ISLAMIC WORLD ACADEMY OF SCIENCES

Newsletter

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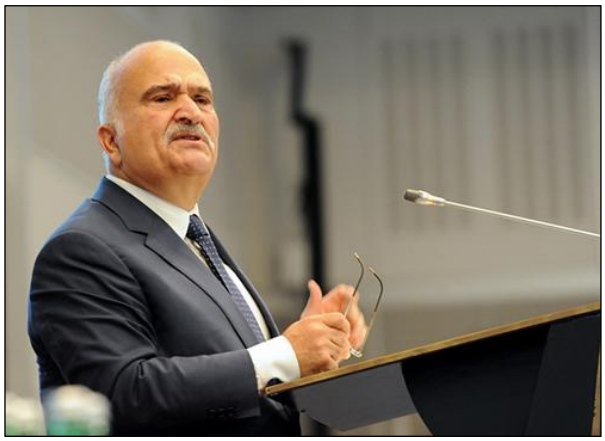
A CALL TO TAKE PRACTICAL ACTION UPHOLDING HUMAN DIGNITY IN A CHANGING WORLD*

HIS ROYAL HIGHNESS PRINCE EL HASSAN BIN TALAL
FOUNDING PATRON OF THE ISLAMIC WORLD ACADEMY OF SCIENCES (IAS)



In our era of rapid technological, social, and geopolitical change, the fundamental principles of human dignity have never been more important than they are today.

As the world confronts new challenges, ranging from widening inequality to the erosion of democratic norms and the incomplete application of international law, the inherent values and natural rights of every individual must remain at the forefront.

For decades, United Nations–affiliated non-governmental organizations such as the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) and the United Nations High Commissioner for Refugees (UNHCR), alongside international bodies such as the United States Agency for International Development (USAID) and non-governmental organizations like Mercy Corps, have played a vital role in delivering essential services, including education, healthcare, and emergency humanitarian assistance.

UNRWA alone is responsible for providing essential humanitarian services to 6.7 million Palestinian refugees across its five fields of operation throughout the region.

Other international donors, each acting in its own capacity, have also provided critical assistance and vital services to targeted populations, thereby contributing to stability within the host communities in which they operate. Today, however, these organizations find themselves at a crossroads, caught between increasing political scrutiny, disinformation or media defamation campaigns, funding cuts, and growing regional instability.

The recent decision to freeze funding and aid allocated to some of these organizations has raised serious concerns, rendering the future of humanitarian efforts increasingly uncertain.

A recent United Nations survey highlighted the far-reaching consequences of these funding reductions, warning of major

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disruptions to key UN agencies such as the World Food Programme (WFP), the World Health Organization (WHO), and UNICEF.

The findings of this survey are deeply troubling, ethically, humanitarianly, and developmentally. Through the member states of the United Nations General Assembly, the world has committed itself to the 2030 Agenda and the full implementation of the 17 Sustainable Development Goals, foremost among them Goal 17, which emphasizes partnership.

Last year, the United States, the world's largest single donor of aid, contributed more than 40 percent of the UN's humanitarian assistance budget. By way of example, USAID has provided more than USD 600 million in economic assistance to Palestinians in Gaza and the occupied West Bank since 2021.

The decline in financial support for these vital institutions threatens to deepen the suffering of the world's most vulnerable populations. Yet USAID itself is also facing increasing scrutiny. As former USAID Administrator Samantha Power recently affirmed, the politicization of aid poses a serious threat to long-term diplomatic and humanitarian efforts, undermining the stability and effectiveness of global assistance programs.

Similarly, UNRWA's mandate to provide education, healthcare, and emergency assistance to more than 6.7 million Palestinian refugees today underscores the agency's critical importance. A funding shortfall could deprive more than 700,000 Palestinian children of access to education and disrupt essential healthcare services for over three million refugees who rely on UNRWA for primary care.

The international community must recognize that UNRWA's work is a lifeline, not a political instrument, and that its continued operation stands as a testament to the world's commitment to safeguarding human dignity for the most vulnerable. Preserving the agency's operational capacity is an investment in regional and global stability, in peace, and in the future. What these vital institutions face today undermines their ability to fulfill their core missions.

Moreover, the "weaponization of aid," and the retreat of international cooperation instead of addressing existing and latent political conflicts, threaten to exacerbate the suffering of the most vulnerable populations in this new era in which the ethics of war and peace are being redefined.

In the 1980s, Jordan led the call for the establishment of a New International Humanitarian Order (N.I.H.O.). This initiative was joined by 28 members, including the five permanent members of the UN Security Council, placing the protection of every human being's dignity, the right to life, and the rights of future generations at the top of their priorities.

The responsibility to defend human dignity does not rest solely with policymakers and international institutions. Educators, religious and community leaders, and engaged citizens all have roles to play. By fostering values of compassion and justice among future generations, harnessing moral authority, and mobilizing collective action, we can work toward a world in which humanitarian principles prevail over political divisions, and in which the essence of human dignity is preserved at all times.

Protecting these vital institutions and the principles they embody is not merely a moral obligation; it is an urgent necessity for navigating the complexities of the twenty-first century with greater compassion, cooperation, and steadfast commitment to international law and human dignity.

PRINCE EL HASSAN CALLS FOR ETHICAL APPROACH TO PEACE DURING PARIS VISIT♦

HRH Prince El Hassan bin Talal, accompanied by HRH Princess Sarvath El Hassan, has concluded an official visit to Paris, marked by a series of high-level intellectual, scientific and diplomatic engagements.

During the visit, Prince El Hassan met academics and members of the "Académie des sciences morales et politiques", where he delivered an address calling for a redefinition of peace as an ethical responsibility that goes beyond political arrangements and short-term agreements.

He described Jerusalem as a mirror reflecting contemporary challenges to peace, noting that the holy city's stability over decades was rooted in a delicate balance based on inherited practices, recognised boundaries and mutual restraint, rather than the imposition of exclusive sovereignty.

Prince El Hassan said the "status quo" in Jerusalem should be understood not as a mere administrative arrangement, but as an expression of respect for the city's religious practices and historical responsibilities.

He warned against the politicisation of faith and the transformation of holy sites into arenas of confrontation, which threaten Jerusalem's human and pluralistic character and undermine the security and presence of its Christian and Muslim communities.

Cautioning against the dehumanisation of Muslims and Arabs and the normalisation of suffering, the prince stressed that reducing people to statistics erodes shared humanity, which he described as a moral imperative in addressing current global crises.

As part of his scientific programme, Prince El Hassan visited the European Space Agency (ESA), where he was briefed on advanced space technologies, including satellite systems capable of subsurface observation in arid regions, with potential applications in environmental research and resource management.

The prince met with ESA Director General Josef Aschbacher and senior researchers to discuss the role of the El Hassan Science City in advancing applied research, and highlighted a high-level academic visit to Amman in January by a delegation from Finland's LUT University.

In Paris, Prince El Hassan also held talks with officials and researchers at the French Institute of International Relations (IFRI), focusing on geopolitical transformations and the need for human-centred and culturally grounded approaches to cooperation, alongside economic and security considerations.

Prince El Hassan also met Antoine Petit, President and CEO of France's National Centre for Scientific Research (CNRS), where discussions centred on the role of scientific research in driving technological, social and cultural progress.

In a meeting coordinated with the Jordanian Embassy in Paris, Prince El Hassan, in the presence of Ambassador Lina Hadid, also met with a number of Arab ambassadors to UNESCO. Talks addressed interfaith dialogue, countering extremism, and the role of culture and education in promoting human solidarity.

The visit concluded with a tour of the National Library of France, where Prince El Hassan met its president, Gilles Pécout, to discuss the role of national libraries in preserving intellectual heritage and promoting free access to knowledge as a foundation for civilisational dialogue and mutual understanding.

During a guided tour of the library's museum, Prince El Hassan viewed rare collections of manuscripts, documents and artworks, underscoring the role of cultural institutions in safeguarding humanity's shared memory for future generations.

