Geospatial World Forum

2-4 April, Amsterdam

Panel - Big Data, Geospatial Data and Conservation

Shirish Ravan

United Nations Office for Outer Space Affairs

UNITED NATIONS
Office for Outer Space Affairs

United Nations Office for Outer Space Affairs (UNOOSA)

Vision

Bringing the benefits of space to humankind

Mission Statement

Promote international cooperation in the peaceful uses of outer space to achieve sustainable development goals

Image credit: Digital Globe/Maxar Technologies

Magnitude of data needed for SDGs

17 Goals
169 targets

~232 statistical indicators to be produced by every country to bench mark progress towards SDGs

This covers just about every dimension of development

To achieve the SDGs, we need to trust our data

- Reliable, timely and granular data is needed to show where we are making progress and where we are falling behind in achieving targets of SDGs
- Without good indicators, there is no way to monitor the positive or negative trends towards achieving the SDGs

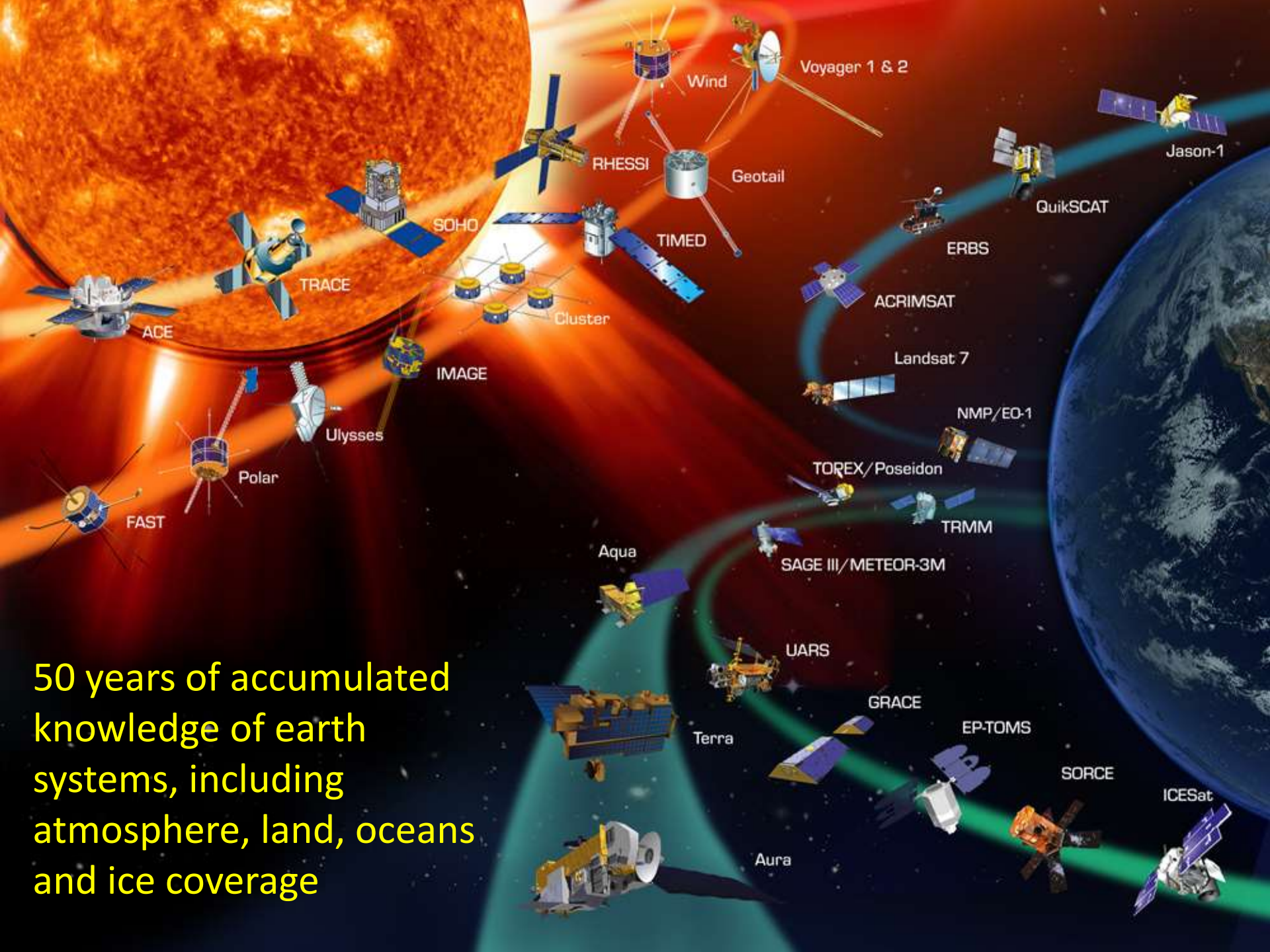
Where will all this data come from?

