

The 18th Sustainable
Development Goal:
Recognizing the Imperative Role
of Space in our Future



Humanity is at Risk



“The long-term survival of the human race is at risk as long as it is confined to a single planet . . . Sooner or later, disasters such as an asteroid collision or nuclear war could wipe us all out. But once we spread into space and establish independent [communities], our future should be safe.”

We Need Sustainable Development Goals

- Around 800 million people live in extreme poverty and suffer from hunger.
- Between 2008 - 2012, 144 million people displaced from their homes by natural disasters. This number will rise as the planet warms, bringing more extreme weather and rising seas.
- Water scarcity affects 40 percent of the global population and is projected to increase.
- Gender inequality persists in spite of more representation for women in parliaments and more girls going to school.

17 Goals for “People and Planet”

THE GLOBAL GOALS For Sustainable Development



Space is **A** “Major Driver”

**Committee on the Peaceful
Uses of Outer Space**
Legal Subcommittee
Fifty-seventh session
Vienna, 9–20 April 2018

**Draft resolution entitled “Fiftieth anniversary of the first
United Nations Conference on the Exploration and Peaceful
Uses of Outer Space: space as a driver of sustainable
development”**

[[OPTION 1 (paras. 1-3)]]

1. Notes with appreciation that the UNISPACE+50 process resulted in documents aimed at articulating a cross-cutting and strategic vision to strengthen international cooperation in the exploration and peaceful uses of outer space, in which space is seen as, inter alia, a major driver and contributor to the Sustainable Development Goals for the benefit of all countries;

[OPTION 2, paras.1-15]

1. Notes with appreciation that the preparatory process and the high-level segment of UNISPACE+50 resulted in documents aimed at articulating a comprehensive, inclusive and strategically-oriented vision to strengthen international cooperation in the exploration and peaceful uses of outer space, in which space is seen as a major driver and contributor to the Sustainable Development Goals for the benefit of all countries;

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Space is **THE** Major Driver

The National Space Society believes that the 17 SDGs established by the international community through the UN cannot and will not be realized unless the **international community supports, enables, embraces and promotes space exploration** and utilization and the development of a space economy.



SDG 18: Sustainable Development of Space

The NSS proposes that the 17 SDGs be expanded to include the **Sustainable Development of a Space Economy** as the **18th Sustainable Development Goal**.

- Will assure the accomplishment of the 17 SDG's and also prepare a solid foundation for humanity's future.
- Includes utilization of space based resources and permanent human community in space.

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SPACE
ECONOMY



Remote Sensing Vital to SDGs

Remote Sensing satellites provide key data for monitoring land use, soil, snow cover, drought and crop development, as well as water cycles, air quality, forests and other aspects of the natural environment, and the epidemiology of infectious diseases, directly addressing:

- SDG 1 – Eliminate Poverty
- SDG 2 – Eliminate Hunger
- SDG 3 – Good Health and Well-Being
- SDG 6 – Clean Water and Sanitation
- SDG 7 – Affordable and Clean Energy
- SDG 11 – Sustainable Cities and Communities
- SDG 12 – Responsible Consumption and Production
- SDG 13 – Climate Action
- SDG 14 – Life Below Water
- SDG 15 – Life on Land



Telecommunications Technologies Vital to SDGs



- Satellite communication enables the sharing of information, web-conferencing and voice over internet protocols directly addressing:
 - SDG 3 – Good Health and Well-Being
 - SDG 4 – Quality Education
 - SDG 5 – Gender Equality
 - SDG 8 – Decent Work and Economic Growth
 - SDG 9 – Industry Innovation and Infrastructure
 - SDG 10- Reduced Inequalities

Space Activities Foster Cooperation Vital to SDGs

- Space offers unique opportunities for multilateral partnerships and collaborations and also is vital to monitoring treaty adherence, directly addressing:

- SDG 16 – Peace and Justice, Strong Institutions
- SDG 17 – Partnerships for the Goals



Developing Space Technologies Offer More

- The prospect of permanent human presence in space has led to designs for harvesting ambient energy in space, recycling water and life-essential gases, growing food staples in harsh and artificial conditions and applying principals of architecture and engineering design to adapt to an unforgiving environment.
- It forces humans to leverage limited resources to address human requirements.
- The principals of space exploration and utilization, as well as the development of space communities, can be applied to assure and accelerate achievement of the SDGs.

Developing Space Technologies and SDGs

- **SDG 1 - No Poverty**
 - Expanding our economy beyond our globe offers infinite opportunity in terms of jobs and economic development.
- **SDG 2 - No Hunger**
 - Controlled environment agriculture systems can feed everyone.
 - Producing hardier and more diverse seeds and plant stock are essential to preserving the heritage of evolutionary diversity.
- **SDG 3 - Good Health and Well-Being**
 - Living and working in space allows us to better understand human physiological and psychological requirements.

