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Al-Bayan Center for Studies and Planning



The Present and Future of Scientific Research in Iraq – A Proposal for a Strategic Vision

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About

Al-Bayan Center for Planning and Studies is an independent, nonprofit think tank based in Baghdad, Iraq. Its primary mission is to offer an authentic perspective on public and foreign policy issues related to Iraq and the region.

Al-Bayan Center pursues its vision by conducting independent analysis, as well as proposing workable solutions for complex issues that concern policy-makers and academics.

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Introduction

Scientific research has become a cornerstone for assessing the development and well-being of nations. Traditional metrics, such as income levels, are no longer sufficient in the globalized era. As the gap between Iraq and the developed world widens, knowledge production and scientific research in Iraq have been on the decline. This regression persists despite notable improvements in other indicators, such as poverty reduction, increased per capita income, and reduced child mortality rates.

In light of these challenges, there is an urgent need to enhance the qualifications of teaching staff and elevate their scientific, administrative, and organizational capacities to align with the advancements seen in global universities. Simultaneously, attracting Iraqi intellectuals and scientists from the diaspora is essential for fostering a scientific renaissance. These expatriate minds represent a valuable national asset that, if effectively utilized, could catalyze Iraq's development and scientific innovation within a relatively short timeframe.

Achieving this requires the adoption of well-defined strategic policies aimed at rehabilitating scientific research and embedding it firmly within Iraqi society. Scientific thinking and innovation must become integral to Iraq's societal fabric. Furthermore, it is imperative to establish a robust Iraqi scientific foundation capable of transferring and localizing global knowledge and technology to serve the nation's development objectives.

The overarching aim of the proposed scientific vision for Iraq is to strengthen the country's capabilities in modern sciences and technologies and harness their potential for nation-building. To ensure the success of any comprehensive national strategy for science and technology, it is vital to consider several key factors:



1. The State of Scientific Research and Development:

An assessment of existing scientific capabilities across disciplines is essential. This includes evaluating the contributions of institutions such as Iraqi universities, the Iraqi Scientific Academy, and expatriate Iraqi scientists. Their role in advancing the economy, addressing health and agricultural challenges, and enriching global scientific knowledge must be highlighted.

2. Coordination Between Institutions:

The administrative and scientific relationship between the Ministry of Higher Education and Scientific Research and other ministries must be reexamined to ensure effective oversight and development of scientific research initiatives.

3. Role of Science and Technology in Development:

Emphasizing the importance of science and technology in solving developmental challenges, providing specialized expertise, and contributing to national progress is crucial. This includes assessing the number, quality, and capacity of existing universities and research centers.

4. Financial Investment in Education and Research:

Adequate financial resources must be allocated to both basic and higher education, with particular attention to the percentage of government spending on scientific research.



Disadvantages of the Scientific Research and Postgraduate Studies System in Iraq

1. Lack of a Unified Strategic Framework

Iraq lacks an integrated system to formulate scientific research policies and monitor their implementation. There are no clear short- or long-term strategies to define the objectives, priorities, or policies for scientific research and postgraduate studies.

2. Arbitrary Establishment of Research Centers

Many research centers were established during the previous era based on personal interests, presidential directives, or nepotism, rather than addressing scientific and technological needs.

3. Limited Scope of Research Authorities

The tasks of the Scientific Research Authority and the Research and Development Department are confined to the Ministry of Higher Education, with no jurisdiction over scientific research and development across Iraq as a whole.

4. Commercialization of Scientific Research

Scientific research has become a means for career advancement or degree acquisition rather than a pursuit of innovation. This system lacks proper oversight, prioritizes quantity over quality, and often suffers from credibility issues.



5. Postgraduate Studies Focused on Certification Over Research

Postgraduate studies have shifted from being a platform for advancing research to merely awarding certificates. This has led to widespread forgery, plagiarism of published results, and fabricated experiments that are impossible to conduct under the current substandard conditions of scientific laboratories. Simultaneously, overseas scholarships and missions have nearly disappeared.

6. Proliferation of Postgraduate Programs

The excessive expansion of postgraduate programs—now numbering in the hundreds, including in areas of little urgency—has saturated the job market with PhD holders. This has turned scientific research into a routine profession rather than an academic pursuit.

