

Earth Observation Technology: A Sustainable Tool for Women To Monitor The Environment

United Nations Expert Meeting on Space for Women 4 - 6 October, 2017, New York, USA



UNITED NATIONS
Office for Outer Space Affairs



UNITED NATIONS
UN-Women



Republic of Botswana

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Botswana International University of
Science & Technology

Botswana



Mining



Wildlife/Tourism



Livestock



Farming



- **Size: 582,000 sq km , Semi arid environment.**
- **Estimated Population of 2 million.**



Republic of Botswana

BIUST _OVERVIEW

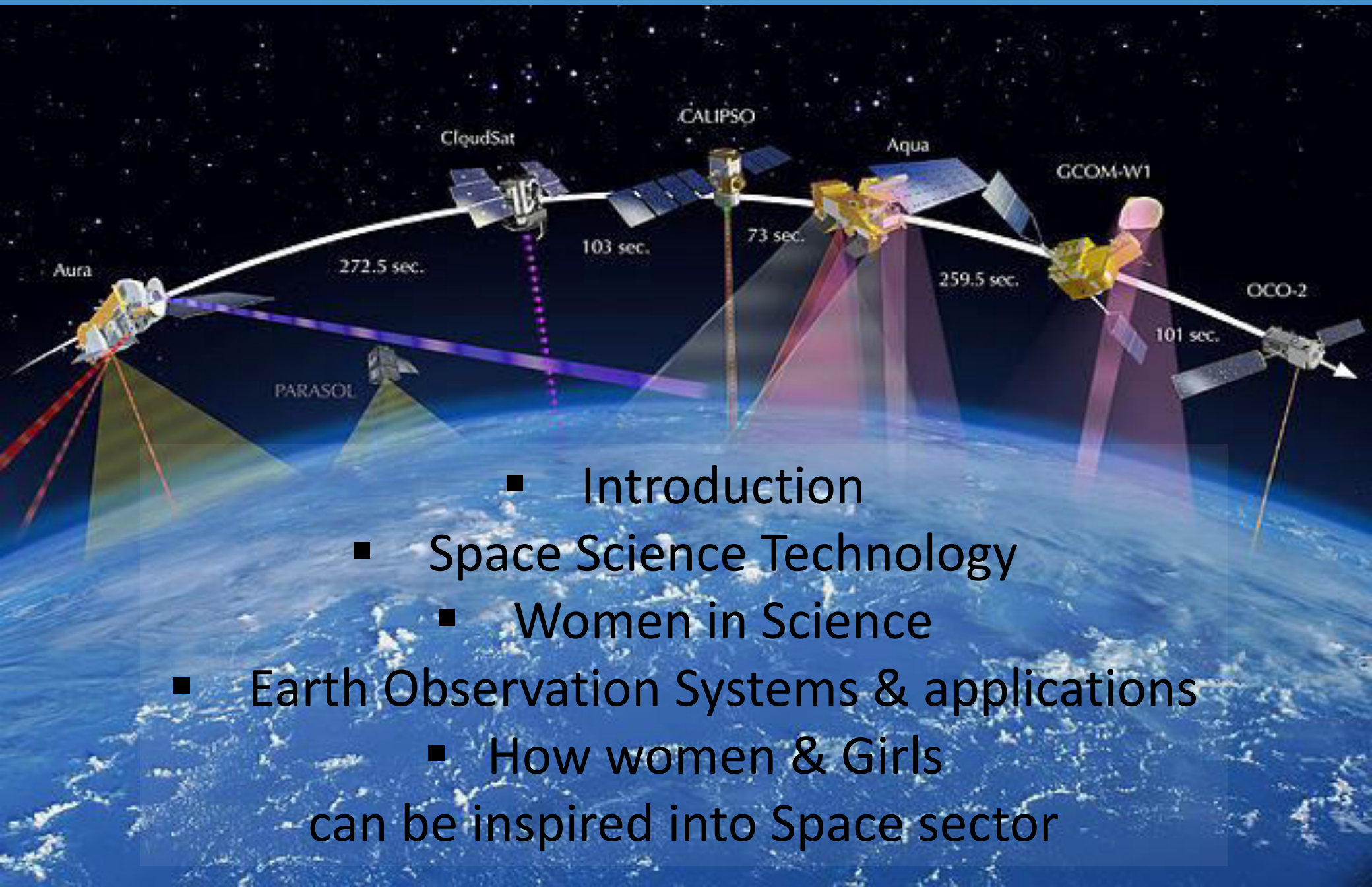
BOTSWANA INTERNATIONAL UNIVERSITY



- ✓ **BIUST is;**
- ✓ **A center of excellence and a world class research Institution.**
