

Combating Food Loss and
Waste in OIC Countries: A
Path to Sustainable Food
Security

The Role of Wheat
Genetic Resources for
Kazakhstan in the Context
of Climate Challenges

Rice Mechanization:
Balancing Yield and
Sustainability

Strengthening Global
Unity: IOFS's Growing
Role in the International
Community and Expanding
Partnerships in 2025



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Islamic Organisation for Food Security
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CONTENT

Dr. Memduh Unal

COMBATING FOOD LOSS AND WASTE IN OIC COUNTRIES: A PATH TO SUSTAINABLE FOOD SECURITY

Dr. Irina Zhirnova

Dr. Yuri Dolinny

THE ROLE OF WHEAT GENETIC RESOURCES FOR KAZAKHSTAN IN THE CONTEXT OF CLIMATE CHALLENGES

Dr. Hamada Morgan

RICE MECHANIZATION: BALANCING YIELD AND SUSTAINABILITY

Mr. Sofian ben Mouaddeb

STRENGTHENING GLOBAL UNITY: IOFS'S GROWING ROLE IN THE INTERNATIONAL COMMUNITY AND EXPANDING PARTNERSHIPS IN 2025

IOFS FOOD SECURITY UPDATE

IOFS ACTIVITIES OVER JULY - AUGUST - SEPTEMBER



Dear Readers,

It is with great pleasure that I present the 20th edition of the Food Security Hub—a milestone that reflects the growing maturity of this platform as both a chronicle of our shared progress and a forum for forward-looking thought. Each edition has captured not only the technical and institutional dimensions of our work, but also the collective spirit that drives the Islamic Organization for Food Security (IOFS) and its Member States to pursue sustainable, equitable, and resilient food systems.

This issue brings into focus some of the most urgent themes shaping the global and OIC food security landscape. The lead article on Food Loss and Waste (FLW) calls attention to one of the most pressing moral and practical challenges of our time, reminding us that the Qur’anic principle of moderation – “Eat and drink, but waste not by excess” (Surah Al-A’raf, 7:31) – is not merely a spiritual value, but a foundation for sustainable development. The forthcoming FLW Index and Report will provide Member States with actionable data and tools to translate this principle into measurable impact.

Equally significant are the contributions on Kazakhstan’s wheat genetic resources and sustainable rice

mechanization, both of which highlight how innovation, research, and technological adaptation can help secure the future of staple crops that feed billions. These studies underscore IOFS’s commitment to linking traditional knowledge with modern science to achieve climate resilience, efficiency, and sustainability.

The article on IOFS’s expanding partnerships and global engagement captures the organization’s transformation into a trusted platform for cooperation, one that listens, learns, and leads by facilitating inclusive dialogue among governments, research institutions, and humanitarian actors. From strategic alliances with ICESCO, UN Women, and QazTrade, to our growing field presence in Africa and Asia, IOFS continues to position itself as a catalyst for collaboration within and beyond the OIC.

This edition also features an analytical overview of global food security trends in 2025, reminding us that despite abundant harvests, hunger and inequality persist. The disparities within the OIC region – ranging from famine conditions in Gaza and Yemen to record surpluses in Central Asia – reinforce the urgency of a coordinated response through trade facilitation, humanitar-

ian access, and resilient agriculture.

The News Section offers a dynamic record of IOFS activities from July to September 2025, capturing a period of unprecedented engagement: from high-level OIC meetings in Doha and strategic missions to Africa and Asia, to the signing of landmark MoUs with ICESCO and QazTrade, and the launch of capacity-building programs in Egypt, Guinea-Bissau, and Türkiye. These developments demonstrate how IOFS continues to transform strategic vision into tangible outcomes. As we move closer to the implementation of the IOFS Strategic Plan 2026–2035, the lessons, insights, and partnerships highlighted in this issue remind us that food security is not only an agricultural challenge, it is a question of solidarity, knowledge, and moral responsibility. May this edition inspire continued collaboration across our Member States and partners, as we work together toward a future where every community is nourished, resilient, and empowered.

Ambassador Khusrav Noziri

Assistant Director General

Islamic Organization for Food Security

COMBATING FOOD LOSS AND WASTE IN OIC COUNTRIES: A PATH TO SUSTAINABLE FOOD SECURITY



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In the Holy Quran, Allah commands: «Eat and drink, but do not waste, for Allah does not like the wasteful» (Surah Al-A'raf, 7:31). This divine guidance underscores the Islamic principle of moderation and responsibility in consumption, serving as a timeless reminder to avoid excess and preserve resources for the benefit of all.

Recognizing the urgency of addressing food loss and waste, the United Nations General Assembly established September 29 as the International Day of Awareness of Food Loss and Waste in 2019, to be jointly facilitated by the Food and Agriculture Organization (FAO) and the United Nations Environment Programme (UNEP)¹. This annual observance highlights the need to cut food loss and waste in line with Sustainable Development Goal 12.3, which calls for halving per capita global food waste and reducing supply chain losses by 2030². The sixth observance, on September 29, 2025, focuses on strengthening data, partnerships, and practical solutions to tackle this challenge, which accounts for 8–10% of global greenhouse gas emissions—nearly five times those from the aviation sector³—and constitutes a significant source of methane.

UNDERSTANDING FOOD LOSS AND FOOD WASTE

Food loss and food waste are among the most pressing global challenges, directly impacting food security, economic development, and environmental sustainability. While the terms are often used interchangeably, they represent distinct issues across the food supply chain. Globally, about one-third of all food produced for human consumption—roughly 1.3 billion tons each year—is lost or wasted, even as nearly one in ten people suffer from hunger or malnutrition⁴. For OIC member states and many developing countries, this paradox is especially concerning, giv-

en the dual pressures of rapid population growth and limited resources.

Food Loss; a reduction in food quantity or quality during the early stages of the supply chain, such as production, post-harvest handling, storage, and processing. This is common in developing countries, where up to 60% of the some crops may be lost at the farm level due to poor storage facilities, weak infrastructure, or limited market access⁵.

Food Waste; the disposal or alternative non-food use of safe and edible food at later stages—retail, food service, and household consumption. In many high-income countries, households and retailers account for the bulk of food waste. However, in urbanizing parts of the developing world, consumer-level waste is also rising due to changing dietary habits, retail expansion, and lack of awareness.

Together, these form the broader concept of FLW. Inedible parts (peels, bones) are generally excluded from calculations unless they enter landfill streams.

In OIC and other developing countries, food loss and waste arise at multiple stages of the supply chain. At the production and post-harvest stages, insufficient cold storage, weak transport networks, pest damage, and weather extremes cause significant losses, with FAO estimating that around 14% of global food production is lost before reaching retail⁶—an even higher share in parts of Africa, South Asia, and the Middle East. Processing and distribution are hindered by limited agro-processing capacity, price fluctuations, and cosmetic rejection of produce, while the rapid expansion of supermarkets and food service chains in developing economies has increased retail-level waste, often due to overstocking and liability concerns. At the consumer level, although waste remains lower than in high-income countries, it is growing in middle-income OIC states⁷, driven by urban lifestyles, over-purchasing during festive seasons such as Ramadan, and limited awareness of proper food preservation practices.

1 FAO & UNEP (2023). Tackling Food Loss and Waste: A Triple Win Opportunity.

2 UN SDG 12.3

3 FAO & UNEP (2023). Tackling Food Loss and Waste: A Triple Win Opportunity.

4 FAO (2011). Global food losses and food waste – Extent, causes and prevention;

FAO (2022): The State of Food and Agriculture (SOFA) 2022

5 FAO (2019). The State of Food and Agriculture: Moving forward on food loss and waste reduction;

HLPE (2014). Food losses and waste in the context of sustainable food systems. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security (CFS). Rome: FAO.

6 FAO (2019). The State of Food and Agriculture: Moving forward on food loss and waste reduction.

7 UNEP (2024). Food Waste Index Report 2024.

FLW have wide-ranging economic, social, and environmental impacts. Globally, FLW costs the economy over \$1 trillion each year⁸, and for OIC countries this represents a missed opportunity to reduce food imports, strengthen farmer incomes, and stabilize domestic prices. Socially, wasted food undermines food security in regions already struggling with hunger and malnutrition, while reducing FLW could directly improve access to affordable food for vulnerable populations. Environmentally, producing food that is ultimately wasted consumes scarce resources such as land, water, and energy, and contributes 8–10% of global greenhouse gas emissions⁹. For many OIC countries that are highly vulnerable to climate change, addressing FLW is therefore both a mitigation and adaptation strategy.

Food insecurity has continued to deteriorate in many OIC member states, reflecting the combined pressures of conflict, climate change, economic shocks, and disruptions in global supply chains. Globally, around 733 million people—about 9.1% of the world's population—were undernourished in 2023, a rate that remains above pre-pandemic levels.

The challenge is most severe in Africa, where undernourishment affected more than one in five people (20.4%), equivalent to nearly 300 million individuals. Eastern Africa reported the highest prevalence at 28.6%, while Western Africa stood at 16.0%. In total, more than half of Africa's population experienced moderate or severe food insecurity, and nearly two-thirds were unable to afford a healthy diet.

Asia, another key region for OIC countries, also shows deep disparities. Overall, 8.1% of the population—about 385 million people—were undernourished in 2023. Southern Asia recorded 13.9%, while Western Asia, including the Middle East, faced 12.4% undernourishment and 37.5% of people experienced moderate or severe food insecurity.

Child malnutrition remains a pressing concern, with stunting affecting more than a third of children under five in Africa and over one-fifth in Asia. Although some progress is expected by 2030, the pace of improvement is insufficient to meet global nutrition targets.

Table: Food Security Situation by Region 2022–2023

Region	Prevalence of undernourishment	Undernourished	Food Insecurity	Notes
Global (2023)	9.1%	733 million	—	7.9% in 2019
Africa (2023)	20.4%	298.4 million	58.0%	17.5% in 2015
- Eastern Africa	28.6%	138.5 million	—	
- Western Africa	16.0%	70.4 million	—	—
Asia (2023)	8.1%	384.5 million	—	
- Southern Asia	13.9%	280.9 million	—	Includes Pakistan, Bangladesh
- Western Asia	12.4%	37.1 million	37.5%	

Source: FAO, IFAD, UNICEF, WFP & WHO (2024). *State of Food Security and Nutrition in the World (SOFI) 2024*

FOOD LOSS AND WASTE STATISTICS IN OIC COUNTRIES AND GLOBALLY

FLW impose large social, economic and environmental costs worldwide: roughly 13.2% of food is lost between harvest and retail, while about 19% of food available to consumers is wasted at retail, food service and household levels¹⁰; together these consumer-stage losses amounted to about 1.05 billion tonnes in 2022¹¹. These losses contribute materially to climate change and resource pressure and are estimated to account for around 8–10% of global greenhouse-gas emissions. Vulnerabilities are often greater in many OIC member states, where inadequate storage and transport, limited processing capacity, and climate stressors amplify post-harvest losses and raise overall FLW rates. While robust global estimates exist for aggregate waste, comparable and up-to-date FLW data remain scarce for many OIC countries, underscoring the need for improved monitoring and targeted investments across storage, cold chains, processing and redistribution systems to curb losses as populations urbanize and climate risks grow.

IOFS AND REDUCING FLW ACTIONS

IOFS positions FLW reduction as an essential pillar of its mission to strengthen food security in OIC member states. Recognizing that FLW is both a major source of food insecurity and a drain on resources, IOFS leverages the strategic programs outlined in its Vision to provide data, policy recommendations, and project ideas that enable members to take targeted action¹².

One of the flagship initiatives is the Food Balance / Input-Output Program, which generates reliable data on production, consumption, and losses across the agrifood chain. By applying this framework, member states can identify where along the supply chain FLW is most severe—for example, determining which crops or regions face the highest post-harvest losses—and then design specialized interventions to address them.

Another key program is the Special Commodities Program, currently focused on wheat, rice, and cassava. These crops are strategically important for food security in OIC countries, yet they also suffer from significant levels of FLW. For instance, cassava losses are estimated at up to 60% in some regions¹³, highlighting the urgency of targeted measures such as improved farming techniques, storage, processing, and distribution. Through this program, IOFS supports countries in developing commodity-specific strategies that minimize FLW while enhancing availability and affordability.