Developing Space Technologies and SDGs

- **SDG 4 - Quality Education**
 - Expanding into space builds new horizons for literally every discipline from archaeology to entertainment.
- **SDG 5 - Gender Equality**
 - Space confirms that the genders truly are equal. Women can perform the same economic tasks as men.
 - Just as important, studying osteoporosis and human reproduction and development in response to micro-gravity environments will help close the knowledge gap related to women's health issues.

Developing Space Technologies and SDGs

- **SDG 6 - Clean Water and Sanitation**
 - Human communities in space will have to develop efficient bio-regenerative food production, water purification, waste processing protocols and processes and other technologies useful on Earth.
- **SDG 7 - Affordable and Clean Energy**
 - Utilize solar energy and minimize use of fossil fuels.
- **SDG 8 - Decent Work and Economic Growth**
 - Building a space economy and a space community will provide new jobs and revitalize all sectors of Earth's economy.

Developing Space Technologies and SDGs

- **SDG 9 - Innovative Industrial Infrastructure**
 - History has shown that technology developed for space can almost always be adapted to provide efficiencies on Earth (think Velcro). Moreover, space technology spin-offs add value on Earth.
 - Cleaning up orbital debris will protect our space economy by ensuring access to space, while furthering future space development.
- **SDG 10 - Reduced Inequalities**
 - Space resources cannot only meet humanity's requirements, but more fully and equitably foster human potential.

Developing Space Technologies and SDGs

- **SDG 11 - Sustainable Cities and Communities**
 - Space settlement design and engineering standards can reduce the environmental footprint of cities on Earth.
- **SDG 12 - Responsible Production and Consumption**
 - Sustainable use and resource recycling essential for survival in space can also be applied on Earth.

Developing Space Technologies and SDGs

- **SDG 13 - Climate Action**

- The large scale use clean energy and other natural resources from space has the potential of returning the Earth's environment to the nearly pollution free condition it enjoyed before the industrial revolution.

- **SDG 14 - Life Below Water**

- Closed environment aquaponics system alternatives can reduce over-fished and stressed oceans and thereby help restore ocean ecosystem balances.
- Advanced tele-robotics and AI can improve both our observation and understanding of the ocean world on Earth and ocean worlds in space.

Developing Space Technologies and SDGs

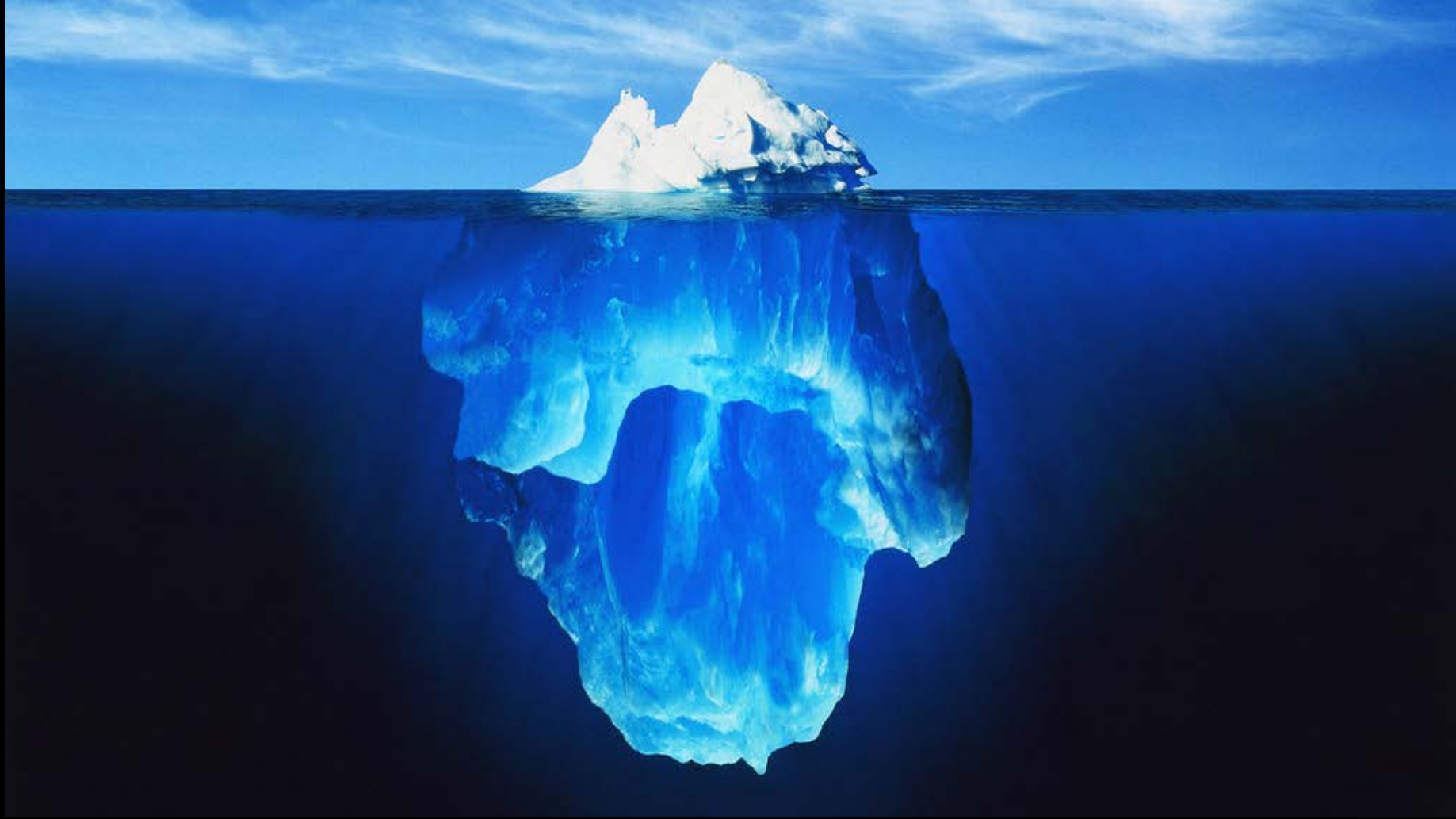
- **SDG 15 - Life on Land**
 - Moving people and production facilities off Earth will help preserve life on land.
 - Remote sensing capabilities provide the tools to observe, understand, monitor and protect life on land and our evolutionary heritage.
- **SDG 16 - Peace, Justice and Strong Institutions**
 - We are one species. We have been challenged many times on Earth. However, the challenges of space afford us best opportunity to unite with a common goal.
 - If we sow justice by respecting the International Declaration of Human Rights we will enable the establishment of strong institutions to meet human requirements
 - And we will promote peaceful and sustainable human communities with civility both on Earth and in space.

