Said Hussein Iid

WELCOME MESSAGE BY IOFS SPECIAL ENVOY FOR AFRICA

INTRODUCTION OF RUFORUM AND ITS ROLE OF DEVELOPING AGRICULTURE IN AFRICA

COMMITMENT AND EXPERIENCE OF THE CILSS IN THE FIELD OF WATER MANAGEMENT

Abubakar Ahmad

THE POTENTIAL OF CASSAVA FOR FEEDING AFRICA

المنظمة الإسلامية للأمن الغذائي
Islamic Organization for Food Security
l'Organisation Islamique pour la Sécurité Alimentaire

July-September 2022 **9th edition**

FOOD SECURITY HUB

Special edition devoted
to the 2022 IOFS Year of Africa Program

9th edition

FOOD SECURITY HUB

July-September 2022

All posts, publications, texts and any other forms of information on the Food Security Hub bulletin owned by authors and references are linked within.

Publisher
Islamic Organization for Food Security (IOFS)
Chief Editor
Dr. Ismail Abdelhamid
Director of Programmes & Projects Office of IOFS
Authors
Abubakar Ahmad
Federal College of Horticulture, Nigeria
International Center of Climate Change Technologies (ICCCT)

Contact Information
Phone +7 (7172) 99 99 00
Fax +7 (7172) 99 99 75
Email: info@iofs.org.kz
Address
Mangilik Yel Ave. 55/21 Aifc, Unit 4, C4.2
Astana,
010000 Republic of Kazakhstan

CONTENT

IOFS YEAR OF AFRICA 2022: "AFRICA'S FOOD INSECURITY IT'S TIME TO ACT" 3

Makpal Bulatova
IOFS ADVANCES GENEBANK AGENDA FOR AFRICA IN COOPERATION WITH TUNISIA 4

INTERNATIONAL CENTER OF CLIMATE CHANGE TECHNOLOGIES (ICCCT)
CAN THE WEATHER BE MANAGED? 8

INTRODUCTION OF RUFORUM AND ITS ROLE OF DEVELOPING AGRICULTURE IN AFRICA 14

Abdula Manafi Mutualo,
THE BLEAK HUNGER SCENARIO IN AFRICA 20

Permanent Interstate Committee for drought control in the Sahel Executive Secretariat
COMMITMENT AND EXPERIENCE OF THE CILSS IN THE FIELD OF WATER MANAGEMENT 23

Raushan Kumekbayeva
THE FIRST MEETING ON PROMOTION OF OLIVE OIL IN OIC MEMBER COUNTRIES 25

Abubakar Ahmad
THE POTENTIAL OF CASSAVA FOR FEEDING AFRICA 28

Diana Dushniyazova
EVERY PIXEL TELLS A STORY 31

IOFS DIRECTOR GENERAL VISITS DURING JULY- SEPTEMBER 2022 32

IOFS MAJOR EVENTS DURING JULY-SEPTEMBER 2022 38

ISSN 2789-7885

IOFS YEAR OF AFRICA 2022: "AFRICA'S FOOD INSECURITY IT'S TIME TO ACT"

I am pleased to welcome our readers in this *9th EDITION OF THE FOOD SECURITY HUB*; this foreword is an outline of my impressions and aspirations as a new member of the IOFS team.

IOFS Organization attaches paramount importance to the African continent, where nearly one half of its member countries are located. IOFS firmly believes in the continent's ability to feed its people and even feed the world by transforming the continent's agricultural systems. IOFS commitment to Africa is exhibited by its decision to recognize the year 2022 as THE YEAR OF AFRICA where a range of programs is dedicated towards this mission.

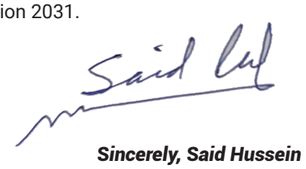
In order to contribute to the IOFS commitment to Africa's food security, I am very pleased to serve as the IOFS Special Envoy for Africa, focused in following up on the organization's initiatives and programs to enable Governments to deliver increased food and nutrition for all, better incomes for farmers, and resilience for the environmental shocks.

As a Special Envoy for Africa, one of my key priorities will be to create conducive climate for the African member states of OIC to engage sufficiently in the activities and initiatives of the IOFS in building more resilient food systems by use of latest crop and soil science.

IOFS members are set to benefit from the state of the art programs as reflected in IOFS Strategic Vision 2031, and members should make full use of these benefits by upholding their membership obligations towards IOFS.

In the short period I interacted with IOFS team led by its Director General H.E. Yerlan A. Baidaulet, I felt a high level of devotion and dedication to innovation and creativity for implementing interventions and programs. These qualities are as essential for IOFS as any organization that undertakes intercontinental projects.

I am as the Special Envoy for Africa embarked to contribute to the above strategic framework and to facilitate full alignment of the goals of African governments and people with the IOFS Vision 2031.



Sincerely, Said Hussein Iid

IOFS Special Envoy for Africa

AFRICA

IOFS ADVANCES GENEBANK AGENDA FOR AFRICA IN COOPERATION WITH TUNISIA

MAKPAL BULATOVA
IOFS Programme Manager

One of the main important subjects for practitioners in the field of food security and agricultural development has to do with the protection of Plant genetic resource (PGR). These are collections considered to be national treasures that are vital to the development of breeding programs and agriculture's long-term resiliency. The *Abu Dhabi Declaration of the 2nd* OIC Summit on Science and Technology, held in June 2021, inter alia, mandated the IOFS to promote the conservation of genetic resources and the importance of establishing National Gene Banks in the Member States of the Organization of Islamic Cooperation (OIC). Additionally, the Dubai Declaration adopted on 06 July 2020 within the International Workshop on Development of National Gene Banks in the OIC emphasized the strengthening the national and regional actions on conservation of PGR, and finally in *Almaty Declaration adopted on 9 June 2022* within the IOFS High-Level Forum on Food Security, the IOFS was urged to take necessary and appropriate actions to consolidate the efforts to establish the storage facility for plant genetic resources within the OIC geography.

The **"Programme on Development of National Gene Banks in OIC"** entails enhancing the capacity of the existing genetic resources management centers and genebanks in the OIC and in accordance with the vision of the program, IOFS has implemented various projects and activities to fulfill the gaps of needs and requirements of the Member States. Within this vision, IOFS strives to organize as many as possible capacity-building programs together with its partners not only to provide high-quality learning but also to unite the scientists and researchers of the OIC to establish a network of experts for further collaboration, and address the challenges in an effective way.

The Republic of Tunisia is one of the strong IOFS partners keen to collaborate and contribute to OIC Member States' agricultural development by introducing its expertise and technologies.

The innovative approaches and start-of-the-art knowledge and experience have been demonstrated by the National Gene Bank of Tunisia during the IOFS several genetic resources-related activities conducted in 2021. The Tunisian Gene bank with a capacity for ex situ conservation of 200,000 seed accessions and 300,000 samples in cryopreservation is considered a full-ground genebank that has developed robust conservation programs supported by an up-to-date documentation system allowing control and monitoring of all genebank operations.

The collaboration between IOFS and the Ministry of Environment of the Republic of Tunisia led to the successful conduction of the in-person training workshop within the ***"IOFS Year of Africa 2022" Implementation Plan*** devoted to the francophone African plant genetic resources specialists on the important topic of Genebank management and best practices of plant genetic resources conservation from 20 to 28 June 2022 at the premises of the National Genebank of Tunisia (NGBT). The aim of the activity was to strengthen the African researchers capacity in PGR conservation and sustainable use through appropriate theoretical courses, presentations, and practical sessions under the guidance of specialized trainers. The participants were from **Burkina Faso, Cameroon, Chad, Cote d'Ivoire, Gabon, Senegal, and Togo**. The program of training is specifically designed for African countries taking into account the challenges and issues they face.

The event was officially inaugurated by H.E. Mrs. Leila Chikhaoui Mahdaoui, the Minister of Environment of Tunisia and HE Mr. Yerlan Baidaulet, IOFS Director General.

PURPOSE OF THE TRAINING

The aim of this training is to present and familiarize African participants with the Genebank operations and PGR conservation best practices, as well as to contribute to strengthening African capacity in GR conservation and sustainable use.

TRAINING PROGRAM

The outline of the program was consisting of the following important topics:

- Conservation strategies,
- GR conservation approaches;
- On-farm conservation and sustainable use of agro-biodiversity;
- Best practices for regeneration/multiplication of GR;
- PGR documentation and database management system;
- Valorization of the GR and etc.

The program of training has included theoretical courses, presentations, and practical sessions, visits to the National Arboretum of Tunis and Field Genebank under the guidance of specialized trainers.

CHALLENGES

Such training allows countries to explore the best practices of developed institutions, while also sharing experiences and issues that countries face during the project and program implementation. Along with the received knowledge, the GR specialists had very fruitful discussions with one another, determining the points that could be solved step by step with the appropriately applied approaches.

The following issues have been emphasized by the participating countries:

a. Non-existence of the appropriate genebanks in the countries, where the collections are managed by the research institutes, universities, and international organizations.
b. Absence or inadequate application of policies and strategies at the National level.
c. Lack of technical capacity, facilities, and appropriate equipment, for instance, to conserve the PGR and seeds;
d. lack of funding for the renovation of the genetic resources centers, equipment, and building of new genebanks;
e. Inadequate human resource capacity.
f. Need for a documentation system to centralize information on the status of the genetic resources in a rational manner.
g. Need for the exchange of materials at the national and international levels.
h. Lack of agricultural research carried out.
i. Need for a regional repository in order to ensure the safety duplicate and a backup copy of PGR,
j. Need for a network of experts in the field of conservation of genetic resources;

k. Inadequate applied seed management; and
l. Promotion of the sustainable management and use of plant genetic resources, contributing to the conservation of national biological diversity for present and future generations.

COMPARATIVE ADVANTAGE OF THE PARTICIPATING COUNTRIES

Countries have also shared the current practices of GR conservation, such as follows:

a. The *ex-situ* and *in-situ* conservations, and in vitro multiplication are managed by National Agricultural systems within the countries.
b. The most countries are part of International conventions such as the Convention on biological diversity (CBD) Rio, 1992; International treaty on plant genetic resources for food and agriculture (ITPGRFA) Nov 3rd, 2001; Nagoya Protocol (NP), 2010.
c. The Institutes have thousands of crop varieties available for research and development.

THE OUTCOME OF THE TRAINING

The participants expressed their willingness to be part of the IOFS ***Program on Development of National Gene Banks in the OIC*** and to be involved in all relevant activities of the Organization in order to closely interact with the remaining OIC Member States and improve the practices and technologies at the local level.

The participants have pointed out the increasing stresses on agricultural systems that have resulted in an intensification of the use of natural resources for agricultural production. Many have raised concerns about the future of food and nutrition

security, especially for smallholder farmers and their communities. The existing seed system in the countries appears not sustainable and inefficient as well. Strengthening and building resilience in agriculture through the safeguarding and sustainable use of agrobiodiversity has become a priority.

In this connection, the IOFS addresses the challenges of the Member States for cooperative decision-making to tackle common threats such as the impact of climate change on agricultural productivity, preserve biodiversity and, use the eco-system sustainably in order to find efficient and innovative solutions involving the OIC Institutions and International Organizations. Furthermore, one of the IOFS's primary concerns is to strengthen human resource capacity, particularly in developing countries.

In this regard, the IOFS is planning to organize two (2) more activities for other African countries, Asia, and MENA as well until the end of 2022, and conclude with the Meeting of PGR professionals to discuss on Creation of specialized Working Groups in various domain of the PGR conservation. During the training, a preliminary reflection led to the request for the creation of a working group on the PGR documentation which will work and serve to safeguard the current and available information by the establishment of a country-level database management system and a Network documentation system for all OIC Genetic resources centers.

In addition, the IOFS will also commence collecting and implementing projects related to the genebanks and PGR for the OIC Member States.

TESTIMONIES SHARED BY THE ORGANIZERS AND PARTICIPANTS

In order to ensure food security and sustainable development of agriculture, proper conservation and sustainable use of genetic resources is one of the key activities to be carried out. IOFS has set up a solid program to help OIC member countries to establish national programs for the conservation of genetic resources and to strengthen the capacities of the National Agricultural Research System through training and technical backstopping. In this context, the IOFS in collaboration with the National Genebank of Tunisia organized the current training. This training was extremely interesting and useful, all participants remarked how helpful it was. It was an important opportunity for them to learn about ways to preserve and manage genetic resources and they ended up with the need to build a Genebank to take care of all this. I think that it is time to think carefully about the possibilities of available cooperation with IOFS to achieve this goal.

Dr. Said Yassine NAHDI,
Documentation Specialist (NGBT)

I think that this training has been beneficial to me, and when I come back from the training, I will strive to implement everything we have learned here, especially in genebank management, collection, characterization, evaluation, and conservation of genetic resources. This will be very important, but so will raising awareness and mobilizing all stakeholders involved in the management of genetic resources. I also think we should continue to build capacity, as I said, to continue to support those states that will have the desire to set up gene banks. It is also important to develop a synergy between the member states of the IOFS so that we will be interconnected. I thank once again the IOFS for giving us the opportunity to come here to build our capacity in genetic resources and gene bank management.

NGO Bahoya Epse Mbom Gertrude,
NFP Treaty, Ministry of Agriculture of Cameroon

This training was indeed successful, as it gave us a better understanding of everything from genebank management to conservation and utilization. When we go back to our countries, we think first of all, as we have our countries here, is to develop a strategic plan and also try to make laws for access and battle benefits. We believe that the IOFS can help us in this regard to mobilize the funds or at least bring together the financial partners so that we can reach the end of this project.

Dr. Kombate Koffi,
Research Scientists at the Plant Genetic Resources for Food and agriculture, Institute Togolais de Recherche Agronomique (ITRA)

This training was a really great opportunity because it allowed me to have experience exchange with participants from Cameroon, Togo, Ivory Coast, Gabon etc. We need to join our strengths together to have the solution according to food security and have good ideas from each other and see what we can implement in our countries.

Mr. Ilboudo Irissa,
Chief of the Department in charge of food and nutritional security, Ministry of Agriculture of Burkina Faso

INTERNATIONAL CENTER OF CLIMATE CHANGE TECHNOLOGIES

INTERNATIONAL CENTER OF CLIMATE CHANGE TECHNOLOGIES (ICCCT)

CAN THE WEATHER BE MANAGED?

Background

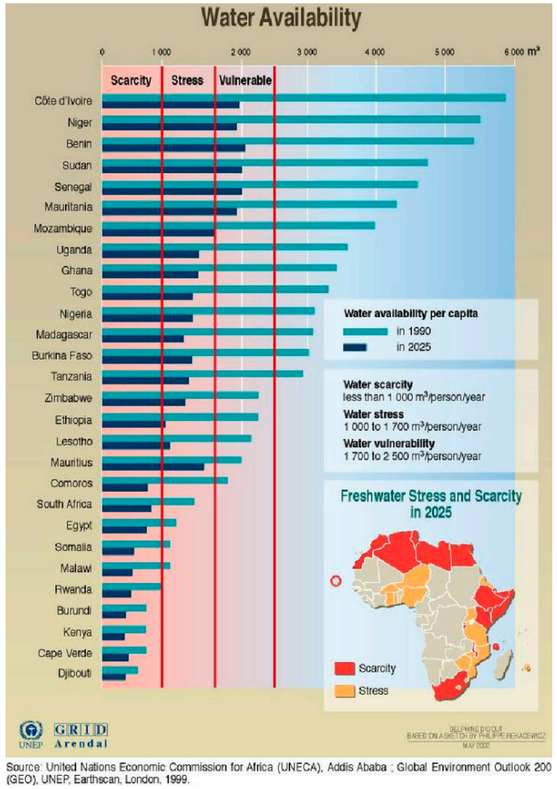
Unique Aspects of Food Security Market Associated with the Water Shortage

Catastrophic climate change is increasingly causing drought and desertification of more and more agricultural lands that lead to water scarcity and strongly affects food security.

The countries of the Sahel region are suffering particularly hard from drought that is threatening food security in the Sahel and throughout Africa.

NO WATER - NO HARVEST, NO BREAD, NO FOOD! THERE IS NO FOOD SECURITY WITHOUT WATER!

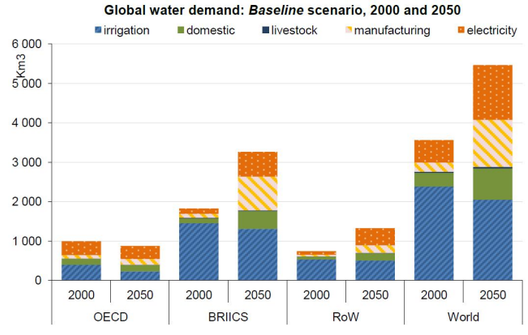
At the same time, population growth and industrial development lead to uncontrolled increase in fresh water consumption,



Source: United Nations Economic Commission for Africa (UNECA), Addis Ababa ; Global Environment Outlook 200 (GEO), UNEP, Earthscan, London, 1999.

which exacerbates the situation. By 2030 more than 6 billion people will experience a shortage of water resources and food, that will be more than 70% of the world's population.

Water supply to agricultural lands and the population using conventional methods is becoming more and more expensive,



Note :BRIICS = Brazil, Russia, India, Indonesia, China and South Africa; RoW = rest of the world
Source: *Environmental Outlook Baseline*; output from IMAGE suite of models.

and often becomes impossible. Fresh water is simply nowhere to take. Reservoirs, lakes and rivers become shallow and dry up, groundwater levels are steadily decreasing, and wells are drying up.

Currently, conventional methods of water supply are being replaced by innovative methods for creation of water resources of atmospheric origin.