- ✓ **The Science, Engineering and Technology University of choice in the African continent**



Presentation Outline



- Introduction
- Space Science Technology
 - Women in Science
- Earth Observation Systems & applications
 - How women & Girls can be inspired into Space sector

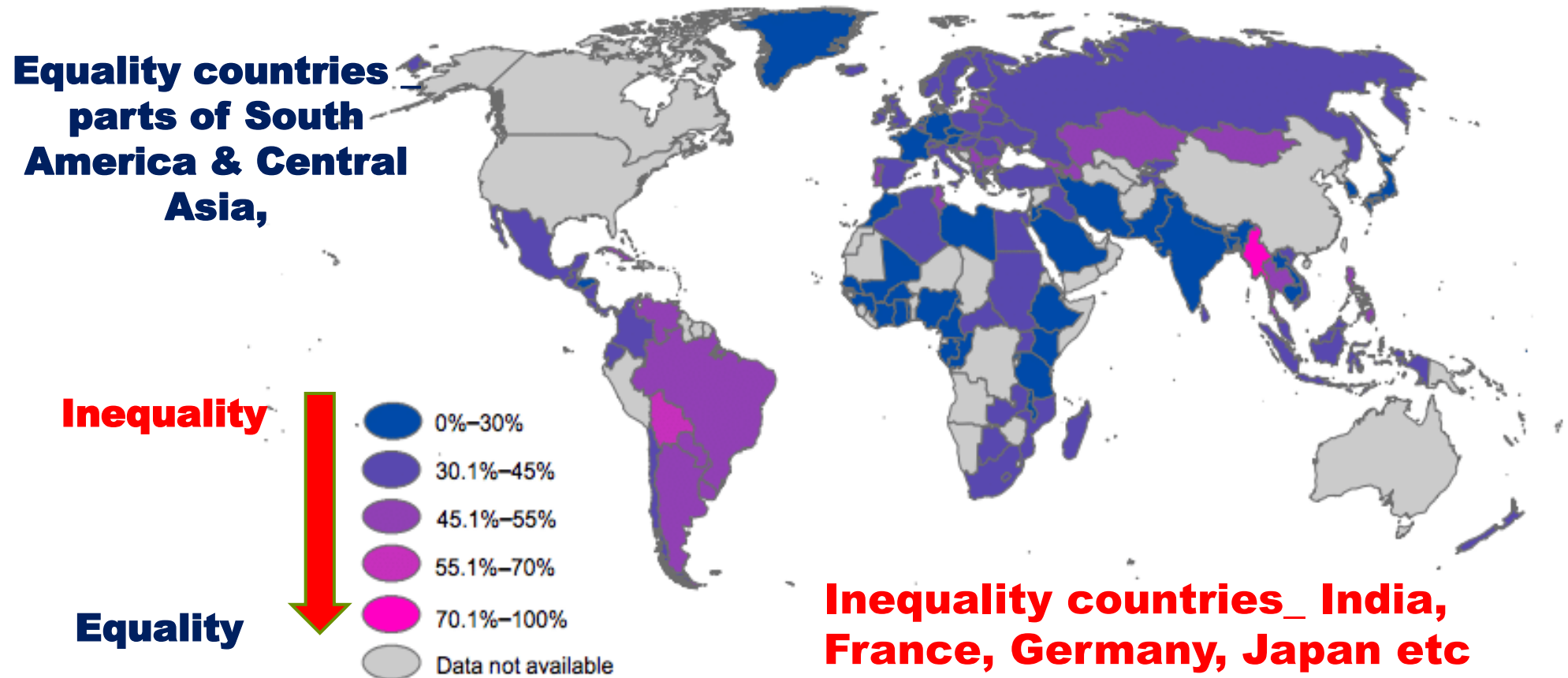
Why need women in Space

- ✓ **Space is a tool for sustainable development.**
- ✓ **Women represent over half the world population (UNESCO Institute for Statistics (UIS))**
- ✓ **Reduce Gender gap, women make up 28% of scientific researchers worldwide (UNESCO Institute for Statistics (UIS))**
- ✓ **Address Gender equality in Sustainable Development Goal 5. (SDG 5).**