Complementing these, IOFS continues to build capacity through training, workshops, and expert consultations, and to promote policy innovation and partnerships that align with Islamic values of moderation and non-extravagance. Together, these programs provide a comprehensive framework that links data collection, analytical research, and practical solutions, enabling OIC member states to reduce FLW while strengthening resilience,

8 FAO (2011): Global food losses and food waste – Extent, causes and prevention

9 FAO & UNEP (2023). Tackling Food Loss and Waste: A Triple Win Opportunity.

10 UNEP (2024). Food Waste Index Report 2024.

11 UNEP (2024). Food Waste Index Report 2024.

12 IOFS (2021). Vision 2031 : Strategic Framework for Sustainable Food Security in OIC Member States.

13 FAO (2019). The State of Food and Agriculture: Moving forward on food loss and waste reduction.

improving nutrition, and advancing toward sustainable food systems.

SDG AND FAO VISIONS ON FOOD LOSS AND WASTE

SDGs, particularly Target 12.3 under Goal 12 (Responsible Consumption and Production), provide a clear global vision for addressing FLW. It calls for halving per capita global food waste at retail and consumer levels and reducing food losses along production and supply chains, including post-harvest losses, by 2030. This target emphasizes not only food security but also decreasing the environmental footprint of food systems, aligning with broader SDGs on hunger (Goal 2), climate action (Goal 13), and sustainable cities (Goal 11). Progress reports highlight the urgency, noting that without accelerated action, global FLW could rise by a third by 2030, undermining efforts to end hunger and protect ecosystems¹⁴.

FAO shares a complementary vision through its Global Initiative on Food Loss and Waste Reduction (SAVE FOOD), which focuses on awareness raising, collaboration, evidence-based policies, and direct investments in reduction efforts¹⁵. FAO's strategy prioritizes sustainable food systems by reducing FLW to improve food security and nutrition, lower greenhouse gas emissions, and ease pressures on natural resources like land and water. Tools such as the Food Loss App (FLAPP) and the Technical Platform on Measurement and Reduction support data-driven approaches, while FAO advocates for a "triple win" opportunity: enhancing food availability, environmental sustainability, and economic benefits. Both the SDGs and FAO underscore the need for multi-stakeholder partnerships to achieve these goals, especially in vulnerable regions like those in OIC countries.

POTENTIAL IMPACTS OF HALVING FLW ON UNDERNOURISHMENT AND POVERTY

A growing body of research demonstrates that cutting FLW by half could significantly reduce hunger and poverty while easing pressure on ecosystems. FAO and UNEP projections suggest that halving losses and waste across the value chain could help reduce the number of undernourished people by over 150 million by 2030, by making more food physically available and affordable¹⁶. At the same time, it would lower global greenhouse gas emissions by an estimated 8–10% and reduce demand for scarce resources such as land and water¹⁷.

Modeling studies in developing economies—including Bangladesh, Kenya, and Nigeria—show that reducing FLW by 50% can yield economy-wide gains, increasing GDP by 1–2%, generating rural employment, and lowering poverty rates¹⁸. These impacts are especially relevant for OIC member states where post-harvest losses for staples often exceed 30%, and in some cases, such as cassava, may reach 50–60%. Addressing such losses through investments in storage, processing, and logistics could directly improve food access for millions of households.

Nutritional benefits are also substantial. Research from China and Sub-Saharan Africa highlights that food currently lost or wasted contains enough calories, protein, and micronutrients to make a meaningful difference in diets. Recovering even part of this lost nutritional value would contribute to reducing child stunting and micronutrient deficiencies, complementing efforts under SDG 2 (Zero Hunger)¹⁹.

Overall, achieving SDG Target 12.3 by halving FLW offers a "triple dividend": enhanced food and nutrition security, improved environmental sustainability, and greater economic resilience for vulnerable communities. For OIC countries, where agriculture remains a cornerstone of livelihoods, targeted FLW reduction strategies could play a decisive role in both reducing undernourishment and alleviating poverty.

CONCLUSION

Reducing FLW is no longer an option but a necessity for OIC member states, where food insecurity, resource constraints, and climate pressures intersect. The evidence shows that halving FLW could transform food systems, making more food available, lowering costs, and easing environmental pressures. Yet, achieving these outcomes requires strong institutions, reliable data, and coordinated policy frameworks.

In this regard, IOFS is uniquely positioned to lead OIC action. Through flagship programs such as the Food Balance/Input-Output Program and the Special Commodities Program, IOFS can generate the data, policy insights, and targeted interventions needed to address losses where they are most severe. By fostering collaboration among governments, researchers, and the private sector—and grounding its initiatives in Islamic principles of moderation and responsibility—IOFS can help member states turn FLW reduction into a driver of food security, economic resilience, and climate adaptation. With sustained political commitment and investment, IOFS can serve as a catalyst for transforming OIC countries into leaders in building sustainable, efficient, and equitable food systems.

14 UN SDG 12.3

15 FAO (2011–ongoing). SAVE FOOD: Global Initiative on Food Loss and Waste Reduction.

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EN SUMMARY

Food loss and waste (FLW) represent one of the most pressing challenges to food security, economic resilience, and environmental sustainability, with nearly one-third of global food production lost or discarded each year even as millions remain undernourished. For OIC member states, where agriculture underpins livelihoods and vulnerabilities to climate change are acute, reducing FLW is both an ethical duty—rooted in the Qur'anic principle of avoiding waste (Surah Al-A'raf, 7:31)—and a strategic necessity aligned with SDG Target 12.3. This paper examines the scale, causes, and impacts of FLW across the OIC, highlighting its economic, social, and environmental costs, and underscores

the urgent need for improved data, storage, processing, and consumer awareness. It further presents IOFS initiatives, including the Food Balance/Input-Output Program, the Special Commodities Program, and the forthcoming FLW Index, as practical tools to support member states in targeted interventions. Halving FLW could yield a “triple dividend” for OIC countries by improving food and nutrition security, strengthening rural economies, and mitigating climate pressures, positioning IOFS to catalyze coordinated action and establish the OIC as a leader in building sustainable and efficient food systems.

FR RÉSUMÉ

Les pertes et gaspillages alimentaires (PGA) représentent l'un des défis les plus urgents pour la sécurité alimentaire, la résilience économique et la durabilité environnementale, près d'un tiers de la production alimentaire mondiale étant perdu ou gaspillé chaque année alors que des millions de personnes demeurent sous-alimentées. Pour les États membres de l'OIC, où l'agriculture constitue un pilier des moyens de subsistance et où la vulnérabilité face au changement climatique est aiguë, la réduction des PGA est à la fois un devoir éthique — enraciné dans le principe coranique d'éviter le gaspillage (Sourate Al-A'raf, 7:31) — et une nécessité stratégique conforme à la Cible 12.3 des ODD. Cet article examine l'ampleur, les causes et les impacts des PGA au sein de l'OIC, en soulignant leurs coûts économiques, sociaux

et environnementaux, et met en avant l'urgence d'améliorer les données, le stockage, la transformation et la sensibilisation des consommateurs. Il présente en outre les initiatives de l'IOFS, notamment le Programme Bilan Alimentaire/Entrées-Sorties, le Programme des Produits Spéciaux et l'indice à venir des PGA, en tant qu'outils pratiques pour soutenir les États membres dans des interventions ciblées. Réduire de moitié les PGA pourrait offrir un « triple dividende » aux pays de l'OIC en améliorant la sécurité alimentaire et nutritionnelle, en renforçant les économies rurales et en atténuant les pressions climatiques, positionnant ainsi l'IOFS comme catalyseur d'une action coordonnée et comme acteur clé dans la construction de systèmes alimentaires durables et efficaces.

ملخص

AR

والتخزين والتصنيع الغذائي وزيادة وعي المستهلكين. كما تستعرض مبادرات المنظمة الإسلامية للأمن الغذائي، ومنها برنامج الميزان الغذائي/ المدخلات والمخرجات، وبرنامج السلع الخاصة، والمؤشر المرتقب لخسائر وهدر الغذاء، باعتبارها أدوات عملية لدعم الدول الأعضاء عبر تدخلات موجهة. إن خفض هذه الخسائر والهدر إلى النصف يمكن أن يحقق «عائدًا ثلاثيًا» لدول المنظمة من خلال تحسين الأمن الغذائي والتغذوي، وتعزيز الاقتصادات الريفية، والتخفيف من الضغوط المناخية، مما يرسخ دور المنظمة الإسلامية للأمن الغذائي كعامل محفز للتعاون وقائد في بناء نظم غذائية مستدامة وفعالة.

تمثل خسائر وهدر الغذاء أحد أبرز التحديات أمام الأمن الغذائي والمرونة الاقتصادية والاستدامة البيئية، حيث يُفقد أو يُهدر ما يقارب ثلث الإنتاج الغذائي العالمي سنوياً في وقت يظل فيه ملايين الأشخاص يعانون من نقص التغذية. وفي دول منظمة التعاون الإسلامي، حيث يشكل القطاع الزراعي عماد سبل العيش وتتفاقم الهشاشة أمام تغير المناخ، فإن الحد من الخسائر والهدر يعد واجباً أخلاقياً — مستنداً إلى المبدأ القرآني بعدم الإسراف (سورة الأعراف، الآية 31) — وضرورة استراتيجية تتماشى مع الغاية 12.3 من أهداف التنمية المستدامة. تتناول هذه الورقة حجم وأسباب وآثار الخسائر والهدر في دول المنظمة، مبرزة تكاليفها الاقتصادية والاجتماعية والبيئية، ومؤكدة الحاجة الملحة لتحسين البيانات



THE ROLE OF WHEAT GENETIC RESOURCES FOR KAZAKHSTAN IN THE CONTEXT OF CLIMATE CHALLENGES



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INTRODUCTION

Wheat is one of the key cereal crops, playing a strategic role in ensuring global food security. It accounts for about 20% of global calorie and protein consumption, making it a dietary staple for billions of people [1]. For Kazakhstan, wheat has particular importance: the country is one of the world's largest grain exporters, supplying not only its domestic market but also Central Asia, Afghanistan, and the Middle East [2]. In the face of climate change and growing agricultural risks, ensuring the sustainability of wheat production is of paramount importance. The arid conditions of the steppe zone, weather fluctuations, soil degradation, and declining varietal biodiversity all pose threats to stable yields. In this regard, the wheat gene pool plays a special role as a source of genetic diversity and adaptive potential needed to breed new varieties resistant to stress factors and suited to modern agricultural production.

Wheat occupies a central place in Kazakhstan's cropping system, with sowing areas in 2025 totaling 12.27 million hectares out of 23.7 million hectares of total arable land. Kazakh wheat is crucial not only for domestic food security but also for neighboring regions [3]. Domestically, its value lies in its versatility: it is the main raw material for bread baking, cereal and pasta production, as well as a feed component in livestock. The high protein and gluten content of Kazakh wheat makes it highly sought after in global markets, especially varieties with good baking qualities [4]. However, the strategic role of wheat in Kazakhstan's food system also brings vulnerabilities. Yields vary significantly year to year depending on weather conditions, creating risks for stable exports and domestic supply. In addition, the past decades have seen a narrowing of varietal diversity, increasing dependence on a limited number of genotypes. These factors highlight the need for active use of the gene pool and development of breeding programs aimed at creating varieties that combine high productivity with resilience to stress.

WHEAT GENE POOL AS A STRATEGIC RESOURCE

The wheat gene pool is a strategic resource for ensuring the long-term sustainability of agriculture. Genetic diversity holds the key

to adapting crops to changing environmental conditions, including droughts, extreme temperatures, diseases, and pests. The "A. I. Baraev Scientific and Production Center for Grain Farming" maintains a wheat collection of more than 5,000 accessions of spring soft and durum wheat. These samples come from over 60 countries and include both local varieties and lines as well as materials obtained through international scientific organizations such as ICARDA and CIMMYT. This genetic base provides unique opportunities for selecting source material with valuable traits: drought and disease resistance, high protein and gluten content, and adaptability to the extreme conditions of northern Kazakhstan. Increasingly, the integration of traditional breeding with molecular technologies is gaining importance, as it accelerates and enhances the breeding process.

PROSPECTS FOR THE GRAIN SECTOR IN KAZAKHSTAN

The development of Kazakhstan's grain sector depends on overcoming current challenges and strengthening its resilience. A key direction is the use of the rich wheat gene pool to select source material with valuable traits, enabling the creation of high-yielding, adaptable varieties. Modern biotechnologies — molecular markers, genotyping methods, and phytotrons — play a critical role in accelerating breeding and improving its efficiency. At the same time, domestic seed production must be developed, with an emphasis on producing high-quality seeds as the foundation for productivity and food security. Training specialists through internships and international programs, along with expanding cooperation with leading research centers such as ICARDA, CIMMYT, and VIR, is also essential. This will integrate Kazakhstan into global initiatives for conserving and rationally using genetic resources, ensuring sustainable agricultural development.

