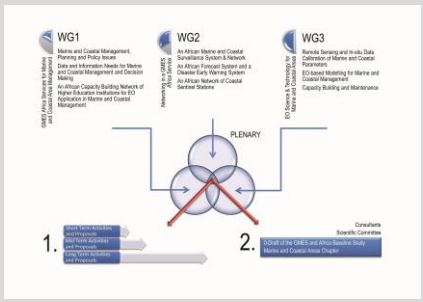
1st GMES & Africa Workshop
Marine and Coastal Areas
Mombasa Kenya
9-10 October 2012

Output Guideline to Workshop and Working Groups

Final Draft (27.09.2012)

Background & Workshop Rationale	**Background** Please also refer to the current draft version of the GMES & Africa Action Plan 'Marine and Coastal Areas' Chapter (workshop background document). With more than 35,000 km of coastline, coastal and marine environments play a vital role in the socio-economy of many African countries, contributing significantly to national Gross Domestic Products (GDPs), to food security, and supporting a wide range of coastal livelihoods. According to NEPAD (2005), the coastal and marine fishery sector provides vital contributions to the protein needs of 200 million people in Africa. In several African countries, marine products account for 60% of total protein intake. Biodiversity and natural assets of African coasts are important attractors for tourism. In some countries, many of them Small Island Developing States (SIDS), tourism represents the largest employment sector and also accounts for significant contribution to national GDPs, for example, up to 60% in the Seychelles (WTTC 2005). In recent years, increasing coastal migration and urbanisation (50% of the population lives within 100 km of the coast) and industrial development, have driven negative environmental trends and has led to the unsustainable use of coastal and marine natural resources. The deterioration of coastal water quality is severe around many large African cities (Dakar, Abidjan, Conakry and Lagos, for example). Inappropriate zoning and coastal land use, as well as the lack of environmental management and the overexploitation of resources and services, has also led to degradation of coastal water quality. Areas of high biodiversity such as mangrove forests and coral reefs have structurally been impacted severely by coastal developments and natural hazards, with a net loss of several hundred thousands of hectares over the last 25 years. Overfishing over four decades, whether illegal, unregulated or regulated by unsustainable international agreements, has contributed to a massive decline in fish stocks, particularly off West Africa. By 2002, demersal fish stocks in northwest African coastal and shelf waters had been reduced to a quarter of their levels in 1950 (OECD 2007), contributing to destabilising the economies of several regional countries that rely on fisheries to achieve up to 20% of their GDP. According to the Intergovernmental Panel for Climate Change (IPCC), "Africa is one of the most vulnerable continents to climate change and climate variability, a situation aggravated by the interaction of multiple stresses, occurring at various levels, and low adaptive capacity" (Boko et al 2007). For example, coastal erosion in the Gulf of Guinea has been linked to climate change, and in turn to rising sea levels. IPCC-projected sea level rise would increase coastal flooding, endangering even more the population and economy of continuously growing coastal megacities, causing further severe damage to the coastal and marine environments and the resources and services they provide. **Workshop Rationale** The GMES & Africa Marine and Coastal Areas Workshop provides a multi-stakeholder and multi-user forum for the continued discussion and development of the Marine and Coastal Areas Theme of the GMES & Africa Action Plan or GMES & Africa Baseline Study as it has recently also been called. The workshop will thus contribute to a further detailing and planning towards the creating specifically the Marine and Coastal Areas GMES & Africa Services (objective).
Working Group Rationale	The current draft of the Coastal and Marine Areas chapter of the Action Plan for the GMES and Africa Process (the 'Baseline Study') already identifies a number of necessary steps towards the development of respective GMES & Africa Services including among others 1. the determining of the current coastal and marine development situation in Africa, 2. the opportunities of utilising Earth Observation reception systems and data for enhanced and sustainable development planning and management, 3. the identification of coastal and marine stakeholder and user communities, 4. the identification of African institutions, organisations and programmes having EO capacities, 5. an initial identification of sustainable budgetary instruments and 6. an initial identification of short and mid-term funding instruments. However, most steps are still lacking sufficient detail and specific time lines or a chronology of implementation. As with any endeavour that is technically complex and geographically diverse as the pan-African GMES & Africa