It is known that in the atmosphere of our planet is constantly about 10 trillion tons of water in the form of steam, which are extremely unevenly distributed on the planet. During the year, more than 500 thousand km³ of atmospheric precipitation falls on the earth's surface, but only about 21% of it falls on land, the rest - over the oceans. At the same time, over each hectare of land in the atmospheric air contains an average of more than 200 tons of water.

But can this water be taken and used at the right time and in the right place in the form of managed rainfall?

About "International Center of Climate Change Technologies" LTD

INTERNATIONAL CENTER OF CLIMATE CHANGE TECHNOLOGIES

"International Center of Climate Change Technologies" (ICCCT) LTD is a global initiative and a innovative company created in Abu Dhabi Global Market (ADGM) and aimed against climate change and designated for development, promotion and tokenization of «green» technological assets of our modernity using new physical principles in spheres of food security, hydrogen energy.

ICCCT team has more than 20 years prehistory in the sphere of creation, development (R&D) and implementation of integrated climate-smart solutions to mitigate main climate risks associated with drought, air pollution, dust & sand storms, massive locust invasion and other weather anomalies aimed for the provision of food security, and also transition to a carbon-neutral economy in which involved experts, scientists, engineers and professionals from different spheres of science and technologies.

ICCCT approach is a realistic strategy based on modern trends and aspirations of the world economy to the transition to a carbon neutral economy and tokenization of «green» technological assets reflecting the expectation of our partners, investors and shareholders in the Public and Private Sectors.

ICCCT Initial Pool of "Green" Technological Assets and Integrated Climate-Smart Solutions

ICCCT has both already existing climate-smart solutions to mitigate climate risks associated with drought, air pollution, dust & sand storms, massive locust invasion and other weather anomalies, aimed for the provision of food security, and growing pool of climate-smart solutions aimed at food security and the transition to hydrogen energy and a carbon-neutral economy for which R&D are required.

1. The Remote-control Weather Management System "Sky Manager New Generation" & "Sky Manager New Generation"
2. The R&D "STOP Locust"
3. The R&D "Green Hydrogen from Water"
4. The R&D "Green Hydrogen from Waste"
5. The R&D "Green Hydrogen from Coal"
6. The R&D "STOP CO2"
7. The R&D "Green Desalination Water"
8. R&D "Green Sand"

The existing climate-smart solution is the Remote-control Weather Management System "Sky Manager New Generation" & "Sky Manager New Generation" (item 1).

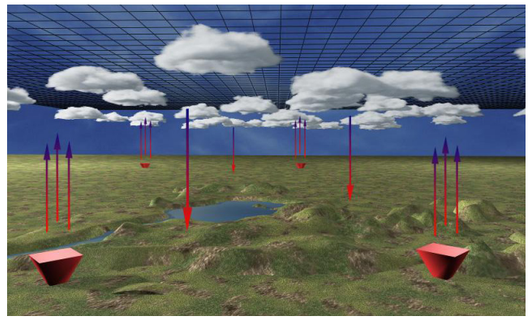
The growing pool of climate-smart solutions aimed at food security and the transition to hydrogen energy and a carbon-neutral economy for which R&D are required (item 2 - 8).

The main goal of R&D «STOP Locust» (item 2) is to create a unique system for locust control that can be used to effectively protect crops, pastures, plants and other vegetation from massive locust invasion.

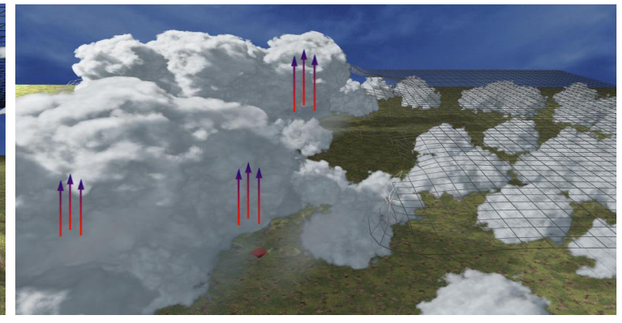
The main goal of R&D projects listed in items 3 - 8 is to create stand-alone pilot plants using new physical principles to effectively produce «green» hydrogen from water, coal, waste and biomass, and also provide CO2 disposal in the cheapest way.

1. Integrated Climate-Smart Solutions to Mitigate Climate Risks Associated with the Draughts and Water Scarcity Aimed to Food Security

The remote-controlled weather management system "Clear Sky Manager" & "Sky Manager New Generation" aimed to mitigate climate risks associated with drought, desertification, dust & sand storms, forest & steppe fires, heavy rains & floods, atmospheric air pollution and other weather anomalies that allows to increase, regulate and redistribute the amount of precipitation on the territory of arid areas in "Rain Maker" mode, and also purify of atmospheric air above polluted cities and industrial zones in "Smog Remover" mode, observing the principle of climatic and environmental safety using data of meteorological satellites. There is an Official Report on climate safety issued by international independent laboratory "De Nayer", Belgium.



Scheme of formation and development of clouds after destruction of the inversion layer.



Scheme of dissipation of clouds and fog after destruction of the inversion layer.

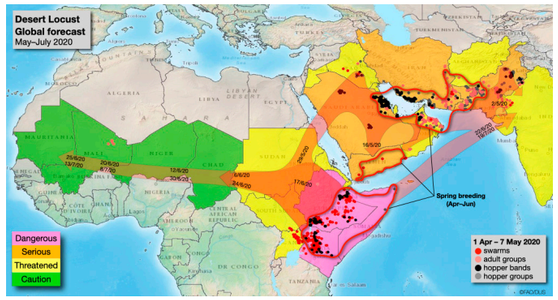
The «Clear Sky Manager" uses only the method of unipolar electrical ionization of surface atmospheric air (recognized by WMO) to destroy the inversion layer, which contributes to the emergence of vertical movement of air masses, that leads to the formation and development of clouds, as well as the formation of cyclonic processes leading to transfer of wetted air masses from over-wetted areas of the oceans and seas (i.e. Indian, Atlantic oceans) to arid areas and precipitation.

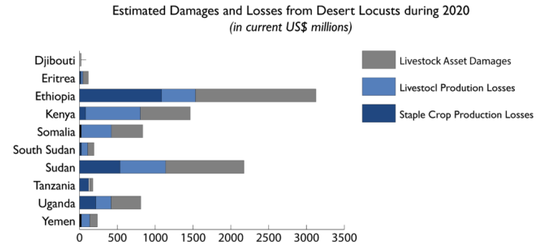
The "Sky Manager New Generation" uses a synergy of 2 of technologies based on different physical principles, recognized by WMO, that carry out integrated impact on the atmosphere by air ionization technology (using stationary, mobile and air-mobile ionizers) and cloud seeding technology using environmentally friendly reagents, including innovative method based on a unique biological ability of rain-mushrooms «cause» rains by spraying rain-mushroom spores (basidiospores) in atmosphere by aircraft (planes, drones, helicopters, etc) that lead to condensate and droplet formation on the surface of basidiospores and plentiful rainfall. There is an Official Report issued by a group of scientists from the Miami University, USA introduses in the science journal "Plos One" in a research article called "Mushrooms as Rainmakers: How Spores Act as Nuclei for Raindrops".

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0140407.

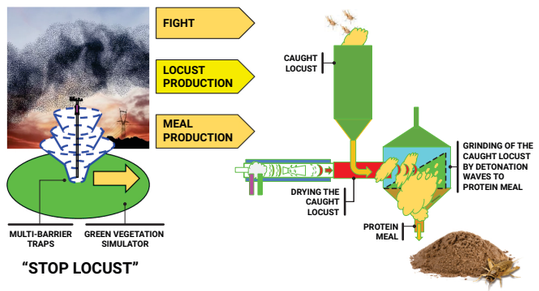
Low has introduced a real results of successful implemented project, using a remote-controlled weather management system "Clear Sky Manager" in "Rain Maker" mode, in Mangistau region, Kazakhstan, May, 2022:

2. R&D "STOP Locust" is a climate-smart solution for the creation of a unique system «STOP Locust» that uses the ability of locusts to see and recognize green color and vegetation, as a food source, at a large distance and move to areas where green vegetation grows or green vegetation is imitated that allows to intercept a migratory locust swarm during the flight, to attract its attention, to force it to land on a selected deserted area located on migration routes of locust swarm, far from fertile and arable lands with crops and vegetation, for example, in the desert.





The «STOP Locust» will ensure the efficient capture, collection, packaging and transportation of locust, which will prevent re-takeoff of a migratory swarm of locust and reach of locust swarm to agricultural areas and will prevent the destruction of crops and other green vegetation.



The main goal of R&D «STOP Locust» is to create a unique system for efficient capture, collection, packaging and transportation of locust, and also for the production of valuable protein meal meal and other natural nutrient-rich products from caught locust, that aimed to ensure food security of IOFS member countries.

3. R&D "Green Hydrogen from Water" is a climate-smart solution based on new physical principles for producing of superheated steam with temperature up to 3500°C by means of multistage detonation, during which almost complete thermal dissociation of water (steam) molecules into molecular and atomic hydrogen and oxygen occurs, that cardinally reduces the cost of direct production of «green » hydrogen from water and allows you to get «green» hydrogen in the cheapest, currently available, way in the world.

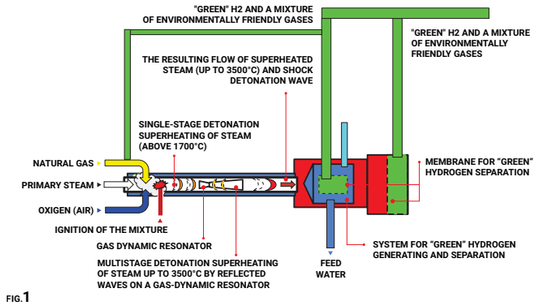


FIG.1

At the same time, at a superheated steam temperature up to 3500 °C, almost complete thermal dissociation of CO2, CO, and NOx molecules into molecular and atomic carbon, oxygen, and nitrogen occurs.

The process of overheating of detonation products up to 3500°C is accompanied by the release of a large amount of concomitant cheap thermal energy, which can be utilized and used to heat housing, industrial needs, or can be converted into electricity.

«Green Hydrogen from Water» status: Patent pending. Copyrights and Know-How have been reserved.

Eurasin Patent Application No 202290961 called "A method for producing superheated steam and hydrogen by multi-stage detonation and a device for its implementation" pending in the «Eurasian Patent Office» of the «Eurasian Patent Organization». Priority Date: 21 April 2022.

The main goal of R&D is to create a stand-alone «Green Hydrogen from Water» pilot plant using new physical principles to directly convert water into «green» hydrogen without CO2 emissions in the cheapest way, which will be adapted to the needs of the national economies of IOFS member counties, helping to mitigate the upcoming energy crisis through the production of concomitant cheap thermal energy and electric power and aimed at long-term technological transformation towards a carbon-neutral economy.

4. R&D "Green Hydrogen from Waste" — is a climate-smart solution based on new physical principles for producing superheated steam with a temperature of up to 3500 ° C by the method of multi-stage detonation, which turns any type of waste (MSW, plastic, biomass) into «green» hydrogen without CO2 emissions, that cardinally reduces the cost of gasification of waste and allows to get «green» hydrogen in the cheapest, currently available, way in the world turning waste into a new type of «renewable» energy source with practically unlimited resources.

At the same time, at a superheated steam temperature up to 3500 °C, almost complete thermal dissociation of CO2, CO, and NOx molecules into molecular and atomic carbon, oxygen, and nitrogen occurs.

The process of overheating of detonation products up to 3500°C is accompanied by the release of a large amount of concomitant cheap thermal energy, which can be utilized and used to heat housing, industrial needs, or can be converted into electricity.

«Green Hydrogen from Waste» status: Patent pending. Copyrights and Know-How have been reserved.

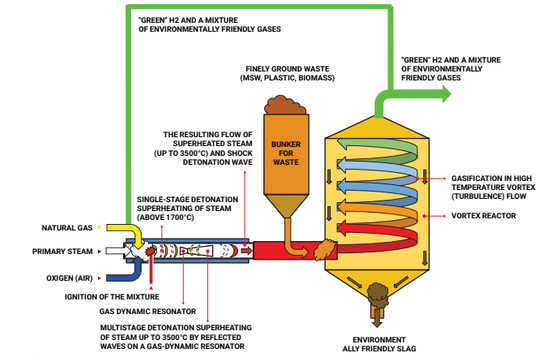


FIG.2

The main goal of R&D is to create a stand-alone «Green Hydrogen from Waste» pilot plant using new physical principles to convert waste into «green» hydrogen without CO2 emissions in the cheapest way, which will be adapted to the needs of the national economies of IOFS member counties, helping to mitigate the upcoming energy crisis through the production of concomitant cheap thermal energy and electric power and aimed at long-term technological transformation towards a carbon-neutral economy.

5. R&D "Green Hydrogen from Coal" is a climate-smart solution based on new physical principles for producing superheated steam with a temperature of up to 3500 ° C by the method of multi-stage detonation, which turns any type of finely ground (dust) energetic coals (as well as oil shale and other types of solid fossil fuels) into «green» hydrogen without CO2 emissions, that cardinally reduces the cost of gasification of coal and allows to get «green» hydrogen in the cheapest, currently available, way in the world turning waste into a new type of «renewable» energy source with practically unlimited resources.

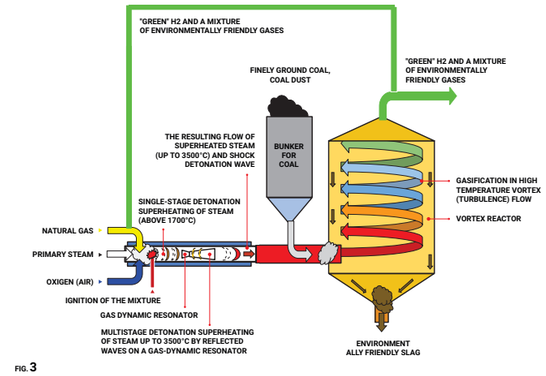


FIG.3

At the same time, at a superheated steam temperature up to 3500 °C, almost complete thermal dissociation of CO2, CO, and

NOx molecules into molecular and atomic carbon, oxygen, and nitrogen occurs.

The process of overheating of detonation products up to 3500°C is accompanied by the release of a large amount of concomitant cheap thermal energy, which can be utilized and used to heat housing, industrial needs, or can be converted into electricity.

«Green Hydrogen from Coal» status: Patent pending. Copyrights and Know-How have been reserved.

The main goal of R&D is to create a stand-alone «Green Hydrogen from Coal» pilot plant using new physical principles to convert energetic coals into «green» hydrogen without CO2 emissions in the cheapest way, which will be adapted to the needs of the national economies of IOFS member counties, helping to mitigate the upcoming energy crisis through the production of concomitant cheap thermal energy and electric power and aimed at long-term technological transformation towards a carbon-neutral economy.

6. R&D "STOP CO2" is a climate-smart solution based on new physical principles that allows CO2 to be supplied to the multi-stage detonation zone, where the detonation products are superheated up to 3500 °C by reflected waves on a gas-dynamic resonator, during which the almost complete thermal dissociation of CO2 molecules occurs into molecular and atomic carbon and oxygen in the cheapest, currently available, way in the world.

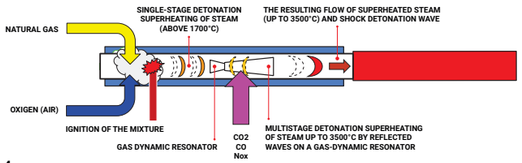


FIG. 4

The process of overheating of detonation products up to 3500°C is accompanied by the release of a large amount of concomitant cheap thermal energy, which can be utilized and used to heat housing, industrial needs, or can be converted into electricity.

«STOP CO2» status: Patent pending. Copyrights and Know-How have been reserved.

The main goal of R&D is to create a stand-alone «STOP CO2» pilot plant using new physical principles to CO2 disposal in the cheapest way, which will be adapted to the needs of the national economies of IOFS member counties, helping to mitigate the upcoming energy crisis through the production of concomitant cheap thermal energy and electric power and aimed at long-term technological transformation towards a carbon-neutral economy.

7. R&D «Green Desalination Water» is a climate-smart solution for desalination of seawater in the cheapest, currently available, way in the world, based on new physical principles where a jet of sea water is injected into a high-speed flow of detonation products, superheated up to 3500 °C, which is cyclically exposed to detonation shock waves, resulting in aerodynamic fragmentation of the heated jet of sea water with the formation of a flow of multi-phases mixture of superheated steam, CO2 and other detonation products that is supplied to the vortex zone of desalination chamber.

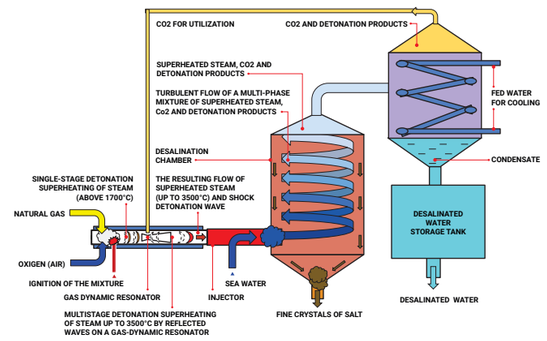


FIG. 5

In the vortex zone microscopic sea water droplets quickly evaporate in a high-temperature turbulent vortex flow, with the formation and separation of small sea salt crystals, and the steam condenses, turning in the desalinated water and is supplied to consumers.

The resulting CO2 is fed into the multi-stage detonation zone for utilization, where, at the temperature up to 3500 °C, almost complete thermal dissociation of CO2 molecules into molecular and atomic carbon and oxygen occurs.