Therefore, the combination of traditional breeding methods with modern innovations will strengthen Kazakhstan's position as a leading wheat producer and exporter.

CONCLUSION

Wheat plays a strategic role in ensuring food security for Kazakhstan and neighboring regions, serving as both a cornerstone of domestic consumption and a vital export commodity. In the context of climate change and declining varietal diversity, conserving and

effectively using the wheat gene pool is key to resilience. The development of innovative breeding, the establishment of high-quality seed production, and stronger international cooperation provide Kazakhstan with the opportunity to secure long-term food independence and maintain its position as one of the leading players in the global grain market.

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EN SUMMARY

Wheat is a cornerstone of global food security, providing around 20 percent of the world's calorie and protein intake. For Kazakhstan, one of the leading grain exporters, wheat holds particular strategic importance as both a staple for domestic consumption and a key export commodity for Central Asia, Afghanistan, and the Middle East. However, climate change, soil degradation, weather variability, and declining varietal diversity pose growing risks to stable production and food security. This paper examines the critical role of Kazakhstan's wheat genetic resources in addressing these challenges. The A. I. Baraev Scientific and Production Center for Grain Farming maintains a collection of more than 5,000 accessions of spring soft and durum wheat, sourced from over 60 countries and international organizations such as ICARDA and CIMMYT. This genetic diversity provides essential material for breeding high-yield-

ing, stress-resistant varieties with desirable quality traits, such as drought tolerance and high protein content. The integration of traditional breeding methods with modern biotechnologies—including molecular markers, genotyping, and controlled-environment facilities—offers new opportunities to accelerate variety development. Strengthening domestic seed production, investing in specialist training, and expanding international cooperation are identified as key strategies to enhance resilience and secure Kazakhstan's long-term role as a major global wheat producer. The study concludes that the effective conservation and use of wheat genetic resources is vital not only for national food security, but also for sustaining Kazakhstan's contribution to regional and global grain markets under changing climatic conditions.

FR RÉSUMÉ

Le blé constitue une pierre angulaire de la sécurité alimentaire mondiale, fournissant environ 20 % de l'apport calorique et protéique de la population mondiale. Pour le Kazakhstan, l'un des principaux exportateurs de céréales, le blé revêt une importance stratégique particulière, à la fois comme aliment de base pour la consommation nationale et comme produit d'exportation clé vers l'Asie centrale, l'Afghanistan et le Moyen-Orient. Cependant, le changement climatique, la dégradation des sols, la variabilité météorologique et le déclin de la diversité variétale représentent des risques croissants pour la stabilité de la production et la sécurité alimentaire. Cette étude examine le rôle essentiel des ressources génétiques du blé du Kazakhstan dans la réponse à ces défis. Le Centre scientifique et de production A. I. Baraev pour la culture céréalière conserve une collection de plus de 5 000 accessions de blé tendre et dur de printemps, provenant de plus de 60 pays et d'organisations internationales telles que l'ICARDA et le CIMMYT. Cette diversité génétique constitue une ressource indispensable pour la sélection

de variétés à haut rendement, résistantes aux stress et dotées de caractéristiques de qualité souhaitées, telles que la tolérance à la sécheresse et une teneur élevée en protéines. L'intégration des méthodes de sélection traditionnelles avec les biotechnologies modernes — incluant les marqueurs moléculaires, le génotypage et les installations à environnement contrôlé — offre de nouvelles perspectives pour accélérer le développement variétal. Le renforcement de la production nationale de semences, l'investissement dans la formation spécialisée et l'élargissement de la coopération internationale sont identifiés comme des stratégies clés pour accroître la résilience et assurer le rôle à long terme du Kazakhstan en tant que grand producteur mondial de blé. L'étude conclut que la conservation et l'utilisation efficaces des ressources génétiques du blé sont vitales non seulement pour la sécurité alimentaire nationale, mais aussi pour maintenir la contribution du Kazakhstan aux marchés régionaux et mondiaux des céréales dans un contexte de changement climatique.

ملخص

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الجفاف وارتفاع نسبة البروتين. إن دمج طرق التربية التقليدية مع التقنيات الحيوية الحديثة — بما في ذلك العلامات الجزيئية، والأنماط الجينية، والمنشآت ذات البيئة الخاضعة للرقابة — يفتح آفاقاً جديدة لتسريع تطوير الأصناف. ويُعد تعزيز إنتاج البذور المحلي، والاستثمار في التدريب المتخصص، وتوسيع التعاون الدولي من الاستراتيجيات الرئيسية لتعزيز القدرة على الصمود وضمان الدور طويل الأمد لكازاخستان كمُنتج عالمي رئيسي للقمح. وتخلص الدراسة إلى أن الحفاظ والاستخدام الفعال للموارد الوراثية للقمح أمران حيويان ليس فقط للأمن الغذائي الوطني، بل أيضاً للحفاظ على مساهمة كازاخستان في أسواق الحبوب الإقليمية والعالمية في ظل الظروف المناخية المتغيرة.

يُعد القمح حجر الزاوية في الأمن الغذائي العالمي، حيث يوفر حوالي 20% من مدخل العالم من السعرات الحرارية والبروتين. وبالنسبة لكازاخستان، كأحد أبرز مصدري الحبوب، يكتسب القمح أهمية استراتيجية خاصة، سواء كغذاء أساسي للاستهلاك المحلي أو كسلعة تصدير رئيسية إلى آسيا الوسطى وأفغانستان والشرق الأوسط. ومع ذلك، فإن تغير المناخ، وتدهور التربة، وتقلبات الطقس، وتراجع التنوع الوراثي للأصناف تمثل مخاطر متزايدة على استقرار الإنتاج والأمن الغذائي. تتناول هذه الدراسة الدور الحاسم للموارد الوراثية للقمح في كازاخستان في مواجهة هذه التحديات. إذ يحتفظ المركز العلمي والإنتاجي للزراعة الحبوبية "أ.إ. باراييف" بمجموعة تضم أكثر من 5000 مدخل من أصناف القمح الطري والصلب الربيعي، تم الحصول عليها من أكثر من 60 دولة ومنظمات دولية مثل "إيكاردا" و"سيميت". وتمثل هذه الثروة الوراثية مادة أساسية لتربية أصناف عالية الإنتاجية ومقاومة للإجهاد وتتميز بصفات نوعية مرغوبة، مثل مقاومة

RICE MECHANIZATION: BALANCING YIELD AND SUSTAINABILITY



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INTRODUCTION

Rice is the staple food for more than half of the world's population, and its production is a critical pillar of global food security. However, traditional rice farming is notoriously resource-intensive, labor-heavy, and a significant contributor to environmental degradation. The dual challenges of a growing global population and the climate crisis have made it imperative to transform how we grow this essential crop. This hub article explores the intricate relationship between rice mechanization and sustainability, detailing how modern technology, when applied thoughtfully, can pave the way for a more productive, efficient, and environmentally responsible future for rice cultivation.

1. UNDERSTANDING RICE MECHANIZATION: AN EVOLUTION

Mechanization in rice production involves the use of machinery to perform various operations, replacing human and animal power. Its adoption varies significantly across the globe, from highly mechanized systems in the United States, Japan, and South Korea to predominantly manual labor in many parts of Southeast Asia and Africa.

The Spectrum of Mechanization:

- **Low-Level Mechanization:** Use of simple tools like power tillers, weeders, and small pumps.
- **Medium-Level Mechanization:** Adoption of engine-powered machines for primary tillage (tractors), harvesting (reaper binders), and threshing (threshers).
- **High-Level Mechanization:** Integrated use of advanced machinery for the entire production cycle, including laser land leveling, precision seeders, combine harvesters, and GPS-guided equipment.

Key Operations and Their Machines: Land Preparation:

Instead of water buffaloes (draft animals), farmers use rotavators and laser land levelers attached to tractors. Laser leveling ensures a perfectly flat field, which is crucial for efficient water management.

Planting/Transplanting:

Replacing back-breaking manual transplanting.

Seed Drills: Machines that directly drill seeds into the soil (Direct Seeded Rice - DSR).

Rice Transplanters: Automated machines that transplant young seedlings into the puddled field. They can be riding-type or walk-behind.



Crop Management:

Aerial Application: Use of drones (UAVs - Unmanned Aerial Vehicles) for precise application of fertilizers, pesticides, and even seeding. This is a revolutionary step in precision agriculture.



Power Weeders: Mechanical devices to control weeds without herbicides.

Harvesting and Threshing:

Replacing manual cutting and threshing.

Combine Harvesters: These machines perform three operations simultaneously: reaping, threshing, and winnowing, delivering clean grain directly into bags or storage tanks.

Post-Harvest: Includes mechanical dryers, millers, and graders, which reduce post-harvest losses significantly.

2. THE SUSTAINABILITY IMPERATIVE IN RICE CULTIVATION

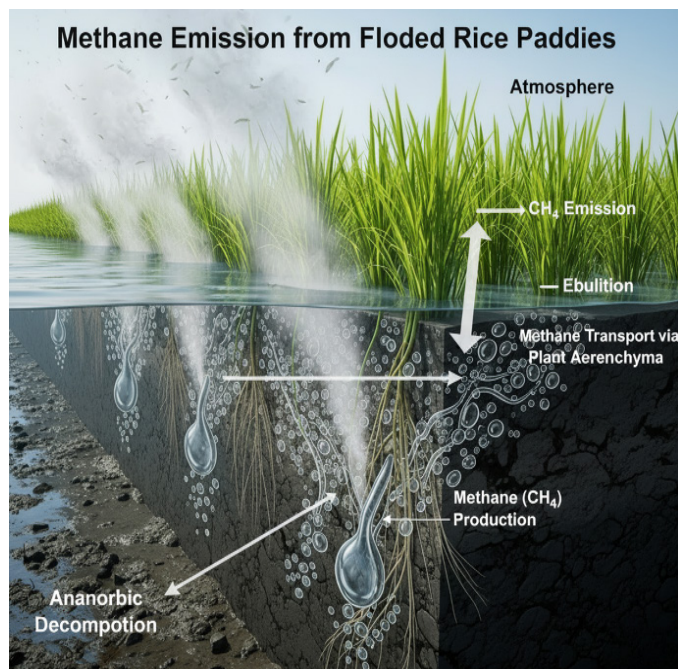
Before delving into how mechanization aids sustainability, it's vital to understand the environmental footprint of conventional rice farming.

Water Profligacy:

Traditional flooded rice paddies consume an enormous amount of freshwater, accounting for up to 34-43% of the world's irrigation water. Much of this is lost to evaporation, seepage, and runoff.

Greenhouse Gas (GHG) Emissions:

Flooded fields create anaerobic conditions, prompting methane-producing bacteria to decompose organic matter. Methane (CH_4) is a potent greenhouse gas, over 25 times more effective at trapping heat than CO_2 over a 100-year period. Rice paddies contribute approximately 10-13% of global agricultural methane emissions.



Soil Degradation:

Intensive puddling (wet tillage) can destroy soil structure, lead to hardpan formation, and reduce soil organic matter.

Chemical Runoff:

Inefficient application of fertilizers and pesticides leads to runoff into waterways, causing eutrophication and harming aquatic ecosystems.

3. THE INTERSECTION: HOW MECHANIZATION DRIVES SUSTAINABILITY

When deployed correctly, mechanization is not the antithesis of sustainability but its powerful ally. Here's how specific mechanized practices contribute to environmental goals:

A. Water Conservation

Laser Land Leveling: A perfectly leveled field ensures uniform water distribution, eliminating waterlogged and dry spots. This can reduce water requirement by 20-30%.

Direct Seeded Rice (DSR) via Seed Drills: DSR eliminates the need for continuous flooding during the initial growth stages. Seeds are drilled directly into non-puddled soil, significantly reducing water use compared to traditional transplanting.

Alternate Wetting and Drying (AWD): While AWD is a water management technique, its efficiency is greatly enhanced by mechanization. Tube wells with water pumps and sensors allow for precise control of irrigation timing.

B. Reduction of Greenhouse Gas Emissions

DSR and Reduced Flooding: By moving away from continuously flooded conditions, DSR drastically cuts methane emissions. Studies show emissions can be reduced by up to 90% compared to conventional paddies.

Precision Application of Inputs: Drones and sensor-based sprayers can apply fertilizers and amendments with pinpoint accuracy. This reduces the overuse of nitrogenous fertilizers, which, when degraded in flooded soils, can produce nitrous oxide (another potent GHG).

C. Soil Health Improvement

Reduced Tillage and DSR: Minimizing puddling preserves soil structure, enhances water infiltration, and promotes biodiversity within the soil.