7. Underdeveloped Institutions Offering Postgraduate Studies

Some young or private universities have launched postgraduate programs despite lacking the necessary infrastructure, equipment, and academic rigor. This has resulted in superficial research and the proliferation of what is known as “paper factories.”

8. Widespread Scientific Corruption

Corruption is pervasive within the scientific research and innovation system, undermining integrity and progress.



9. Lack of Centralized Funding

There is no centralized body to fund scientific research and development, nor a dedicated, well-planned budget to support these activities.

10. Insufficient International Collaboration

There is a notable absence of meaningful cooperation with universities in developed countries and participation in global collaborative research projects.

11. Disconnection from Global Science

Iraq's scientific system suffers from a severe disconnect from global scientific advancements, standards, and requirements.

New Strategy for Developing Scientific Research in Iraq

This project introduces strategic initiatives aimed at fostering an integrated environment where universities and scientific institutions can establish a robust framework for scientific research. The proposed strategy focuses on enhancing current systems and infrastructure to align with global advancements in research methodologies and objectives while addressing local challenges such as limited financial resources and Iraq's transitional circumstances.

The strategy aims to move beyond reliance on superficial research outputs, often referred to as "paper factories," by adopting a transformative approach characterized by speed, flexibility, and continuous development. This approach seeks to establish a foundation for creating a lasting scientific and developmental impact.

Pillars of the Strategy for Developing Scientific Research

1. Establishing a Balanced and Stable Financial System to Finance Scientific Research

a. To ensure the success of any scientific research strategy, sufficient financial allocations must be secured. Accordingly, the state should allocate a dedicated budget for research and innovation, which will fund winning scientific projects through national competitions that select the best research initiatives. Additionally, other funding sources should be identified, including industrial, service, and international sources. The latter, in particular, is critical during periods of local resource scarcity and can be leveraged to finance joint projects with universities, research institutions, or international companies.

b. Committees comprising foreign scientists and experts should be formed at the ministry, university, college, and department levels to oversee the management, organization, and review of scientific research policies. These committees would evaluate research topics, supervise the disbursement of necessary funds, and address inefficiencies or stagnation in research outcomes. Each department must develop an actionable plan and program to support scientific research, making it a core aspect of its mission. Furthermore, new mechanisms should be established to monitor the progress of scientific research. This includes the official registration of research activities and results and providing appropriate incentives to researchers and departments that adhere to sound scientific practices. Adopting global scientific evaluation standards will replace outdated practices, promoting



innovation and creativity. Incentives should be offered to those who prioritize impactful research and development while discouraging unproductive output. True innovators and scientists should be recognized and rewarded, creating opportunities for them to achieve both social distinction and professional fulfillment.

c. Funding for scientific research in universities and other institutions should be based on competition and comparative evaluation. Criteria should include the quality and significance of the research project, the availability of supporting infrastructure, and the qualifications and expertise of the researchers.

2. Training and Qualifying Effective Leaders to Manage and Administer Ministerial and University Institutions

a. The ministry and universities must develop a program for administrative and leadership training for senior university staff and heads of administrative units. This program should focus on enhancing capabilities and methods for achieving goals and monitoring performance, as part of a continuous training process and ongoing communication between the university's senior bodies, professors, and researchers. It should also aim to develop the administrative and financial expertise of those responsible for scientific research at universities, ultimately leading to a fundamental transformation of the scientific research system. This transformation will allow the system to better respond to cognitive advancements in a flexible manner, and to meet global standards of scientific quality in its goals, programs, and methods.



- b. Improving and developing the speed and impact of decision-making processes so that decisions become more transparent, and decision-makers are held more accountable and responsible.
- c. The ministry must develop a plan to independently review and evaluate the academic activities and research performance of universities and professors, separate from the evaluation process for promotion purposes.

3. Creating a Positive Scientific Atmosphere to Develop the Innovative Capabilities of Academics

- a. This can be achieved by developing a new vision that balances the professor's right to conduct scientific research with the requirements for its success. Professors should be given the opportunity to pursue research when they have an innovative idea, the necessary abilities, a clear vision, and a carefully planned project, and when there is alignment between the university's financial capabilities and the research needs.
- b. While scientific research is an essential part of a professor's duties, it should not be mandatory in the absence of adequate resources or if the research does not serve the university's priorities or the broader goals of economic development. Therefore, scientific research should align with global standards or address a current and urgent problem in the national economy, provided that addressing the problem through scientific research is the most efficient approach in terms of speed, simplicity, and cost.



c. Providing means of cognitive and electronic communication with the global scientific community and encouraging travel to participate in international conferences or engage with scientists worldwide. This could be supported by allocating an independent budget to finance scientific trips.

