Impact of SumbandilaSat on Sustainable Development in context of African Resource Management Constellation

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Overview

- African Space Programmes
- African Satellite Technology
- Sumbandilasat
- African Resource Management Constellation

- ARM Programme Overview

- ARM User Requirement Analysis

African Space Programmes

NEPAD

- New Partnership for Africa's Development

  The determination of African leaders to free themselves from underdevelopment and to place their countries both individually and collectively on a path of sustainable growth

- **Cornerstone: intra-regional cooperation**

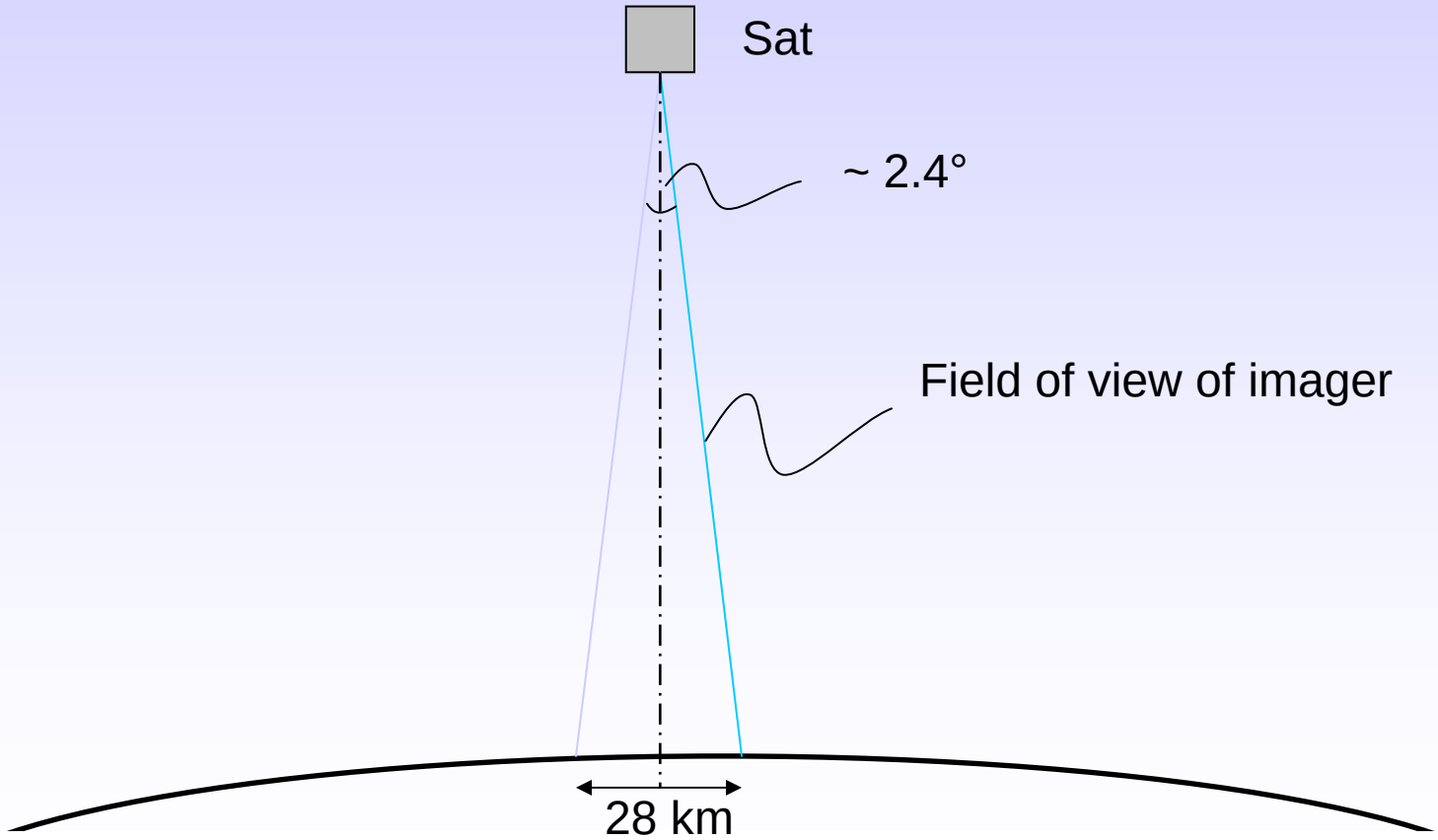
An African Space Programme - Principles

1. **NEPAD: development, transfer and application of regional indigenous knowledge**
2. **Apply the full potential of existing space technology capacity in Africa**
3. **Monitor and manage African resources**
4. **Contribute to the body of International Knowledge about Africa**