The process of overheating of detonation products up to 3500°C is accompanied by the release of a large amount of concomitant cheap thermal energy, which can be utilized and used to heat housing, industrial needs, or can be converted into electricity.

«Green Desalination Water» status: Patent pending. Copyrights and Know-How have been reserved.

The main goal of R&D is to create a stand-alone «Green Desalination Water» pilot plant using new physical principles to desalinate seawater without CO2 emissions in the cheapest way, which will be adapted to the needs of the national economies of IOFS member counties, helping to mitigate the upcoming energy crisis through the production of concomitant cheap thermal energy and electric power and aimed at long-term technological transformation towards a carbon-neutral economy.

8. R&D «Green Sand» is a climate-smart solution to convert «desert» sand into construction sand in the cheapest, currently available, way in the world, based on new physical principles, where a jet of «desert» sand is injected into a high-speed flow of detonation products, superheated up to 3500 °C, where conditions are created for melting and gluing fine «desert» sand into a larger fraction (the melting point of «desert» sand is about 1700 - 2000 °C), with further crushing by shock-detonation waves and formation of necessary fraction corresponding to the parameters of construction sand, that will allow to ensure the mass production of cheap construction materials for the growing needs of the construction industry.

The process of overheating of detonation products up to 3500°C is accompanied by the release of a large amount of concomitant cheap thermal energy, which can be utilized and used to heat housing, industrial needs, or can be converted into electricity.

«Green Sand» status: Patent pending. Copyrights and Know-How have been reserved.

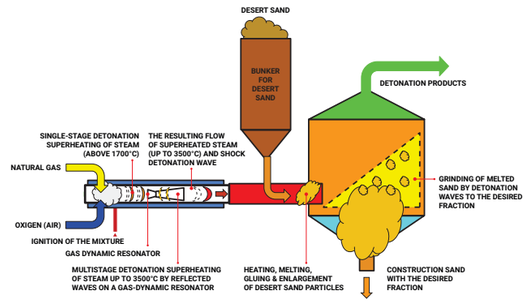


FIG. 6

The main goal of R&D is to create a stand-alone «Green Sand» pilot plant using new physical principles to convert «desert» sand into construction sand, in the cheapest, currently available, way in the world, which will be adapted to the needs of the national economies of IOFS member counties, helping to mitigate the upcoming energy crisis through the production of concomitant cheap thermal energy and electric power and aimed at long-term technological transformation towards a carbon-neutral economy.

Cooperation Spheres between IOFS and ICCCT

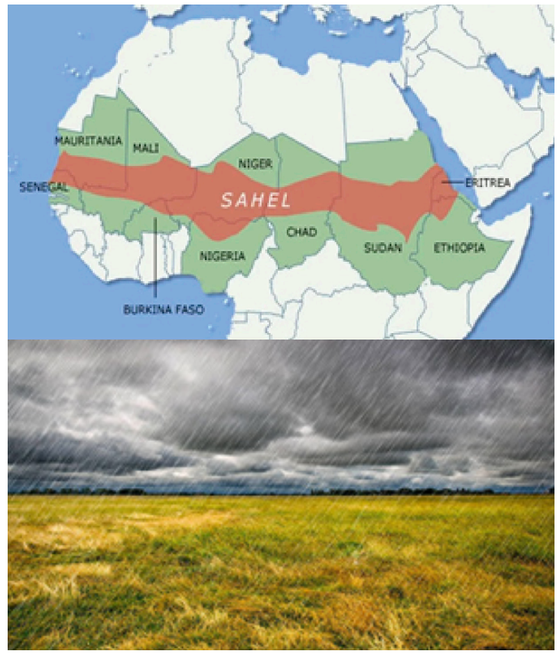
In June, 8, 2022, in Almaty, Kazakhstan, on the IOFS High-Level Forum on Food Security was signed Memorandum of Understanding on «IOFS Integrated Water Plan for the Sahel Region 2030», within the framework Public-Private Partnership, between the «Islamic Organization for Food Security» (https://iofs.org.kz/), High Authority for Waqf, a specialized public institution, under the Presidency of the Republic of Niger, specially dedicated for the promotion of the Waqf sector, JSC "NC Kazakhstan Garysh Sapary" (KazCosmos), Kazakh National Agrarian Research University (KazNARU) and our company. Currently, the preparation of the Consortium Agreement is in progress.

Implementation of the «IOFS Integrated Water Plan for the Sahel Region 2030» within a framework of Public-Private Partnership will solve water scarcity issues, and the creation of Climate-Smart Agricultural and Food Systems will contribute to the provision of food security of countries of the Sahel region.

It is planned that the «IOFS Integrated Water Plan for the Sahel Region 2030» will be introduced at the upcoming 27-th Session of the UN Climate Change Conference 2022 (COP 27) in Egypt, will be introduced.

Further cooperation between IOFS and ICCCT will be aimed at the sustainable provision of other IOFS Member countries by water resources of atmospheric origin that promote provision of food security and the building of Climate-Smart Agricultural and Food Systems in the Sahel region and other IOFS Member countries.

A wide range of integrated climate-smart solutions aimed for the provision of food security and the transition to a carbon-neutral economy has a steady upward trend up to 2050 and appreciated strongly in value during these challenging economic times, associated with the upcoming energy crisis.



AFRICA

INTRODUCTION OF RUFORUM AND ITS ROLE OF DEVELOPING AGRICULTURE IN AFRICA

RUFORUM: Dynamic and Resilient network

RUFORUM was created in 2004 by Vice Chancellors of universities in Africa to provide a platform to strengthen the engagement between African universities to increase capacity to raise the productivity of smallholder agriculture. RUFORUM continues to focus on strengthening networking, resource mobilization and advocacy to transform universities for relevance towards inclusive sustainable development. RUFORUM has helped rationalize resource use and enhance economies of scale and scope encouraging universities to directly support inclusivity and African development priorities. The RUFORUM network connects globally with other university, research and agriculture networks, development partners, policy and decision leaders. It leverages synergies and solidarity to deliver relevant science solutions for development, increase human capital and promote institutional reform in African higher agricultural education. RUFORUM acknowledges youth as the propulsive engine to drive change and lead the charge for a better Africa. The network is African owned, aligned with country goals and thrives in multi-stakeholder inclusive engagement that is alive to gender equality and gender responsive interventions.

BUILDING ON A COLLECTIVE FOUNDATION

The RUFORUM network is building on the shared collective voice enshrined in the African Universities' Agenda for Agricultural Higher Education, Science, Technology and Innovation (AHESTI), Vision 2030 agenda. The Vision 2030 seeks for *vibrant transformative universities that catalyse sustainable inclusive agricultural development to feed and create prosperity for Africa*. RUFORUM network universities appreciate that transforming African universities for growth and development will yield quality human capital, institutional reform and deliver science solutions for development to bolster Africa's competitiveness and improved livelihoods.

OUR VISION

Vibrant, transformative universities catalyzing sustainable, inclusive agricultural development to feed and create prosperity for Africa.

MISSION

To strengthen the capacities of universities to foster innovations responsive to the demands of smallholder farmers and value chains through the training of high quality researchers, the output of impact-oriented research, and the maintenance of collaborative working relations among researchers, farmers, market actors, national agricultural research and advocacy institutions, and governments.

MOTIVATION

Transforming agriculture in Africa requires innovative scientific research, educational and training approaches. The education sector needs to be more connected to the new challenges facing rural communities and needs to build capacity of young people to be part of the transformation of the agricultural sector". This is reinforced by the Science Agenda for Agriculture in Africa.

RUFORUM's growth trajectory

Formed in 2004 by a resolution of 10 Vice Chancellors from five African countries, RUFORUM has over the years attracted more membership but has paced the demand and adopted gradual but steadfast growth. By 2019 membership had reached 129 universities in 38 countries in Africa and today, the network is 157 members from 40 African countries. Joining the RUFORUM network is premised on the value proposition and institutional strengthening and growth through research, staff capacity development, community engagement and other benefits for member universities. Through the network, universities are able to share resources and information and also leverage physical, financial, and human resources that are not readily accessible to individual institutions. The growth in membership demonstrates the value that the Network brings to the universities at institutional level or as a block at national and continental levels. RUFORUM supports universities to strengthen the important, and often unfulfilled role that universities play in contributing to the well-being of small-scale farmers and economic development of countries throughout Africa.

At the network level, RUFORUM in 2014 signed an MoU with African Union Commission, under this MoU RUFORUM is implementing African Union Science, Technology and Innovation Strategy for Africa 2024 (STISA -2024), Priority One "Eradication of hunger and achieving food and nutrition security".

Through convenings and networking advocacy, RUFORUM brokers partnerships and facilitates how as a block, the body of universities contributes to meeting the Sustainable Development Goals and Agenda 2063. It therefore acts as a conduit through which institutional, national and regional interface with implementation framework thrives. In recognition of its effort in higher education space, the UN Special Envoy on Food Systems, requested RUFORUM to bring together voice of the higher education sector into the UN Food Systems summit. This led to a over 25 dialogues that were coordinated by RUFORUM, engaging over 8,000 participants from across African and beyond. These included academia, development practitioners, youth, ministers and African Heads of State. The African Vice Chancellors in particular made the following recommendations towards the UN Food Systems:

1. Mobilize resources for continental initiatives that support human capital development that increase Africa's capability in research, innovation and entrepreneurship for:

a) The sustainable use of the continent's rich plant and animal genetic diversity for increasing productivity especially of small holder farming systems in a changing climate while reducing the negative impact on the natural resource base;

b) Increase value addition, reduce high post-harvest losses, and preserve nutrient content of indigenous African foods – crops, livestock, fish and promote the nutritional value and health benefits for addressing poverty and malnutrition;

c) Support governments, universities and industries to comply with international rules e.g., Intellectual Property Rights and compliance with biosafety protocols and food safety, sanitary and phytosanitary requirements for increasing market access for smallholders and SMES to trade in national, regional and international markets and ensure that food produced and sold locally is safe for domestic consumption;

d) Leveraging the fourth industrial revolution technology and advances in science including artificial intelligence, digitalization and genomics for increasing effectiveness of tertiary education, research and innovation as well as efficiency in production, marketing and distribution of fresh and processed foods within and across borders such that Africa gains traction in the wider global food systems

2. Ensure that the results of investments in university education, training, research, innovation, and outreach programmes in particular the highly skilled alumni and technologies generated, are integrated and used to stimulate local and continental-wide economic recovery and socio-economic development. Faculty and students will be actively engaged in shaping and leading food systems transformation for the benefit of Africans and the world.

Investments that made RUFORUM's growth possible: success of commitment

UFORUM was initiated with funding from the Rockefeller Foundation grant. Later, it received support from Bill and Melinda Gates Foundation (BMGF). The BMGF first initiated discussions with RUFORUM in 2006 when young academics, supported through RUFORUM, impressed with their ability to engage directly with farmers and to jointly address some of their agricultural problems. The support given to RUFORUM to develop a comprehensive program that would help it to establish strong governance and project development and award criteria set the stage that is continued today. RUFORUM has a strong reputation for transparency, an excellent audit record and is held in high esteem by its members. The support to the Secretariat resulted in effective implementation, mentoring and close relationships with members. Support from BMGF to meetings and conferences has raised the profile of member universities and the convening power of RUFORUM. It has catalyzed much stronger relationships with government and strengthened the relationship between universities and policymakers. Investment in both the institution and projects has resulted in a high level of success. Another factor has been the ongoing support which has ensured much wider traction for the ideas and ensured the sustainability of the investment. This would not have been possible if only short-term project support had been provided.

RUFORUM institutional growth has been occasioned through partnerships and support from diverse agencies. The Bill and Melinda Gates Foundation has been integral to the growth as can be seen in the expansion of RUFORUM network from 32 universities (2013) to 129 universities in 38 African countries (2019). By this expansion, support from the Foundation has increased the regional and international image and position of the network as a vibrant outcome and impact-oriented consortium. Critical to this development has been support to functional Governance Organs and facilitating a fully constituted Secretariat with a dedicated specialist team of support staff, technical specialists and managers who have the knowledge, skills and experience to support the network. The institutional structure has been key to attracting, leveraging and maintaining funding and increasing investment opportunities from other

partners and Governments that continue to sustain RUFORUM operations and activities.

RUFORUM isuccess thrust to the continent and to the university system in Africa with potential for scalability and strengthening is evident through:

1. Partnership for development

RUFORUM has played a significant role in brokering, nurturing and managing partnerships from local to global scale in order to mobilize resources that are essential to deliver on the development goals of African institutions. This has been through networks for training and research that brings together Universities in Africa that have a focus on higher agricultural education. Collectively, the network has potential to train close to 700,000 young Africans who are the foundation for the continent's present and future growth. More specifically, through RUFORUM and partners, Africa is now able to graduate 1,200 PhDs and over 5,000 masters. These endeavors are rooted in inclusive programming that takes cognizance of gender, youth and socio-economic background of participants. The RUFORUM Regional PhD programs were the first to provide taught course components and significantly expanded the opportunities for Africans to study on the continent. They provided high quality postgraduate degrees encouraging participatory field research and helped to strengthen networks within the continent. These regional programs increased both human capital and smallholder agricultural productivity. They also led to the adoption of taught courses in other faculties and raised the profile of African doctoral training. As the strength of the network has grown these efforts have been reinforced by the universities themselves waiving fees to the faculty of member universities to support raising the qualifications and the quality of African postgraduate degrees.

Networks for training and research have emerged providing a platform for science leadership and programming. RUFORUM thus stands out as a platform for linkages and coordination of African researchers and researchers from outside Africa in various initiatives including competitive projects development, student's identification and placement. The RUFORUM Network bridges the gap with global partners such as AGRINATURA, APLU, AAU, Association of Indian Universities and GCHERA, that have increased the participation of African Universities in the global higher education agenda, thus enhancing Africa's contribution to global knowledge. But most importantly created a community of African researchers working together to address common but context specific challenges. The Network has been able to galvanize participation of African academics in competitive projects that have mobilized more than 250 million dollars towards research and training.

Grant requirements for intra- and inter-institutional collaboration as well as inter- and multi-disciplinary research processes have brought together specialists of different skills to work together and bring their scientific abilities to achieve answers to significant questions. This has accelerated the progress of university research and enhanced the quality of the work as well as extending the repertoire of the partners. RUFORUM-brokered partnerships among researchers have ensured that their knowledge, skills and techniques are available more broadly to mutually benefit the participants and the network. The more the researchers collaborate, the greater the chances for success and problem solving, the prospects for acquiring and sharing knowledge and experience, and also in making equipment, facilities, and laboratories available to other researchers even if they belonged to another institution.

2. Nurturing young talent

RUFORUM has moved towards commitment to advocate for vocationalization of higher education and increasing the connectivity of the education value chain in Africa. This effort has led to the realization and appreciation of the need for the transformation of higher education in Africa and now further being championed by other global players. Recognizing the value of a functional education system that delivers skilled human resources and minimizes waste of talent and potential through the drop-out rates that have tended to characterize Africa's education and education processes.

The Network has progressed as a platform for talent identification. Young innovative and entrepreneurial Africans have been identified and nurtured through the RUFORUM Young African Entrepreneurs Competition (RUYAEC)[1]. Young entrepreneurs have been able to engage with an estimated 40,000 smallholder farmers, create about 250 jobs in their start-ups, and raise the profile and vibrancy of innovation and entrepreneurship in the continent.

3. Engaging high level policy to invest in human resource development and research

RUFORUM today provides a platform for universities to engage with key stakeholders through its annual and biennial convenings and programs. Over the last 15 years, RUFORUM has held 385 networking events that have led to increased investment, positioning and policy influence of African Universities and their higher education and research agenda in the development of the continent. Interface has embraced delegations of Vice Chancellors meeting with the highest policy makers is some of the countries including Presidents of Liberia, H.E. Johnson Sirleaf and George Weah, Presidents of Malawi, H.E. Arthur Peter Mutharika and Lazarus Chackwera, H.E. William Ruto, Deputy President of the Republic of Kenya, and H.E. Hon. Janet Kataha Museveni, First Lady and Minister of Education, Uganda and linking Universities, Development partners and Policy leaders. These interactions have facilitated bringing the higher agricultural education the fore front of the policy and decision-making agenda. Evidence of policy engagement has manifested through initiatives such as the 10 African Heads of State Committee (C10) championing education, science and technology endorsed by the African Union Assembly of January 2018[2]. The first Extra-Ordinary C10 Summit hosted by the Government of the Republic of Malawi, adopted Action Plan identified RUFORUM as one of the key partners in the implementation of the Science Technology and Innovation Agenda on the Continent. RUFORUM has continued to provide leadership to push for the commitments made at the Summit.

The Ministerial Conference on Higher Education in Agriculture (CHEA)[3] co-hosted by the Government of Uganda, RUFORUM and other regional and international partners in 2010, laid the foundations and momentum for several investments that have been made in higher agricultural education in Africa to date including the African Centers of Excellence that has now invested more than US$350 million. The Ministerial Round Table dialogue practice was adopted as a common occurrence of the annual RUFORM convening and Biennial Conferences. Providing a valuable platform for universities to interface with policy, leadership development and other stakeholders.