♦ *Source: https://jordantimes.com/news/local/prince-el-hassan-calls-for-ethical-approach-to-peace-during-paris-visit*
(Petra photo)

EMPOWERING JORDAN ECONOMICALLY AND SOCIALLY THROUGH FOSTERING ON INTEGRATION OF ACADEMIC, VOCATIONAL, AND TECHNICAL EDUCATION

Adnan Badran FIAS, FAAS
President, Islamic World Academy of Sciences
and President, Arab Academy of Sciences

The world we live in today is witnessing rapid , unprecedented transformations driven by the digital revolution, artificial intelligence, and profound shifts in production and work patterns. These changes have compelled countries, large and small alike, to reconsider their educational philosophies, the roles of their academic institutions, and their relationship with the labor market and society at large.

In this context, a fundamental question arises: How can education become a genuine instrument of economic and social empowerment, rather than merely a traditional pathway to obtaining certificates?

Throughout its modern history, Jordan has been a model of a nation that invested in people above all else, betting on education as the foundation of renaissance and the gateway to the future.

However, accumulated challenges, such as youth unemployment, changing labor market requirements, and the widening gap between educational outcomes and economic needs, now require us to move from diagnosis to reconstruction and integration.
The integration of academic, vocational, and technical education is no longer an intellectual option or a theoretical luxury; it is a national necessity and a comprehensive development strategy. Academic education provides the cognitive, intellectual, and research foundations; vocational education supplies the market with practical and craft-based skills; and technical education keeps pace with technological advancement, preparing competencies capable of working with intelligent and digital systems. When these pathways operate in isolation, we lose significant potential; when they integrate, we create real added value for both the economy and society.

Economic empowerment begins with empowering the learner through a flexible, diverse, and equitable education system, one that allows students to choose pathways aligned with their abilities and interests without discrimination, and that offers genuine opportunities for lifelong professional and academic development. It also begins with restoring the value of vocational and technical education, changing the stereotypes associated with it, and presenting it as a productive and honorable pathway that contributes to building the national economy and strengthening a culture of work and productivity.

We cannot discuss the future of education without addressing artificial intelligence, which has become a central element in reshaping teaching and learning systems. Artificial intelligence opens broad horizons for personalized learning, more accurate assessment, curriculum development, and connecting knowledge with application. At the same time, it imposes ethical and educational responsibilities to ensure the conscious and humane use of technology, one that serves values, enhances critical thinking, and does not eliminate the role of the teacher, but rather redefines it.

Social empowerment is no less important than economic empowerment. Integrated education contributes to promoting social justice, equal

opportunities, reducing regional disparities, empowering women and youth, and building a cohesive society that believes in science, work, and innovation. Moreover, the genuine linkage between education and scientific research on one hand, and industry and entrepreneurship on the other, constitutes a fundamental pillar of a knowledge-based national economy rather than a consumption-based one.

Advancing education is a collective responsibility shared by the state, educational institutions, the private sector, and civil society. It requires clear policies, smart investments, effective partnerships, and a genuine will for change. This forum, with the expertise and visions it brings together, represents a valuable opportunity for constructive dialogue, the exchange of ideas, and the formulation of practical, implementable recommendations that can place education in developing countries on a more integrated and sustainable path.

In conclusion, I firmly believe that Jordan possesses the human capacities, academic expertise, and innovative potential that qualify it to become a regional model in integrating academic, vocational, and technical education, and in harnessing artificial intelligence to serve comprehensive development.

Photos from the Fifth Educational Forum on Strengthening the Integration of Academic, Vocational, and Technical Education, held on 7 February 2026, in Amman, Jordan.

ZABTA SHINWARI FIAS … AS I HAVE KNOWN HIM

Adnan Badran FIAS, FAAS
President, Islamic World Academy of Sciences
and President, Arab Academy of Sciences

Prof. **Zabta Khan Shinwari**, stands among the most influential scientific leaders in the Islamic world, distinguished not only by his scholarly achievements but also by his enduring commitment to scientific ethics, institutional reform, and sustainable development. His career reflects a rare integration of research excellence, policy leadership, and moral stewardship of science.

A renowned molecular biologist and academic, Professor Shinwari has made substantial contributions to **plant sciences, biotechnology & biodiversity conservation**, with particular emphasis on medicinal plants and the protection of indigenous biological resources. His research has helped bridge traditional knowledge systems with modern scientific methodologies, promoting sustainable utilization of natural resources while safeguarding biodiversity. Through an extensive body of peer-reviewed publications, books, and research reports, he has contributed meaningfully to both national and international scientific discourse.

Prof. Shinwari's influence, however, extends far beyond his research output. He is widely recognized as a leading advocate for **research ethics, bioethics, and academic integrity**. At a time when rapid scientific advancement has raised complex ethical questions, he has consistently emphasized the need for strong ethical frameworks to guide research and innovation. His leadership has been instrumental in establishing and strengthening ethical review mechanisms, plagiarism control systems, and quality assurance structures within higher education and research institutions. These efforts have significantly contributed to improving trust, transparency, and accountability in scientific practice.

Throughout his career, Professor Shinwari has held several senior academic and policy positions, through which he has actively shaped **science governance and higher education reform**. In these roles, he has worked to enhance research standards, promote merit-based academic cultures, and align scientific priorities with national development goals. His approach has consistently underscored the importance of evidence-based policymaking and the central role of science in addressing societal challenges, including environmental degradation, public health, and food security.

As a **Fellow of the IAS**, Professor Shinwari exemplifies the Academy's core values of excellence, interdisciplinarity, and service to society. He has been a strong proponent of regional and international scientific collaboration, encouraging dialogue among scientists across borders and disciplines. His engagement with the IAS reflects a shared vision: that science in the Islamic world must be both globally competitive and locally relevant, guided by ethical responsibility and a commitment to human well-being.

Professor Shinwari has also been deeply involved in mentoring young scientists and academic leaders. He has consistently emphasized capacity building, critical thinking, and ethical awareness as essential components of scientific education. Through workshops, policy forums, and advisory roles, he has inspired emerging researchers to

pursue excellence while remaining mindful of the broader social and environmental implications of their work.

A defining feature of Professor Shinwari's legacy is his unwavering belief that **science and ethics are inseparable**. He has repeatedly argued that scientific progress devoid of ethical grounding risks undermining public trust and long-term sustainability. This perspective has resonated strongly within academic, policy, and regulatory circles, positioning him as a respected voice in debates on responsible research and innovation.

The Islamic World Academy of Sciences takes pride in counting Professor Zabta Shinwari among its Fellows. His career serves as a powerful example of how scientific leadership can transcend disciplinary boundaries to influence institutions, policies, and societal values. Through his scholarship, governance work, and ethical advocacy, he has contributed significantly to advancing science as a force for sustainable development and social good in the Islamic world and beyond.

As the IAS continues its mission to promote scientific excellence and cooperation, Professor Shinwari's contributions remain a source of inspiration. His work reminds us that the true measure of scientific achievement lies not only in discovery, but also in integrity, responsibility, and service to humanity.

Prof. Adnan Badran, President, IAS, with Prof. Zabta Shinwari, Vice President, IAS, and Prof. Elias Baydoun, Treasurer, IAS during a visit to the Federal Urdu University of Arts, Science & Technology (FUUAST), Islamabad, Pakistan.

Prof. Zabta Shinwar representing the IAS at the 7th OIC-COMSTECH Steering Committee Meeting in Islamabad, Pakistan.

Prof. Zabta Shinwari with Prof. Elias Baydoun and Prof. Iqbal Choudhary at the 25th IAS Conference in Islamabad, Pakistan.

Prof. Zabta Shinwari at the 24th IAS Conference in Karachi, Islamabad.

