

**1st**

# **GMES & Africa Workshop** *Marine and Coastal Areas*

Mombasa  
**Kenya**

9-10 October 2012



Proposal n° 242190 CSA

**Support Action to GMES-Africa on Earth Observation**

**“Towards National EO User Networks”**

**Jacob KOUAME, Dr.-Ing.**

Geographic Information Sciences

National Coordinator of SAGA-EO Côte d'Ivoire

[jacobcharlesk@yahoo.fr](mailto:jacobcharlesk@yahoo.fr) - [www.sagaeo.eu](http://www.sagaeo.eu)



TASF



GÉOSAT



GAF



ANAMS



BNETD/CCT



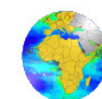
INAM



GMet



ANAC



**EAMNet**

Europe-Africa Marine EO Network



# 1st

# GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa  
Kenya

9-10 October 2012



## OUTLINE



1. Background
2. Profile
3. Objectives
4. saga-eo concept
5. saga-eo Horizontal Model
6. Results
7. Perspectives



EAMNet  
Europe-Africa Marine EO Network



# 1st GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa  
Kenya  
9-10 October 2012



## SAGA-EO project background



- ✓ Since **1998**, 5 **African Regional Economic Communities (REC)** suffered a strong demand for their Member States on the use of **Earth Observation** for the environment, meteorology and climate;
- ✓ From **1998** until today, the REC and the ACP Secretariat decided to heavily invest their funds EDF (European Development Fund) in structuring projects: **PUMA** (11M €), **AMESD** (21M €), **MESA** (37M €)
- ✓ In **2005**, they entrusted the implementation of MESA, AMESD to the Commission of the African Union (AU) in Addis Ababa;
- ✓ In **2007**, the EU and the AUC have established a political agreement for a Joint Strategic Partnership (JSP), including GMES & Africa (Global Monitoring of Environment and Security);
- ✓ From **2010** to prepare the action plan of the JSP, the European Commission has set up a **coordination team** and has funded R & D (FP7), which **SAGA-EO** ([www.saga-eo.eu](http://www.saga-eo.eu)).





# 1st GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa  
Kenya  
9-10 October 2012



## SAGA-EO project background



- ✓ Indeed, in the frame of the **European Development Policy**, space applications such as **Earth observation** or **satellite communications** have been recognized as a central tool to support Africa in its sustainable economic and social development.
- ✓ Successive **African & European policy declarations**.
  - Dakar declaration (September 2002) requested the European Commission to initiate a feasibility study for the **AMESD** project to ensure continuity with the **PUMA** project.
  - **Maputo declaration** (October 2006) African policy and decision makers claimed for GMES Africa, based on PUMA and AMESD
  - **Lisbon declaration** (December 2007): EU answer to Maputo
- ✓ An **Africa-EU Join Strategic Partnership** was signed on Science, Information Society & Space and African and European policymakers and stakeholders got together in Lisbon calling for an **Action Plan** on GMES and Africa to be prepared during 2008-10 in close cooperation with the African Union.