Women in Science

THE GENDER GAP IN SCIENCE

WOMEN AS A SHARE OF TOTAL RESEARCHERS, 2010 OR LATEST AVAILABLE YEAR

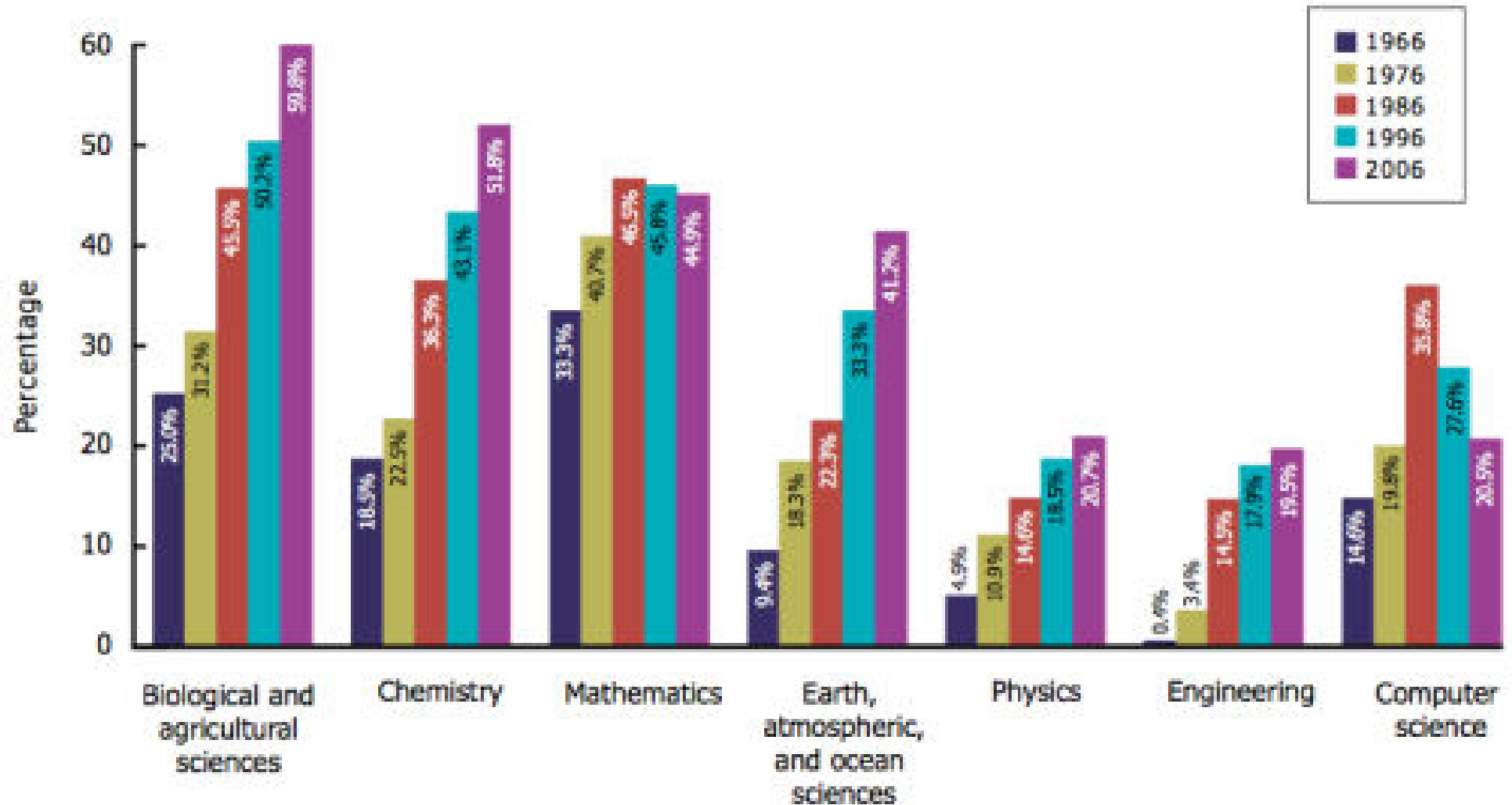