HIGHER EDUCATION IN THE GENERATIVE AI ERA: AN INEVITABLE PEDAGOGICAL PALIMPSEST*

Joelle Mesmar[1], **Adnan Badran[2]** & Elias Baydoun[3]

1 American University of Beirut, Beirut, Lebanon
2 University of Petra, Amman, Jordan
3 American University of Beirut, Beirut, Lebanon; eliasbay@aub.edu.lb

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Abstract

Artificial intelligence (AI), in various forms, has been around for decades. Particularly, in the last couple of years, its role in higher education has received a lot of attention, with a concurrent increase in the range of AI learning tools. It has been described as a disruptive technology with a transformative potential. Just a short time after COVID-19 hastened the integration of online learning into the educational process, higher education institutions are now faced with the challenge of adapting once again to a new reality and must decide whether to stand in front of the AI wave or embrace it. This chapter aims to present a brief history of AI before addressing where we are going in the context of higher education. This entails addressing opportunities and concerns, as well as future perspectives relating to the roles of the different stakeholders involved (the educator, the learner, and the institution) and the relationship dynamics among them.

Keywords: Generative artificial intelligence Transformative technologies Higher education Arab world

* https://link.springer.com/chapter/10.1007/978-3-031-99068-7_1

DAVOS 2026: KEY MESSAGES AND OUTCOMES

Adnan Badran FIAS, FAAS
President, Islamic World Academy of Sciences
and President, Arab Academy of Sciences

The annual World Economic Forum was held in Davos, Switzerland, from 19-23 January 2026, under the theme "Spirit of Dialogue," with participation from world leaders, heads of governments and international officials, as well as global business leaders, to discuss major challenges in economics, technology, climate, and global politics.

Main Discussion Topics

A. Global Economy and Growth

- Global economic growth is projected at approximately 3.3% in 2026, amid trade tensions, high public debt, and risks of asset bubbles.

B. Global Trade and Tensions

- Geopolitical trade tensions featured prominently.

Technology and Artificial Intelligence

- Artificial intelligence (AI) was one of the key topics, with emphasis on ensuring AI complements humans rather than replaces them, and on the necessity for trust, accountability, and transparency through legal and ethical frameworks.

International Politics and Peace

- The forum discussed international cooperation and peace, with active participation from various leaders, emphasizing the importance of multilateral dialogue amid global geopolitical complexities.

Global Health and Security

- Discussions focused on **preparing for future pandemics** and the importance of building **more integrated global health systems** capable of responding to epidemic threats.

Climate and Sustainability

- Despite reduced focus on climate compared to previous years, attention continued on investing in green growth and clean energy as part of efforts toward long-term sustainability and economic resilience.

Key Messages and Outcomes

- **International cooperation is essential** to address economic and political tensions.
- **Artificial intelligence should complement humans** and operate within ethical frameworks.
- **Investing in green growth and technology is key** to achieving sustainability.
- **Preparedness for future pandemics is a global imperative.**

Quick Summary

Area	Highlights
Global Economy	3.3% growth amid debt and trade risks
Trade &Politics	Protectionist tensions; priority on cooperation
Technology	AI requires reliable governance
Sustainability	Focus on green growth
Health	Global preparedness for pandemics

VISITORS OF THE ISLAMIC WORLD ACADEMY OF SCIENCES

Prof. **Adnan Badran**, President IAS, with Prof. **Mohamed AlNuaimi**, Lecturer, University of Jordan.

Prof. **Adnan Badran** receives a Chinese delegation at the World Affairs Council (WAC), Amman, Jordan.

PROF. KOICHI UNAMI FIAS VISITS IAS HEADQUARTERS

The Islamic World Academy of Sciences (IAS) was pleased to welcome its newly elected Fellow, Prof. Koichi Unami (Japan), at the IAS headquarters during his recent visit to Jordan. Prof. Unami was received by H. E. Prof. Adnan Badran, President, IAS, and a group of distinguished scientists, experts, and policymakers in the agricultural sector in Jordan.

Prof. Unami delivered a lecture highlighting his latest research projects, which sparked valuable discussion and an exchange of ideas among attendees.

Prof. Unami was presented with the IAS Shield and Pin by Prof. Badran.

Koichi Unami is an Associate Professor at the Graduate School of Agriculture, Kyoto

University. Born on 10 December 1969 in Tokyo, Japan, he holds Bachelor's (1992), Master's (1994), and Doctorate degrees (1999) from Kyoto University.

With 26 years of post-PhD experience, Prof. Unami specializes in water resources engineering, fluid mechanics, optimization, nonlinear dynamics, rural development, and research on arid and semi-arid regions.

He has led several major research projects funded by the Japan Society for the Promotion of Science, focusing on topics such as rainwater harvesting in the Fertile Crescent, sustainable rural development, irrigation optimization, and water resources portfolios in regions including Northern Iraq, Bangladesh, and the Dead Sea.
Prof. Unami has extensive teaching experience at both undergraduate and postgraduate levels and

has supervised 8 PhD and more than 34 MSc students, in addition to international co-supervision roles in Malaysia and Jordan.

He is the recipient of numerous awards, including the JRCSA Academic Award (2024), PAWEES Paper Award (2017), Sawada Award (2015), and others. He is also a Fellow of the Islamic World Academy of Sciences (FIAS). He has contributed widely to professional societies and committees and has authored over 97 journal papers, 42 conference papers, 7 book chapters, and one patent.

Prof. Adan Badran presented Prof. Koichi Unami with the IAS Pin.

Prof. Unami signing the IAS Charter Book.

Left to right: **Prof. Ayed Al Abdallat**, Former Dean, Faculty of Agriculture, University of Jordan, H.E. **Prof. Mahmoud Al Dwairi**, Former Minister of Agriculture, Jordan, Prof. **Abdullah Al Musa**, Former Secretary General, Higher Council for Science and Technology (HCST), Jordan, Prof. **Koichi Unami**, Associate Professor at the Graduate School of Agriculture, Kyoto University, H.E. **Prof. Adnan Badran**, President, Islamic World Academy of Sciences, Dr. **Abdullah Abo Ghoush**, President, Khodori Alumni Association, Tulkarm, Dr. **Dureid Mahasneh**, Chairman of the Board of Directors, Energy, Water and Environment Association, (EDAMA), Jordan and Prof. **Mohammed Al Wedyan**, President, National Center for Research and Development, Jordan.

Left to right: Mrs. **Taghreed Saqer**, Executive Secretary, IAS, Prof. **Ayed Al Abdallat**, Dr. **Abdullah Abo Ghoush**, Prof. **Mohammed Al Wedyan**, Prof. **Koichi Unami**, H. E. **Prof. Adnan Badran**, H .E. **Prof. Mahmoud Al Dwairi**, Dr. **Dureid Mahasneh,** Prof. **Abdullah Al Musa and** Mrs. **Najwa Daghestani**, Programs Manager, IAS.

WATER HARVESTING SYSTEMS: HOW THEY WORK AND WHY THEY MATTER

Koichi Unami FIAS
Graduate School of Agriculture, Kyoto University, Japan

1. Introduction

Water harvesting is the intentional capture, storage, and controlled use of natural water—such as rainfall, ephemeral streamflows, dew, and fog - through engineered or nature-based systems that enhance ecological and human needs. Communities across the globe, in humid, semi-arid, and arid regions, depend on these systems for agriculture, domestic supply, and ecosystem support, yet their operation varies widely with climate, culture, and local priorities.

This article highlights operational practices and future challenges from Japan, Ghana, Jordan, and Iraq—the sites where my research teams have conducted field studies—and introduces recent advances in rigorous theoretical approaches that optimize design and management of water harvesting systems.

2. Operational Practices

2.1Humid monsoon climate: managing highly fluctuating water balance[1]

In the humid monsoon climate that characterizes much of Japan, micro-dams (irrigation tanks or *tameike*) provide supplemental irrigation for paddy rice cultivation, where rainfall patterns and crop water demand do not always coincide. In our focal micro-dam, located in a relatively drought-prone area, the community follows an interesting empirical rule: when a tangible dry spell occurs, all stored water is released at once for irrigation. This rule-of-thumb practice has been passed down through generations and motivated our use of stochastic control formulated on filtered probability spaces.

