

THE IMPORTANCE OF ESTABLISHING JOINT AGRICULTURAL AND FOOD RESEARCH CENTERS IN IRAN AND ARMENIA

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Introduction

Scientific cooperation is essential when we talk about improving food security. Many countries worldwide have started to establish joint organisations in line with their collaboration in agriculture and food security. Also, the exchange of scientists, students, and researchers is common between countries. The point of view of this article is that Iran and Armenia need to establish a joint research centre in this field. In this article, these questions are addressed: why is the existence of a joint research centre between Iran and Armenia necessary? And what are the benefits of having such a centre?

Methodology

This research has progressed by examining library studies and expert inquiries and reviewing the past and present history of agricultural cooperation between countries. The aim is to analyse the content and localize it to the conditions of Iran and Armenia.

Literature review

In an article titled “Building Twenty-First Century Agricultural Research and Extension Capacity in Africa,” Jayne and his colleagues examine the performance and shortcomings of African research systems and make suggestions for their improvement. There is a need for serious will in cooperation between countries, a need for a more serious will of global supporters and international organizations in supporting programs and preventing parallel work [Jayne et al, 2023]. In the 2024 report by the FPRI organization titled “Food Systems for Healthy Diets and Nutrition,” the importance of international cooperation is emphasized. The report suggests that achieving a proper diet and avoiding malnutrition can be accomplished through international collaboration, highlighting the benefits of such actions. It also underscores the need to combat climate change globally through the cooperation of countries. Regarding food access, the report stresses the necessity of ensuring equality in food access for all people and emphasizes the importance of countries’ commitments [International Food Policy Research Institute, 2024]. One of the extensive research initiatives on Developing Global Partnerships is conducted by the National Institute of Food and Agriculture in America. This organization has comprehensive agricul-

tural cooperation programs available worldwide, partnering with countries such as Ireland, Great Britain, various European nations, South American countries, and those in the Caribbean Sea. These partnerships cover fields like soil science, tropical plants, biotechnology, and wheat. In an article introducing its plans, the organization examines the practical aspects of agricultural cooperation between countries and highlights its achievements [U.S. Department of Agriculture, 2024, September 2].

Analysis

As Deissy Martinez-Baron suggests the agrifood systems are facing significant challenges, science, therefore the innovation is a key to shift the trajectory towards ensuring sustainability and resilience. Therefore, scaling assumes a critical role in agricultural research for development (AR4D) and consists of a continuous process in which innovations are tailored, used, and embedded into societal dynamics adapted to various contexts, aiming to create widespread positive impacts [Martinez-Baron. 2024, 57-64]. In this regard, the field of scaling with all distinct literature clusters – the innovation and adoption of agricultural technology, the economics of technology adoption, sustainability in agricultural innovations, and the emergence of scaling as a research field. Disciplines such as sustainable agriculture, systemic thinking, technological transitions, and technology adoption have contributed to the development of the field. International agricultural research centers and universities from developed countries have significantly advanced this field, also underlying the importance of locally rooted and participatory research. As many experts note, the future research on the creation, development, and strengthening of social capital in scaling processes can contribute foster intentional and responsible scaling of AR4D innovations [Martinez-Baron. 2024, 57-64].

Undoubtedly, through cooperation in agriculture and the food industry, Iran and Armenia can meet an important part of their food needs, benefiting from their geographical proximity. Throughout history, food trade has been a component of cooperation in food security. However, since the Second World War, countries worldwide have explored other methods in this field, one of which is cooperation in research. This includes agriculture, animal husbandry, and educational cooperation.

Why is cooperation in food security important for Iran and Armenia?

Among Armenia's neighbours, Iran is the closest, and they have historically had friendly relations. Armenia is a mountainous country with a history of war and historical enmity with some of its neighbours. Armenia's food security was threatened during the first Karabakh war, which was resolved with Iran's support. Armenia imports a part of its food needs. On the other hand, Iran has a large land area and population, facing various challenges such as water shortages, advancing deserts, foreign crises, and sanctions. Thus, both countries face problems that can threaten their food security.

Iran, with a population of 90 million, has long been the largest food market in the Middle East and the region's second-largest market for agricultural technologies. According to a report by the World Trade Organization, Iran's food imports in 2022 amounted to \$17.2 billion [Iran Agrofood, 2024, Sep 17]. Armenia also imported agricultural products worth approximately US\$1.38 billion in 2022 [Statista, 2023].

