

**In the Name of God, the Comassinate,
the Merciful**



**Supreme Council
of Cultural Revolution**

The background for the title is a large, diamond-shaped graphic. It features a central circular mandala with a complex geometric pattern in shades of blue, green, and purple. This mandala is overlaid on a larger, semi-transparent diamond shape that has a textured, golden-yellow appearance. The entire graphic is set against a white background with faint, light-colored architectural lines and patterns.

National Master Plan for Science and Education

June 2011



The Secretariat of the Supreme Council of Cultural Revolution

The Presidential Office of Science and Technology

The Ministry of Science, Research and Technology

The Ministry of Health, Treatment and Medical Education

The Ministry of Education

The Islamic Consultative Assembly

The enactment of “The Document of the National Master Plan for Science and Education” approved in the Sessions 662, 663, 664, 666, 667, 668, 670, 671, 672, 673, 674, 675, 676, 677, 678, and 679, dated 21/2/89, 4/3/89, 18/3/89, 15/4/89, 29/4/89, 26/5/89, 6/7/89, 20/7/89, 27/7/89, 4/8/89, 11/8/89, 18/8/89, 2/9/89, 16/9/89, 30/9/89, and 14/10/89 HS, of the Supreme Council of Cultural Revolution is hereby notified for implementation:





Preamble

The realization of the lofty ideals of the sacred system of the Islamic Republic of Iran calls for all-out efforts in all cultural, scientific, social, and economic arenas. Thus, the formulation and implementation of programs of progress in specific intervals and the allocation of required resources for the realization of the objectives of these programs are prerequisites for the achievement of the status that is worthy of the Islamic Iran. On the other hand, science and technology rank among the most important infrastructures for the advancement of the country and the most effective instruments for competing in various fields. As a consequence, the realization of the lofty ideals of the Islamic Revolution of Iran, such as the revival of the great Islamic civilization, and constructive, active, and progressive presence among nations aimed at the establishment of justice and spirituality in the world, is contingent upon all-out progress in science; a science characterized by the three indices of justice, spirituality, and rationality. Only such a science will prepare the human community to bring about the universal government of the perfect man, under which the capacities and talents of humans will flourish and attain perfection.

The achievement of this goal calls for the formulation of a roadmap that clearly and accurately delineates the methodology, the necessary resources and facilities, the allocation of responsibilities at the national level, and other requirements. Therefore, the elaboration of outlooks and strategies for science and technology at macro and more practical levels, such as five-year development plans, is imperative. In the elaboration of the present master plan, utmost effort has been expended to take into account upstream documents and their foundational values as well as the strategic objectives of the system of the Islamic Republic of Iran, in order to sketch out the outlook for science and technology within the horizon of 1404 HS. In this outlook, the Islamic Republic of Iran – leaning on the infinite divine power and intent on reviving the culture and establishing the new Islamic-Iranian civilization, aimed at advancing the country, spreading justice, and providing inspiration to the world, will be a country possessed of righteous, enlightened, and healthy individuals, educated in the school of Islam and the revolution; and scientists on a par with the best in the world, capable of innovation and production



and development of science and technology, application of their outcomes, and at the vanguard of science and technology as world scientific authorities.

The Supreme Leader of the Islamic Revolution, with a profound understanding of the potentials of the country in achieving this vital mission as well as its vast resources and talents, have called for the elaboration of exact targets in the fields of science and technology, and operational and integrated plans and timetables in this area. His Excellency have time and again underlined the need for optimal exploitation of the totality of resources in the country aimed at a systematic and sustained move from the present state to the ideal scientific status, within the framework of the national science master plan. These reiterations together with His Excellency's guidelines throughout the years, relating to such topics as a software movement or a movement for knowledge generation, as well as His Excellency's expectations regarding a firm commitment to the scientific advancement of the country, prompted the Supreme Council of Cultural Revolution to place the formulation of the national science plan at the top of its agenda.

The national science master plan is a comprehensive, cohesive, dynamic, and future-oriented collection, encompassing the principles, goals, policies, strategies, structures, and requirements for a strategic change in science and technology based on Islamic values and with a view to the achievement of the objectives of the "20-year outlook" of the country. In addition, effort has been made to place emphasis on fundamental and local values of the country, and past experiences, as well as scientific theories, examples, and experiences. Here, account must be taken of the following points:

- The national science master plan has been drawn up within the framework of the guidelines of the great leader of the Islamic Revolution and the Supreme Leader, as well as the constitution of the Islamic Republic of Iran. Containing the requisite mechanisms for being updated, it is capable of elaborating the scientific Islamic-Iranian model of progress.
- The master plan is the outcome of the effort and planning of several working groups in the Ministry of Science, Research and Technology; the Presidential Office of Science and Technology; and Ministry of Health, Treatment and Medical Education; implementation of various projects as well as examination of the existing projects; and participation of the country's scholars and experts in science and technology, including those involved in policy making and macro management of the scientific system of the country; managers, academics and researchers from universities, research institutions and scientific associations; educational specialists; scholars from the Qom Seminary; and managers and officials of the science and technology organizations and executive bodies of the country; whose contributions are hereby appreciated.

- The sum total of the research and opinions of experts, which constitute the scientific and research underpinnings of the master plan, will be compiled, in several volumes, as support documents for the national science master plan and will be made available to the public, in several stages, by the Secretariat of the Supreme Council of Cultural Revolution.

The notification of the national science master plan makes it incumbent upon all executive bodies and institutions to exert their utmost effort in ensuring the full execution of the programs and requisite measures. It is hoped that the implementation of the master plan paves the ground for the full realization of the goals of the sacred system of the Islamic Republic of Iran and the well-deserved expectations of the Supreme Leader from the scientific community. God Willing!





Part One:

The Fundamental Values and the Theoretical Model of the National Science Master Plan

1-1.The Foundations and Fundamental Values of the National Science Master Plan

The value foundations of the national science and technology system are based on theoretical foundations – which are presented in the collection of support documents of the national science master plan - that, as the dominant spirit of the scientific progress of the country, determine the orientations of the system and its dos and don'ts in the fields of education, research, and technology, with a view to promoting divine thinking, spreading the idea of universal government, and realizing a global community filled with justice and unity, under the governance of the perfect man. The most prominent of these values include the following:

1. The dominance of the Islamic worldview of divine unity on all aspects of science and technology,
2. A science that provides guidance and the eschatological orientation of science and technology,
3. Justice orientation, development of talents, universal access, especially for the oppressed classes, to science and technology, and bolstering of creativity, innovation, and risk-taking in science,
4. Human dignity, based on man's innate desire for truth, reason, knowledge, and freedom,
5. Freedom of thought, exchange of opinions, and encountering of ideas (*jidal ahsan*, i.e. best disputation),
6. Emphasis on the principle of rationality, respect for knowledge and scholars, the in-



nate value of knowledge, the necessity for respecting the intellectual-scientific creations and scientific achievements of humanity, both legally and ethically, and their utilization within the framework of the value system of Islam,

7. A science and technology that creates perfection, empowerment, and wealth; and is in accord with the environment, and the spiritual, physical, psychological, and social health of the society,
8. Creation of fundamental scientific change, especially with regard to the reevaluation and designing of human sciences, within the framework of the Islamic worldview,
9. Active and inspiring interaction with the global environment and the processes of science and technology development in the world,
10. Axial ethics, the primacy of public over personal and group interests, and the bolstering of the spirit of cooperation, participation, and responsibility among the members of the scientific community and its related institutions.

1-2. Main Characteristics of the Model of Science, Technology, and Innovation System

The model of science, technology, and innovation system appropriate for the Iranian society, aimed at reviving the culture and creating a new Islamic-Iranian civilization, must possess the following characteristics:

1. Combination of Supply- and Demand-Orientation: Given the long-term goals, ideals, and priorities of the system and the insufficient demand for the above items on the part of economic and industrial sectors, certain priority areas must be given special support. This facet of the science and technology system is directed toward the generation and provision of knowledge based on the goals and ideals of the society. On the other hand, the rise of demand on the part of national and transnational cultural, political, industrial, and economic systems, as a result of commercialization of science and technology, plays an important role in the all-out and sustainable development of the country. As a consequence, the appropriate model for the science and technology system of the Iranian society is a combination of models of supply- and demand-orientation.

2. The Blending of the Two Approaches of External- and Internal-Orientation: From the viewpoint of the country's local needs, potentials, capacities, and relative advantages, the system of science and technology of the Iranian society is internally oriented. On the other hand, given the existing opportunities in the world and in Islamic countries in the fields of science and technology, it has active cooperation with other countries and, therefore, is externally oriented.



3. The Synthesis of Education with Development, Research and Skills: Given that only a combination of knowledge and practice results in the all-out and sustainable development of the country, the existing model of a disaggregated system of science and technology must be rapidly transformed into a synthetic model. To achieve this end, this synthesis must begin in elementary education and continue into all levels of education. Thus, the existing memorization-oriented education must be supplanted by a model based on learning knowledge together with the development of humans and advancement of skills and research. A research-oriented approach will also be promoted in the system of higher education.





Part Two:

The Ideal Condition of Science and Technology

The ideal condition of science and technology has been formulated based on the existing condition of science and technology, and the analysis of the strengths and weaknesses, and opportunities and threats, which are included in the collection of support documents of the national science master plan.

