Tehran University of Medical Sciences
Institute for Environmental Research
Center for Water Quality Research

Strategic Plan of the Water Quality Research Center

2023-2027

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1. Introduction

According to the report of the Joint Monitoring Programme of UNICEF and WHO, currently, nearly 2 billion people globally lack safely managed water services, of which approximately 1.2 billion rely on basic water services. Regarding access to sanitation services, around 3.6 billion people worldwide are without safely managed sanitation. Thus, despite regular monitoring of sustainable development goals and improvements in water and sanitation services, we have yet to achieve complete sustainability in Goals 6.1 and 6.2 (access to safe water and sanitation) on a global scale.

In Iran, despite significant progress in improving safely managed water services (over 90%) and basic sanitation services (over 90%), challenges remain concerning safe water and sanitation services. Increasing population, unmanaged use of renewable water resources, and economic development not based on principles of balance between water, food, and energy resources have highlighted the challenges of water supply and quality. The quality of existing water resources has deteriorated due to the intrusion of industrial and emerging pollutants, emphasizing the need for strengthened and proper management perspectives on water resources, especially drinking water, which directly affects consumer health.

Given the necessity of improving water supply and sanitation services, developing innovative technologies for water provision, and producing research-based information to manage and address the qualitative and quantitative challenges of drinking water in the country, the Water Quality Research Center was officially approved in 2010 by the Council for the Expansion of Medical Universities under the Ministry of Health, Treatment, and Medical Education. It is currently active in providing research and educational services in this field.

With a team of specialized and dedicated experts, the center serves as an influential research institution and decision-maker in the field of water quality and related health impacts in the country. It collaborates closely with various national and international organizations and strives to create a platform for providing research, educational, and consulting services at national, regional, and international levels, based on stakeholder needs and participation.

The "Water Quality Research Center," with the support of the Ministry of Health and other relevant organizations and utilizing its scientific and research capabilities and those of other associated institutions, aims to play a significant role in producing research-based scientific information in the water sector.

In line with achieving the center's objectives and considering the needs of the water sector and related upstream documents, the center’s strategic plan was reviewed, and an operational plan for the period from April 2023 to March 2024 was presented. I would like to express my gratitude to the members of the research council and colleagues who contributed to the preparation of this plan.

