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Contribution by Japan

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PRIORITY THEME 2: Global cooperation in science, technology and innovation for development

1. What STI cooperative mechanism(s) at global or regional levels has your country joined in?

One of the relevant examples Japan have been engaged in is the SDGs Innovation Challenge for UNDP Accelerator Labs, an initiative undertaken by the United Nations Development Programme (UNDP). The Cabinet Office of Japan has been supporting this initiative since 2020. The SDGs Innovation Challenge for UNDP Accelerator Labs matches selected UNDP Accelerator-Labs (A-Labs) with Japanese companies in a new collaborative process where partners co-create solutions to address local needs. Currently 91 UNDP A-Labs, covering 115 countries worldwide, are working toward grassroots innovations for more sustainable society and identifying local issues.

Through the SDG Holistic Innovation Platform (SHIP), an open innovation platform run by UNDP in collaboration with the Japan Innovation Network (JIN), Japanese partners are identified, and this provides an entry point for companies that would typically not work with UNDP. Selected A-Labs collaborate with Japanese partners to co-develop, design, and test models of potential solutions to problems identified in each country.

In 2020-2021 (the first phase), 5 projects were selected. In 2021-2022 (the second phase), 3 new projects were selected and 4 projects from the first phase were continuously supported. From 2022 onwards, 2 new projects were selected and 2 projects from the second phase were continuously supported.

In addition, Japan strongly supports the continuing efforts of the IAEA Secretariat to implement the Technical Cooperation Programme. In particular, Agency's initiatives such as NUTEC Plastics, Zoonotic Disease Integrated Action (ZODIAC), and Rays of Hope have been making a significant impact in transforming people's perception on the nuclear science and technology, since they can directly feel its great benefit through these projects.

This year, Japan has supported the Rays of Hope initiative by allocating two million US dollars for strengthening radiation therapy and medical imaging in Ukraine, and one million euro for building capacity for radiotherapy and nuclear medicine in Senegal. These

contributions are made under the Peaceful Uses Initiative (PUI), which is a valuable mechanism to provide prompt and flexible support to recipient countries for their sustainable socio-economic development.

2. To what extent the existing cooperation programmes are aligned with the development priorities of participating developing countries?

In the SDGs Innovation Challenge for UNDP Accelerator Labs, local problems and challenges to be addressed are identified by local A-Labs, which are aligned with priorities of local needs.

3. What are the main outcomes of such mechanism(s)? And what are the impacts of the resultant cooperation on your country? Pls. include the gender dimension.

Among 10 projects the SDGs Innovation Challenge has been supporting so far, details and outcomes of 2 projects are described below:

1) Project by the A-Lab in India and NEC India
Issues identified by A-Lab: India is both the largest consumer and exporter of spices in the world with a market estimated at 4 billion dollars (1.2 billion in domestic consumption, 2.8 billion in exports) and 700 million farmers involved in the production in a country that remains primarily an agriculture-based economy. Yet, despite being one of the dominant sectors of the Indian economy, spices production and the spices farmers face key challenges. The lack of quality assurance and traceability constitutes one of the main market barriers, especially for exports. Due to the abundance of middlemen/brokers and to lack of adequate linkages with national and global markets, farmers get a lower share of profits. Furthermore, unable to access financial and insurance institutions, farmers are burdened by high rates usually applied by middle money lenders and cannot afford satisfactory funding and insurance schemes. Finally, information asymmetry makes farmers unaware of the market price of goods they produce, and as a result, they fail to receive a fair share of the profit realized from their production.

Solution planned by A-Lab: In response to these challenges A-Lab India has developed the project of creating a national blockchain platform to enable monitoring the quality of spices processing during all stages (production to postharvest) and ensuring transparency and accountability in spice trading. In turn, this will guarantee the quality and traceability of spices

for enhanced export, and enhanced profit margins for farmers and other relevant stakeholders. The blockchain platform is first developed in the pilot location of Guntur in Andhra Pradesh with approximately 50-55 thousand farmers and focusing on chili crops. The goal is to produce a scalable platform to be integrated with eSpiceBazaar, which is the already existing national online platform where farmers, producers, and spices sellers can trade spices. If the data collection and the platform integration are successful, this will provide a Proof of Concept (PoC) for further application and development in other regions and other spices.