4. Concentrating Scientific Research Resources and Capabilities in a Smaller Number of Scientific Institutions

a. When setting the scientific research budget, priorities must be determined, which should necessarily include building and maintaining research projects in key areas for the country and its economy, as well as those that enhance Iraq's scientific capabilities to reach a global level. Therefore, the responsibility of scientific research committees at all levels is to develop specific research projects, making these topics a priority for funding. This principle also applies to universities and scientific institutes, where comparison should be the basis for funding decisions. This may require designating a specific number of universities as research-focused institutions while encouraging other universities to focus primarily on teaching. To support this, new foundations for scientific promotion must be established. Universities and departments qualified to grant doctoral degrees should meet the following criteria: qualified professors for supervision, adequate laboratory supplies for research, access to scientific references, strict scientific supervision, and scientific affiliations with universities in developed countries. Based on these criteria, scientific research and postgraduate studies should be concentrated in certain public universities without imposing this system on oth-



er institutions, particularly private universities. However, no less than 20% of a private university's resources should be allocated for scientific research.

5. Encouraging Joint Internal Scientific Research and Global Cooperation

a. This process aims to establish true joint cooperation as a fundamental principle for scientific research. On this basis, joint research between colleges, departments, and centers should be prioritized for funding. Global scientific cooperation with universities in Europe, the United States, and other developed countries is also considered essential for advancing the quality of national research. Additionally, cooperation and joint supervision with Iraqi scientists abroad should be a key factor in determining the potential for funding research. This approach should consider the following:

- i. Emphasizing the importance of Arab scientific cooperation.**
- ii. Leveraging Iraqi competencies abroad.**
- iii. Preventing joint global publications based on the production of "paper factories."**



6. Establishing an Evaluation System Based on International Standards

a. The Ministry monitors the performance of scientific research through indicators specific to each topic. These indicators are not only based on measuring the impact factors of research but also on other international standards that assess the significance of the research. This includes evaluating the degree of scientific cooperation with prestigious universities or research institutes, the comprehensiveness of the research in terms of the number of aspects and topics covered by the technologies used, and their relevance to the national economy. The results of external evaluations by foreign scientists and experts are also considered. Additionally, the technologies developed or established through the research and the number of papers published in distinguished international journals as outcomes of the research project must also be taken into account.

7. Periodic Review and Evaluation of the Scientific Research Strategy

a. The Scientific Research Authority is responsible for supervising the implementation of this strategy (Review Board). The Research and Development Department also monitors the implementation of the strategy and its objectives, submitting a detailed report to the Authority every six months.



8. Re-establishing the Scientific Research Council

Finally, we propose transforming the Scientific Research Authority into the Scientific Research Council, tasked with formulating policies for scientific research, innovation, development, and technology transfer. The Council will manage quality centers for scientific research outside universities and allocate tasks to scientific research centers in various ministries. It will also oversee the establishment of Research Parks and Technology Incubators. The Scientific Research Council will be linked to the Prime Minister's Office to ensure the coordination of scientific research and development activities in alignment with the nation's development goals.

Additionally, we propose changing the name of the "Research and Development Department" to the "Research and Innovation Department." This change reflects the fact that development is more closely related to industries such as agriculture, oil, irrigation, transportation, communications, and other state institutions, which focus on the application and transfer of technology. In contrast, scientific research in universities is more closely tied to innovation, discovery, and invention.



Conclusion

This strategic vision was developed with inspiration drawn from the practices and realities of advanced global universities. It provides a comprehensive foundation for building robust scientific research and innovation institutions in Iraq.

We hope that this vision serves as a starting point for an objective and constructive dialogue—one that moves away from prescriptive, top-down directives of “should” and “must.” Instead, it seeks to foster collaborative and scientific discussions that can guide the formulation of a new, resilient structure for Iraq’s scientific research and innovation institutions.

By aligning this vision with global standards and local realities, Iraq can pave the way for a sustainable renaissance in science and technology, contributing to national development and global knowledge.





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