	Service, it is key to clearly determine a succession of small (short term) and larger (long term) steps that will set things in motion. It is now the task of this workshop and its working groups to make detailed and realistic suggestions for immediate actions and, at the same time, suggest not only cooperating actors but also suitable instruments that will cover short and long term financial needs of each action. It will then be under the lead of AUC and its coastal Member States, in cooperation with EU partners to approach and access these funding sources, many of which will be currently existing and planned programmes and projects by International and Regional Organisations. The success in prospecting for action funding will very much depend on the detail and established logic of the suggestions from this workshop. It will be the task of each working group to contribute a specific segment of logical detail to the development of such actions. It is for these reasons that three individual working groups are planned covering the aspects of 1. EO needs for coastal and marine management, 2. Networking and co-operation and 3. EO Science and technology in an African setting. These segments will be brought together in plenary sessions to allow for conclusive packaging of the outputs into individual draft action (project) proposals.
Suggestions	A. Each working group will discuss, prepare and back-report using a prepared presentation template to the plenary on three (3) individual topics. Since not all topics may require the same time input, it is at the discretion of the working groups (chairs) to manage the given time in three (3) sessions over the three topics. B. We suggest that the group works 'in' the respective reporting scheme on display (projector) entering/ editing on the fly. The rapporteurs will thus be writing on the computers connected to the screen. That way, group consent on text can be maintained throughout the discussions and lengthy preparation phases of outputs to the plenary can be avoided. Using the reporting template throughout the sessions will ensure that the expected outputs (see below) are met. C. Outputs do not necessarily have to be perfectly detailed as additional/ lacking information can be added during plenary or even after the workshop by the scientific committee. Text does not need to be edited for language and/ or style as all outputs will be text-edited for the workshop report. It is important to understand the contributing character of the working group outputs. It is the responsibility of the plenary to craft potential proposal packages, not the responsibility of the working group. The task of the working group is to prepare suggestions for individual segments (needs, evaluation, assessment, approaches, objectives, partners, funding instruments etc.). - Please, see this figure in Annex - 

Working Group 1 GMES and Africa Services for Marine and Coastal Area Management

		Session Chair / Rapporteur
Discussion Topics	1.1. **Marine and Coastal Management, Planning and Policy Issues &** 1.2. **Data and Information Needs for Marine and Coastal Management and Decision Making – Part 1**	**Session 4A** 09 October 2012, 14:00 – 17:00 Mika Odido (UNESCO-IOC) / Tim Andrews (WIOMSA)
	1.2. **Data and Information Needs for Marine and Coastal Management and Decision Making – Part 2**	**Session 4B** 10 October 2012, 09:00 – 10:45 Mika Odido (UNESCO-IOC) / Tim Andrews (WIOMSA)
	1.3. **An African Capacity Building Network of Higher Education Institutions for EO Application in Marine and Coastal Management**	**Session 4C** 10 October 2012, 11:00 – 12:30 Mika Odido (UNESCO-IOC) / Tim Andrews (WIOMSA)

Expected Working Group 1 Outputs

1.1. Marine and Coastal Management, Planning and Policy Issues

1.1.1. What are the current and future issues in marine and coastal management, where an improved availability of EO data and (processed) information would make a real difference? Please prioritise.

1.1.2. At what level (continental, regional, national, local) are these marine and coastal issues most a) most effectively and b) most efficiently (cost, HR) managed?

1.1.3. Which are your Country's current partner organisations (IO, RO, REC, etc.), programmes and projects supporting an improved and sustainable integrative marine and coastal areas management (ICZM, ICOM) including the application of EO?

1.1.4. Are there examples of (sustainable) practical application of EO data and information to marine and coastal area management or any related government sector, institution or non-state actor in your Country? By whom? To whom? Lessons learnt?

1.2. Data and Information Needs for Marine and Coastal Management and Decision Making

IMPORTANT: Building up on the priority issues listing, the effectiveness/ efficiency assessment and the identification of partners from Session 4A ...

1.2.1. The provision of what kind of EO data and/or information would be most effective and/or efficient for improved marine and coastal, day-to-day and long term management? Please prioritise. Please be specific regarding need for raw data, metadata, processed data (information) or analyses/ recommendations.

1.2.2. Such data/ information would best be provided by whom? - to whom?

1.2.3. What would be the minimum data/ information resolution needed (parameter, geo-scale, frequency)?

1.2.4. Does such data/ information provision (maybe partially, sporadically, geographically limited) already exist?

1.2.5. Have there been needs or capacity assessments conducted in your Country that did cover aspects of environmental information needs in general or EO information needs in particular? Did these assessments cover marine and coastal management aspects?

