

**INTERSESSIONAL PANEL OF THE UNITED NATIONS COMMISSION
ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (CSTD)**

**Geneva, Switzerland
7-8 November 2019**

Contribution by Egypt

to the CSTD 2019-2020 priority theme on “Exploring space technologies for sustainable development and the benefits of international research collaboration in this context

DISCLAIMER: The views presented here are the contributors’ and do not necessarily reflect the views and position of the United Nations or the United Nations Conference on Trade and Development



وكالة الفضاء المصرية
Egyptian Space Agency – EgSA

Egyptian Space Agency

UN CSTD Intersessional Panel 2019-2020, Geneva

Nov. 2019

AGENDA

1. About EgSA,
2. Principles of Egyptian Space Policy and strategy,
3. Egyptian Space Program Pillars,
4. EgSA Infrastructure and Activities ,

1. About EgSA

Established in August 2019.

Egyptian Space Agency is a Governmental Organization aims at acquiring and localization of Space Technology and Satellite Launching capabilities towards the accomplishment of The National Sustainable Development Strategy “Egypt-SDS 2030” Objectives.

Egyptian Space Agency



Egyptian Space Agency

Vision

Egypt is a responsible user for outer space having the ability to carry out space missions serving its national development and security objectives, and competent of being an active member in global space initiatives.

Egypt will be capable of carrying out deep space missions to explore and use space resources.

Egyptian Space Agency

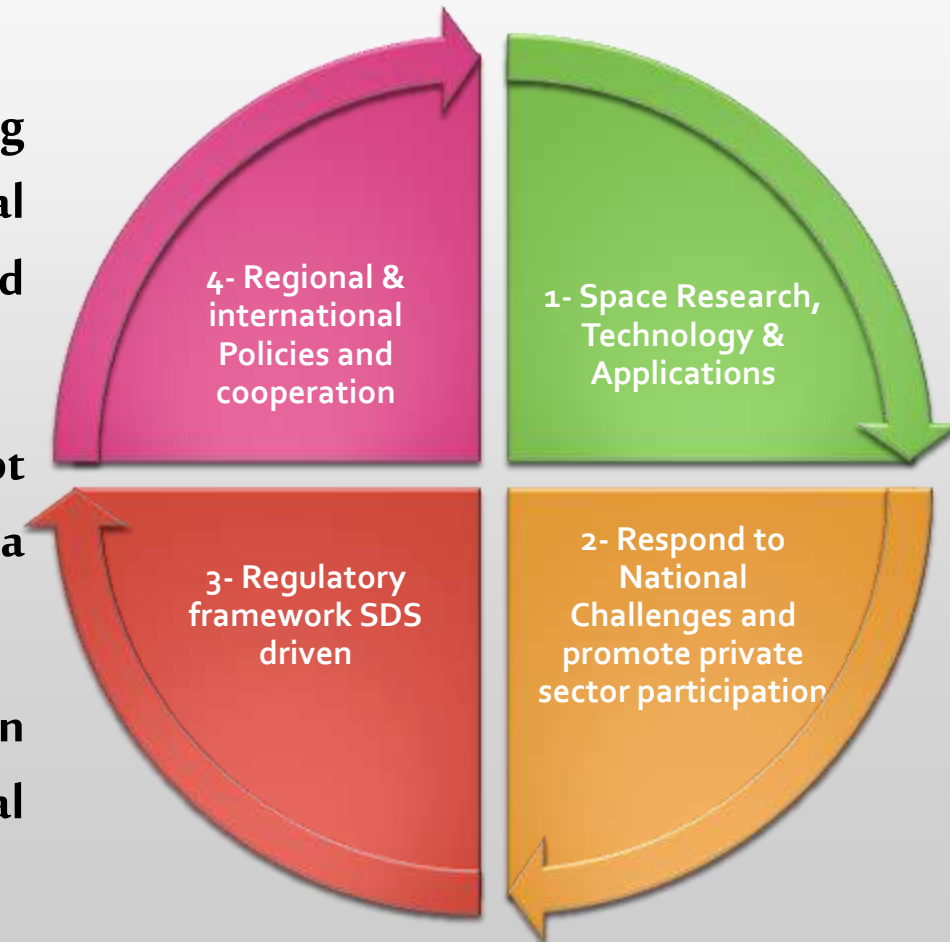
Mission

To promote the peaceful use of space, develop space systems at the national level through investment in human capital development, leveraging the space industry for sustainable future, supporting research and development, drive innovations, enhancing space outreach, and developing of reliable, responsive and viable economical solutions to serve the national objectives.

