

University of Tehran

Report presented to International
Association of Universities (IAU)

Strategic Framework for Involvement of Higher Education Institutions in SDG6



Prepared by:



Dr. Masoud Parsinejad

Associate Professor in Irrigation & Drainage Engineering, Faculty of Agricultural Engineering & Technology, College of Agriculture & Natural Resources, University of Tehran, Karaj, Iran.



Dr. Masoud Montazeri Namin

Assistant Professor College of Engineering / Faculty of Civil Engineering, University of Tehran, Tehran, Iran.



Dr. Farzam Pour Asghar Sangachin

Head of Department of Environment at the National Planning and Budget Organization, Tehran, Iran.



Dr. Sara Nazif

Associate Professor, College of Engineering / Faculty of Civil Engineering, University of Tehran, Tehran, Iran.



Dr. Seyed Peyman Badiei

Associate Professor, College of Engineering / Faculty of Civil Engineering, University of Tehran, Tehran, Iran.



Mohammad Ali Bani Hashemi

Associate Professor, College of Engineering / Faculty of Civil Engineering, University of Tehran, Tehran, Iran.



Dr. Amir Hossein Mahvi

Associate Professor, School of Public Health and Institute for Environmental Research, Tehran University of Medical Sciences, Tehran, Iran.



Mostafa Rahimi Jamnani

Department of Irrigation and Reclamation Engineering, College of Agriculture & Natural Resources, University of Tehran, Karaj, Iran.

Content

Foreword	3
Introduction	4
Sustainable Development Goal 6	5
The Roles of Universities in SDG6	6
Higher education as a responsible and globally aware organization	9
Principle approaches undertaken by higher education institutions	10
Education	11
Research	13
Promotion	14
Technology	16
Nonacademic Education and Training	17
Monitoring	18

Foreword

Thanks to the initiative launched by IAU, and based on expert advice of Working Groups for UT International Scientific Cooperation, in the context of the overall work fostered by the IAU HESD Cluster, University of Tehran has taken the responsibility to lead the work on SDG6: Clean Water and Sanitation.

This is due to its extended and comprehensive involvement in research and education in various aspects of water science and technology and management, since 1934.

University of Tehran is home to the Water Institute (UTWI), an organization mainly acting on a networking basis for coordinating interdisciplinary and joint applied research activities, between various divisions involved in water related activities within the University of Tehran and beyond.

Introduction

Clean, accessible water for all is an essential part of the world we want to live in and sufficient fresh water is available on the planet to achieve this goal. However, due to the poor global infrastructure, millions of people, including children, desperately suffer from inadequate water supplies, sanitation, and hygiene.



Water scarcity, poor water quality and inadequate sanitation negatively impact livelihoods, food security, and educational opportunities for underprivileged families across the world. More than two billion people are currently deprived of minimal access to freshwater resources. By 2050, at least one in four people is likely to face chronic or recurring shortages of fresh water. Distress from drought in the world's poorest countries further aggravates hunger and malnutrition. Fortunately, there has been great progress in the past decade in providing safe drinking water and sanitation for over 90% of the world population.

Sustainable Development Goal 6

Sustainable Development Goal 6 (SDG6) is one of 17 sustainable development goals established by the United Nations General Assembly in 2015. It calls for clean water and sanitation for all people. The official wording is to “ensure availability and sustainable management of water and sanitation for all”. The goal has eight targets to be achieved by 2030. Progress toward the targets will be measured using eleven indicators.

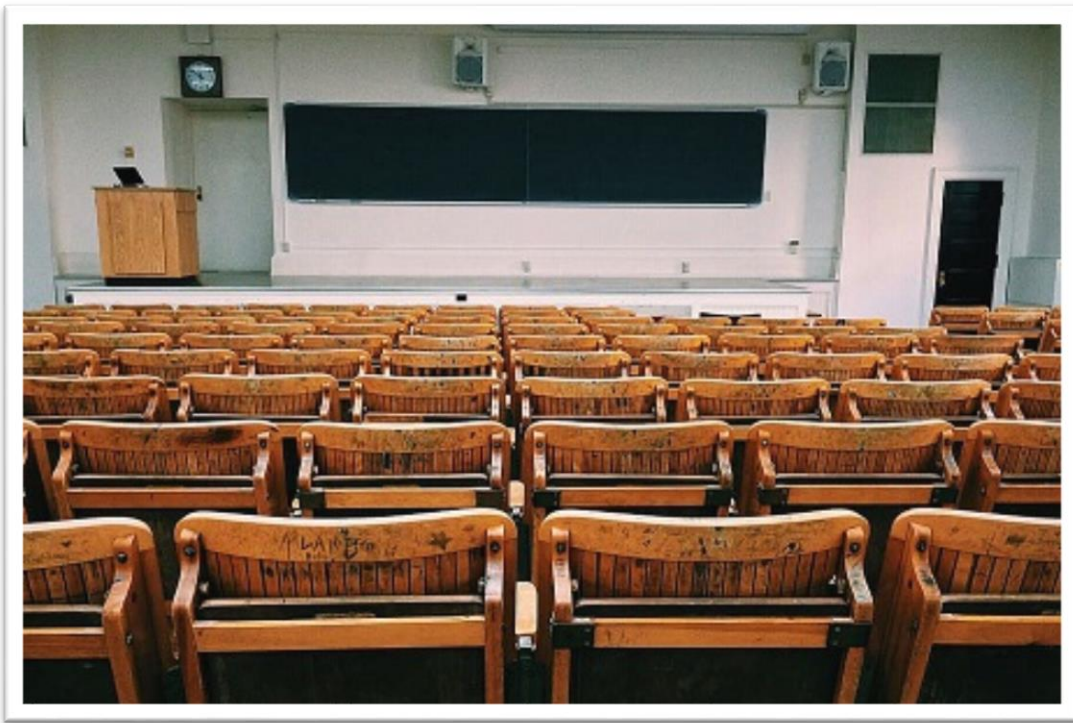
The tertiary education and scientific research sectors are explicitly recognized in a number of the SDGs; however, broad university contributions are needed to achieve all of these goals. The SDG agenda covers a wide range of interconnected social, economic, and environmental challenges and the distinctive role and expertise of universities are critical for overcoming all of these.