2.2Savanna climate: serving multiple conflicting purposes[2-4]

In the semi-arid savannas of Northern Ghana, micro-dams and dugouts constructed after independence are intended to provide domestic water supply, livestock watering, fishing opportunities, habitat creation, and small-scale irrigation. However, evaporation rates can reach 10 mm per day, and contamination involving water-borne diseases poses serious challenges. Irrigation from micro-dams is uncommon, most probably because it is inconsistent with the traditional rainfed agricultural system. Instead, the entire community assumes responsibility for maintaining the water bodies so that their multiple non-irrigation functions remain reliable. This underlines a key insight: what matters is how empirical knowledge can be mobilized to adapt modern water harvesting technology.

2.3Arid climate: turning flash floods into value-added agricultural products[5-7]

In the Jordan Rift Valley, summers are extremely hot and dry, whereas winters are characterized by short but intense rainfall events. These episodic floods present a potential resource—provided they can be effectively captured. To explore this possibility, a pilot water harvesting scheme was established for research purposes at the site near the Dead Sea. A hydraulic structure diverts ephemeral floodwater from a 1.12 km^2 barren saline watershed into an open-air reservoir. The stored water is subsequently desalinated through a solar-driven dew collection facility, yielding freshwater for drip irrigation of date palm trees. The operation of this pilot scheme is entirely grounded in control-theoretic principles.

3. Future Challenges

As modern water harvesting systems evolve to meet the pressures of climate variability, population growth, and shifting land use, several scientific challenges remain.

Greater attention should now be directed toward water harvesting systems with subsurface storage in the semi-arid steppes, where subtle community-level shifts can materially strengthen climate change adaptation. Field observations from regions such as the Nineveh Governorate of Iraq underscore the potential relevance of subsurface hydraulic phenomena, including capillary barriers of soil moisture and the singular-degenerate diffusion processes that shape groundwater movement[8]. In response, innovative pilot schemes—such as moisture-retention trenches for olive orchards and recharge wells designed to enhance alluvial-aquifer replenishment—are being proposed, emphasizing the importance of coupling these subsurface dynamics with interventions of surface water harvesting.

Currently, several scientific topics are being investigated through the following questions:

1) Can partial differential equations that may be singular, degenerate, fractional, and/or non-local provide a more accurate, analytically robust, and physically meaningful framework for modeling subsurface water dynamics than classical local models?
2) Several well-posedness issues arise in mathematical surface flow models but are often neglected in engineering practice. Can we provide comprehensive answers to these issues?
3) Can broader probabilistic frameworks, such as those based on semimartingales, ensure the applicability of hydrological modeling to the tighter design and management of water harvesting systems, particularly under climate change[9]?
4) How can water harvesting systems contribute to a dynamic equilibrium between agro-ecological diversity and socio-economic stability?

4. Conclusions

Water harvesting is fundamentally a community-driven practice, in contrast to development projects directed by government agencies. Scientific analysis offers a powerful means of recognizing the value embedded in long-standing local practices and advancing them through innovation. As we look toward future challenges, it is worth recalling the Qur'anic verse [67:30] "Say, 'Just think: if all your water were to sink deep into the earth, who could give you flowing water in its place?'"

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ISLAMIC WORLD ACADEMY OF SCIENCES (IAS) CHARTS A BOLD FUTURE AT THE 7TH OIC-COMSTECH STEERING COMMITTEE MEETING

Islamabad, Pakistan | February 11-12, 2026 – The Islamic World Academy of Sciences (IAS) played a pivotal role in the **7th Meeting of the Steering Committee on the Implementation of OIC STI Agenda 2026**, held at the COMSTECH Secretariat. Represented by its leadership, including President Prof. Adnan Badran and Vice President Prof. Zabta K. Shinwari, the Academy's contributions were widely appreciated as a cornerstone for the next phase of scientific cooperation in the Islamic world.

A Visionary Presentation: Empowering the Ummah

During Session II of the meeting, IAS delivered a comprehensive presentation titled *"OIC STI Agenda 2026: Empowering the Islamic World Through Science, Technology, and Innovation"*. The Academy reaffirmed its mission to provide a dynamic institutional setup that utilizes science and technology for the general development of OIC member states.

Key highlights of the IAS contribution included:

- **A Scientific Voice**: IAS underscored its role as a legitimate, scientifically-based voice for the cause of STI on behalf of scientists across the Islamic World.
- **Strategic Recommendations**: The Academy proposed five critical pillars for the upcoming 7th Steering Committee deliberations:
    1. **Post-2026 Planning**: Finalizing a new long-term Strategic Framework for 2026–2035 with phased roadmaps.
    2. **Sustainable Funding**: Urging the operationalization of a dedicated OIC joint research innovation fund.
    3. **Accountability**: Launching a robust Monitoring and Evaluation (M&E) framework, including an **Annual STI Report** to be produced by IAS.
    4. **Digital Frontier**: Accelerating investment in AI, quantum computing, and "Big Science" programs like space science and genomics.
    5. **Mobility**: Launching intra-OIC mobility programs for researchers to facilitate short-term fellowships and combat brain drain.

Driving High-Impact Initiatives

The Academy's proactive stance was further evidenced by its development of "bankable" proposals for Islamic Development Bank (IsDB) funding. These include establishing **Regional Centers of Excellence for Climate Change Adaptation**, focusing on water security, sustainable agriculture, and renewable energy.

Engaging the Next Generation

A standout feature of the IAS strategy was its commitment to young scientists. The Academy announced a new initiative to nominate younger candidates within its framework to bridge the generational gap and create homegrown solutions through interdisciplinary dialogue. This aligns with its recent World Science Day commitment to encourage the next generation to explore STEM fields.

Appreciation and Outlook

The Steering Committee, moderated by senior COMSTECH officials, noted the Academy's vital role in review and finalization of decisions. The IAS's emphasis on political independence, equity, and diversity in executing its tasks was lauded as essential for the success of the OIC STI Agenda 2026 and the proposed 2035 framework.

As the meeting concluded, IAS stood out as a primary partner in the implementation of joint initiatives, ensuring that the Islamic world remains at the forefront of global scientific discovery.

Prof. Zabta Shinwari, Vice President, IAS, representing the IAS at the 7th Meeting of the Steering Committee on the Implementation of OIC STI Agenda 2026

Based on the strategic documents and presentations from the **Islamic World Academy of Sciences (IAS)** and **COMSTECH**, here is a proposal for a new Science, Technology, and Innovation (STI) agenda for the next decade (2026–2035).

Strategic Framework: OIC STI Agenda 2035

The upcoming decade's agenda is envisioned as a long-term strategic framework designed to move beyond planning into the full integration of STI with economic policies across OIC member states.

1. Phased Roadmap for Implementation

The next decade should be structured into two distinct phases to ensure steady progress:

- **Medium-Term (2026–2030):** Scaling up current initiatives and establishing a network of **Regional Centers of Excellence**.
- **Long-Term (2030–2035):** Strengthening global leadership in STI and ensuring that scientific advancements drive national economic transformations.

2. Investment in "Big Science" and Digital Frontiers

The agenda must prioritize future-critical technologies to bridge the global digital divide:

- **Digital Transformation:** Direct investments into **Artificial Intelligence (AI)**, **Quantum Computing**, blockchain, and cybersecurity.
- **OIC Flagship Programs:** Launch 1–3 large-scale "Big Science" collaborative projects in fields such as **Space Science**, **High Energy Physics**, and **Genomics/Climate Modeling**.
- **AI for Sustainability:** Utilize AI to enhance ecosystem resilience, biodiversity protection, and climate change mitigation.

3. Climate Resilience and Resource Management

A core pillar of the new agenda should be the establishment of a network of regional centers focused on:

- **Water Security:** Deploying innovative solutions for desalination, wastewater treatment, and conservation in arid regions.
- **Sustainable Agriculture:** Researching climate-resilient crops and "personalized agriculture" to ensure food security.
- **Renewable Energy:** Scaling pilot projects for solar, wind, and geothermal technologies tailored to local economic contexts.

4. Human Capital and Mobility

To combat brain drain and foster collaboration, the agenda should include:

- **Intra-OIC Mobility Program:** Facilitate short-term fellowships and joint research stays for scientists and researchers across OIC universities.
- **Youth Engagement:** Nominate younger candidates and "young fellows" within scientific academies to bridge the generational gap and create homegrown solutions.
- **STEM Excellence:** Making ICT and digital technology skills compulsory at all

tiers of education to ensure a workforce ready for the 24/7 global economy.