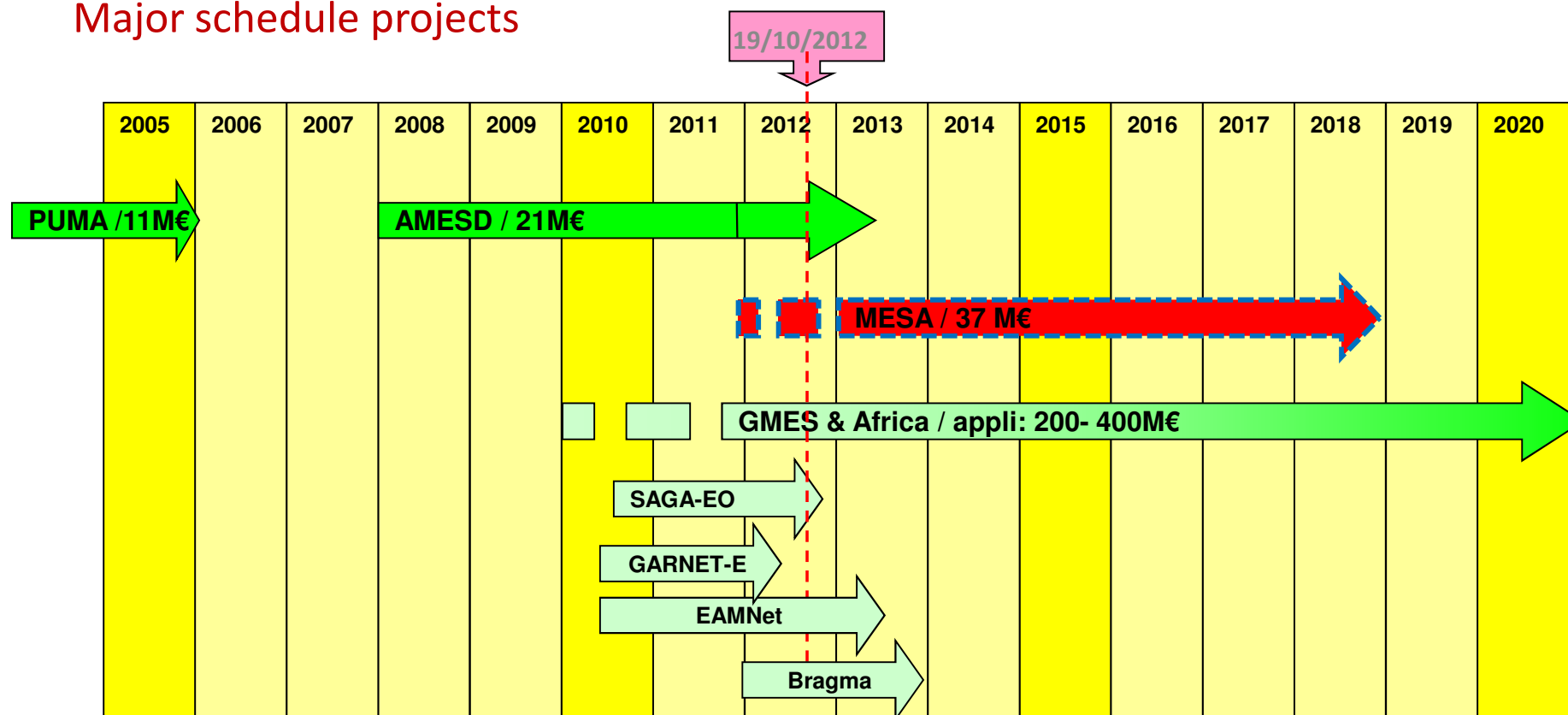




## SAGA-EO project background



### Major schedule projects





# 1st

# GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa  
Kenya

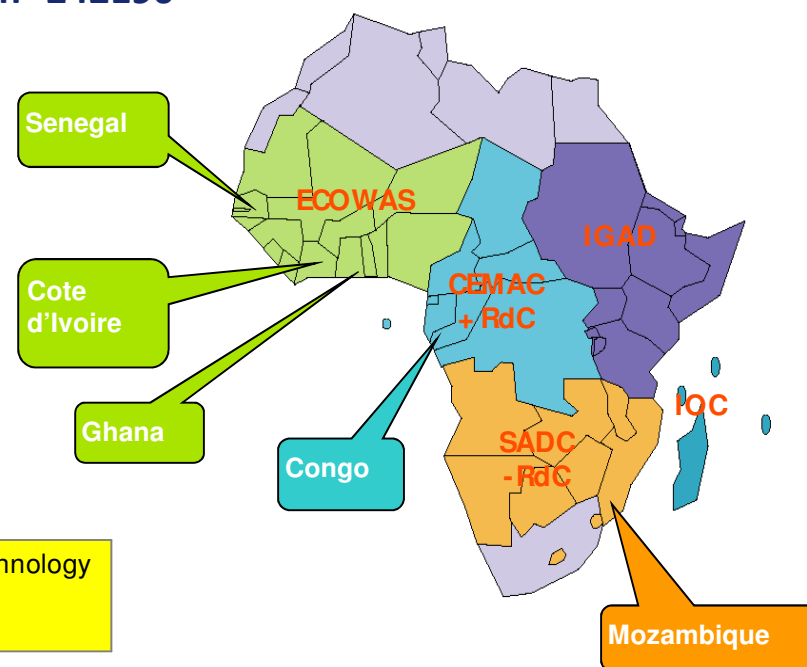
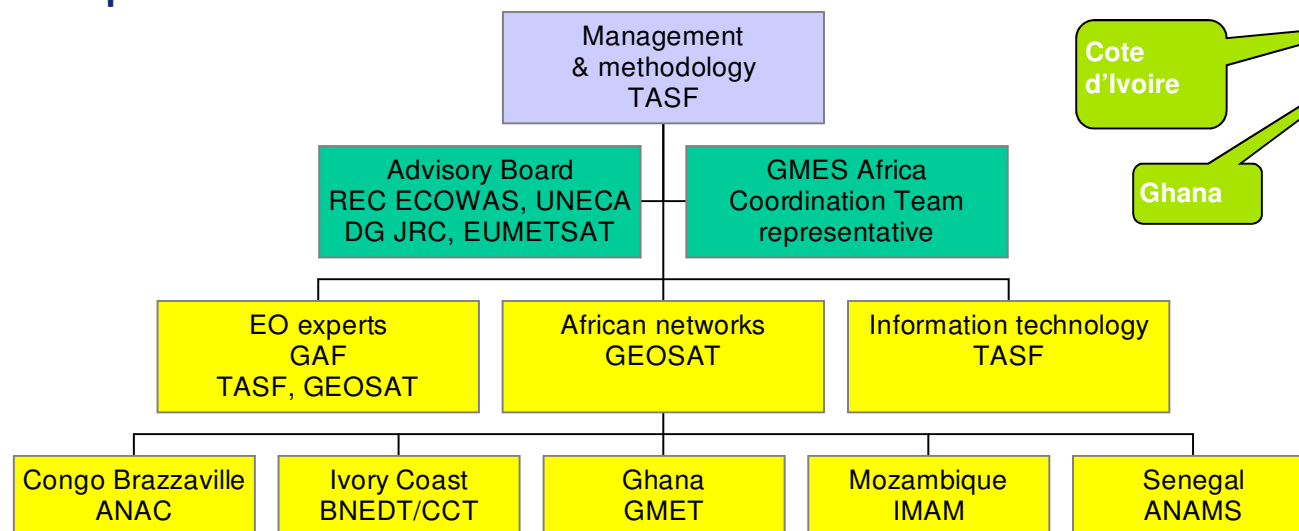
9-10 October 2012



## SAGA-EO project profile



- DG-SPACE - THEME 9, Space Call 2, FP7-SPACE-2009-1
- FP7 Collaborative & Support Action - Grant agreement n° 242190
- Project submitted in December 2008 / Work Program: "Cooperation Work Programme 2009"
- Duration: 27 months - Project start: 1st August 2010
- 8 partners in 8 countries





# 1st GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa  
Kenya  
9-10 October 2012



## SAGA-EO Objectives



### Global objective

- To support the GMES Africa conceptual definition and feasibility on **Infrastructure framework** and to design/assess “EO national network **“organisation” & “technologies”** in 5 countries

### Specific objective 1

- To prepare the African policy makers and thematic communities (data & service providers, users, stakeholders, scientists, students,...), at **national level**, to receive, to share and to better use Earth Observation data (basic or added-value) and associated technology and expertise for the management of a wide range of thematic applications (including AMESD, MESA and GMES-Africa thematic).

### Specific objective 2

- To dock the GMES services and the European centres of excellence to the African thematic communities in order to exchange not only data but also know how and expertise.





# 1st GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa Kenya  
9-10 October 2012



### SAGA-EO Concept



1. **At national level** : Design and evaluate a model organizational networks of actors and related technologies to manage wide ranges of EO applications (at least the GMES & Africa thematic);
2. Identify the common **EO knowledge, infrastructure & data** available to be shared in the country by a cross-thematic and multi-sector approach;
3. Explore ways to facilitate trade and maximize the use of EO data within the national network;
4. Define **WE CALL IT : « HORIZONTAL MODEL CONCEPT »** land technological;
5. Establish **GMA** on **"infrastructure"** framework in the 8th Africa-EU Partnership" *Improving cooperation in the field of space technology and applications*";
6. **5 HMA sessions**: to assess the paradigm through scenarios implementing its **Organizational** and **Technological dimensions**;
7. Contribute to the sustainability of sectorial networks while helping to define the appropriate mesh size and the spider of existing and future networks in the field of **Earth Observation** in support of GMES-Africa.