4. Rebuilding Africa's research capacity and thought leadership

RUFORUM focuses on building high-quality and relevant postgraduate training in agriculture and more broadly in Science, Technology and Innovation (ST&I), providing targeted support for undergraduate training, research and knowledge-sharing; providing technology platforms and the "skills revolution" needed for universities to be leading actors in the national agricultural transformation systems and regional centers of excellence to train the next generation of scientists for Africa. RUFORUM, through the Strengthening Capacity for Agricultural Research and Development in Africa (SCARDA) project for example, identified, commissioned and disseminated information on how capacity strengthening for agricultural research leads to measurable and sustainable impact in conflict-stricken nations as was the case for Rwanda, Burundi and Sudan. The SCARDA process became the link that sustained NARS active engagement in national development, especially in developing the country Compacts to operationalize the CAADP commitments and catalyzed the sharing of resources to train for weaker universities thereby creating an environment for collective growth in the universities' human resources.

Collectively the potential to mobilise resources from different partners is enormous. The RUFORUM model leverages on the competitive advantage of the flagship member universities to support emerging and new universities in the network. Building on earlier results, RUFORUM is currently supporting several students from conflict-stricken nations of Burkina Faso, Burundi, Cameroon, Congo Brazzaville, Democratic Republic of Congo, Liberia, Mozambique, Nigeria, Somalia, South Sudan, Sudan and Zimbabwe. RUFORUM has supported the design of strategic actions to rebuild critical human resources for countries emerging from war while strengthening the same capacity for emergent NARS and universities. It is on this principle that the concept of Regional Anchor Universities and African Centres of Excellence was founded, to create a hub of universities with different competitive nodes.

The RUFORUM Academic Mobility Program a suite of mobility arrangements including short-term stays of up to 3 months for academic staff and administrative staff to share their experiences, and support the quality of research and training in other universities. The Mobility program further involves short stays for students seeking help in data analysis and thesis writing opportunity under the Doctoral Completion arrangement. The other interventions within the Mobility arrangements are through support to student placement under funding from Intra-ACP Mobility, Intra-Africa Mobility, and Erasmus Plus. The The RUFORUM Graduate Teaching Assistantship (GTA) program with 40 African Universities (training 325 PhD) and internally mobilizing US$24m for the universities has emerged as a home-grown model for human capacity development on the continent promoting retention of highly qualified staff. The RUFORUM Post-Doctoral Fellowship Program has been key in consolidating retention of the highly trained and qualified human resources within the African universities to support the competitiveness of universities and to drive the knowledge economy within Africa.

The RUFORUM strategic visioning for institutional reform and investments for human capital and development for Africa exculpates designed and nurtured, improvement in the quality of training programmes in Africa such as regional coursework based PhD[4] and MSc programmes (12), curriculum review and reform in 15 universities, intensified engagement of universities in development agenda of their respective, and engagement of Northern Universities (Europe and North America) in collaborative training and research through new market oriented training and research. Through university academics strengthening capacity and trainings, institutions such as Makerere University have become distinguished actors in human capital development for their country as well as the wider Africa region[5].

Mentorship and skills enhancement programs for young professionals have been instituted. RUFORUM provides the framework for shared life experiences, interaction between seasoned researchers and students to provide them with opportunity to define their future. Through this mentorship, young professionals have received accelerated promotions in their respective universities to the ranks of lecturers, senior lecturers, associate professors and professors and a number of them have taken up leadership roles in the National Research System especially in Burundi[6], Uganda, South Sudan[7], Kenya[8], Gambia[9], Rwanda, Benin, Botswana[10], and Ethiopia.

The RUFORUM model is creating a new generation of African scholars that know more about smallholder agriculture and rural conditions throughout the continent rather than simply their countries. These students will play a significant role in fostering regional integration and promoting work across language divides.

5. Inclusive programming in higher education

RUFORUM encourages member universities to provide opportunities to less advantaged students and also strengthen the role of women in science, technology and innovation including engineering and mathematics with opportunity to stay in school and finish their higher education. Through deliberate effort, the share of women participation in ST&I in the RUFORUM programming in the last 15 years increased from 4% to the current 45 percent. As part of advancing equity, a target of 60% share of women joining higher education for undergraduate studies with RUFORUM support and a 50% share for those joining post-graduate studies in the science domain has been set. This has seen an increased number of young women joining the science fields with RUFORUM support at the focus universities including Egerton University and Gulu University. Further, to institutionalize this, women Vice Chancellors in the RUFORUM member universities have now created the Forum for Women Vice Chancellors in Africa; that is now championing the science, leadership and mainstreaming of the women into the science and leadership agenda in Africa.

1 http://www.ruforum.org/younginnovators/
2 Committee of Ten Heads of State and Government (C10) Championing Education, Science and Technology in Africa: https://au.int/en/pressreleases/20181102/first-extra-ordinary-summit-committee-ten-heads-state-and-government-c10
3 https://news.mak.ac.ug/2010/11/chea-2010-reaffirming-commitment-higher-education-agric
4 About Regional PhD Programmes: https://www.ruforum.org/regional-training-program
5 https://repository.ruforum.org/system/tdf/Ruforum%20Case%20Study%20-%20Makerere%20story%20PR.pdf?file=1&type=node&id=33631&force=
6 https://repository.ruforum.org/node/33500
7 https://repository.ruforum.org/documents/analysing-adapting-innovating-growing-robust-agricultural-research-system-south-sudan
8 https://repository.ruforum.org/documents/soil-microbes-markets
9 https://repository.ruforum.org/system/tdf/The_Gambia.pdf?file=1&type=node&id=31320&force=
10 https://repository.ruforum.org/documents/impact-graduate-research-grants-examples-bostwana

Equal opportunity for disadvantaged youth in particular girls and those coming from conflict and post conflict areas. Through a targeted selection process, focusing on securing a differentiated admission of students from disadvantaged communities to join universities. This is particularly important because of their scores in high schools are not competitive to those of students that undertake their studies in urban areas and under relatively good conditions.

6. Innovations for development - Responding to the Science Agenda for Africa

RUFORUM acts a spring board for strengthened and engaged universities through the Community Action Research Programme (CARPs) that identify technologies developed by universities and/or industry. Universities are facilitated to work with the communities to co-design, co-create and co-produce knowledge as they adapt technologies and innovations and put them into practice. Twenty (20) CARPs have now been supported in the RUFORUM system, directly benefiting an estimated 120,000 smallholder farmers (see CARP stories for Wheat-Ethiopia[11], Cassava-Uganda[12], with various success[13], Malawi[14], Baobab, Benin, and Tanzania[15]).

Students, especially graduate students in participating universities are thus playing a key role in the delivery of complementary extension services; a greater linkage with the National Advisory Services is currently illustrating university contribution towards professionalization of extension services as well as agriculture. Further, in fulfilment of STISA Priority One: eradicating hunger through delivery of appropriate technologies, innovations and management practices to an estimated 1,500,000 smallholder farmers in Africa; RUFORUM has been able to demonstrate the role that universities can play in society transformation and elimination of hunger, malnutrition and raising the income and economic base of rural communities.

Peace University (Sudan), Botswana University of Agriculture and Technology (Botswana), University of Namibia (Namibia) and University of Free State (South Africa). The CARPS are directly reaching an estimated 45,000 smallholder farmers with various technologies, innovations and management practices in various commodity value chains including cassava, maize, potatoes, piggery, baobab, and sheep. Participatory research has increased adoption rates of new methods or technologies by farmers and communities involved in the design and execution of the research programmes due to the increased sense of ownership over the processes and products, as well as the reassurance that the outcomes are intended to suit the community needs and preferences.

Progress has further been registered in innovations tackling youth unemployment as well as advancing entrepreneurial spirit among university graduates in the RUFORUM member universities. The RUFORUM Entrepreneurship Challenge Programme (RECAP)[16] supports the establishment of the Agribusiness Incubation hubs establishment in universities. The programme has expanded to 16 universities currently estimated to be training 500 young entrepreneurs in Burundi, Uganda, Kenya, Benin, Ghana, DR. Congo, Ethiopia, South Sudan and commencing in Zambia, Tanzania, Lesotho, Liberia and Senegal. Student enterprise development and research is also encouraged to reach out to work with refugees and their host communities.

The aquaculture technologies developed at Lilongwe University of Agriculture and Natural Resources (LUANAR) focused on increasing fish production and rural incomes through application of aquaculture innovations in the value chain. Fish farmers were linked to Innovative Fish Farmers Network Trust, a group of fish farmers at national level that aim at training and empowering fish farmers with different techniques. Eighty fishponds were constructed and 110,000 fingerlings of *Oreochromis shiranus* (80,000 improved strains, 40,000 local strains) were stocked. Pond yield increased by 69%, from 750 kg/ha/year to 1,266 kg/ha/year. At an average price of US$2.7/kg, average gross income of about US$1,688 was realized from a 1ha pond per year - **The LUANAR unit is now an African Centre of Excellence with Support from the World Bank.**

From the BMGF support, RUFORUM attracted resources from the Mastercard Foundation to expand the CARP pilot concept from the initial four CARPS, to 16 more CARPS where the complementary extension delivery model through the Student Centered Outreach Approach has expanded to Egerton University and University of Nairobi (Kenya), Gulu University and Makerere University (Uganda), University of Cape Coast (Ghana), Abomey Calavi University (Benin), University of Gezira, University of Khartoum, University of Khordofan and

Lessons into the future of the network and Africa's higher education

RUFORUM has been a critical proof of concept, that the network approach is fundamental to advancement of the continent; that grants that support institutional structures and not only projects, have the potential to grow the network; and, that collectively Universities even with limited funding can make substantial contribution towards development, we see the future where *Vibrant transformative universities catalyze sustainable and inclusive agri-food system development in Africa* contributing to enhanced

11 https://repository.ruforum.org/system/tdf/ANNUAL%20PROJECT%20REPORT%20Wheat%20CARP%202015_16.pdf?file=1&type=node&id=36001&force=
12 http://www.cassava-carp.org/frontend
13 https://blog.ruforum.org/2017/02/03/enabling-rural-women-prosper-from-cassava-bioethanol-production-through-university-community-engagement/
14 http://ruforumimpact.org/project/strengthening-universities-community-engagement-for-transformed-agriculture/
15 https://blog.ruforum.org/2015/06/08/nelson-mandela-african-institute-of-science-and-technology-awarded-a-300000-grant-from-ruforum/
16 http://www.ruforum.org/MCF/ongoing-recap-projects

agri-food systems that fees and create prosperity in line with the Sustainable Development Goals. We make the following observations on growth, institutional support and advancement of African based institutions as facilitators of development:

- Building regional and national capacity through networks helps to bring convergence of effort and leveraging of economies of scale and it will be critical for African institutions especially to move their partnerships beyond Europe and Americas and also focus to build partnerships with Asian universities especially those tackling nearly similar challenge to those in the continent and/or those whose countries have been able to utilise science to transform their societies and economies;
- Stronger, connected and well-functioning institutions catalyse local level innovation to support adaptive development including addressing issues of global concern such as climate change, emerging epidemics and pandemics such as the COVID-19 situation ravaging the world. They do these by increasing performance of local talent and retention of these talent within the continent;
- Integrating higher agricultural education with rural communities, smallholder farmers' associations, National Agricultural Research Institutes, extension and development agencies, and the private sector;
- Investing in regional centers of leadership and/or excellence building on the regional masters and PhD programs and scaling up research outputs and operational uptake bolsters Africa's capacity to sustain development outcomes of philanthropy and also serves a catalytic role in accelerating African governments investments, and greater Africa-Africa and Africa-and the world collaborations and other science partnerships;
- Investing in university transformation and reform processes in Africa is an urgent imperative to accelerate universities transitions from the traditional three role function of teaching, research, and outreach to a five function that includes; innovation and industry. This investment in reform also includes a focused attention to growing a cadre of dynamic thought university leaders to foster development and management of transforming universities in the continent;
- Previous investments have succeeded in addressing on farm productivity challenges, as such smallholder farmers now have access to better varieties, and many other technologies. However, these interventions have not generally looked at the comprehensive food systems as such market and business development for example remain week, value addition that has an accelerative potential for industrialisation and job creation for especially the youth in Africa also remains limited among others. Taking a food systems approach in the near future would be critical to bringing all actors together for maximum gain and meaningful transformation;
- Forming scientific partnerships globally with the Consultative Group on International Agricultural Research, universities and research institutes in emerging and industrialized economies; and
- Facilitating increased intra-African access to quality education across the continent.

AFRICA

THE BLEAK HUNGER SCENARIO IN AFRICA

ABDULA MANAFI MUTUALO,
IOFS Senior Liaison Officer

In one of its periodic publications[1], the United Nations (UN) stated that Africa has been particularly affected and vulnerable within the backdrop of the once-in-a-century pandemic (COVID-19), which was followed by the crisis in Ukraine, resulting in strong inflationary pressures around the world linked, ominously, to a surge in global food and energy prices. In such a bleak situation, about 21% of people in Africa suffered from hunger in 2020, a total of 282 million people. Between 2019 and 2020, in the aftermath of the pandemic, 46 million people became hungry in Africa. No other region on the world presents a higher share of its population suffering from food insecurity.

In fact, the hunger situation in Africa is not new. In reality, different reports issued by relevant UN Agencies, including the Food and Agriculture Organization (FAO) and the World Food Program (WFP), particularly the *Hunger Hotspots Report 2021*, conveyed the drastic situation of food insecurity in 11 Member States of the Organization of Islamic Cooperation (OIC), namely Afghanistan, Burkina Faso, Mali, Niger, Nigeria, Sierra Leone, Somalia, Sudan, Mozambique, Lebanon and Yemen, bringing the total amount of affected people to the scary number of around 66 million.

As majority of the aforementioned countries are African, the continent was given particular attention by the Islamic Organization for Food Security (IOFS), specially within the understanding of FAO **Africa Regional Overview of Food Security and Nutrition 2020**, published[2] on 30 June 2021, that has stated that Africa was not on track to meeting the Sustainable Development Goal (SDG) targets to end hunger and ensure access by all people to safe, nutritious and sufficient food all year round and to end all forms of malnutrition. The number of hungry people on the continent has risen by 47.9 million since 2014 and now stands at 250.3 million, or nearly one-fifth of the population.

The 2017, 2018 and 2019 editions of the same report explained that such gradual deterioration of food security was due to conflict, weather extremes, and economic slowdowns and downturns, often overlapping. A continued worsening of food security was expected also for 2020 as a result of the COVID-19 pandemic. The report also showed that 2020 food consumption patterns imposed high health and environmental costs, which were not reflected in food prices. The findings presented in this report highlighted the importance of prioritizing the transformation of food systems to ensure access to affordable and healthy diets for all, produced in a sustainable manner. On the other hand, rapidly rising demand for food, fueled by population and income growth, provides major opportunities for agri-food systems to accelerate employment creation, boost continental trade, strengthen resilience, and transform African economies. The value3 of Africa's food market is projected to increase from US$313 billion in 2010 to US$1 trillion in 2030.

IOFS Efforts

It was without surprise that the *8th IOFS Executive Board Meeting*, held virtually on 09 December 2021, decided to adopt 2022 as the "IOFS Year of Africa" to ensure that the Organization would focus its main attention to that continent by developing and implementing projects relevant projects with the support of Member States and other stakeholders, including international organizations. The decision was timely and coincided with a later move by the African Union to mark Africa Day in 2022 under the theme "Strengthening Resilience in Nutrition and Food Security on African Continent".

The overall idea was that the development and implementation of projects within the "IOFS Year of Africa" would be carried out not only by the main organizer/initiator in the person of the IOFS, but also by the responsible Embassies of the African region in Kazakhstan and in the OIC Member States, as well as the Ministries of Agriculture of African countries, OIC and regional/international relevant organizations. All projects and activities will be united by a common goal – to improve food security with special focus on Sustainable Development Goals (SDGs) and *IOFS Strategic Vision 2031*. To ensure how special was for the IOFS to hold the celebration of Year of Africa, a dedicated logo was designed and used in all related events. More than twenty activities were to focus on the African Regional Group within the OIC geographical distribution, which is composed of the following 16 countries: Benin, Cameroon, Chad, Gabon, Gambia, Guinea, Guinea Bissau, Ivory Coast, Mali, Mozambique, Niger, Nigeria, Senegal, Sierra Leone, Togo, and Uganda.

It is however important to note that by electing 2022, as the "Year for Africa", the IOFS intended to work with African governments and relevant actors/development partners in the African agricultural landscape towards

1 Africa Renewal, available here: https://www.un.org/africarenewal/magazine/may-2022/growing-hunger-high-food-prices-africa-dont-have-become-worse-tragedy#:~:text=Africa%20has%20been%20particularly%20vulnerable,people%20became%20hungry%20in%20Africa, accessed on 04.08.2022

2 Cf. https://reliefweb.int/report/world/africa-regional-overview-food-security-and-nutrition-2020, accessed on 10.11.2021

3 In accordance with Alliance for a Green Revolution in Africa (Agra)'s findings here: https://agra.org/our-strategy/, accessed on 08.11.2021

a. Raising awareness on the bleak reality on all matters related with food security.

b. Implementing suitable initiatives/projects in the field of food security and agricultural transformation needed to accelerate the progress of agriculture and food sector in African Member States.

c. Gathering required resources to catalyze and sustain implementation of programmes under the *IOFS Framework Strategy* and *IOFS 2031 Strategic Vision*.

d. Expanding contacts and sharing experience among citizens, institutions of science, culture, education, business entities and structures.

e. Furthering capacity-building of government officials, representatives of science/research entities and other stakeholders in the domain of food security and agriculture.