5. Sustainable Funding and Accountability

To move from "steering" to "rowing," the next decade requires institutionalized support:

- **OIC Joint Research Innovation Fund:** A dedicated, co-financed fund by member states to provide stable financial support for critical STI projects.
- **STI Progress Index:** Launching a centralized dashboard and mandating an **Annual STI Report** (produced by IAS) to track implementation progress and ensure transparency.
- **Science-Informed Policy:** Committing to using scientific evidence for informed national decision-making and advisory services at local and regional levels.

This is a profound and timely reflection. Transitioning the narrative from "National Interest" to "Ummah Interest" (and eventually "Human Interest") represents a fundamental shift from zero-sum competition to collective advancement.

In the context of the OIC STI Agenda and the Islamic World Academy of Sciences (IAS), this shift is not just philosophical—it is a practical necessity for scientific progress. Here is how this perspective can be integrated into the new STI agenda for the next decade:

1. From Sovereignty to "Knowledge Commons" National interest often leads to the "siloing" of data and research. To serve the Ummah Interest, the new agenda should propose an OIC Open Science Framework. This would allow member states to share datasets on shared challenges—such as the impact of climate change on the Indus River or water scarcity in the Maghreb—treating scientific knowledge as a common waqf (endowment) for the collective benefit of the Ummah.
2. Strategic "Big Science" for the Ummah As mentioned in the IAS strategy, individual OIC countries often lack the budget for "Big Science" (Space, Genomics, Quantum Computing). By shifting to an Ummah-centric model, member states can pool resources to build shared infrastructure that no single nation could sustain.

National Interest: A country building its own small satellite.

Ummah Interest: A collective OIC Space Agency that provides satellite data for disaster management and agriculture to all member states, regardless of their financial contribution.

3. Brain Circulation vs. Brain Drain "National interest" often makes countries compete for the same small pool of talent. An agenda focused on Ummah Interest would prioritize Human Capital Mobility. By creating a "Scientist Visa" or a unified fellowship program (as proposed by IAS), we ensure that a scientist from a resource-poor member state can utilize high-tech labs in a resource-rich member state, ultimately benefiting the global Islamic scientific output.
4. Addressing Global "Human Interest" through the Ummah The Islamic world is uniquely positioned to lead on "Human Interest" issues. For example:

Ethical AI: Developing AI frameworks based on Islamic ethics that prioritize human dignity over pure profit.

Global Health Equity: Ensuring that vaccine manufacturing and medical research within the OIC are geared toward affordable access for the Global South, moving beyond national patent protection toward universal human benefit.

5. Institutionalizing "Ummah Interest" in Policy To ensure this isn't just rhetoric, the 7th Steering Committee could recommend that:

Funding Criteria: Preference for OIC-funded grants be given to projects involving at least three member states from different geographic regions (e.g., an African, Arab, and Asian member state).

The "Ummah Impact" Metric: Every STI project report should include a section on how the research contributes to the collective wellbeing of the Ummah and humanity, rather than just national GDP.

By adopting this mindset, the OIC can move away from the "selfishness" of individual borders and return to the Golden Age of Islamic Science, where knowledge was sought and shared for the betterment of all mankind.

WOMEN REMAIN UNDERREPRESENTED IN SCIENTIFIC ORGANIZATIONS, NEW EVIDENCE SHOWS♠

On 11 February 2026, marking the International Day of Women and Girls in Science, the International Science Council, the InterAcademy Partnership and the Standing Committee for Gender Equality in Science are launching a new global report examining gender equality in scientific organizations. The report "Towards gender equality in scientific organizations: assessment and recommendations" finds that representation within these bodies continues to lag behind the composition of the wider scientific community, underscoring the need for sustained institutional action.

Women account for a growing share of the global scientific workforce (31.1% of researchers worldwide in 2022, according to UNESCO), yet they remain underrepresented in the organizations that shape scientific recognition, leadership, and decision-making. A new global report released today by the International Science Council, the InterAcademy Partnership and the Standing Committee for Gender Equality in Science, finds that the representation within scientific academies and international scientific unions continues to lag behind the composition of the wider scientific community.

Scientific academies and international scientific unions play an important role in shaping scientific agendas and norms, recognizing scientific excellence, and advising policy-makers. Through these functions, they strongly influence whose expertise is visible and whose voices shape science. **Persistent underrepresentation within these bodies raises questions about inclusiveness, legitimacy, and the effective identification and use of scientific talent**.

The report, "**Toward gender equality in scientific organizations: assessment and recommendations**", presents the most comprehensive global assessment to date of gender equality in scientific organizations. Drawing on institutional data from more than 130 academies and international scientific unions, alongside responses from nearly 600 scientists worldwide, **the study analyzes patterns of representation, participation, and leadership of women scientists based on data collected in 2025.**

What the evidence shows

Since 2015, with the publication of the first edition of the study, women's representation has increased modestly on average, but progress has been uneven.

Women remain underrepresented in leadership roles, governing bodies, and systems of recognition such as senior positions and awards. In national academies, women represent on average 19% of members in 2025, up from 12% in 2015 (first edition) and 16% in 2020 (second edition), with wide variation across institutions, ranging from less than 5% to nearly 40%.

Underrepresentation is more pronounced in senior leadership: among 50 national academies, only 20% currently have a woman president, a modest increase from 17% in 2015 and unchanged since 2020. In international scientific unions, overall representation largely reflects disciplinary gender composition, while women's representation in leadership is comparatively higher, at around 40% across unions.

These gaps cannot be explained by pipeline effects alone. Instead, **institutional processes matter**. Gender gaps in representation do not primarily result from explicit restrictions on eligibility. Most scientific organizations report formally open and merit-based procedures. However, nomination practices, selection norms, and reliance on informal networks continue to shape who is identified, encouraged, and put forward. As a result, women remain underrepresented in nomination pools relative to their presence among eligible scientists.

♠ *https://council.science/news/women-remain-underrepresented-in-scientific-organizations-new-evidence-shows/?utm_source=MembershipUpdate&utm_medium=email&utm_campaign=20260213-MU*

Many organizations have introduced initiatives or policy statements aimed at improving gender equality. However, these measures are often limited in scope, focusing on awareness or encouragement rather than changes to core organizational processes. These measures are also in great majority not supported by dedicated resources, clear mandates, or embedded governance structures, and thus have further limited impact.

Lived experience behind the data

Responses from the individual survey of scientists illustrate how these patterns are experienced in practice. Women who join scientific organizations participate at levels comparable to men, **but this does not translate into comparable progression or recognition.**

Women are three times more likely to report barriers to advancement, including missed opportunities linked to care responsibilities.

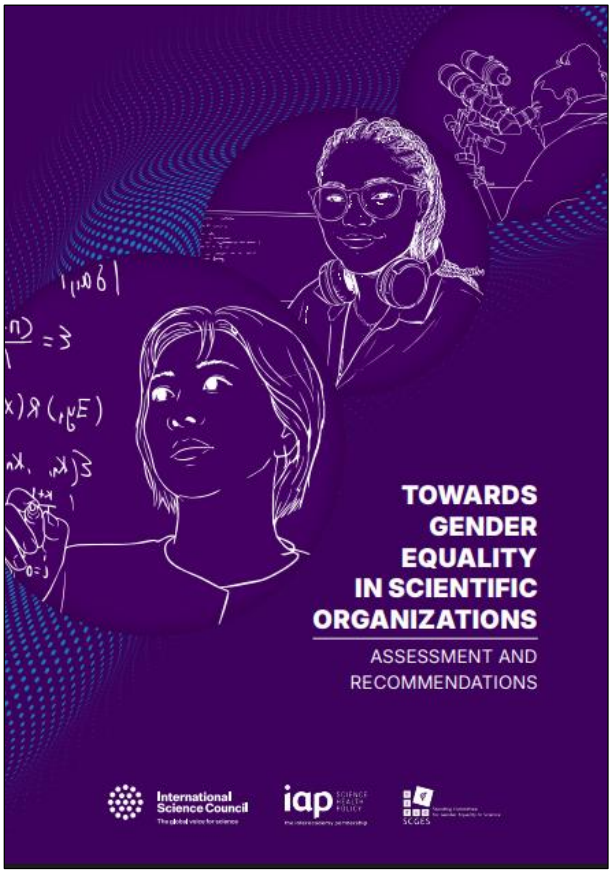
Across disciplines and organizational settings, women are also significantly (4.5 times) more likely than men to report experiences of harassment and microaggressions, and to express lower levels of trust in the transparency of selection processes and in mechanisms for reporting and addressing misconduct.