EAMNet  
Europe-Africa Marine EO Network

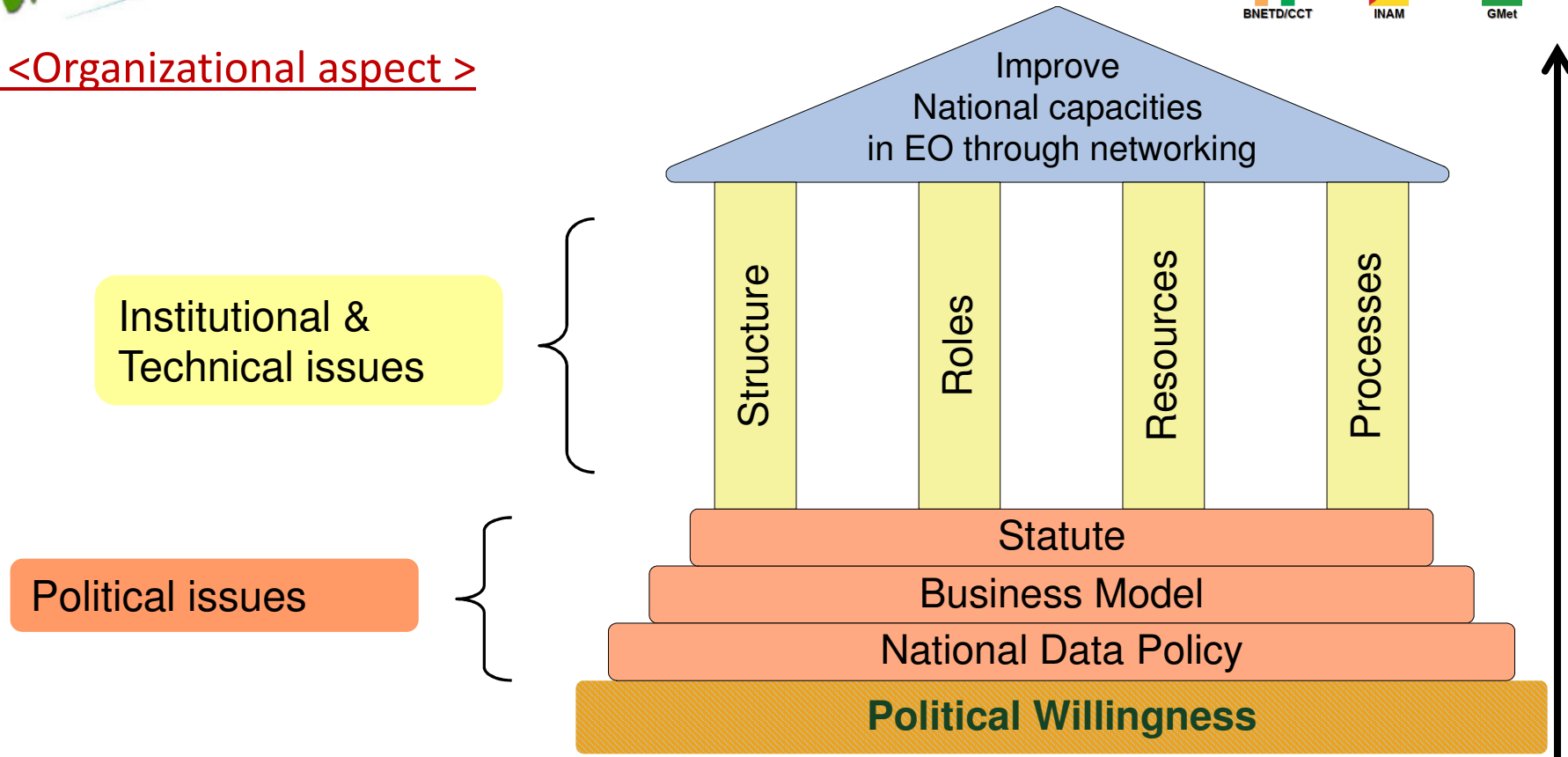




## SAGA-EO Horizontal Model



### a. <Organizational aspect >





# 1st

# GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa  
Kenya

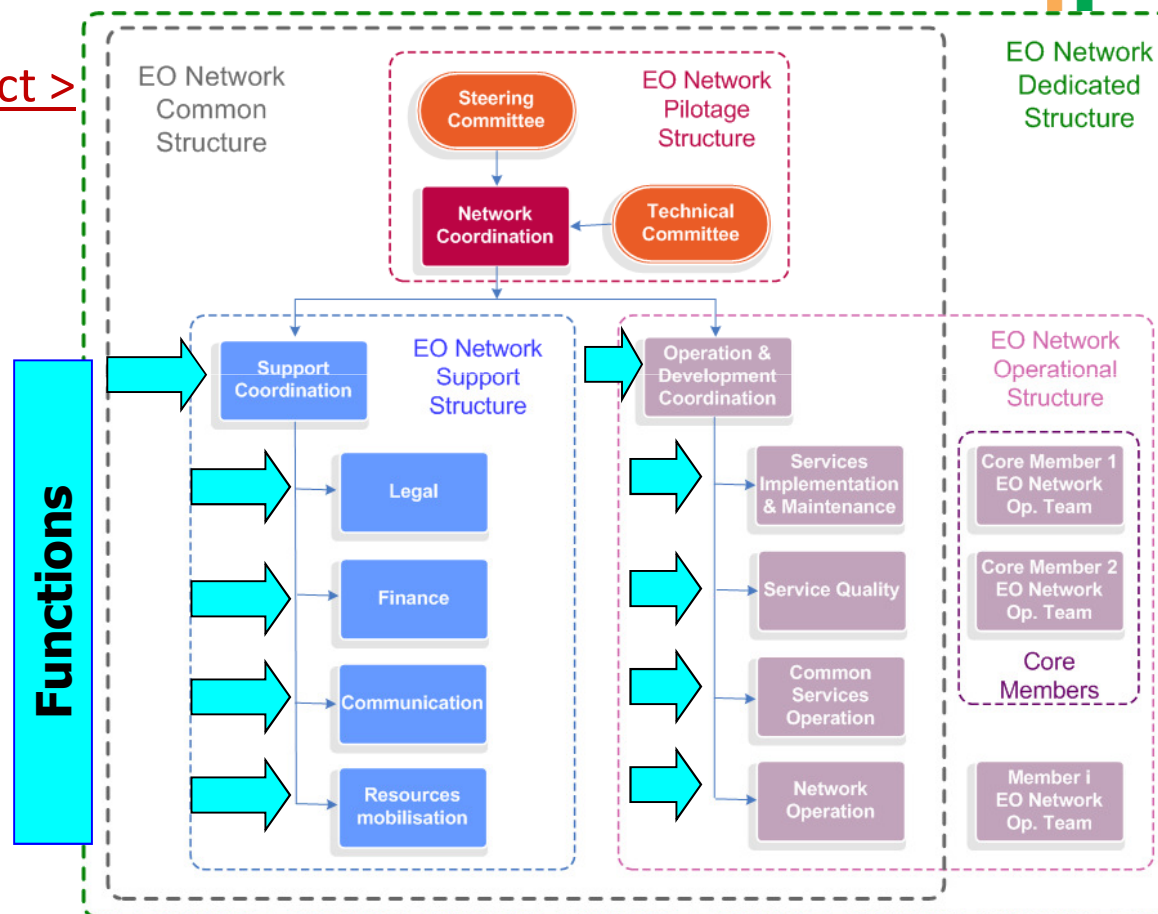
9-10 October 2012



## SAGA-EO Horizontal Model



b. <Functional aspect >



EAMNet  
Europe-Africa Marine EO Network



# 1st

# GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa  
Kenya

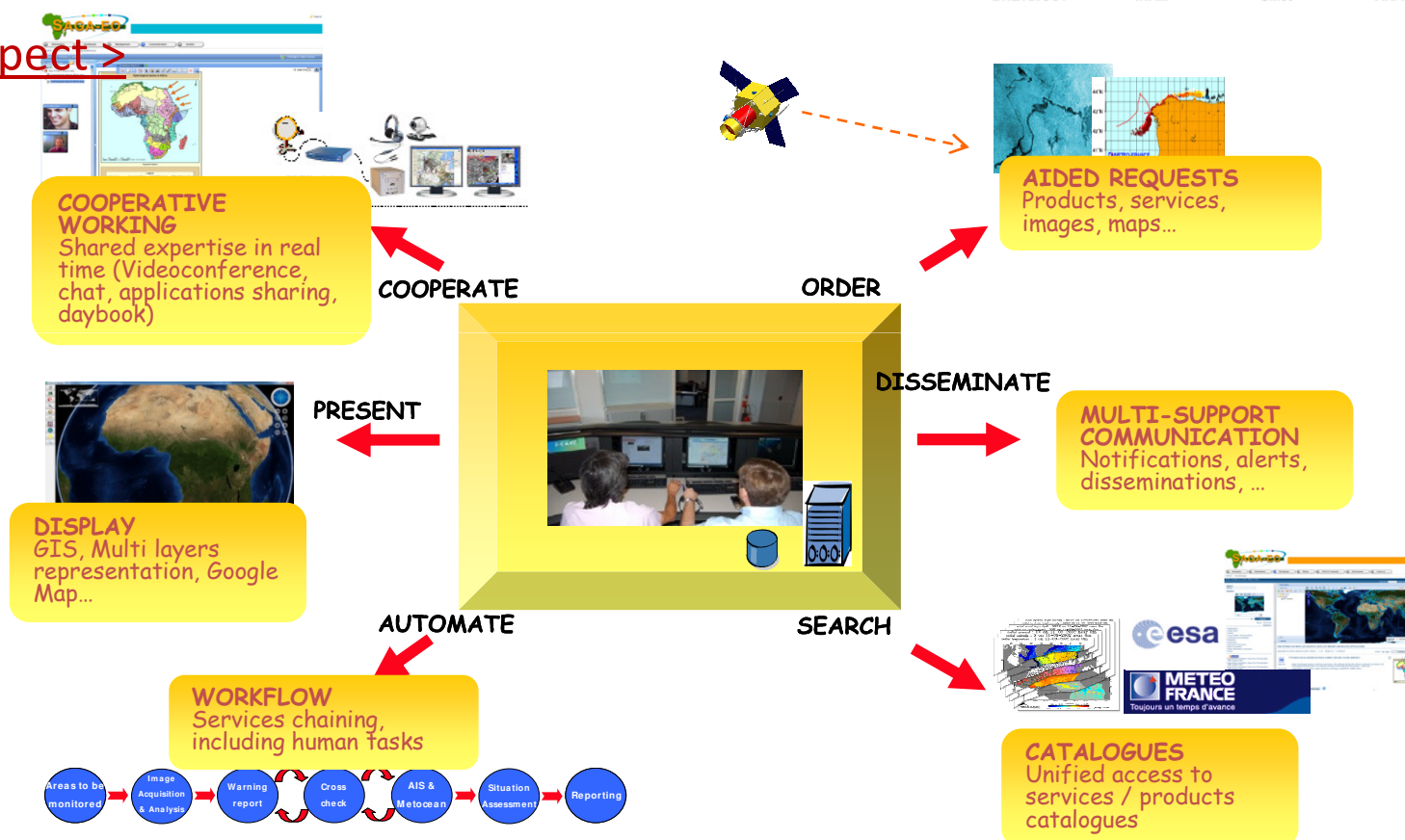
9-10 October 2012



## SAGA-EO Horizontal Model



### c. <Technological aspect>





# 1st

# GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa  
Kenya

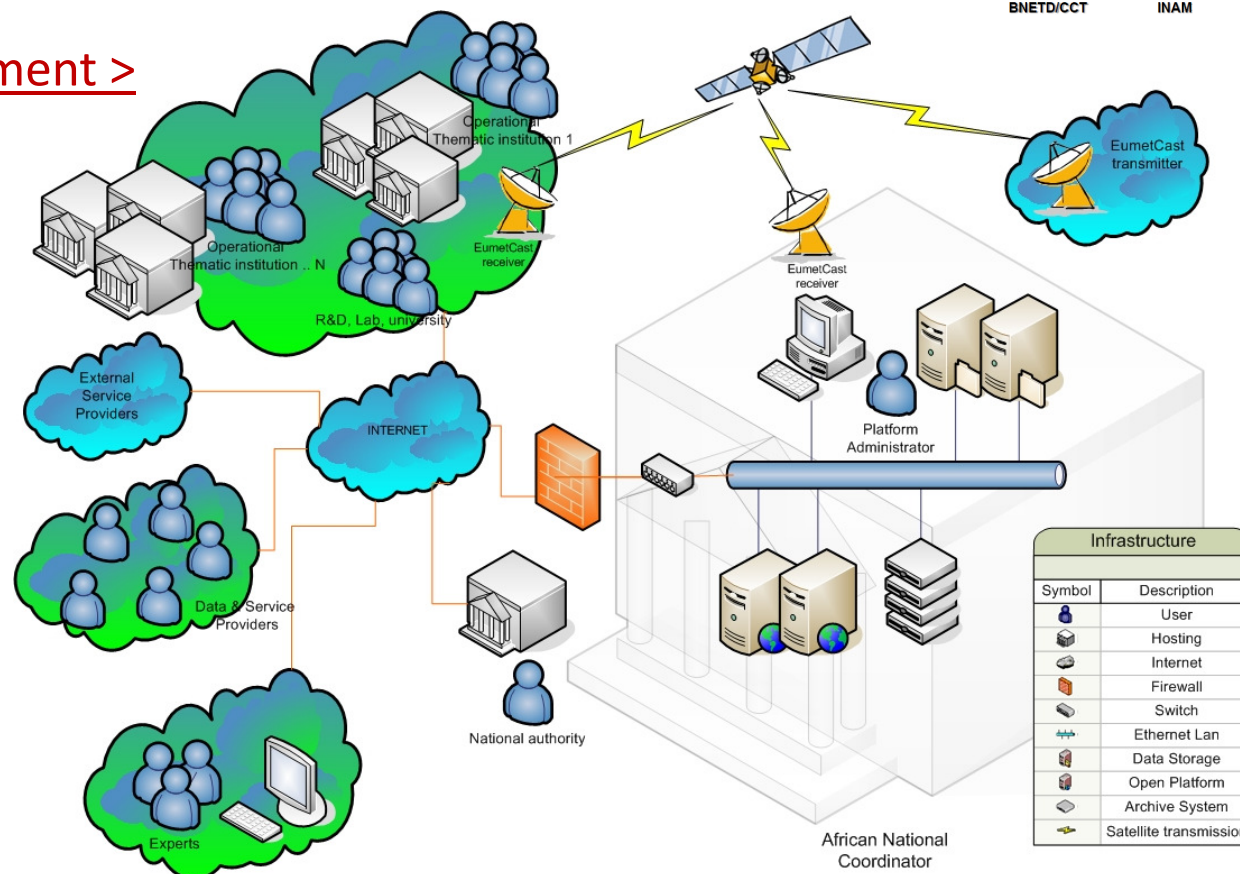
9-10 October 2012



## SAGA-EO Horizontal Model



### d. <Platform deployment >



EAMNet  
Europe-Africa Marine EO Network



# 1st GMES & Africa Workshop

## Marine and Coastal Areas

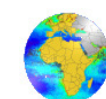
Mombasa Kenya  
9-10 October 2012



## SAGA-EO Project Management



1. Kick of the Project with EU Commission: Toulouse (France), September 2010
2. Presentation at 9<sup>th</sup> UFA: Ouagadougou (BF), september-october 2010
3. Meeting with Advisory Board during the 9<sup>th</sup> UFA, october 2010
4. Networking & Organizational workshops in 5 countries (december 2010; august 2011)