- Many developing countries still struggle to compile basic economic and social statistics
- Capacity to produce these new indicators is questionable
- About a third of the required indicators are from areas outside traditional official statistics, meaning that no agreed concepts, definitions or methodologies exist.

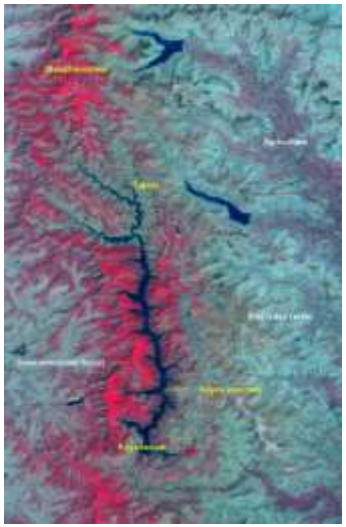
A step further – use non-traditional sources of data – Earth observation

- Role of Earth observation and geospatial data is recognised in supporting the achievement of the SDGs by UN (UN resolution 70/1)

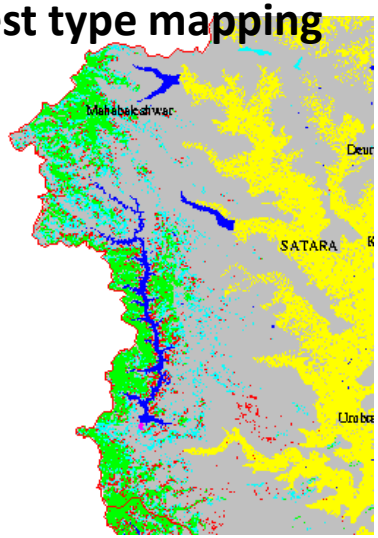
- Europe case:
  65 of 169 indicators directly benefit from European GNSS and Copernicus applications – either helping monitor the status of the SDGs or actively contributing to its fulfilment

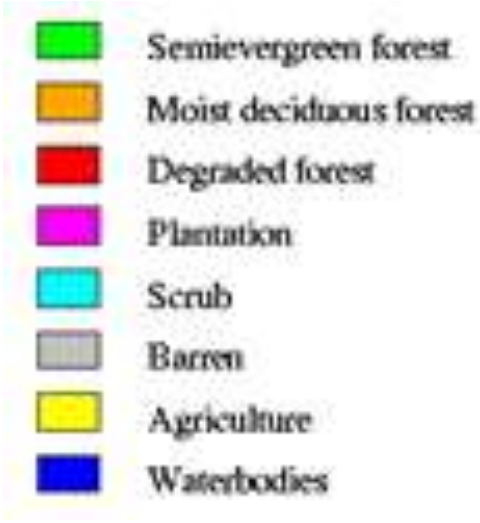


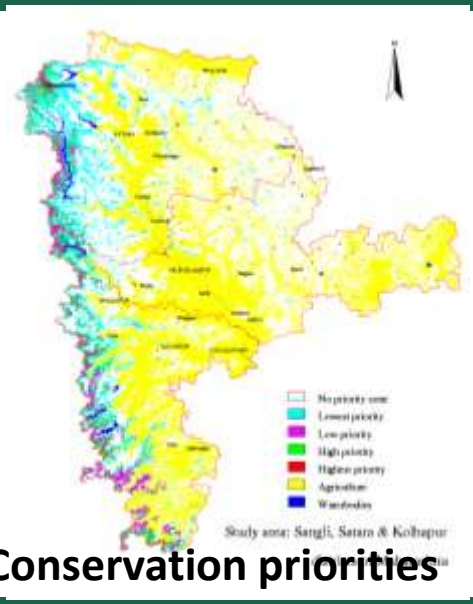
50 years of accumulated knowledge of earth systems, including atmosphere, land, oceans and ice coverage