1.3. An African Capacity Building Network of Higher Education Institutions for EO Application in Marine and Coastal Management

1.3.1. What would be the benefits of a network of higher education institutions for EO application in marine and coastal management?

1.3.2. Which African countries do already have higher education programmes in marine and coastal management? Integrative curricula? Sector curricula (Physical marine sciences, fishery, marine biology/ ecology, marine chemistry, marine microbiology, meteorology, climate, agriculture, forestry etc.)?

1.3.3. Which of these education institutions / curricula integrate EO systems (system administration, data management, data analysis, IT, electronic engineering and maintenance)?

1.3.4. What would be your suggestions for (additional) institutions to be considered as, or supported in their development to become network centres for higher education in EO application in marine and coastal management?

1.3.5. Which regional or international organisations, programmes or projects would you identify/ suggest for intermediate technical and financial support to such a network of institutions? Please keep the network character in mind.

Working Group 2 Networking in a GMES and Africa Service

	Working Group Topics	Session Chair / Rapporteur
Discussion Topics	2.1 **An African Maritime and Coastal Surveillance Systems and Network**, and 2.2 **An African Forecast System and a Disaster Early Warning System – Part 1**	**Session 4A** 09 October 2012, 14:00 – 17:00 Rezah Badal / t.b.a
	2.2. **An African Forecast System and a Disaster Early Warning System – Part 2**	**Session 4B** 10 October 2012, 09:00 – 10:45 Rezah Badal / t.b.a
	2.3. **An African Network of Coastal Sentinel Stations**	**Session 4C** 10 October 2012, 11:00 – 12:30 Rezah Badal / t.b.a

Expected Working Group 2 Outputs

2.1 An African Maritime and Coastal Surveillance System & Network

- 2.1.1 What are the current and future issues and applications of maritime and coastal surveillance, where an improved availability of EO data and (processed) information and information and data networking would make a real difference? Please prioritise.
- 2.1.2 At what level (continental, regional, national, local) are maritime and coastal surveillance systems most a) most effectively and b) most efficiently (cost, HR) managed?
- 2.1.3 Which are you Country's current institutions and authorities involved in coastal and marine surveillance and are those networking with other national or international institutions?
- 2.1.4 Which are your Country's current partner organisations (IO, RO, REC, etc.), programmes and projects supporting existing, or the development of new coastal and marine surveillance systems and does this support include networking aspects (targets)?
- 2.1.5 Are there examples of (sustainable) practical application of EO data and information to coastal and marine surveillance in your Country? By whom? To whom? Lessons learnt?
- 2.1.6 Which regional or international organisations, programmes or projects would you identify/ suggest for intermediate technical and financial support to such a system and network for maritime and coastal surveillance?

2.2 An African Forecast System and a Disaster Early Warning System

- 2.2.1 What forecast and disaster-early-warning systems do already exist in your Country, your Region, Africa and what is their quality?
- 2.2.2 What would be the benefits of a forecast and disaster-early-warning system at an Africa-wide scale against more national/ regional systems?
- 2.2.3 What information and analyses and in which from would need to be provided to by an African forecast and disaster-early-information system and to which authorities and institutions in your Country?
- 2.2.4 Which are your Country's current partner organisations (IO, RO, REC, etc.), programmes and projects supporting existing, or the development of new forecast and disaster-early-warning systems and does this support include networking aspects (targets)?
- 2.2.5 Which regional or international organisations, programmes or projects would you identify/ suggest for intermediate technical and financial support to such a forecast and disaster-early-warning system?

2.3 An African Network of Coastal Sentinel Stations

- 2.3.1 What coastal and marine sentinel stations are already operational in your Country, your Region, Africa and what is their quality?
- 2.3.2 Which institutions, organisations or authorities are operating and maintaining these sentinel stations?
- 2.3.3 What would be the benefits of an African network of coastal and marine sentinel stations against more national/ regional systems?
- 2.3.4 What would be the minimum geospatial distribution of sentinel station in an African network of coastal and marine sentinel stations and where would they have to be most effectively and (cost) efficiently placed?
- 2.3.5 What information and analyses and in which from would need to be provided to by an African network of coastal and marine sentinel stations and to which authorities and institutions in your Country?
- 2.3.6 Which are your Country's current partner organisations (IO, RO, REC, etc.), programmes and projects supporting existing, or the development of new coastal and marine sentinel stations and does this support include networking aspects (targets)?
- 2.3.7 Which regional or international organisations, programmes or projects would you identify/ suggest for intermediate technical and financial support to such an African network of coastal and marine sentinel stations?