An earlier pilot study had documented strategies women use to navigate these environments, including focused engagement at the international level, reliance on women networks, and advocacy – compensating individually for institutional gaps rather than benefiting from systemic support.

From diagnosis to action

Rather than proposing fixed targets, the report identifies a set of institutional levers that can support fairer participation, leadership, and recognition. These include reforms to nomination and selection processes, improved collection and use of gender-disaggregated data, and stronger monitoring and evaluation practices. The report also highlights good practices from scientific organizations where changes to formal rules and structures have supported more sustained progress.

Taken together, the findings point to a structural challenge rather than a lack of qualified women. Scientific organizations remain shaped by long-standing practices that influence who is nominated, selected, recognized, and heard. By documenting these mechanisms across institutions and disciplines, the report provides a robust evidence base to support more transparent, accountable, and inclusive organizational practices. Addressing gender gaps in scientific leadership is not a matter of symbolism, but of institutional effectiveness, legitimacy, and the responsible use of scientific expertise in a complex global context.



Towards gender equality in scientific organizations: assessment and recommendations

International Science Council, InterAcademy Partnership and Standing Committee for Gender Equality in Science (February 2026)

Towards gender equality in scientific organizations: assessment and recommendations.

DOI: 10.24948/2026.03

DOWNLOAD THE REPORT

HUMAN WARMTH AT THE CROSSROADS OF KNOWLEDGE: A FRAMEWORK FOR AN INCLUSIVE AND HUMANE FUTURE

Seyed Kazem Alavipanah
Professor, University of Tehran

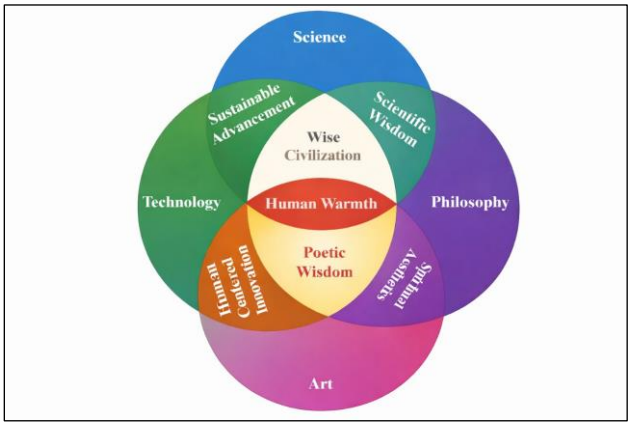
In a world shaped by geopolitical tensions, climate disruptions, rapid technological acceleration, and deepening digital inequality, a fundamental question emerges: *How can we design progress that makes us more human, not more machine-like?*

The conceptual diagram presented here offers a multidisciplinary response to this global challenge. It proposes a framework where the four major pillars of human inquiry—science, philosophy, art, and technology—interact not as isolated domains but as interconnected forces shaping the future of human well-being.

Each intersection between these domains reveals an essential truth about the modern condition: none of them, on their own, can secure a meaningful, sustainable, or ethically grounded human life. Science without philosophy risks becoming directionless. Technology without art becomes cold and alienating. Philosophy without science may drift into abstraction, and art without support from knowledge and tools may lose its transformative capacity. The diagram highlights new spaces that emerge from these interactions: (I) "Sustainable Advancement" at the junction of science and technology, (II) "Scientific Wisdom" between science and philosophy, (III) "Spiritual Aesthetics" linking art and philosophy, and (IV) "Human-Centered Innovation," where art meets technological practice. These junctions are not merely abstract ideas; they are responses to the urgent needs of a world facing environmental anxiety, mental health decline, and the social pressures of automation.

The three-domain intersections offer even deeper insight. Concepts such as "Poetic Wisdom," "Wise Civilization," and "Beautiful and Sustainable Innovation" illustrate how precision, imagination, meaning, and technical capability can co-exist. These spaces suggest that no effective understanding of the future—nor any actionable policy—can be produced within the confines of a single discipline. Instead, we must look to the synergy of systems: scientific evidence informed by philosophical reflection; technological design guided by aesthetic sensitivity; artistic creation supported by cognitive and computational insight.

At the center of the diagram lies the core concept: **Human Warmth**. It symbolizes the transformation of mere *heat,* the raw energy of progress, into *warmth*, a humane and ethical presence in people's lives. Human Warmth reminds us that even in an age when artificial intelligence can write, create, predict, and decide, societies still need space for empathy, artfulness, inner depth, and interpersonal connection. It directly addresses one of the most pressing crises of our era: the erosion of human identity in the face of increasingly autonomous technologies. Scholars in cognitive science, philosophy of technology, and digital humanities have all emphasized this threat. Human Warmth stands as a unifying concept capable of integrating these concerns into a constructive vision.



This diagram illustrates the intersections among science, art, philosophy, and technology, showing how their interactions generate new cognitive and cultural spaces - from Sustainable Advancement to Poetic Wisdom. At the center lies the integrative concept of ***Human Warmth****, representing the ethical, humane, and meaningful direction that interdisciplinary collaboration can bring to the future of global progress.*

Today, as specialization deepens and disciplines drift outward from one another, the necessity of convergence has never been greater. But the convergence we need is not a superficial merging of departments or terminologies. It is the creation of genuinely new interdisciplinary fields, fields capable of developing shared languages and common problem-solving frameworks. These fields must help us confront the urgent ethical questions of artificial intelligence, promote human-centered design, protect cultural diversity in digital spaces, and reintroduce beauty, imagination, and emotional depth into technologically mediated environments. They must enable scientists, artists, engineers, philosophers, and policymakers to design futures rooted not only in efficiency or novelty, but in justice, sustainability, and the lived experience of human dignity.

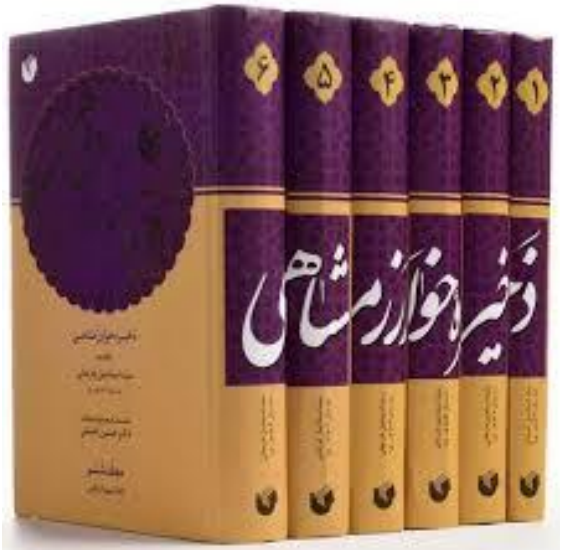
This framework is not merely a theoretical model; it is a call to intentional, morally grounded creativity. We stand at a historic threshold where the future will be determined not by what technology *can* do, but by the quality of the relationships we build with it. If science is aligned with meaning, if art is empowered by technological tools, if philosophy guides innovation, and if progress is anchored in empathy and aesthetic understanding, then we can build a world that is accurate yet beautiful, meaningful yet functional. A world that remains, above all, profoundly human.