Forest type mapping







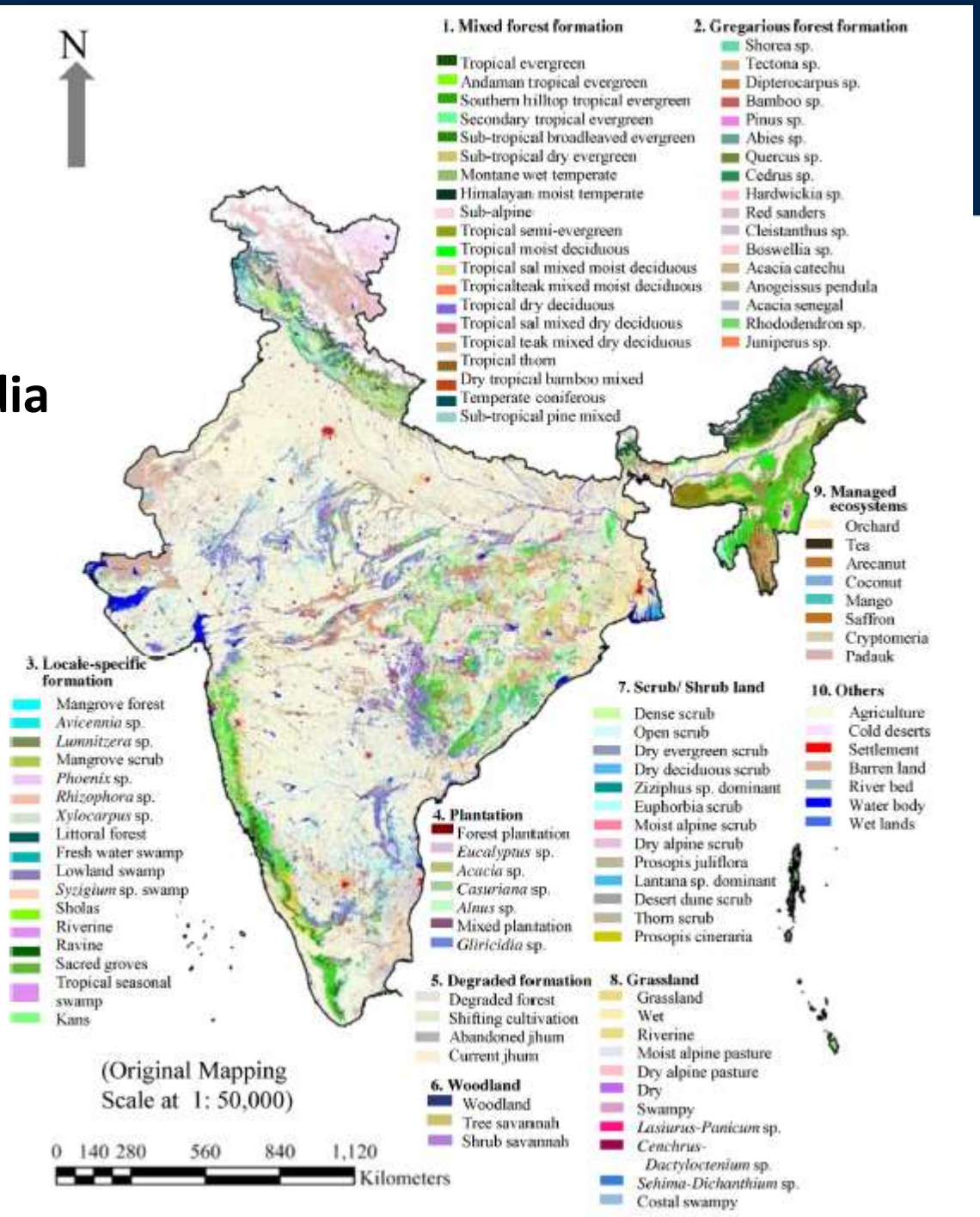
Conservation priorities

Vegetation type map of India

Source: P.S. Roy et al. / International Journal of Applied Earth Observation and Geoinformation 39 (2015) 142–159

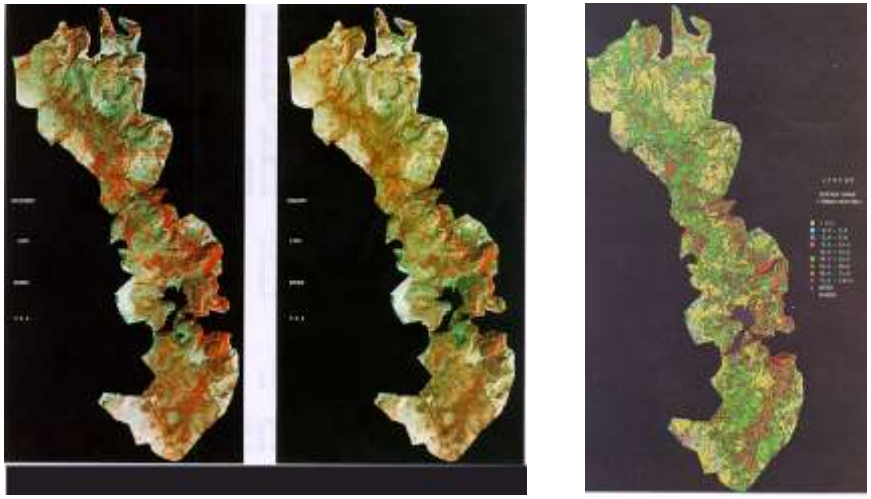
The presenter is one of the co-authors

Integration of large number of satellite images and over 15,500 field observation points