The Roles of Universities in SDG6

Providing the knowledge and solutions to support implementation of SDGs

New knowledge, innovation, and profound transformations are often required to facilitate decision-making to achieve challenging SDG targets. Universities play key roles in advancing public aptitude and creativity, both regionally and internationally. Higher education helps communities to understand the challenges and opportunities in SDG, identify and solve problems, develop and evaluate macro-policies and monitor SDG progress.



Creating implementers of SDGs

Higher education graduates are young people who aspire to build a better world. Universities nurture professional, creative people who can take a fresh look at societal issues. They can influence global development through the education of alliances with international students and alumni, developing international campuses, and capacity-building activities. Achieving SDG6 requires public participation. Higher education can help to achieve these goals by nurturing current and future leaders, decision-makers, teachers, inventors, entrepreneurs and citizens.

Embodying the principles of the SDGs through organizational governance, operations and culture

The university encompasses various communities, including students, professors, and staff, which can impact the surrounding community socially, economically, and environmentally. Universities can help to achieve SDG6 in a community by implementing the principles of SDG6 in their governance structure, operations and culture.

Providing cross-sectoral leadership in implementation

Universities, as neutral and reliable stakeholders in society, must provide the capacity and responsibility to guide local, national and international communities toward partnerships for the implementation of SDG6. They also play an important role in educating the public and other sectors about SDGs and supporting the importance of SDGs.

Given the importance of SDG6 governments, businesses, investors, and various civil communities are encouraged to pay particular attention to water and sanitation. In return, higher education can benefit from the support of SDG6. Some of these benefits include:

Demonstrating the impact of the universities on communities

The achievements of SDG6 with the participation of universities can demonstrate the role of higher education in improving water and sanitation standards within a community.

Meeting the need for SDG6-related training

SDG6 target audiences embrace both the young and the old. As governments focus on achieving SDG6 goals, the need for university graduates who understand and can implement the SDG6 agenda will grow. Early adoption of SDG-related education will further improve the capacity of an institution to meet ever-changing circumstances.

External and internal partnerships

SDGs provide a framework for departments and organizations to work together to achieve their common interests. Universities can create new partnerships with government, industry and society for research and education.

Access to funding

Various donors, including government agencies, international banks and philanthropists, increasingly are investing in SDG6 as well as other sustainable development goals.



Higher education as a responsible and globally aware organization

Higher education institutions, including universities, are looking to address global challenges and meet the needs of the community. Higher education partnerships can support the introduction and education of proper implementation of SDGs. Therefore, universities are considered as vital contenders in the support of SDGs as part of their social mission and core functions.



As mentioned, higher education is essential to achieving sustainable development goals. It is two-way communication. While facilitating the path to securing sustainable goals, higher education institutions can boldly establish their role in the advancement of society and, in the meantime, benefit economically and socially. Activities of higher education towards achieving SDG6 are listed below.



Education, Research, Promotion, Technology, Nonacademic Education and Training, Monitoring

Higher education institutions (HEIs) are actively involved in interrelated disciplines. Here, each area is further classified based on the scope of the activities undertaken.

Education

Education is the foremost task entrusted to HEIs. It is an ever-changing measure to ensure the training of a skilled workforce for the development of society at the local, national and international scales. Education is fundamental and resilient and ranges from basic to advanced levels; it has no ceiling or limits. The following list covers the role of HEIs in achieving SDG6, as well as other sustainable development goals. Education can be subdivided into the following categories, each covering a core function of academic education.