Note: Data in this map are based on HC, except for Congo and India (based on FTE).

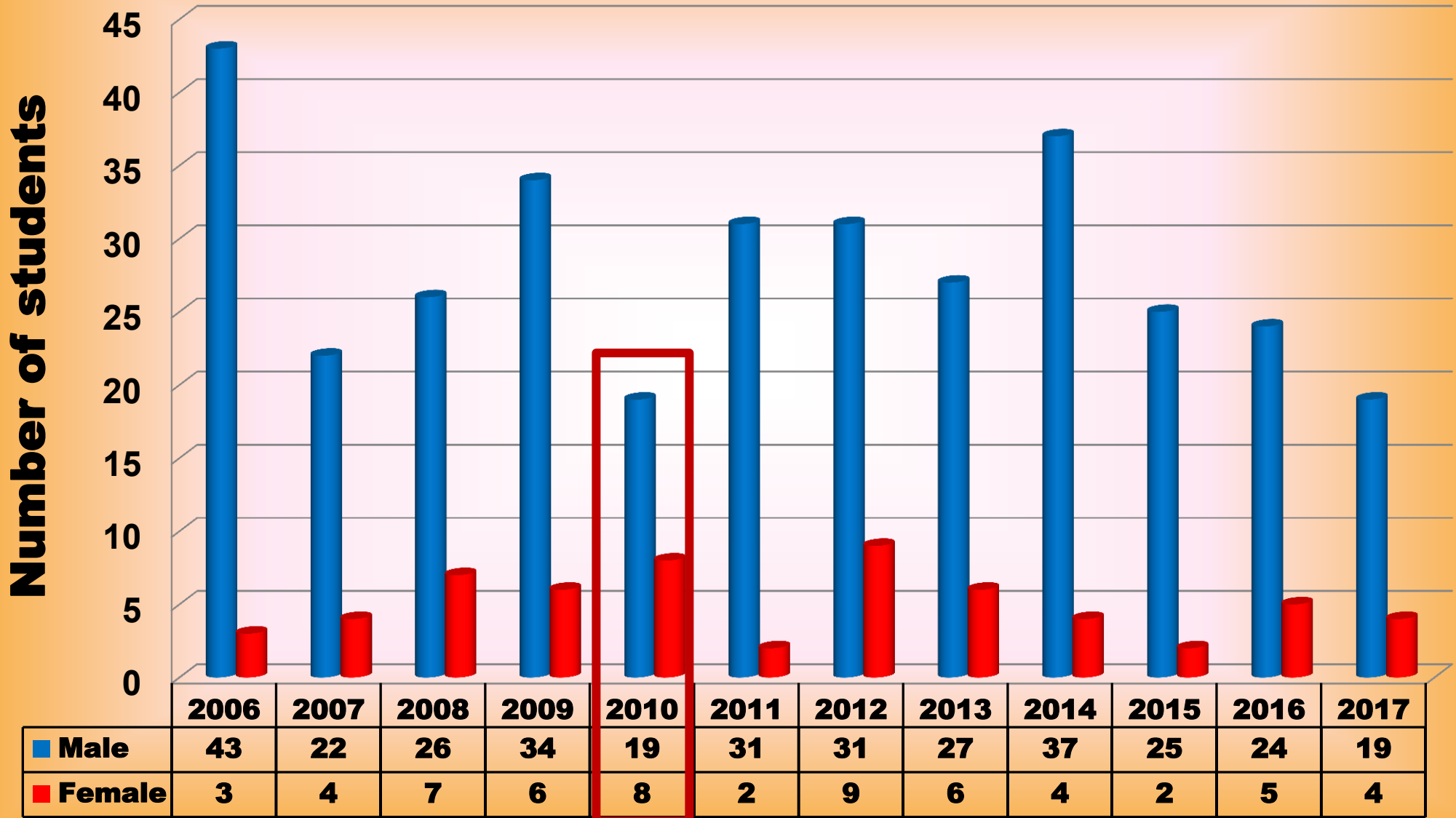
Source: UNESCO Institute for Statistics, October 2012.