5. SAGA-EO Users Requirements Review Meeting: Dakar (Senegal), July 2011
6. African Technological Constraints Study in 5 countries (Consultant UE), August 2011
7. SAGA-EO Project Review with the EC Project Officer: Bruxelles, october 2011
8. Meeting with Advisory Board after the Half Review : Bruxelles, october 2011
9. SAGA-EO Horizontal Model Assessment in 5 countries: mai, june, july 2012
10. Presentation at 10<sup>th</sup> UFA: Addis-Ababa (Ethiopie), october 2012
11. Presentation at 1<sup>st</sup> GMES & Africa workshop: Mombasa (Kenya), october 2012
12. Final Review with Advisory Board and EC Project Officer : Cannes (France), october 2012



EAMNet  
Europe-Africa Marine EO Network



# 1st GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa  
Kenya  
9-10 October 2012



## SAGA-EO Main Results



- Selection of multi-sector actors (# 10 institutions) and set-up of national networks
- Collection and analysis of the actors needs on organisation & technology
- Design of the SAGA-EO organisational model
- Definition of scenarii for assessment sessions in each country:
  - ✓ **Food Security:** monitoring of agricultural season
  - ✓ **Flood:** monitoring water levels and rainfall in risky areas due to their topographical configuration
- Definition and integration of the SAGA-EO technological toolbox
