure such as data collection, processing, archiving, dissemination and applications development, but less emphasis is given to the important role of the private sector. We believe the private sector is critical for sustainable utilisation of EO. We suggest as a strategy the document should give emphasis on the development of the private sector in Africa and enhance their capacity and create appropriate partnerships between local and international private sectors.

3. The general approach in this document seems top-down, focusing on continental and regional EO institutions. From our experience, this is often not effective and efficient, particularly to address disaster risk management and food security, which need local decisions. The document doesn't propose any mechanism on how to transfer knowledge to the end users in a sustainable way. Therefore, we suggest the document to be reviewed to incorporate a bottom-up approach.

4. The document seems to focus only on few low-resolution European Satellites such as EUMETSAT. There is vital need to consider the many other European, African and other satellites, especially including the private-sector supplied satellites that are of significantly higher resolution and useful for emergency response and security monitoring.

5. Finally, the document seems to advocate for free access of satellite data. This is not a simple policy decision; we think the focus should be on affordability and not free access.

As a general comment, the GARNET-E experience is that African countries want to take primary responsibility for their EO activities; this is evidenced by:

- The growth of independent African operational Earth Observation programmes;
- The development of African capacity for manufacturing satellites;
- Active African programmes to develop enhanced satellite imaging capability;
- Cooperation in the Disaster Monitoring Constellation (DMC)for enhanced response to regional disasters;
- Full participation in international EO programmes, including GMES (e.g. mapping Europe and Africa); and
- Setting up of regional training Geoinformatics centres already some 3 decades ago (RECTAS and RCMRD) that create capacity in GIS and remote sensing in Western and Eastern Africa, respectively.

National space activity enables African countries to develop centres of excellence which keep specialised expertise in country and attract trained expatriates back home. Closer coordination of the Action plan with national programmes may benefit from sources of national funding for home-grown activities. The growth of national African space programmes and the interest of other African nations in acquiring national space capability demonstrate the requirement for local ownership and control. The active participation of the DMC Consortium (led by GARNET-E partner, DMCii) in coordinating disaster response with the International Charter shows the value of coordinating national space efforts for regional and global disaster response. The establishment of space programmes providing a sequence of satellites which cooperate in orbit delivers data continuity and system resilience at a sustainable cost, borne by the participating nations.

With eight African and nine European members in the GARNET-E Consortium, and the relationship the GARNET-E network has already developed within relevant African agencies, we respectfully suggest that the GARNET-E project be represented on the GMES & Africa Steering Committee. This representation should come as a recognised FP7 Supporting Action on GMES and Africa. We also suggest that the GARNET-E project reference is included in the referenced GMES & Africa projects - for example in the mapping exercise, but also in other parts of the Action Plan where other projects' references are included.

<u>Impacts on Climate variability and change</u>

1. Climate change impact is a major concern of Africa. Drought, flood and food insecurity are major challenges of the continent but the document focuses on mountain glacier and urban climate pollution etc. We appreciate these problems, but we feel that they may not be priority focus areas for many of the countries. We suggest re-visiting this part and targeting the focus areas that address the needs of many of the African countries.

2. Impact of climate change is a major focus for many countries. Countries are currently developing their own strategy to address climate change impact. It is the right time to use EO data for addressing climate change impacts, but the whole focus of the document mainly concentrates on regional capacity development. We don't see any focus on downscaling of the use of EO data at national and sub-national levels. However, more action and measures are taken at subnational and national levels and hence the capacity building activity has to consider also this.

3. Furthermore, the document focuses on oceanic and atmospheric observation alone. Infrastructure to observe climate change from the ground in Africa is weak; particularly automated weather stations are limited. We suggest looking at this capacity and addressing the possibility of supporting oceanic and atmospheric observation with ground truth data.

4. Various organisations outside of Europe (e.g. USGS), are working in the field of climate change impact monitoring in Africa. We suggest conducting an assessment of who is doing what and upscale good practices

5. Climate change impact on health, water supply and food insecurity are not well reflected in the document

Natural and Human Induced Disaster

1. "Disaster risk reduction can be achieved through timely observation of hazards" – this statement is true, but only part of the story. Disaster risk reduction can only be fully achieved through the implementation of the full cycle of risk management, which includes Prevention, Mitigation, Response, Recovery and Rehabilitation. Timely observation of hazards is only one element of the whole cycle to achieve risk reduction. In this connection, the document uses Disaster Management and Disaster Risk Reduction interchangeably, but conceptually the two are different. Clarity and consistency of the terminology needs to be considered. The EO data can be applicable for Disaster Prevention, Mitigation, Recovery and Rehabilitation as well, and this has to be emphasised in the document. "Africa has limited capacity to characterize, monitor, and forecast hazards and disaster, set up early warning..." This statement is not entirely accurate. True, there is a need for improvement, but there are rich experiences in different parts of the continent. For example, the state of information and communication technology (ICT) for disaster risk management in Africa was recently comprehensively evaluated by Garnet-E partner ITC in the framework of the FP7 project AIDA, and includes an assessment of relevant capacities that could be adapted in other parts of the continent.

2. Recommendation: In the recommendation it gives due emphasis to EO data for hazard characterisation, prediction and early warning. We suggest broadening this idea and using information for Prevention, Mitigation, Response, Recovery and Rehabilitation and addressing the full cycle or Disaster Risk Management. Furthermore, drought is a very major cause of disaster and food insecurity in the continent. However, the document proposes three pilot projects, namely on flood, fire and dust storm. We propose to include drought as one pilot case.

We are concerned about the fact that there are no recommendations for the response aspect of emergency management in the Natural Disaster Theme. The report does acknowledge the importance of hazard characterization, prediction, etc.; however, the importance of integrating EO and rapid mapping products into the decision making process during the response is also crucial. Indeed, the range of recent projects and developments funded through GMES itself in Europe, such as GMES-Respond and the emergency response core service SAFER, as well as the International Charter "Space and Major Disaster" and UN-SPIDER, have illustrated the value of EO data in emergency situations. We would like to see this specific issue accounted for in the Plan.