Women in Science

Bachelor's Degrees Earned by Women in Selected Fields, 1966–2006



Space science PgD graduates_2006 -2017



UN/ARCSSTEE Postgraduate by gender (Balogun. 2017)

Why Earth Observation

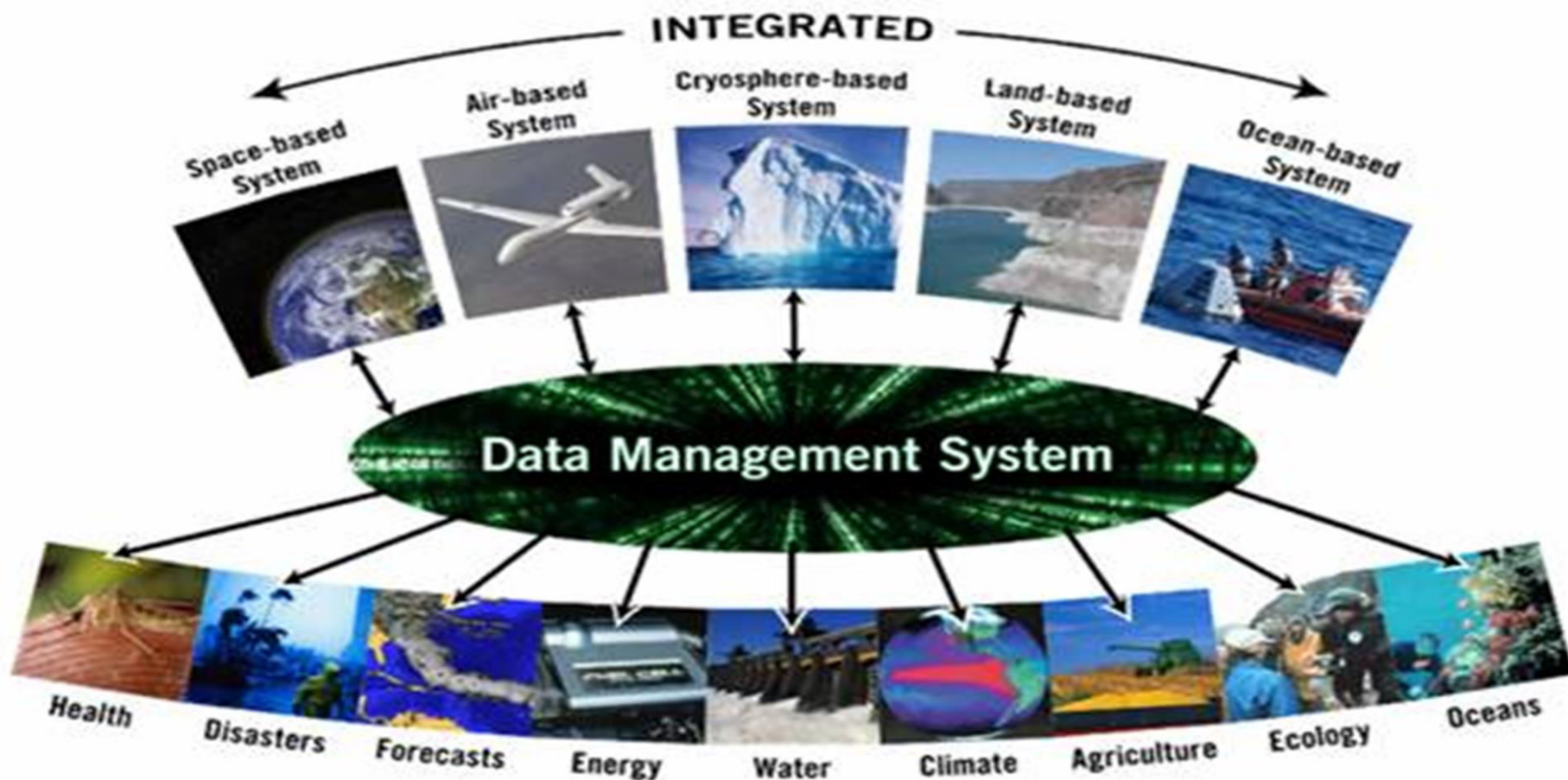
- ✓ **Identify**
- ✓ **Monitor**
- ✓ **Classify**
- ✓ **Measure**
- ✓ **Forecast**