2 – 1. The Science and Technology Outlook of the Islamic Republic of Iran by 2025

By 2025, the Islamic Republic of Iran, in the field of science and technology, relying on the infinite divine power, and reviving the culture and establishing the new Islamic-Iranian civilization, with a view to national progress, spread of justice, and inspiration throughout the world, will be a country:

- Possessed of righteous, enlightened, and healthy humans who are well-educated in the school of Islam and revolution; as well as of world-class scholars,
- Capable in the generation and development of science, technology, and innovation, as well as in the utilization of their outcomes,
- At the vanguard of science and technology, and a world scientific authority.

2 – 2. The Macro Objectives of the Science and Technology System of the Country

1. Achieving first position in science and technology in the Islamic world, and attaining an advanced scientific and inspiring status in the world,
2. Establishing a knowledge-based and justice-oriented society, possessed of competent, enlightened, and elite individuals, with a view to becoming a scientific authority in the world,
3. Deepening and expanding of general and specialized education, and strengthening of morality, free-thinking, and spirit of innovation throughout the society, particularly



among the youth,

4. Attaining scientific development and modern and beneficial technologies in line with the priorities, needs, and relative advantages of the country; and their dissemination and application in various educational, industrial, and service institutions,
5. Increasing the share of goods and services produced based on domestic science and technology to a level exceeding fifty per cent of the gross domestic product (GDP),
6. Promoting the status of Persian language among international scientific languages,
7. Bolstering the promotion of science and technology in the Islamic world, and reviving the pivotal and historical status of Iran in the Islamic culture and civilization,
8. Expanding cooperation in the fields of science and technology with major international scientific centers.

3 – 2. The Sector Objectives of the Science, Technology, and Innovation System of the Country

1. Attainment of an appropriate level of general education by all classes of the society and elimination of illiteracy,
2. Complete coverage of general education,
3. Creation of an appropriate educational system for directing students toward:
 - 3 – 1. Attainment of virtues, and recognition of duties and responsibilities toward God, self, society, and the world of creation,
 - 3 – 2. Enhancement of the ability to think and rationalize,
 - 3 – 3. Preparation for embarking upon an independent life and establishing a family,
 - 3 – 4. Responsible and efficacious presence in the society,
 - 3 – 5. Development of occupational talents and creation of future employment with a view to the fulfillment of societal needs,
 - 3 – 6. Development of scientific talents for embarking on specialized courses of study.
4. Enhancement of the level of knowledge and skill of the country's workforce to world-class standards with a view to fulfilling the needs of the society, and the domestic



and international labor markets,

5. Achievement of the first rank among the universities of the Islamic world, and of a distinctive standing among the universities of the world,
6. Attainment of a desired ratio between the number of post-graduate students and the total higher education student population, commensurate with the ranking of universities and the needs of the country,
7. Enhancement of the level of knowledge generation in social sciences based on Islamic principles and local needs,
8. Consolidation of the country's status in the following areas:
 - Sciences and technologies in the field of oil and gas, as a means of achieving a pivotal position in the region,
 - Information technology, in order to attain first position in science and technology in the Islamic world,
 - Biotechnology, with a view to capturing three per cent of the world's market share.
9. Attainment of the knowledge of design and construction of nuclear power plants and fusion energy, the technology of sending humans to outer space, and the knowledge of design, construction, and launch of GEO satellites; through participation with the Islamic world and international cooperation.



4 – 2. Targets¹ and Key Macro Indicators of National Science and Technology²

		Indicator		Targets by 2025
		Percentage of national education coverage	The real level of general education (elementary and junior high school)	Approximately 100 per cent
1	Human Capital ³		The real level of high school	95 per cent
		Gross level of enrolment in higher education (ages 18 to 24)		60 per cent
		Share of post-graduate students vs. total university students		30 per cent
		Share of PhD students vs. total university students		3.5 per cent
		Number of university students (annual)		200,000
		Number of fulltime researchers		
		Percentage of full-time researchers	Government	10 per cent
			Higher education and research institutions and seminaries	50 per cent
			Economic, commercial, and industrial firms, and public and non-profit institutions	40 per cent
		Number of fulltime university faculty members per one million population		2,000
		Ratio of Iranian expatriate experts to total experts of the country		-
2	Ethics and Belief	Level of penetration of Islamic culture and values in scientific environments		-
		Level of adherence to Islamic precepts and beliefs		-
		Level of adherence to Islamic principles in scientific environments		-
		Level of observation of professional ethics		-
		Level of confidence in domestic ability in the development of the country		-
		Level of adherence to law		-
		Level of belief in the Islamic Revolution and the system of the Islamic Republic and the constitution		

1. Detailed indicators of science and technology are included in the support documents of the national science master plan.

2. With regard to qualitative indicators or indicators whose targets for 2025 are not included in the table, reference may be made to items 2-5 and 3 in Part 5.

3. The distribution of targets relating to human capital in various areas, with a view to the real needs of the country, will be approved by the Strategic Headquarters of the National Science Master Plan. None the less, with regard to the field of humanities, targets will be recommended by the Specialized Council on the Transformation of Humanities.

3	Scientific Publications	Number of articles per one million population (PPP)		800
		Level of citation per publication (CPP)		15
		Ratio of university and seminary graduates to indexed articles in international indices		10
		Ratio of indexed articles on the international level to the number of university faculty members		.40
		Breakdown of the number of published articles in the collection of articles of major domestic and international conferences		-
		Number of published Persian language articles in indexed journals in major international databases		-
		Number of authored, specialized scientific books published by universities, research centers, and major science publishers		-
		Number of journals with major international index		160 journals with an effective factor of over 3
4	Science and Innovation	Number of registered inventions and discoveries International	National ¹	50,000
			10,000	
		Ratio of university graduates inventions registered in major international databases		1,500
		Ratio of inventions registered in major international databases to the number of university faculty members		0.15
		Indicator of innovation		-
		Indicator of technological achievement		-
		Number of national advanced technologies with an international ranking of twenty or above		-



1. The Strategic Headquarters of the National Science Master Plan will determine the body responsible for the evaluation of inventions and discoveries in accordance with item B of Paragraph 1-5.

5	Working Groups	Number of coauthored scientific articles		-
		Number of multi-person registered inventions		-
		Number of multi-researcher research projects		-
6	Investment and Funding	Share of education and research costs as a proportion of gross national product (GDP)	Education	7 per cent
		Research		
		4 per cent		
		Share of the non-governmental sector in research funding		50 per cent
		Ratio of expended research funds relating to science and technology priorities to the total research allocations of the country		-
		Volume of consulting and research contracts of the industry with research and university institutions		-
		Share of research and development costs in the total costs of the industrial sector		-
7	International Cooperation	Share of research and development funds given to higher education and research institutions by the industry vs. the total cost of the industrial sector		-
		Number of joint articles with other countries, Islamic countries in particular		-
		Number of joint international researches		-
		Number of research fields established for the first time in the country and the world		-
		Number of distinguished scholars effective in the management of international forums		-
		Number of invited speakers and members of scientific and strategic committees of major international conferences		-
		Number of extensively cited articles		2,250
		Number of universities and research centers in the top ten per cent of the best centers in international rankings		Minimum of 5 universities
8	Geographical Assessment of Education	Level of recruitment of university students and specialists by other countries		-
		Distribution of scientific disciplines and their compatibility with the needs of various regions of the country		-
		Access to university education for talented students in various regions		-
		Access to post graduate education for talented students in various regions		-

9	Effective- ness	Percentage of the per capita annual GDP growth as a result of science and technology	4 per cent
		Percentage of unemployment reduction resulting from the development of science and technology	-
		Level of growth of human development index	-
		Share of production of goods and services based on domestic science and technology in the total gross domestic product (GDP)	Over 50 per cent
		Percentage share of exports based on advanced technology in the total non-oil exports of the country	-
		Exportation of technical and engineering services	-
		Share of added value of industrial products with advanced and semi-advanced technology in the total manufacturing added value of the country	50 per cent
		Level of participation of the scientists and researchers of the country in the decision makings relating to science and technology	





Part Three:

Science and Technology Priorities of the Country

3 – 1. The Objectives of Prioritization and the Approach for Supporting Priorities

The determination of country's priorities in science and technology referred to in the present document is the result of a combination of approaches that are advantage-based, need-oriented, boundary-spanning, and future-oriented. Based on this and with a view to realizing the priorities, the method of supporting these priorities will depend on the present state of related sciences and technologies, and the intended type of quantitative growth, transformation, and qualitative improvement. These supports will include intellectual, financial, and legal varieties as well as human and managerial resources. A number of support approaches for science and technology priorities include:

- Channelization of investments through five-year development plans, annual budgets, line items, and centralized financial facilities,
- Orientation of the educational system toward the provision and recruitment of an elite and specialized workforce required in priority areas,
- Improvement and creation of structures and processes, and formulation and approval of special preferential policies and rules aimed at increasing growth (shortcut) in priority areas.

3 – 2. The Science and Technology Priorities of the Country

Given that ensuring growth and flourishing in a number of priorities is contingent upon attention, guidance, and support on the part of various macro management echelons of the country, while growth and development in others would require the support of middle management levels and decentralized allocation of resources, the priorities have been divided into the three levels of A, B, and C. This categorization is based on the method and level of resource allocation which includes financial and human resources, as well as attention given by managers and officials.