The chapter does not adequately engage with the existing disaster-related African space programmes in Algeria (ASAL) and Nigeria (NASRDA), to integrate with the regional infrastructure and local requirements, and to benefit from the established coordination of disaster response effort between the DMC Consortium members.

Regarding this section of the Action Plan more generally, we are very concerned that many current activities are inadequately incorporated in the Plan. At present, international initiatives (e.g. International Disasters Charter) are major drivers in providing EO information for Africa. All of the major international initiatives of this kind should be more thoroughly considered and integrated in the Action Plan.

Even more surprisingly, the Plan makes no reference whatsoever to the many GMES projects and activities directly related to Disaster Management. Most specifically, as indicated above, the GMES Emergency Core Service, SAFER, is not mentioned anywhere!

Food Security and Rural Development

1. The document entirely focuses on how to increase production using EO data. It is true that production is one essential factor of food security, but production alone doesn't bring food security. Food security involves a comprehensive set of production, access and consumption. The document doesn't reflect food security in its complete content and the topic title doesn't address the content of the text. We suggest adjusting the topic in line with the content in the document, or discussing more clearly the role EO data can play for fulfilling food security including access and consumption.

2. There is an overlap between this topic and natural disaster topic. We suggest re-visiting the two topics and avoiding duplication or merge the two parts together.

3. In the document, VGT4Africa is mentioned a couple of times, but actually the project is now replaced by the larger DevCoCast project, also distributing data over the EuMetSat system (puma stations) but now also taking care of South America. It is, of course, good to mention VGT4Africa, but we must not forget DevCoCast especially in table 3 (also note, in table 3 the contact for GMFS should be also www.gmfs.info).

4. There is no mention of the "Satchmo" part of Geoland2, the GMES land cover core service project, directly relevant to Food Security issues.

5. To our point of view, the development of multidisciplinary Food Security, working at national levels should be stressed a bit more (this would help us tackle the data dissemination flow within a country). A nice example there is Senegal.

6. The fourth service definition on "land administration" is not yet fully expanded in the Chapter. The link to EO and land administration is not straight forward. We believe it is better to stress the need for well-defined and agreed upon aggregation levels for intercomparison of data and up-scaling the data.

7. In the implementation strategy, we suggest a section on training the trainers should be added. Indeed, at the sub-regional level (RCMRD, AGRHYMET…) there are already a number of experts; if sufficient effort is put on raising their awareness and knowledge they could use their mandate to train national experts. As such, we also ensure that there is a high level in the region from where the knowledge can be spread in the member states. Involvement of African Universities, so that curriculum building is ensured in a specific country could form the basis from which the experts could be selected later on.

8. Finally, in the recommendation section it is stated that value added products should be sensor independent. We do agree with this, but in practice this is not always easy, when working with comparison to historical averages, it is not always easy to switch between sensors.

Steve Palmer - **Met Office**

Technical Co-operation Programme Manager, Met Office, UK. Working mainly on projects in developing countries that help to build the capacity of other National Met. and Hydrological Services. This includes work across Africa.

Please note - numbering of *comments refers to sections in original document at http://gmes-africa.iict.ptlimages/pdf/GMESandAfrica_ActionPlan_VersionO.pdf*

As a general comment on the whole document, there is a noticeable bias towards promoting research activities and institutions while deferring or ignoring feasible actions to improve delivery of operational services. In the next drafting round, there should be a clear instruction to authors to ensure that research activities run in parallel with strengthening delivery of operational and practical services, and that there is guidance on the funding allocation between research and services.

Chapter· Policy and Institutional framework.

2.2 Need to recognise and work with existing institutional framework and policy, particularly under WMO (World Meteorological Organization) and WMO Region I (Africa), including explicit recognition of WMO CG-XII ReSOlution 40 and WMO CGXIII ReSOlution 25.

5.1 Generalises too much. Some data and application areas are much more developed than others, especially in the weather and climate field.

6.1 Need statement that GMES-Africa will work with and not undermine or conflict with existing institutional structures, especially national bodies, including National Platforms for Disaster Risk Reduction, and their related information providers.

6.2 Heavily biased towards research bodies and universities, and downplays operational organisations, especially National Meteorological and Hydrological Services (NMHSs) which are uniquely tasked with delivering weather and water information services for safety of life and property. There is a significant danger of confusion in disaster response if multiple bodies attempt to deliver conflicting messages. There must be a single authoritative voice at national level to provide information to disaster responders.

7 Need a statement that emphasises the need to continue existing ground-truth observations. E.g. GCOS AOPC statements on the global requirements for climate observation.

8 Accepted that there is a need for improvements to the policy and institutional framework, but is GMES-Africa the right body to do this? It might be better to improve the existing institutional framework through the UN system.

Chapter. Infrastructure Framework

5.1 "No relevant policy does exist" - not true! WMO CG-XII Res 40 provides a data policy framework underneath which African NMHSs (through WMO RA-I) request space based data to be provided, especially from EuMetSat through GeoNetCast. EuMetSat has a clear data policy on charging for data which does not impose any costs on LOCs, and in general for most African nations even for data which is not already included under the essential data specification.

6.1 Unhelpful to write "observation infrastructure" as though only space-based observations exist. Recognition is required of existing and future needs for surface-based observations and the archives of these.

6 Table 1 No mentions of disaster managers or responders.

7 PUMA - it should be noted that this project did not include continuing support after the 3-year project period, so the systems installed have existed with minimal or zero support and some have failed.

8 ii (also 11 Summary)

Gives the impression that only a few countries receive space-based data, despite noting the PUMA project which provided GEONETCast systems to all counties in Africa (though some have since failed).

9.4 Section on data policy framework assumes that the ideal framework is "free exchange of data and information" - it is not sensible to develop policy on an assumption which assumes a single outcome. Exchanging data is rarely free - there are significant costs of management (including staff) and infrastructure. The question for data policy is who bears these costs, and whether one person's free access means that another person bears unaffordable costs. There needs to be recognition that bodies may charge for the costs of value added to data and information and for the costs of reception, storage and transmission.