Dr. Mahdi Hadi
Head of Center for Water Quality Research

2. About the plan

Plan Title: Strategic Plan for the Water Quality Research Center

Plan Timeline: 2023–2027

3. Plan Developer

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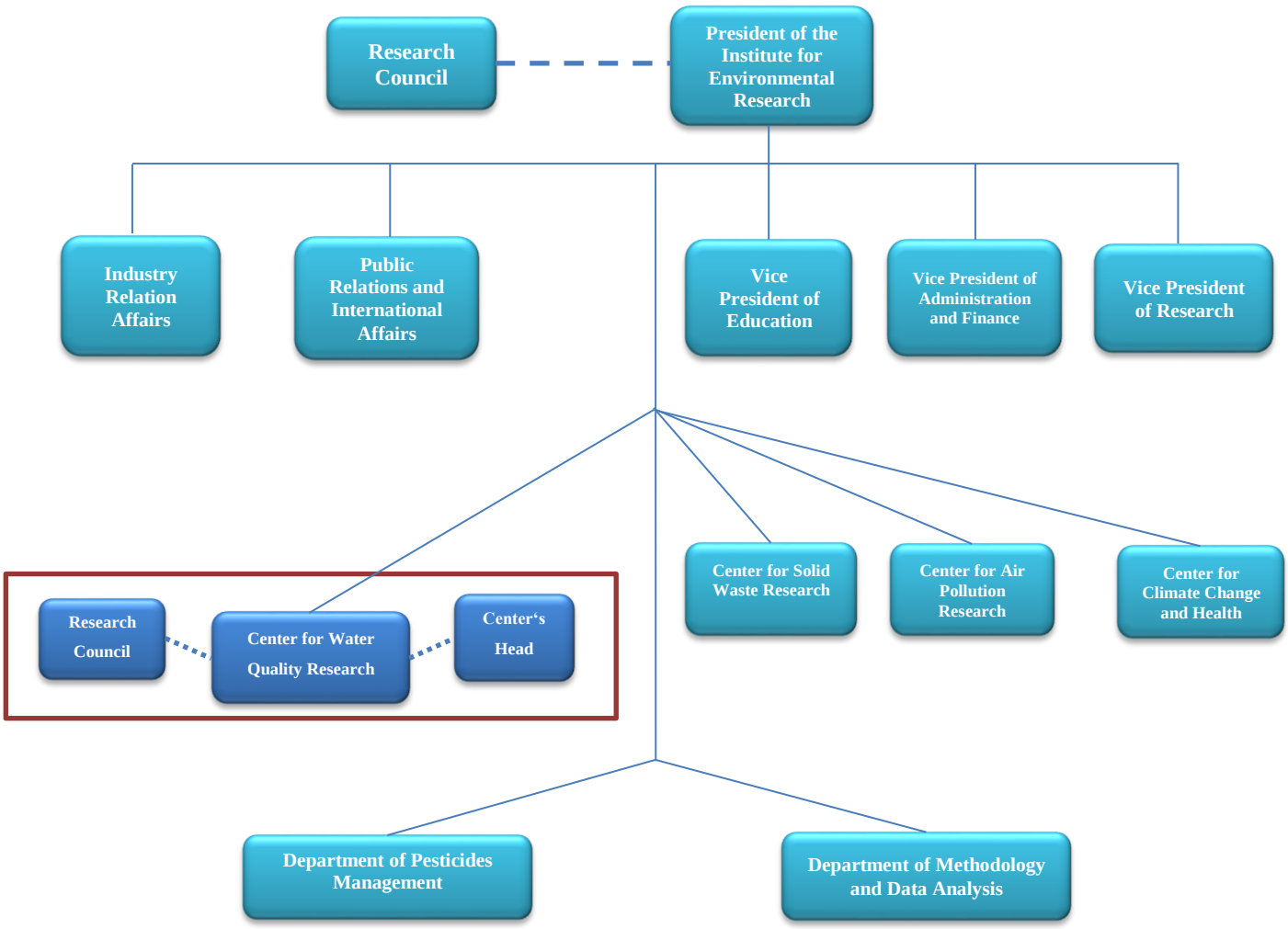
4. About the Center

4.1 History and Objectives of the Center

A decade into the 21st century, humanity continues to face diverse threats, with the changing living conditions in many parts of the world showing increasing instability. Population growth and economic development that does not adhere to principles of natural resource conservation, including water and soil, have exacerbated this trend. The quality of water resources has deteriorated with the emergence of new pollutants, underscoring the need to strengthen proper management perspectives on water resources, especially drinking water, which directly impacts consumer health.

Given the importance of generating research-driven information to manage and address the challenges related to water quality, access to water, sanitation, and personal hygiene, the Water Quality Research Center was formally approved in 2010 by the Development Council of Medical Universities at the Ministry of Health, Treatment, and Medical Education. The center operates under the Environmental Research Institute of Tehran University of Medical Sciences and is currently active in providing educational and research services.



5. Vision

The Water Quality Research Center, utilizing committed, specialized, and motivated human resources, as well as appropriate physical and laboratory facilities and equipment, serves as the scientific and technical arm of the health system for decision-making and policy-making in water quality and related diseases. It acts as a reference authority and collaborates with the World Health Organization and other reputable international organizations as one of the leading scientific research hubs in the region.

6. Mission

The mission of Water Quality Research Center, as the first specialized center in the field of water and its pollution in the health system, includes achieving the following goals:

1. Conducting research and publishing their results for the use of policymakers, scientists, industry, and society
2. Providing solutions based on scientific evidence for issues related to water pollution and its effects on health and evaluating their implementation
3. Providing the necessary scientific evidence and active participation to strengthen and strengthen the policies of the country's health system's policies regarding water pollution and related areas.
4. Development of researcher human resources
5. Acquiring modern science and technology, evaluating, localizing, and applying it
6. Expanding inter-sectoral, regional, and international cooperation with interested institutions and organizations to achieve common goals