2. Principles of Egyptian Space Policy and strategy

Egyptian Space Policy Principles

1. Using space technology to support applications in Earth observation, Navigation, Communications and space science.
2. Building reliable and sustainable platform responding to social, economic, political and environmental challenges in a well-coordinated, integrated and responsive way.
3. Developing regulatory framework that supports Egypt sustainable development strategy SDS-2030, as a responsible user of outer space.
4. Creating sustainable regional collaboration framework taking into consideration international obligations and mutual benefits.




Egyptian Space Strategy Framework

Demand Driven Approach




Strategic Goals & Objectives


Goal-1: Localization of Space technology and building national capacity



Strategic objective-1.1:
Building space systems.




Strategic objective-1.2:
Investment in research and development at universities and research institutes.



Strategic objective-1.3:
Support National industrial capabilities.


Goal-2: Addressing national and regional needs




Strategic objective-2.1: using outer space for monitoring Egyptian territory,




Strategic objective-2.2: support/create private sector investment-PPP,



Strategic objective-2.3: contribute/initiate regional space mega project,




Strategic objective-2.4: sustain/promote infrastructure capabilities and operation.




Strategic Objective-2.5 : Inspire And Engage The Public In Aeronautics and Space Science.

Goal-3: Exploration of outer space



Strategic objective-3.1:
Support deep space monitoring and studies,



Strategic objective-3.2:
Send unmanned Missions to moon and asteroids.

