

1st

GMES & Africa Workshop
Marine and Coastal Areas

Mombasa
Kenya

9-10 October 2012

Working Group 1 Outputs

GMES and Africa Services for Marine and Coastal Area Management

Working Group 1 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
- 1.3.** An African Capacity Building Network of Higher Education Institutions for EO Application in Marine and Coastal Management

Topic 1.1 Marine and Coastal Management, Planning and Policy Issues - Specific Questions

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.

→ **MCM Current & Future Issues**

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?

→ **Management Levels of MCM Issues**

Topic 1.1 Marine and Coastal Management, Planning and Policy Issues - Specific Questions (ctd.)

- 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? →
Current external Support to Integrative MCM&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?
→ **Current EO Application Examples in MCM**

Question	WG Session 1 Answers (max. 3) <i>- please delete table rows if not needed -</i>	Suggested Actions towards GMES & Africa Service	S T	M T	* L T
1.1.1. MCM Current & Future Issues	<ul style="list-style-type: none"> • Fisheries management (including Monitoring, Control and Surveillance (MCS) of Illegal, Unregulated and Unreported fishing activities (IUU)), overcapacity of fishing fleets and foreign fishing licence issues) 				
	<ul style="list-style-type: none"> • Population growth including the development of Megacities, pressurising coastal areas 				
	<ul style="list-style-type: none"> • Oil and gas industry, and the need to assess developments in the energy sector to plan sustainable development of the sector 				
	<ul style="list-style-type: none"> •Environmental management, coastal erosion •Climate change and associated impacts 				
	<ul style="list-style-type: none"> • EO in Aquaculture Development •Conservation of biodiversity 				
	<ul style="list-style-type: none"> •Security of fishing fleets at sea, disaster management 				

Question	WG Session 1 Answers (max. 3) <i>- please delete table rows if not needed -</i>	Suggested Actions towards GMES & Africa Service	S T	M T	* L T
1.1.2. Management Levels of MCM Issues	<ul style="list-style-type: none"> • Need for regional level management of shared fisheries stocks • Discharge of waste in coastal waters (plastic, sewage) impacts coastal habitats and ecosystems. This should be addressed at a local and regional level. • Small Islands have particular issues. Whole population lives in coastal zone. Need to start at local level before proceeding to regional level • Coastal pollution needs to be addressed at local, and in the future, at regional level • Land, sea, atmosphere interface is important at all levels • Disaster management could use EO very effectively at all levels • Access to data is an issue that needs to be looked at regional and continental level • Important to recognise differences at local, national and regional levels when assessing how EO can be useful to marine and coastal management 				

Question	WG Session 1 Answers (max. 3) <i>- please delete table rows if not needed -</i>	Suggested Actions towards GMES & Africa Service	S T	M T	* L T
1.1.3. Current external Support to Integrative MCM&EO	Regional Organizations: ECOWAS, IGAD, COI, SADC, SWIOFC, PERSGA, IOTC, IOC-AFRICA, COMESA, ECCAS, UMA, BCC, IGCC, UNEP Regional Seas Program, ICCAT, COMIFAC, RCMRD, RECTAS, ROPME, UEMOA, CEMAC, COREP, SRFC, CECAF, WACAF, NEPAD, SEAFO		X	X	X
	NGO's: WIOMSA, IUCN, WWF, CORDIO, AARSE, CARPE, SOS (Save Our Seas), Wetland Africa, RAM, EAWLS				
	Internatioal Organizations: UNESCO/IOC, UNEP, UNDP, UNIDO, World Bank, AfDB, EU, AU, GEF, FAO, IMO, WMO, SMARTFISH,				