The Kickoff

The kicking of the celebration of "2022 IOFS Year of Africa" was marked with two back-to-back events held on 16-19 May 2022 in Niamey, Republique of Niger, which was i) a *Capacity Building for Farmers on Water Management in Agriculture* in partnership with the Permanent Interstate Committee for Drought Control in the Sahel (CILSS) and Women Development Organization (WDO), where more than 70 farmers were trained with the aim of strengthening the development of irrigation in the Sahel, and ii) a *Workshop on the Development of Databases on Agricultural Statistics*, as a joint event again with CILSS. The event was held within the framework of CILSS expertise in dealing with inadequacies of existing information systems in the West African countries and in line with ECOWAS integrated regional information system on the agricultural sector called "ECOAGRIS" established in January 2005, as well as within the establishing process of the *IOFS Food Balance Database*, which is to monitor the food security level of Member States of the Organization of Islamic Cooperation (OIC).

Taking into account the aforesaid events in Niamey, Niger, the IOFS Director General, H.E. Mr. Yerlan Baidaulet, had bilateral meetings with H.E. Mr. Ouhoumoudou Mahamadou, Prime Minister, Head of Nigerien Government, as well as other Members of the Cabinet, including Minister of Livestock, of Agriculture, of Industry and Youth Entrepreneurship, of Hydraulics and Sanitation, and High-Commissioner to the 3N Initiative to brief on the work of the IOFS and the exchange views on how to advance the agenda of food security in that country.

The Director General, being in the region, decided to visit two African countries: i) the Republic of Chad and ii) the Republic of Guinea. He was in Ndjamena on 12-13 May 2022 to follow-up on the meeting with H.E. Mr. Cherif Mahamat Zene, Minister of Foreign Affairs, African Integration and Chadians Abroad of the Republic of Chad, held on the sidelines of the *48th Session of the Council of Foreign Ministers (CFM)* in Islamabad, Islamic Republic of Pakistan, on 22-23 March 2022, with whom notes were exchanged on Chad to consider joining the IOFS membership and to define agriculture and food security- related areas of common interest. He also had a chance to meet H.E. Mrs. Kamougue Née Dene-Assoum, Minister of Agricultural Development, H.E. Mr. Alio Abdoulaye Ibrahim, Minister of Hydraulics Urban and Rural, H.E. Mr. Abdel-Nasser Garboa, Cabinet Director of the President of the Republic, and H.E. Abderahim Awat Atteib, Minister of Livestock and Animal Production.

The Director General also visited the Republic of Guinea, an IOFS Member State, on 18-20 May following the invitation of H.E. Dr. Ibrihima Kalil Kaba, Minister of Foreign Affairs and Guineans Abroad of the Republic of Guinea, made on the sidelines of the 48th CFM. The visit was symbolic taking into account that the IOFS was officially born in Conakry during the holding of 40th CFM (09-11 December 2013), when OIC Member States decided to adopt and start signing the Statute of the new OIC Specialized Organ on Food Security.

During those bilateral meetings, as mentioned in a letter addressed to His Excellency Mr. Hissein Brahim Taha, OIC Secretary General, on 24 May 2022, the IOFS Director General was impressed on the expectations Member States have on the IOFS, and he had to clarify that the Organization is programming-based with scarce resources to respond to several challenges posed by food insecurity in visited countries and beyond. In this context, he requested the Secretary General, in his bilateral meetings, to advocate for the IOFS by highlighting the projects and programs designed to benefit the aforementioned Member States and other that are part of world hunger hotspots.

It is remarkable that the visit of IOFS Director General to Chad brought a sense of accomplishment when His Excellency Mr. Zakarea Fadel Katar, Ambassador of the Republic of Chad to the Kingdom of Saudi Arabia, and Chad's Permanent Representative to the OIC, signed, in the presence of OIC Secretary General, himself a Chadian, on 27 July 2022, the IOFS Statute. In fact, the important development of Chad becoming the 37th full-fledged IOFS Member State was a culmination of intensive bilateral consultations that were undergoing for some time. It is to be highlighted the meetings of IOFS Director General with H.E. Ms. Mayanan Kamougue née Déné-Assoum, Chadian Minister of Agricultural Development, on the sidelines of the *8th Ministerial Conference on Food Security and Agricultural Development*, held in Istanbul, Republic of Turkey, on 25-27 October 2021, with H.E. Mr. Cherif Mahamat Zene, Minister of Foreign Affairs, African Integration and Chadians Abroad, on the margins of the *48th Session of the Council of Foreign Ministers* (CFM), held on 23-24 March 2022, in Islamabad, Islamic Republic of Pakistan, and personal involvement of OIC Secretary General.

Separately, it is worth mentioning that the IOFS has been working on the Programme on Development of Strategic Commodities and the initiation of Creation of Centers of Excellence (CoE) within the OIC for development of certain commodities, including Wheat, Rice and Cassava. For instance, in 2022 the IOFS has been expanding its activities in African Member States with the aim to develop and integrate best practices of rice production. Along with Asian eminent research institutions hands-on training would be provided by COE (on rice) based in ISRA, Senegal.

As for **cassava**, the IOFS jointly with Nigerian National Root Crops Research Institution (NRCRI) on 23 September 2021 held the First Meeting of CoE for Cassava for Sub Saharan Group II, with about 70 representatives of research Institutions, local authorities, and experts of the sector from Benin, Togo, Cote D'Ivoire, Guinea, Senegal, Uganda, and Nigeria. The event devoted to the innovations and technologies in the development of cassava through climate-resilient decisions and newly adopted varieties. We understand that cassava represents a valuable subsistence and cash crop in many African countries. Its starchy root represents a major dietary source for more than 500 million people globally and ranks fourth food crop in the developing countries, after rice, maize and wheat, while Africa accounts for over 50% of the total world production of cassava. For this reason, we will continue working with African Member States to ensure sustainable development of this important crop.

Within the same understanding, the IOFS organized a training on "Genetic Resources and Genebank Management" on 20-28 June 2022 in Tunis, Republic of Tunisia, in cooperation with the

local Ministry of Environment and National Gene Bank with participation of 12 African Member States. The main aim of this training is to present and familiarize African participants with the Genebank operations and Genetic Resources conservation to contribute to strengthening capacity conservation practices and sustainable use through appropriate theoretical courses, presentations, and practical sessions under the guidance of specialized trainers.

Our Africa-related activities are also organized for reasons of learning best practices outside the continent, as, for instance, in Türkiye and Kazakhstan where on 08-09 June 2022 in Almaty, several high-level delegations, including Niger, Nigeria, RUFORUM, etc, actively participated at the *First High-Level Forum on Food Security* to exchange views on the subject and visited high-tech laboratories of the local Agrarian University (KazNaru). It should be mentioned that during the Forum, different related entities signed Water Integrated Plan for Niger, which is expected to be implemented soon.

5th General Assembly in Africa

The climax of the IOFS Year of Africa celebration is to be marked with the holding of the 5th General Assembly of the Organization in the beautiful city of Tunis on 10-11 October 2022, a demonstrated recognition of the overall kind support the Republic of Tunisia provides to the IOFS.

At the solemn IOFS gathering (here please indicate two sub-events addressed first to support African MCs) Member States are expected to adopt important programmes to further develop agriculture and address food insecurity particularly in Africa. These include

a. **the Sheep Farming Fund** investment project, which shall provide sustainable intra-OIC supplies of top-quality meat with the planned capacity of 40 thousand tons per year. Investment needs for one case project are preliminary estimated at USD 100 million. IOFS shall facilitate financing from institutional investors of OIC Member States with the support of member countries' IPAs. Upon successful implementation, this fund is to be replicated in other OIC countries, such as Somalia, Sudan, etc.

b. **OIC Food Security Reserve System** (FSRs), which it is expected for it to see the light of the day without delay, as it has been on the OIC agenda since 1981. The main purpose of the FSRs is to facilitate access to food in the Member States by forming regional food reserves to guarantee supplies in times of food shortage and by monitoring and forecasting the situation. The IOFS Secretariat, following a research study, proposes the establishment of six regional Food Reserves.

c. **the Grain Fund,** which is geared towards increasing intra-OIC economic cooperation particularly in the field of agricultural development and food security with emphasis on funding and grain supply. It should be underscored that the Grain Fund may be an important tool for Member States to avoid different factors that destabilize the grain market price policy, while reducing the price risk of purchase of agricultural products, as well as currency risk in attracting loans from foreign financial institutions. It is also hoped that this Fund, when fully replenished, would provide for strengthening ties with Islamic financial institutions through the IOFS to attract investment in agricultural development and food security, including the development of food safety production and value chain.

d. **The International Islamic Food Processing Association (IFPA)** is to be given an improved impetus to advance Pillar D of the *IOFS Strategic Framework* that is devoted to *Private Sector Driven Agro-Food Trade and Investment Promotion*, basically the foundation of relationship between the IOFS and Investment Promotion Agencies (IPAs). In fact, IFPA is the IOFS subsidiary that is focused on business-to-business (B2B) relationships, and it is important in enhancing private sector, particularly, in African Member States. It is relevant to mention that the IOFS Director General, in his official visits to Member States, he also meets management of different Chambers of Commerce, as was the case in Chad, Guinea, Morocco, and Tunisia so as to facilitate their honorary membership within IFPA. Separately, the IOFS Team participated in the OIC Trade Fair in Senegal last June, and later in October next, within the celebration of Year of Africa, an Agrobusiness Forum is expected to be held in Mozambique.

The Way Forward

It is widely known that agriculture is the single greatest opportunity to deliver inclusive economic growth, jobs, and health to the African continent. No region in the world has built a modern economy without first strengthening its agricultural sector and addressing food insecurity of its people.

The IOFS is therefore working to expand its geographic presence in OIC Member States, referencing CFM Resolutions and those of OIC Ministerial Conference on Food Security and Agricultural Development, which call on countries to join the IOFS and assist in the implementation of its different mandates. In this context, the IOFS Director General has been organizing bilateral discussions with relevant policymakers and decision-making officials of the OIC Member States to establish and materialize cooperation in order to achieve the shared objective of ensuring food security in the OIC Geography.

The IOFS currently has 37 members, and every year, seeing the efforts and contribution of the Organization for the development of agriculture and food security, it is expected that more and more countries have not yet signed the IOFS Statute, confidently express their intention to do so. In Africa, the IOFS is yet to be joined by Algeria, Gabon and Togo, and it is expected that soon these countries would become full-fledged IOFS Member States, as they have been benefiting from different capacity building programmes that the Organization has been convening within the framework of celebrating 2022 as IOFS Year of Africa.

It is important to remark that it is well known that "…hunger is the world's greatest solvable problem. **Africa has tremendous potential to be a part of the solution**. This requires progress on reforms that could rapidly and sustainably boost food production, including wheat, rice, and other cereal crops. These reforms would significantly help African economies become more **resilient to shocks, more peaceful, and more prosperous**…"[4], goals that the IOFS shares with the remaining international community when it comes to developing the agriculture sector in Africa while addressing the growing threat of food insecurity of its people. The time to act is now and all should say present for Africa to strive and reach the potential that is well recognized by the world at large.

[4] Remarks by IMF Managing Director Kristalina Georgieva at the Emergency Meeting of African Ministers of Finance and Ministers of Agriculture on the Looming Food Security Crisis in Africa, on 19 May 2022. Seen here: https://www.imf.org/en/News/Articles/2022/05/19/sp051922-emergency-meeting-on-the-looming-food-security-crisis-in-africa, accessed on 04.08.2022

AFRICA

COMMITMENT AND EXPERIENCE OF THE CILSS IN THE FIELD OF WATER MANAGEMENT

PERMANENT INTERSTATE COMMITTEE FOR DROUGHT CONTROL IN THE SAHEL

EXECUTIVE SECRETARIAT

The climatic peculiarities of the drylands in general and the Sahel in particular mean that all development issues are closely linked to water control. The problem is also acute in the other countries below the Sahel because, despite a much larger water budget, the economic structure of these countries is still largely based on internal agricultural production and the exchange of agricultural and livestock products with the countries of the Sahel. These areas below the Sahel are also experiencing an irreversible "Sahelization" of the upper parts of their territories.

Despite the considerable progress that CILSS countries and all of West Africa have made in preventing and managing food crises, most stakeholders agree that one of the greatest challenges facing our region in terms of poverty reduction and addressing food insecurity in a sustainable manner is the efficient management of our water resources. Indeed, agriculture, which is the main source of employment (78% of the labour force) and contributes more than 30% to the GDP of the CILSS countries, is still 95% dependent on rainfall, which has become very unpredictable due to the CC. From this point of view, the Sahel, for example, is one of the most vulnerable regions in the world, while paradoxically, at the same time, it has considerable water resources. The Sahel does not lack water, but it needs a strategy for the development and rational management of its water resources. It is indeed good to know that, on average, more than 80% of the total water resources are not directly used, while the potential in the Sahel is estimated at 278 650 million m3, according to the FAO. Specifically, in agriculture, only 4% of arable land is irrigated. However, climate is increasingly affecting water resources, and analyses of the effects of climate change on water balance have shown that runoff increases rapidly at the beginning of the season and declines early at the end of the season.

Aware of the many problems and challenges related to water in the countries of the Sahel and West Africa, CILSS has decided to become involved in the field of water management. Since its inception in 1973, CILSS has worked to create a critical mass of scientific information on the subject for the benefit of member countries through research, training, and awareness-raising activities. These CILSS actions have aimed to improve the level of knowledge and management of water resources by states and to facilitate access to drinking water and water for agriculture.

This high-level political commitment by CILSS demonstrates the will of CILSS heads of state to make water management an instrument of economic and social development for the benefit of the people of the Sahel and West Africa, and is illustrated by some notable examples of actions undertaken in partnership with other agencies.

Already in the 1990s to 2010, the CILSS, in collaboration with the European Union, has implemented, among other things, an extensive program for access to water through solar energy, which has led to the installation of nearly 985 systems for the supply of drinking water through solar energy, providing safe access to water for nearly 3,000,000 Sahelians in 9 countries of the CILSS at a cost of about 114,000,000 euros.

In the area of agricultural water, CILSS is currently developing a Sahel Irrigation Initiative (2iS) with the World Bank that aims to increase the area under water control in six Sahel countries (Burkina Faso, Mali, Mauritania, Niger, Senegal, and Chad) to 1,000,000 ha. This program called PARIIS (Programme Regionale d'Appui à l'Initiative Irrigation au Sahel) of 200,00,000 USD comes from the observation that despite the efforts of CILSS with the support of its member states and its traditional technical and financial partners, investments in water (control and management) are lagging behind the expected results. Responses to date have been crowned with varying degrees of success. Against this backdrop, a paradigm shift is needed in the search for efficient solutions to agricultural water management. For this reason, PARIIS aims to create the necessary conditions for the development and expansion of irrigation solutions in the countries of the Sahel and West Africa by leading a process that will result in a set of "irrigation solutions" adapted to different types of irrigation systems in order to accelerate and improve current and future investments. It should be noted that in finding these solutions, an important aspect is strengthening the capacity of stakeholders to manage and maintain the irrigation systems developed under the project. In this regard, CILSS and IOFS conducted a partnership training workshop in 2022 that provided adequate knowledge and training to almost 70 farmers in Niger in irrigation technologies,

mechanisms for efficient access to irrigation water, mastery of the maintenance chain of structures and organizational systems for better irrigation management. This is an example of a very strategic partnership aimed at increasing the impact of the projects on the stakeholders, thus ensuring the sustainability of the achievements.

These actions on water management are accompanied, on the one hand, by an important continuous work of the CILSS at the level of its specialized institution, the Regional Climate Center AGHRYMET, in the field of training diplômantes in integrated management of water resources, in hydrology and hydro-climatic information and the risks of disasters related to water;

And on the other hand, through the development of permanent knowledge management systems on water and the capitalization of knowledge for the benefit of local and national stakeholders at the level of our research structure, the Sahel Institute (INSAH).

Strategic priorities and Perspectives

The strategic priorities of the CILSS until 2050 are based on the above-mentioned observations of the underutilization of resources, the experiences and the results obtained, the political will to continue the efforts made and, above all, the still immense demands and needs of the member countries. These priorities are threefold: (1) better understanding of the resource and better information for decision-makers and investors, especially about groundwater resources, which are the main source of domestic water supply and small-scale irrigation outside the major waterways; (2) increasing water use by proposing innovative solutions for domestic irrigation and water supply and strengthening users' capacities for water use; and (3) better understanding, prevention, and management of water-related disaster risks.

To achieve strategic goal of developing partnership, CILSS is strengthening its capacity to mobilize strategic partnerships on strategic or urgent water security issues in the Sahel and West Africa. This includes diversifying and strengthening existing partnerships or those to be fostered. Under this action, CILSS intends to lead or contribute to the leadership of partnership platforms and frameworks, based on its experience, to increase technical dialogue among stakeholders, among CILSS states, and among regional actors, as well as knowledge and innovation sharing, capitalization, advocacy, and investment monitoring.

AFRICA

THE FIRST MEETING ON PROMOTION OF OLIVE OIL IN OIC MEMBER COUNTRIES

RAUSHAN KUMEKBAYEVA
IOFS Manager coordinator

On 23-24 June 2022 Islamic Organization for Food Security (IOFS) hosted "The First Meeting on promotion of Olive oil in OIC member countries" in Tunis, the Republic of Tunisia. The hybrid event was organized by IOFS in partnership with the Ministry of Agriculture, Water Resources and Fisheries of Tunisia.

It is widely known that consumption of olives and olive oil has risen in recent years due to a growing interest in long life as well as healthy and balanced eating patterns throughout the world. OIC member countries account for around 35% of world olive oil production.

The purpose of the IOFS is to stand with member countries to support their demands and work with them to strengthen the Olive oil industry in OIC member countries, as well as providing assistance in boosting intra-OIC trade and raising awareness of Olive oil and its many benefits.