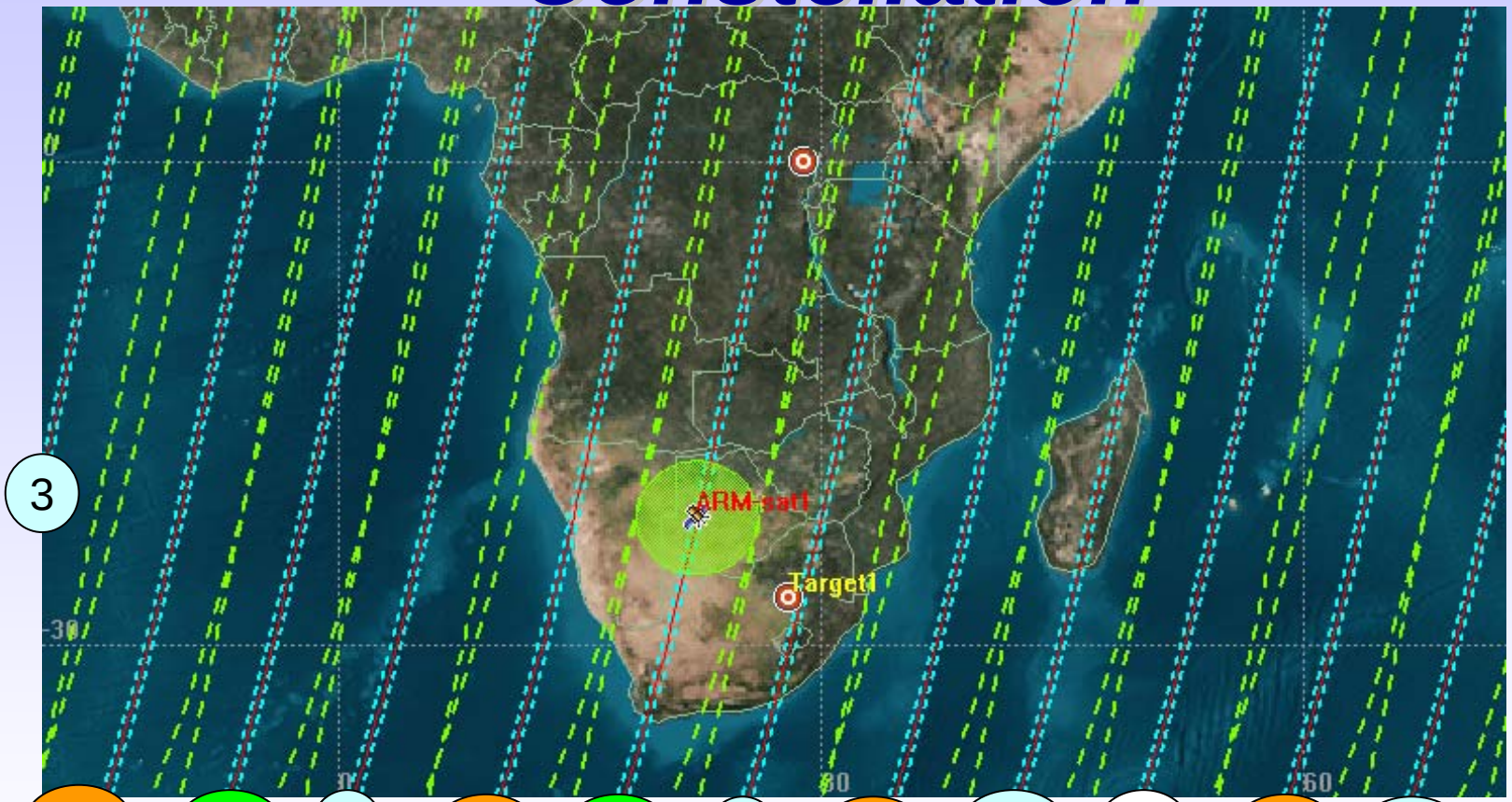
Satellite Utilisation

From Individual Satellites to Combined Infrastructure

Access area with fixed nadir pointing



Coverage with Satellite Constellation



n Orbits Sat 1

n Orbits Sat 2

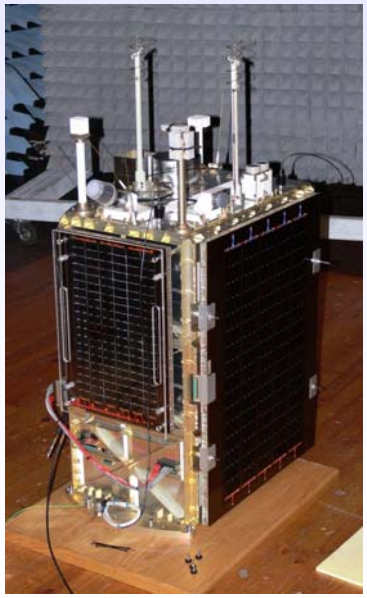
n Orbits Sat 3

n Orbits Sat 4

African Satellite Technology