Working Group 3 EO Science & Technology for Marine and Coastal Areas

	Working Group Topics	Session Chair / Rapporteur
Discussion Topics	3.1 **Sentinel Stations and in-situ EO Data Calibration of Marine and Coastal Parameters (Ground Truthing) &** 3.2 **Earth Observation Methods and Modelling for Marine and Coastal Management – Part 1**	**Session 4A** 09 October 2012, 14:00 – 17:00 Stewart Bernard / Steve Groom
	3.2. **Earth Observation Methods and Modelling for Marine and Coastal Management – Part 2**	**Session 4B** 10 October 2012, 09:00 – 10:45 Stewart Bernard / Steve Groom
	3.3. **Capacity Building and Maintenance**	**Session 4C** 10 October 2012, 11:00 – 12:30 Stewart Bernard / Steve Groom

Expected Working Group 3 Outputs

3.1 Sentinel Stations and in-situ EO Data Calibration of Marine and Coastal Parameters (Ground Truthing)

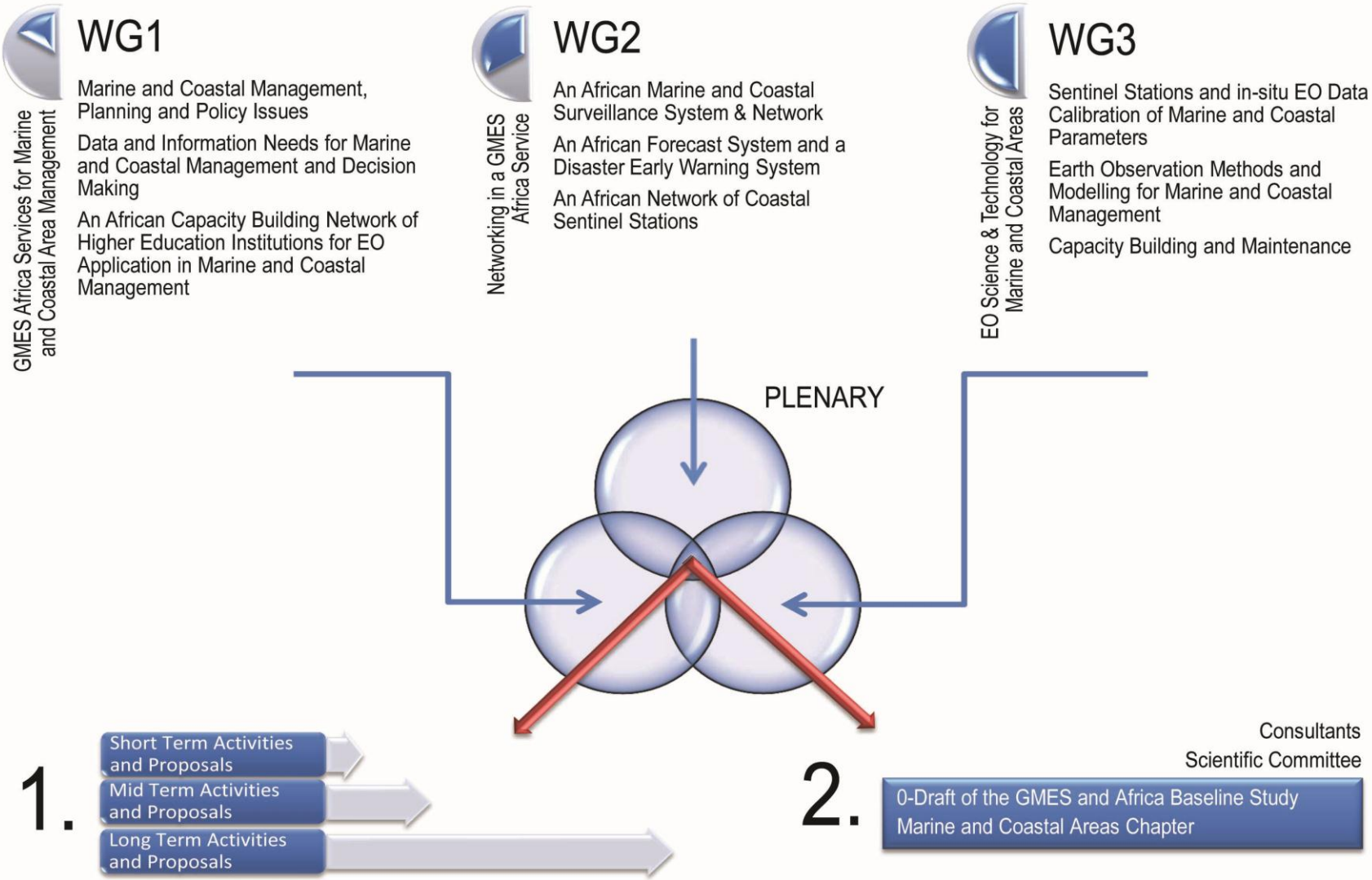
- 3.1.1 Which specific marine and coastal parameters are required
- 3.1.1b What are the one-time or continuous (frequency?) ground truthing requirements.
- 3.1.2 Is there currently a ground truthing system of some kind in place in Africa, and if yes, how does it work, which countries and institutions are participating and how is this system coordinated?
- 3.1.3 What kind of specific/ special technical capacities and skills are/ would be needed for ground truthing of marine and coastal parameters and do these already exist?
- 3.1.4 What kind of technical infrastructure/ equipment is would be needed for ground truthing of marine and coastal parameters and does it already exist?
- 3.2.5 Which are your Country's current partner organisations (IO, RO, REC, etc.), programmes and projects supporting marine and coastal parameter calibration?
- 3.1.6 Which regional or international organisations, programmes or projects would you identify/ suggest for intermediate technical and financial support to in-situ data calibration of marine and coastal parameters?