Biomass, productivity and carbon flux

- Relates to global issues such as **global warming and understanding carbon flux**.
- **REDD+** goes beyond deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks

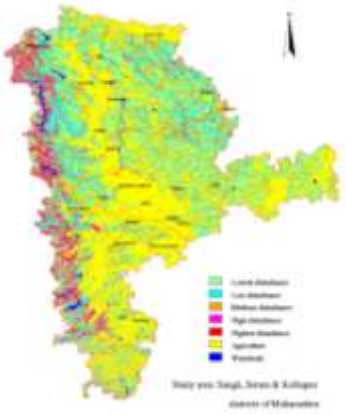


Multi spectral/hyperspectral satellite data provides efficient way of estimating and monitoring biomass and net primary productivity

Source: Roy and Ravan, *J. Biosci.*, Vol. 21, Number 4, June 1996, pp 535-561

Landscape level biodiversity assessment

- Rapid way to monitor ecological status of forest.
- Analyses long-term threats to the biodiversity
- Provides crucial inputs for ecosystem management



Disturbance factors

Biological richness

conservation priorities

Satellite based vegetation map can be modelled to understand ecological dynamics at landscape level and plan

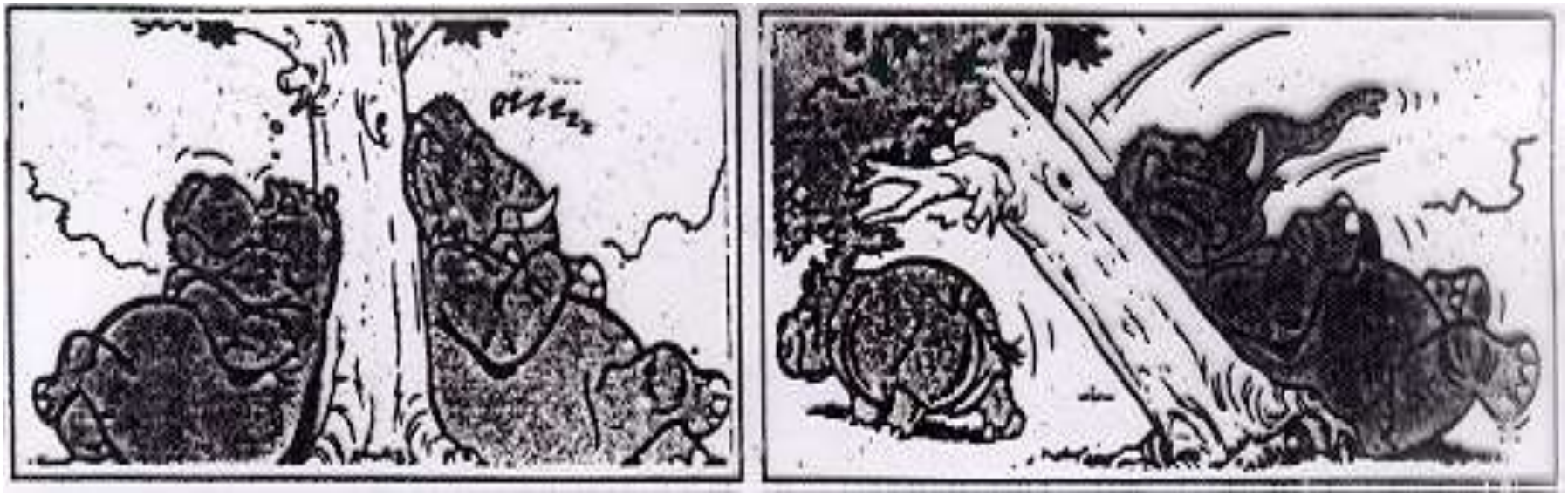
Source: Ravan and Roy, *Plant Ecology* 131: 129–141, 1997

SDGs and conservation

UNOOSA Publication

Supporting the Sustainable Development Goals: Building blocks towards the 2030 agenda

- In January 2018, UNOOSA and European GNSS Agency (GSA) published a report that investigates the role of space technologies in fulfillment of SDGs
- Research found that 65 of the 169 SDG targets **(almost 40%)** are reliant on Copernicus and EGNSS space systems.
- This report is **supported by 38 cases and best practices** exemplifying how space technologies contribute to achieving the SDGs
- If these practices were implemented on a larger scale, they would contribute to the achievement of **SDG targets ahead of their deadlines**



Balanced ecosystems for Sustainable Development

THANK YOU

shirish.ravan@un.org

UNITED NATIONS
Office for Outer Space Affairs
www.unoosa.org • @UNOOSA