Africa Indigenous Technology Development

- **Satellite Engineering Teams**
  - Nigeria, Algeria, Morocco, Egypt, South Africa
- **Regional Training centers**
  - Morocco, Rectas, Nigeria, RCMRD, Kenya
- **Remote sensing and GIS agencies**
  - Various



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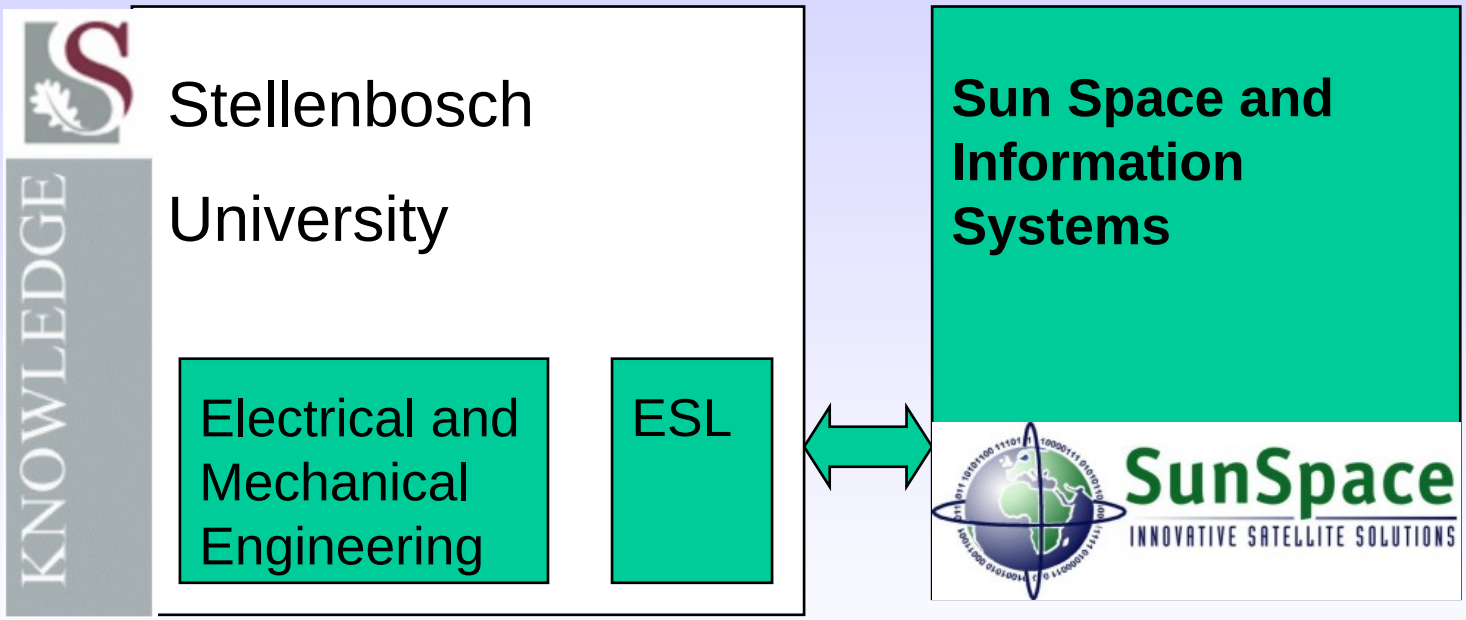