A-Level Priorities

In Technology¹: Aerospace technology, information and communication technology, nuclear technology,² nano and micro technologies, oil and gas technology, biotechnology,³ environmental technology, and soft and cultural technologies.

In Basic and Applied Sciences: Dense matter, stem cells and molecular medicine, medicinal plants, energy recycling and transformation, new and renewable energies, encryption and codification, and cognitive and behavioral sciences.

In Humanities and Islamic Sciences: Quran and hadith studies; Islamic theology; specialized fiqh (jurisprudence); economics; sociology; political science; law; psychology; educational and management sciences based on Islamic principles; eclectic (mudhaf) philosophies based on Islamic philosophy; the philosophy of wilayat and imamate; applied and professional Islamic ethics; policymaking and management of science, technology, and culture; and Persian language, as a scientific language.

In Health: The Policymaking and economics of health, the science of prevention and enhancement of health with emphasis on diseases with high costs and local challenges, models of healthy living based on Islamic teachings, and application of local dietary models.

In Art: The science and philosophy of art; Islamic-Iranian arts; arts related to the Islamic Revolution and the Holy Defense; the economics of art; film and cinema; virtual media, with an emphasis on animation and computer games; Islamic-Iranian architecture and urban development; traditional and local Iranian music; literature, poetry, and fiction; Irano-Islamic artistic design; Iranian clothing and carpet.

B-Level Priorities

In Technology: Laser, photonics, biosensors, chemical sensors, mechatronics, automation and robotics, semiconductors, shipbuilding, neo-compound materials, polymers, preservation and revival and genetic reserves, exploration and extraction of minerals, prediction and prevention of earthquakes and floods, and civil defense.

In Basic and Applied Sciences: Geophysics, biosafety, bioinformatics, optics, high energy

1. The science required by any technology will be accorded the same level of priority.
2. Including fission and fusion.
3. Including water, soil, and air management and technology; reduction of water, soil, and air pollution; management of waste products, dedesertification, and fighting drought and salinization.



physics and fundamental particles, calculation and processing of quantum information, astronomy and cosmology, atomic physics and accelerators, genetic sciences, soft calculations and fuzzy systems, and topology.

In Humanities and Islamic Sciences: Islamic ethics and its interdisciplinary studies; theology; Islamic mysticism ('irfan); philosophy; critical studies of the west; entrepreneurship and skill building; histories of Islam, Iran, and the Islamic Revolution; women and family studies based on Islamic principles; history of science, with the orientation of the histories of Iran and Islam; and political geography.

In Health: New and neo-compound drugs, management of health information and knowledge, traditional medicine, medical equipment, cellular and molecular medicine, gene therapy, bioproducts, and nutrition technology.

In Arts: Critical studies of modern art; comparative studies of artistic fields; traditional arts and handicrafts; calligraphy; theatrical arts; interdisciplinary studies of art and branches of science, with an emphasis on the Islamic perspective.

C-Level Priorities

In Technology: Optoelectronics, catalysts, medical engineering, metal alloys, magnetic materials, marine structures, rail transportation, transportation safety, traffic and urban development, light and strong building materials, revival of pastures and forests and their exploitation, and domestic technologies.

In Basic and Applied Sciences: Non-linear algebra and mathematics; discrete and composite mathematics; functional and harmonic analysis; dynamic systems and probability; control and optimization; biomathematics; plasma; biophysics; the physics of complex systems; biochemistry; green chemistry; silicon materials; tectonics and geological engineering; processing, extraction, and purification of organic and mineral materials; environmental risks; climatic changes; oceanography and marine sciences, biological and non-biological tensions; production of the number and types of species in line with biodiversity; optimization of regional cultivation models; and biosociology.

In Health: Interdisciplinary sciences between basic and clinical sciences, fight against various types of addiction, food safety, and food security.





Part Four:

National Strategies and Measures for the Development of Science and Technology in the Country

4 – 1. The Macro Strategies for the Development of Science and Technology in the Country

Macro Strategy 1: Improvement of science and technology structures and institutions and creation of cohesion among them; and coordination of the educational system at the level of policymaking and macro planning.

Macro Strategy 2: Focus on science and its transformation into a major discourse in the society and the creation of a conducive environment for the flourishing and generation of science and technology based on Islamic teachings and through the development, deepening, and utilization of cultural, social, and political elements.

Macro Strategy 3: Orientation of the cycle of science, technology, and innovation toward a more effective role in the economy.

Macro Strategy 4: Institutionalization of knowledge management and the laying of the foundation of society on ethics and knowledge, in accordance with Irano-Islamic models, in scientific, economic, political, social, cultural, and military-security institutions.

Macro Strategy 5: Institutionalization of the Islamic perspective on science and acceleration of the Islamization processes in educational and research institutions.

Macro Strategy 6: Transformation and renovation of the educational system, including primary, secondary, and tertiary, with a view to their alignment with the Islamic foundations of education and development, as well as the realization of the macro objectives of the master plan.



Macro Strategy 7: Orientation of education, research, technology, and innovation toward the resolution of problems and fulfillment of the real needs and requirements of the country, with a view to the Town and Country Planning and cutting-edge innovation in science, in order to achieve scientific authority.

Macro Strategy 8: Development and empowerment of human capital with emphasis on the cultivation of virtuous, entrepreneurial, self-believing, and creative persons, capable in generating science, technology, and innovation, in line with Islamic values and societal needs.

Macro Strategy 9: Active and effective interaction in the field of science and technology with other countries, regional and Islamic countries in particular.

Macro Strategy 10: Transformation and quantitative and qualitative enhancement of humanities and arts in accordance with Islamic sciences.

Macro Strategy 11: Orientation of the cycle of science, technology, and innovation toward a more effective role in the field of health and medicine.

Macro Strategy 12: Orientation of the cycle of science, technology, and innovation toward a more effective role in the field of technical sciences and engineering.

Macro Strategy 13: Development, deepening, and strengthening of education and research in the field of basic sciences.

4 – 2. National Strategies and Measures in Line with the Macro Strategies for the Development of Science and Technology in the Country

Macro Strategy 1

Improvement of science and technology structures and institutions and creation of cohesion among them; and coordination of the educational system at the level of policymaking and macro planning

National Strategies:

1. Policymaking and enhancement of coordination and synergy in various sectors of the country aimed at the implementation of the national science master plan,
2. Alignment of the national policies for industrial and economic development - espe-

cially five-year development plans – with the macro national development policies for science and technology,

3. Determination of the scope of management and ownership of institutions related to the fields of science and technology,
4. Organization of the system of intellectual property in the fields of science and technology,
5. Revision, improvement, integration, simplification, and updating of the rules and regulations of the national science and technology system,
6. Improvement of the processes and structures for the supervision and assessment of national science, technology, and innovation; and formulation of local standards in the field of science and technology within the framework of the economic and social needs of the country,
7. Organization of the system of funding for the development of science and technology,
8. Organization of professional systems based on scientific and technical knowledge aimed at the management of economic-social units and institutionalization of the culture of professionalism, research-orientation, and entrepreneurship in the system of science, technology, and innovation,
9. Coordination in policymaking and planning in official general education, vocational education, and higher education, as a means of creating continuity in education and development activities,
10. Joint policymaking and planning between the Supreme Council of Seminaries and the Supreme Council of Cultural Revolution, aimed at the organization and enhancement of interaction among seminaries and universities, with a view to the generation and development of knowledge within the framework of Islamic teachings,
11. Coordination between the official and unofficial systems of education and development in the country; and closing of the gap between them.



National Measures:

1. Formulation of necessary mechanisms for executive policymaking, implementation of the science master plan, approval and notification of national plans and related

supervision and assessment, (1)¹

2. Creation of coordination and cohesion among institutions related to science and technology; and completion of institutions related to the cycle of science and technology, (1)
3. Empowerment of the non-governmental sector in the system of science and technology; and reduction of the government's ownership and control while increasing its supervisory aspects, (3)
4. Expansion of the share of endowment and charitable donations, aimed at the development and support of science and technology bodies and institutions, (3)
5. Registration and validation of intellectual property in the field of science and technology in the executive branch, (4)
6. Establishment of a specialized science and technology litigation body for the examination of complaints and lawsuits in the judicial branch, (3 and 4)
7. Establishment of a system of registration of tentative inventions in priority areas, (4)
8. Reform, correction, and completion of the support system for the registration of inventions and discoveries, including private offices for the documentation and legal follow-up of registration of inventions and discoveries, private offices for the analysis of inventions and discoveries, and technology information centers, (4)
9. Enhancement and organization of intellectual property rules and regulations with regard to scientific books and articles, dissertations, and registration of inventions and technical and specialized software, (4)
10. Organization of the system of standards of science and technology, with the government being responsible for planning and supervision; provision of laboratory services in collaboration with the non-governmental sector; and localization of standards and formulation of new standards in collaboration with scientific, civil, and knowledge-based institutions, (6)
11. Development of an effective system for the supervision, assessment, and establishment of comprehensive systems for the ranking and quality assurance of science, technology, and innovation institutions, with an emphasis on the protection of the rights of applicants, transparency, and promotion of supply and demand, (6)

