

Regional Forum on Science and Technology Policy for Sustainable Development

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*Research and Technology Policies and some
related Action Programs for Sustainable
Development in I.R. of Iran*

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In the name of god, the most Gracious and the most Merciful

اطلب العلم من المهد الي اللحد - ز كهواره تا گور دانش بجوي

Seek knowledge from cradle to grave

Profit Mohammad (ص)

Adopted by Ferdowsi

(Great Persian epical poet)

Mr. Chairman,

Distinguished Delegates and International Participants,

Excellencies,

Ladies an Gentlemen,

It gives me great pleasure to welcome and thank all of you for attending and contributing this Regional Forum. Let me wish you to have fruitful discussions and enjoy during your visit from Iran.

Ladies an Gentlemen,

In the earlier period, when there was less competition, the prototypes resulted from applied research, were soon produced after the research. Soon after, the organizations would ask their engineers to start with the mass production process. This was time consuming. As the economic globalization proceeds, and the evolution of technology becomes increasingly rapid in the ever more competing situation of today's world, the modern innovators try to develop the industrial concepts in accordance with the business aspects. Today, science and

technology are not separated by any means. Thanks to the applied research, the process of design and production are closely mingled with the science, creating new kind of technology which evolves rapidly.

Nowadays, the power of the nations is related to its economic conditions and their power in innovation accordingly. In the competing new world, science allocates a grand status to "innovation" in technology.

Today, the main criteria for specifying scientific rank of a country is measured by its contribution to production of science, technology and innovation, and also by its role in scientific development of human beings.

Scientific development is the basis of nation's development. The scientific and research activities may reform and build the infrastructures of human societies. The development in science and technology is not possible unless active research centers are in function. Today, it is in such institutions and centers that scientists and engineers gather. Working in groups, they make the foundations for producing knowledge and new technology.

Islam has also put much emphasize on science and knowledge, so much that it necessitates education for both men and women. Islam declares that "acquire knowledge, even if it is utmost distance from you, go and get it". Islam is the religion of science. Islam is the religion of civilization. Since the aim of Islamic society is preparing possibilities for human development towards eternal completion and since this requires knowledge and enlightenments, our Islamic country considers an eminent position for research.

If we are true Moslem believers, we should learn all sciences, and our society must be the society of elites and scientists. The superstitious colonialism had imposed this idea to our nation that he who has religious believes should not learn the modern knowledge! It was in such circumstances that *the Cultural Revolution* was initiated in all aspects.

The research aims and programs of a country are closely related to the values of the society and its culture. Iran is a country with rich culture and standard values interweaved with bright and excellent thoughts and faiths.

In this culture, men in its ever present relation with nature and society, has always been searching the truth and has always tried to understand life and its goals. Eminent research in far past in different branches of science, literature and philosophy, has brought about the most comprehensive doctrines in both humanities and experimental sciences.

Islamic Revolution of Iran, relying on the essential assets like God and Islam that have always authenticated science and developments, have always helped scientists to eliminate obstacles in development and innovations and to achieve outstanding scientific advancements. The Revolution cultivated the spirit of self belief in Iranian scientists and made them realize that research has to be in coordination with the background culture of the society.

There are many successful steps towards the scientific development of the country of which some are mentioned briefly.

- During the recent 27 years after the Islamic Revolution, a total number of 463 research centers have met the necessary conditions and obtained legal activity permission from either the Ministry of Science or the Ministry of Health, i.e. from 14 in 1978, to 477 in 2005. Thirty four percent (34%) of them are under the supervision of universities, 6% under the Ministry of Science, Research and Technology, 21% under the Ministry of Health and Medical Education, 14% under other governmental sectors, and 25% are in the private sector. With new regulations under investigation and with financial support of the government and regulations of tax exempt, further increase of the number of research institutes is greatly expected.
- Up to now, total number of 161 scientific societies have obtained legal activity permission from the *Commission of Scientific Societies*, within which 13 are in basic sciences, 49 in engineering, 34 in humanities, 20 in agriculture and natural resources and 45 in inter- disciplinary subjects.
- The total number of reputable scientific journals is 234, from which 175 are considered as scientific research journals and 59 are as scientific dissemination journals.
- Today 9 Iranian journals are listed in ISI.
- Iran has gained the second rank for the number of ISI papers published in the Region, and is the first for the rate of increase of ISI in 2005 compared with 2004 in the Region.

- The registered patents are 1352 this year, showing an increase of 66.3% comparing the last year.
- The statistics show that Iran has had a reasonable rate of increase in global production of science. It has reached from 0.021% in 1990 to .11% in 2000 and 0.31% in 2004.

Future plans

One of the main goals of Islamic Republic of Iran is to reach the knowledge based development. This is an eminent goal in *the Iran's 20-years vision plan* and also the *fourth development plan* of the country. Research and technology are the basic means for accomplishing this task. Training human resources in research and technology, advancing the borders of scientific achievements, transforming brilliant ideas to new techniques and products, initiating knowledge based industries, transferring new technologies into the country, doing research works to increase the competing potentials of service sectors and investments on applied research for solving national problems are main goals and duties mentioned in the *fourth development plan*. The following steps have been taken towards the above mentioned goals:

- 1) The Ministry of Culture and Higher Education changed to the Ministry of Science, Research and Technology in summer 2004. The new missions of the ministry and its related structural changes were legalized by the Parliament. The new approach is coincided with the *fourth development*

- plan*. The main missions of the Ministry are policy making, monitoring and evaluation of science, research and technology at the national level, and management inside the Ministry;
- 2) The *Fact Sheet of Research and Technology* of Iran was compiled;
 - 3) The ministry has commenced designing the National Innovation System on the basis of the *Plan for advancement of modern industry*.
 - 4) The *Supreme Council of Science, Research and Technology* has been authorized, under the supervision of the President. The Council shall have authority on the research budgets of the country.