IOFS seeks to assist in supporting the sustainable and responsible development of Olive cultivation in the OIC member states, to strengthen the Olive oil industry, provide assistance in boosting intra-OIC trade and raise awareness of Olive oil and its many benefits with collaboration of specialized international and regional institutions. In this regard, Olive oil was added to IOFS Strategic Commodities.

It is important to note that Republic of Tunisia is among the largest producers of Olive oil in the world and OIC leading olive oil producer that has rich experience in its value chain development. For this reason, Tunisia was selected to host the "The First Meeting on promotion of Olive oil in OIC member countries".

The two-day Meeting aimed high goals: to provide the finest representation of olive oil industry of OIC member countries as well as a meeting place for experts from the olive oil producing, exporting and consuming countries to consolidate their activities and enter new markets.

Over 30 members from the **Arab Republic of Egypt, the Kingdom of Jordan, the Republic of Lebanon, the State of Libya, the Islamic Republic of Pakistan, the State of Palestine, the Republic of Tunisia, and the Republic of Turkey** were present at the gathering.

The meeting was also attended by representatives of National Olive Office of Tunisia, International Olive Council, Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD), and Tunisian olive oil manufacturing and trade companies.

During the sessions speakers noted about current challenges, technological innovations in the Olive oil sector, marketing, promotion and consumption of Olive oil, as well as issues of standardization, certification and geographical identification of olive oil.

In their presentations the meeting's participants identified **concerns with agronomy, quality, marketing, as well as governance issues** in the olive oil industry and other areas.

The following problems and challenges were noted during the presentations made by the participants throughout the meeting:

Agronomic

- Low productivity of olive trees (problems of soil cultivation, fertilization, irrigation and plant health, lack of mechanization and other intensive practices);
- High cost of production;
- Climate change (water scarcity, drought, etc);
- Fluctuations of production quantity due to the olive tree bearing phenomenon;

Quality

- Low quality olive oil produced;
- Industrial Governance
- Unresolved production systems and waste management;
- Weakness of cooperative work and cooperative societies in the olive sector;
- Insufficient and irrelevant agricultural data;
- Weak implementation of agricultural innovations;
- Insufficiency of licensed warehousing and product specialized exchanges;
- Insufficient packaging industry;

Marketing

- The difficulty of marketing olive oil locally and internationally;
- Insufficient promotion and lobbying activities;
- Low experience of bottling;
- Access to finance for investments and exports;

Other issues

- Lack of R&D project solution to implementable solution and demand for sector;
- Israeli occupation measures in Palestine: land and harvest confiscation, tree cutting and burning, limitations on farmer access and product transportation, etc.
- Following the meeting and discussions, the participants presented proposals and recommendations for the further development of the olive oil sector. These proposals include, inter alia:
- Encouraging technical cooperation between OIC member states on research and development projects;
- Organization of onsite trainings and workshops for farmers and olive oil value chain actors;

- Developments of project partnership;
- Evaluation of market needs among OIC member states;
- Encouraging the expansion of international trade in olive oil and table olives and enhancing trade exchange in OIC countries;
- Exchange of experiences and transfer of knowledge and technology between OIC member states;
- Updating information and data related to production and strategic stock among OIC member states;
- Conclusion of trade agreements between OIC member countries encouraging the flow of goods and customs duties exemptions for olive goods;
- Discussion and laying the foundations and standards to protect olive products from fraud and imitation;
- Promoting olive oil under the slogan "food and medicine".

On June 24, 2022, participants also visited premises of the National Olive Office, the Mabrouka nursery and Al Jazira Tunisian olive oil manufacturing and trade company. During the visit, the National Olive Office shared about the activities of the organization, including training courses on improving olive oil quality, production of table olives, harmonization of quality standards, and certification of organic olive oil.

At the Mabrouka nursery and Al Jazira participants exposed to the olive trees plants, vitroplants laboratories, fruits seedlinks, and olive oil processing technologies.

During the trips opportunities for further development of olive oil and expansion of the trade markets were explored.

AFRICA

THE POTENTIAL OF CASSAVA FOR FEEDING AFRICA

ABUBAKAR AHMAD

PhD student in Postharvest Physiology and Storage Technology and currently researching on the "Effects of Pre-Treatments, Drying Methods and Packaging Materials on Nutritional Quality of Cassava Flour".

Chief Instructor in the Department of Horticultural Technology, Federal College of Horticulture, Dadin-Kowa, Gombe State, Nigeria. Member of professional bodies like Horticultural Society of Nigeria (HORTSON) and Organization for Technology Advancement of Cold Chain in West Africa (OTACCWA).

Background of the Crop

Cassava (*Manihot esculenta Crantz*) is a perennial shrub which is cultivated in tropical and sub-tropical climate. It is grown for its tuberous bulky roots which contain about 80% carbohydrates (Erhabor *et al.,* 2007). The root takes about 6-18 months to mature and it is the world's fourth most important staple crop after rice, wheat and maize and is, therefore, an important component in the diet of over one billion people (Van der land *et al.,* 2007). Cassava is a drought-tolerant crop that can be grown in areas with uncertain rainfall patterns which usually results in unsuccessful cultivation of many other crops.

Important and Uses of Cassava

One important advantage of cassava is that, it has a wide range of uses ranging from consumption to industrial use based on the level of final processing of the crop. Cassava is boiled or steamed before eating, but can also be processed into starch, and dried chips among others. It is estimated that more than 90% of cassava production is processed into food (Phillips *et al.,* 2004). Further processing involves grinding and milling into flour. The principal users of cassava products are flour mills, biscuit factories and confectionaries, glue and adhesive producers, ethanol distillers, pharmaceutical industries, livestock and aquaculture farmers, and restaurants, among others (Fasuyi and Aletor, 2005).

The trends of Cassava Production in Africa

Cassava held the status of one of the fastest expanding staple crops at global level, registering two decades of uninterrupted growth well above 3% per annum, but a combination of policy changes and depressed root prices in the major producing countries, especially in Southeast Asia, was behind lower plantings and consequently subdued harvest prospects for 2018. Forecasting cassava production is difficult, due to the widespread lack of data on harvest expectations and negligible information on planting intentions. Even in countries where the crop is known to play a critical role in food security and rural development, or where its trade carries importance, little effort is made to survey the crop on a regular basis, as is done for other staple crops. This holds especially true in sub-Saharan Africa, the world's largest cassava growing region. Nevertheless, with rising demand for the staple and with enhancing food security and the rural economy high on the region's agenda, cassava production in sub-Saharan Africa could reach a record of 161 million tonnes in 2018, around 3.3 million tonnes, or 2% more than the level of 2017 (as shown in Table 1).

In **Nigeria**, the regional production leader, the Anchor Borrower's Programme (ABP), launched by the country's central bank, currently provides preferential loans to smallholder farmers who supply their product to the processing sector. While cassava is one of the many commodities listed in the programme, last year the implementation of ABP made rice more lucrative to cultivate, and led farmers to shift from cassava growing. In early 2018, however, the central bank announced the Commercial Agricultural Credit Scheme (CACS) to further deepen access to credit for farmers, targeting those engaged in cultivating cassava. As a result, Nigeria's cassava crop rebound by a moderate 2% from last year, to 56 million tonnes in 2018. Supported by favourable growing conditions and an enabling environment for investment, cassava production in **Ghana**, the region's second largest producer, could rise by 2% to a record 19.4 million tonnes in 2018. Current year prospects also remain positive in other important West African producing countries, especially **Côte d'Ivoire**, **Cameroon** and **Sierra Leone**, where, as a result of good weather and support, either all-time high or near-high harvests are anticipated. An exception is **Benin,** where pest and disease outbreaks could lower production by 9% from 2017 levels. Cassava's tolerance to erratic weather conditions spares production from considerable contraction as compared with other crops, putting cassava expansion high on the agendas of many governments in eastern and southern African countries. In the **United Republic of Tanzania**, good weather and increased investment could see cassava production rebound in 2018. Favourable growing conditions, including less disease incidence, are also reported in **Angola**, **Burundi**, **Madagascar**, **Mozambique**, **Rwanda** and **Uganda**, where production levels are expected to rise above 2017 levels. In central Africa, despite the ongoing conflict in the **Democratic Republic of the Congo**, the sub-region's largest producer, cassava output is expected to rise marginally from the previous year, but at 15.2 million tonnes, this would be some 10% below the record of 2014.

Table 1: Africa Leading Cassava Producers (Tonnes) (2015-2018)

Country	2015/tonnes	2016/tonnes	2017/tonnes	2018/tonnes
Nigeria	57,643	57,855	55,069	56,000
Ghana	17,213	17,798	19,138	19441
Congo, DR	15,300	15,200	14,950	15,200
Mozambique	8,103	9,100	10,920	12,198
Angola	7,727	7,788	7,740	7,7724
Tanzania	5,886	5,575	5,300	5,400
Cameroon	5,000	5,170	5,346	5,400
Cote d'Ivore	5,087	4,548	5,367	5,370
Malawi	4,997	5,089	5,100	5,030
Rest of Africa	13,870	14,693	15,545	15,911
Africa	152,822	155,607	157,453	160,730

Source: Authors' compilation using Food Outlook 2018

Potential of Cassava as a Driver of Agricultural Growth

An ever increasing world population, which some estimates put at about 11.2 billion in 2050, places a good deal of pressure on the supply of staples like rice, corn, wheat, and barley. To meet these food requirements, existing food production must be set to double (Rosen and Shapouri, 2012; USDA, 2010; FAO, 2006). Consequently, Cassava has the potential to contribute to the achievement of this target. One method of addressing the food deficit gap for countries in Sub-Sahara Africa is to introduce agricultural crops that are high yielding and drought resistant. Recent innovations in cassava production show that it is possible to produce up to 22 mt/ha. Given the small size of farms in the sub-Saharan African region, cassava production may have the potentials to create the needed production intensification while simultaneously reducing per unit production cost. In addition, recent studies have shown cassava to be of great promise in international trade. Indeed, demand for cassava derivatives such as starch, gari, flour, etc have doubled over the last two decades (Nweke 2003). Africa already produces 42% of world cassava output with Nigeria and Ghana as leading producers, but who can only process 16% of the root tuber for home industrial uses and export (Ayoade and Adeola, 2009; Knipscheer *et al.,* 2007; Nweke, 2004). Cassava processing at household level is an important income generator in poor rural areas, particularly for women, not only in Africa but also in Latin America and Asia. Several studies suggest that cassava has good potential to contribute to economic diversity and could create many opportunities for the development of other processing industries (Sanni *et al.,* 2009).

Demand for Cassava

The demand for cassava chips, flour and pellets, especially for animal feeds is just emerging and undeveloped research is in for the possible uses of cassava and its leaves for biofuel. However, there is already existing high demand for other products such as starch for the textile industry, pharmaceutical products, pulp and paper, adhesives for packaging industries and flour for bakeries and confectionery industries. Abolaji *et al.* (2007) argue that, beside local demand, there is a high demand for cassava based products in foreign countries, such as an urgent demand for 400,000 tonnes of cassava chips (about 1.6 million tonnes of cassava) for animal feeds in South Africa and Botswana.

Global Imports and Exports of Cassava

In the world market, Thailand is the leading exporter of cassava followed by Vietnam and Cambodia (in cassava flour and starch/ chips and pellets) though her production level was not as high as that of Nigeria. According to FAO Food Outlook (2018), a total of about 20 million tonnes of cassava flour and

starch was exported globally in 2014 and this was increased to 22 million tonnes in 2017. Thailand led the cassava exporting world by exported 9.5 million tonnes of cassava flour and starch, and also, chips and pellets of 12.2 million in 2017. Moreover, China, Japan and Indonesia are among the world leading importer of cassava products (flour, starch, chips and pellets). China is world leading importer of cassava products, importing an estimated 9.5 million tonnes of flour and starch and also accounted for 63% world share of cassava import value in 2017 (FAO Food outlook, 2018; OEC, 2019).

Meanwhile, according to The Observatory of Economic Complexity (OEC, 2019), African countries were not among the leading importing and exporting countries while the Asia led both the import and export cassava market with 72% and 73% contributions respectively. The top 10 cassava exporter globally include; Thailand, Vietnam, USA, Costa Rica and China, Netherlands, Spain, Egypt, Honduras and Indonesia respectively. Thailand exported a total cassava valued at $1.19 billion while China's total cassava import in 2017 stood at $82.5million. Moreover, China, United Kingdom, USA, Netherlands and Canada are among the top 10 leading cassava importing countries with China ranked number one, exporting cassava worth of $1.37billion while Canada's cassava export was $57.8million (OEC, 2019).

Price of Cassava in International Markets

The rally in international quotations of cassava products that began in the last quarter of 2017 continued into the first six months of 2018, but has since lost momentum. Virtually all international trade flows of cassava take place within the boundaries of East and Southeast Asia, in which FOB prices of Thai products, by virtue of the country being the leading exporter, represent the benchmarks. Thai chip prices (FOB Bangkok) were being quoted at around $233 per tonne in October 2018, some 25% higher than in the corresponding month of last year, and 49% more than in May 2017, when they had plummeted to an eight-year low. Thai flour and starch prices (Super High Grade, FOB Bangkok) were being quoted at around $507 per tonne, 44% higher than in October 2017 (FAO Food outlook, 2018). Quotations have exhibited considerable volatility throughout 2018, beginning the year at $433, climbing to $550 in May, and then falling to the October level of $507 per tonne. In Thailand, prices of roots have been on the march since mid-2017, peaking at a seven-year high of $99 per tonne in April 2018, reflecting lower domestic availabilities from which cassava chips and flour are manufactured (FAO Food outlook, 2018; Wossen *et al.,* 2017).

Conclusion and Recommendations

An ever increasing world population, which some estimates put at about 11.2 billion in 2050. Consequently, Africa possesses enormous potentials in the agricultural sector especially in the cassava sub-sector for feeding its ever increasing population and cassava has the potential to contribute to the achievement of this target. Cassava is unarguably ranked the fourth most important food security crop after rice, wheat and maize in terms of consumption. In turn, this has put pressure on levels of productivity of cassava in tropical countries such as Nigeria. On the other hand, Thailand is the leading exporter of cassava followed by Vietnam and Cambodia (in cassava flour and starch/ chips and pellets) though her production level was not as high as that of Nigeria. In order to achieve a remarkable growth in the cassava sub-sector, the following points are recommended;

1. Incentives must be given to farmers and processors and other stakeholders along the value chain in order to boost cassava production and total export value;
2. Reliable and consistent trade policies that favour the growth of cassava production, consumption and utilization must be implemented and properly monitored;
3. Issues relating to cassava glut should be tackled by the governments and non-governmental organizations such Islamic Organization for Food Security (IOFS) and Food and Agriculture Organization (FAO) in order to encourage cassava farmers with an assurance that there is ready market for their production with guaranteed minimum price.

REFERENCES

1. *Abolagi, D., Willie, D., Siyabola, O., Oladele, O.F. and Isiaka, A. (2007). Capacity Innovations in Cassava Production, Harvesting and Processing in Nigeria.*
2. *Ayoade, A. R. and Adeola, R. G. (2009). Constraints to domestic industrialization of cassava in Osun State Nigeria. Ozean Journal of Social Sciences, 2, (2):1-5.*
3. *Erhabor, P. O., Azaiki, S.S and Ingawa, S.A. (2007). Cassava the White Gold. First ed. Benin City, Nigeria: Initiative publications Company, 2007.*
4. *FAO Food outlook (2009) IFAD Consultation on Cassava as a Potential Bioenergy crop. FOA/IFAD Food outlook 2006.*
5. *FAO Food Outlook (2018). Biennial Report on Global Food Markets Rome (2018).*
6. *Fasuyi, A. O. and Aletor, V. A. (2005). Varietals composition and functional properties of cassava (manihot esculenta, crantz) leaf meal and leaf protein in concentrates.' Pakistan Journal of Agriculture Technology (PAT), 4, (1): 43-49.*
7. *Federal Republic of Nigeria Action Plan for a Cassava Transformation in Nigeria (2011).*
8. *Knipscheer, Henk., Ezedinma, C., Kormawa, P., Asumugha, G., Kakinde, L., Okechukwu, R. And Dixon, A., (2007). Opportunities in the Industial Cassava Market in Nigeria. International Institute for Tropical Agriculture (IITA).*
9. *Nweke, F. (2003). New Challenges in Cassava Transformation in Nigeria and Ghana. Environment and Production Technology Division (EPTD). IFPRI*
10. *Nweke, F. (2004). New Challenges in Cassava Transformation in Nigeria and Ghana. Paper presented at the In WEnt, IFPRI, NEPAD, CTA conference "Successes in African Agriculture". Ed.: IFPRI.*
11. *Phillips T. P., Taylor, D. S., Sanni, L. and Akoroda, M. O. (2004). "A cassava industrial revolution in Nigeria The potential for a new industrial crop. International Institute of Tropical Agriculture, Ibadan, Nigeria". International Fund for Agricultural Development, Food and Agriculture Organization of the United Nations, Rome, Italy Pp 49*
12. *Sanni, L .O., Onadikpe, O., Liona, P., Mussagy, M., Abass, A., and Dixon, A., (2009). 'Success and Challenges of Cassava Enterprises in West Africa: A Case Study of Nigeria, Benin, and Sierra Leone.' International Institute for Tropical Agriculture (IITA).*
13. *Shapouri, S, Peters, M., Allen, S., Rosen, S. and Baquedano, F. (2012). Food Security Assessment, 2010-20: United States Department of Agriculture.*
14. *The Observatory of Economic Complexity (OEC) (2019).*
15. *Wossen, T.A., Tessema, G. G., Abdoulaye, T., Rabbi, I. Y., Olanrewaju, A., Bentley, J. et al., (2017). "The cassava monitoring survey in Nigeria". Final Report. IITA, Ibadan, Nigeria ISBN 978-978-8444-81-7. 66.*

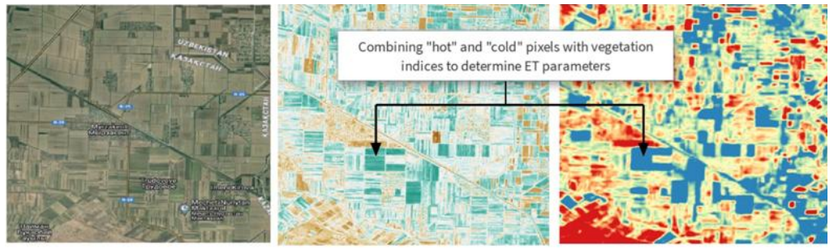
KGS SPACE TECHNOLOGIES

EVERY PIXEL TELLS A STORY

DIANA DUSHNIYAZOVA

Deputy Chairman of the Board JSC "Kazakhstan Gharysh Sapary"

Classifying and mapping land cover is an integral step in understanding the Earth's biophysical systems. Information on the type, area, and configuration on buildings, roads, and other land-cover facilitates the modeling of flood scenarios and other remote sensing based analytics.