12. Organization, dynamization, and facilitation of the system of funding for higher edu-

1. The number following each national measure indicates the number of corresponding national strategy.

cation and research institutes, with a view to preservation of values and observation of related standards, (7)

13. Expansion of the role of government in supporting strategic and fundamental research, with an emphasis on the exploitation of its results, (7)
14. Assignment of objectives to research allocations and facilitation of financial mechanisms, with a view to the development of demand-oriented research, (7)
15. Utilization of various financial mechanisms and incentives, including tax exemptions, assistance, loans, and customs and levy exemptions, aimed at enhancing the role of private sector and entrepreneurial firms in the field of science and technology, (7)
16. Organization of the budgets of governmental bodies and companies and requiring them to provide necessary funding for research projects, with a view to the realization of the objectives and targets of the master plan, (7)
17. Support for the creation, expansion, and timely provision of the resources of the financial institutions of the system of science, technology, and innovation; including risk-taking investment funds, technology development funds, investment companies, and development banks for technology and innovation, (7)
18. Creation of a sort of exchange market for knowledge-based institutes and companies and support for their entry into the stock market, (7)
19. Establishment of a coordination and cooperation network for institutions providing funding for science and technology, (7)
20. Creation of legal facilities for the expansion of investment in the non-governmental research and development sector; and enhancement of the share of non-governmental research allocations in the gross domestic product (GDP), (7)
21. Joint and centralized policymaking and planning for developmental education for the media and institutions and centers with an effective role in developmental education, as a means of creating alignment with the official system of education and development. (11)



Macro Strategy 2

Focus on science and its transformation into a major discourse in the society and the creation of a conducive environment for the flourishing and generation of science and

technology based on Islamic teachings and through the development, deepening, and utilization of cultural, social, and political elements

National Strategies:

1. Strengthening of religious perspective on knowledge and its acquisition as a religious duty; and expansion and promotion of the teachings of the Holy Quran and the Infallibles (PBUT) in scientific education, and methods of instruction and learning,
2. Promotion of the culture of reading and research; strengthening of the spirit of inquisitiveness, truth-seeking, and lifelong learning; and utilization of research and scientific findings in daily life as an element in social development and enhancement of life,
3. Public culture-building aimed at strengthening the software movement and domestic generation of knowledge in the society and enhancement of public scientific knowledge in various cultural, political, and economic dimensions,
4. Elevation of the professional status and the scientific and social authority of teachers, academics, researchers, and technologists,
5. Expansion of the environment for knowledge generation and thinking, through support for academic chairs of free-thinking and theorization, thinking forums, and scientific debates based on best argumentation (jidal ahsan) and scholarly criticism,
6. Enhancement of the level of participation of scientists and key players in the field of science and technology in the arena of social responsibilities; deepening and promotion of, and respect for authentic Islamic and Iranian values and professional ethics; and exploitation of rich cultural treasures,
7. Exploitation of the capacities of the media in the promotion of the objectives of the system of science and technology in the country.

National Measures:

1. Assumption of a more active role on the part of mosques as scientific and cultural bases for the promotion and dissemination of knowledge at all levels of the society, (1)
2. Simplification of scientific language for the public and creation of appropriate terms aimed at the institutionalization of the culture of using science and scientific achievements in daily life, (2)

3. Increasing access to scientific sources through the expansion of public and virtual libraries in various regions and support for the production and publication of these sources, in line with the national system of science, technology, and innovation, (2)
4. Utilization of scientific and creative techniques in methods of education and development and compilation of textbooks, especially on education and development, with a view to the promotion of creative scientific thinking from the earliest age, (2)
5. Strengthening of spiritual motives and promotion of financial and material incentives for attracting the elite members of the society toward teaching, academic instruction, research, and technology, (4)
6. Resolution of the social and livelihood problems of teachers and researchers in order to lay the necessary ground for scientific activities, (4)
7. Creation of an executive mechanism and appointment of a responsible body for the formulation, promotion, and supervision of professional ethics and criteria and standards of behavior in scientific and research environments, (6)
8. Institutionalization of commitment, social discipline, adherence to law, and the spirit of hard work for the expansion of justice, welfare, and societal health in students, with the participation of teachers and academic instructors, (6)
9. Allocation of a considerable share of the programs of the National Radio and Television to topics relating to science and technology, couched in a simple language comprehensible to the public, (7)
10. Design and execution of scientific debates in the media, on specialized topics relating to the field of science and technology; and support for the academic chairs of free-thinking, theorization, criticism, and debate, (7)
11. Selection of the best media based on the level of focus on science and technology, establishment of awards at science festivals, and government support in line with this criterion. (7)

Macro Strategy 3

Orientation of the cycle of science, technology, and innovation toward a more effective role in the economy



National Strategies:

1. Promotion of the culture of knowledge-based business and entrepreneurship; enhancement of the scientific, technological, and innovative capabilities and skills of individuals, with an emphasis on the needs of the society and preparation for the assumption of professional responsibilities,
2. Expansion of the role of science and technology in empowerment and enhanced productivity in industrial, manufacturing, and specialized and general service sectors,
3. Facilitation and enhancement of efficiency of the process of supply, demand, transfer, and publication of science and technology; and development of competition infrastructures for technological and service productions and their related products.

National Measures:

1. Elaboration and promotion of religious teachings on the sanctity of solid and knowledge-based business as a religious obligation, (1)
2. More effective organization and ranking of scientific associations, knowledge-based companies, and non-governmental research institutes, and support for referring projects to them, (1)
3. Support for the expansion of instruction in advanced skills, in collaboration with the private sector, aimed at increasing the country's share in international markets, (1)
4. Support for the investment of economic firms in the production and commercialization of science and technology, (2)
5. Allocation of responsibility to executive bodies and organizations to identify, organize, and utilize, in an appropriate manner, the scientific and technological achievements of the country, (2)
6. Support for the creation of markets for innovative products, especially through according priority to domestic products and services in governmental procurements, provision of information regarding their future needs, and support for the establishment of domestic scientific, innovative companies in economic free zones as a means of developing exports, (2)
7. Facilitation of the stages of establishment and operation of knowledge-based companies, including the acquisition of licenses and permits, import and export affairs,



insurance, and removal of obstacles facing their establishment in cities, (3)

8. Organization of general tech markets and creation of specialized tech markets in the priority areas of the country, (3)
9. Support for the creation of centers providing support services for “idea to market”, as well as legal, financial, technical, and administrative intermediary bodies, in science and technology priority areas, (3)
10. Support for the marketing, export, and after sales services of the technological products of knowledge-based companies; through the organization and targeted provision of export awards and incentives, and support for the creation of advertising mechanisms for the marketing and development of intermediary commercial and support companies, (3)
11. Elaboration of legal and incentive mechanisms for universities and research centers aimed at the monetization of research results and profitability for universities, research centers, and researchers, such as support for the creation of knowledge-based companies through equity participation with higher education and research institutes, (3)
12. Support for the expansion of growth centers, and science and technology parks, with emphasis on private sector participation, (3)
13. Support for interaction among research and industrial sectors; through assistance in creation of a national research and technology body, establishment and expansion of centers for the transfer and commercialization of technology, and acquisition of technology products and services under the licenses of major domestic institutes, (3)
14. Allocation of a share of budgets of large national development programs to the transfer and learning of technology and requiring their managers to compile technology annexes and to document transmitted technologies, with an emphasis on research and development units and creation of databases of these technologies. (3)



Macro Strategy 4

Institutionalization of knowledge management and the laying of the foundation of society on ethics and knowledge, in accordance with Irano-Islamic models, in scientific, economic, political, social, cultural, and military-security institutions

National Strategies:

1. Implementation of the process of knowledge and information management in various bodies and institutions,
2. Continuous and synergistic relationship among the three currents of production, dissemination, and exploitation; development of knowledge; and strengthening of the process of transforming ideas into products,
3. Organization and facilitation of scientists' participation in the macro decision making system of the country; and institutionalization of the culture of research, assessment, and supervision at all levels of decision making,
4. Organization and strengthening of scientific associations and societies, with a view to the achievement of the role of scientific authority, enhancement of participation in decision makings, and expansion, promotion, and dissemination of science and technology,
5. Quantitative and qualitative enhancement of major domestic, scientific conferences, forums, and meetings, with a view to the achievement of scientific authority,
6. Scanning, monitoring, and forecasting of science, technology, innovation, and markets needs.