Question	<h2>WG Session 1</h2> <p>Answers (max. 3) <i>- please delete table rows if not needed -</i></p>	Suggested Actions towards GMES & Africa Service	S T	M T	* L T
<h3>1.1.4. Current EO Application Examples in MCM</h3>	<ul style="list-style-type: none"> • Coastal Monitoring Using RS, National Polytechnic School Camoroon • Forest Management using RS, Ministry of Forest & Wildlife (Cameroon), • Bushfire monitoring using RS, Senegal • School of Tuna Tracking using RS, Senegal • Training in Management of Coastal & Marine areas (monitriiong of Fishing) , monitoring the coast, Gabon • Coral Reef Monitoring EO and in situ data, RCMRD (Kenya) • Mangrove Forest Mapping of the Kenyan Coast, RCMRD • Coastline Management and Landuse changes using RM (Nigeria) • Monitoring changes in the Mangrove Ecosystem, Nigeria • Monitoring of climat change using RS, Ivory Coast • Monitroing of Seals Using RS in south of Angola, Angola • Monitring Marine Productivity using RS, AMESD 				

Topic 1.2 Data and Information Needs for Marine and Coastal Management and Decision Making - Specific Questions

- 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 or analyses & recommendations.
→ **MCM EO Data Needs Priority**
- 1.2.2.** Such data/ information would best be provided by whom? - to whom?
→ **MCM Data Recipients**
- 1.2.3.** What would be the minimum EO data/ information resolution needed (parameter, geo-scale, frequency)?
→ **MCM Minimum Data Requirements**

Topic 1.2 Data and Information Needs for Marine and Coastal Management and Decision Making - Specific Questions (ctd.)

- 1.2.4.** Does such data/ information provision (maybe partially, sporadically, geographically limited) already exist? → **Existing EO for MCM**
- 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? → **Environmental Information Needs Assessments**

Question	WG Session 2 Answers (max. 3) <i>- please delete table rows if not needed -</i>	Suggested Actions	S T	M T	* L T
1.2.1. MCM EO Data Needs Priority	<ul style="list-style-type: none"> • Fisheries management (including Monitoring, Control and Surveillance (MCS) of Illegal, Unregulated and Unreported fishing activities (IUU)), overcapacity of fishing fleets and foreign fishing licence issues) • No of Boats, identification of number of the fishing vessels, (both land and sat. Data)- tracking system • Fishing statistics (local level) • SST (Sat. Data, in-situ temp. Data) • High resolution OE (Optical and Radar), data exist • Constellation of various sat. For improved temporal and spatial resolutions 		X	X	X
	<ul style="list-style-type: none"> • Population growth including the development of Megacities, pressurising coastal areas • Medium to very high resolution (5-20m), optical and radar, many provided (USGS, SPOT, etc.) 				
	<ul style="list-style-type: none"> • Oil and gas industry, and the need to assess developments in the energy sector to plan sustainable development of the sector • Oil & Gas exploration, Radar data • Pollution, Radar data, High to Medium resolution 				

ST: short term, MT: mid term, LT: long term

Question	WG Session 2 Answers (max. 3) <i>- please delete table rows if not needed -</i>	Suggested Actions towards GMES & Africa Service	S T	M T	* L T
1.2.1. MCM EO Data Needs Priority	<ul style="list-style-type: none"> • Environmental management, coastal erosion • Climate change and associated impacts • Depends on the nature of the problem • Optical and Radar data, very high to very low resolution 				
	<ul style="list-style-type: none"> • EO in Aquaculture Development • Conservation of biodiversity • Aquaculture – • Salinity, wind speed & direction • Mapping of areas (mangrove) • Sentinel 1 and 2 data could be obtained from EU (this applies for environmental applications as well). 				
	<ul style="list-style-type: none"> • Security of fishing fleets at sea, disaster management • Tracking systems that use navigation sat. With a complement of EO data • Disaster management – Meteorological data (high resolution) • Assessing the amount of damage • Historical data 				

Question	WG Session 2 Answers (max. 3) <i>- please delete table rows if not needed -</i>	Suggested Actions towards GMES & Africa Service	S T	M T	* L T
1.2.2. MCM Data Recipients					
1.2.3. MCM Minimum Data Requirements					

Question	WG Session 2 Answers (max. 3) <i>- please delete table rows if not needed -</i>	Suggested Actions towards GMES & Africa Service	S T	M T	* L T
1.2.4. Existing EO for MCM			X	X	X
1.2.5. Environmental Information Needs Assessments	<ul style="list-style-type: none"> • RECOMAP capacity assessment • Joint ODIANAFRICA/ASCLME assessment • Assessment of meteorological and oceanographic data for in situ DBCP • IOC global capacity assessment (on going) • Capacity assessment in various countries by JCOMM • USGS /RCMRD capacity of the use of EO data (2005) • RCMRD/NASA assessment of National capacities in the use of EO in five Eastern African countries (servier-Africa) • RCMRD capacity needs of geo-information of all its member (18 countries) – on-going 				