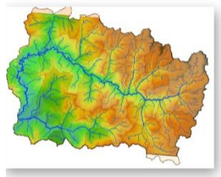


Optical imagery NDVI Surface temperature

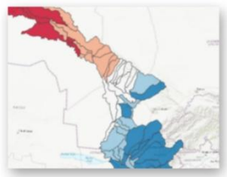
Kazakhstan Gharysh Sapary leverages data from own satellites and other platforms to provide up-to-date maps of land cover/land use, water resources, agriculture and forestry.

According to client needs, Kazakhstan Gharysh Sapary providesanalysis based on satellite imagery, which is delivered to decision makers in the form of an interactive decision support platform.

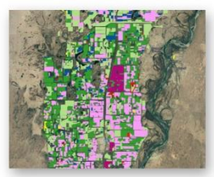
METHODOLOGY



Digitizing canals, rivers, watersheds and irrigation command areas

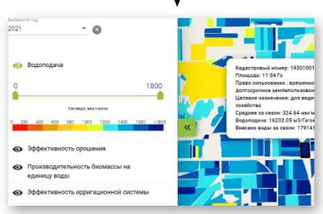


Multi-temporal analysis of water resource use dynamics in the area of interest



Crop classification and ground truthing of data

Field level water productivity analysis



Decision support system

IOFS DIRECTOR GENERAL VISITS DURING JULY- SEPTEMBER 2022

IOFS PARTICIPATED IN THE MFA INTERNATIONAL CONFERENCE

On July 1, 2022 Director General of the Islamic Organization for Food Security H.E. Mr. Yerlan A. Baidaulet participated in the international conference organized by the Ministry of Foreign Affairs of the Republic of Kazakhstan. The event titled «Republic of Kazakhstan in the modern system of international relations» was devoted to the celebration of the 30th anniversary of the diplomatic service of the hosting country with a ceremony of laying a «time capsule» with a message to future diplomats on the square of the MFA building.

IOFS ATTENDS THE UN-OIC GENERAL MEETING ON COOPERATION

Director General of the Islamic Organization for Food Security (IOFS), HE Mr. Yerlan A. Baidaulet led the Institution's delegation attending the *15th Session of the Biennial General Cooperation Meeting between the Secretariats of the United Nations (UN) and the Organisation of Islamic Cooperation (OIC) and their specialized organizations and agencies*, which is being held at the Palais des Nations in Geneva, Switzerland, until 20 July 2022. The IOFS delegation included Mr. Abdula Manafi Mutualo, Senior Liaison Officer.

The meeting is being co-chaired by Ambassador Tarig Ali Bakhiet, OIC Assistant Secretary General for Humanitarian, Cultural and Social Affairs/Special Envoy of the OIC Secretary General for Afghanistan, and Amb. Khaled Khiari, UN Assistant Secretary-General for Political Affairs. The meeting is being attended by the senior officials from the relevant OIC institutions and UN agencies.

The Meeting further agreed to organize the 16th Session of the General Cooperation Meeting between the Secretariats of the UN and the OIC and their specialized organizations and agencies in 2024 in Kazakhstan at the premises of the Islamic Organisation for Food Security, a specialized institution of the OIC.

IOFS VISIT TO MALAYSIA STARTED WITH FRUITFUL MEETINGS

On July 25, 2022 Director-General of the Islamic Organization for Food Security (IOFS) HE Mr Yerlan Baidaulet had a meeting with the Deputy Minister of Foreign Affairs of Malaysia, HE Dato' Kamarudin Bin Jaffar and the Deputy Minister of agriculture and Food Industry YB Datuk Seri Haji Ahmad Bin Hamzah.

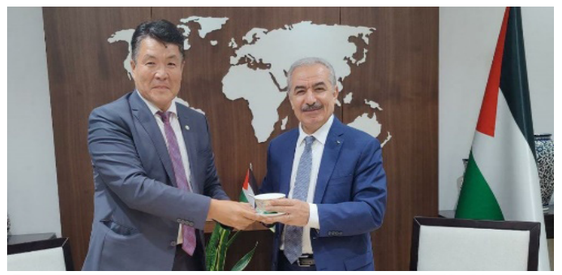
The IOFS delegation led by the Director General HE Mr. Yerlan Baidaulet during the opening session of the Agricommodity Forum had a meeting with the Prime Minister of Malaysia, YAB Dato' Sri Ismail Sabri bin Yaakob. Parties during the discussion exchanged views on the prospects for Malaysia's membership in IOFS.

IOFS DELEGATION HAD A VISIT TO JORDAN TO DISCUSS WAYS OF COOPERATION

On August 1, 2022 a delegation of Islamic Organisation for Food Security led by its Director general HE Yerlan A. Baidaulet while proceeding an official visit to the Hashemite Kingdom of Jordan, Amman had a meeting with the Minister of Agriculture of Jordan HE Mahmod Alrabih.

During the meeting parties discussed prospects of cooperation in several areas related to agriculture and highlighted mechanisms of signing of the IOFS Statute. The Ministry and IOFS expressed the willingness to create a joint working group to explore common ground to increase mutual collaboration and prospects of cooperation. The Minister underlined their interest in IOFS strategic programs that are applicable to a variety of Jordanian agricultural sectors. The Ministry team extended heartfelt appreciation for outstanding organisation of Capacity building program on nutrition value and food safety to promote 'Gene to Fork' modality in the OIC Member States, and assured their willingness to cooperate with IOFS to implement targeted projects in the food security sphere.

IOFS VISIT TO PALESTINE CONTINUED WITH HIGH LEVEL BILATERAL MEETINGS



On August 2, 2022 Director General of the Islamic Organisation for Food Security, HE Yerlan A. Baidaulet during the visit to Palestine, held a meeting with the Prime Minister HE Dr. Mohammad Shtayyeh.

The meeting with the Minister of Foreign Affairs and Expatriates of Palestine, HE Mr. Riyadh al-Maliki was devoted to discussing of strengthening the close cooperation and assuring the regular communication between entities, particularly in joint implementation of IOFS-2022 "Year of Africa" initiative.

Director General visited the Palestinian International Cooperation Agency (PICA), main public diplomacy tool of Palestine and works as a national coordinator for South-South and North-South Cooperation. Director General of PICA Imad Al -Zuhairi discussed key areas for collaboration on involving Palestinian experts to transfer expertise, knowledge and technical support within OIC states.

NIGERIA AND IOFS DISCUSS BILATERAL COOPERATION ON THE SIDELINES OF AGRF 2022 IN KIGALI

His Excellency Mr. Yerlan Baidaulet, Director General of the Islamic Organization for Food Security (IOFS) is leading the Organization's delegation attending the *African Green Revolution Forum Summit*, being held from 06 to 09 September 2022 in Kigali, Republic of Rwanda.

Among the highlights of the second day, the IOFS Director General held a fruitful bilateral meeting with H.E. Dr. Muhammad Mahmood Abubakar, Minister of Agriculture and Rural Development of the Federal Republic of Nigeria. The meeting deliberated on avenues for strengthening cooperation between the IOFS and Nigeria, particularly the proposal for the country to host some events within the framework of celebrating 2022 "IOFS Year of Africa". Additionally, the Director General extended a personal invitation for his interlocutor to attend the upcoming IOFS 5th General Assembly to be held on 10-11 October 2022 in Tunis, Republic of Tunisia, under the theme: "*Partnerships for sustainable Food Security: Africa within OIC Geography*".

Director General exchanged views with Their Excellencies Dr. Demba Sabally, Minister of Agriculture of The Gambia, Maj (Rtd) Bwino Fred Kyakulaga (MP), the Minister of State for Agriculture of the Republic of Uganda, and Mr. Olegário Banze, Deputy Minister of Agriculture and Rural Development of the Republic of Mozambique, on matters related with their respective national priorities with which the IOFS could intervene to support them in being food sufficient.

On the sidelines of the African Green Revolution Forum Summit, IOFS Director General signed two important memoranda of understanding. MoU was signed with Alliance for Green Revolution in Africa (AGRA) represented by its President, Dr. Agnes Kalibata.

Prof. Adipala Ekwamu, the Executive Secretary of the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), followed suit and firmed an MoU with the IOFS. Prof. Adipala deemed the signed MoU as the best tool to welcome the IOFS to Africa.

IOFS DISCUSSED PROSPECTS OF COOPERATION WITH OIC UNA AND IsDB

On 11 September, 2022 H.E Prof. Yerlan A. Baidaulet visited Jeddah, Kingdom of Saudi Arabia with several important bilateral meetings with Acting Director-General of the Union of News Agencies (UNA), a specialized organ of the OIC, H.E Mr. Mohammed Abd Rabbo Al-Yami.

Parties discussed avenues for close cooperation between two institutions, particularly within the UNA's role in fostering international media relations among OIC Member States.

The UNA Acting Director-General briefly discussed about activity that focuses on news production to develop close relations between member states in the Information field aimed at promoting contacts and technical cooperation between the news agencies of OIC countries.

OIC GENERAL SECRETARIAT AND IOFS GET INTO A NEW STAGE OF COOPERATION

On 11 September 2022, HE Prof. Yerlan A. Baidaulet, Director General paid a visit to the headquarters of Organization of Islamic Cooperation (OIC) in Jeddah, Saudi Arabia. High level meetings started with H.E Hissein Brahim Taha who warmly received the IOFS Director General and expressed his full satisfaction on IOFS effective activity in the field of food security within OIC geography.

H.E Dr. Ahmad Mohamed Ali Al-Madani, the First President of the Islamic Development Bank and the initial founder of this OIC institution, warmly received H.E Prof. Yerlan A. Baidaulet.

DIRECTOR GENERAL OF IOFS MEETS PRESIDENT OF ISDB

On September 12, 2022 Director General of the Islamic Organization for Food Security, H.E Prof. Yerlan A. Baidaulet held a meeting with Islamic Development Bank President H.E Dr. Muhammad Sulaiman Al Jasser.

During the meeting IOFS Director General briefly discussed IOFS activities including Afghanistan food security programme and IOFS Year of Africa initiative.

In his turn, the IsDB President expressed his strong willingness to support IOFS on implementing strategic activities. The meeting has been continued to the discussion of technical deliberations involving IOFS delegation with IsDB managers led by the Director of the IsDB Economic & Social Infrastructure Global Practices Department, Dr. Idrissa Dia.

IOFS DELEGATION ARRIVES TO RIYADH FOR THE OFFICIAL BILATERAL MEETINGS

On 13 September 2022 IOFS delegation led by H.E Prof. Yerlan A. Baidaulet Director General of the organization reached the capital of Kingdom of Saudi Arabia.

The first day of the visit started with very productive meeting at the King Salman Humanitarian Aid and Relief Centre. H.E. Abdullah Al Rabeeah Supervisor General of the Center received H.E IOFS Director General.

In his turn, Director General highly praised the efforts and projects that implementing KS Relief Center in 86 countries around the world. Main areas of further bilateral cooperation were identified in field of humanitarian food aid for Afghani people and food security projects within the framework of Year of Africa.

The second meeting conducted between IOFS and Saudi Grains Organization (SAGO). H.E Eng. Ahmad bin Abdulaziz Al-Fares the Governor of SAGO warmly welcomed the IOFS delegation and emphasized great opportunities and trade potential for Central Asia and GCC food markets.

MINISTER OF ENVIRONMENT, WATER AND AGRICULTURE RECEIVES DIRECTOR GENERAL OF IOFS

On 14 September 2022 Minister of Environment, Water and Agriculture (MEWA), H.E Abdulrahman Abdulmohsen A. AlFadley received IOFS Director General H.E Prof. Yerlan A. Baidaulet.

IOFS Director General expressed appreciation to the Minister of Environment, Water and Agriculture for assurance of highest support by the government of the Kingdom of Saudi Arabia in all activites of IOFS.

In his turn, H.E Abdulrahman A. AlFadley conveyed his satisfaction for the activities of the IOFS and expressed willingness of the Kingdom of Saudi Arabia to cooperate.

IOFS GATHERED ALL PERMANENT REPRESENTATIVES TO OIC IN RIYADH

On 14 September, 2022 the Secretariat of the Islamic Organization for Food Security (IOFS) conducted a briefing for Permanent Representatives to OIC at the Embassy of Djibouti in Riyadh. The meeting was co-chaired by the Director General of IOFS H.E. Yerlan A. Baidaulet and the Ambassador of Djibouti in Riyadh and

Permanent Representative of Djibouti to the OIC H.E. Dya-Eddine Said Bamakrama.

The purpose of this meeting was to exchange information on IOFS activities, its all Programs within the Framework and the 10-year Strategic Vision 2031, throughout the presentation the IOFS Director General briefed on ongoing results of the 3 years of operations, on perspective of sustainable food security within OIC geography, as well as on the agenda of the 5th General Assembly of the Organization to be held in Tunis, Republic of Tunisia, on October 10-11, 2022.

The Briefing ended by the buffet presented to all participants who actively elaborated on latest developments of their institution which is IOFS.

IOFS HIGH-LEVEL BILATERAL MEETINGS WERE CONTINUED IN THE SAUDI CAPITAL

On September 15, 2022 Director General of Islamic Organization for Food Security H.E Prof. Yerlan A. Baidaulet continued a working visit to the Kingdom of Saudi Arabia with two-sided important meetings.

IOFS Director General started a day conducting a meeting with Deputy Finance Minister for International Affairs of KSA, Dr. Ryadh M. Alkhareif.

During the productive exchanges, Director General had the opportunity to brief on the mission and vision of the IOFS, while expressing his concern about the current food insecurity situation globally. Officials discussed wide range of issues, exchanged views on the aspects of close bilateral cooperation opportunity in food trade and investment development all across OIC countries.

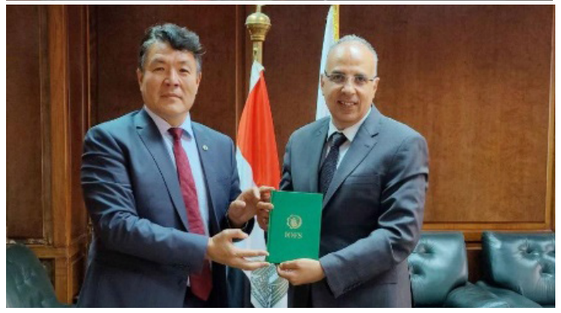
SAUDI MINISTER OF FOREIGN AFFAIRS RECEIVED IOFS DIRECTOR GENERAL

On September 15, 2022, H.E Prof. Yerlan A. Baidaulet, IOFS Director General had a meeting with the Minister of Foreign Affairs of the Kingdom of Saudi Arabia, His Highness Prince Faisal bin Farhan bin Abdullah Al Saud.

IOFS Director General conveyed warmest gratitude and appreciation for receiving him despite busy agenda and emphasized the highest level of support provided by the government of Kingdom of Saudi Arabia to IOFS activities and in its efforts to facilitate improvement of current food security state within OIC member countries.

In turn, HH Prince Faisal bin Farhan noted that food security is currently a key priority issue of the government agenda. State official firmly assured IOFS Director General in readiness of the KSA government to comprehensively support implementation of IOFS activities.

IMPORTANT MEETINGS OF IOFS DIRECTOR-GENERAL WITHIN THE VISIT TO CAIRO



On 18 September 2022, the Director General of IOFS H.E. Mr. Yerlan A. Baidaulet had several important meetings in Cairo, Egypt.

The Director General started his meetings with delegation of members of Arab Parliament headed by its President H.E. Mr. Adel Al-Asoomi. A productive meeting was with H.E. Dr. Hany Atef Swailem, Minister of Water Resources and Irrigation of Egypt. Minister welcomed the IOFS's engagement in the upcoming Cairo Water Week by conducting the important side-event on Water management in agriculture.

IOFS CONTINUES TO CONDUCT WORKING MEETINGS IN CAIRO

On 19 September 2022, the Director General of IOFS H.E. Mr. Yerlan A. Baidaulet held another day of important working meetings in Cairo, Egypt.

The Director General accompanied by the Director of Programmes and Projects Office, Dr. Ismail Abdelhamid, conducted an extended meeting with representatives of the Centre for Environment and Development for the Arab Region and Europe (CEDARE) headed by its Executive Director and former Minister of Environment of Egypt, H.E. Nadia Makram Ebied. CEDARE is an international inter-governmental organization, with diplomatic status. The Centre's mission is to provide leadership and advocate sound governance for environmental protection, through building human resources and institutional capacity, advancing applied research and environmentally friendly technologies and acting as a catalyst to enhance collaborative action between the Arab World, Europe and the International Community.