Precision Fertilization: Prevents nutrient imbalances and acidification, maintaining long-term soil fertility.

D. Economic and Social Sustainability

Labor Efficiency: Mechanization addresses the critical issue of rural labor shortages and rising wages, making farming viable for the next generation.

Increased Productivity and Profitability: Machines reduce yield losses during harvesting and post-harvest stages. Timely operations (e.g., harvesting before rains) protect the crop quality, fetching better prices.

Drudgery Reduction: Mechanization alleviates some of the most labor-intensive and health-compromising tasks in agriculture, particularly for women.

4. THE CHALLENGES AND PITFALLS: A CRITICAL VIEW

Mechanization is not a silver bullet. Its implementation comes with significant challenges that must be managed to avoid negative sustainability outcomes.

High Initial Investment: The cost of machinery is prohibitive for smallholder farmers who dominate global rice production. This necessitates models like Custom Hiring Centers or rental services.

Soil Compaction: Heavy machinery can compact soil, reducing porosity and harming root growth. This requires careful management, such as controlled traffic farming.

Fossil Fuel Dependency: Most machinery runs on diesel, contributing to carbon emissions. The shift towards electric and biodiesel-powered machines is crucial.

Potential for Job Displacement: In regions with high underemployment, mechanization can reduce the demand for agricultural labor, creating social challenges that need to be addressed through policy and retraining.

Not a One-Size-Fits-All Solution: Machinery designed for large, flat fields is unsuitable for small, fragmented, or sloping land, common in many Asian and African countries.

5. THE FUTURE: INTEGRATING SMART MECHANIZATION FOR A SUSTAINABLE PARADIGM

The future lies in moving beyond simple mechanization to smart, precision mechanization integrated with sustainable agronomic practices.

1. Precision Agriculture and Digital Farming:

GPS-Guided Tractors and Drones: For precise operation, reducing overlap and waste.

Sensor-Based Technology: Using sensors to monitor soil moisture, nutrient levels, and crop health in real-time, allowing for variable-rate application of inputs.

AI and Big Data: Algorithms can predict pest outbreaks, optimize irrigation schedules, and provide actionable insights to farmers.

2. Conservation Agriculture (CA) for Rice:

The principles of CA minimal soil disturbance, permanent soil cover, and crop rotation are being adapted for rice systems through zero-till DSR and the use of mulches.

3. Renewable Energy Integration:

Development and promotion of solar-powered pumps, electric tractors, and machinery running on biofuels to decarbonize the mechanization process.

4. Scale-Neutral Technology:

Innovation in smaller, affordable, and adaptive machinery for smallholder farmers, such as mini-combines

CONCLUSION: A BALANCED PATHWAY FORWARD

The journey towards sustainable rice production is complex and multifaceted. Mechanization, when implemented as part of an integrated system one that includes water-saving techniques, soil health management, and precision agronomy is an indispensable tool. It offers a pathway to “do more with less”: produce more food with less water, less land, fewer emissions, and less manual labor.

The goal is not to mechanize for the sake of efficiency alone, but to harness technology to create a climate-resilient, productive, and equitable rice farming system that can nourish the world for generations to come. The collaboration between governments (for policy and subsidies), researchers (for innovation), and the private sector (for manufacturing and service provision) is key to making this sustainable future a reality for all farmers, big and small.



EN SUMMARY

Rice cultivation, a cornerstone of global food security, faces the dual challenge of meeting rising demand while mitigating its significant environmental footprint, which includes prodigious water use and substantial methane emissions. This article provides a comprehensive analysis of the role of mechanization as a critical driver for sustainable rice production. It moves beyond the conventional view of mechanization merely as a source of efficiency gains, instead positioning it as an integrated tool for ecological management. The analysis details how specific technologies from laser land leveling and direct seeders to drone-based precision application directly contribute to water conservation, reductions in

greenhouse gas emissions, and improved soil health. However, the article also critically examines the associated challenges, including high investment costs, risks of soil compaction, and potential social impacts. Ultimately, it argues that the future of sustainable rice lies not in mechanization alone, but in its synergistic integration with agronomic practices like Alternate Wetting and Drying (AWD) and Direct Seeded Rice (DSR) under a framework of precision agriculture. The conclusion presents a pathway forward where smart, scale-appropriate, and renewable energy-powered mechanization is essential for developing a climate-resilient, productive, and equitable rice sector.

FR RÉSUMÉ

La mécanisation du riz apparaît comme un levier essentiel pour concilier productivité et durabilité. Des technologies comme le nivellement laser, le semis direct et l'usage de drones permettent d'économiser l'eau, de réduire les émissions de gaz à effet de serre et d'améliorer la santé des sols. Toutefois, des défis persistent, no-

tamment les coûts élevés, la compaction des sols et les impacts sociaux liés à la réduction de main-d'œuvre. L'avenir repose sur une mécanisation intelligente, adaptée aux petits exploitants et intégrée aux pratiques agronomiques durables, afin de construire une riziculture résiliente, productive et équitable.

ملخص

AR

صحة التربة. ومع ذلك، تُجري المقالة أيضًا دراسة نقدية للتحديات المُصاحبة، بما في ذلك ارتفاع تكاليف الاستثمار، ومخاطر ضغط التربة، والآثار الاجتماعية المُحتملة. وفي نهاية المطاف، تبرهن المقالة بأن مستقبل الأرز المُستدام لا يكمن في الميكنة وحدها، بل في تكاملها التآزري مع الممارسات الزراعية مثل الترطيب والتجفيف المُتبادل وزراعة الأرز بطريقة البذر المباشر في إطار الزراعة الدقيقة. يقدم الاستنتاج مسارا للمضي قدما حيث تكون الميكنة الذكية والمناسبة للحجم والعاملة بالطاقة المتجددة ضرورية لتطوير قطاع أرز قادر على التكيف مع تغير المناخ وإنتاجي وعادل.

تُعد زراعة الأرز حجر الزاوية في الأمن الغذائي العالمي، حيث تواجه تحديًا مزدوجًا يتمثل في تلبية الطلب المتزايد مع التخفيف من آثارها البيئية الكبيرة، والتي تشمل الاستهلاك الهائل للمياه وانبعاثات غاز الميثان الكبيرة. تُقدّم هذه المقالة تحليلًا شاملاً لدور الميكنة كمحرك أساسي لإنتاج الأرز المستدام. وتتجاوز هذه المقالة النظرة التقليدية إلى الميكنة كمصدر لزيادة الكفاءة فحسب، بل تُقدّمها كأداة متكاملة للإدارة البيئية. ويُفصّل التحليل كيف تُساهم تقنيات مُحددة بدءًا من تسوية الأراضي بالليزر والبذر المباشر وصولًا إلى التطبيق الدقيق باستخدام الطائرات بدون طيار بشكل مباشر في الحفاظ على المياه، وخفض انبعاثات غازات الاحتباس الحراري، وتحسين



STRENGTHENING GLOBAL UNITY: IOFS'S GROWING ROLE IN THE INTERNATIONAL COMMUNITY AND EXPANDING PARTNERSHIPS IN 2025



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The Islamic Organization for Food Security (IOFS) has been privileged to witness remarkable growth in its international partnerships and collaborative initiatives throughout 2025. As the global community faces unprecedented challenges in ensuring sustainable food systems, IOFS has endeavored to position itself as a contributing partner in innovative solutions, humbly working to bridge regional needs with global expertise through strategic alliances that seek to transcend traditional boundaries.

A STRATEGIC VISION FOR 2026-2035: BUILDING THE FOUNDATION TOGETHER

The cornerstone of IOFS's expanding influence became evident during the high-level expert meeting held in Doha, Qatar, from September 2-3, 2025. This pivotal gathering, which brought together representatives from over 25 OIC member states alongside research organizations and OIC institutions partners, focused on finalizing the **Strategic Plan for Ensuring Food Security in OIC Member States (2026–2035)**.

HIGH-LEVEL DIPLOMATIC ENGAGEMENT: WELCOMING MEMBER STATES TO IOFS HEADQUARTERS

Key Achievement: *This collaborative effort, co-organized by IOFS in partnership with the OIC General Secretariat, SESRIC, and the Islamic Development Bank (IsDB), represents more than just a planning exercise—it embodies a unified vision for sustainable food security across the Islamic world. The plan emphasizes mutual understanding, inclusivity, and coherence among member states while encouraging greater knowledge-sharing and institutional co-operation across regions.*

Historic Presidential Visit Sets New Precedent

IOFS was deeply honored when H.E. Umaro Mokhtar Sissoco Embaló, President of the Republic of Guinea-Bissau, made a historic visit to IOFS headquarters in Astana on December 19, 2024. This milestone marked the first visit by a head of state from an IOFS member state, reflecting the organization's growing relevance in advancing food security and agricultural development within the OIC region.

Ministerial Visits Strengthen Bilateral Ties

Throughout 2025, IOFS has had the privilege of hosting an unprecedented series of high-level ministerial visits to its headquarters, demonstrating the growing confidence member states place in the organization's mission:

- **Azerbaijan's Commitment to Membership:** On March 11, 2025, H.E. Mr. Jeyhun Bayramov, Foreign Minister of Azerbaijan, visited IOFS headquarters during his official visit to Kazakhstan, reaffirming his country's intention to accede to IOFS membership.
- **West African Partnerships:** H.E. Mr. Timothy Musa Kabba, Minister of Foreign Affairs of Sierra Leone, visited on April 7, 2025, followed by H.E. Olushogun Adjadi Bakari, Minister of Foreign Affairs of Benin, on April 18, 2025.
- **Strengthening Sahel Partnerships:** On June 3, 2025, IOFS welcomed H.E. Mr. Karamoko Jean Marie TRAORÉ, Minister of Foreign Affairs of Burkina Faso, exploring enhanced cooperation in climate-smart agriculture and sustainable soil health practices.

Parliamentary Support from Kazakhstan

On July 3, 2025, IOFS hosted a significant delegation from the Senate of the Republic of Kazakhstan, including H.E. Mr. Darkhan Kydyrali and H.E. Mr. Galiasgar Sarybaev.

"IOFS plays an important role in fostering international cooperation on food security.

As representatives of the Senate, we stand ready to continue supporting the Organization's efforts and strengthening partnerships for the sake of sustainable development in our region and beyond." —

Senator Darkhan Kydyrali

IOFS and FAO Strengthen Strategic Partnership on Food Security and Sustainable Agriculture

At the Astana International Forum on 29 May 2025, H.E. Ambassador Berik Aryn, Director General of IOFS, met with FAO Director General QU Dongyu to reaffirm their partnership in advancing food security, sustainable agriculture, and resilience across OIC Member States. Building on their 2024 Letter of Intent and ongoing joint activities, including workshops, consultations, and the Global Food Security Summit, both sides emphasized coordinated action against hunger, climate change, and rural vulnerability. The meeting highlighted IOFS's commitment to innovation and emergency response, while FAO invited IOFS to actively engage in the upcoming World Food Forum in Rome in October 2025.

International Leadership Engagement

On May 29, 2025, IOFS was honored to welcome H.E. Mrs. Amy Pope, Director General of the International Organization for Migration (IOM), to its headquarters in Astana for the signing of a landmark Memorandum of Understanding focusing on enhancing food security in migration-affected regions.

DIRECTOR GENERAL'S HUMBLE OUTREACH TO MEMBER STATES AND PARTNERS

Strengthening Bilateral Relationships Through Dialogue

- **Turkey Partnership and TİKA Memorandum:** During an official visit to Turkey in January 2025, Director General H.E. Ambassador Berik Aryn had the privilege of signing a comprehensive Memorandum of Understanding with the Turkish Cooperation and Coordination Agency (TİKA). This agreement aims to strengthen cooperation in food and water security, agriculture and rural development, and biotechnology.
- **Algeria Partnership Development:** Ambassador Aryn conducted a meaningful mission to Algeria in May 2025, laying the foundation for enhanced cooperation between IOFS and Algerian institutions, respectfully acknowledging Algeria's expertise in dryland farming, water management, and food systems resilience.
- **Expanding Asian Partnerships:** The Maldives has initiated the process of joining IOFS, recognizing the organization's potential to address the unique food security challenges faced by small island developing states.

Regional Engagement Through Collaborative Platforms

The Africa Food Systems Forum 2025 in Dakar, Senegal, provided Ambassador Aryn with valuable opportunities to conduct high-level bilateral meetings with key stakeholders from Senegal, Somalia, Tunisia, and Niger, focusing on collaborative discussions about agricultural modernization, capacity building, and climate-resilient farming.