National Measures:

1. Establishment of a knowledge management system; and strengthening of mechanisms for the transformation of tacit into explicit knowledge, and its dissemination and exploitation, especially through the bolstering of infrastructures for information and communication technology, (1)
2. Support for the creation and expansion of research and technology networks, with a view to the promotion of interaction and facilitation of transfer and dissemination of knowledge, (2)
3. Strengthening and increasing cohesion in the national science and technology information system, with a view to the mission of standardization and improvement of the processes of production, registration, refereeing, and evaluation; and creation of integrated databanks for academic dissertations, research and technology projects, articles, journals, scientific books, and the inventions and discoveries of researchers, (2)



4. Ranking and organization of scientific publications and strengthening of Islamic World Science Citation Center (ISC), (2)
5. Elaboration of a mechanism to ensure that all national policymaking, planning, and decision making at the macro level benefit from research results validated by major scientific authorities, such as science academies, think tanks, and related scientific associations, (3)
6. Reform of regulations on the delegation of national studies, and research and technology programs, aimed at giving priority to domestic research and technology institutes, (3)
7. Assignment of priority to the level of participation in national planning, level of efficacy in the development of science and technology, and quantitative and qualitative enhancement of promotional programs in the field of science and technology, in the ranking and evaluation of grassroots associations and societies, (4)
8. Support for the organization of specialized conferences by scientific associations and societies, especially those relating to priority areas, and facilitation of delegation of scientific and specialized publications to them, (4)
9. Facilitation and encouragement of scientists' participation in domestic and international conferences relating to priority areas, (5)
10. Creation of organizations to scan science and technology in priority areas, with the participation of scientific associations, academic centers, and non-governmental institutions, (6)

Macro Strategy 5

Institutionalization of the Islamic perspective on science and acceleration of the Islamization processes in educational and research institutions

National Strategies:

1. Institutionalization of the Islamic perspective in educational programs and material,
2. Expansion of the space for the intellectual interaction of scholars of religious and other sciences,



3. Effective and constructive interaction among scientific seminary and academic institutions, with a view to the strengthening of the Islamic perspective on science and the reconstruction of the new Islamic civilization,
4. Enhancement of the level of Islamic awareness, belief, and conduct among the participants and institutions of science and technology, and the Islamization of symbols in educational and research institutes.

National Measures:

1. Revision of educational programs and contents based on the theoretical foundations, values, and perspectives of Islam, (1)
2. Support for research and content development, and formulation of educational programs aimed at elaborating the link between natural and modern sciences with religious teachings and the monotheistic (tawhidi) perspective, (1)
3. Support for researches and studies aimed at identification of non-Islamic views, such as humanistic and secular, in educational materials and their correction based on Islamic teachings, (1)
4. Compilation of the history of natural and mathematical sciences in the Islamic civilization and introduction of Muslim scholars and their works in various fields, (1)
5. Enhancement of systematic cooperation among seminaries, universities, and the Ministry of Education, in the process of educational planning and compilation of textbooks, with a view to the deepening of religious teachings and strengthening of educational dimensions, (1)
6. Support for the organization of conferences and discussions among scholars of human, basic, and natural sciences with scholars of religious sciences focusing on the challenges between the fields of science and religion, (2)
7. Support for networking among religious scholars and research institutes with regard to various fields of science, human sciences in particular, (2)
8. Support for the establishment of mission-oriented interdisciplinary research centers in the fields of science and religion, with the participation of researchers from the seminary and academia, (3)
9. Support for the effective and systematic participation of seminary instructors in uni-



versities and vice versa, with a view to the utilization of experiences and the strengthening of intellectual interactions, (3)

10. Formulation of promotional programs aimed at the enhancement of the level of religious, political, and social knowledge, and the culture of chastity among participants in the field of science and technology, in accordance with the values of the Islamic Revolution and in line with their field of expertise, interests, and experiences, (4)
11. Creation of a mechanism for the harmonization of the educational and research activities of university faculty members with their developmental and ethical roles in higher education and research institutes, (4)
12. Systematization and formulation of appropriate standards for the political and cultural activities of university students and faculty members, with a view to the enhancement of their religious knowledge and thought, (4)
13. Adherence to the characteristics of Islamic and national architecture in the design of the structural spaces of educational and research bodies and institutes. (4)

Macro Strategy 6

Transformation and renovation of the educational system, including primary, secondary, and tertiary, with a view to their alignment with the Islamic foundations of education and development, as well as the realization of the macro objectives of the master plan

National Strategies:

1. Assignment of objectives to the government's financial support, investment, and expenditure in higher education, in line with increasing efficiency and accountability, and in accordance with article 30 of the constitution,
2. Enhancement of cohesion and integration in policymaking, supervision, and validation in the national higher education system,
3. Formulation of a model for the expansion of national higher education in line with science and technology priority areas, types of institutions, climatic conditions, societal needs, and employment of graduates, based on the national science master plan,
4. Enhancement of productivity in higher education and research institutes, within the framework of an Islamic system of education and development,



5. Expansion of public access to education,
6. Enhancement of productivity and strengthening of the financial resources of the education system,
7. Transformation of perspectives, methods, and contents of education in accordance with the Islamic worldview and education and development, with a view to the enhancement of the abilities, and logical, creative, and inquisitive thinking among the students of all levels, based on Islamic teachings, in personal, family, and social arenas,
8. Enhancement of the teachers' ability in the management of human resources, scientific and professional competency, social standing, and livelihood,
9. Improvement and strengthening of the mechanism for the management of schools, with a view to the enhancement of their efficiency,
10. Enhancement of the role and status of the family in education and development.

National Measures:

1. Formulation of the master plan for the targeted organization of government's investment in higher education, in order to create transparency in the total costs of education in institutions of higher education and to increase efficiency, (1)
2. Enhancement of the independence of higher education and research institutes in the management of administrative affairs, financial resources, revenues, and expenditures, through the expansion of the authority and responsibility of their boards of trustees, (1)
3. Strengthening of the system of scholarships for talented university students aimed at the enhancement of the national higher education system, (1)
4. Orientation of educational and research resources and budgets toward national needs and missions, (1)
5. Improvement and formulation of the system of education and research planning, based on Islamic principles, with a view to the real needs of the society and applicant organizations in the country, (2)
6. Establishment of a system of evaluation and matriculation of students in the national higher education system, with a view to the coordination and integration of policy-



making, supervision, and implementation, (2)

7. Support for the participation of the people, and public and governmental institutions; and promotion of the culture of endowment in the field of higher education, with the preservation of the policymaking and supervisory roles of the government, (2)
8. Promotion of the culture of research and entrepreneurship in higher education; and development of active interaction with economic and social bodies and firms in educational planning, (2)
9. Creation of a national body for the management of evaluation, validation, and quality assurance in higher education system, under the supervision of the Supreme Council of Cultural Revolution, (2)
10. Enhancement of supervision and enforcement of national educational and research policies in universities, non-governmental universities in particular, (2)
11. Organization and expansion of scientific poles, including joint poles established by the seminary and academia; aimed at implementation of special scientific and mission-oriented activities in priority areas, (2)
12. Assignment of special missions to a number of distinguished university and research centers, and enhancement of post-doctorate courses, with a view to the expansion of scientific frontiers and achievement of high positions in international rankings, (2)
13. Orientation of the country's top universities toward increased emphasis on post-graduate education, (3)
14. Continuous scanning of environmental capacities and social contingencies; and adjustment of the capacity of universities at various levels and scientific fields, commensurate with their scientific ranking and in line with present and future needs, based on the principles and considerations of town and country planning, (3)
15. Enhancement of the appropriate role of man and woman in the family and the Islamic society, through the improvement of the mechanism for recruitment and educational guidance of university students, (3)
16. Allocation of resources to educational and research institutes, with a view to the principles of decentralization and mission-orientation, for the subjects needed by every region of the country, (3)
17. Support for the formation and development of non-governmental educational institutions, based on the objectives and values of the national science master plan, (3)



18. Establishment of incentive mechanisms for the promotion of healthy competition in the activities of higher education and research institutes, (4)
19. Promotion of research-orientation in education and problem solving-orientation in research, (4)
20. Support for the application of new educational technologies and methods in higher education, (4)
21. Redefinition of the system of promotion of university faculty members and researchers, based on qualitative standards, objectives, and values of national science master plan, (4)
22. Design and employment of appropriate incentive mechanisms for the attraction of committed and elite university faculty members, (4)
23. Facilitation of permit acquisition and activities of non-governmental research institutes; and creation of a system of ranking and scientific promotion for their researchers, (4)
24. Establishment of an appropriate mechanism for the fulltime presence of faculty members in universities; and enhancement of the interaction of instructors and university students outside of the classroom, with a view to student development, (4)
25. Development of a system of e-learning and information technology and communication infrastructures in the fields of primary, secondary and higher education, (5)
26. Expansion of the share of general education in the government's budget and its implementation, (6)
27. Enhancement of public participation in education, with the preservation of the policymaking and supervisory functions of the system; through facilitating the establishment of non-governmental schools, support of educational activities, encouragement of endowers and philanthropists, and assistance in the expansion of successful schools, (6)
28. Support for non-governmental institutions, with a view to the development and support of contents, and educational equipment and aides, (6)
29. Establishment of a ranking system for schools and educational institutions; with a view to the creation of transparency in performance, enhancement of quality, and strengthening of incentive for competition, (6)