By placing Human Warmth at the center, the diagram invites us to rethink our assumptions about advancement. It suggests a future in which knowledge systems do not compete but enrich one another; a future in which interdisciplinary thinking becomes the norm rather than the exception; a future in which the ultimate measure of progress is not the sophistication of our machines, but the flourishing of human life. This vision does not ask us to slow down technological progress, but to guide it with intention. It invites us to imagine universities, research labs, design studios, and innovation hubs working through shared vocabularies; to reconsider education as a space where art, computation, ethics, and scientific inquiry are intertwined; and to treat the cultural and psychological foundations of society as integral to technological development, not secondary to it. Human Warmth is thus both a metaphor and a roadmap. It names the presence of humanity at the center of transformation, and it proposes the ethical direction in which our shared future should move. By embracing the mutual illumination of science, philosophy, art, and technology, we can cultivate a civilization that is wiser, gentler, more imaginative, and more resilient.

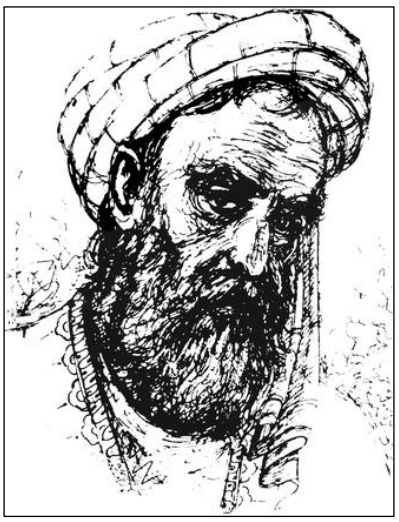
HAKIM SEYYED ISMAIL JORJANI (1042–1137 CE): A BRILLIANT SCIENTIFIC FIGURE IN ISLAMIC CIVILIZATION

Prepared by: International Office, Iran Academy of Sciences

Among the distinguished scientists, physicians and scholars who shaped the intellectual and scientific landscape of the Islamic Golden Age, **Hakim Seyyed Ismail Jorjani**, known in Western sources as Jurjani. A Persian polymath, scientist, physician, philosopher, and linguist, Jorjani stands as one of the most influential figures in the history of Islamic medicine. His intellectual legacy reflects a thoughtful and creative synthesis of medical knowledge, philosophical reflection, and linguistic precision. His magnum opus, ***Zakhireh-ye Khwarazmshahi*** (*The Treasure of Khwarazmshah*), remains one of the most comprehensive and valuable medical encyclopedias produced in the medieval Islamic world.



Jorjani was born in 1042 CE (434 AH) in Gorgan, located in northern Iran. He received his early education in his hometown and later traveled to major centers of learning such as Nishapur and Merv to continue his studies. He was taught by renowned scholars. The works and ideas of earlier Greek and Islamic physicians, such as Hippocrates, Galen, Muhammad ibn Zakariya al-Razi and Avicenna (Ibn Sina), profoundly influenced the development of Jorjani's intellectual foundations. Yet, close examination of his writings shows that he was not merely a transmitter of earlier views; rather, through analysis and critical reasoning, he revisited, refined, and expanded upon them, thereby making unique and innovative contributions to medical science.



Seyyed Ismail Jorjani, the eminent 11th–12th century Iranian physician, was the first scholar after Avicenna to systematically compile and organize the full body of medical knowledge. He produced a lasting scientific masterpiece while laying the foundation for a distinct medical writing tradition. Jorjani rendered complex concepts in clear, precise prose and coined many terms that later entered the medical lexicon. Notably, he chose to write his book *Zakhireh-ye Khwarazmshahi* in Persian at a time when Arabic dominated science, expanding access to medical learning beyond the scholarly elite. His monumental book was later translated into Arabic, Turkish, and Urdu and remained an authoritative reference for centuries. The work presents a holistic vision of medicine, integrating physical, psychological, and ethical health, with strong emphasis on prevention, balanced nutrition, mental well-being, and moderation in lifestyle as essential principles of health.

Jorjani's masterpiece of this book was commissioned by Qutb al-Din Khwarazmshah, the ruler of Khwarazm, and was completed around 1110 CE during Jorjani's service at the royal court. This monumental encyclopedia comprises ten books encompassing a wide range of subjects, including anatomy, physiology, hygiene, dietetics, pharmacology, pathology, surgery, and therapeutics. His scientific method was based on a fusion of empirical observation, rational inquiry, and philosophical contemplation, clearly reflecting his deep commitment to clinical experience and systematic analysis.

One of the most noteworthy aspects of *Zakhireh-ye Khwarazmshahi* is Jorjani's detailed analysis of bodily specimens such as blood, urine, stool, and other fluids. Through systematic observation, he enhanced diagnostic accuracy and effectively pioneered early laboratory-based medical investigation. For this reason, Jorjani is widely regarded in Iran as the Father of Laboratory Sciences, and his birthday (30th of Farvardin in the Iranian calendar, April 19) is officially celebrated as **National Laboratory and Laboratory Sciences Day**.

Beyond medicine, Jorjani made significant contributions in fields such as philosophy, ethics, and linguistics. Among his other works, *al-Aghraz al-Tibbiyya wa al-Mabahith al-'Ala'iyya* (Medical Objectives and Sublime Discussions) stands out as a concise and refined summary of his encyclopedia. His intellectual style combined scientific rigor with moral and spiritual insight, reflecting the worldview of classical Islamic scholars who saw the pursuit of knowledge as both a rational endeavor and a moral duty.

The influence of Jorjani's thought extended far beyond his lifetime. His works continued to be studied in medical schools and scholarly institutions across the Islamic world, from Iran and Central Asia to the Ottoman Empire and the Indian subcontinent, well into the nineteenth century. Today, Hakim Seyyed Ismail Jorjani endures as a symbol of the harmonious integration of science, language, and humanity. His life and achievements remind us that the advancement of knowledge, when guided by wisdom and compassion, transcends the boundaries of time and place.

PICKS OF THE CHIEF EDITOR

AI READS BRAIN MRIS IN SECONDS AND FLAGS EMERGENCIES*

A newly developed artificial intelligence system from the University of Michigan can analyze brain MRI scans and deliver a diagnosis in a matter of seconds, according to a new study. The model identified neurological conditions with accuracy reaching 97.5% and was also able to assess how urgently patients needed medical care. Researchers say this first-of-its-kind technology has the potential to reshape how brain imaging is handled across health systems in the United States. The findings were published in *Nature Biomedical Engineering*.

"As the global demand for MRI rises and places significant strain our physicians and health systems, our AI model has potential to reduce burden by improving diagnosis and treatment with fast, accurate information," said senior author Todd Hollon, M.D., a neurosurgeon at University of Michigan Health and assistant professor of neurosurgery at U-M Medical School.

Testing the Prima AI System

Hollon named the new technology Prima. Over a one-year period, his research team evaluated the system using more than 30,000 MRI studies. Across more than 50 different radiologic diagnoses involving major neurological disorders, Prima delivered stronger diagnostic performance than other advanced AI models. In addition to identifying disease, the system also proved capable of determining which cases required higher priority.

Certain neurological conditions, including strokes and brain hemorrhages, demand immediate medical attention. Hollon said that in these situations, Prima can automatically alert health care providers so action can be taken quickly.

The system was designed to notify the most appropriate subspecialist, such as a stroke neurologist or neurosurgeon. Feedback becomes available immediately after a patient completes imaging.

"Accuracy is paramount when reading a brain MRI, but quick turnaround times are critical for timely diagnosis and improved outcomes," said Yiwei Lyu, M.S., co-first author and postdoctoral fellow of Computer Science and Engineering at U-M. "At key steps in the process, our results show how Prima can improve workflows and streamline clinical care without abandoning accuracy."

What Is Prima?

Prima is classified as a vision language model (VLM), a type of artificial intelligence that can process images, video, and text together in real time. While artificial intelligence has been applied to MRI analysis before, researchers say Prima takes a different approach.

Earlier models were typically trained on carefully selected subsets of MRI data and designed to perform narrow tasks, such as identifying lesions or estimating dementia risk. Prima was trained on a much broader dataset.