FORGING STRATEGIC ALLIANCES WITH GLOBAL PARTNERS

UN Women Partnership: Empowering Women in Agriculture

One of IOFS's most meaningful partnerships in 2025 was the Memorandum of Understanding signed with UN Women's Regional Office for West and Central Africa in May. This collabora-

tion humbly seeks to contribute to women's empowerment, food security, and climate action in the cassava value chain, beginning in Nigeria and Sierra Leone.

Qatar Charity and Qatar Fund for Development: Amplifying Impact Together

IOFS has worked to strengthen its humanitarian and development capabilities through enhanced partnerships with Qatar Charity and Qatar Fund for Development (QFFD). Recent bilateral meetings in Doha explored ways to expand cooperation in delivering impactful food security projects across the OIC region, including support for the Afghanistan Food Security Programme and the IOFS Africa Initiative.

LOOKING AHEAD: UPCOMING INTERNATIONAL ENGAGEMENTS AND COMMITMENTS

Major Upcoming Events and Engagements

- **COP30 and Climate Action:** As the international community prepares for the 30th UN Climate Change Conference (COP30) in Belém, Brazil, from November 10-21, 2025, IOFS remains committed to contributing meaningfully to global climate action discussions, particularly in relation to food security and agricultural resilience.
- **Global Green Growth Week 2025:** IOFS looks forward to participating in the Global Green Growth Week (GGGWeek) 2025, hosted by the Global Green Growth Institute (GGGI) in Seoul from October 27-31, 2025. Under the theme «Innovation in a World in Transition,» this flagship global conference will bring together global leaders, practitioners, and partners to advance dialogue and collaboration on innovative green growth solutions.
- **Expanding Consultation with All OIC Member States:** In its commitment to inclusive engagement, IOFS plans upcoming consultative visits to Guyana and Suriname, continuing the organization's efforts to engage meaningfully with all OIC member states regardless of geographical location or size.
- **International High-Level Conference on Food Security in Yemen:** IOFS looks forward to participating in this important conference scheduled for October 27-28, 2025, at the GCC headquarters in Riyadh, representing an opportunity to address one of the most pressing humanitarian challenges facing the region.

Recent High-Level Engagements

Throughout 2025, Director General Ambassador Aryn has undertaken various missions to member states and partner countries, including productive visits to Saudi Arabia (engaging with KSRelief), Iraq, Malaysia, Morocco, Tunisia, and Côte d'Ivoire. These visits represent IOFS's humble commitment to listening, learning, and building partnerships that serve the genuine needs of member states.

MEMBER STATE RELATIONS: BUILDING TRUST THROUGH HUMBLE SERVICE

Joint Technical Collaboration

IOFS has worked to establish practical joint technical working groups with various member states, recognizing that sustainable solutions emerge from genuine partnership and mutual

respect. The Joint Technical Work Groups established with Guinea-Bissau, Yemen, Iraq, Morocco, and other member states exemplify this approach, focusing specifically on enhancing bilateral cooperation in agriculture and food security. These collaborative frameworks allow for tailored solutions that address each country's unique challenges while fostering knowledge exchange and capacity building across the OIC region.

Capacity Building as Mutual Learning

The organization has implemented capacity-building programs across member states, always approaching these initiatives as opportunities for mutual learning rather than one-directional knowledge transfer. These programs include regional workshops on innovative agricultural technologies and sustainable farming practices.

LOOKING AHEAD WITH HUMILITY: BUILDING RESILIENT FOOD SYSTEMS TOGETHER

As IOFS continues to expand its partnerships and member state relations, several key themes guide its approach:

- **Collaborative Innovation:** Rather than imposing solutions, IOFS seeks to facilitate the sharing of agricultural technologies and innovations between member states and international partners, ensuring that knowledge flows in multiple directions.
- **Climate Resilience Through Partnership:** All partnerships emphasize building climate-resilient agricultural systems through collaborative learning and shared responsibility, recognizing that no single organization has all the answers.
- **Inclusive Development:** IOFS's partnerships consistently prioritize empowering women and youth as partners in agricultural transformation, understanding that sustainable development must be genuinely inclusive.

- **Regional Integration Through Respect:** The organization works humbly to support regional cooperation and knowledge-sharing platforms, recognizing that lasting integration emerges from mutual respect rather than imposed frameworks.

CONCLUSION: A JOURNEY OF PARTNERSHIP AND SERVICE

IOFS's expanding role in the international community during 2025 represents not organizational triumph but rather the privilege of service—an opportunity to contribute humbly to addressing one of humanity's greatest challenges. The unprecedented level of high-level diplomatic engagement, from presidential visits to ministerial consultations and parliamentary support, reflects not IOFS's own achievements but rather the collective commitment of the OIC community to food security.

Through its growing portfolio of partnerships spanning UN agencies, regional organizations, bilateral donors, and research institutions, combined with its deepening relationships with member states, IOFS has sought to serve as a bridge—not commanding but connecting, not imposing but facilitating.

As the organization looks toward the implementation of the 2026-2035 Strategic Plan and upcoming international engagements including COP30, Global Green Growth Week 2025, the Yemen conference, and continued member state consultations, these partnerships and relationships will serve as the foundation for building integrated, resilient, and sustainable food systems across the OIC region.

The path ahead is one of continued learning, deeper collaboration, and expanded service as IOFS and its partners work together with humility and determination to ensure that food security becomes a reality for all people, everywhere.

Sofian (September 2025)

EN SUMMARY

IOFS experienced unprecedented growth in international partnerships during 2025, establishing strategic alliances across over 25 OIC member states and key global organizations. The organization finalized its Strategic Plan for Food Security (2026–2035) through a high-level expert meeting in Doha and welcomed the first-ever presidential visit from Guinea-Bissau. Ministerial engagements with Azerbaijan, Sierra Leone, Benin, and Burkina Faso strengthened bilateral cooperation. Strategic partnerships were formalized with

FAO, IOM, TIKa (Turkey), UN Women, Qatar Charity, and QFFD, focusing on climate-resilient agriculture, women's empowerment, and migration-affected regions. Joint technical working groups were established with Guinea-Bissau, Yemen, Iraq, and Morocco, while capacity-building programs emphasized collaborative innovation and inclusive development. Future plans include implementation of the 2026-2035 Strategic Plan and participation in COP30, Global Green Growth Week 2025, and continued member state consultations.

FR RÉSUMÉ

L'IOFS a connu une croissance sans précédent de ses partenariats internationaux en 2025, établissant des alliances stratégiques avec plus de 25 États membres de l'OIC et organisations mondiales clés. L'organisation a finalisé son Plan Stratégique pour la Sécurité Alimentaire (2026–2035) lors d'une réunion d'experts de haut niveau à Doha et accueilli la première visite présidentielle de Guinée-Bissau. Les engagements ministériels avec l'Azerbaïdjan, Sierra Leone, Bénin et Burkina Faso ont renforcé la coopération bilatérale. Des partenariats stratégiques ont été formalisés avec la FAO, l'OIM, TIKa (Turquie), ONU Femmes, Qatar Charity et QFFD,

axés sur l'agriculture résiliente au climat, l'autonomisation des femmes et les régions affectées par la migration. Des groupes de travail techniques conjoints ont été établis avec Guinée-Bissau, Yémen, Irak et Maroc, tandis que les programmes de renforcement des capacités privilégient l'innovation collaborative et le développement inclusif. Les plans futurs incluent l'implémentation du Plan Stratégique 2026-2035 et la participation à la COP30, la Semaine Mondiale de la Croissance Verte 2025, et les consultations continues avec les États membres.

ملخص

AR

الدولية وتيكا (تركيا) وهيئة الأمم المتحدة للمرأة وجمعية قطر الخيرية وصندوق قطر للتنمية، مع التركيز على الزراعة المقاومة للمناخ وتمكين المرأة والمناطق المتأثرة بالهجرة. تم إنشاء مجموعات عمل فنية مشتركة مع غينيا بيساو واليمن والعراق والمغرب، بينما أكدت برامج بناء القدرات على الابتكار التعاوني والتنمية الشاملة. تشمل الخطط المستقبلية تنفيذ الخطة الاستراتيجية 2026-2035 والمشاركة في مؤتمر المناخ الثلاثين وأسبوع النمو الأخضر العالمي 2025 ومواصلة المشاورات مع الدول الأعضاء

شهدت المنظمة الإسلامية للأمن الغذائي نمواً غير مسبوق في الشراكات الدولية خلال 2025، حيث أسست تحالفات استراتيجية مع أكثر من 25 دولة عضو في منظمة التعاون الإسلامي ومنظمات عالمية رئيسية. أنجزت المنظمة خططها الاستراتيجية

للأمن الغذائي (2026-2035) من خلال اجتماع خبراء رفيع المستوى في الدوحة واستقبلت أول زيارة رئاسية من غينيا بيساو. عززت المشاركات الوزارية مع أذربيجان وسيراليون وبنين وبوركينا فاسو التعاون الثنائي. تم إضفاء الطابع الرسمي على الشراكات الاستراتيجية مع الفاو ومنظمة الهجرة

IOFS FOOD SECURITY UPDATE (SEPTEMBER 2025)

PROGRAMS DEPARTMENT

GLOBAL FOOD SECURITY SITUATION

Global food security remains fragile despite modest improvements in recent years. The number of people facing hunger slightly declined to around **673 million in 2024**, but conflict, climate shocks, and high food price inflation continue to erode resilience, particularly in low- and middle-income countries.

Global markets for major cereals and oilseeds remain well supplied: wheat and rice prices have declined sharply, while maize and soybeans continue to see strong demand. However, risks persist from trade restrictions, biofuel policies, and climate volatility. Food price inflation remains elevated in many countries and continues to exceed headline inflation, exacerbating vulnerability. The **Global Report on Food Crises** indicates rising acute food crises and famine-like conditions, while humanitarian financing gaps are severely limiting response capacities.

GLOBAL PRICE TRENDS (FAO FOOD PRICE INDEX)

Recent data from FAO shows the FAO Food Price Index (FFPI) at 130.1 in August 2025, virtually unchanged from July's revised figure of 130.0. Year-on-year the FFPI is up 6.9%, though it remains about 18.8% below its peak in March 2022.

Breaking down:

- The **Cereal Price Index** fell slightly (-0.8 percent) from July to August and is 4.1% below its value in August 2024.
- The **Vegetable Oil Price Index** rose, reaching its highest since mid-2022, pulled up by palm, sunflower, and rapeseed oils.
- The **Meat Price Index** hit a new all-time high, driven by bovine and ovine meats, while dairy prices were down, reflecting lower quotations for butter, cheese, and whole milk powder.

These trends suggest that while some staple cereals are experiencing price relief, other food groups (meat, oils) exert inflationary pressure, which may disproportionately affect diets in OIC countries with import dependencies or where those items are staples in either consumption or trade.

STAPLES SUPPLY & DEMAND OUTLOOK (FAO CEREAL BRIEF)

According to the FAO Cereal Supply and Demand Brief (September 2025), global cereal production in **2025** is now forecast at a **record high of about 2,961 million tonnes**, up 3.5% from the previous year. Improvements in coarse grain production (especially maize) are the major contributors to this increase.

Specifically:

- The production forecast for coarse grains has been raised, thanks to better yield expectations in the US, Brazil, and Mexico.
- Wheat output is marginally down in some regions compared to earlier projections but still up year-on-year. Adverse weather (e.g., in China and Argentina) is dampening increases in wheat yields.

These positive production forecasts for cereals could help ease pressures in OIC countries that rely on imports, provided supply chains hold, trade policies are supportive, and access (finance, transport, tariffs) is maintained. However, localized production risks (droughts, weather shocks, conflict) may still undermine food security in some member states.

DEVELOPMENTS IN OIC MEMBER STATES

Food security trends across OIC countries remain heterogeneous, with several members experiencing acute humanitarian emergencies and others struggling with high inflation, production volatility, or trade policy disruptions.

Middle East & North Africa (MENA)

- **Gaza Strip:** The entire population faces Crisis-level food insecurity (IPC Phase 3+), with confirmed famine-like conditions (Phase 5) in some areas. Humanitarian deliveries are being looted or blocked, deepening the crisis.
- **Yemen:** Economic collapse, declining aid flows, and climate shocks have left millions in IPC Phase 3+, with risks of further deterioration into 2026.
- **Tunisia:** Improved rainfall conditions have boosted cereal harvests in 2024/25, though regional disparities remain.

South and South-East Asia

- **Afghanistan:** Four consecutive years of drought, combined with economic distress and the return of ~2.4 million migrants from Iran and Pakistan, have driven severe food insecurity. Earthquakes in August 2025 further disrupted markets.
- **Pakistan and neighbors:** Regional rice and maize production fluctuations highlight vulnerabilities in import-dependent countries, with potential downstream impacts on affordability and access.