- Horizontal Model Assessment (HMA) in each of the five countries on the two scenarii
- Writing of the documents on the methodology for implementation of the network:
  - ✓ Organisation
  - ✓ Technology (ICT platform and Services)





# 1st GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa  
Kenya  
9-10 October 2012



## HMA of 5 National SAGA-EO Networks



- Presentation of the technological toolbox;
- Creation of Metadata;
- Creation of data Catalogue;
- Sharing the data and products within network;
- Playing Food and Flood Scenarii;
- Demonstration of the toolbox potentialities;
- Dissemination of the study results to high level governmental or institutionnal representatives;
- Filling of questionnaires;
- Writing of resolutions or recommendations;





# 1st

# GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa  
Kenya

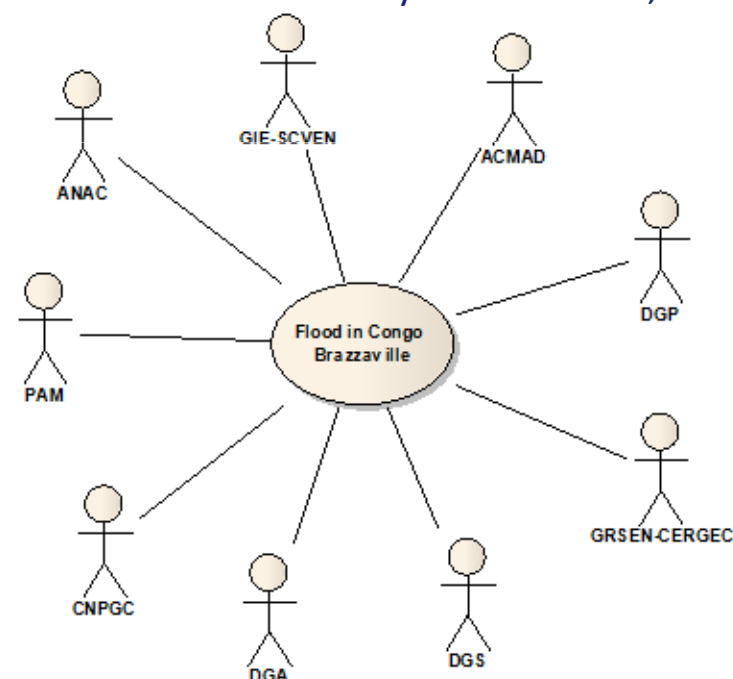
9-10 October 2012



## Case of Congo National SAGA-EO Network



The study area integrates the following sub-basins: Likouala-aux-Herbes, Sangha, Likouala-Mossaka, Alima, and Nkeni. There is a “climate – anthropic activity” interaction (climate characteristics and land use - topography). These combined actions make the zone potentially prone to flooding since two decades. One can quote in this regard the frequent floods recorded in the study area in 1994, 1997, 1999, 2001, 2002 and 2008.