3.2 Earth Observations Methods and Modelling for Marine and Coastal Management

- 3.2.1 What management centred earth observation methods (EO) and modelling solutions exist and which ones are possibly applied in your Country, your Region, Africa and what is their quality?
- 3.2.2 What kind of models would be most valuable for improved sustainable coastal and marine development strategies, planning and management
- 3.2.3 What data types of which parameters and at what resolution and frequency would be needed for an effective EO-based modelling for marine and coastal management?
- 3.2.4 Which are your Country's current partner organisations (IO, RO, REC, etc.), programmes and projects supporting existing, or the development of new EO-based modelling for marine and coastal management and does this support include networking aspects (targets)?
- 3.2.5 Which regional or international organisations, programmes or projects would you identify/ suggest for intermediate technical and financial support to such an EO-based modelling for marine and coastal management?

3.3 Capacity Building and Maintenance

- 3.3.1 What are the specific capacities (technical, HR, time, infrastructure) needed throughout all sectors to effectively establish and run a system integrating EO-based data and information into marine and coastal area management and to maintain such a system and do these capacities exist in your Country?
- 3.3.2 If yes, which organisations, institutions and authorities are employing such personnel and staff?
- 3.3.3 Which educational institutions are currently providing practical capacity building for EO systems application in marine and coastal area management?
- 3.3.4 Does your country/ would your country have sufficient internal human capacity to effectively and sustainably run and maintain an EO-based (possibly in a network) management of marine and coastal areas without external support?
- 3.3.5 Which are your Country's current partner organisations (IO, RO, REC, etc.), programmes and projects supporting existing, or the development of new capacity building and maintenance programmes for EO-based management of marine and coastal areas?
- 3.3.6 Which regional or international organisations, programmes or projects would you identify/ suggest for intermediate technical and financial support existing, or the development of new capacity building and maintenance programmes for EO-based management of marine and coastal areas?


GMES Africa Services for Marine and Coastal Area Management
WG1
Marine and Coastal Management, Planning and Policy Issues
Data and Information Needs for Marine and Coastal Management and Decision Making
An African Capacity Building Network of Higher Education Institutions for EO Application in Marine and Coastal Management
Networking in a GMES Africa Service
WG2
An African Marine and Coastal Surveillance System & Network
An African Forecast System and a Disaster Early Warning System
An African Network of Coastal Sentinel Stations
EO Science & Technology for Marine and Coastal Areas
WG3
Sentinel Stations and in-situ EO Data Calibration of Marine and Coastal Parameters
Earth Observation Methods and Modelling for Marine and Coastal Management
Capacity Building and Maintenance
PLENARY
1.
Short Term Activities and Proposals
Mid Term Activities and Proposals
Long Term Activities and Proposals
Consultants
Scientific Committee
2.
0-Draft of the GMES and Africa Baseline Study Marine and Coastal Areas Chapter