Sub-Saharan Africa

- **Sudan, Somalia, Mali, Nigeria:** Millions face acute food insecurity due to conflict and displacement. Sudan is experiencing famine-like conditions in several regions. Nigeria and the DRC account for tens of millions facing IPC Phase 3+. Funding shortages sharply limit humanitarian interventions.

Eurasia (Türkiye & Central Asia)

Türkiye: While remaining a key regional food supplier, occasional export restrictions on staple products (e.g. onions, potatoes, sunflower oil) highlight domestic food security concerns.

Kazakhstan, Kyrgyzstan, Uzbekistan: Recent harvests show positive production signals, but local price controls, export measures, and import restrictions continue to shape market access and affordability.

TRADE & PRICE PRESSURES

As of September 2025, several OIC members (including Pakistan, Türkiye, Uzbekistan, and Nigeria) maintain export restrictions or trade measures on key staples. While aimed at protecting domestic supply, these policies risk amplifying food price volatility across the region.

IOFS POLICY OUTLOOK

Food security challenges in OIC countries remain diverse: from acute humanitarian crises in **Gaza, Yemen, Sudan, and Somalia** to structural vulnerabilities in **South Asia and the Sahel**, and inflationary pressures across much of the membership. Financing constraints and persistent trade restrictions further complicate the outlook.

IOFS recommends a set of immediate priorities for Member States, aligned with its Vision to become the trusted partner of all OIC countries in strengthening food security and food systems. Urgent coordination and humanitarian access remain critical for Gaza, Yemen, Sudan, and other crisis hotspots. At the same time, regional food reserves and stock-sharing mechanisms—building on the IOFS Food Security Reserves program—should be reinforced to provide stability in times of shortage. Expanding social protection measures, is equally vital to shield vulnerable households from persistent food price inflation and ensure access to safe and nutritious food.

In addition, IOFS emphasizes the need for more balanced trade policies to avoid the negative spill-over effects of export bans, while promoting resilient agriculture through climate-smart practices, irrigation, cold chain infrastructure, and fertilizer access, in line with IOFS programs. Equally important are nutrition-focused interventions for children and women, drawing on IOFS initiatives. To achieve long-term resilience, OIC Member States must enhance regional solidarity, expand financial commitments—including through mechanisms like the IOFS Fund—and accelerate IOFS-led frameworks that secure sustainable, affordable, and halal food systems for all.

*This update has been prepared based on the **World Bank Food Security Update**, **FAO World Food Situation** data, and **IOFS analysis**.*

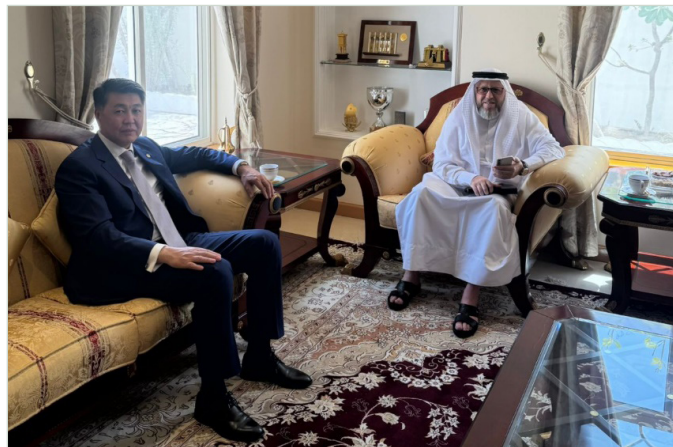


IOFS NEWS OVER JULY-AUGUST-SEPTEMBER

Members of the Senate of the Republic of Kazakhstan Visit IOFS Headquarters



On 3 July 2025, the Islamic Organization for Food Security (IOFS) welcomed Senators Darkhan Kydyrali and Galiaskar Sarybaev of the Republic of Kazakhstan at its headquarters in Astana. The delegation was received by IOFS Director General Ambassador Berik Aryn and senior officials, who discussed the Organization's mandate and Kazakhstan's pivotal role in its institutional and international advancement. Ambassador Aryn highlighted key IOFS initiatives in Kazakhstan and Central Asia, including advanced plant breeding technologies, water resource digitalization, export development, and the establishment of the IOFS International Gene Bank. Both sides reaffirmed their commitment to strengthening cooperation between IOFS and the Kazakh Parliament to advance strategic food security programs across OIC Member States, with Senator Kydyrali emphasizing the Senate's readiness to support IOFS in promoting sustainable development and regional cooperation.



IOFS Strengthens Strategic Partnerships during Working Visit to Qatar



From 6–7 July 2025, the Director General of the Islamic Organization for Food Security (IOFS), H.E. Ambassador Berik Aryn, conducted a working visit to the State of Qatar to strengthen institutional partnerships in food security, humanitarian response, and sustainable development across the OIC region. During the visit, Ambassador Aryn held a bilateral meeting with H.E. Mr. Nawaf Abdullah Al-Hammadi, Chief Global Operations Officer of Qatar Charity, which resulted in the signing of a Memorandum of Understanding establishing a strategic framework for joint food security initiatives. He also met with Mr. Salim Abbasi, Chief Ex-

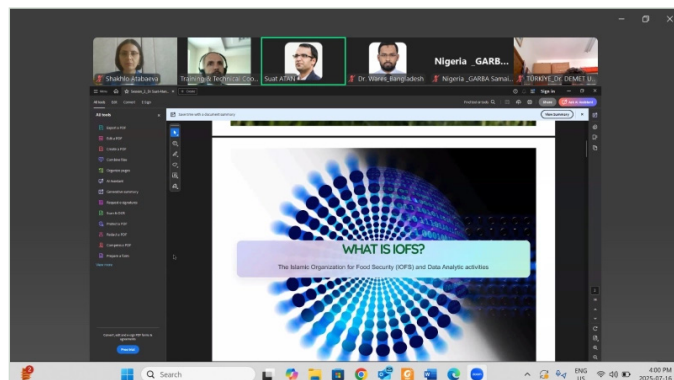
ecutive Officer of Qatar Solar Energy (QSE), to discuss renewable energy solutions for food systems transformation, and with H.E. Mr. Faisal bin Mohammed Al-Emadi, Secretary General of the Qatar Red Crescent Society (QRCS), to advance cooperation in humanitarian response. A working-level meeting was further held with Mr. Yousef Almulla, Acting Manager of the Humanitarian Aid Department at the Qatar Fund for Development (QFFD), led on the IOFS side by Dr. Ismail Abdelhamid, Director of the Projects Department. As part of the visit, Ambassador Aryn also paid a courtesy call to H.E. Mr. Arman Issagaliyev, Ambassador of the Republic of Kazakhstan to the State of Qatar, reaffirming the importance of close coordination between IOFS and its host country in advancing shared priorities within the OIC framework.

IOFS and QazTrade Explore Prospects to Strengthen Strategic Cooperation to Boost Agri-Food Trade



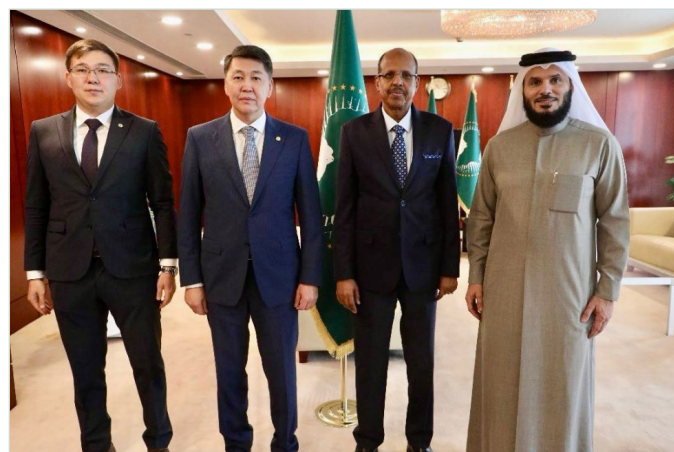
On 10 July 2025, the Director General of IOFS, H.E. Ambassador Berik Aryn, received a delegation from QazTrade, led by its Director General, Mr. Aitmukhammed Aldazharov, at the IOFS Headquarters in Astana. The meeting focused on aligning strategic priorities to support Kazakhstan's expanding role in agri-food exports and regional trade. QazTrade presented its vision for deeper cooperation aimed at enhancing the country's trade potential, while IOFS expressed readiness to support these efforts through the International Islamic Food Processing Association (IFPA), a subsidiary body of IOFS based in Dubai. As the OIC's specialized institution for food security, IOFS emphasized its mandate to foster intra-OIC trade and facilitate economic integration among Member States. Both sides agreed on the importance of joint efforts to improve market access, strengthen value-added production, and advance food security across the OIC region. Ambassador Aryn highlighted the potential of leveraging institutional mechanisms such as IFPA, while Mr. Aldazharov reaffirmed QazTrade's commitment to promoting export-oriented growth and international cooperation. The meeting concluded with an agreement to maintain close coordination and pursue targeted initiatives in trade facilitation, market intelligence, and capacity building for exporters.

IOFS and SESRIC Successfully Conclude Training Course on “Zero Waste Strategies for a Greener Future”



The Islamic Organization for Food Security, in collaboration with the Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC), organized a two-day online training course titled “Zero Waste Strategies for a Greener Future” on 16–17 July 2025. Held under the IOFS–SESRIC Agreed Activities within the ACMOI Matrix, the course gathered participants from across the OIC region to exchange knowledge on circular economy principles, sustainable waste management, and innovative approaches to reducing food and environmental waste. Opening remarks were delivered by Dr. Shahlo Atabaeva, Programme Manager at IOFS, and Dr. Atilla Karaman, Director of Training and Technical Cooperation at SESRIC, who underscored the need for joint action toward greener agrifood systems. Expert presentations included contributions from Hisham Estawi (Egypt) on circular economy models, Suat Atan (Türkiye) on the IOFS Database & Data Analytics for food security, and Hussein F. Hassan (Lebanon) on transforming food waste into value. The second day featured discussions on academic leadership and technological innovations in waste management, with speakers from Pakistan and Indonesia.

IOFS Director General Engages in Strategic Dialogue at UN Food Systems Summit in Addis Ababa

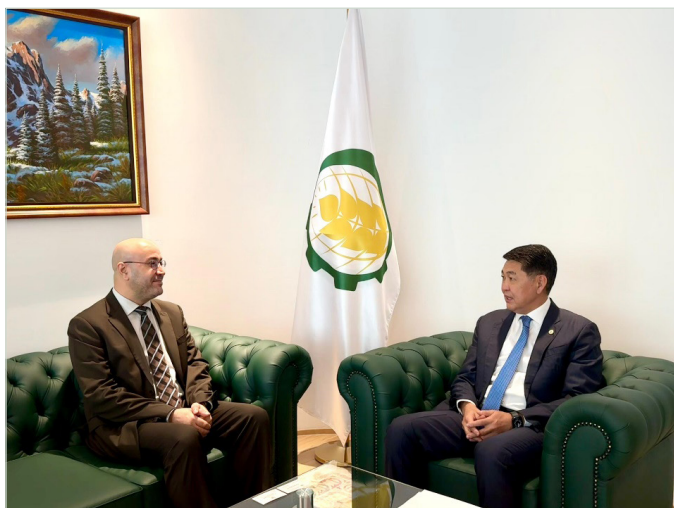




Ambassador Berik Aryn, Director General of the Islamic Organization for Food Security (IOFS), participated in the United Nations Food Systems Summit (UNFSS+4), held from 27–29 July 2025 in Addis Ababa, Ethiopia, at the invitation of UN Secretary-General António Guterres. The Summit gathered world leaders, UN agency heads, and key stakeholders to accelerate progress toward resilient and sustainable food systems. In his address, Secretary-General Guterres warned of the worsening global hunger crisis, echoed by Italian Prime Minister Giorgia Meloni and Ethiopian Prime Minister Abiy Ahmed, who called for greater investment in agriculture, fair trade, and technology.

