



# Human Resources Development in Tajikistan

## Abstract:

The availability of nuclear knowledge is the result of the past and present conditions of organizations of knowledge in the field of atomic and nuclear physics in Tajikistan. It is shown, that despite today's weak material resources, with the support of IAEA and other intergovernmental contracts and the international funds, and also presence of rich intellectual fund of the republic, it is possible to reserve Nuclear Knowledge in Tajikistan.



It is known that attitude to nuclear knowledge varies considerably in the world. While developed countries, and particularly European community countries, pay the required attention to fundamental investigations and begin to show a tendency to gradual orientation towards nuclear power engineering, many developing countries aspire to develop knowledge in the field of nuclear science and nuclear techniques.

The Republic of Tajikistan is not a nuclear country, but it uses achievements of nuclear science and technology in a number of manufacturing branches. That is why the important problems for us are training of staff and preservation of nuclear knowledge. During the Soviet period we did not have such problems, as during that time well-educated specialists, both in central institutes of higher education and particularly in the Chair of Nuclear Physics of the Tajik State National University (TSNU) were trained regularly and according to plan.



**Chair of Nuclear Physics of TSNU was established in 1961. Well known physicists from Moscow worked in the field of cosmic rays in the Chair of Nuclear Physics. They simultaneously worked in Pamir expeditions of the Physical Institute of the Academy of Sciences of USSR (PIAS). The research theme of the Chair of Nuclear Physics *until* 1975 has been devoted to research in the field of physics of space beams. In 1970 and the beginning of the 1980, employees of the Chair were also engaged in physics activation analysis and radiation physics. Sometimes scientific themes and training directions were changed. The reasons for the changes were:**

- ✓ need of national economy for experts in particular specialties (nuclear spectroscope analyzers, experts on cosmic rays, experts on nuclear physical methods of element analysis, geophysicists, radiologists, etc.)
- ✓ need for new research managers and new heads of Chair.



During the entire period of its existence, the Chair was engaged in the training of experts in different fields of nuclear physics, jointly and in close cooperation with the Laboratory of High Energies, Laboratory of Neutron Physics, Laboratory of Nuclear Reactions, and Laboratory of Theoretical Physics of the Joint Institute of Nuclear Researches (JINR), Dubna Moscow, the Moscow State University, MIPhI, INPh AS RU, FIAN RF and many other centers of science in the Soviet Union.

After the disintegration of the Soviet Union and rupture of scientific connections with other scientific centers on the one hand, and low financing and absence of their own scientific and technological base on the other hand caused a considerable decrease in the training quality of nuclear physics specialists in different fields.

Starting in 2002, we began to re-profile directions of specialists' training in the Chair of Nuclear Physics of TSNU from the fundamental fields to applied fields. Applied fields include training of medical physicists, radiation ecology, dosimetry and radiation protection physics, which our country desperately needs.





**Training of these specialists (physicists) is carried out according to classical programs of universities, i.e., from the 1st to 3rd years they study general subjects, higher mathematics and general physics, and from the second semester of the 3rd year, students choose specialties' in different chairs, and during 2.5 years study of special courses, pass special rates, perform term papers and degree works and pass a magistracy.**

**The Chair of Nuclear Physics of TSNU presently trains specialists in medical physics, dosimetry, and radiation protection physics. Today our country has urgent need for these specialists, as during the Soviet Union these specialists were trained in the Centre. All of them were visitors, and after the disintegration of the USSR, several of them left Tajikistan.**

**In training specialists we also widely use the regional and interregional training projects of IAEA and other international organizations.**



**Since 2003, more than 200 our oncologists, radiotherapists, radiologists, dosimeters, and etc. were trained in training courses, fellowships, and scientific visits under projects of IAEA.**

**Many of these specialists train their colleagues at the local level. Though training of nuclear physics specialists in the field of radiation protection, nuclear medicine, radiation ecology is in its infancy, taking into account the availability of highly qualified teachers (doctors and professors), who were trained during the Soviet period, and IAEA assistance in this direction give us hope that in the near future we can train the necessary numbers of specialists, for different fields of national economy of Tajikistan.**

**Despite of existing difficulties, our physicists within the framework of various international projects (ISTC, INTAS, etc.), also with the support of presidential funds and joint agreements with JINR (Dubna), MSU, are engaged in basic research.**