Environmental objects

Earth Observation Technology

Observing Systems

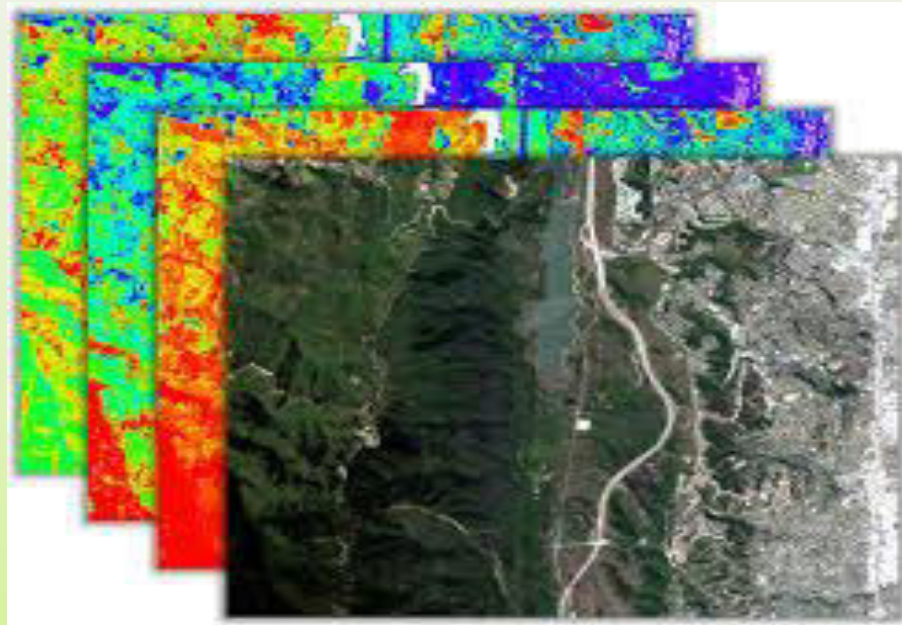
Global Earth Observation System of Systems



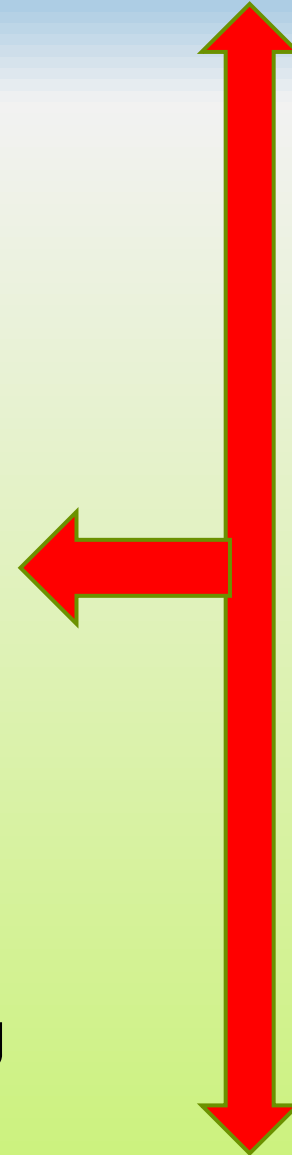
Earth Observation Application on the Environment