3. Egyptian Space Program Pillars

National Space Pillars

Addressing Strategic Objectives

Space Applications and ROI

**International
collaboration
Pillar**

**Regulatory
framework
Pillar**

Space Usage Enablers

**Space
Systems Pillar**

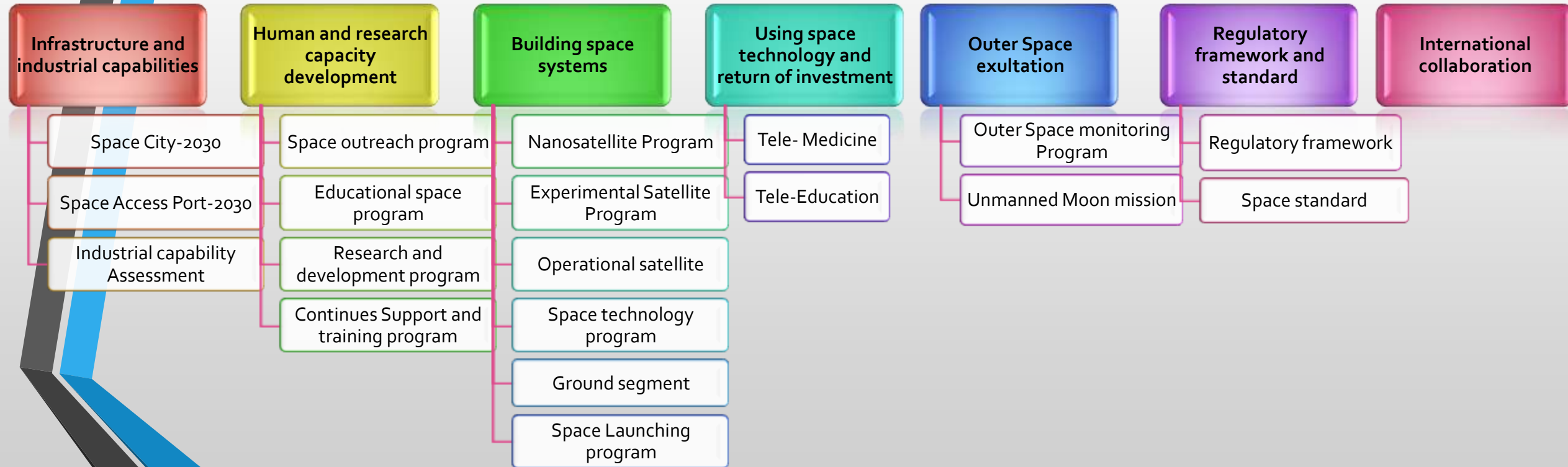
**Outer Space
Exploration
Pillar**

Building capacity Enablers

**Human Capital
Development Pillar**

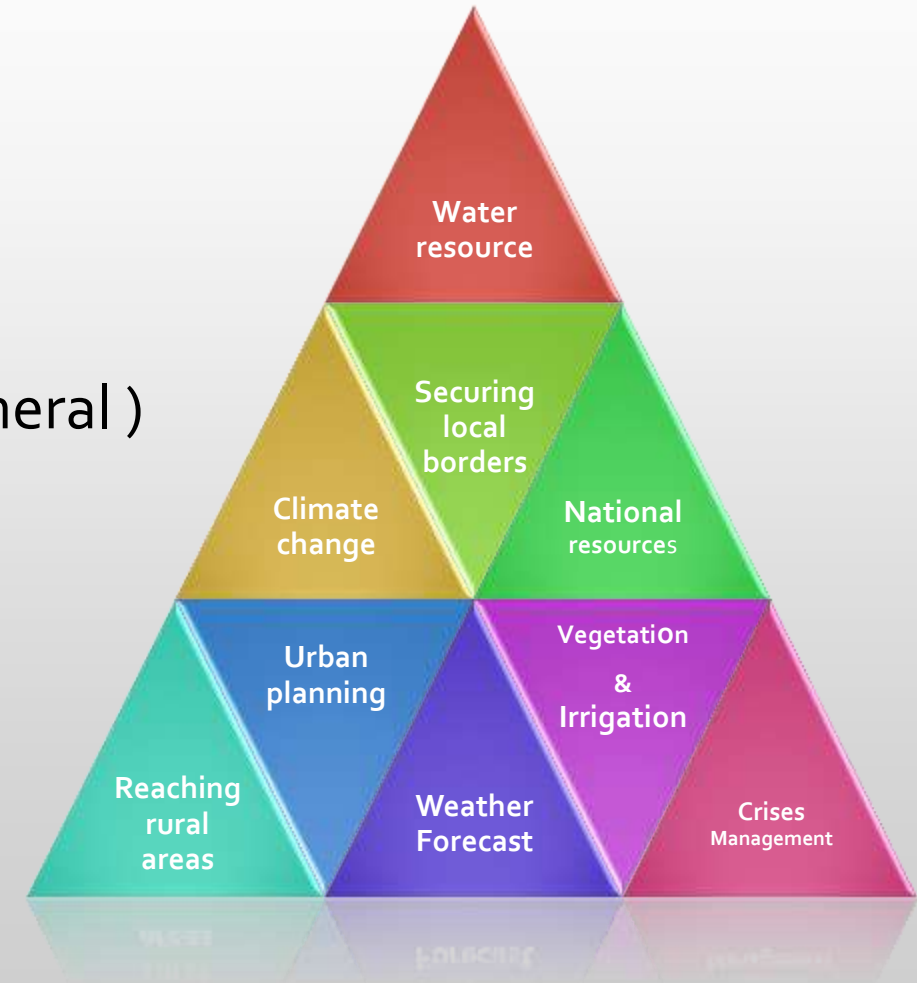
