Space science and technologies to advance national health-related SDGs

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UN-SPACE SESSION / WORLD SPACE FORUM SESSION IV
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Contextualizing One Health

interconnectedness of human health, animal health and the environment
One Health

Source: OIE, 2016; http://www.oie.int/for-the-media/onehealth/
One Health

60% of existing human infectious diseases are zoonotic

At least 75% of emerging infectious diseases of humans (including Ebola, HIV, and influenza) have an animal origin

5 new human diseases appear every year. Three are of animal origin

80% of agents with potential bioterrorist use are zoonotic pathogens

Source: OIE, 2016; http://www.oie.int/for-the-media/onehealth/
Climate and Health
Overview of climate-sensitive health risks, exposure pathways and vulnerability factors

Vulnerability factors
- Demographic factors
- Geographic factors
- Biological factors & health status
- Sociopolitical conditions
- Socioeconomic factors

Exposure pathways
- Extreme weather events
- Heat stress
- Air quality
- Water quality and quantity
- Food security and safety
- Vector distribution & ecology

Health system capacity & resilience
- Leadership & governance
- Health workforce
- Health information systems
- Essential medical products & technologies
- Service delivery
- Financing

Climate-sensitive health risks

Health outcomes
- Injury and mortality from extreme weather events
- Heat-related illness
- Respiratory illness
- Water-borne diseases and other water-related health impacts
- Zoonoses
- Vector-borne diseases
- Malnutrition and food-borne diseases
- Noncommunicable diseases (NCDs)
- Mental and psychosocial health

Health systems & facilities outcomes
- Impacts on healthcare facilities
- Effects on health systems
UN-Space Session at World Space Forum
14 December 2022 - 11:30-13:00 | Vienna, Austria
## Matrix of Relevance

<table>
<thead>
<tr>
<th>SDGs</th>
<th>Space Science &amp; Technology and Health</th>
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<tbody>
<tr>
<td><strong>1: No Poverty</strong></td>
<td>Prioritizing the health needs of the poor</td>
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<tr>
<td><strong>2: Zero Hunger</strong></td>
<td>Addressing the causes and consequences of all forms of malnutrition</td>
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<td><strong>6: Clean water and sanitation</strong></td>
<td>Preventing diseases through safe water and sanitation for all</td>
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<tr>
<td><strong>10: Reduced inequalities</strong></td>
<td>Ensuring equitable access to health services through Universal Health Coverage Based on stronger primary care</td>
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<tr>
<td><strong>13 Climate Action</strong></td>
<td>Protecting health from climate risks, and promoting health through low-carbon development</td>
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<tr>
<td><strong>14: Life below water</strong></td>
<td>Supporting the restoration of fish stocks to improve safe and diversified healthy diets</td>
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<tr>
<td><strong>15: Life on land</strong></td>
<td>Promoting health and preventing diseases through healthy natural environments</td>
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Strengthening national capacities and the need for a Framework

1. **National readiness** for utilizing space science and technology to advance SDGs

2. **Multi-sectoral engagement** for better cooperation in the context of One Health

3. **Alignment** of existing strategies, stakeholders, and efforts
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Capacity Building - National Readiness Matrix for utilizing space science and technology to advance health-related SDGs

Level 1: Beginning of penetration of space science and technology infrastructure and computing environment

Level 2: Early adoption

Level 3: Developing and building up capacity

Level 4: Mainstreaming

Established space technologies utilization environment

Emerging space technologies utilization environment

Level = National Readiness for utilizing space science to advance health agenda

Strengthening enabled environment for space science and technology for health

Emerging policy environment for using space science for health

Scaling-up and integration, cost-effectiveness, policies for privacy, security and innovation

Established policy environment for using space science for health

Strengthening infrastructure, make the case for space science and technology for health

Developing and building up capacity

Scaling up routine use

Experimentation
Moving forward

- Facilitate formalized cooperation between health authorities and space authorities at national levels
- Assist Member States to establish policy-enabled environment and governance mechanisms for effective use of space-based technologies
- Promote equitable access to and application of space solutions for public health of Member States
- Promote capacity-building events in the context of One Health