Chapter - Capacity Building

General comment - this chapter is heavily biased towards research and development activities for space-based observation, and makes very little recognition of the needs for capacity building in

existing operational services, especially services for safety of life and property, e.g. in warning of floods and droughts and infrastructure planning. I do not understand Table 1 and why this lists only a subset of services against each of the regional groupings. E.g. floods and droughts and services for safety of life and property are a key issue in all sub-regions of Africa, not only SAOC. This table is severely deficient. Table 2 does not mention NMHS in national bodies, only the universities and research bodies.

9.2 Under human capacity building, there is no recognition of the need for in-service training of operational staff. Again it is framed solely in terms of research and universities.

10 Again, focuses only on universities and research bodies. One feels that this flawed report has been self-selecting to focus on one interest group only.

Chapter - Long term management of natural resources

6 Table 3 Under information providers, no mention of NMHSs as the national authority for surface-based observations of the weather and climate and for the collection, QC and storage of climate data. Perhaps the authors meant them to be inside the "etc." but this seems invidious. This is a major omission because without a continuing surface-based monitoring capability, and the institutional and organisational capacity to manage these data, almost all of the applications will have limited value.

Table 4 and table 5 No mention of climate data - without correlation with climate, the other datasets have limited value as tools for decision making.

Table 7 In-Situ Observation. Again no mention of climate data.

10 Conclusions. There is no mention of the need for climate change impacts analysis to inform management decisions - the only envisaged tool is current monitoring. This seems very limited.

11 Summary. Climate finally gets a mention!

Chapter - Marine and coastal areas

This chapter is well-balanced.

9.1 Under "societal benefits" it would be appropriate to have explicit mention of services for safety for small-scale coastal and in-shore boat operations (e.g. fisheries, ferries). In terms of risk and number of people involved, this is a very significant need area.

Chapter - Water Resource Management

General comments:

There is virtually no recognition in this chapter of the key role of rainfall measurements in-situ as providing the long-term climatology, risk analysis and characterisation of inputs to the water cycle, or of the need for other climate parameters to derive evaporation. There is no recognition (except under the notes on WMO WHYCOS) of the role of NMHSs in maintaining and coordinating the network of rainfall monitoring stations from all operators and for all users, and for collecting, digitising, QC and archiving of rainfall data and other climate data. There is no recognition of the role of NMHSs in disaster warnings for floods and droughts. The only mentions of flood warnings are in the context of regional or global data providers, which is potentially in conflict with recommendations of the Hyogo Framework. There is no recognition of the need for long-term climate data from surface measurements to provide the essential evidence base for sub-regional or national or basin climate change impacts studies, though the need for such studies is described.

Chapter 8 - Impacts of climate variability and change

Generally, a well-balanced chapter.

1 Table 1. It would make sense to include "more events of drought and flooding" under the Human row as well as the Water and Ecosystems row, recognising the significant impact of these disasters on lives and both private and social capital and hence socio-economic development.

2.2 OMC Nairobi is now ICPAC. OMC Harare is now OMC-SAOC. It would be appropriate to list GCOS partner organisations as "ACMAO, AGRHYMET, ICPAC and OMC-SAOC".

7 Recommendation on data policies is sensible and well-balanced!

Chapter - Natural and Human Induced Disaster

General comments

- There is very little here on human induced or complex disasters, e.g. chemical releases, oil spills, or on disasters in the marine or coastal environment. While it is implicit in the linkage to ISOR and National Platforms for ORR, there is no explanation of the need for disaster warnings to be disseminated by recognised routes and authoritative bodies to avoid confusion and waste of resources. There is a particular issue in Africa of warnings given on a regional basis to NGOs and similar bodies being used to bypass the National Platforms in individual countries. Any such regional warning service should carry a message that the information is subsidiary to warnings issued by the relevant National Platform. It is not immediately obvious why pilot projects on fire, flood and dust hazards should be beneficial, given that much work on these phenomena has already been undertaken. The major need is not for new techniques, but training and institutional development to make best use of existing techniques and information at an operational level. Appendix 3 with the detailed project proposal is heavily biased to improving academic research facilities, and makes no provision at all for operational implementation until 2013 - 23, for which there is no identified funding. This seems very, very slow, given the urgent need to strengthen operational

systems for applying currently available methods and data.

5.2 Table 1. Under institutions, there needs to be something about multiple levels for disaster risk reduction activities, from community to district to national. One of the gaps in many countries is recognition of the benefits of a multi-hazard approach to ORR. Too many countries have schemes for some hazards, but not for others, especially human-induced disasters.

8.1 Correction: NOAA has been supporting a Flash Flood Guidance project in the SADC countries since 2008. WMO have organised the Severe Weather Forecasting Demonstration Project for Southern Africa since 2007. DFID sponsored a project in SADC to set up national Vulnerability Assessment Committees at national level. There is a need for better coordination between these projects, particularly operational data flows to the VACs.

9.1 Table 4 The requirement is not for "raw data" - all data needs to be properly received, quality controlled, associated with appropriate metadata, stored and made available to users! There is a cost in all of these activities.

Appendix 4 Excessively bureaucratic and biased towards building organisations rather than strengthening the National Platform structure.

Chapter - Food security and rural development

In general, excellent. However while it recognises the need for ground-based observations, both of crops and hydro-met parameters, it is a little weak on connecting these to the space-based data. Actions to strengthen the surface-based observation of hydro-met parameters, or the management and dissemination of the data are missing from the proposed plan.

Chapter -Infrastructure and territorial development

This section may benefit from a linkage to the next section on Conflicts and political crises.

Capacity building in terms of enabling national planners to use currently available space-based data is rather weak. The process looks a little top-down.

Chapter - Conflicts and political crises

See above on mutual linkage to Infrastructure and territorial development.

4. Steve Groom - Plymouth Marine Laboratory

Plymouth (United Kingdom)

I am coordinator of the EC Framework 7 project called "Europe Africa Marine EO Network" and I help with the marine and coastal section of the draft plan. EAMNet has 10 partners in Africa and Europe (see**www.eamnet.eu**). My personal interests are remote sensing of phytoplankton.