Physical Monitoring



Earth Observation Satellite Images monitoring



Land cover change_ Sumatra , Indonesia

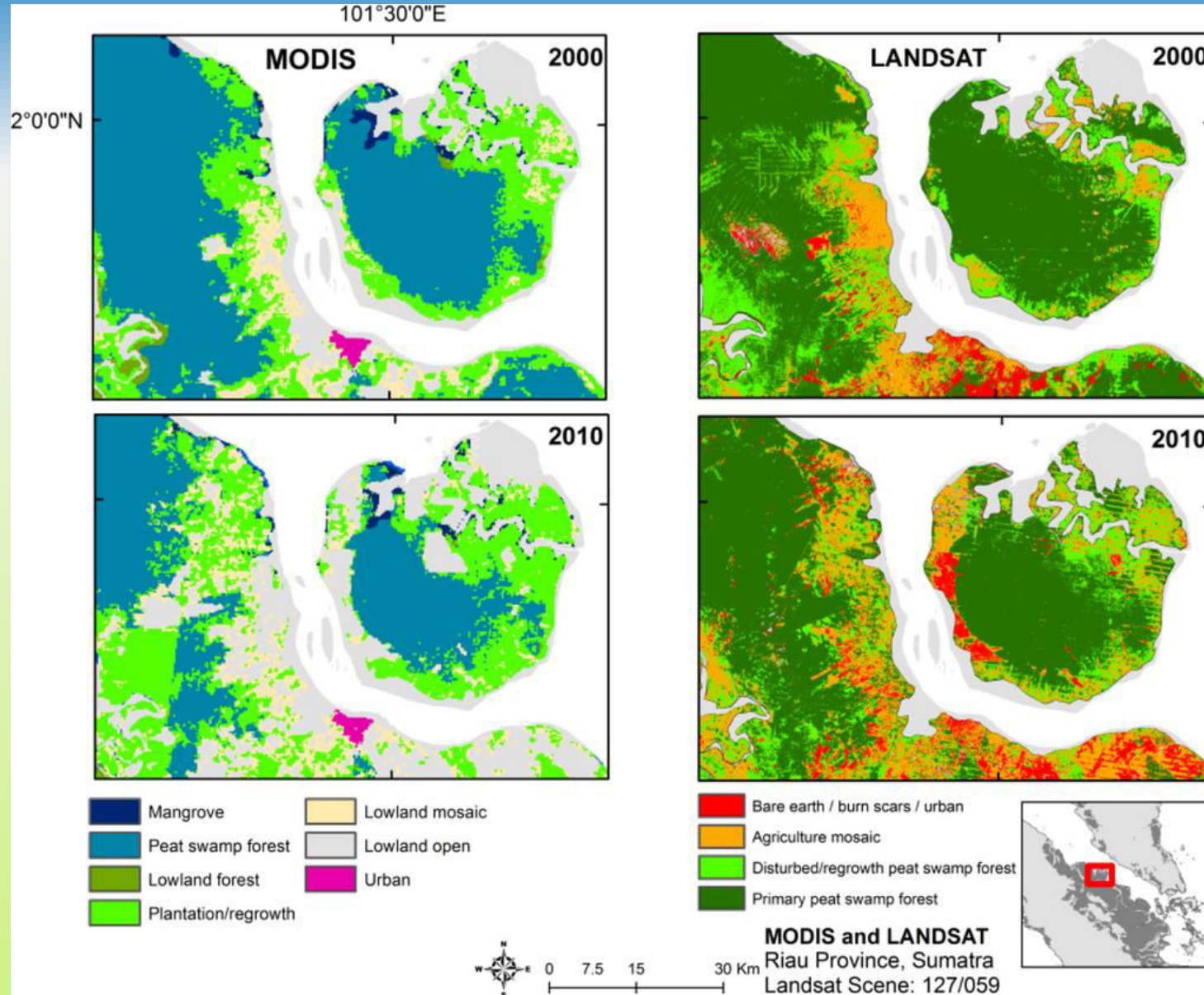


Image Credit: Wijedasa et al., 2012.