Introduction, Revision, Development, Upgrading, Upscaling

Higher education institutions can play a major role in the physical and qualitative development of academic education as exemplified in the following domains. These are basic frameworks for defining the role of HEIs in achieving SDG6 targets. The following list is not prioritized, as the precedence of institutions and societies can vary and develop over the time, depending on background.

- Revision of education to focus on SDG6
- Upgrading educational methods
- E-learning
- Updating water, sanitation and hygiene (WASH) and related course syllabuses
- Upgrading existing WASH-related university majors (BS, MS, and PhD levels)
- Introducing new WASH-related university majors
- Developing of WASH-related minor degrees
- Student and faculty exchange programs at the national or international levels
- Providing scholarships, especially in least-developed countries
- Facilitating WASH-related course exchanges among different majors
- Introducing interdisciplinary WASH programs
- Conducting seminars and workshops
- Facilitating industry and university partnerships
- Offering courses designed and conducted by industry
- On-the-job training programs for industry (on demand)

- Considering successful experiences in SDG6 related fields in courses at different educational levels
- Defining voluntary SDG6-related projects, especially at BS level, to familiarize students with existing challenges and obstacles
- Identifying educational gaps and deficiencies based on each SDG6 target:
 - course syllabus
 - degrees
 - course combination
 - specialized personnel



Research

The achievement of development goals requires addressing novel and complex scientific, social, economic, and political challenges. HEIs with research capacity can help governments, decision-makers, and administrators solve problems to meet SDG6. Overall, research can be categorized into problem definition, procedure, investigation, analysis, synthesis, conclusions, products and by-products.

- Defining tangible indicators
- Identifying existing technical and social gaps
- Identifying barriers to reaching SDG6 targets (not limited to barriers in HEIs)
- Barriers associated with HEIs
- Required basic research facilities
 - professionally equipped labs
 - libraries (books and journals)
 - computer facilities
 - internet access (public and subscription)
 - access to WASH-related databases
 - financial assistantships



Promotion

HEIs are vital for promoting the importance and challenges of the introduction, definition, encouragement and implementation of the public role in decision-making as regards to SDG6. This assignment can be categorized as follows:

- Active participation of HEIs in public media
- Critical analysis of public decisions
- Advocating a responsive atmosphere
- Advocating active participation of students in education
- Promoter training
- Promoting the art of conveying success to:
 - The public
 - Government authorities
- Barriers
 - Identifying means of implementation, which will vary depending on the infrastructure of governments and specifics of targets
 - Identifying limitations and potential barriers to HEIs
- Needs assessment
 - Through higher education research
 - By interaction with government and industry
- Matchmaking forums
- Requirements
 - HEI-industry interaction
 - Grants
 - Commercialization
 - Patent valuation and rights preservation
 - Increased emphasis on research-based post-graduate degrees, as compared to course-based degrees
 - Promotion of participation of students in voluntary research programs
 - Introduction of WASH-based programs
 - Budget allocation from industry for results-oriented research
 - Confidence building in HEIs in both governmental and private sectors
 - HEIs must be able to prove their competence

- Branding process
- Marketing
- Outsourcing
- Financial incentives for innovative research ideas and proposals
- Benefiting from international experience
- Requests for proposals on general and specific topics
- Initiating international joint research projects
- Conducting international joint workshops
- Conducting research-methods courses in universities
- Centralizing national research facilities
- Maintaining regular surveillance over projects (product- or outcome-based)
- Research management networks
- Detailed research steps (process)
- Research project breakdown structure
 - Synthesis of results; outcome-based (results-based)
 - Revision
 - Upgrading
 - Upscaling

Technology

HEIs are pioneers in the research and development of techniques that promote SDG targets. Their roles in advancement of technology can be summarized as:

- Patent protection
 - support patent production
 - technical advisory
- Idea ownership
- Intellectual property
- Promoting startups and innovations
- Commercialization of research products
- Technology development
 - Lab services
 - Pilot development
- Upscaling
- Branding support
- Technology management networks
- Local and traditional technology
 - Recognition
 - Development
 - Promotion
 - Protection



Nonacademic Education and Training

In addition to academic education toward a degree, HEIs often are involved in educating the public in different areas. The roles of HEIs in the form of nonacademic education can be classified as follows:

- Government participation
- Educating public authorities
- Interaction with public
- Interaction with government
- E-learning
- Adult education
- Education of women
- Conducting seminars and workshops
- Facilitating industry and university partnerships
- Offering courses designed and conducted by industry



Monitoring

The involvement of the public, officials, administrators, contractors, and promoters in the implementation and promotion of SDG6 targets should be monitored and assessed. HEIs can assume this role under supervision, as listed below.

- Identification of national SDG6-related programs in governmental and non-governmental organizations
- Survey of accordance to present national programs with SDG6
- Identification of differences between present national program and SDG6
- Developing a university partnership program to achieve SDG6
- Developing monitoring structures for programs and indicators
- Monitoring based on SDG6 indicators at specified intervals (e.g. every two years)