The European Commission Framework 7 "Europe Africa Marine Network (EAMNet)" project wishes to express its strong support for the GMES and Africa process and the draft 0 GMES and Africa Action plan. We believe it is an important step in the advancement of Earth Observation in Africa, and, in the marine and coastal area, supports the development of GOOS-Africa.

Members of the EAMNet consortium and advisory board were extensively involved in the GMES and Africa process and were responsible for writing the Marine and Coastal theme text. Specifically, Prof Geoff Brundrit, (GOOS-Africa) was African lead author and is a member of the EAMNET Advisory Board. Justin Ahanhanzo (IOC-UNESCO) and Mark Dowell (JRC) both supporting authors are also members of the EAMNet Advisory Board while Steve Groom (PML) was a contributing author and is Coordinator of EAMNet. Furthermore, the European lead author Dr Nic Hoepffner, JRC, while not involved in EAMNet is a partner in FP7 DevCoCast and works closely with PML, UCT and NERC, *inter alia*, also DevCoCast partners. Finally, Vincent Gabaglio, EUMETSAT, also an EAMNet partner, was Europe lead for the infrastructure Framework.

The EAMNet proposal was submitted in December 2008 before the GMES and Africa meeting at JRC in March 2009 while the project itself only started in March 2010. So although the authors had the aims of EAMNet in mind whilst writing the Draft 0 text it was uncertain whether EAMNet would be funded. Therefore, the comments in this document refer to the manner in which EAMNet may interact with or support development of a GMES and Africa Marine and Coastal initiative. The attached also comments on new European GMES initiatives that have started in the area (such as AQUAMAR) or associated with the major new European Space Agency Climate Change Initiative that obviously were not mentioned in the earlier text. Furthermore, individual EAMNet partners have been encouraged to provide comments, in addition to the text below, to provide an independent perspective.

Comments on the Marine and Coastal Areas Text

Specific Comments on the Marine and Coastal Text

Section 7. Mapping Exercise The remote sensing servers list needs to be updated to include the EAMNet data portal and the EC FP7 MyOcean (marine core service)

	Remote Sensing Servers		
EAMNet	EC FP7 Europe Africa Marine Network	EC/PML/MRSU	http://www.eamnet.eu/data_portal/
MyOcean	EC FP7 Marine Core Service	EC	http://www.myocean.eu.org/

Although listed in the Mapping Table the role and activities in the AMESD Marine and Coastal Thema were not discussed in the text. The Thema is being implemented mainly in the South West Indian Ocean by the Mauritius Oceanography Institute (the Regional Implementation Centre) under 2 the purview of the Indian Ocean Commission.. While the marine thema of AMESD focuses on the region of south west Indian Ocean, it has also been extended to include the coast of Cape Verde and Sao Tome. The AMESD/MOI/IOC marine thema, in its role to facilitate EO, is establishing a network of satellite receiving stations to access ocean related data through the EUMETCast network. Products and services are being developed for marine applications. EAMNet has made contact with the MOI, and Rezah Badal, Principal Scientist at MOI, is a member of the EAMNet Advisory Board. Furthermore, EAMNet are processing data as requested by the Thema and providing them via the data portal to be extended during Summer 2010 to transmission via GEONETCast/EUMETCast. EAMNet has also proposed fellowships to assist with development of specific products of relevance to monitoring coastal and marine resources in the thema region. EAMNet can build up from the existing AMESD network to further its action over Africa.

EAMNET and the GMES and Africa Marine and Coast Area Draft

This section focuses on the plans set in place by the EAMNet project since the start of the project in relation to the aims set out in the Draft 0 text.

The plan proposes a “GMES Service for marine and coastal Areas” comprising four components:

- A GMES Africa Network of Regional Early Warning Centres
- A GMES Africa Network of Marine Remote Sensing Centres
- A GMES Africa Network of Coastal Sentinel Stations
- A GMES Africa Capacity Development Network of Higher Education Institutions

With a 10-year time scale comprised of an Initial Exploratory Phase (2 years), a Pilot-Study Phase (4 years) and an Implementation Phase (4 years) and a total budget over 10 years of 70M€. Given that EAMNet has a relatively small budget (1M€ EC contribution over three years) it can expect to contribute in a small way to the development of the service. This can be done in two ways: first, but building a partnership that is in place to respond to future GMES and Africa opportunities and developing the wider community in terms of familiarity with the concepts of GMES. Secondly, EAMNet can contribute directly, albeit in a small way, to development of the four proposed GMES and Africa components.

A GMES Africa Network of Regional Early Warning Centres

EAMNet will undertake case studies, through targeted fellowships, of applications such as operational biological productivity, harmful algal blooms and coastal sea-level observations. Also, the links with existing and new marine and coastal core (MyOcean) and downstream services (MarCoast and AQUAMAR) will enable transfer of best practices and experiences gained in Europe to be set in an African context. Finally, EAMNet aims to show how data production at a regional centre of excellence in support of an LME feeds down into national requirements and national engagement with monitoring agencies. This should provide an exemplar for the modus operandi of regional early warning systems.

A GMES Africa Network of Marine Remote Sensing Centres

EAMNet links centres of excellence in marine remote sensing in South Africa to counterparts in Europe; it also aims to develop existing capacity in other countries (Tanzania, Ghana and Egypt) as

well as introducing new capacity in the form of new GEONETCast receivers is four other African countries.

A GMES Africa Network of Coastal Sentinel Stations

The in situ dimension is relatively limited in EAMNet being outside the scope of the Space Call. However, through the open fellowships links can be made between institutes in Africa and others in Africa and Europe. EAMNet will seek to establish the value of in situ measurements in Africa to global and purely European projects with a basin-scale focus. This role was not fully developed in the Marine and Coastal Area text but validation of products

A GMES Africa Capacity Development Network of Higher Education Institutions

EAMNet will assist in this area through the development of a training course at UCT then extension to the Universities of Ghana and Dar-es-Salaam and training of trainers in other Universities. Involvement in training courses and the aforementioned fellowships should also assist in the development of new capacity and expertise in higher education centres

New relevant GMES and ESA projects

This section describes European developments since the completion of the Marine and Coastal Areas text (in 2009) that are particularly relevant to this area and how they may contribute to the process.