30. Creation of a system of assessment, evaluation, and quality assurance for the official and general education and development in the country, (6)
31. Formulation of mechanisms for the assessment of the abilities of students and teachers and the performance of schools, independent of the executing educational institution, (6)
32. Continuous scanning of environmental conditions, with a view to sustained and dynamic responsiveness of education and development to the present and future needs of the society, (7)
33. Development and empowerment of students in religious, family, social, biological and physical, artistic, vocational, scientific, and technological affairs, with a view to their entrance into various areas of life and society and avoidance of absolute orientation of general education toward higher education, (7)
34. Revision and reproduction of educational and developmental contents, aimed at the deepening of Islamic education and religious life and belief in and adherence to the values of the Islamic Revolution in students and university students, and their acquaintance with the Islamic culture and civilization, (7)
35. Revision of educational contents and methods, with an emphasis on the improvement of perspectives and skills, together with the provision of information and knowledge; aimed at the transfer of basic scientific concepts, creation of interest in students for science, inculcation of the spirit of self-belief, and empowerment of students, (7)
36. Enhancement of the status of kindergartens and preschool education in the educational system, with a view to the development of the required talents and skills, and the spirit of discovery, (7)
37. Establishment of necessary mechanisms for the growth of scientific, artistic, and vocational creativities; and development of logical and rational thinking and the spirit of discovery in students, (7)
38. Enhancement and support of vocational education, through focus on policymaking and supervision, together with the strengthening of participation of non-governmental sectors, (7)
39. Orientation of educational and educational-aide books, periodicals, websites, and weblogs toward Islamic education and development and the defined objectives of the system of education and development, (7)



40. Enhancement of the status of human and Islamic sciences in the system of education and development; and orientation of the elite toward the study of these disciplines, through the qualitative improvement of contents and educational methods, (7)
41. Enhancement of the attractiveness of Quranic education; and improvement of educational methods for the education of religion and Arabic language, (7)
42. Strengthening of the system of talent identification, and educational guidance and counseling in general education; and revision and reproduction of educational and research contents and methods, with a view to the realization of the distinctive status of men and women in the Islamic society, (7)
43. Strengthening of the interaction between mosques and schools, with a view to the enhancement of the mosques' role in the religious education of local communities, (7)
44. Establishment of the system of professional competency of teachers, aimed at the ranking of jobs and vocations, (8)
45. Establishment of the system of meritocracy; and the formulation of mechanisms for promoting responsibility and accountability in the managerial ranks of the education system, (8)
46. Planning for the selection and recruitment of committed and expert human resources for teaching positions; and continuous enhancement of their level of perception, competency, and knowledge, (8)
47. Design and implementation of a comprehensive system of teachers' education, (8)
48. Enhancement of the livelihood, social status, and scientific and practical competencies of teachers; and formulation of a necessary mechanism for them to focus on teaching and allocate parts of their working hours to research and study, (8)
49. Expansion of authority and responsibility of school managers, within the framework of programs and continuous evaluation of education and development, (9)
50. Expansion of the cooperation of students' parents with schools and the education of families, (9)
51. Formulation of a comprehensive program for cooperation between families and educational and developmental institutions. (10)



Macro Strategy 7

Orientation of education, research, technology, and innovation toward the resolution of problems and fulfillment of the real needs and requirements of the country, with a view to the town and country planning and cutting-edge innovation in science, in order to achieve scientific authority

National Strategies:

1. Organization of the system of management of research in the country,
2. Continuous and dynamic policymaking and planning in the field of science and technology, in line with the fulfillment of societal needs, world developments, and achievement of scientific authority by the country,
3. Policymaking and planning in the field of defense and security sciences and technologies, within the framework of the approved policies of the Supreme Council on National Security,
4. Development and harmonization of infrastructures, resources, and equipment, in line with the policies and strategies for the advancement of science, technology, and innovation,
5. Enhancement of the level of productivity indicators in the national system of science, technology, and innovation,
6. Organization of scientific refereeing, aimed at the enhancement of the quality of scientific journals and publications.

National Measures:

1. Assessment and classification of research institutes and determination of their appropriate organizational structural position among ministries, and scientific, industrial, and executive organizations; and clarification of their missions, (1)
2. Enhancement of the efficiency of research centers affiliated with executive bodies, with an emphasis on problem solving and fulfillment of the needs of such organizations; and reduction of research activities that may be carried out by other research and academic centers, (1)



3. Formulation of special mechanisms for the promotion of researchers at research centers affiliated with executive bodies, as a means of encouraging developmental and applied research, (1)
4. Requiring executive bodies to compile documents for strategic change in science and technology relating to their related fields, (2)
5. Enhancement of education, research, and technology in the priority areas of science and technology; and orientation of resources and governmental and public allocations toward them, (2)
6. Support for the development of interdisciplinary sciences and technologies, (2)
7. Consideration of the level of fulfillment of societal needs in the criteria for the ranking of research and academic centers; and in the incentive system for researchers and technologists, (2)
8. Support for science and technology areas necessary for the preservation of the country's independence and the fulfillment of the elementary needs of the society, such as culture, health, food, housing, employment, and marriage, (2)
9. Special support for top academic and research centers, in line with the achievement of scientific authority, (2)
10. Development and enhancement of mechanisms that enable the society to benefit from the abilities and competencies of skilled persons and the elites with no educational degrees, (2)
11. Redefinition of the status and mission of science academies and educational and research institutions in the analysis of the course of development of science in the country; and provision of recommendations for the advancement of scientific frontiers and theorization, (2)
12. Creation of a coordination body for executive planning and prioritization in the field of sciences and technologies relating to defense and security, with the participation of the members of related organizations (with due consideration for the approved policies of the Supreme Council on National Security), (3)
13. Elaboration of documents and models for the advancement of science and technology in the field of defense and security, (3)
14. Support for the creation and development of national laboratories and centers for special services in priority areas, (4)



15. Support for the creation and development of specialized laboratory networks in priority areas; and formulation of appropriate incentive mechanisms for voluntary participation in these networks, (4)
16. Elaboration of indicators for the measurement of productivity in the system of science and technology; and their monitoring, (5)
17. Support for national excellence awards and enhancement of performance in science, technology, and innovation bodies, (5)
18. Enhancement of spiritual, financial, and material incentive mechanisms aimed at the enhancement of the quality of scientific refereeing, (6)
19. Establishment of ranking mechanisms for referees; and standardization and education of methods of scientific refereeing. (6)

Macro Strategy 8

Development and empowerment of human capital with emphasis on the cultivation of virtuous, entrepreneurial, self-believing, and creative persons, capable in generating science, technology, and innovation, in line with Islamic values and societal needs

National Strategies:

1. Enhancement of the national system of educational guidance, counseling, and talent identification,
2. Improvement of the human resource pyramid of the system, aimed at the realization of the growth and development programs of educational and research institutions,
3. Promotion of meritocracy as a basis for the appointment of individuals in managerial positions relating to science and technology,
4. Enhancement of scientific and research cooperation among researchers, university faculty members, university students, and seminarians in various fields of science and technology,
5. Enhancement of the productivity of human resources in scientific and research institutions, including faculty members of universities and post-graduate students; strengthening of the spirit of jihadi endeavor; and promotion of interaction among



teachers and learners,

6. Optimal utilization of the capacities and experiences of the elite, scholars, university faculty members, and employed and retired managers of the governmental, non-governmental, and private sectors in education and research.

National Measures:

1. Design and implementation of a comprehensive system for guidance, counseling, and talent identification, aimed at the orientation of students and university students toward scientific fields in line with the priorities of the country, based on their talents, interests, and abilities, as well as the priorities of the country, (1)
2. Expansion of the capacity to attract and exploit expert human resources of the country in governmental and non-governmental scientific centers, (2)
3. Redefinition of the system of appointment and promotion of managers in educational and research institutions, academics, and researchers, in accordance with qualitative criteria; and enhancement of the system of meritocracy in educational and research institutions, (2 and 3)
4. Support for the fulltime activities of university faculty members, through meeting their welfare expenses, and the fulltime activities of PhD candidates, through meeting their educational and livelihood expenses, with the monitoring of their supervisors, (5)
5. Allocation of stipends to post-graduate students, as a means of supporting dissertations and research activities, with the monitoring of their supervisors, (5)
6. Enhancement of the research competencies of researchers and faculty members of universities; and increasing access to sources of information, (5)
7. Formulation of developmental and cultural programs at various levels, in line with the realization of the ideals of the glorious Islamic Revolution, (5)
8. Designing of a mechanism for the part-time collaboration of the elite, scholars, university faculty members, and the employed and retired managers and specialists of the governmental and non-governmental sectors in educational and research institutions. (6)



Macro Strategy 9

Active and effective interaction in the field of science and technology with other countries, regional and Islamic countries in particular

National Strategies:

1. Development of Persian language as an international scientific language,
2. Development and enhancement of networks for national and international relations between scholars and researchers; and international cooperation, especially with Muslim and Persian-speaking countries,
3. Improvement of the rules and mechanisms for the recruitment and promotion of researchers, allocation of incentives, scholarships, sabbaticals, and stipends, with a view to increasing international cooperation among researchers,
4. Active cooperation with the Islamic world; and assumption of a pioneering role in the generation of scientific knowledge required by the new Islamic civilization,
5. Planning aimed at achieving first position in science and technology in the region and the Islamic world.