**We finalized a number of interstate, interacademic, and interuniversity agreements and treaties with foreign countries, academies and universities in the field of education, science and personnel training.**



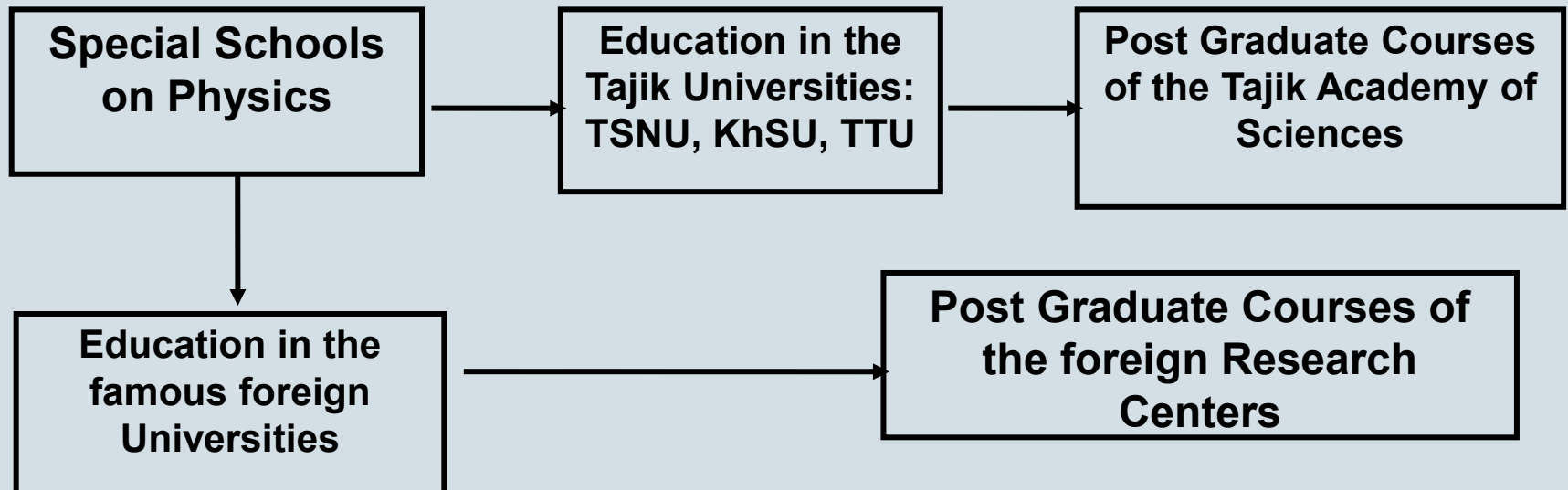
**Training of with high level of qualification is carried out in:**

- ✓ S.U.Umarov Physical-Technical Institute of the Academy of Sciences of RT**
- ✓ V.I.Nikitin Institute of Chemistry of the Academy of Sciences of RT**
- ✓ Nuclear and Radiation Safety Agency of the Academy of Sciences of RT**



- **WHAT IS OUR NEED FOR PRESERVATION OF THE KNOWLEDGE?**
- **We need orientation to the following important moments:**
- **Men capital and human resources are important factor for the development of the country**
- **Science and Education are determinative factor for the development of any country**