Topic 1.3 An African Capacity Building Network of Higher Education Institutions for EO Application in Marine and Coastal Management - Specific Questions

- 1.3.1.** What would be the benefits of a network of higher education institutions and research centres for EO application in marine and coastal management?
→ **Expected Benefits of a Network of HE Institutions for EO Applications in MCM**
- 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.)?
→ **Existing HE Institutions with Integrative Programmes or Curricula in MCM**
- 1.3.3.** Which of these education institutions / curricula integrate EO systems (system administration, data management, data analysis, IT, electronic engineering and maintenance)?
→ **Existing HE Institutions integrating EO into Programmes or Curricula in MCM**

Topic 1.3 An African Capacity Building Network of Higher Education Institutions for EO Application in Marine and Coastal Management - Specific Questions (ctd.)

1.3.4. What would be your suggestions for (additional) African 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?

→ **Suggestions for HE Institutions of EO and MCM in Africa**

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.

→ **Suggestions for technical and financial support action, projects and institutions**

WG1 - An African Capacity Building Network of Higher Education Institutions for EO Application in Marine and Coastal Management- OUTPUTS

Question	<h2>WG Session 3</h2> <p>Answers (max. 3) <i>- please delete table rows if not needed -</i></p>	Suggested Actions	S T	M T	* L T
1.3.1. Expected Benefits of a Network of HE Institutions	<ul style="list-style-type: none"> • Build synergy and avoid duplication • Harmonize methodology of work/intervention • Enable integration of ecosystem approach to in environmental management • Establishing networks of centres of excellence bringing together institutions with competences in different fields. • Exchange of data and information to address transboundary issues • Sharing of experiences and cooperation in offering training and sharing of experts • Economy • Complementarity • Synergy • Facilitation of integration of strategies and working methods • Facilitate collaboration and joint use of material and human capacity • Centres of application of RS and EO • Facilitate joint graduate and short-term training that lead to diplomas 		X	X	X

WG1 - An African Capacity Building Network of Higher Education Institutions for EO Application in Marine and Coastal Management- OUTPUTS

Question	WG Session 3 Answers (max. 3) <i>- please delete table rows if not needed -</i>	Suggested Actions towards GMES & Africa Service	S T	M T	* L T
1.3.1. Expected Benefits of a Network of HE Institutions (continued)	<ul style="list-style-type: none"> • Enhance utilization of processed expensive images by user groups • Establishment of regional centres of excellence for acquiring and processing data • Enhances in training of experts in the region using regional data • Train skilled manpower who can work on processed data • Provide support to member states in the area of capacity building • Enhance in tapping the potential of various institutions that have capacity • Facilitate downward transmission of raw and processed data to end users in member states • Helps in verifying the quality of RS data 		X	X	X

WG1 - An African Capacity Building Network of Higher Education Institutions for EO Application in Marine and Coastal Management- OUTPUTS

Question	WG Session 3 Answers (max. 3) <i>- please delete table rows if not needed -</i>	Suggested Actions towards GMES & Africa Service	S T	M T	* L T
1.3.2. Existing HE Inst. with Integrative Programmes or Curricula in MCM	<ul style="list-style-type: none"> • Faculty of Marine Science and Fisheries (U of RS), Marine Biology, Oceanography, Aquaculture at BSc level (Sudan) • Mauritania – most countries have some • Gabon – University of Omarbongo deals with integrated coastal area management it is the only such program in the central Africa region • Senegal – University of Dakar, The University of Fishery and Aquaculture Fishing and Aquaculture (UG and PG), students from 15 nations. • Egypt – Three places (National Inst. Ocean. Fish. 1. Elexandria, EU funded – Integradted Coastal Mgt (climate change) PEGASO; 2 – UNDP – Coastal reaserach institute (Alexandria); 3. NARS (National Agency for Remote Censing an– Cairo provides database on EO and RS along the Egyptian coast. Train national and international students. • Cameroon- University of Douala - Yabassi, Inst. Fisheries Science, 				