Hollon's team used every available MRI collected since radiology records were digitized at University of Michigan Health. This included more than 200,000 MRI studies and 5.6 million imaging sequences. The model also incorporated patients' clinical histories and the reasons physicians ordered each imaging study.

"Prima works like a radiologist by integrating information regarding the patient's medical history and imaging data to produce a comprehensive understanding of their health," said co-first author Samir Harake, a data scientist in Hollon's Machine Learning in Neurosurgery Lab. "This enables better performance across a broad range of prediction tasks."

Addressing MRI Delays and Radiology Shortages

Each year, millions of MRI scans are performed worldwide, many of them focused on neurological disease. Researchers say the demand for these scans is growing faster than the availability of neuroradiology services.

This imbalance has contributed to staffing shortages, diagnostic delays, and errors. Depending on where a patient receives a scan, results may take days or even longer to return.

"Whether you are receiving a scan at a larger health system that is facing increasing volume or a rural hospital with limited resources, innovative technologies are needed to improve access to radiology services," said Vikas Gulani, M.D. Ph.D., co-author and chair of the Department of Radiology at U-M Health.

The Future of AI in Medical Imaging

Although Prima performed strongly, researchers emphasize that the work is still in an early evaluation phase. Future research will focus on incorporating more detailed patient information and electronic medical record data to further improve diagnostic accuracy.

This approach mirrors how radiologists and physicians interpret MRIs and other imaging studies in real clinical settings. While artificial intelligence is already used in health care, most existing systems are limited to narrowly defined tasks.

Hollon describes Prima as "ChatGPT for medical imaging," noting that similar technology could eventually be adapted for other imaging types, including mammograms, chest X-rays and ultrasounds.

"Like the way AI tools can help draft an email or provide recommendations, Prima aims to be a co-pilot for interpreting medical imaging studies," Hollon said.
"We believe that Prima exemplifies the transformative potential of integrating health systems and AI-driven models to improve health care through innovation."

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* *Source:* https://www.sciencedaily.com/releases/2026/02/260210005419.htm

ABU RAIHAN AL-BIRUNI*
(973-1048 AD)

Abu Raihan Mohammad Ibn Ahmad al-Biruni was one of the well-known figures associated with the court of King Mahmood Ghaznawi, who was one of the famous Muslim kings of the 11th century. Al-Biruni was a versatile scholar and scientist who had equal facility in physics, metaphysics, mathematics, geography and history. Born in the town of Khewa near Khawarizm (present-day Uzbekistan) in 973 AD, he was a contemporary of the well-known physician Ibn Sina. At an early age, the fame of his scholarship went around and when Sultan Mahmood Ghaznawi conquered his homeland, he took al-Biruni along with him in his journeys to India several times and thus he had the opportunity to travel all over India during a period of 20 years. He learnt Hindi philosophy, mathematics, geography and religion from the Pandits to whom he taught Greek, Arabic science and philosophy. He died in 1048 AD at the age of 75, after having spent 40 years in gathering knowledge and making his own original contributions to it.

He recorded observations of his travels through India in his well-known book *Kitab al-Hind* which gives a graphic account of the historical and social conditions of the sub-continent. At the end of this book he makes a mention of having translated two Sanskrit books into Arabic, one called *Sakaya,* which deals with the creation of things and their types, and the second, *Patanjal* dealing with what happens after the spirit leaves the body. His descriptions of India were so complete that even the *Aein-i-Akbari* written by Abu-Al-Fadl during the reign of Akbar, 600 years later, owes a great deal to al-Biruni's book.

On his return from India, al-Biruni wrote his famous book *Qanun-i-Masoodi (al-Qanun al-Mas'udi, fi al-Hai'a wa al-Nujum),* which he dedicated to Sultan Masood. The book discusses several theorems of astronomy, trigonometry, solar, lunar, and planetary motions and relative topics. In another well-known book *al-Athar al-Baqia,* he has attempted a connected account of ancient history of nations and the related geographical knowledge. In this book, he has discussed the rotation of the earth and has given correct values of latitudes and longitudes of various places. He has also made considerable contribution to several aspects of physical and economic geography in this book.

His other scientific contributions include the accurate determination of the densities of 18 different stones. He also wrote the *Kitab-al-Saidana,* which is an extensive *Materia Medica* that combines the then existing Arabic knowledge on the subject with Indian medicine. His book the *Kitab-al-Jamahir* deals with the properties of various precious stones. He was also an astrologer and is reputed to have astonished people by the accuracy of his predictions. He gave a clear account of Hindu numerals, elaborating the principle of position. Summation of a geometric progression apropos of the chess game led to the number:
$16^{16}-1=18,44,6,744,073,709,551,619$.

He developed a method for trisection of angle and other problems that cannot be solved with a ruler and a compass alone. Al-Biruni discussed, centuries before the rest of the world, the question whether the earth rotates around its axis or not. He was *the first* to undertake experiments related to astronomical phenomena. His scientific method, taken together with that of other Muslim scientists, such as Ibn al-Haitham, laid down the early foundation of modern science. He ascertained that as compared with the speed of sound the speed of light is immense. He explained the working of natural springs and artesian wells by the hydrostatic principle of communicating vessels. His investigations included description of various monstrosities, including that known as "Siamese" twins. He observed that flowers have 3,4,5,6, or 18 petals, but never 7 or 9.

He wrote a number of books and treatises. Apart from *Kitab-al-Hind* (History and Geography of India), *al-Qanun al-Masudi* (Astronomy, Trigonometry), *al-Athar al-Baqia* (Ancient History and Geography), *Kitab al-Saidana* (Materia Medica) and *Kitab al-Jamahir* (Precious Stones) as mentioned above, his book *al-Tafhim-li-Awail Sina'at al-Tanjim* gives a summary of mathematics and astronomy.

* *Source: Personalities Noble, 2nd Edition, 2000, Edited by Hakim Mohammed Said, published by IAS with permission of Hamdard Foundation Pakistan.*

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PO Box 830036 Zahran
Amman 11183 Jordan

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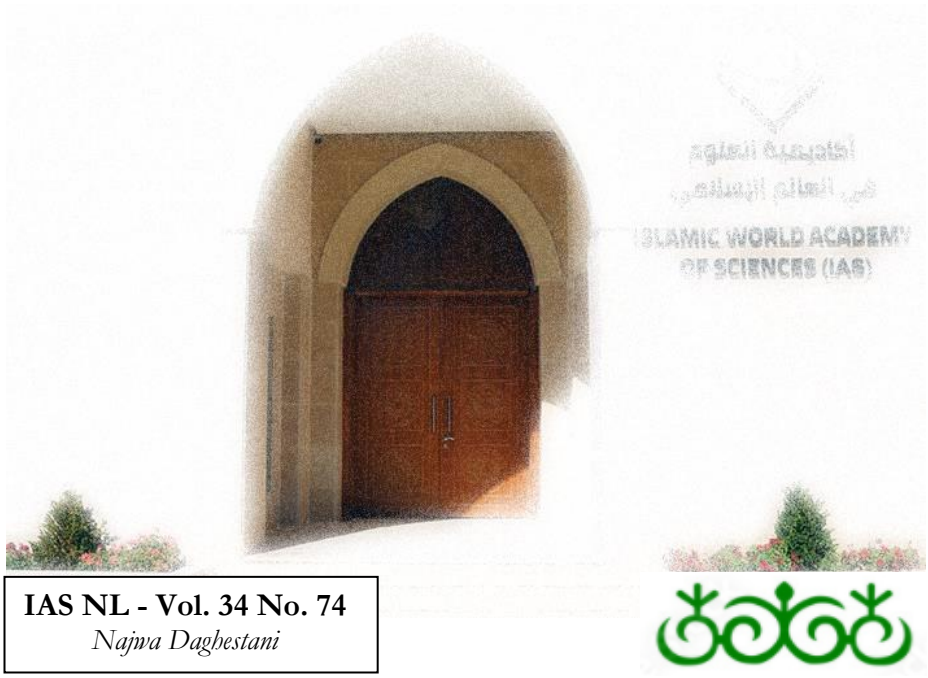

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