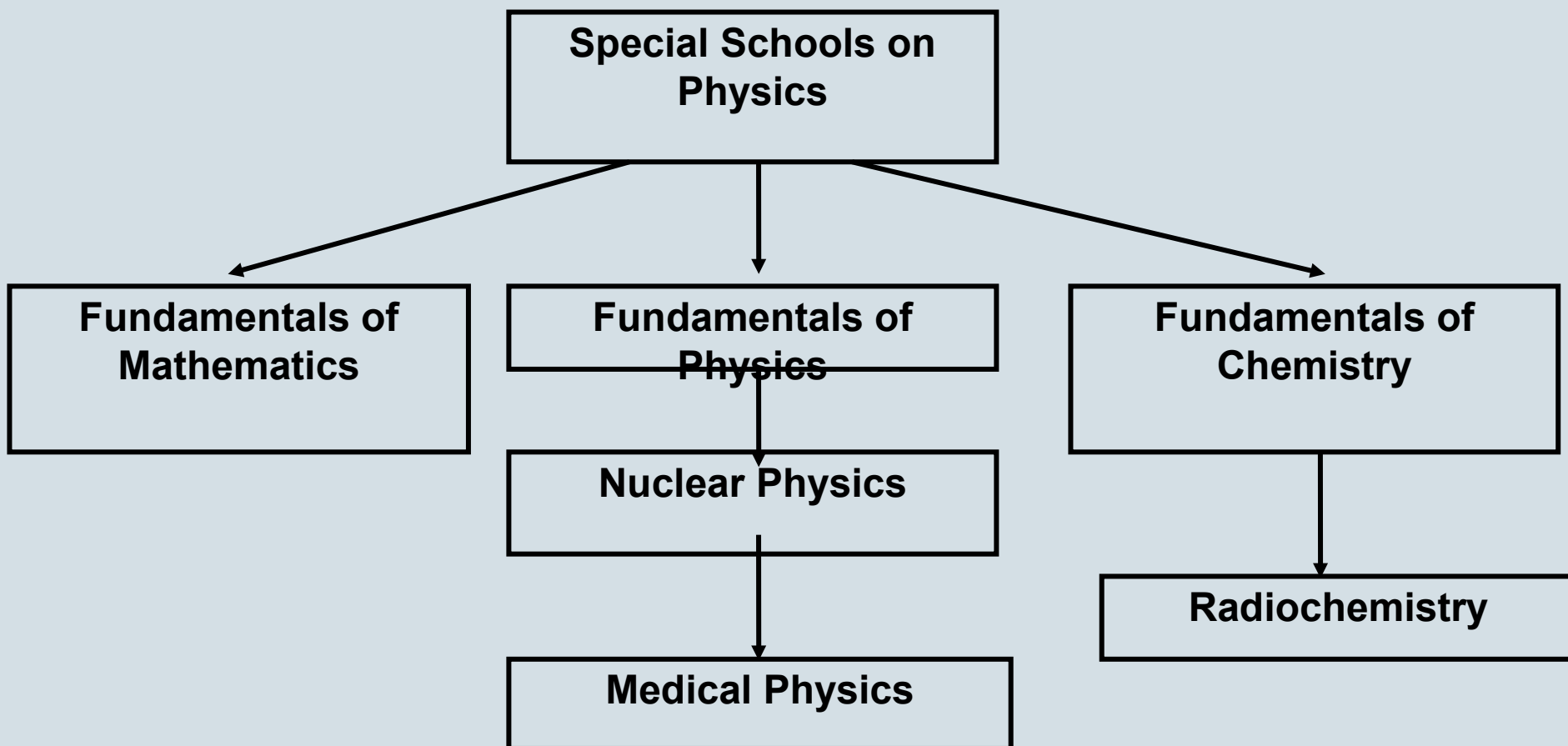
### 1) SCHEME OF PRESERVATION OF THE NUCLEAR KNOWLEDGE IN TAJIKISTAN





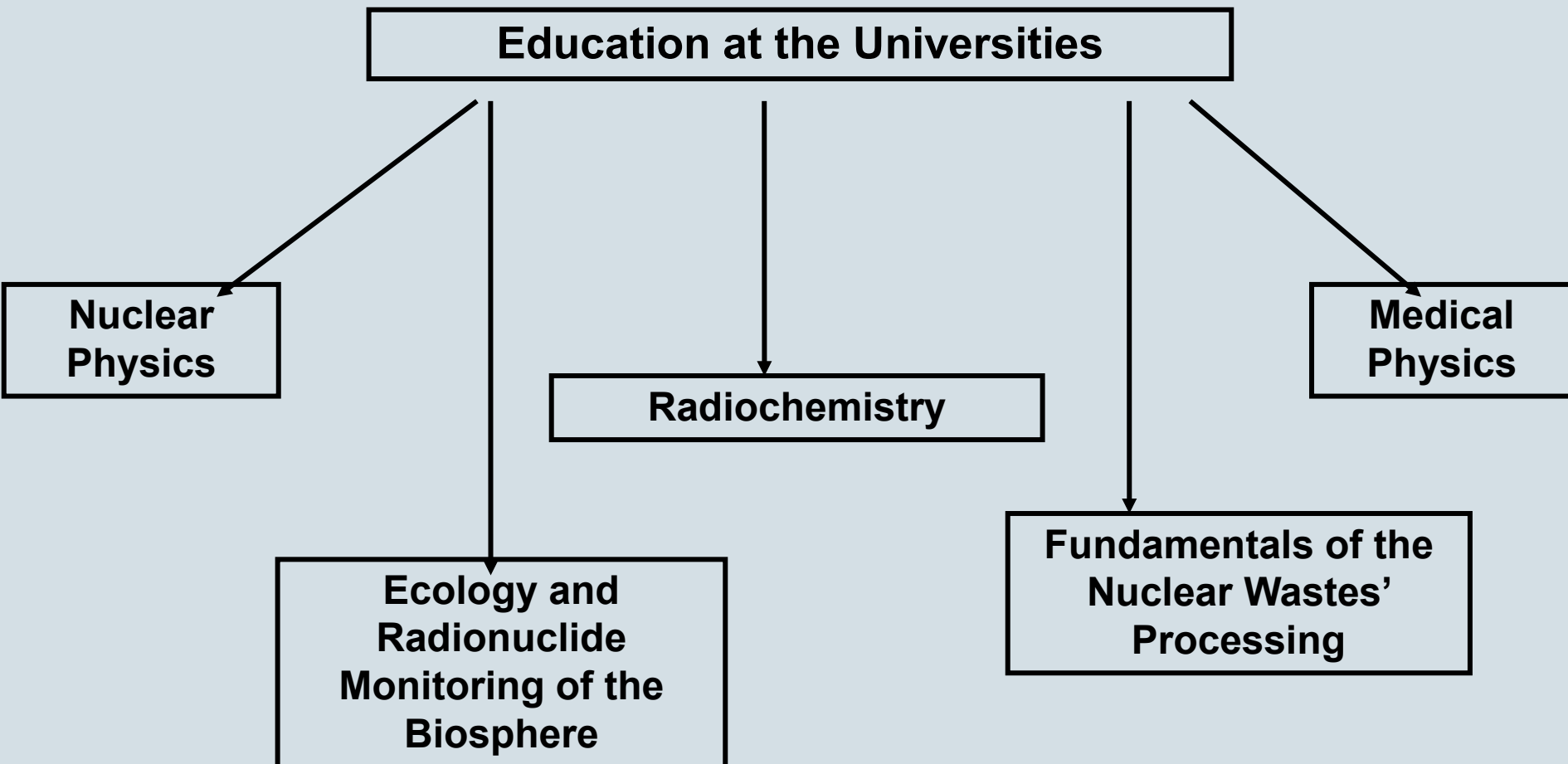


## 2) SCHEME OF PRESERVATION OF THE NUCLEAR KNOWLEDGE IN TAJIKISTAN



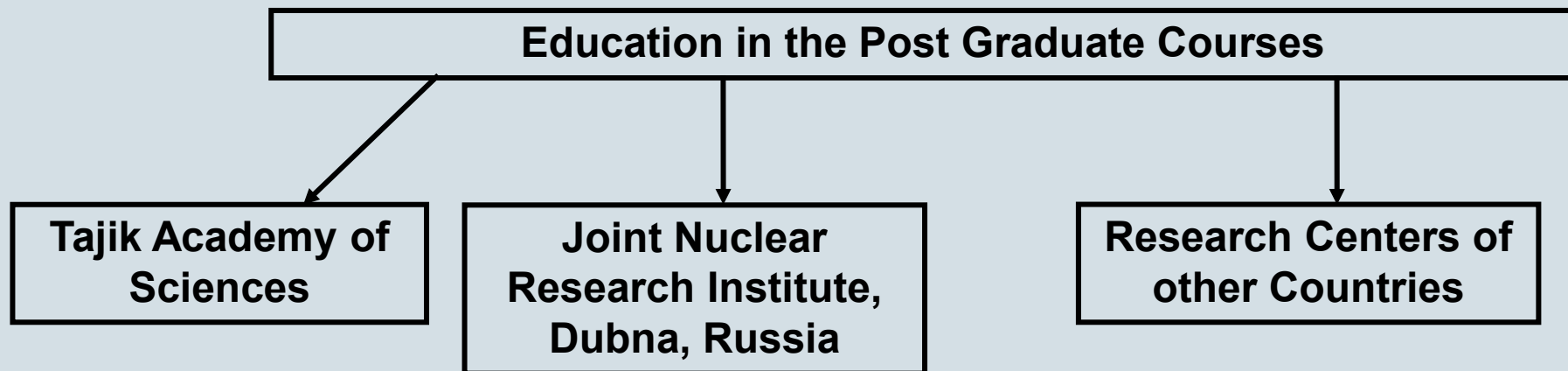