Infrastructure Pillar

National Space Pillars 2030 Programs

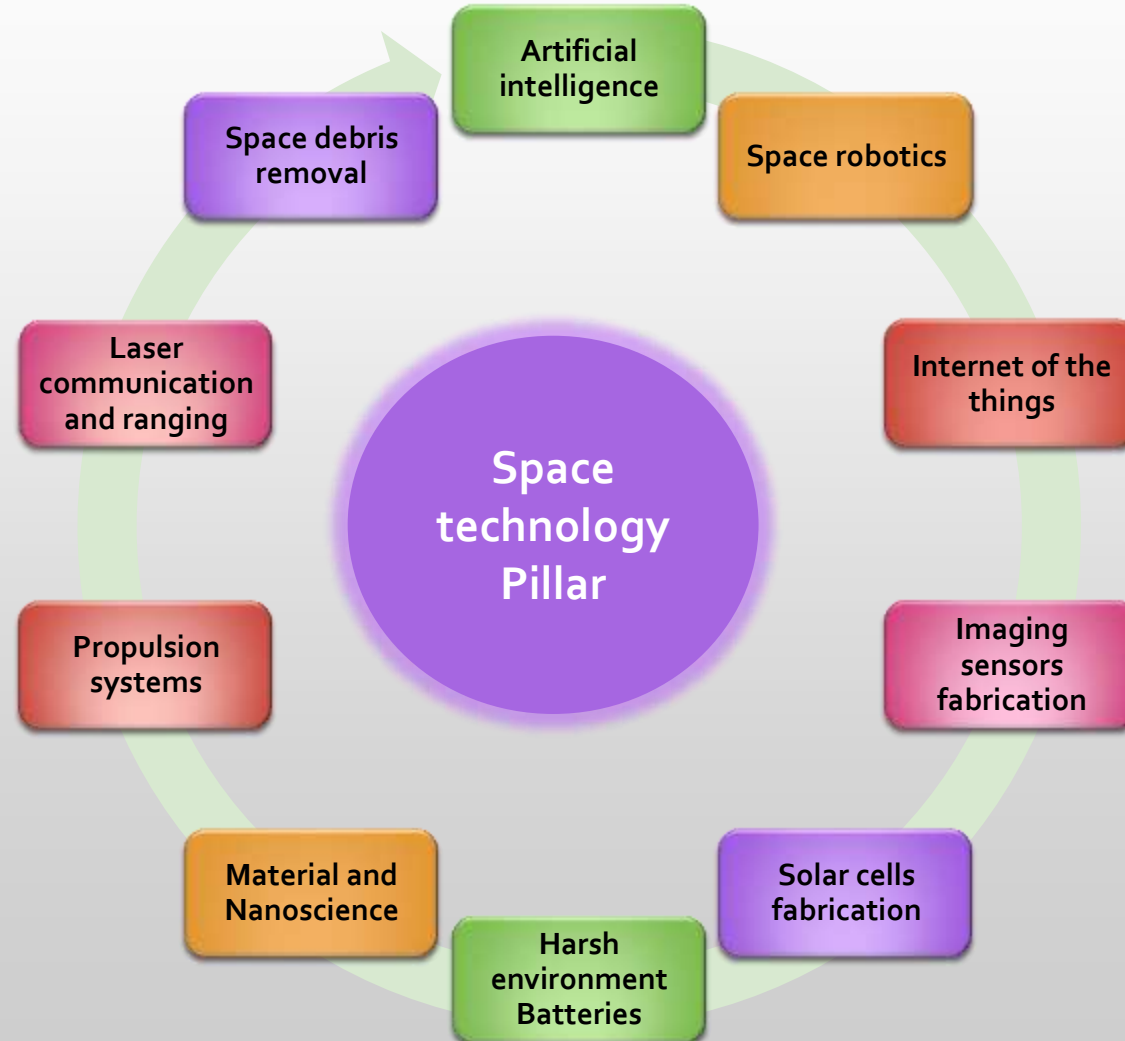


Direct Priority Challenges

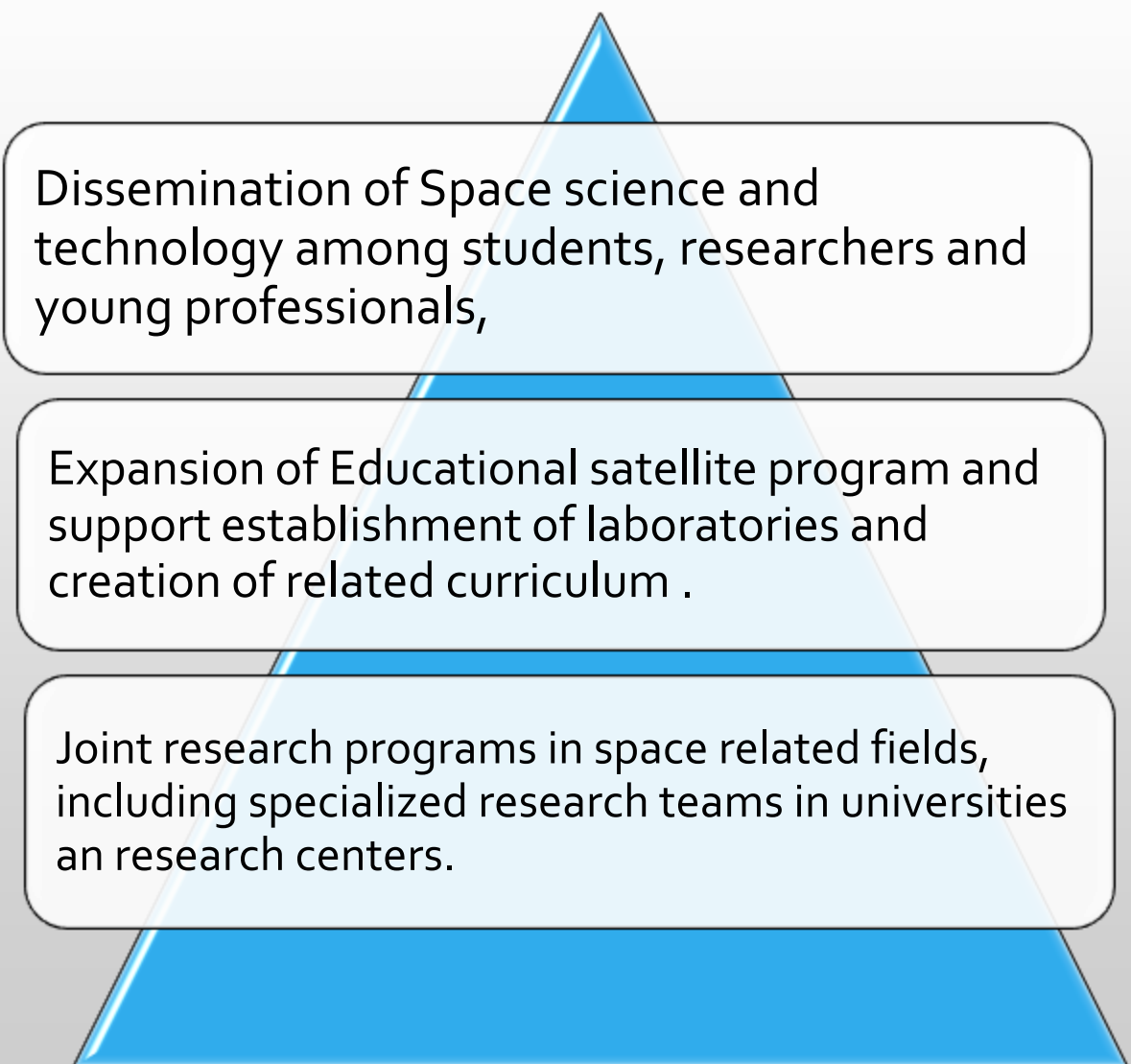
- Water resource management
- Climate change- GHG
- Securing local borders
- Investigation of National Resources (Gas, mineral)
- Reaching rural areas
- Urban planning
- Vegetation and irrigation
- Weather forecast
- Crises Management



