Science and Technology Research Partnership for Sustainable Development (SATREPS)

Jointly Creating Knowledge for International Development

Global-scale problems including global warming, food issue, natural disaster and infectious disease have been increasingly complex. In particular, the influence on developing countries with vulnerable socioeconomic infrastructures is critical. The international community is now required to work together to approach such problems, since it is hard for individual countries or regions to tackle them alone. In addition to traditional cooperation systems, innovation by science and technology is also expected to play an important role in providing solutions for responding to complex and growing issues.

Under this circumstance, and in accordance with the Japanese government's policy to promote science and technology diplomacy as set forth in the Council for Science Technology Policy, JICA initiated the cooperation[1] focusing on the utilization of science and technology for developing countries in 2008. Utilizing Japan's science and technology, JICA aims at creating newer "knowledge" by international joint research between Japan and developing countries, as well as solving global-scale issues by giving research outcomes back to the real world.

Science and Technology Research Partnership for Sustainable Development (SATREPS)

1. Overview

This program is designed to promote international joint research in which both Japanese research institutions and those of developing countries work together based upon the social needs in developing countries under the framework of JICA technical cooperation project. Its aims are to acquire new knowledge and to utilize research outcomes to the benefit of the society with a view to resolving global issues such as the environment and energy, biological resources, disaster prevention, and infectious diseases. Also, SATREPS will actively address the United Nations' Sustainable Development Goals (SDGs), thereby contributing to the international community.

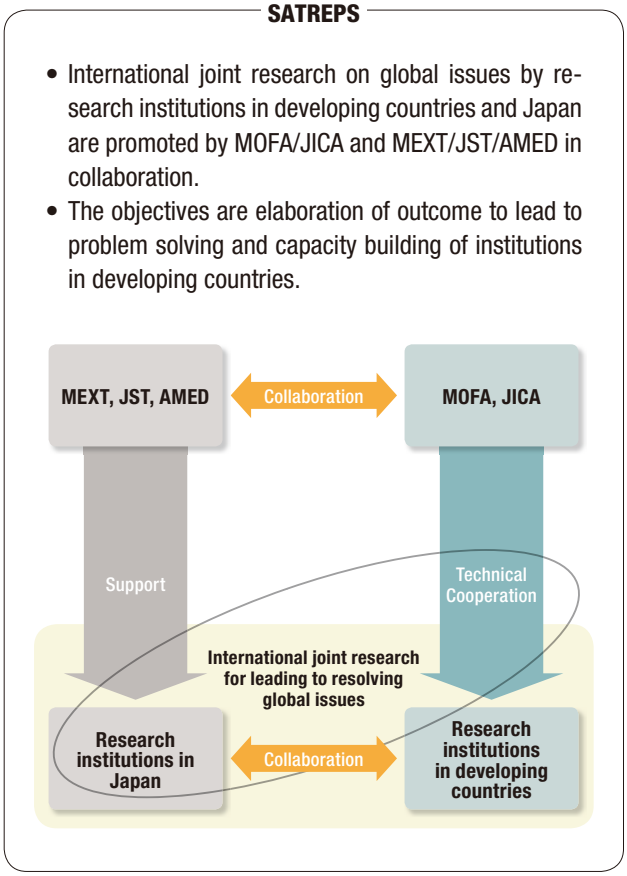
2. Implementation System

SATREPS is jointly conducted by the Ministry of Foreign Affairs (MOFA), JICA, the Ministry of Education, Science and Culture (MEXT), the Japan Science and Technology Agency (JST), and Japan Agency for Medical Research and Development (AMED)[2].

In SATREPS, research proposals that are submitted from Japanese research institutions to JST are examined to see if they are consistent with research requests from developing countries (i.e., matching system), from the perspective of science and technology and ODA. Then, adopted proposals come into practice by research institutions in both Japan and developing countries, under the framework of JICA technical cooperation project.

JICA provides funding necessary for technical cooperation projects (e.g., dispatch of Japanese researchers, acceptance of their researchers, provision of equipment, and local activity expenses). On the other hand, JST/AMED support research activities necessary in Japan or third countries.

Implementation System of SATREPS



3. Eligible Fields of Research

Research objects are four fields: environment and energy, biological resources, disaster prevention, and infectious disease. For the environment and energy field, two research areas, (1) resolution of global-scale environmental issues and

1. Initially, the science and technology cooperation had two schemes; "The Science and Technology Research Partnership for Sustainable Development (SATREPS)," which was a technical cooperation project model, and "The Dispatch Program for Scientific and Technology Researchers," which was an individual expert dispatch model. However, the latter scheme was terminated in 2012.
2. With the April 2015 establishment of the Japan Agency for Medical Research and Development (AMED) as a public institution to integrally conduct medical research and development in Japan, activities in the field of infectious diseases were transferred from JST to AMED. SATREPS projects in this field are implemented by JICA in cooperation with AMED.