# 1st

# GMES & Africa Workshop

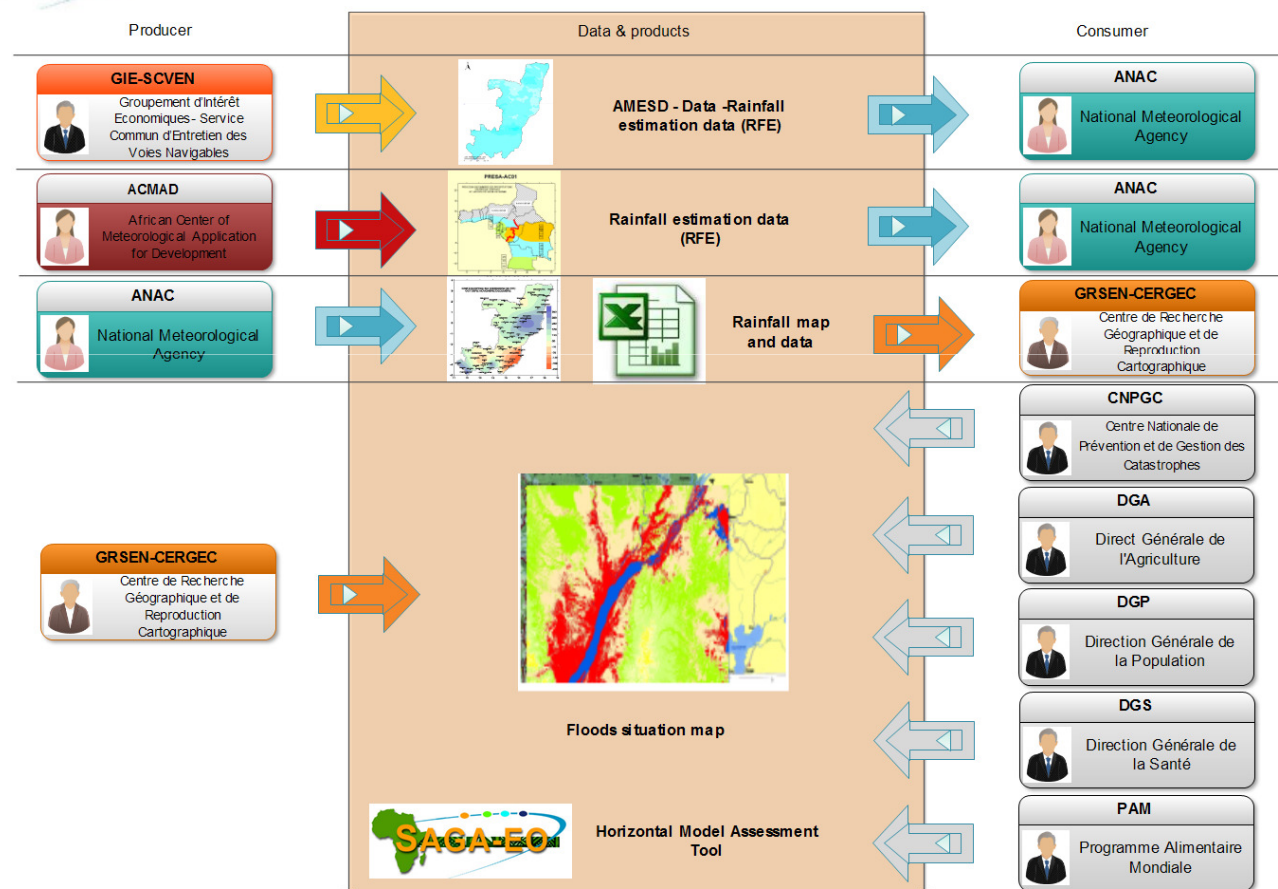
## Marine and Coastal Areas

Mombasa  
Kenya

9-10 October 2012



## Case of Congo National SAGA-EO Network



**saga-eo HMA:**  
**FLOOD Scenario**



EAMNet  
Europe-Africa Marine EO Network



# 1st GMES & Africa Workshop Marine and Coastal Areas

Mombasa  
Kenya  
9-10 October 2012

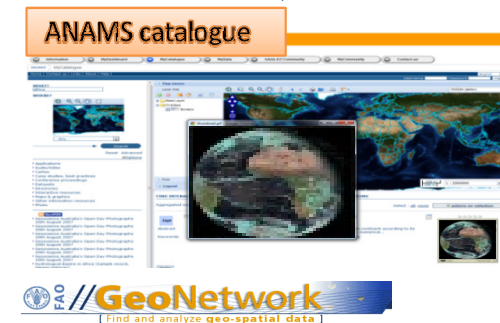
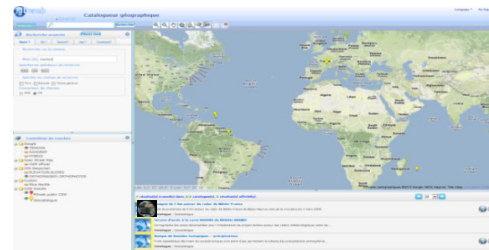
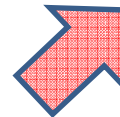
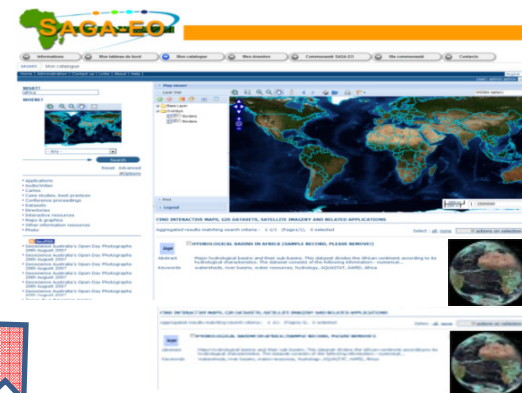


## Case of Senegal National SAGA-EO Network



### Interoperability with PUMA and AMESD

**saga-eo platform:** A unique portal to access to various applications (PUMA, AMESD,...) thanks to the use of standards: OGC, ISO ...