On the sidelines, Ambassador Aryn held high-level meetings with H.E. Amna bint Abdullah Al Dahhak (UAE), H.E. Ibrokhim Abdurakhmonov (Uzbekistan), H.E. Abdulrahman Abdulmohsen AlFadley (Saudi Arabia), H.E. Majnun Mammadov (Azerbaijan), and H.E. Samat Nasirdinov (Kyrgyzstan) to strengthen cooperation within the OIC framework. He also met H.E. Mahmoud Ali Youssouf, Chairperson of the African Union Commission, accompanied by Mr. Saleh Lootah, CEO of the International Islamic Food Processing Association (IFPA). The meeting emphasized closer IOFS–AU collaboration, given that 25 AU Member States are also IOFS members, and explored joint priorities in agricultural investment, food system resilience, and capacity-building. Through its engagement in UNFSS+4, IOFS reaffirmed its commitment to multilateral cooperation and sustainable food security across Member States.

IOFS and Algeria Explore Enhanced Cooperation in Agriculture and Food Security



The Director General of the Islamic Organization for Food Security, H.E. Ambassador Berik Aryn, received H.E. Mr. Mehadjji Athmane, Ambassador of the People's Democratic Republic of Algeria to the Republic of Kazakhstan, at the IOFS headquarters. The meeting provided an opportunity to discuss strengthening cooperation between IOFS and Algeria in advancing sustainable agriculture and food security across the OIC region. Ambassador Aryn congratulated Ambassador Athmane on his recent appointment and reaffirmed IOFS's support for Algeria's agricultural priorities, highlighting the country's expertise in dryland farming, water management, and food systems resilience.

IOFS Director General Visits CICA Headquarters, Extends Congratulations on New Premises



The Director General of the Islamic Organization for Food Security, H.E. Ambassador Berik Aryn, paid an official visit to the Headquarters of the Conference on Interaction and Confidence Building Measures in Asia (CICA) in Astana. During his meeting with the CICA Secretary General, H.E. Ambassador Kairat Sarybay, Ambassador Aryn conveyed warm congratulations on the inauguration of CICA's new headquarters, commending it as a symbol of CICA's expanding role in promoting dialogue, trust, and cooperation across Asia. The two sides discussed prospects for strengthening collaboration between IOFS and CICA, highlighting the importance of joint initiatives aimed at advancing regional food security, sustainable development, and resilience to global challenges. Both organizations reaffirmed their commitment to deepening institutional partnership based on shared values and mutual priorities.

Official Opening of the National Training on Rice Mechanization in Guinea-Bissau



The Islamic Organization for Food Security, in collaboration with the Ministry of Agriculture and Rural Development of the Republic of Guinea-Bissau, launched the National Training on Enhancing Rice Productivity through Mechanization on 26 August 2025 in Bissau. The opening ceremony was attended by H.E. Dr. Queta Baldé, Minister of Agriculture and Rural Development, Dr. Abdelaziz Hajjaji, representative of IOFS, and technical experts from several OIC Member States. In his remarks, Dr. Abdelaziz highlighted that the training stems from the commitments made during the visit of H.E. President Umaro Sissoco Embaló and the Minister of Agriculture to IOFS Headquarters in Astana,

underscoring a shared vision to modernize Guinea-Bissau's rice sector through technology transfer and capacity building. Over three days, participants will take part in expert-led sessions, field demonstrations, and discussions on precision agriculture and climate-smart innovations in rice production. The initiative forms part of IOFS's broader efforts to strengthen food systems and promote agricultural resilience across OIC Member States.

OIC High-Level Meeting in Doha Concludes with Endorsement of Recommendations to Advance the Food Security Reserve System and Strategic Agricultural Commodities



The High-Level Joint Meeting of the OIC Seasonal Steering Committee on the development of the OIC Food Security Reserve System and the implementation of the Strategic Agricultural Commodities Programme concluded on 1 September 2025 in Doha, State of Qatar, with the adoption of key recommendations to advance food security and agricultural resilience across OIC Member States. Co-organized by the Islamic Organization for Food Security and the OIC General Secretariat, with the support of the Ministry of Municipality of Qatar, the meeting gathered senior officials and experts to review progress presented by the IOFS Secretariat and coordinate next steps for implementing priority initiatives. Discussions focused on the OIC Food Security Reserve System and the Strategic Commodities Programme, covering wheat, rice, and cassava, with emphasis on alignment with national and regional priorities, while the Islamic Centre for Development of Trade (ICDT) highlighted the impor-

tance of enhancing intra-OIC trade and investment to strengthen agri-food value chains. The meeting was co-chaired by Mr. Hamad Hadi Al Hajri from the Ministry of Municipality of Qatar, Professor Ahmad Kawesa Sengendo, Assistant Secretary-General for Economic Affairs of the OIC, and Ambassador Khusrav Noziri, Assistant Director-General of IOFS, who in his remarks extended condolences to the people of Afghanistan following the recent earthquake and underlined the importance of coordinated mechanisms for food security. On the sidelines, Ambassador Noziri met with Mr. Mirbek I. Duysheev, Deputy Minister of Water Resources, Agriculture and Processing Industry of the Kyrgyz Republic, to discuss strengthening cooperation and the prospect of Kyrgyzstan joining IOFS.

Outcomes of the Discussions on the Strategic Plan for Ensuring Food Security in OIC Member States (2026–2035)



The two-day deliberations on the Strategic Plan for Ensuring Food Security in OIC Member States (2026–2035) were successfully held in Doha within the framework of the OIC High-Level Expert Meeting for Finalizing the Strategic Plan from 2-3 September 2025. The meeting was co-organized by the Islamic Organization for Food Security (IOFS), in collaboration with the OIC General Secretariat, the Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRI), and the Islamic Development Bank (IsDB), and was generously hosted by the Ministry of Municipality of Qatar, Chair of the 9th OIC Ministerial Conference on Food Security and Agricultural Development. Representatives from over 25 OIC Member States, research institutions, and international partners actively contributed insights and practical recommendations to refine the Plan's objectives, priorities, and implementation framework. Discussions focused on strategic areas such as financial mechanisms, monitoring and evaluation tools—including the use of Objectives and Key Results (OKR) methodology—and the potential of contract farming to improve market access and reduce producer risks. Participants underscored the importance of inclusivity, coherence, and regional cooperation, while emphasizing the need for Shariah-compliant financing led by the IsDB Group. The meeting marked a key milestone in consolidating the Strategic Plan to reflect the priorities and aspirations of Member States, with IOFS and its partners set to finalize the revised draft for submission to the 10th OIC Ministerial Conference on Food Security and Agricultural Development.

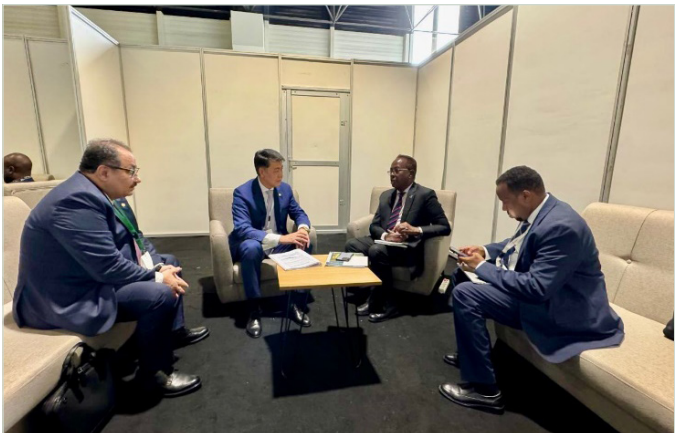
IOFS Champions Women and Youth at Africa Food Systems Forum 2025



The Islamic Organization for Food Security actively participated in the Africa Food Systems Forum (AFSF) 2025, held in Dakar under the theme “Act: Food Systems Pathways,” from 1-3 September 2025. The continent’s largest gathering on agriculture and food security brought together heads of state, ministers, international organizations, private sector leaders, and civil society to drive Africa’s agricultural transformation. IOFS Director General H.E. Ambassador Berik Aryn attended the opening ceremony, opened by H.E. President Bassirou Diomaye Faye of Senegal and H.E. President Paul Kagame of Rwanda, who emphasized youth-led innovation and agricultural resilience. In his remarks at the Investment Room, Ambassador Aryn underscored that youth and women must be at the heart of agricultural development, highlighting IOFS initiatives such as the African Food Security Initiative (AFSI), climate-smart agriculture training, and the upcoming Youth Biotechnology Forum in Dhaka. He also announced IOFS’s proposal to mark 2026 as the “Year of Women Agrileaders and Youth Agripreneurs (WAYA).” On 1 September, IOFS and UN Women co-hosted a side event, “Women in Agriculture: Challenges in West & Central Africa,” featuring Minister Manty Tarawalli of Sierra Leone, Dr. Ismail Abdelhamid (IOFS), and Jaha Dukureh (UN Women), who stressed the urgency of closing gender gaps in agriculture. On 2 September, IOFS organized a second side event, “Resilient Agriculture in West Africa Through Young Farmers,” where Ambassador Aryn highlighted Africa’s youth as key agents of change through innovation and entrepreneurship. IOFS’s engagement at AFSF 2025 reaffirmed its mission to strengthen food security through cooperation, innovation, and inclusion, emphasizing that without youth there is no sustainability, and without women, no resilience.

IOFS Director General Strengthens Partnerships in Bilateral Meetings at Africa Food Systems Forum 2025





On the sidelines of the Africa Food Systems Forum (AFSF) 2025, the Director General of the Islamic Organization for Food Security, H.E. Ambassador Berik Aryn, held a series of high-level bilateral meetings with key partners to strengthen cooperation in agricultural development and food security. In his meeting with H.E. Dr. Mabouba Diagne, Minister of Agriculture of Senegal, discussions focused on advancing Senegal's role as a hub for food security solutions in West Africa and promoting collaboration on rice cultivation, value chain development, and IOFS technical support. Ambassador Aryn also met with H.E. Mohamed Abdi Hayir, Minister of Agriculture and Irrigation of Somalia, to explore joint initiatives in capacity building, climate-resilient farming, and youth and women empowerment. Talks with H.E. Mr. Ezzeddine Ben Cheikh, Minister of Agriculture of Tunisia, centered on agricultural modernization, irrigation efficiency, and technology-driven productivity. In meetings with H.E. Mr. Bakary Yaou Sangaré, Minister of Foreign Affairs of Niger; Colonel Elhadji Ousmane Mahaman, Minister of Agriculture and Livestock; and Colonel Maizama Abdoulaye, Minister of Environment, Hydraulics and Sanitation, discussions focused on addressing Niger's food security challenges through sustainable agriculture and water management. Ambassador Aryn also met with Dr. Maxime Houinato, UN Regional Director for West and Central Africa, to enhance cooperation on resilience and rural empowerment; Dr. Ismahane Elouafi, Executive Managing Director of CGIAR, to explore joint research and innovation in climate-smart agriculture; and Dr. Sylvain Nafiba Ouedraogo, Deputy Executive Secretary of CILSS, to strengthen regional coordination and support for smallholder farmers. Further, IOFS engaged with the World Food Programme (WFP), represented by Assistant Executive Director Ms. Rania Dagash, to align humanitarian and resilience-building efforts in OIC Member States.

IOFS Strengthens Partnerships with Qatar Charity and Qatar Fund for Development to Advance Food Security and Strategic Initiatives



From 2–3 September 2025, during a working visit to the State of Qatar, Ambassador Khusrav Noziri, Assistant Director General of the Islamic Organization for Food Security, held high-level bilateral meetings with senior representatives of Qatar Charity and the Qatar Fund for Development (QFFD) to strengthen cooperation on food security, humanitarian response, and sustainable agricultural development across OIC Member States. On 2 September, Ambassador Noziri met with Mr. Nawaf Al-Hammadi, Chief Global Operations Officer, and Mr. Adnan Saif, Acting Director of the External Affairs Department of Qatar Charity, to discuss expanding joint projects under IOFS initiatives such as the Afghanistan Food Security Programme and the IOFS Africa Initiative. Both sides emphasized the need for measurable impact, sustainability, and knowledge sharing, and considered a Qatar Charity familiarization visit to IOFS Headquarters. On 3 September, Ambassador Noziri met with QFFD leadership to discuss the implementation of the IOFS Flagship Project on the establishment of the OIC International Gene Bank—a joint effort with the Republic of Kazakhstan and QFFD to preserve agrobiodiversity and build climate resilience. The talks also explored broader cooperation in sustainable agriculture and development programming.

