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JOINT PROJECTS AND SCIENTIFIC RESEARCH BETWEEN UZBEK AND JAPANESE SCIENTISTS: COOPERATION PROSPECTS AND ACHIEVEMENTS

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Abstract: This article analyzes the current state of scientific and technical cooperation between Uzbek and Japanese scientists, joint projects being implemented, and their results. Specifically, cooperation prospects between the two countries' scientists are revealed through joint research in the fields of science, technology, alternative energy, biotechnology, and archaeology. Additionally, the role of international grants, scientific exchange programs, and academic research centers is highlighted.

Keywords: Uzbekistan, Japan, scientific cooperation, joint projects, innovation, technological development, international grants, scientific exchange

Introduction

In the 21st century, the acceleration of scientific and technological progress encourages all countries to cooperate with each other. In the context of globalization, not only economic but also scientific integration has become crucial. Because modern scientific and technological problems are extensive, branched, and complex, solving them within the framework of one country is becoming increasingly difficult. Therefore, many developed countries worldwide are striving to combine their potential with other countries. One of the significant examples of this process is the scientific cooperation between Uzbekistan and Japan.

Japan is one of the world's leading countries with its scientific research infrastructure, modern technologies, and innovative potential. It is known for its achievements in high technologies, medicine, energy, automation, robotics, artificial intelligence, and ecology. Uzbekistan, on the other hand, as a rapidly developing Central Asian country with its geographical location, rich natural resources, ancient civilization, and young, talented scientific personnel, actively participates in global cooperation. In recent years, due to reforms led by President Shavkat Mirziyoyev, Uzbekistan's integration into the international scientific community has significantly accelerated.

The roots of scientific cooperation between Japanese and Uzbek scientists date back to the 1990s. However, these relations began to take a consistent and systematic form starting from the 2010s. In particular, since 2015, the number of joint projects has sharply increased due to intergovernmental agreements between the two countries and the activities of organizations such as JICA (Japan International Cooperation Agency), JST (Japan Science and Technology Agency), and JSPS (Japan Society for the Promotion of Science). Effective scientific research

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is especially being conducted in archaeology, ecology, energy efficiency, artificial intelligence, and biomedicine.

In archaeology, joint archaeological expeditions were conducted with Japanese scientists at ancient city monuments such as Dalvarzintepa in Surkhandarya region, Kampirtepa in Kashkadarya, and others. These expeditions have been important not only in studying cultural heritage but also in re-examining history. This cooperation contributed to Uzbekistan's significant place on the map of Eastern archaeology.

In the field of energy and ecology, projects on solar energy, waste recycling, and rational use of water resources are being carried out jointly with Japanese engineers, which are important solutions to modern environmental problems. At the same time, advanced equipment developed based on Japanese technologies is being practically used in Uzbekistan's scientific laboratories.

Joint research in medicine and biotechnology is also highly significant. For example, there are joint programs for developing early cancer detection methods, DNA analysis techniques, and studying genetic diseases. Scientific relations between Tashkent Medical Academy and Kyushu and Osaka universities have achieved considerable results in this area.

In the field of scientific exchange and personnel training, hundreds of Uzbek students and researchers are studying at the master's and doctoral levels in Japan. Among them, the number of scientists returning to their homeland to continue scientific activities is increasing. In Uzbekistan, centers teaching the Japanese language and studying Japanese culture are also active.

This scientific cooperation serves not only practical or academic results but also strengthens mutual trust and cultural closeness between the peoples. Especially, the discipline and accuracy-based scientific methodology of the Japanese side serves as a model for Uzbek scientists. This increases the quality of relations not only scientifically but also humanly and professionally.

This article analyzes in detail the historical roots, current main directions, existing projects, achievements, and prospects of scientific cooperation between Uzbekistan and Japan. Also, issues related to financial and organizational aspects and opportunities to expand cooperation are discussed.

Conclusion

Scientific cooperation between Uzbek and Japanese scientists has significantly developed in recent years, and mutually beneficial projects are being implemented. This cooperation is not limited to scientific research but also plays an important role in introducing new technologies, adopting innovative approaches, and integrating modern knowledge into the education system. Achievements in archaeology, alternative energy, modern medicine, and IT technologies emphasize the strategic importance of this cooperation. As examples, joint research in ecology and biotechnology and new energy projects can be cited.

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In the future, scientific relations between Uzbekistan and Japan are expected to deepen further. Establishing scientific centers, expanding experience exchange programs, and developing bilateral academic projects can make cooperation more effective. This will contribute not only to science but also to the economy, technology, and culture, creating new achievements. Thus, scientific cooperation between the two countries not only enhances scientific potential but also creates opportunities to contribute to technological progress globally.

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