7. Research Priorities

- Evaluation of the performance of systems, technologies, and conventional or innovative treatment methods in removing pollutants from water and wastewater.
- Monitoring chemical pollutants and quantifying the health impacts of exposure to these pollutants in drinking water sources and other recycled water sources.
- Monitoring microbial pollutants and quantifying the health impacts of exposure to these agents in drinking water sources and other recycled water sources.
- Assessment of access levels to water, sanitation, and personal hygiene, and development of guidelines and tools to monitor Sustainable Development Goals 6.1 and 6.2 at the household, school, and healthcare facility levels.
- Water reuse within the framework of the water circular economy while addressing associated health risks.
- Examination and comparison of water supply and sanitation systems or interventions from the perspective of short-term and long-term health effects.
- Evaluation of decentralized water supply and sanitation systems' performance for small communities and emergencies.
- Monitoring and assessing water consumption at the community level and providing solutions based on public education to reduce the water footprint.
- Develop or monitor water crisis indicators and provide solutions based on land-use planning to adapt to water scarcity crises.
- Investigation of the short-term and long-term effects of climate change on the quantity and quality of water, and on water and food security at national and regional levels.
- Design and development of educational and practical software for use in the field of water quantity and quality.

8. Research Line

Evaluation of water supply and treatment systems, assessment of the health impacts of exposure to pollutants in water supply, sanitation, and reuse systems, and the provision of related training and tools to maintain and enhance water security in the community.

9. Goals and Objectives

G1: Quantitative and qualitative improvement of the center's research activities.

S1: Follow-up on the approved research projects from the center's previous operational plan.

- **G1S1O1: Follow-up on research projects approved by the research institute.**
- **G1S1O2: Follow-up on projects approved in collaboration with industry.**
- **G1S1O3: Follow-up on projects approved by other supporting organizations (e.g., NIMAD …).**

S2: Submission and initiation of new research projects.

- **G1S2O1: Submission of new projects for approval by the center.**
- **G1S2O2: Securing grants for collaboration with industry.**
- **G1S2O3: Securing grants from supporting organizations (e.g., NIMAD, …).**
- **G1S2O4: Participation in postgraduate theses.**

G2: Membership and collaboration with committees, scientific associations, and other organizations at the national and international levels.

S1: Membership and collaboration with national committees and associations.

- **G2S1O1: Membership and collaboration with scientific committees.**
- **G2S1O2: Membership and collaboration with scientific associations.**

S2: Membership and collaboration with international committees and associations.

- **G2S2O1: Membership in educational and research groups related to WASH (Water, Sanitation, and Hygiene) at the international level.**

S3: Signing cooperation agreements.

- **G2S3O1: Signing agreements with other research centers.**

G3: Scientific Outcomes and Educational and Research Achievements

S1: Production of articles

- **G3S1O1: Publication of English articles in reputable international journals.**
- **G3S1O2: Publication of Persian articles in reputable domestic journals.**

S2: Production of specialized books

- **G3S2O1: Authoring specialized books.**
- **G3S2O2: Translating specialized books.**

S3: Student training

- **G3S3O1: Training PhD students in research-based programs.**
- **G3S3O2: Training postdoctoral researchers.**

S4: Development of tools and practical software

- **G3S4O1: Development of specialized tools and software related to water.**

G3S4O2: Development of practical tools and software needed by the center and research institute

G4: Enhancing the specialized capabilities of the institute's members and audience.

S1: Conducting workshops and webinars

G4S1O1: Organizing specialized workshops on water.
G4S1O2: Organizing specialized workshops on programming.
G4S1O3: Conducting educational webinars related to water.

S2: Hosting conferences and congresses

G4S2O1: Participating in the organization of conferences.

G5: Community engagement and public education

S1: Development of general educational guidelines

G5S1O1: Preparing educational guides for dealing with natural disasters.
G5S1O2: Preparing educational guides related to water supply and sanitation during natural disasters.
G5S1O3: Preparing educational guides on water consumption management.

S2: Participation in media-based educational programs

G5S2O1: Participation in educational radio and television programs.
G5S2O2: Giving interviews with media on water challenges.