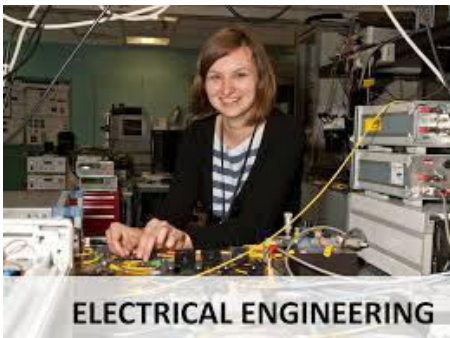
How women & Girls can be inspired into Space sector

STEM Education

STEM “the Drive” for Girls & Women in Space

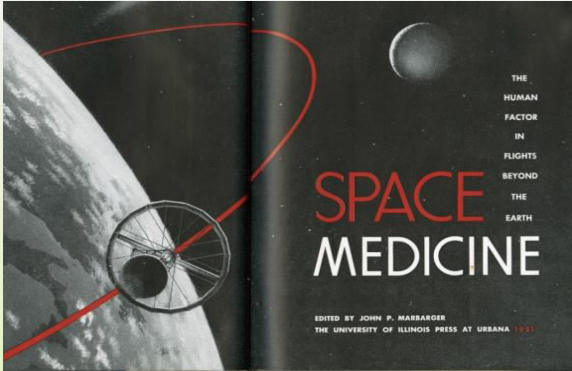
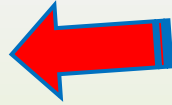


**‘STEM for Development:
Creating a Sustainable Future
For Botswana**

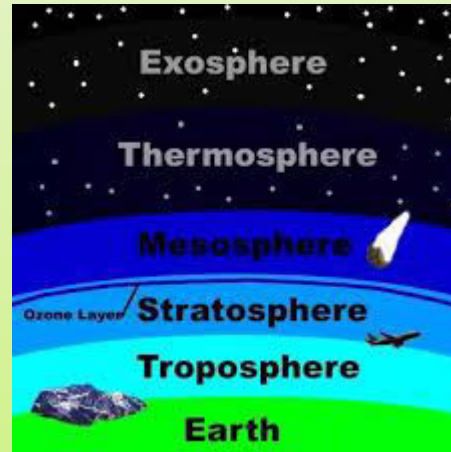


STEM & Space sector

STEM



Space Medicine



Ionospheric Physics



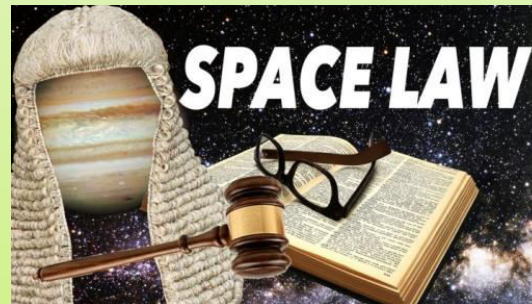
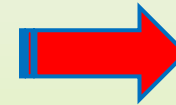
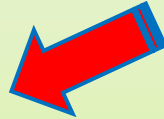
Space Engineering

STEM & Space sector



Space Biology

STEM



Space Law



Space Applications

Women Astronauts, Space Scientist & Space engineers role models

**“The Drive” for
Girls & Women in Space**



Space craft - piloting



Space scientists



Astronauts



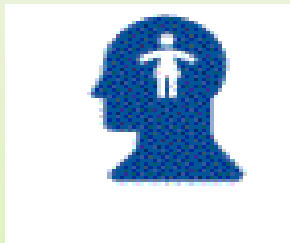
Astronauts

Recommendations

- ✓ **Create opportunities for women & girls such as scholarships, clubs, competitions etc.**
- ✓ **Engage developing countries by including them in Space outreach.**
- ✓ **Host conferences and meeting in those countries without Space centers to inspire them.**
- ✓ **Form Regional Space Women Committee to collaborate on Space sector issues.**

Recommendations

- ✓ **Women should not have limited opportunities such as Age, experience, etc.**
- ✓ **Space programs should be introduced in curriculum from primary schools in order to educate girls at an early stage.**
- ✓ **Include all women and men to for gender equality.**



**Lead with
gender awareness**



**Empower
women**

Thank You !