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WG1 - An African Capacity Building Network of Higher Education Institutions for EO Application in Marine and Coastal Management- OUTPUTS

Question	<h2>WG Session 3</h2> <p>Answers (max. 3) - please delete table rows if not needed -</p>	Suggested Actions	S T	M T	* L T
<p>1.3.2. Existing HE Inst. with Integrative Programmes or Curricula in MCM (continued)</p>	<ul style="list-style-type: none"> • Benin: Univ. Abomey Calavi- Int. Centre of Math (oceanography, Coastal area Mgt), Regional training centre, 9-10 trainees are admitted (France, Brazil & African Count.) • Angola: Univ. Of Agostino Nato, MSc; Inst. Fish. Res., Coastal Mgt, Fisheries, Aqu.; Nat. Inst. Hydrogr. and Marit. Studies • Ivory Coast: Centre Oceanography CURAT; Centre of Oceanology research; Centre of RS training (U. Cocody) IGT • Nigeria: Nig. Space Agency, Mar; Nag Ins, Ocean. Mar. Research; Universities (Lagos – (MB), Ileife, Ibadon (Geology) • Tanzania: UDSM, Ins. Mar, Sc. Zanzibar; UNESCO chair in Marine Tech. • Eritrea: College of Mar. Sci. & Technology (Massawa) • Mozambique: Uni. Mondlane (sc. Mar. Sci.) • Senegal: UNESCO-IOC Chair on coastal Management • Sudan: UNESCO-IOC Chair on Mar. Bio. and Oceanography • South Africa: Univ. Cape Town; Rhodes Univ.; SAEON (SA Env. Obs. Network) • Kenya: KMFRI; UON (Univ. Nairobi) • Mauritius: MOI (RIC) • Togo: Univ. Lomé (CGILE) 				

WG1 - An African Capacity Building Network of Higher Education Institutions for EO Application in Marine and Coastal Management- OUTPUTS

Question	WG Session 3 Answers (max. 3) <i>- please delete table rows if not needed -</i>	Suggested Actions	S T	M T	* L T
1.3.3. Existing HE Inst. integrating EO into Progr. or Curricula in MCM					
1.3.4. Suggestions for HE Institutions of EO and MCM in Africa			X	X	X

ST: short term, MT: mid term, LT: long term

WG1 - An African Capacity Building Network of Higher Education Institutions for EO Application in Marine and Coastal Management- OUTPUTS

WG Session 3

Question

Answers (max. 3)

- please delete table rows if not needed -

1.3.5. Suggestions for technical and financial support action, projects and institutions

- All regional economic commissions must have information about GMES. ST
- GMES has to be signalled to all member states, thus AU should inform all member states about the GMES.
- The regional organizations can be asked to finance the centres of excellence. ST
- UNESCO –IOC should be considered to be used through which the national centres get assistance. (ODINAFRICA is an example) – ST/MT/LT
- TIGER - RCMRD/ITC – carryout integrated water resource management (4 months training), the project is facing financial problems – ST
- Coral reef monitoring in East Africa expanded beyond the two countries - ST/MT
- Various funding agencies can be asked to finance projects related to their competences (e.g.
- Financial support EU, UNDP, WB, GEF, and NORAD, JICA, USAID, Private foundations. ST/MT/LT
- Technical support UNESCO-IOC, IUCN, IMO, and WMO. ST/MT/LT
- Vessel Monitoring System through IOTC, possible financiers could be EU, SIDA and SMARTFISH. MT/LT
- Uni. Of Reunion & Madagascar, RS training program, should be considered for integrated training at MSc level including coastal issues and involve Comoros. But financial assistance is required. ST/MT