Teaching and Research

Research and Development

System Development and Deployment

15 engineers

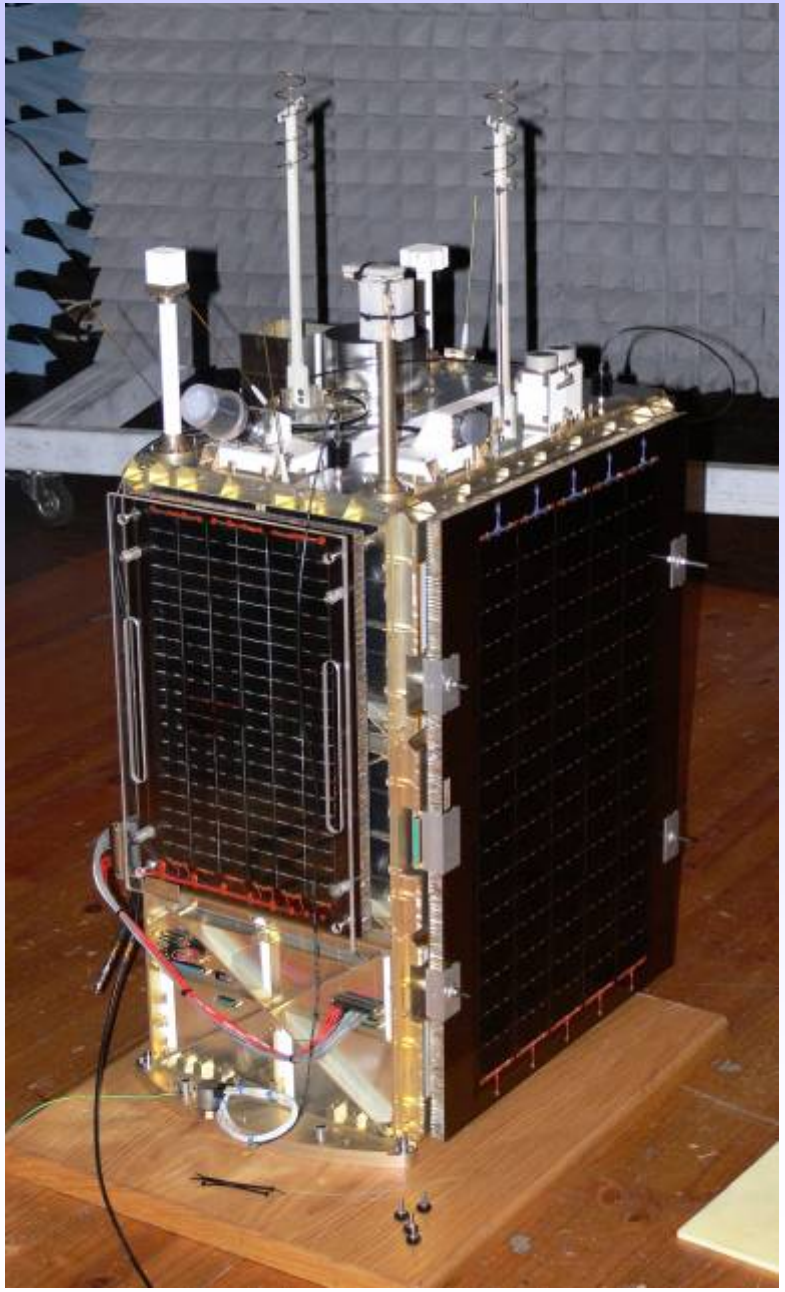
75 engineers

Latest Satellite

Sumbandilasat

SumbandilaSat

- **Achievements**
  - **Dedicated launch**
  - **One year contract**
  - **New generation bus scalable to 400kg**
  - **Total mission cost < $9M**