Developing Space Technologies and SDGs

- **SDG 17 - Partnership for Goals**

- In space, we are all representatives of humankind.
- Creating a human space community and utilizing space resources for the dramatic benefit of all humanity requires peaceful global collaboration.
- Preservation of open access to space and protection of the existing space economy is a fundamental requirement for global space development supporting the fundamental principles of the Outer Space Treaty.
- Preservation of our universal cultural heritage in space also offers a common ground for partnership and collaboration.





A Healthy Space Program Equals a Healthy Economy



- “Once space is recognized as fundamental to the economy, as they say ‘it’s the economy, stupid’, if [we] don’t make a link between space and the economy then [we] are losing an opportunity to see what role innovations in science and technology can serve in driving the future health of the [world].”

The Solution is Right in Front of Us

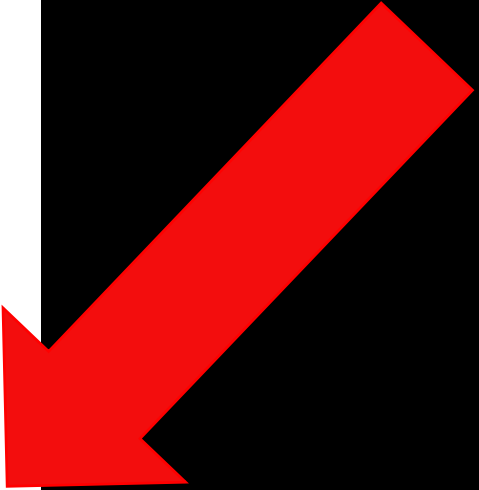
- The mission and vision of NSS is people living and working in thriving communities in space and the use of space resources for the dramatic benefit of humanity.
- Time to elevate the exploration and utilization of space, the creation of communities in space, and the expansion of the Earth economy in space, if not for 2030, then as the starting point for humanity's next evolutionary framework.
- NSS believes that the implementation of this 18th SDG is a critical step that will enable the fulfillment of the first 17 SDGs on Earth and in space.



THE GLOBAL GOALS

For Sustainable Development

1 NO POVERTY 	2 ZERO HUNGER 	3 GOOD HEALTH AND WELL-BEING 	4 QUALITY EDUCATION 	5 GENDER EQUALITY 	6 CLEAN WATER AND SANITATION 
7 AFFORDABLE AND CLEAN ENERGY 	8 DECENT WORK AND ECONOMIC GROWTH 	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 	10 REDUCED INEQUALITIES 	11 SUSTAINABLE CITIES AND COMMUNITIES 	12 RESPONSIBLE CONSUMPTION AND PRODUCTION 
13 CLIMATE ACTION 	14 LIFE BELOW WATER 	15 LIFE ON LAND 	16 PEACE AND JUSTICE STRONG INSTITUTIONS 	17 PARTNERSHIPS FOR THE GOALS 	18 SPACE ECONOMY 



National Space Society

Thank You.

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