EC FP7 AQUAMAR

is a European Commission Framework 7 funded GMES downstream service project that started on 1 April 2010 (http://www.aquamar-fp7.eu/). It will develop downstream services on water quality including harmful algal blooms and indicators for the Water Framework Directive and as such could provide information and experience on definition of services that could be extended to an African context. It includes as partners DMI and PML (also involved in EAMNet) who will provide the interface with GMES and Africa.

The ESA Climate Change Initiative

is major new programme to improve the quality of global Essential Climate Variables (ECV) in a number of thematic areas. Within the marine area there are three ECV projects namely Sea-level, with a consortium led by CLS France; Sea-surface temperature, led by University of Edinburgh, UK and ocean colour, led by PML. Given the global nature the outputs of the CCI projects will have major benefit for marine monitoring around Africa though the focus is on so-called case 1 or offshore waters. The availability of a long time series (1997 - 2013) with the emphasis on the highest quality (with better error characterisation) will undoubtedly be of value for monitoring of productivity in African waters. Through its leadership of the Ocean Colour-CCI project and involvement in co-location meetings, PML will be able to provide the link with GMES and Africa.

The ESA CoastColour project (www.coastcolour.org)

led by Brockmann Consult Germany and including various EO and water quality research partners including Plymouth Marine Laboratory and users including UCT, South Africa and NIOF, Egypt. ESA has launched CoastColour to fully exploit the potential of the MERIS instrument for remote sensing of the coastal zone at full resolution (300m). The product requirements have been derived from a user consultation process. CoastColour is developing, demonstrating, validating and intercomparing different Case 2 algorithms over a global range of coastal water types, identifying best practices, and promoting discussion of the results in an open, public form. As well as coastal monitoring the methods are also likely to be of relevance to monitoring of large lakes as identified in the Water Resource Management area section on Service Definition and Provision. The methods developed could be applied to other African coastal regions.

Conclusions

The EAMNet consortium members and advisory board were intimately involved in the preparation of the Marine And Coastal text. The EC FP7 project has now started and is making contributions to a number of the areas identified in the text as potential components of a GMES and Africa Marine and Coastal Areas Service . EAMNet is keen to make further input, if requested, in the development of the Action Plan.

Kate Lance - **SERVIR-Africa**

SERVIR integrates satellite observations and predictive models with other geographic information (sensor and field-based) to monitor and forecast ecological changes and respond to natural disasters. This evolving regional visualization and monitoring platform is being established in Africa to improve scientific knowledge and decision-making in a range of application areas (e.g., biodiversity conservation, disaster management, agricultural development, climate change adaptation, etc.).

The GMES & Africa Action Plan inventories a great number of existing initiatives in Africa and points out that "[d]ue to lack of a shared vision, all those initiatives are largely uncoordinated. This situation needs to be urgently addressed, starting from the continental and the regional levels (p.18)." SERVIR-Africa is amongst the regional initiatives mentioned (i.e., 14, p.33, p.57, p.70). The Action Plan further recommends that "[t]he financial and technical partners of GMES Africa should also envisage the permanent dialog with other programs involved in the long-term management of natural resources (SERVIR-Africa, CARPE, CBERS…) (p.76)." Again SERVIR-Africa is mentioned. SERVIR-Africa gladly welcomes the opportunity to engage in a process by which GMES Africa and SERVIR-Africa partners jointly plan and budget the use of yet-to-be-allocated resources (of both initiatives), so that the two initiatives can move beyond merely recognizing each other and instead pool, align, optimize, and evaluate the assets that both initiatives are bringing (or plan to bring) to earth observation (EO) infrastructure in Africa. I am not clear where or how in the consultation and planning processes this can occur, but my suggestion is that we put our collective heads (and budgets) together - the sooner the better - and do our best to sort through the modalities, accountabilities, and mechanisms for EO sustainability. Thanks for the opportunity to comment.

6. **Rabiah Nasir-Habeeb** - **ARGANS Ltd.**

ARGANS (Applied Research in Geomatics, Atmosphere, Nature and Space) Limited is an independent customer-oriented industrial company of highly skilled and innovative scientists and engineers, bringing state of the art research to solve industrial, operational and scientific requirements.

Comments on GMES _Africa Action plan – Monique Viel & Rabiah Nasir-Habeeb (ARGANS Ltd)

General comments

- National users: add medium resolution data (not only high spatial resolution are useful at country level).
- Important to carefully check the status of spatial agencies in Africa: e.g. South African Space Agency is not currently fully operational[1], however, CSIR/ SAC (Satellite Application Center) acquire most of their capacity, skill in receiving radar and optical data - making Value-added products for a various applications- and daily support from the National Disaster Management Center (NDMC). Tunisia, as Morocco have Remote Sensing Centers but not space agencies.

GMES Africa theme on natural hazards and disaster

- International Disaster Charter should correctly be called "**the International Charter Space and Major disasters"**. It should not be integrated into the UN system. It's not a body as such, but an international agreement among 10 space agencies. The international Charter is

already delivering worldwide disaster rapid information in case of natural major disasters. See http://www.disasterscharter.org/home

- Refer to GMES projects that have on-going funding from FP7 :

1. GARNET-E GMES for Africa: Regional Network for Information Exchange and Training in Emergencies (GARNET-E)http://cordis.europa.eu/fetch?CALLER=FP7_PROJ_EN&ACTION=D&DOC=22&CAT=PROJ&QUERY=012621d98324:19f0:5f08d5bc&RCN=94352
2. SAFER: Services and Applications for Emergency Responsehttp://www.emergencyresponse.eu/site/FO/scripts/myFO_accueil.php?lang=EN