Food dependence can be used as a political and economic tool or a “weapon” against countries. Recently, the spokesperson of the Russian Ministry of Foreign Affairs, addressed the Secretary of the Security Council of the Republic of Armenia, who participated in an online conference on food security within the framework of the “Ukraine Peace Resolution.” It was reminded that “90 percent of Armenia’s grains are supplied through Russia” and had threatened: “Perhaps it is better to contact the Russian side through video conference to discuss your food security.” In other words, it meant that to provide and guarantee Armenia’s food safety, they should act accordingly. In this way, the representative of Russia’s foreign ministry used food security as a pressure lever on the Armenian government to advance the policies of the Russian government [Arax news, 2024, September 21].

Another example is the Qatar diplomatic crisis in 2017 between Qatar and four Arab countries (Saudi Arabia, Egypt, UAE, Bahrain, and some other countries) that closed their water, land, and air borders with Qatar and tried to encircle this peninsula. Imposing their conditions on this country or overthrowing the rulers of Qatar is another example of using a food embargo in practice to create political pressure. However, Qatar was able to use its potential facilities in political relations with Iran to use Iran’s skies to access Europe and Turkey and use Iran’s ports to import food. The support of Iran and Turkey prevented maximum pressure on Qatar, and the embargo on Qatar failed in practice. During this embargo, the government of Qatar took additional actions to strengthen its food security, including the import of live animals [Masireqtesad, 2023].

In this context, it is evident that both Iran and Armenia are highly dependent on food imports. This dependency is particularly concerning given the ongoing crises with regional countries and the impact of sanctions. Consequently, both nations must significantly enhance their capabilities, particularly regarding food security and self-sufficiency, especially for strategic food products. Regarding the importance of cooperation between the two countries, the friendly relationship between Iran and Armenia should be highlighted. Iran can be considered Armenia’s closest neighbours, and historically, Armenia has been a friend of Iran and a passageway to Europe. These two countries have always strived to strengthen their relations. Given the threats that exist for both, cooperation in food security can be very important. Although food trade between countries is beneficial, the management and production of agriculture and food are also very important. The geography of Armenia is similar to that of some provinces in Iran. As a

result, researchers in these regions can conduct studies with similar natural backgrounds. Utilizing common experiences, sharing facilities, and collaborating on common goals can enhance cooperation. The two countries can also work together to find better ways to market their products and deliver them to customers. Researchers and students have been exchanging between countries for many years. However, if two countries are looking for a long-term cooperation plan, they need to establish a joint research centre. This centre can then work in various fields.

Why is research and educational cooperation between the two countries important?

Collaborative research between two countries with similar climates enables the exchange of ideas, methods, technologies, and plant varieties, leading to innovative solutions to common problems. This is especially important in fields such as agriculture and food security, as well as in examining solutions for the food industry and food trade between countries. Additionally, considering the climate change crisis, shared knowledge can help agriculture adopt a sustainable and eco-friendly model. Also, collaborative research in the fields of agricultural economics, the food industry, and food trade can help solve economic and customs-related food security issues between two countries. By introducing technologies for agricultural machinery, pesticides, and fertilizers, and fostering innovation, new industries can be created, leading to economic benefits and environmental protection. For example, advances in agricultural technology can improve food security and create economic opportunities for farmers and related industries, tailored to the local patterns of countries and regions.

It should be noted that the localization of technologies and knowledge is very important. In research, it always takes time to adapt to new technologies. However, designing new technologies in a basic form for local conditions will save time and costs.

Cooperation in educational and research projects also has positive side effects. These collaborations increase mutual understanding and respect between countries, which can help build stronger diplomatic and cultural ties, as well as contribute to peace and stability in the region, global challenges and regional pitfalls. Many of today's challenges, such as climate change, food security, and public health, are global. International cooperation in research and education is essential to develop comprehensive solutions that can be implemented across borders. On the other hand, differences in the climates and conditions of various countries necessitate regional cooperation. Regional solutions must be discovered to implement global recommendations, greatly enhancing collaboration between countries. Additionally, there are challenges specific to each region that local experts are more aware of and can address more effectively.