**PUMA**





# 1st

# GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa  
Kenya

9-10 October 2012



## HMA of 5 National SAGA-EO Networks



Congo – Brazaville from 03/05/12 to 12/05/12



Mozambique – Maputo from 14/06/12 to 23/06/12

50 days in 5 countries with  
67 people from 56 institutions



Côte d'Ivoire – Abidjan from 24/05/12 to 02/06/12



Ghana – Accra from 19/07/12 to 28/07/12

Sénégal – Dakar from 05/07/12 to 14/07/12



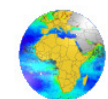




## National SAGA-EO Networks key issues



- It is crucial to **institutionalize** the network
- **Decision rules** have to be clearly defined
- Data and information **quality** needs to be improved (because of sharing)
- **Standardized** data model (ex ISO 10115/19139 for catalogue) needs to be implemented
- **a very strong demand for operational implementation**
- **Collaborative tools** (videoconference, wiki, forum, blog) are of utmost importance
- Network shall include the **academic actors** (students, teachers, researchers)
- National networks shall benefit from **national existing institutional organisations** (e.g. risks management in Mozambique, SDI in Senegal)
- National networks shall be connected to **EO information providers**: PUMA, AMESD, GMES, satellite receiving stations (Algeria, Egypt, Nigeria, South Africa, Gabon,...),...



**EAMNet**  
Europe-Africa Marine EO Network



# 1st GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa  
Kenya  
9-10 October 2012



### Expected benefits at national level



- Improvement of the **efficiency and quality** of the mission of each network member and of the network as a whole;
  - ✓ **Actors emulation**: improvement of motivation and stimulation through customer/supplier relationship
  - ✓ Increased synergy and cross-fertilization between thematic areas and **improvement of the national EO capacities**;
- **Economy of scale**: through pooling of means, data (ex: PUMA, AMESD,...) and knowledge;
- **Sustainability** rely on network institutionalisation, actors critical mass and participation of academic actors;

**The multi-thematic network approach is the most direct way for increasing the National EO capacities with the weakest effort**





# 1st GMES & Africa Workshop Marine and Coastal Areas

Mombasa  
Kenya  
9-10 October 2012



## Case of Côte d'Ivoire SAGA-EO Network



□ 2 to 4 « technical » partners which have stakeholders in EO applications:

*Academics centers, Mapping, Remote Sensing and GIS Centers , etc.. enable to propose products and services based on EO data ;*

□ 4 to 5 « thematic » partners potentially interested in EO data, products & services:

*As directions of agriculture, livestock, forest, environment, water resources, etc.*

Technical Partners	BNETD, CNTIG, CURAT, SODEXAM
Thematic Partners	Ministry Environment, Ministry of Agriculture, SODEFOR, CIAPOL, CRO

Côte d'Ivoire SAGA-EO Network, by its **multi-thematic and multi-sector common vision** groups together members of various business areas!



EAMNet  
Europe-Africa Marine EO Network



# 1st GMES & Africa Workshop










## Marine and Coastal Areas

Mombasa Kenya  
9-10 October 2012



### Case of Côte d'Ivoire SAGA-EO Network



	<b>BNETD/CCT</b>	Issues related to <a href="#">production and management of geo-information</a>
	<b>SODEXAM</b>	Issues related to <a href="#">meteorology and climatology</a>
	<b>CURAT</b>	Issues related to <a href="#">research and academic training</a>
	<b>CRO</b>	Issues related to <a href="#">ocean domain (littoral, coast, marine) management</a>
	<b>CNTIG</b>	Issues related to <a href="#">geo-information policies</a>
	<b>SODEFOR</b>	Issues related to <a href="#">development of protected forest</a>
	<b>CIAPOL</b>	Issues related to <a href="#">pollution of receiving environment</a>
	<b>MINEDD</b>	Issues related to <a href="#">environment and sustainable development</a>
	<b>MINAGRI</b>	Issues related to <a href="#">agriculture</a>





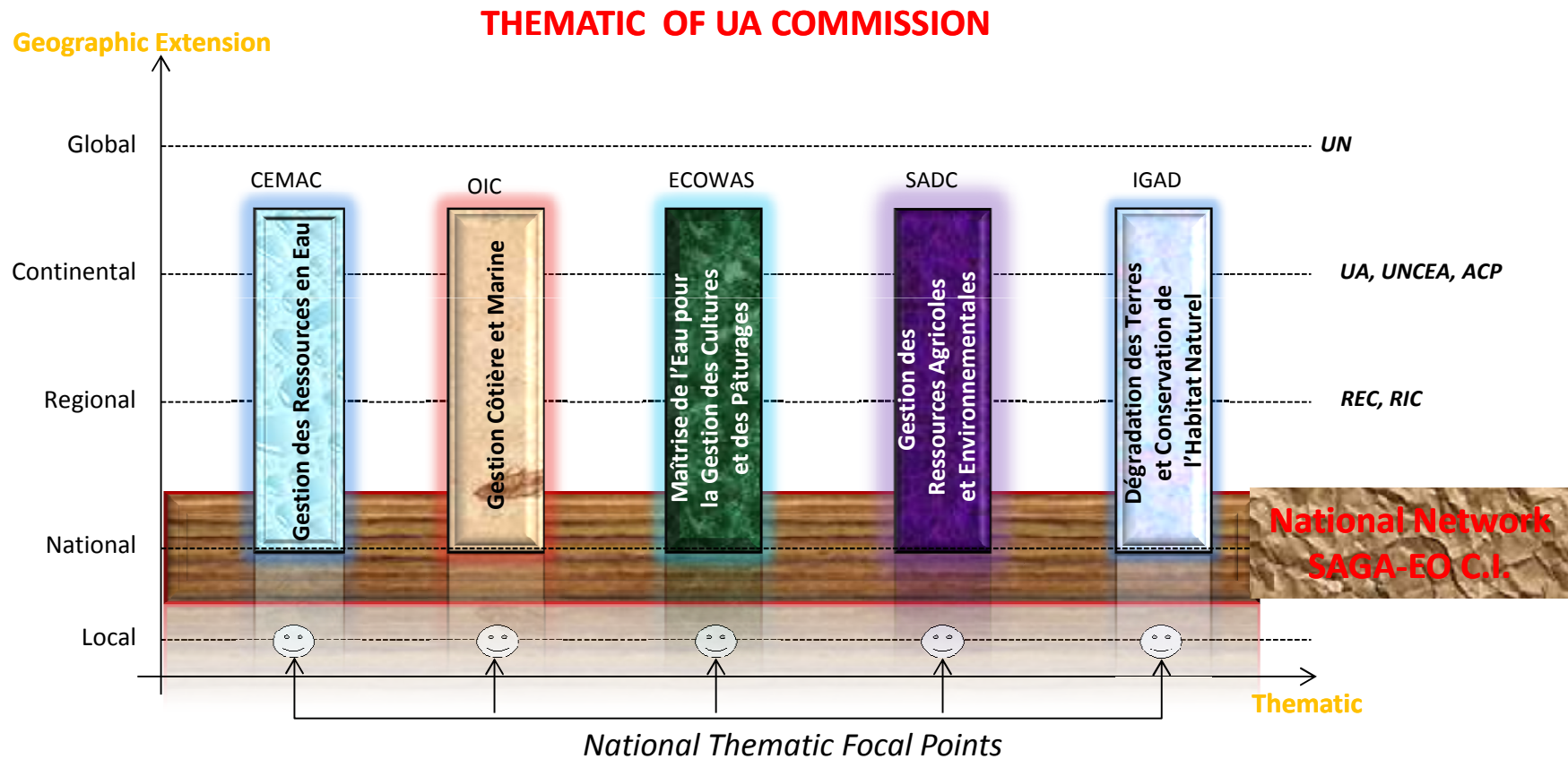
# 1st GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa Kenya  
9-10 October 2012