- Flooding projects: it could be recommended to have one in Western Africa and one in Southern Africa (area of Zambia, Mozambique, Namibia, and Angola).
- Topics: add also Landslides (flooding projects): risk is increasing in Africa.
- Disaster Management Units / Authorities; civil protection authorities in Africa have different levels of development and capacity. Therefore, it's essential to follow a "bottom-up" approach - in particular as for Capacity building activities.
- UN activities in the field of disasters are numerous and should be taken into consideration in order to be built upon and avoid a waste of resources:
    1. besides WB, it's important to refer in particular to GFDRR [2] - the Global Facility for Disaster reduction and Recovery see http://gfdrr.org/index.cfm?Page=About%20GFDRR&ItemID=2.e.g. GFDRR 's Track II - Mainstreaming Disaster Risk Reduction in Development - lead to a prioritization of operations in 20 core countries at high risk. 10 are African: **Burkina Faso, Djibouti, Ethiopia, Ghana, Mozambique, Senegal and Togo.**
    2. UNDP: UNDP is working with national governments 1) to establish disaster reduction as a national priority and strengthen basic institutional structures for disaster preparedness and disaster recovery. Priority countries in Africa for 2009-2010 are: **Angola, Burundi, Kenya, Lesotho, Swaziland, and Zambia** 2) in order to support countries that have already established disaster risk reduction mechanisms. These countries are strengthening their efforts by incorporating disaster risk reduction in key development sectors at all administrative levels. Priority countries in Africa for 2009-2010: **Comoros, Mozambique, Malawi, Madagascar, Namibia, Tanzania.**
- **2009 Global risk analysis** performed in the framework of the global assessment of disaster risk reduction report prepared in context of the implementation of the International Strategy for Disaster Reduction (ISDR). The 2009 Global risk analysis provides disaster risk patterns and trends at the global level to allow a visualization of the major concentrations of risk for weather-related hazard - floods, tropical cyclone and droughts – tectonic related hazards – earthquake, landslides - and an identification of the geographic distribution of disaster risk across countries, trends over time and the major drivers of these patterns and trends. See,http://www.preventionweb.net/english/hyogo/gar/report/index.php?id=1130&pid:34&pih:2

[1] In 2009, the South African National Space Agency Bill has been put into law, which could see South Africa setting up its own space agency later this year to pull together all space-related activities in the country under one banner.

[2] The Global Facility for Disaster Reduction and Recovery (GFDRR) is a partnership (18 countries and International organisations[2]) of the International Strategy for Disaster Reduction (ISDR) system to support the implementation of the Hyogo Framework for Action (HFA). The GFDRR is managed by the **World Bank on behalf of the participating donor partners and other partnering stakeholders**.

7. South African Comments (DST):

We welcome the opportunity to comment on the GMES-Africa implementation plan and look forward to the continued engagement around its implementation. Our comments below are not comprehensive and final, as we are yet to engage our experts comprehensively. We will endeavour, through our continued engagement, to do so and make additional comments at the appropriate times.

The document addresses many important issues and in parts is well written. However, it should be edited being released for further comment. We strongly feel that the document needs to have the identified priority areas tested against the needs of identified user communities. Although user needs have been identified in many of the thematic areas, it is not always clear where these stem from. The consultation process will also allow a broader set of national priorities to inform identified priorities. More specifically:

1) A log of all comments and the Joint Coordination Team's response to them should be created and made publicly available.
2) A crucial aspect that needs to be discussed within the entire document, which in our view is not adequately addressed, is the interface GEO and GEOSS and other global and continental initiatives; a proliferation of coordination efforts will minimise the benefits of coordination. Uncoordinated infrastructure development will achieve the same result. The document treats GEO/GEOSS as a policy issue, whereas it is the implementation of a Global effort to coordinate Earth observations with real activities that have a direct bearing on GMES & Africa. Coordination with these should be more clearly defined. These include, but are not restricted to:
    - Global Forest Monitoring and Global land cover and EC0901a
    - Operational Oceanography task in GEO (CB0903c)
    - GEOBON
    - Virtual Constellations
    - Etc,
3) The starting point of data policy within GMES & Africa should be the GEO data sharing principles and the Data Democracy Concept within CEOS; consistency with these is essential.
4) The document discusses Capacity Building in each of the thematic chapters as well as an overarching area. This creates confusion and it is not possible to clearly get a global picture of GMES-Africa's capacity development efforts.
5) Although there is recognition in the document that the focus will be on space, we feel that in-situ observations form an essential, and often neglected, part of earth observations and should be more strongly addressed.
6) More attention needs to be placed on decision makers at the national level
7) Document is long and in many instances repetitive. Needs to be made much more concise with a clear articulation of action items.
8) We note the planned consultation process and welcome it to broaden the consultation process to determine top priorities in each thematic area.
9) Ecosystems: Lack of reference to SA Institutions involved.
10) Long Term Management of Natural Resources:
    a. 8.1 "acceptable price" should be removed and replaced with "agreed data sharing principles for GMES"
    b. 8.1 focus on scoio economic indicators welcome
11) Marine & Coastal:

a. DST to be removed under list of funding instruments/potential donors
b. The value of Section 8.2 should and list of funding instruments/potential donors is inappropriate in the context of GMES-Africa
c. The various proposed initiatives need to be tested against user requirements. The chapter does not spell out user requirements clearly and it is unclear what the driver for proposed initiatives are.

12) Water: How does the water theme synergise with the African Water Cycle Coordination Initiative?

GMES and Africa
Summary of the Baseline Action Plan

Disclaimer:

This document does not represent the views of the African or European Union Commissions, the African Regional Economic Communities, neither those of African and European Member States. It simply attempts to summarise the baseline Action Plan prepared late 2009 along the Lisbon Process on GMES and Africa launched at the AU-EU Summit in Lisbon 2007, with the exclusive objective of facilitating subsequent discussions.