Space Technology Pillar



Human capacity Development Pillar



Dissemination of Space science and technology among students, researchers and young professionals,

Expansion of Educational satellite program and support establishment of laboratories and creation of related curriculum .

Joint research programs in space related fields, including specialized research teams in universities an research centers.

Outer Space Exploration Pillar

Establishment of space weather monitoring center(s)

Support astronomy and space geodesy

Space debris and satellite monitoring centers

Studies of remote planets, asteroids

Preparation of astronauts – Egyptian Astronauts

Participation in research at ISS

Support interstellar and deep space studies

Cooperation With Universities And Research Centers

Cooperation
With
Universities
And Research
Centers

Support joint research activities
in space related fields;

Support postgraduate studies in
space related fields;

Joint space research
missions;

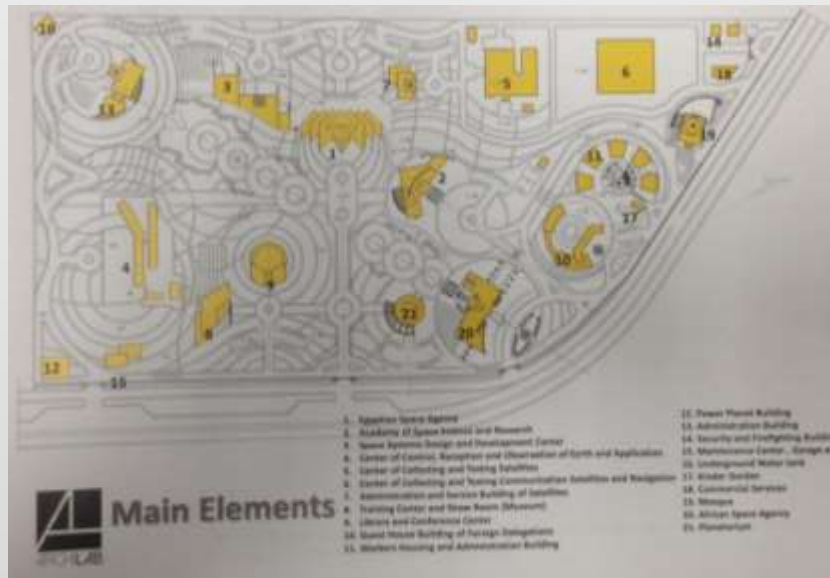
Participate in development
of curriculum;