IOFS Delegation Explores New Avenues for Collaboration with Côte d'Ivoire in Food Security and Agriculture





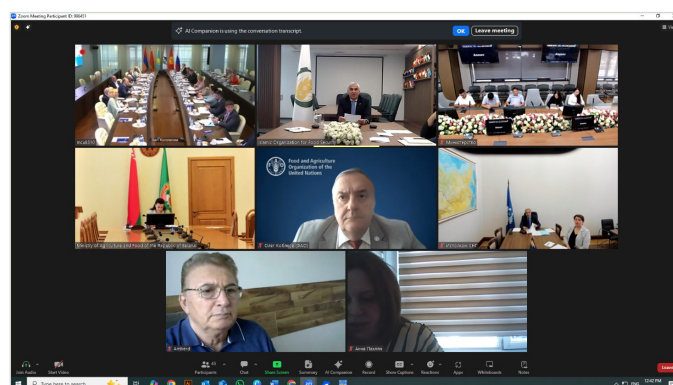
An IOFS delegation led by H.E. Ambassador Berik Aryn, Director General, visited Côte d'Ivoire to strengthen bilateral cooperation in food security and agriculture. On 3 September 2025, the delegation met with H.E. Sidi T. Traoré, Minister of Animal Resources and Fisheries and interim Minister of Foreign Affairs, alongside senior officials from the Ministry of Foreign Affairs, to discuss collaboration in livestock development, fisheries management, and sustainable food security programs focused on climate resilience. On 5 September, the delegation visited the National Center for Agronomic Research (CNRA) and was received by its Director General, Prof. Abdouramane Sangaré, and departmental heads. The visit showcased CNRA's research capacities and explored opportunities for joint agronomic research, including Côte d'Ivoire's potential participation in the IOFS-led Association Agricultural Academies (AAA) initiative to enhance regional scientific cooperation. Both meetings outlined practical areas for partnership such as animal health and transboundary disease control, aquaculture development, youth and women capacity-building, crop breeding, soil and water management, and digital agriculture. The mission reaffirmed IOFS's commitment to supporting Côte d'Ivoire's agricultural research and food systems while expanding regional collaboration within the OIC framework.

IOFS in partnership with ICESCO Host Workshop on Smart Agriculture and Biochar within KazNARU's Green Week 2025 in Almaty



The Islamic Organization for Food Security, in collaboration with the Islamic World Educational, Scientific and Cultural Organization (ICESCO), successfully organized a Workshop on Smart Agriculture: IoT Technologies and Biochar Applications as part of Green Week 2025 at the Kazakh National Agrarian Research University (KazNARU). The IOFS-supported workshop brought together 48 participants, including teaching staff and postgraduate students of KazNARU's Water and IT Hub. Representing IOFS, Mr. Bakytzhan Arystanbek, Project Manager, presented newly developed training manuals on Biochar Application and Smart Agriculture Technologies, jointly prepared by IOFS, ICESCO, and KazNARU to enhance practical knowledge and promote sustainable agricultural innovation across Central Asia. Experts from Astana IT University, the Fergana Beekeepers Association (Uzbekistan), the Tajik Agrarian University, and Korkyt Ata Kyzylorda University (Kazakhstan) shared insights on IoT-based farming, apiculture, water sector digitalization, and biochar applications. On 9 September, participants took part in a field visit featuring hands-on demonstrations of biochar use and smart farming technologies, concluding with certificate presentations. The IOFS-ICESCO partnership reaffirmed its commitment to empowering Member States through innovation, capacity building, and applied research to strengthen food security and sustainable agriculture.

IOFS Highlights Strategic Priorities to Strengthen the Agri-Food System at EEC Round Table



On 11 September 2025, the Islamic Organization for Food Security took part in the Round Table on "The Role and Place of the Eurasian Economic Union in the Global Agri-Food System," organized by the Eurasian Economic Commission (EEC). The event gathered representatives from FAO, SCO, IGC, CIS, and oth-

er international and regional bodies to discuss global agricultural trends, food security cooperation, and sustainable innovation. Ambassador Khusrav Noziri, Assistant Director General of IOFS, highlighted Member States' experiences in food security management and introduced the forthcoming OIC Strategic Plan for Food Security 2026–2035, developed with SESRIC and IsDB. He also showcased IOFS partnerships with UNDP, UN Women, and the Global Green Growth Institute, underscoring the need for collective action and deeper cooperation with EAEU and global partners. The meeting provided a platform to exchange insights on strengthening agri-food systems, trade, and resilience.

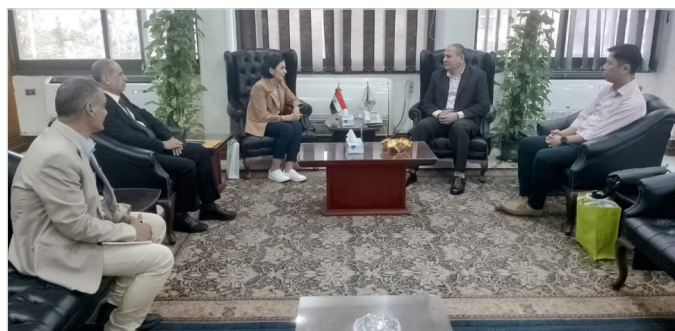
IOFS Strengthens Ties with Bangladesh During Official Visit



A delegation of the Islamic Organization for Food Security, led by Ambassador Khusrav Noziri, Assistant Director-General, and Mr. Bakdaulet Yerkhanov, Program Manager, visited the People's Republic of Bangladesh on 13–14 September 2025 to strengthen cooperation in food security, agricultural development, and innovation. The visit coincided with the 3rd Youth Forum on Agricultural Biotechnology, co-organized by North South University

(NSU), OIC-COMSTECH, and IOFS, under the theme “Genome Editing Technologies for Agriculture.” In his opening remarks, Ambassador Noziri emphasized the importance of ethical and science-driven biotechnology to build climate-resilient and sustainable agricultural systems. The forum gathered policymakers, researchers, and young scientists from across OIC Member States, including Bangladesh, Türkiye, Malaysia, Azerbaijan, Pakistan, and Kazakhstan. On the sidelines, the IOFS delegation held bilateral meetings with the Ministry of Food and the Ministry of Agriculture to discuss joint initiatives in digital agriculture, post-harvest technologies, climate-smart farming, and women's empowerment in agriculture. The visit underscored Bangladesh's achievements in food self-sufficiency and innovation, reaffirming its role as a key partner in advancing food security and resilience within the OIC framework.

IOFS Strengthens Rice Sector through Capacity Building in Egypt



From 15–16 September 2025, the Islamic Organization for Food Security, under the OIC Strategic Commodity – Rice Program, held a Capacity-Building Workshop on Post-Harvest Handling, Storage Management, and Loss Reduction Techniques for Rice Farmers in partnership with Egypt's Agricultural Research Center (ARC) in Giza. The workshop brought together experts from Egypt, Malaysia (MARDI), and Iraq to share best practices and innovative technologies with ARC extension providers and farmers from Kafrelsheikh. Dr. Hamed Safuan, Director of the Engineering Research Center at MARDI, presented Standard Operating Procedures (SOPs) for harvesting machinery and solar-powered technologies aimed at minimizing post-harvest losses. Participants visited rice milling companies, farms, laboratories, and storage facilities, gaining hands-on insights into Egypt's advancements in rice cultivation, processing, and storage. Through such initiatives, IOFS continues to strengthen cooperation among OIC research institutions, enhance farmer capacities, and promote sustainable agricultural practices to achieve long-term food security across Member States.

IOFS Engages in VIII Congress of Leaders of World and Traditional Religions in Astana



From 17–18 September 2025, the Islamic Organization for Food Security participated in the VIII Congress of Leaders of World and Traditional Religions, held in Astana under the auspices of H.E. President Kassym-Jomart Tokayev of the Republic of Kazakhstan. The Congress brought together religious leaders, government officials, and representatives of international organizations to explore the role of interfaith dialogue in promoting peace, tolerance, and sustainable development amid global challenges. IOFS Director General H.E. Ambassador Berik Aryn attended the opening and closing ceremonies, where President Tokayev underscored the importance of dialogue among religions and highlighted Kazakhstan's initiative in establishing IOFS as a key platform linking faith-based values with global development goals. Ambassador Aryn co-moderated the thematic session “Religions as a Factor of Sustainable World Development” alongside Dr. Renee Hattar of Jordan's Royal Institute for Interfaith Studies. The session featured distinguished speakers from Egypt, Kazakhstan, Qatar, the USA, Pakistan, Ethiopia, Vietnam, and Brazil, who emphasized compassion, tolerance, and harmony as shared moral foundations across faiths and called for stronger partnerships between religious institutions, governments, and international organizations to advance the Sustainable Development Goals. Discussions addressed key global concerns including climate change, migration, food security, and ethical governance. The Congress concluded with a call for unity and dialogue, with its final declaration to be circulated as an official document of the UN General Assembly.



IOFS and ICESCO Sign MoU to Strengthen Cooperation on Food Security and Sustainable Development during the official visit to IOFS HQ



On 18 September 2025, the Islamic Organization for Food Security and the Islamic World Educational, Scientific and Cultural Organization (ICESCO) signed a landmark Memorandum of Understanding (MoU) during an official visit to the IOFS headquarters. The agreement was signed during the visit of H.E. Dr. Salim M. Al-Malik, Director General of ICESCO, who was received by H.E. Ambassador Berik Aryn, Director General of IOFS. Both leaders reaffirmed their commitment to strengthening collaboration by aligning IOFS's expertise in food security with ICESCO's leadership in education, science, and culture. A joint technical team will develop an action plan to implement the MoU, with particular emphasis on the Africa Food Security Initiative, focusing on combating hunger, building climate resilience, and empowering youth across OIC Member States.

IOFS and QazTrade Sign Memorandum of Understanding to Strengthen Trade Cooperation in Food Security



On 24 September 2025, the Islamic Organization for Food Security and QazTrade Center for Trade Policy Development signed a Memorandum of Understanding (MoU) to strengthen cooperation in trade facilitation and the promotion of food security initiatives. The agreement was signed by H.E. Ambassador

Berik Aryn, Director General of IOFS, and Mr. Aitmukhammed Aldazharov, Director General of QazTrade, during an official ceremony at the IOFS headquarters in Astana. The MoU establishes a framework for collaboration to boost trade and investment in the agrifood sector, support export diversification, and enhance the resilience of food systems in Kazakhstan and across IOFS Member States. It also envisions joint initiatives in capacity building, research, and knowledge exchange on trade-related aspects of food security. Ambassador Aryn noted that the partnership reflects IOFS's commitment to leveraging trade as a driver of sustainable food systems while reinforcing Kazakhstan's role as host country and strategic partner. Mr. Aldazharov emphasized QazTrade's readiness to work closely with IOFS to expand agrifood exports, strengthen value chains, and develop new regional and international market opportunities. The collaboration marks a key milestone in IOFS's mission to foster intra-OIC trade and promote sustainable food security.

IOFS Study Visit on Food Waste Management in Ankara



From 22-23 September 2025, under the framework of the OIC Healthy, Halal, and Safe Food Ecosystem Program, the Islamic Organization for Food Security (IOFS), in partnership with SES-RIK through its Agri-CaB Programme, and the Turkish Ministry of Agriculture and Forestry and Ministry of Environment, Urbanization and Climate Change, hosted a Study Visit on "Food Waste Management" in Ankara. The event gathered experts from Azerbaijan, Kazakhstan, Kyrgyzstan, Turkmenistan, and Uzbekistan to address the critical challenge of food loss and waste (FLW). Participants explored Türkiye's successful models through field visits to the Eco-Farming & Zero Waste Education Centre in Sincan and the Composting & Organic Waste Management Facility in Altındağ. The study visit forms part of IOFS's broad-

er mandate to enhance food security through capacity-building, regional dialogue, and the forthcoming FLW Index and Report—tools designed to help Member States assess and reduce food losses.

IOFS and ICARDA Strengthen Cooperation with Kazakhstan's Research Institutions on Genetic Resources



Under the IOFS–ICARDA partnership, the Islamic Organization for Food Security and the International Center for Agricultural Research in the Dry Areas (ICARDA) held meetings with Kazakhstan's leading agricultural and research institutions from 23 to 26 September 2025. The ICARDA delegation, led by Dr. Zakaria Kehel and Dr. Akmal Akramkhanov, and IOFS representatives Mr. Bakytzhan Arystanbek and Ms. Makpal Bulatova, visited key institutions including KazNIIZiR, IPBB, Al-Farabi Kazakh National University, the Barayev Centre, and the National Center for Biotechnology. Discussions focused on genetic resource conservation, plant breeding, and joint research initiatives. At the IOFS Headquarters, H.E. Ambassador Berik Aryn met with the ICARDA team to advance collaboration under the IOFS International Genebank initiative, with ICARDA pledging technical support and capacity-building assistance. Both sides reaffirmed their commitment to strengthening cooperation with Kazakh institutions and expanding joint efforts across Central Asia, the Caucasus, and the wider CWANA region.

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