Strategies in science and technology as in the new government's plans.

According to *the Iran's 20-year vision plan* authorized by the supreme leader of Iran, the country is to gain among the first rank in economy, science and technology, and according to the section 4 in the *fourth development plan* emphasizing on knowledge based development, the government should carryout the following implementation actions:

- a. Reconstruction and renovation of science and technology policies to enable educational, scientific and research institutes to meet the social, cultural and industrial needs in the increasingly competing world.

- b. Setting up comprehensive programs for science and technology developments for the country, specially in advanced technologies at international level.
- c. Special priority is given to national and regional capacities in the areas of information technology, biotechnology, nano & mems technology, environmental, space and nuclear science and technology.
- d. Reconsideration of the process of education and research in sociology, culture and humanities to meet the vision plan of the country and facilitate the process of decision making of the government.

The new government of Iran has put special emphasize on the scientific developments on the basis of the national culture, and also adopting science and technology from other countries.

Iran's new government has declared 16 action programs in this area, of which some are mentioned here:

1. Development of the "software and knowledge production movement", specially in the fields of social sciences and humanities based on Islamic values and principles.
2. Planning and making policies for promotion and advancement of research on innovation and transferring new areas of technology such as nanotechnology, information technology, biotechnology, advanced material sciences, etc. and developing their applications in the country.

3. Commencing the movement of theorizing and speculations based on the Islamic values and innovations in existing human knowledge.
4. Improvement of cooperation between universities, research and technological centers within the country, and also collaborating with Iranian scientists.
5. Planning an advanced system for training and maintaining the human resources according to the challenging needs of today's world.
6. Building capacity and mobilizing all potentials and capacities of the country towards enhancement of presence of Iran in the production of global knowledge, promoting the indicators of inventions and explorations of the country, success in scientific Olympiads and organizing international and regional scientific meetings.
7. Emphasizing on the applied and developmental research, regarding the priority of technological advancements.

To accomplish the above action programs, the following programs are set in areas of research and technology:

Programs in research

- Compilation of a comprehensive and general strategy for research activities of the country by and identifying the research priorities.
- Promoting the infrastructures for the scientific information transfer.

- Efforts to advance the presence of the country in the production of global knowledge and to set a native criteria for scientometric measures in the Islamic world.
- Providing the access to the scientific resources and the research equipments for scientists.
- Developing and supporting the scientific societies and encouraging them to intervene in the process of decision makings.
- Increasing the ratio of research budgets from the GDP, and promoting the quality and quantity indicators of research.
- Directing research towards meeting technological, cultural, social, and administrative needs of the country.
- Coordinating and centralizing the research activities with the higher educational administrative body of the country.
- Establishing centers and institutions for scientific theorization, future foreseeing, and training distinguished scientists in cooperation with governmental and private sector.
- Advancement of science and research parks and research centers in accordance with national development priorities and relative advantages of the Region.
- Improving the ratio of research scientists to the total population by developing graduate schools and training new research scientists.

- Encouraging cooperation between the universities and industry, to fulfill industrial needs and to transfer industrial experiences to the universities.
- Paying special attention to basic sciences for creating new scientific theories.
- Suggesting common scientific research projects with different countries and cooperating with significant international research projects. Participating in scientific meetings at regional and international level
- Facilitating the process of executing research projects in the universities.
- Making adequate policies to promote Iranian scientific journals.
- Encouraging scientific cooperation by forming research groups.
- Reconstructing and reforming the research centers of other ministries.
- Establishing free thinking tribunals and holding scientific discussion forums in universities and higher educational centers.
- Paving the ground for entrepreneurship.
- Constructing the databases for distinguished Iranian scientists living in the country or abroad.
- Stepping towards reducing the scientific distance between Iran and the developed countries.
- Promoting the area of humanities based on the Islamic and native culture.

Programs in Technology

- Making comprehensive strategies for technological developments.
- Leading research projects for achieving the access to new and high technologies.
- Establishing implementation actions to correlate research, technology, industry and economics to meet the country's need.
- Encouraging cooperation between the technology centers and that of abroad for transferring the technology.
- Identifying the technologies necessary for development of the country in all aspects.
- Regular revision of the teaching programs used in training skillful human resources.
- Establishment and development of R&D for new technologies, technology parks and centers.
- Establishing action programs to increase technical skills and to manufacture high quality goods by introducing new and better techniques.

Final points

- 1) There are no boundaries to science and technology. As said by Louis Pasteur "science does not have a home land". Scientific papers should not be confronted with political reactions. Regretfully some of the

scientifically valuable papers of Iranian scientists are refused by international scientific bodies just for being from Iran, though they are by no means political. Besides, Iranian research scientists may be deprived from some international scientific meetings.

- 2) People are the focusing point of the scientific development. Scientific development should proceed in a way that people and the nation sense the sweet results of science and knowledge in their life. That is why we emphasize much on applied science and on applying the research results in accordance with the needs of the country.
- 3) Efforts should be made to make decisions and policies on the basis of science and research. This is especially important in parliaments, where the main decisions and policies develop into laws and regulations, and the results may promote the scientific system in the countries. The knowledge of the members of the parliaments should be as updated as possible, and they should ask for expert's advice in their decisions. Legislators may ease the regulations ruling the research activities and facilitate it. They can allocate adequate funds to support research in one area or another.

Ladies and Gentlemen,

In conclusion, let me wish you to have fruitful discussions during your meetings and to promote science and technology in the Region.

Thank you.