WG Session 3

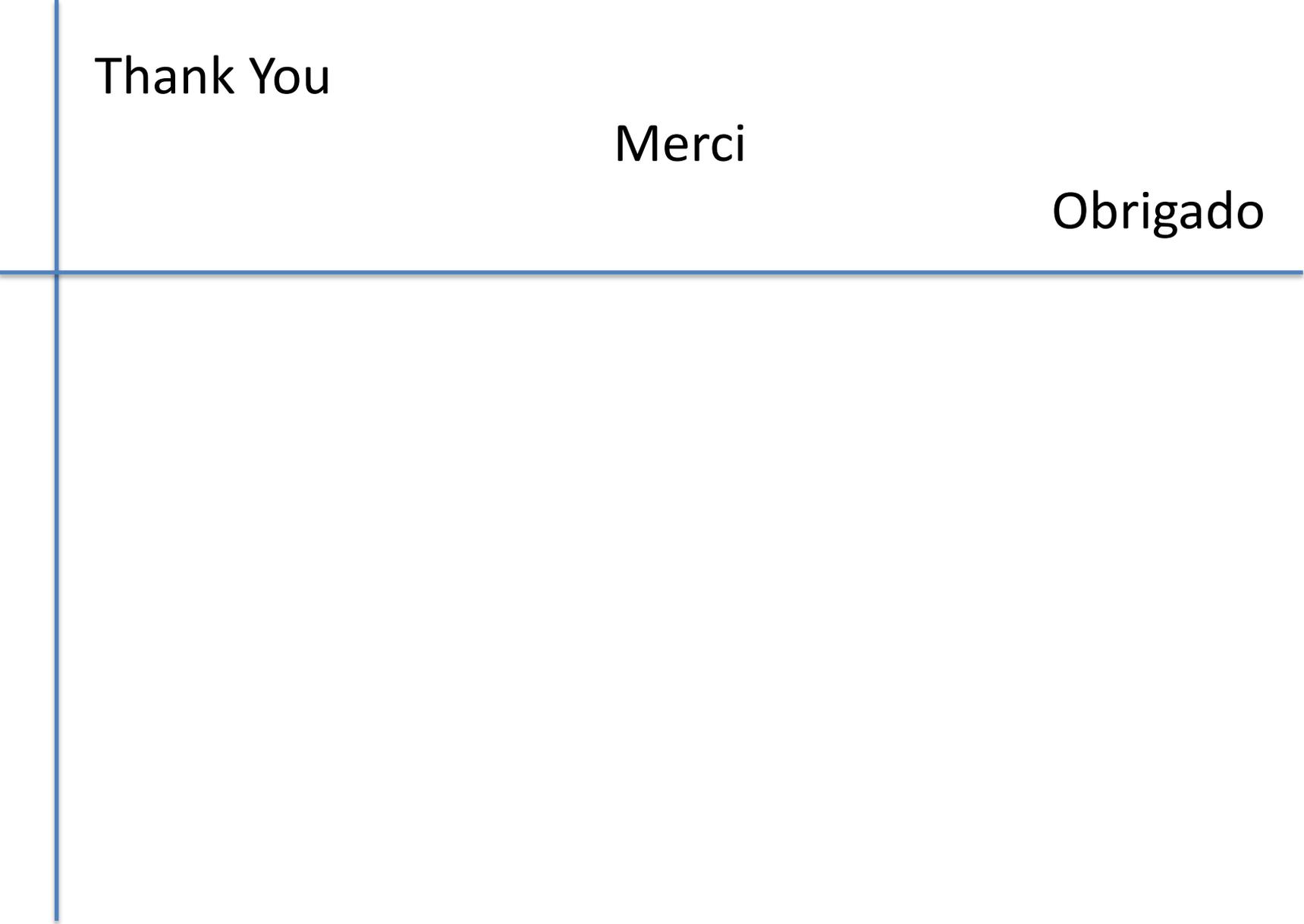
Question

Answers (max. 3)

- please delete table rows if not needed -

**1.3.5.
Suggestions
for technical
and financial
support
action,
projects and
institutions
(continued)**

- Marine Atlas should be supported for additional areas and functionalities (ODINAFRICA). Marine Atlas need to be consolidated. ST/MT
- IUCN's work of Mapping in eight states , which is helpful in monitoring coastal areas, should be considered . MT/LT
- M.Sc.. Training on thematic areas is required. The fields could include restoration of aquatic areas and pollution. ST/MT/LT
- Fish Stocks Assessment of (transboundary stock) by UEMOA will take five years. ST/MT/LT



Thank You

Merci

Obrigado