Theoretical Framework in Discussion

Scientific and research cooperation between countries can also be examined from a theoretical point of view. Considering that Iran and Armenia are neighbouring countries loca-

ted in the same region, the theory of regional convergence recommends that the countries in the region should increase their economic exchanges, provide for cultural and social convergence, and ultimately create a political bloc. This is also emphasized in the interdependence theory. However, the solution to increasing these collaborations lies in better understanding and responding to each other's needs, which is possible through joint research. Such research paves the way for deeper connections. Therefore, working together through joint organisations can contribute to peace by fostering more cooperation between countries. That point is emphasized in liberalism theory.

The Importance of Joint Agricultural Training Centers between the Two Countries

In an era when global food security is increasingly under threat, a problem that also affects Iran and Armenia, the establishment of joint agricultural training centres between the two countries can be considered an important solution to enhance food security. These centres serve as hubs for knowledge exchange, innovation, and collaboration, promoting sustainable agricultural practices and increasing food security. The achievements of research centers will take more time and money if they are subjected to bureaucratic processes before reaching students. By pooling resources and expertise, countries can address common challenges, improve crop yields, and ensure sustainable food supplies for their populations. At the same time, they can provide the achievements of their educational and research centers to students and researchers more efficiently. Individual student exchanges or sending students to study at universities in other countries can be beneficial, but they do not necessarily lead to cooperation and consensus between foreign countries. Joint training and organization for students or researchers from two countries help to strengthen their communication and foster common thinking.

It is worthy to consider the following example and to examine the structure of the International Rice Research Institute (IRRI) in order to learn about the proper organizational form to some extent. This organization is founded in the Philippines and has representatives in 17 Asian and African countries. The board of directors of this organization determines its directions and plans. This organization has more than a thousand employees. The budget of the organization is obtained from various sources, including the aid of the member governments of the organization, the aid of international organizations and other private incomes. A large part of the research projects is financed by the organizations of FAO and the World Bank. The scientists and researchers from different countries in different fields of agriculture, pest control, etc., as well as the rules of the organization are selected based on the acceptance of the board of directors of this organization, and this board of directors sets very strict standards for programs and has chosen research projects. Also, according to the IRRI, there is a thorough review of the organization's expenses and the implementation of policies [International Rice Research Institute, 2024. October 28].

Another example of an efficient work of a joint research team is the International Center for Agricultural Research in the Dry Areas (ICARDA)¹. This organization is managed by a Board of Trustees. The Board of Trustees of ICARDA includes representatives from member countries and international experts. This team provides strategic guidance and supervision to ensure the achievement of the organization's goals. The Director General of the organization, who is appointed by the Board of Trustees, is responsible for the management and general administration of ICARDA. ICARDA operates based on international agreements and partnerships with various countries and organizations. It works in line with the national policy frameworks of the countries in which it operates, ensuring that its programs are coordinated with the local needs of these countries. ICARDA's financial sources come from various entities, including governments, international organizations, and private donors. This diverse financial base helps ensure financial stability and support for its research programs. The budget is allocated based on strategic priorities determined by the Board of Trustees, including funding for research projects, capacity building, and implementation costs. ICARDA cooperates with national research centres of member countries, universities, and other organizations to conduct research and implement projects. The organization also has educational programs, including training workshops and knowledge-sharing initiatives, to enhance local capabilities. These programs work with local engineers and farmers to advance agricultural development in growing areas. The headquarters of this organization is in Beirut, Lebanon.

The European Union experience

Among the global benchmarks to learn from is the Directorate for Sustainable Resources that is considered to be one of the six scientific directorates of the Joint Research Centre (JRC), the European Commission's science and knowledge service. Its mission is to create, manage and make sense of scientific knowledge for EU policies related to the sustainable use of resources, encompassing environmental, economic and social dimensions. It particularly focuses on food security, land, soil, water, forest, raw materials, fisheries, biodiversity, and ecosystem services. It highlights the threats to our existing resources, namely natural capital, and explores alternatives such as those related to oceans. It also monitors and analyses agricultural production, and supports the development of a sustainable bioeconomy in Europe².

What locations are best suitable for the educational research centre?

The answer to this question largely depends on the long-term cooperation plan of the two countries. It also depends to some extent on the budget, facilities, and views of scientists in the fields of agriculture and animal husbandry. Considering the size of Iran and the

¹ <https://icarda.org/>

² <https://www.peer.eu/about-peer/centres/jrc-european-commission-joint-research-centre>

similarity of certain regions in Iran to those in Armenia, it is suggested that this program be established in one or two provinces of Iran and Armenia.