National Measures:

1. Increasing the enrollment of foreign students, with a view to the promotion of Persian language and preparation of the ground for the scientific authority of the country, with emphasis on Islamic and neighboring countries, (1)
2. Enhancement of the efforts to coin synonyms for foreign scientific terms, in all fields; and emphasis on the compilation of specialized-scientific articles in lucid Persian prose, (1)
3. Development and formulation of simple and quick methods for the learning of Persian language, (1)
4. Support for the establishment of Persian language courses in various universities in the world, (1)
5. Improvement and change in language teaching methods, at all levels of general educa-



tion; Arabic and English languages in particular, (2)

6. Establishment and development of science and technology representatives at the embassies of the Islamic Republic of Iran, relating to priority areas, with a view to the transfer of global achievements and experiences in advanced technologies, as well as the exportation of the achievements of the Islamic Republic of Iran in the field of technology to other countries, (2)
7. International cooperation, especially with Islamic countries, based on the relative advantages and resources of every country. (2)
8. Establishment of research networks within and outside of the country, aimed at dissemination and exchange of knowledge and technology, with an emphasis on national priorities and exploitation of international opportunities, (2)
9. Creation of international research centers, with a view to the expansion of international cooperation, especially with the countries of the Islamic world, (2)
10. Focus on the organization of regional and international seminars and translation of Irano-Islamic works into various languages of the region and the world, (2)
11. Enhancement of the flow of useful information in the field of science and technology; and expansion of the activities of the country's scientific associations and research bodies at the international level, with emphasis on the countries of the Islamic world, (2)
12. Organization of international interactions and communications, relating to the field of science and technology, among organizations, forums, scholars, and experts; and expansion of the number of joint scientific gatherings, (2)
13. Support for international research and technology projects with joint investment; facilitation of cooperation with international technology institutes; and expansion of technological interactions with countries with advanced technology; through such methods as participation in consortiums, in line with the policies of the system, (2)
14. Preparation of the ground for the participation of Iranian scholars in top global gatherings and centers; and making use of recognized international scholars in Iran; with a view to the exchanging of opinions and introduction of new scientific findings, with an emphasis on the countries of the Islamic world, (2)
15. Transformation of the phenomenon of the migration of the elite to an opportunity for the spread of the perspective and logic of the Islamic Revolution throughout world, (2)



16. Creation of support mechanisms, and granting of scholarships, sabbaticals, and stipends, aimed at the expansion of international cooperation among universities and their participation in international scientific forums and networks, (3)
17. Enhancement and development of the system of cooperation of the universities of the country with major international counterparts, especially with those in the Islamic world, with an emphasis on post-graduate studies and joint projects, (3)
18. Improvement of the rules and regulations relating to the transfer of technology to the country; and creation of bodies for the localization and transfer of technology to the country and vice versa, (3)
19. Support for necessary studies for the identification, method of empowerment, and scientific and research needs of the Islamic world and regional countries, (4)
20. Translation of Irano-Islamic scientific sources; and submission of Persian-language reference works, including the scientific publications and theories of the scholars of the country, to major centers and libraries of the world, (4)
21. Exploitation of global opportunities and national capabilities for the development and advancement of the fields of human and social sciences, based on the principles and values of Islam, (4)
22. Active participation in the formulation of criteria and objectives of the system of validation and ranking of higher education institutions in the region and the Islamic world, (4)
23. Enhancement and development of inspiring and effective cooperation with the universities of the Islamic world; and exploitation of the capacities of the universities of the countries with advanced science and technology; through the exchange of university instructors and students, and implementation of joint educational courses on priority subjects, (4)
24. Encouragement of the effective participation of Iranian and foreign specialists and researchers residing abroad, (5)
25. Support for the presentation of major scientific articles at the international level, as well as for the registration of inventions and discoveries. (5)



Macro Strategy 10

Transformation and quantitative and qualitative enhancement of humanities and arts in accordance with Islamic sciences

National Strategies:

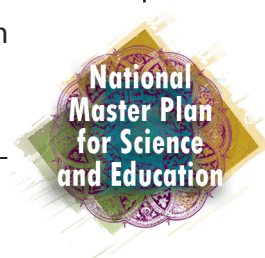
1. Targeted development of human sciences, based on the divine human nature and Islamic sciences; and organization of their teaching and research,
2. Enhancement of effective cooperation between the seminary and academia, with a view to the production of human sciences and arts,
3. Promotion and deepening of criticism and debate; and expansion of university chairs for theorization in the field of human sciences, arts, and Islamic sciences,
4. Expansion of interdisciplinary approaches within human sciences and between human sciences and other disciplines, based on the Islamic perspective and aimed at the fulfillment of scientific and social needs,
5. Establishment of special support structures for the qualitative development of human and Islamic sciences,
6. Development and localization of arts and applied human sciences; and the harmonization of their disciplines with the real needs of the country,
7. Organization and targeted enhancement of foreign language education, with a view to its qualitative transformation,
8. Preparation of the ground and strengthening of support structures for the growth of responsible art,
9. Support for the development of basic and applied education and research in the field of responsible art.

National Measures:

1. Support for the production and increased applicability of human sciences, with an Islamic orientation, (1)
2. Formulation of a mechanism for updating the educational contents of human sciences and art courses, based on Islamic principles; and supervision over their qualitative

enhancement, (1)

3. Reform of the teachings of human sciences, with a view to increased emphasis on fundamental studies and comprehension of the principles, foundations, and basic rules of these sciences, in accordance with the fundamentals of Islam, (1)
4. Expansion of fundamental research in the field of human sciences, based on the fundamentals of Islam; and presentation of their scientific production to the world, (1)
5. Support for scientific associations, research institutions, and poles, jointly established by the seminary and academia, with a view to the formation and evolution of Islamic views and perspectives in the field of human sciences, (2)
6. Design and expansion of joint research programs, sabbaticals, and educational opportunities by the seminary and academia; and establishment of joint research and educational centers, (2)
7. Creation of necessary mechanisms for the training and recruitment of teachers, trainers, and instructors of Islamic and human sciences, in schools and universities, using the capabilities and capacities of seminaries, (2)
8. Formulation of necessary rules and regulations; and enhancement of university chairs for theorization, criticism, and debate, aimed at the production of human sciences and achievement of scientific authority, (3)
9. Creation of incentive mechanisms for theorists in the fields of human and Islamic sciences; and dissemination of their achievements, (3)
10. Elevation of the university chairs of theorization to the international level, with an emphasis on the Islamic world, (3)
11. Formulation of necessary mechanisms for the strengthening of critical and comparative confrontation with translated texts in human sciences, (3)
12. Creation of interdisciplinary approaches between the branches of Islamic and other sciences, (40)
13. Support for the studies and creation of philosophies of various scientific disciplines based on the Islamic philosophy, (4)
14. Improvement of the process of talent identification and educational guidance, aimed at the attraction of top talents in human and Islamic sciences, (5)
15. Support for the establishment and activities of centers for the training of elite indi-



viduals in the field of human sciences, based on the fundamentals of Islam, (5)

16. Establishment of a system for the spiritual, financial, and material support for human science research based on Islamic principles, as well as for related works, dissertations, researches, and specialized-scientific seminars, (5)
17. Support for dissertations in the fields of human sciences and art, aimed at the fulfillment of the needs of the country, (6)
18. Support for the development of science and technology parks devoted to human sciences and art, based on regional and provincial needs and talents, (6)
19. Strengthening of grassroots organizations and scientific-professional gatherings in the field of human science research, based on Islamic principles, (6)
20. Reexamination of the quantitative and qualitative development of human science disciplines, and the level of student matriculation based on the needs of the society and employment opportunities, (6)
21. Development of human science disciplines and art, contingent upon the availability of appropriate scientific sources, based on the Islamic perspective and by instructors with competency in the knowledge of Islamic principles, (6)
22. Organization of institutes of foreign language teaching and diversification of their educational programs through clarification of the needs of the country for international interactions relating to science and technology, (7)
23. Localization and formulation of curricula and educational contents relating to foreign language teaching, with a view to the Islamic culture, (7)
24. Expansion of the use of Persian language in specialized scientific fields, with an emphasis on the coining of conceptual synonyms for technical terms, and their promotion in scientific forums; and endeavor to transform the Persian language into the language of science, (7)
25. Support for artistic products, with a view to the introduction of the values of the Islamic Revolution and the Holy Defense, (8)
26. Support for artistic products with a view to the enhancement of the scientific and tangible manifestations of responsible art in various aspects of life; and revival of forgotten traditional arts, (8)
27. Establishment of a system of legal registration of artistic works, (8)

28. Enhancement and establishment of interdisciplinary branches between art and other fields of science, based on Islamic teachings; philosophy, fiqh (jurisprudence), and art in particular, (9)
29. Elaboration, promotion, and deepening of courses relating to the theoretical foundations of responsible art; and expansion of the disciplines of local and regional art, within the framework of Islamic culture, (9)
30. Orientation of artistic education and research toward the realization of a responsible art; and criticism and assessment of the dominant manifestations of art in modern life, (9)
31. Preparation of the ground and strengthening of studies relating to the artistic introduction of Islamic sciences, with a view to increasing the effectiveness of religious sciences in the society, (9)
32. Support for the establishment and expansion of the activities of educational and research centers for Islamic art with the participation of seminaries. (9)

Macro Strategy 11

Orientation of the cycle of science, technology, and innovation toward a more effective role in the field of health and medicine

National Strategies:

1. Development and localization of health sciences and technologies in the country,
2. Expansion of education and research relating to the promotion of healthy and Islamic lifestyles, as well as social factors affecting health and hygiene.