Outcomes of the project: During the project period from December 2020 to July 2021, blockchain technology provided by NEC India was successfully integrated with eSpiceBazaar as planned. This new blockchain technology-based platform developed in this project is expected to enhance traceability, transparency, and accountability of spices trade. For A-Lab India, this project provided a valuable proof of concept which will be a starting point for them to support the Spices Board for scaling of the pilot to a national blockchain-powered platform by expanding farmer base as well as number of spice varieties across diverse geographic locations in India. There is also a keen interest to improve trading functionalities of the platform to help spice farmers to get their due share of profits, which was otherwise taken away by middlemen in the spices value chain. The success of this project could be leveraged for acceleration and replication of similar projects within the A-Labs network across the world. The UNDP-Spices Board pilot project using blockchain technology for spices traceability holds potential for a nationwide scale up. NEC's involvement as the technology provider may further enhance its visibility in India, especially in the public innovation space.

2) Project by A-Lab in Vietnam and Japan Manned Space Systems Corporation

Issues identified by A-Lab: Vietnam has become an emerging and fast-growing economy over the past decade. While this provides the population with better living conditions and increased revenues, it is also a source for new development challenges. As the income per capita rises, there is also an increase in per capita waste generation. And improper management of waste led to serious health impacts on local populations, inflicts costly damage on the environment by undermining the potential of natural resources and damaging ecosystems. Da Nang, the third-largest city of Vietnam in terms of population, with a steady demographic increase and high-rate economic growth of around 12%, is strongly affected by this issue of solid waste mismanagement. Therefore, A-Lab Vietnam has partnered with the City of Da Nang to try to address this problematic situation. The current government waste management system has inadequate resources, legislative framework, and capacity, and technical knowledge to cope with this rapid increase in waste generation. Furthermore,

landfill infrastructure is outdated and of low quality, which, coupled with the lack of enforcement of environmental protection standards for industries and improper waste storage practices, means that the leakage of pollutants is common.

Solution planned by A-Lab: To address the complex and multifaceted issue of solid waste management in Da Nang, A-Lab Vietnam had originally cast a wide nest to capture all the layers of the problem. The original challenge mentioned three key areas in which A-Lab required Japanese companies' expertise, technologies, and know-how:

- Sustainable, affordable, and durable alternative materials to plastic packaging to address the upstream challenges on waste management and to prevent waste and plastic accumulation.
- Solution for waste measurement using new data sources and technologies such as satellites and drones' imagery to address the downstream challenges of waste management.
- Solutions for e-waste management including specific collection and treatment mechanisms, as they are particularly harmful to the environment.

After being matched with Japan Manned Space Systems Corporation (JAMSS) as a partner company, the scope of the experiment was amended to focus on the second component of the challenge to fit with their core expertise.

Outcomes of the project: Due to the COVID-19 outbreak and continuous lockdown of Da Nang City, the drone verifications on the ground were not able to be conducted, in addition to one month delay to conclude the first phase of the project. But by the end of June 2021, the satellite remote sensing model to detect plastic litters was developed and validated and ready for finalized in the second phase. Through this project, JAMSS has created a functioning and accurate remote sensing model and algorithm that can be flexibly adapted to different kinds of waste and situations, which will serve as the basic technology for all their future remote sensing work. Secondly, they have generated key learnings for their business offerings using remote sensing technology and developed new connections in Vietnam. With these new business ideas and relationships in the country, they hope to use this case study as a testbed to deepen their knowledge further and leverage the findings to solve SDGs issues in many coastal nations in the future.

4. What are the main difficulties member countries have encountered or are facing when implementing the cooperation mechanisms?

During the first phase of the SDGs Innovation Challenge for UNDP Accelerator Labs, the COVID-19 pandemic made it difficult for A-Labs and Japanese counterparts to meet face-to face for discussions.

5. In respect of achieving the objectives and goals, what are the factors contributing to the success or failure of the cooperation mechanism(s) that your country has joined in?

Not identified in the SDGs Innovation Challenge for UNDP Accelerator Labs.