4. EgSA Infrastructure & Activities

EgSA location

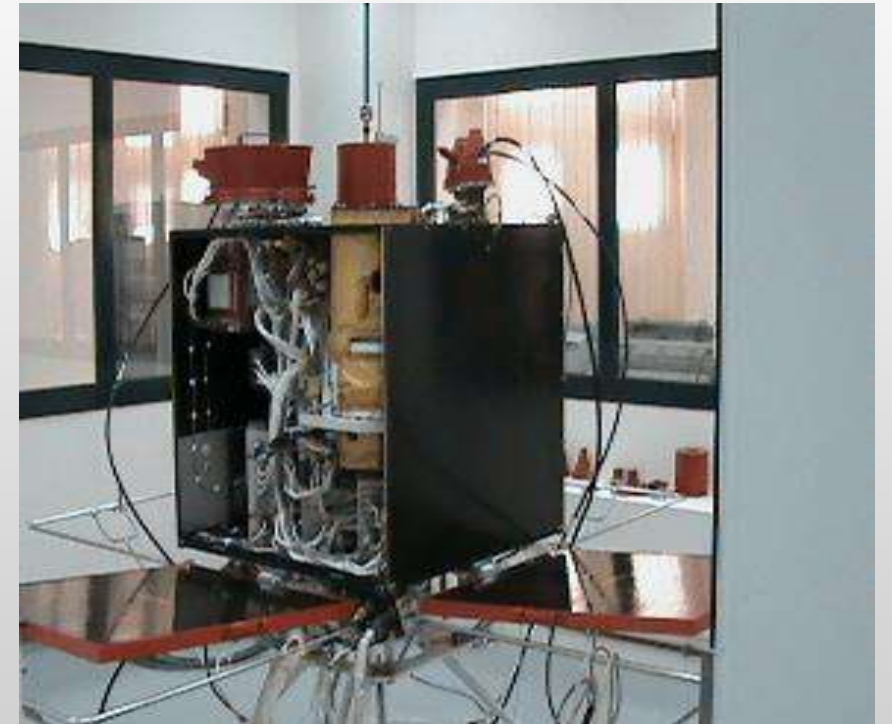


Space City Layout



Egyptsat-1 (2007)

- Remote sensing satellite
- Optical and infrared imaging capability,
- GSD 7.8 m
- Launched 17 April 2007
- Life time 3- 5 years,
- Joint project with Ukraine



Engineering Model Lab.

- Electrical ground support equipment,
- Mechanical ground support equipment,
- Clean room,
- Electromagnetic compatibility



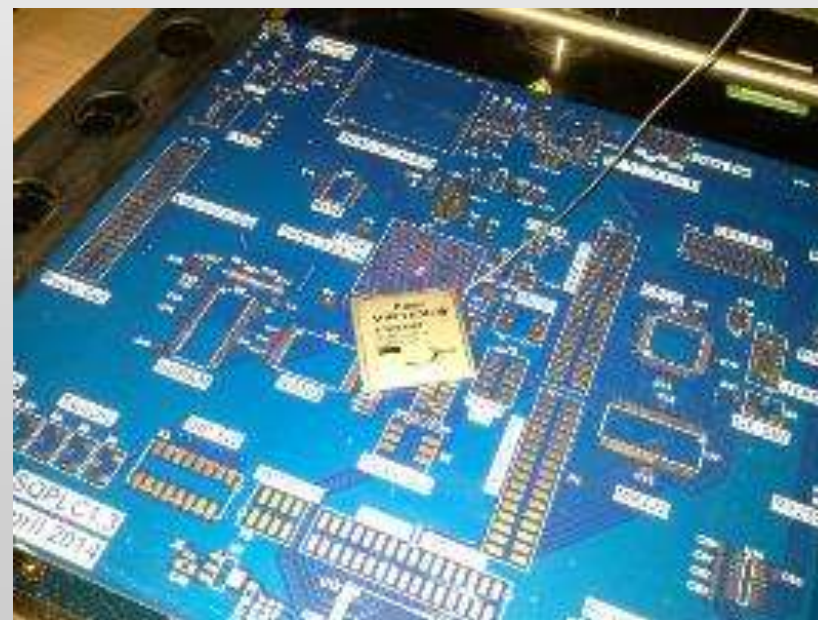
Concurrent design center



Educational Satellite Lab.



Advanced Technology Space Systems lab.



Anechoic Chamber

- Aims of Antenna Measurements:
- Evaluation of designed antennas,
- Empirical validation for antenna analysis methods.