National Measures:

1. Development of education and research relating to the fields of nutrition and prevention, with a view to the consumption of healthy food and preservation of the health of the society, (1)
2. Generation of knowledge with an emphasis on local diseases and problems, (1)



3. Strengthening of the link between health and clinical sciences, and the Islamic-Iranian traditional medicine with basic, Islamic, human, and social sciences, (1)
4. Organization of the market for health products and equipment in the country, with a view to the production of local sciences and technologies, (1)
5. Development of information and communication technology relating to health, aimed at the establishment of an electronic health system, and with consideration for Islamic ethics, social security, and individual privacy, (1)
6. Strengthening of the education system, with a view to the development of a human capital respectful of professional ethics based on Islamic teachings. (2)

Macro Strategy 12

Orientation of the cycle of science, technology, and innovation toward a more effective role in the field of technical sciences and engineering

National Strategies:

1. Special focus on need-oriented development of engineering sciences and technologies, aimed at the production and exploitation of competitive and wealth-creating technologies; together with the protection of the environment, optimal level of consumption, and observation of professional ethics,
2. Enhancement of support structures for the demand-oriented development of technical and engineering activities.

National Measures:

1. Strengthening of technical and engineering firms, aimed at the achievement of the capability for conceptual and basic design, (1)
2. Support for engineering design companies, with a view to their participation in international projects, (1)
3. Creation of necessary mechanisms for the facilitation and encouragement of the exportation of technical and engineering services, (1)



4. Delegation of major national research and technology programs to domestic experts, with a view to the enhancement of national self-belief and competency, in line with the fulfillment of the future needs of the country and the world, (1)
5. Elaboration of standards of professional ethics in engineering; and promotion and supervision of their enforcement, (1)
6. Encouragement of technical and engineering graduates to establish private and co-operative knowledge-based companies in science and technology parks and growth centers, through the provision of special facilities, (2)
7. Expansion and organization of professional engineering associations, with a view to increasing the applicability of technical knowledge produced in universities and research institutions. (2)

Macro Strategy 13

Development, deepening, and strengthening of education and research in the field of basic sciences

National strategies:

1. Encouragement and orientation of scientific and educational institutions toward the development of basic sciences, aimed at the expansion of scientific frontiers and fulfillment of the needs of the society,
2. Enhancement of the productivity of bodies and infrastructures relating to basic sciences.

National Measures:

1. Elaboration and support of major national programs relating to priority areas; and expansion of investment by industry and market sectors in them, (1)
2. Requiring and encouraging studies and applied and developmental research programs to earmark part of their allocations to related research in basic science, (1)



3. Promotion of theorization in basic sciences aimed at the discovery of new scientific paths and shortcuts, (1)
4. Revision and enhancement of methods and educational contents of basic sciences at all educational levels, (1)
5. Expansion of interaction between basic sciences and other scientific disciplines, (1)
6. Networking of educational and research institutions in the field of basic sciences, with a view to increasing coordination and cooperation; and enhancement of interdisciplinary research, through the sharing of resources and equipment, division of research activities, and recruitment of elite scientists. (2)





Part Five:

The Organizational Framework of Science, Technology, and Innovation

5 – 1. National Division of Labor in the System of Science and Technology

a) Macro Policymaking, Supervision, and Assessment

The macro and strategic policy and decision making in the system of science and technology; the updating and operationalization of the national science master plan, and its assessment and assurance of proper execution; the macro policymaking for international cooperation in science and technology; and the approval of national documents on priority technologies fall within the purview of the Supreme Council of Cultural Revolution and will be carried out in accordance with the council's approved mechanism.

b) Executive Policymaking, Coordination, and Integration of the Implementation of National Science Master Plan

In order to formulate, approve, and notify the executive policies of the national science master plan, design the mechanism for the realization of its objectives, improve the related structures and processes, create coordination and cohesion in its implementation, and supervise its proper execution, the Steering Headquarters for the Implementation of the National Science Master Plan is created, composed of the following persons:

1. The secretary of the Supreme Council of Cultural Revolution (chairperson),
2. Four real persons to be selected by the council,
3. The head of the Representative Organization of the Supreme Leader in Universities, with the permission of His Excellency,



4. The Minister of Science, Research and Technology,
5. The Science and Technology Deputy of the President,
6. The Minister of Health, Treatment and Medical Education,
7. The Minister of Education
8. The head of the Education and Research Commission of the Islamic Consultative Assembly,
9. The head of the Health and Treatment Commission of the Islamic Consultative Assembly,
10. A seminary instructor, to be selected by the Supreme Council of Seminaries,

Note: In consideration of the diversity of links between the system of science and technology and various cultural, industrial, manufacturing, and service areas, in cases of necessity, invitation will be extended to related ministers and heads of organizations to take part in related commissions.

c) Planning, Implementation and Culture-Building

The Ministry of Science, Research and Technology; the Presidential Science and Technology Bureau; the National Foundation for the Elite; the Ministry of Health, Treatment and Medical Education; the Ministry of Education; the science academies of the country; the University Jihad; the Presidential Center for Technology and Innovation Cooperation; other ministries, bodies, and science and technology institutions; the Islamic Republic of Iran Broadcasting (IRIB); the Ministry of Culture and Islamic Guidance; and other promotional and cultural bodies and organizations of the country will cooperate with the Steering Headquarters for the Implementation of the National Science Master Plan in the process of operationalization and culture-building of the master plan, within the framework of the approved policies of the Supreme Council of Cultural Revolution.



5 – 2. The System of Implementation, Supervision, Assessment, and Updating of the National Science Master Plan

The adoption of necessary measures at various layers of the system of science and tech-

nology, and the accurate and transparent elaboration of the activities and interactions among the components of the system, ensure the execution of the master plan and the enhancement of the country's productivity in this regard. In addition, the preservation and sustained functioning of the master plan is contingent upon the monitoring and control of its performance and ensuring its implementation within the defined timetable, as well as verifying the accuracy and validity of its various components. The monitoring and control of the master plan must ensure that the orientation of its execution system remains in line with the realization of its objectives; and that any material changes in the assumptions and environmental conditions and their impacts are identified and analyzed, and requisite corrective measures are approved by relevant authorities in an expedited manner. As a consequence:

1. The Steering Headquarters for the Implementation of the National Science Master Plan, through the establishment of necessary mechanisms and utilization of various bodies, in addition to making necessary decisions and notifying the approvals, will be responsible for the supervision over the realization of the objectives of the master plan and assessment of its progress.
2. The Steering Headquarters for the Implementation of the National Science Master Plan, following the approval and notification of the master plan, shall, within specified intervals, complete and update the science and technology priorities of the country, provide relevant national documents, and determine the type of support needed in each area.
3. The Steering Headquarters for the Implementation of the National Science Master Plan, in collaboration with responsible bodies and organizations and research institutions, will complete and update the necessary science and technology indicators and targets.
4. The Steering Headquarters for the Implementation of the National Science Master Plan shall, in collaboration with relevant bodies and within a period of one year, compile a report on the present condition of science and technology in the country, based on the indicators of the national science master plan. In addition, it shall compile annual reports with regard to the assessment of the existing conditions of science and technology in the country, based on the latest status of the indicators, and shall submit them to the Supreme Council of Cultural Revolution.
5. The Steering Headquarters for the Implementation of the National Science Master Plan shall scan the conditions relating to the matriculation of university students in various educational levels and fields of study, in governmental and non-governmen-



tal universities, and compile annual reports on the extent of the country's need for these educational levels and fields of study, based on national priorities, threats and opportunities, and resources of the country. The reports, together with a list of measures carried out by the headquarters, shall be submitted to the Supreme Council of Cultural Revolution, with a view to the improvement of the existing conditions.

6. All executive bodies shall, within the framework of the executive policies of the Steering Headquarters for the Implementation of the National Science Master Plan, formulate their plans and programs for the implementation of the master plan and submit them to the headquarters for approval. The headquarters shall submit annual reports on the extent of progress and level of performance of the plans and programs of these executive bodies to the Supreme Council of Cultural Revolution.
7. In case the need arises for changes in legislation or approval of new legislation, the Supreme Council of Cultural Revolution will collaborate with the Islamic Consultative Assembly.
8. The Steering Headquarters for the Implementation of the National Science Master Plan, while scanning and monitoring environmental conditions, competitors, and global developments relating to science and technology, based on a futurist approach, shall regularly update the national science master plan and make submissions to the Supreme Council of Cultural Revolution for approval.

The National Science Master Plan , in five parts, was approved in the Sessions 662, 663, 664, 666, 667, 668, 670, 671, 672, 673, 674, 675, 676, 677, 678, and 679, dated 21/2/89, 4/3/89, 18/3/89, 15/4/89, 24/4/89, 26/5/89, 6/7/89, 20/7/89, 27/7/89, 4/8/89, 11/8/89, 18/8/89, 2/9/89, 30/9/89, and 14/10/89 HS, by the Supreme Council of Cultural Revolution, and is binding from the date of its approval. All previous approvals and policies in contravention of the above shall be null and ineffectual.

Mahmoud Ahmadinejad

President and Head of the Supreme Council of Cultural Revolution



محمود احمدی نژاد
رئیس جمهور و رئیس شورای عالی انقلاب فرهنگی