V01.0 September 2011

Based on the GMES and Africa baseline Action Plan (2009)

Marine and Coastal Areas

Geoff Brundrit, Global Ocean Observing System Africa, South Africa
Nicolas Hoepffner, Institute for Environment and Sustainability, DG JRC-EU, Italy
with additional support from Justin Ahanhanzo (UNESCO), Mark Dowell (JRC), and Steve Groom (PML/EAMNet)

This summary includes the rationale and recommendations for the GMES Africa Marine and Coastal Areas Theme, which will leverage relevant initiatives and projects for strengthening and building Earth Observation (EO) capacities in Africa. This will establish a long term partnership between European and African marine and coastal stakeholders.

The people of Africa, in common with other less developed parts of the world, are increasingly migrating to the coast, realizing the advantages of living and working there, and reaping the benefits of coastal and marine resources in the fishing, mining and tourism sectors. A high proportion of the National Gross Domestic Product of the countries of Africa is to be found in enterprises on the coast and within their offshore Exclusive Economic Zones. Coastal cities are growing in population, and this growth brings issues of adequate standards of health, shelter and environment for the well-being of their often poor inhabitants. The Regional Conventions of Abidjan, Nairobi, Jeddah and Barcelona, following on from events such as the United Nations Convention on Environment and Development and the World Summit on Sustainable Development, seek progress on sustainable development and coastal and marine protection around Africa, and provide the policy drivers within legislative and governance frameworks for joint action by the countries of Africa.

The Group on Earth Observations has recognized the need to empower countries to use best practice for the application of Earth Observations to bring benefits to communities around the world. The extension to Africa of the European GMES Programme, with its reliable observation-based information services, will greatly aid the countries of Africa in their quest for safe and sustainable development along their coasts. Beneficiaries will include government departments such as the Navy and Coastguard, Environment and Tourism, Fisheries and Marine Resources, Coastal Zone Planning, Mineral and Energy, and Ports and Harbours; Offshore Industry Associations such as Oil and Gas, Fisheries (coastal, deep-sea, aquaculture), Mining (diamonds, mineral sands, salt), Shipping, and Hotels and Beach Resorts; and Universities and Marine and Coastal Research Institutions in Africa.

Existing enterprises specifically addressing African marine and coastal waters such as the EC funded Europe Africa Marine EO Network (EAMNet) and global initiatives with application around Africa (e.g. ChloroGIN Network) will be used as the foundation for building a full GMES Africa Service in Marine and Coastal Areas. These can be readily identified in relevant fields such as coastal zone planning, the management of coastal cities, marine protected areas and coastal and offshore ecosystems, together with Earth Observation initiatives and projects for building the necessary capacity in Africa. Various international, regional and national funding instruments are being utilized which recognize African priorities and the need to strengthen African institutions.

From existing initiatives, it is possible to identify gaps and priorities where new investment is sorely needed. In a broad sense, the crucial priority is for operational programmes in the marine and coastal areas of Africa, which routinely bring information and products of value to policy makers in the user community. To rectify this, Africa needs a **GMES Africa Service for Marine and Coastal Areas** that is pan African, operational and provides a comprehensive end-to-end service from observations, through analysis and forecasting to the dissemination of carefully designed value added products.

The recommended components of the GMES Africa Service for Marine and Coastal Areas are:

- **A Network of Regional Early Warning Centres**, providing products of value to the public and private user communities around the coast of Africa, such as state of the marine environment reports, operational coastal sea level, circulation and sea state downscaled to localities at risk, ecosystem health reports and coastal vulnerability atlases.
- **A Network of Marine Remote Sensing Centres**, as the fully operational successors to existing pilot facilities, utilizing satellite observations and developing new capabilities linked to the new generation of GMES Sentinel satellites.
- **A Network of Coastal Stations**, gathering *in situ* observations from priority areas such as mega cities, ports and areas of offshore industrial activity, and localities at risk from natural disaster and the impacts of climate change.
- **An African Capacity Building Network of Higher Education Institutions** linked to the Network of Coastal Stations and to the Network of Marine Remote Sensing and Dissemination Centers.

In each case there should be strong links to Regional Industries and Governments, where trained and empowered scientific, technical and management staff will be needed to generate, disseminate and utilize marine and coastal products of value.

Supporting platforms will be needed in data management and high speed computing, and there will need to be a rapid uptake of new communication technology and communication links. The effectiveness of these proposals will be enhanced through these Centres of Excellence and the further development of specific Earth Observation Flagship Programmes such as ChloroGIN Africa and EAMNet.

The successful implementation of the GMES Africa Service for the Marine and Coastal Areas will bring progress on sustainable development and on-going benefits and prosperity to the people of Africa, and will be a worthy endeavour through the European Community and the African Union.

The keys to its long term viability will be:

- The provision of **adequate capacity in personnel and infrastructure** within its institutions;
- **Addressing the real priorities** for marine and coastal areas of Africa within a coordinated framework; and
- Providing a **stable level of financial** support into the future.

Mika Odido – IOC/UNESCO

Suggested Additional Text to 2.1

- The United Nations Conference on Sustainable Development – UNCSD (also known as Rio+20) held in Rio de Janeiro, Brazil, in June 2012 renewed the commitment of governments to sustainable development, and to ensuring the promotion of economically, socially and environmentally sustainable future for our planet and for the present and future generations.
- The UNCSD outcomes document - "Future We Want" recognised the importance of space-technology-based data, in situ monitoring, and reliable geospatial information for sustainable development policy making, programming and project operations. In this context, UNCSD noted the relevance of global mapping and recognized the efforts in developing global environmental observing systems, including by the Eye on Earth network and through the Global Earth Observation System of Systems. UNCSD recognized the need to support developing countries in their efforts to collect environmental data.
- The "Oceans Compact: Healthy Oceans for Prosperity", launched by the United Nations Secretary General in August 2012 sets out a strategic vision for the UN system to deliver on its ocean-related mandates, consistent with the Rio+20 outcome document "The Future we Want" in a more coherent and effective manner. It aims to provide a platform for all stakeholders to collaborate and accelerate progress in the achievement of the common goal of "Healthy Oceans for Prosperity. Three inter-related advance this goals: (i) Protecting people and improving the health of the oceans; (ii) Protecting, recovering and sustaining the oceans' environment and natural resources and restoring their full food production and livelihoods services; and (iii) Strengthening ocean knowledge and the management of ocean. These objectives must be underpinned by a robust global ocean observation and knowledge infrastructure and the successful operation of the UN General Assembly's Regular Process.