### Case of Côte d'Ivoire SAGA-EO Network





# 1st

# GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa  
Kenya

9-10 October 2012



## Case of Côte d'Ivoire SAGA-EO Network

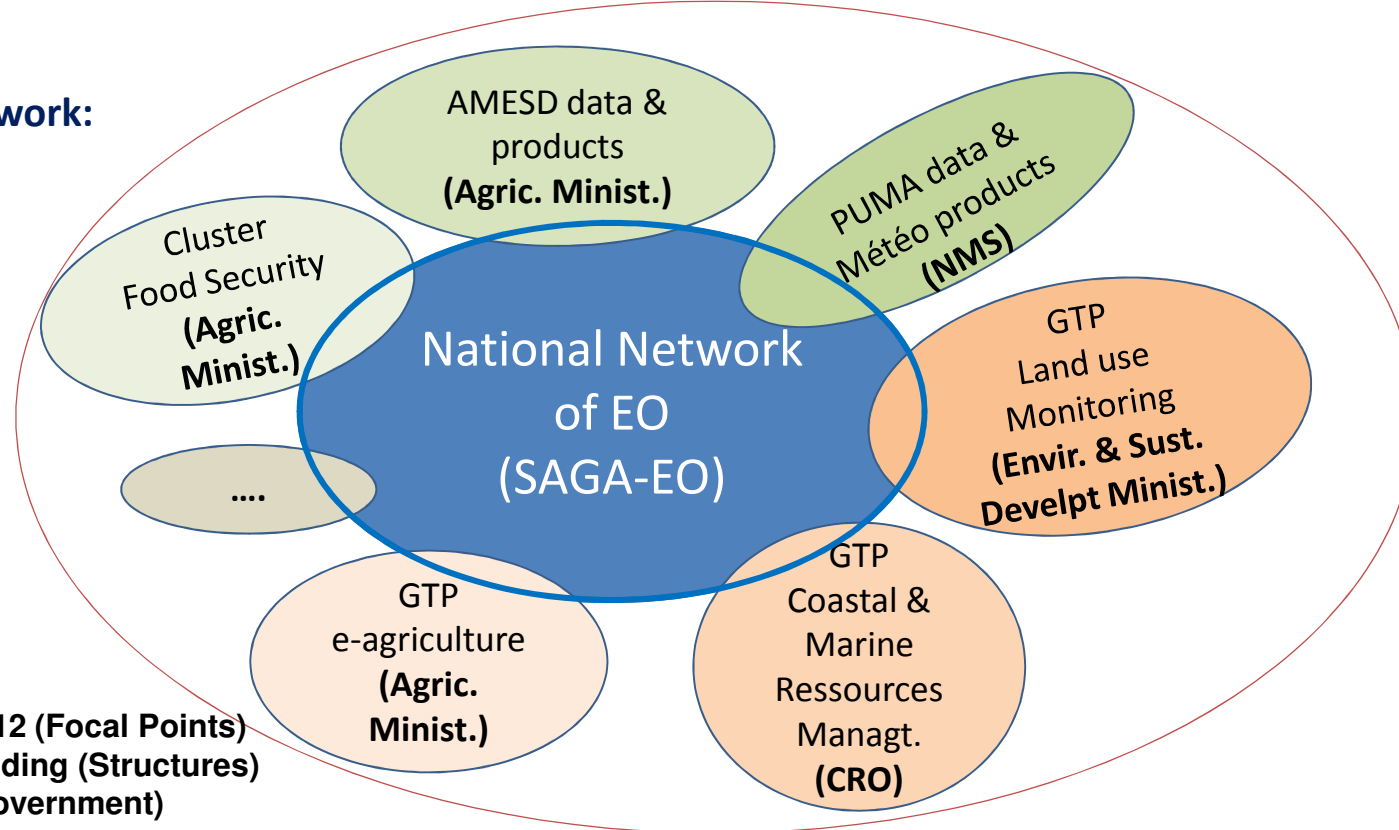


### Perspectives

Build a National Network to support GMES & Africa on EO level:

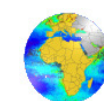
saga-eo côte d'ivoire network:

**A National Technical  
Assistance Team in EO  
Applications**



### Ongoing

1. Resolutions of 1st June 2012 (Focal Points)
2. Memorandum of Understanding (Structures)
3. Creation of the Network (Government)



EAMNet  
Europe-Africa Marine EO Network



# 1st GMES & Africa Workshop

## Marine and Coastal Areas

Mombasa Kenya  
9-10 October 2012



## SAGA-EO Future Results



- Provide recommendations on the national dimension towards:

- ✓ GMES & Africa, through the GMES Bureau / EC and BRAGMA (Bridging Actions for GMES and Africa)
- ✓ MESA: the national dimension



- Straightforward benefit for GMES & Africa including MESA
- Blowing-up of the Earth Observation user community



EAMNet  
Europe-Africa Marine EO Network



# 1st GMES & Africa Workshop

*Marine and Coastal Areas*

Mombasa  
**Kenya**  
9-10 October 2012



**Merci de votre attention !**  
**Thank you for your attention !**  
**Obrigado pela vossa atenção !**

**for more information:**

Project Coordinator: [pascal.lazaridis@thalesaleniaspace.com](mailto:pascal.lazaridis@thalesaleniaspace.com)

SAGA-EO Web site : <http://www.saga-eo.eu>

National Côte d'Ivoire saga-eo Coordinator: [jacobcharlesk@yahoo.fr](mailto:jacobcharlesk@yahoo.fr) / [jkouame@bnetd.ci](mailto:jkouame@bnetd.ci)