To establish agricultural research and training centres suitable for both countries, considering the significant climatic differences in Iran, the border provinces of Jolfa in East Azerbaijan province, Iran, and Syunik province in Armenia are ideal due to their similar climates. Research projects in these regions can be more coordinated, and the proximity of the two provinces facilitates research on economic cooperation deficiencies in the area. Additionally, part of this project can be conducted in Yerevan, the capital of Armenia, as a large portion of Armenia's resources are located there. The project's guidance centre in Iran can be situated in Tabriz, the capital of East Azerbaijan province, which is comparable to Yerevan's facilities. An office in the Ministry of Agriculture in Tehran will also monitor this project.

In which areas the cooperation is mostly needed?

In the development of cooperation to increase food security, it is essential to establish a research and educational center focused on agriculture and animal husbandry, as well as agricultural economics and management. Additionally, there is a need for researchers from other fields related to the food industry, agriculture, and commerce to contribute to the design of joint research and agricultural centers between the two countries.

What points are needed to build a joint agricultural and animal husbandry research center between the two countries?

First, a plan should be prepared as part of the joint mission of the two countries, outlining the goals and strategies to achieve them. This will allow for the specification of different parts of the organisation and setting goals for each part. With the cooperation of the founding joint commission from both countries, we can address the legislation needed for the management of the organisation. Additionally, solutions should be devised to provide resources for this program. These solutions can include financial aid from the both governments and the FAO, as well as their training courses. This organisation should also have a common monitoring system, enabling the two countries to establish educational and research programs, and manage, and administer the organisation effectively.

Why is it important to establish agricultural and industrial centres with joint management for farming and animal husbandry research cooperation between countries?

The construction of a joint research center with an agriculture and industry sector will enable the integration of various research activities, from basic science to applied research under one roof. This center helps to ensure that the achievements of the research department are more widely tested in practice over several years. Additionally, by building such centers where two countries cooperate in providing facilities, it is possible to compensate for the lack of laboratory, agricultural, and animal husbandry infrastructures and equipment on the part of each party. In this context, apart from the fact that re-

searchers cooperate in the research department and share their findings, experts and consultants in agriculture and animal husbandry who deal directly with farmers can also spend their in-service courses at this research institute. They can benefit from new research findings and practically practice these findings. For students in these fields, this will be an opportunity to test or practice their research or practical needs in addition to training. Furthermore, short training courses can be provided to the region's farmers in these centres, teaching them the role of leading farmers. Having these research and application centres with a common infrastructure will save costs for the countries, and it will be cheaper than each country providing high-cost infrastructures alone.

Suggestions

First of all, to carry out such an important project, there is a need for specialised multi-disciplinary studies to establish this research center. For this purpose, it is suggested that two work groups be formed: one to investigate the legal dimensions, financial, and management requirements of this complex, and another to examine its technical, engineering, laboratory, research, and scientific needs. Then, the two countries can establish a suitable research center in the border provinces of Iran and Armenia and another center in Armenia. This center can be in the form of a research faculty in the field of agriculture and animal husbandry. Additionally, it can examine solutions to facilitate food transactions and trade, produce common products, and create a common market. This center will be related to the education and research departments in the two countries' agriculture ministries.

Conclusion

Iran and Armenia are neighbouring countries with close relations. Both nations face the threat of food insecurity due to the political, military, and economic crises and climate changes. Therefore, it is beneficial for these two countries to cooperate in improving food security. While food trading is one method of cooperation, collaboration in research, production, distribution, and joint training is crucial. This article proposes the creation of a joint research and educational center between the two countries. Additionally, it suggests establishing an agriculture and industry center adjacent to the research and education center for practical examination of the achievements. This way, researchers, students, experts in agriculture and animal husbandry, and farmers can benefit from the advancements of the Central Pennine.

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The importance of establishing joint agricultural and food research centers in Iran and Armenia

Key words: agriculture, research, food security, cooperation, climate change, joint research

Iran and Armenia have a long history of friendship and effective neighborhood. Both countries are at risk of food insecurity caused by climate change and various political and economic crises. They are trying to cooperate in trade, including the trade of agricultural products and food. However, is there another way to cooperate in the field of food security that addresses food production more fundamentally? This article suggests that one of the most important ways to increase cooperation in food security is through research and education between the two countries. This cooperation requires specific facilities and conditions, which have been discussed.