Suggestions to other Sub-Chapters

- Under 2.2 maybe we could add some information from needs analyses that have been undertaken in the region. These could be from the TDAs and SAPs that have been prepared by the African LME projects. Maybe there is relevant AU documentation that could be cited???
- Under section 4, in particular the part on capacity building you could also mention the RCMRD - Regional Center for Mapping of Resources for Development - RCMRD. This together with RECTAS - Regional Centre for training in Aerospace Surveys, which is already in the table are important regional remote sensing centres in Africa (operating under the auspices of UNECA) and could be involved in the initiative??
- Under 5.1 on gaps - it would be useful to highlight some of the existing programmes and what they cover.
- Under 6.2 on capacity building it may be useful to cite some of the capacity assessment initiatives that have been undertaken in the region.

Comments from Online Discussion Fora on capacity4dev and BRAGMA (mixxt) websites

Jean FOLACK

- The GCLME is 16 countries presently and not 17 as stated in the document;
- table about funding instruments/potential donors: I think clear difference should be made here between potential donors and partners
- the aspect of climate change in coastal and marine area in Africa is not well discussed her

Coastal and marine areas are lump of many coastal states but little attention from government is put to develop this area; which strategies should be put in place at the national and regional economic community level

Revert this situation and make governments in Africa have political will with regard to the development of coastal and marine areas in Africa.

Makram GERGES

The following are some preliminary comments on the Chapter on "Marine and Coastal Areas", in preparation for our detailed and interactive discussion at the Workshop in Mombasa:

1. I suggest that the title "Policy Drivers" reads "GOVERNANCE".

2. The Governance instruments that have some relevance to Africa are better re-grouped under the following main and distinct sub-titles:

a. Global Conventions(International Environmental Agreements, IEAs)

b. Global Environmental Conferences

c. Global Programmes of Action

d. Fisheries Conventions

e. Global Initiatives

f. Continental (African) Declarations

g. Regional Seas Conventions and Protocols relevant to African Marine & Coastal Areas

h. Regional Seas Action Plans relevant to the protection of African Marine & Coastal environments.

3. Reference should also be made to the wealth of data and information resulting from the African Regional Seas Action Plans (very rich data-bases, now could be considered as historical, but it is indeed very valuable as base-line data on the African marine and coastal environment)

I have further details under each of the above items (a to h), as well as other comments and suggestions on other sections of the Chapter, which I shall be giving in my interventions at the Workshop itself.

Thanks.

Adoté Blim BLIVI

Hello, I read rapidly some paragraphs; I don't find what is new which can motivate high level discussions. I hope that some explanations can help to see clear the output of this workshop.

Summary of 2012 Review of current version today

Original Authors, GMES&A Scientific Committee, Winfried Wiedemeyer, Lucy Scott

1. The current Marine and Coastal Areas chapter of the GMES Africa Baseline Study does have the requested standardised form as specified in 2010.

2. The current Marine and Coastal Areas chapter of the GMES Africa Baseline Study does not have a list of acronyms used which will need to be added.

3. The current Marine and Coastal Areas chapter of the GMES Africa Baseline Study needs to be considerably shortened from currently 14 to 10 pages.
   - Some paragraphs at the end of the document are repetitive.
   - 'Thematic Content' and 'Pressures and Constraints' need to be shortened and made more precise on Marine and Coastal Areas theme.
   - The summary needs to be shortened to ½ page maximum.

4. The language of current Marine and Coastal Areas chapter of the GMES Africa Baseline Study is precise, yet simple enough to be understood by decision makers and donors rather than only by EO scientists and technicians. There are however still a few technical terms that would need to be clarified better.

5. The current Marine and Coastal Areas chapter of the GMES Africa Baseline Study is still in several parts not sufficiently specific regarding the Coastal and Marine Areas theme and regarding the specific development issues a that are of interest and pertinent to African coastal and marine planners, managers and decision makers local, national, regional and continental levels.

6. The current Marine and Coastal Areas chapter of the GMES Africa Baseline Study does sufficiently set up a context ensuring that the whole chain from data acquisition to EO information integration into decision making is covered.

7. The current Marine and Coastal Areas chapter of the GMES Africa Baseline Study does provide for sufficient awareness building actions on the availability of specific multi-scale EO data and information for decision making.

8. However, the current Marine and Coastal Areas chapter of the GMES Africa Baseline Study does lack the description of actions reaching the point of clear demonstrability of the benefits of EO information into decision making. It would be advisable to make use of a few (practical) examples to demonstrate the real benefits for the user community of coastal and marine planners, managers and decision makers.
   - The demonstration of practical use, in some cases in comparison to other methods of data and information acquisition and/ or monitoring will be key to the sustainable use of the GMES Africa Service. Those practical uses need to be mentioned in the text, maybe in table form.
   - Connected to this aspect, the current Marine and Coastal Areas chapter of the GMES Africa Baseline Study does not yet specifically identify and does not adapt to actual decision-making user groups at different geographical scales and would need to be improved in that respect.

9. The current Marine and Coastal Areas chapter of the GMES Africa Baseline Study does not yet provide for articulation, correlation and communication of the user community of coastal and marine planners, managers and decision makers between different geographic scales.
    - In the intended GMES Africa Service Networks, communication of user groups will be equally important as communication between data providers and analysts.

10. The current Marine and Coastal Areas chapter of the GMES Africa Baseline Study does not yet clearly point out the benefits of EO support functions to development issues to stimulate investment/ fund mobilisation.
    - In view of the current and future competitive environment of donor support, but also the current global economic crisis and the reduction of bilateral development funding, the comparative advantages and benefits in terms of cost efficiency need to be clearly pointed out, possibly using some examples of cost benefit analyses.