size: (m) 2 x2 x5

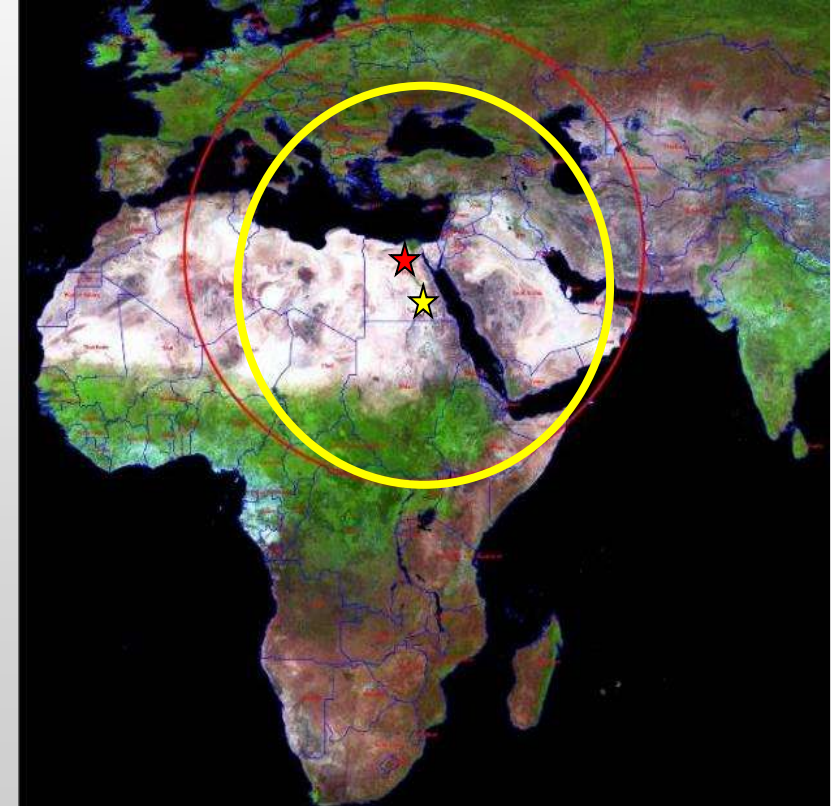
Ground control station



Ground data Reception Station



Satellite receiving station
(ASWAN)