(2) advanced energy systems for low carbon society, have been set.

Achievements in Fiscal 2016

1. Selection of Research Projects

From September to October 2015, JICA and JST/AMED asked Japanese research institutions for SATREPS research proposals for fiscal 2016 and also conducted a survey of developing countries on research requests. As a result, there were 86 matches among 108 proposals and 121 requests, and 14 research proposals were finally selected.

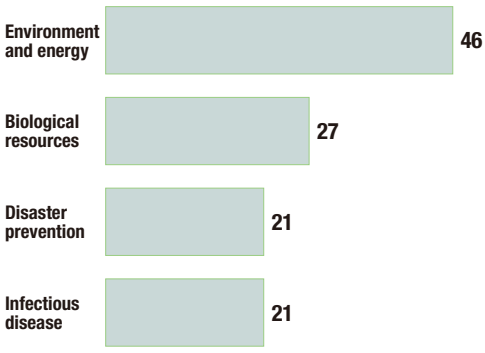
Research proposals adopted include six environment and energy fields (four environment areas and two low carbon areas), four biological resources fields, two disaster prevention fields, and two infectious disease fields. Viewed geographically, these proposals consist of seven in Asia, one in Central and South America, four in Africa, and two in the Middle East and Europe.

2. Implementation Status

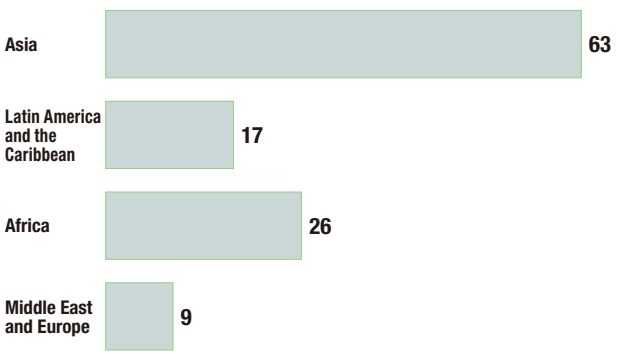
With new 14 proposals, SATREPS has adopted 115 research projects since 2008 when the project started, in 46 countries including three new entrants in 2016.

These research proposals include 46 environment and energy fields, 27 biological resources fields, 21 disaster prevention fields, and 21 infectious disease fields. Viewed geographically, these proposals consist of 63 in Asia (49 in Southeast Asia and the Pacific, one in East Asia, and 13 in South Asia), 17 in Latin America and the Caribbean, 26 in Africa, and nine in Middle East and Europe. In terms of percentage of the total, the Asian region is the largest with 55%, followed by the African region with 23%.

Breakdown of adopted projects by sector (cumulative total)



Breakdown of adopted projects by region (cumulative total)



Case Study

Thailand:
Innovation on Production and Automotive Utilization of Biofuels from a Non-food Biomass Project

Successful Development of High-Quality Biodiesel Has Paved the Way for Its Practical Application in 2018

The Thai government recently set a target of more than tripling the consumption of biodiesel—an alternative to fossil fuel—by 2036 in Thailand, where the automobile industry is thriving. Earlier, in 2010, the National Science and Technology Development Agency of Thailand along with Japan's National Institute of Advanced Industrial Science and Technology and Waseda University, among other organizations, teamed up to launch a joint research SATREPS project aimed at manufacturing high-quality biofuel from non-food vegetable oil.

In this project, private businesses in Japan and Thailand worked together and successfully developed high-quality partially hydrogenated biodiesel that is friendly to engines. The project demonstrated the automotive and material compatibility of the newly blended fuel, commonly known as H-FAME, by adding it to diesel at ratios of 1:9 and 2:8 in on-road tests that covered a total distance of 50,000 km. As a result, H-FAME was adopted in Thailand's Alternative Energy Development Plan.

In 2017, Department of Energy Development and Efficiency began to develop the technology of manufacturing H-FAME at a plant level and conduct on-road tests of the fuel for full-fledged practical application in 2018 onward. Following the completion of the project, JICA began to provide the third country training program to other ASEAN countries, raising the expectation that H-FAME will be successfully disseminated in neighboring countries. The then-leader of the SATREPS project on the Japanese side is continuing to support the practical application of H-FAME in Thailand as a JICA Senior Volunteer.

An on-road test of H-FAME blended fuel