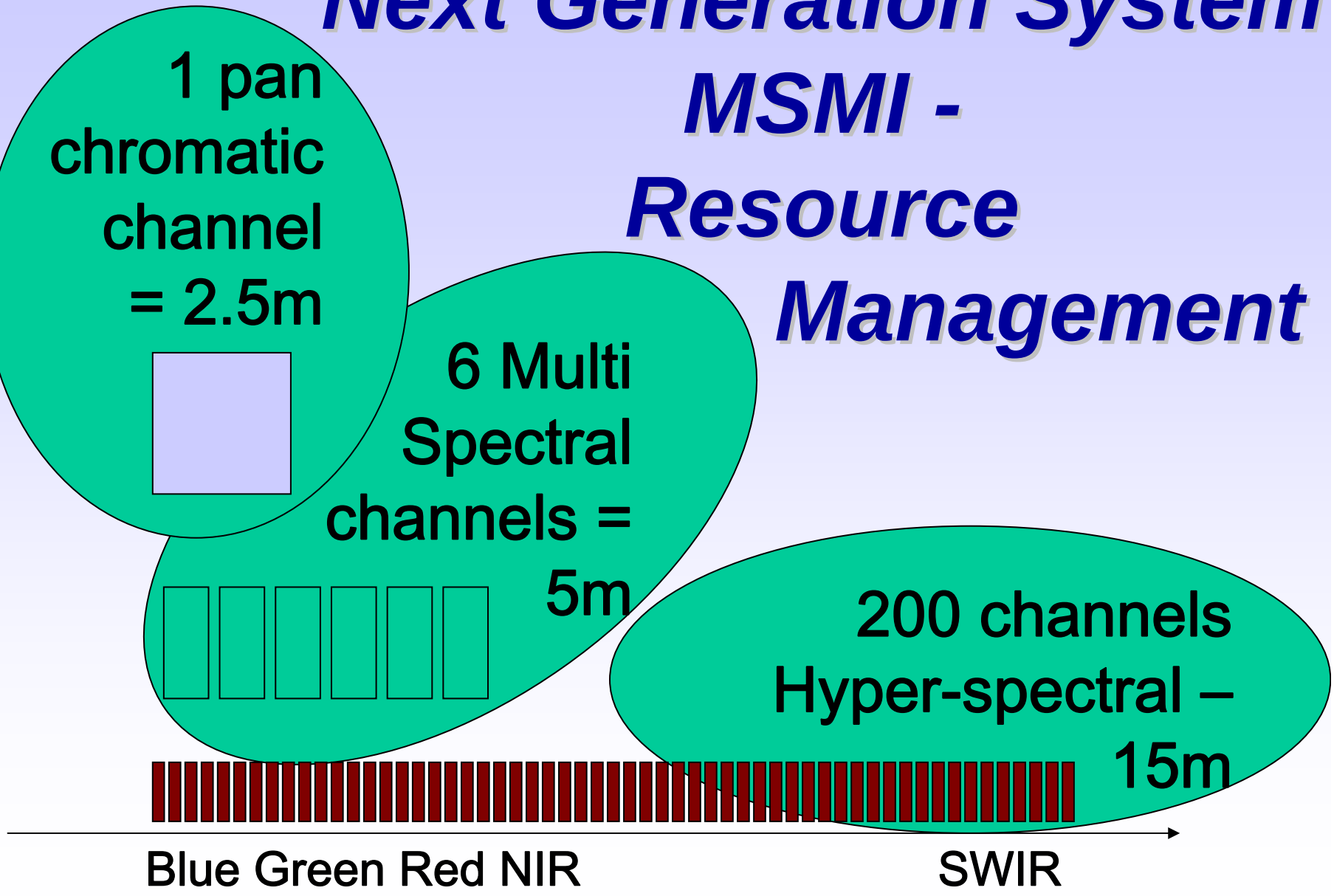
Affordable Dedicated Launches

Shtil 2.1

- **Up to 135 kg in 500kg orbit**
- **Last successful launch May 2006**
- **Based on submarine ICBM**
- **Launched from submarine**

DEDICATED LAUNCH!

Next Generation System MSMI - Resource Management



African Resource Management Constellation

An expression of the spirit of Nepad

African Resource Management Constellation

- Four African countries together build four satellites with the same payload
- Each country owns own satellite in constellation
- All members benefit from daily remote sensing coverage and shared infrastructure
- All members benefit from technology development and transfer and industrial development

ARM Programme Overview

ARM Short History

- **Introduced at Addis-Ababa UN Workshop on Disaster Management in July 2002**
  - Resource Management as an alternative to Disaster Management in Africa
- **Initial User Requirements Consultations in 2003**
  - Strong support
- **MSMI Payload Development Project Start June 2003**
  - Next generation imager for micro-satellite
- **Nigeria and Algeria initiate membership in 2004**
- **South Africa and Kenya join membership in 2005**
- **Interest from Canada and Germany to contribute**

ARM User Requirements Analysis

System Requirements

Technical Requirement Specifications	Spatial	Spectral	Temporal
ARM 1 requirement	3-5m	multi-spectral	Once per two days (land use), monthly (agriculture)
ARM 2 requirement	20m-30m, swath 600km	multi-spectral	Daily (or twice per day if possible)
ARM 3 requirement	0.5m - 0.75m	Pan, RGB	Once per annum of all areas of interest

Conclusion

Conclusion

- **ARM Constellation Tangible Programme to Demonstrate**
  - African technology development
  - Creating a Geo-information system focused on African priorities
  - Creating a platform for contributing to GEOSS
- **Sumbandilasat demonstrates latest technology advances in indigenous African technology**
- **New opportunity for participating members in ARM 2 constellation to address African challenges**
- **Ensuring the benefits of high technology for Africa by Africans**