EgSA Activities & Initiatives

Experimental Satellite series



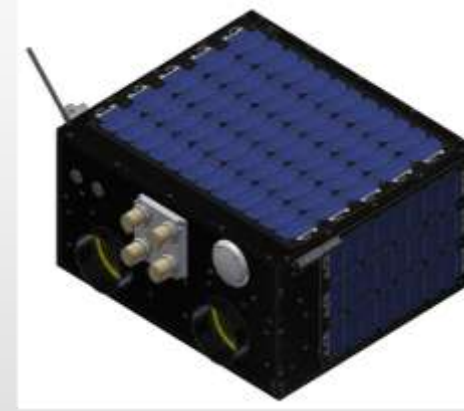
Nexsat-1
2015-2020

- Software and integration



Nexsat-2
2020-2022

- Communication system
- Camera system
- Power system



Nexsat-3
2021-2024

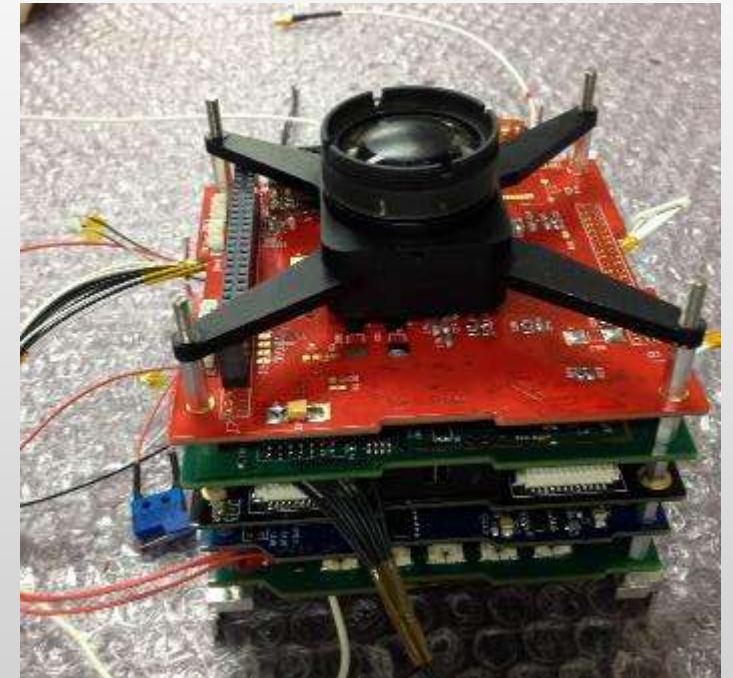
- SAR imaging

Nexsat-4
2022-2025

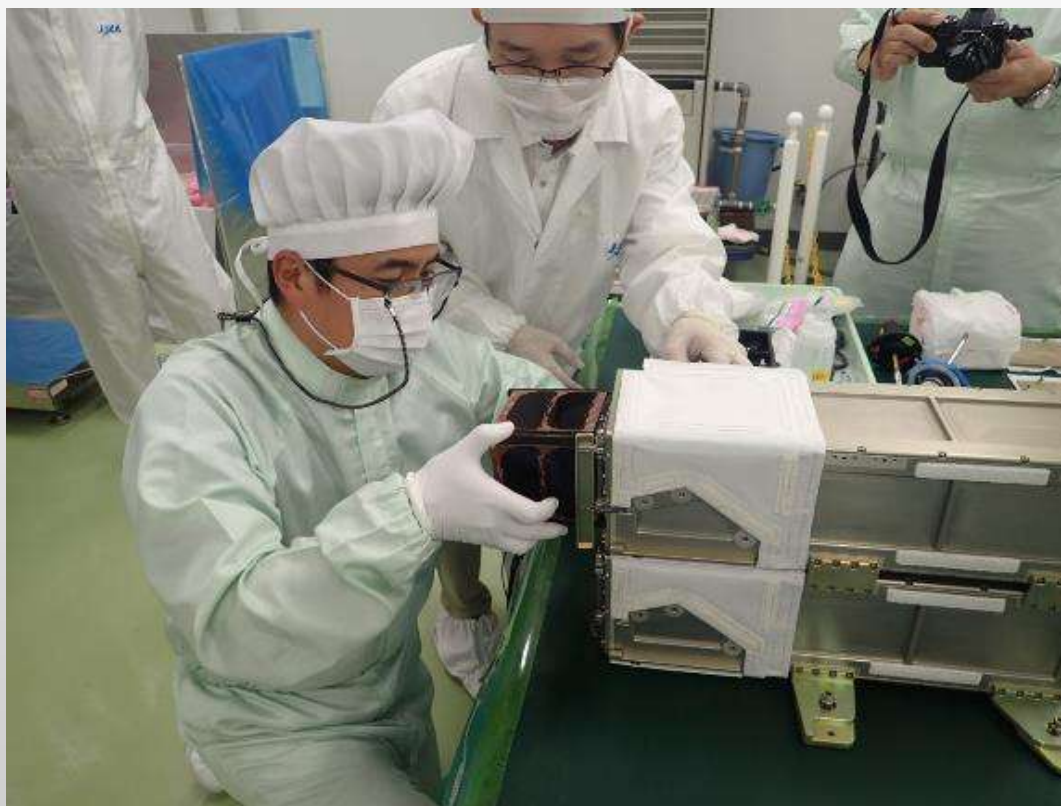
- Multi-communication system

Nanosatellite Series

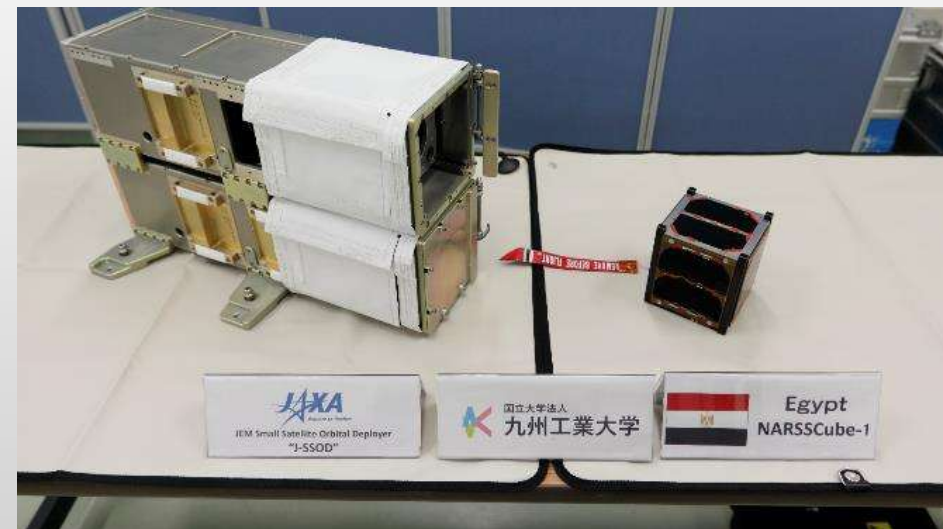
- All Design, implementation and assembly of the satellite has been carried out at EgSA Labs
- Qualification testing has been done in Kyutech Japan
- Launching
 - August 2019 NARSSCube-2
 - Nov. 2019 NARSSCube-1



NARSSCube 1



Credit to JAXA 2019



Credit to JAXA 2019

NARSSCube 1 & 2



Educational Satellite project

- Aims at promoting National human capabilities at National universities
- 20 Egyptian universities participating
- Develop satellite systems as a graduation projects



African Development Satellite Initiative

- Understanding the negative impact of Climate Changes and Global Warming on the Development of our continent, Egypt declared, during The Seventh Tokyo International Conference on African Development (TICAD 7); its initiative to develop and launch a remote sensing mini satellite 55 Kg equipped with hyperspectral sensor (HS) payload for detection CO₂ and Climate Quality
- So far, five countries have welcomed this initiative: Kenya, Morocco,, Nigeria, Sudan and Uganda
- The first meeting to be held on 27-28 November 2019 at Egypt Space Agency head quarter
- New partners are welcomed

Thank you !