### 3) SCHEME OF PRESERVATION OF THE NUCLEAR KNOWLEDGE IN TAJIKISTAN



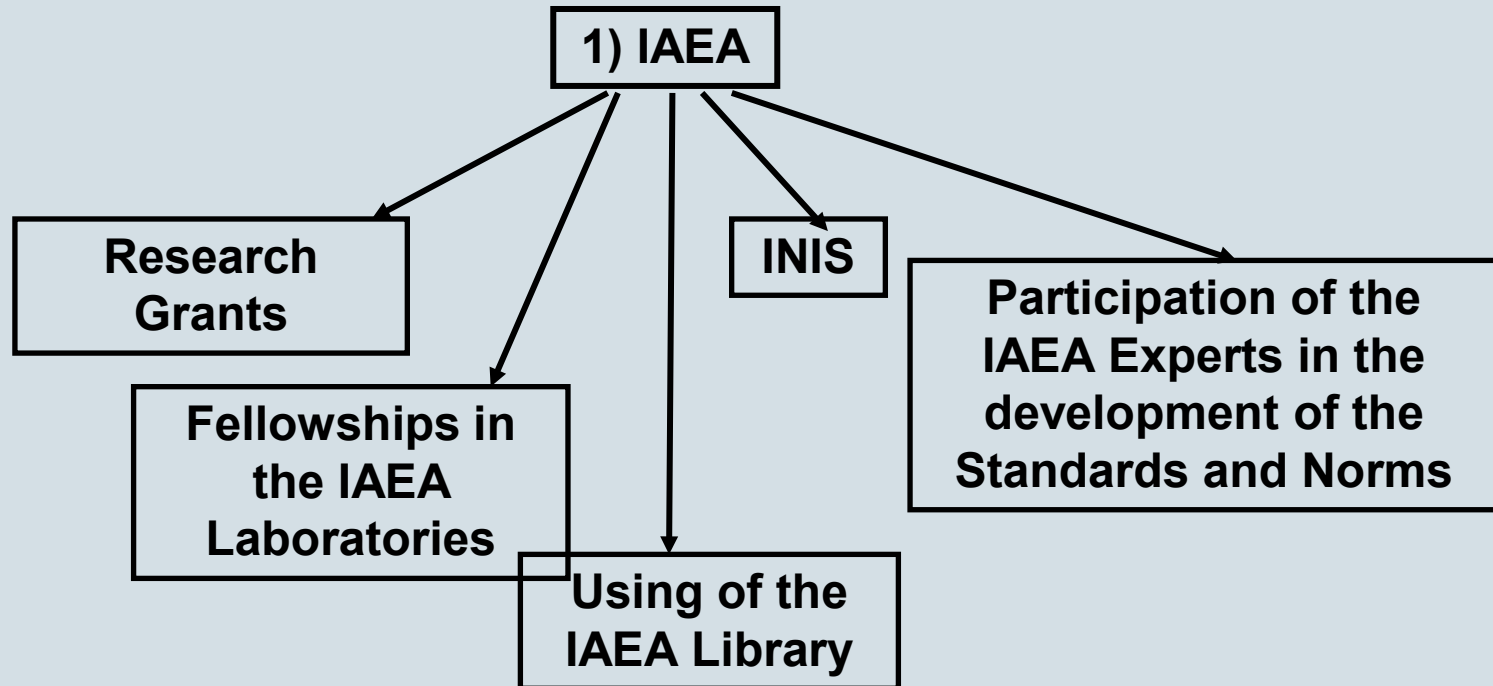


## 4) SCHEME OF PRESERVATION OF THE NUCLEAR KNOWLEDGE IN TAJIKISTAN





## **PART OF THE INTERNATIONAL ORGANIZATIONS IN THE PRESERVATION OF THE NUCLEAR KNOWLEDGE**



**All the above-mentioned factors, in aggregate, allow us to preserve knowledge in Tajikistan, particularly, in the field of fundamental nuclear physics, nuclear science and engineering.**





## THANK YOU FOR YOUR ATTENTION

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