IOFS DIRECTOR GENERAL ENCOURAGED INTERNATIONAL ORGANIZATIONS TO WORK TOGETHER TO IMPROVE FOOD SECURITY

During the Food Crises Response discussion session, on 25 September 2022 in Amman, the Hashemite Kingdom of Jordan, IOFS Director General met with the Minister of agriculture of the Republic of Lebanon His Excellency Dr. Abbas Hajj Hassan, where the both parties agreed to strengthening bilateral cooperation.

Another sideline meeting was with H.E. Mr. AbdulHakim Elwaer, FAO Assistant Director-General and Regional Representative for the Near East and North Africa, and his Deputy Mr. Serge Nakouzi.

MEETINGS OF IOFS DIRECTOR GENERAL IN TURKIYE, ANKARA

On 26 September 2022 the IOFS Director General H.E. Prof. Yerlan A. Baidaulet accompanied by the Special Envoy of IOFS to Africa H.E. Mr. Said Hussein Iid and Amb. Daulet Yemberdiev, Director of CPO, within the visit in Ankara, Turkiye had several meetings with Deputy Minister of Agriculture and Forestry of the Republic of Turkiye HE Dr. Nihat Pakdil. The meeting highlighted the high level of established relationships between IOFS and the Government of the Republic of Türkiye.

Further important discussion was held with the President of the Turkish Cooperation and Coordination Agency (TIKA) H.E. Mr. Serkan Kayalar at their Headquarters. IOFS Director General emphasized TIKA's valuable efforts in joint organization of a Training Workshop on Gene Bank Management from 26-30 September 2022 in Ankara.

During a meeting with the Mr. Selçuk KOÇ, Acting Director General of the Organization of Islamic Cooperation's Standing Committee for Economic and Commercial Cooperation (COMCEC), IOFS Director General H.E. Prof. Yerlan A. Baidaulet talked about the development of cooperation between the two institutions.

IOFS MAJOR EVENTS DURING JULY-SEPTEMBER 2022

IOFS SUBSIDIARY INTERNATIONAL IFPA HELD A MEETING WITH ITS MEMBERS

On July 01, 2022 IOFS subsidiary International Islamic Food Processing Association (IFPA) held a meeting with Honorary and Corporate Members. HE Mr. Yerlan A. Baidaulet introduced UAE Food & Beverage Manufacturers Group (FBMG) Chairman, Mr. Saleh Lootah. Mr. Saleh Abdullah Lootah presented visions on concrete steps in collaboration, particularly through the involvement of private sector enterprises to explore opportunities on activities and projects in supporting agri-food trade and investors in the intra-OIC countries through the IFPA's multilateral private sector platform.

IOFS PARTICIPATED IN THE ECONOMIC COOPERATION ORGANIZATION MEETING IN TASHKENT

On July 5, 2022 IOFS delegation participated in the 7th Economic Cooperation Organization (ECO) Meeting of Agriculture Ministers in Tashkent, Uzbekistan. 7th ECO Ministerial Meeting on Agriculture aimed at exploring mutual trade of food products, step up cooperation in cattle breeding and pedigreed seeds supply, strengthen trade ties by removing barriers, and create green corridors of food products promotion among member countries.

IOFS, IFPA AND AMC OVERSEAS DISCUSSED FUTURE COOPERATION

On 08 July 2022 the Islamic Organization for Food Security and its subsidiary International Islamic Food Processing Association had a fruitful meeting with Mr. Suvra Chakraborty, Director of AMC Overseas. The parties discussed opportunities for cooperation in facilitating trade flows in OIC member states, and agreed on arranging the pilot trade exchanges of sunflower oil and sugar between UAE and Kazakhstan. AMC is a Dubai-based multinational company involved in trading and investments since 1996, primarily in CIS countries.

IOFS AND GCC DISCUSSED PROSPECTS OF COOPERATION

On July 22, 2022, the Director General of the IOFS H.E. Yerlan A. Baidaulet met with H.E. Eng. Hussein Al Ibrahim, the Gulf Cooperation Council (GCC), Director of the Agriculture and Food Department. H.E. Eng. Hussein Al Ibrahim stressed the great role that the IOFS plays in enhancing food security via its strategic framework, besides the importance of strengthening cooperation among all OIC countries.

CHAD SIGNS THE STATUTE OF THE IOFS

His Excellency Mr. Hissein Brahim Taha, Secretary-General of the Organization of Islamic Cooperation (OIC), received in his office today, Wednesday, July 27, 2022, His Excellency Mr. Zakarea Fadel Katar, Ambassador of the Republic of Chad to the Kingdom of Saudi Arabia, and Chad's Permanent Representative to the OIC.

Both sides discussed the bilateral relations between the OIC and the Republic of Chad, ways to enhance them, and issues of common interest.

At the end of the meeting, His Excellency the Ambassador signed the Statute of the Islamic Organization for Food Security (IOFS), an OIC specialized organ, based in the city of Nur-Sultan, the Republic of Kazakhstan.

IOFS VISITED WORLD'S LARGEST HYDROPONIC FARM BUSTANICA

On July 28, 2022 a delegation of Islamic Organisation for Food Security visited Bustanica hydroponic farm operated in the United Arab Emirates, Dubai. Bustanica, world's largest vertical farm is a joint venture between Emirates Flight Catering and Crop One, aims to annually save over 250 million litres of water and produce more than a million kilos of produce free of pesticides. It is an industry leader in technology-driven indoor vertical farming.

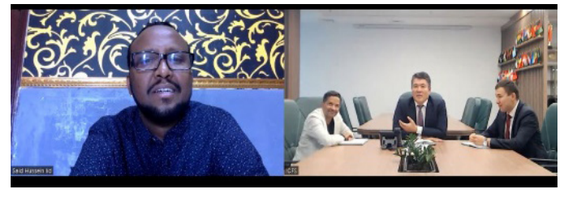
IOFS HAS STARTED A CAPACITY BUILDING PROGRAM IN JORDAN, AMMAN

During August 1-4, 2022 the IOFS jointly with the Ministry of Agriculture of the Hashemite Kingdom of Jordan is conducting the "Capacity building program on nutrition value and food safety to promote 'Gene to Fork' modality in the OIC Member States. The course was designed to introduce participants to the principles of food safety requirements in the Cooperation Council for the Arab States of the Gulf (GSS), the role of digitalization in the food safety system, as well as to reflect on improving trade negotiation within the OIC Member States.

IOFS DISCUSSES COOPERATION WITH NASEC

On August 4, 2022, a meeting of the Islamic Organization for Food Security (IOFS) with National Agrarian Science Educational Center (NASEC) was held at the NASEC premises. The IOFS was represented by Dr. Ismail Abdelhamid, IOFS Director of Programmes and Projects Office, Mr. Azamat Khamiyev, IOFS Programme Manager, and Ms. Raushan Kumekbayeva, IOFS Manager Coordinator.

IOFS AND SOMALI DISCUSSED COOPERATION FOCUSED ON AFRICAN OPPORTUNITIES



On August 4, 2022 His Excellency Mr. Yerlan A. Baidaulet, the Director General of the Islamic Organization for Food Security (IOFS) virtually met with His Excellency Mr. Said Hussein Iid, former Minister of Agriculture and Minister of The Federal Republic of Somalia.
At the aforesaid meeting, the possibilities of strengthening cooperation between African Union, International Fund for Agricultural Development, Food and Agriculture Organization and Arab Bank for Economic Development in Africa with IOFS were discussed.

IOFS INITIATES JOINT TASK FORCE OF RELEVANT OIC INSTITUTIONS TO SUPPORT YOUNG AGRIPENEURS IN NIGER

In follow-up of the bilateral meeting between Their Excellences Ms. Gourouza Magagi Salamatou, the Minister of Industry & Youth Entrepreneurship of the Republic of Niger, and Mr. Yerlan A. Baidaulet, the Director General of the Islamic Organization of Food Security (IOFS), held on 17 May 2022 as part of the latter's official visit to Niger, the IOFS hosted the first virtual technical meeting with relevant Institutions of the Organization of Islamic Cooperation (OIC) on 10 August 2022 to establish a Joint Task Force to support young agripeneurs in Niger.

IOFS AND RUFORUM AGREE ON JOINT WORK FOR DEVELOPMENT OF FOOD SECURITY AGENDA IN AFRICA

H.E. Mr. Yerlan A. Baidaulet, the Director General of the Islamic Organization of Food Security (IOFS), had a virtual meeting with Prof. Adipala Ekwamu, the Executive Secretary of the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), to follow-up on earlier consultations on matters of common mutual interest. The two sides agreed that the relationship has reached a level that would require a dedicated Memorandum of Understanding (MoU), which would incorporate a Plan of Action with relevant joint activities, with special focus on celebration of 2022 as "IOFS Year of Africa".

THE LOGO AND HASHTAGS FOR THE 5TH IOFS GENERAL ASSEMBLY UNVEILED

As part of the important work being developed by the Task Force of the Islamic Organization for Food Security (IOFS) to organize its 5th General Assembly on 10-11 October 2022 in Tunis, Republic of Tunisia, His Excellency Mr. Yerlan Baidaulet, the IOFS Director General, was pleased to unveil the logo that will be the identification symbol of the solemn gathering to be held under the theme: *"Partnerships for sustainable Food Security: Africa within OIC Geography"*.

The logo in case symbolizes the hosting country, the 5th General Assembly, the five pillars of the *IOFS Strategy Vision 2031*, and the four continents in which IOFS Member States are located.

It was also decided that the Tunis meeting would be celebrated within different social media platforms through two different hashtags: #IOFS5GA2022 and #TunisIOFS2022.

IOFS WELCOMES A NEW SECRETARIAT MEMBER

Islamic Organisation for Food Security Secretariat is very pleased to announce a new member of the team - Mr. Said Hussein Iid, we are delighted to welcome him as a Special Envoy of IOFS in Africa. Mr. Said Hussein Iid is a seasoned professional with extensive 25 years' experience in Senior Government position as well as private sector. He specializes in Agriculture and Livestock development, Business management, Policy and regulatory development, Rural economic development among others.

Mr. Said Hussein Iid's broad regional and global experience includes working as a Minister of Livestock, Forestry and Range of the Federal Republic of Somalia from 2015 to 2017, taking position of a Minister of Agriculture and Irrigation of the Federal Republic of Somalia from 2017 to August, 2022. From 2016 to 2021 he acted as an elected Member of the Federal Parliament of Somalia.

IOFS DELEGATION VISITS COMSATS SECRETARIAT IN ISLAMABAD

Delegation of the Islamic Organization for Food Security (IOFS) composed by Dr. Ismail Abdelhamid, Director of Program & Projects Office, and Mr. Abdula Manafi Mutualo, Senior Liaison Officer, visited the Secretariat of the Commission on Science and Technology for Sustainable Development in the South (COMSATS) in Islamabad, Islamic Republic of Pakistan, to consolidate the consultations on developing joint actions in implementing the food security and climate change projects to ensure sustainable agricultural development, and inclusive economic growth.

PRESIDENT OF PAKISTAN AND COMSTECH CHAIRMAN, H.E. DR. ARIF ALVI, OPENS IOFS PARTNERED KAZAKHSTAN PAKISTAN AND TURKIYE YOUTH FORUM

President Dr Arif Alvi addressing the Kazakhstan-Pakistan-Turkiye Youth Forum on Biotechnology, at COMSTECH's Secretariat, Islamabad on September 13, 2022.

The 3-day "Youth Forum on Biotechnology", jointly organized by the Islamic Organization for Food Security (IOFS), the OIC Ministerial Standing Committee on Scientific and Technological Cooperation (COMSTECH) and the Islamic Cooperation Youth Forum (ICYF), was officially opened on 13 September 2022 by H.E. Dr. Arif Alvi, President of the Islamic Republic of Pakistan and COMSTECH Chairman.

Hosted by COMSTECH, the Forum is to focus its proceedings on the contribution by resource persons from Kazakhstan Pakistan and Turkiye. The President of Pakistan and COMSTECH Chairman, in his keynote address to the Opening Ceremony, said that biotechnology was a landmark technological development critical for the green revolution to be possible, and emphasized the need to develop intellect and evolve new ideas,

IOFS REGIONAL FOOD SECURITY WORKSHOP IN EGYPT

On September 20, 2022, the two-day Regional training workshop on strategic planning and policy development in food security started in Cairo, Egypt. The event is organized by the IOFS Secretariat with the financial support of the Standing Committee for Economic and Commercial Cooperation (COMCEC) and Islamic Development Bank (IsDB).

The workshop brought together over 75 participants, including government officials from 20 OIC member countries, representatives of national institutions, academia, non-government and private sector, and international organizations.

IOFS HELD TRAINING WORKSHOP "GENETIC RESOURCES AND GENE BANKS MANAGEMENT" IN ANKARA, TURKIYE

On 26 September 2022, Training Workshop organized by the Islamic Organization for Food Security (IOFS) in cooperation with the General Directorate of Agricultural Research, as well as Turkish Cooperation and Coordination Agency (TIKA) on Gene Bank Management was held in Ankara, Turkiye. The opening ceremony was attended by the IOFS Director General H.E. Prof. Yerlan A. Baidaulet, TAGEM Director General, H.E. Dr. Metin Türker, TIKA Vice President, H.E. Dr Rahman Nurdun with participation of the African and Asian plant genetic resources professionals from Azerbaijan, Bangladesh, Gambia, Guinea Bissau, Kazakhstan, Mozambique, Nigeria, Tajikistan, Turkmenistan, and Uzbekistan.

RÉSUMÉ EN FRANÇAIS DU 9E HUB DE LA SÉCURITÉ ALIMENTAIRE

La 9e édition spéciale du Hub de la Sécurité Alimentaire de l'IOFS couvre la période de juillet à septembre 2022, mettant en avant l'Ordre du jour mondial de l'organisation - 2022 Année de l'Afrique. Cette édition a été créée pour mettre en lumière les principaux événements et initiatives entrepris par l'IOFS au cours du trimestre, offrant un forum pour la publication d'articles et de recherches originales.

La période considérée comprend les résumés des visites de travail de S.E. Yerlan Baidaulet, Directeur Général de l'IOFS dans un certain nombre de pays ainsi que dans certains pays membres de l'OCI tels que la Suisse, la Malaisie, le Royaume Hachémite de Jordanie, la République du Rwanda, l'État de Palestine, le Royaume d'Arabie Saoudite, la République Arabe d'Égypte, les Émirats Arabes Unis et la République de Turquie. La présente édition couvre également brièvement les principaux événements de l'IOFS entre juillet et septembre, notamment la participation de la délégation de l'IOFS à la 7e Réunion des Ministres de l'Agriculture de l'Organisation de Coopération Economique (ECO) à Tachkent, en Ouzbékistan, le 5 juillet, la réunion du Directeur Général de l'IOFS, S.E. Yerlan A. Baidaulet avec le Conseil de Coopération du Golfe (CCG), le Directeur du Département de l'Agriculture et de l'Alimentation, S.E. Eng. Hussain Al Ibrahim. En outre, du 1er au 4 août, l'IOFS a organisé en Jordanie un programme de renforcement des capacités sur la valeur nutritionnelle et la sécurité alimentaire afin de promouvoir la modalité « du Gène à la Fourchette » dans les États membres de l'OCI. Le 28 juillet, le Directeur Général de l'IOFS a visité la ferme hydroponique Bustanica, située dans les Émirats Arabes Unis, à Dubaï. Le 4 août, l'IOFS et la Somalie ont discuté de la coopération axée sur les opportunités Africaines lors d'une réunion en ligne.

S.E. M. Yerlan A. Baidaulet, Directeur Général de l'IOFS, a tenu une réunion virtuelle avec le Prof. Adipala Ekwamu, Secrétaire Exécutif du Forum Régional des Universités pour le Renforcement des Capacités en Agriculture (RUFORUM) pour donner suite aux consultations précédentes sur des questions d'intérêt mutuel. Le 12 septembre, la délégation de l'IOFS a visité le Secrétariat de la Commission sur la Science et la technologie pour un Développement Durable dans le Sud (COMSATS) à Islamabad, en République Islamique du Pakistan. Le 20 septembre également, un atelier de formation régional de deux jours sur la planification stratégique et l'élaboration de politiques pour la sécurité alimentaire a débuté au Caire, en Égypte. Le 26 septembre, l'IOFS a organisé un atelier de formation sur la « Gestion des Ressources Génétiques et des Banques de Gènes » à Ankara, en Turquie.

Parmi les autres points saillants de cette édition citons la présentation du logo et des hashtags de la 5e Assemblée Générale de l'IOFS, symbole identitaire du rassemblement solennel qui se tiendra sous le thème : « Partenariats pour une Sécurité Alimentaire Durable : L'Afrique au sein de la Géographie de l'OCI ». Le logo symbolise le pays hôte (la République Tunisienne), la 5e Assemblée Générale, les cinq piliers de la Vision Stratégique 2031 de l'IOFS, et les quatre continents dans lesquels sont situés les Etats membres de l'IOFS. L'édition a également salué un nouveau membre de l'équipe - M. Said Hussein Iid, Envoyé Spécial de l'IOFS pour l'Afrique.

La 9ème publication du Hub de la Sécurité Alimentaire a réuni un groupe d'experts distingués dont les articles ont longuement discuté de l'Ordre du jour de la Banque de Gènes de l'IOFS pour l'Afrique, tandis qu'un article du Centre International pour la Technologie du Changement Climatique (ICCCT) a traité de l'impact du changement climatique sur la sécheresse et la désertification des terres agricoles, qui conduit à la pénurie d'eau, et de la manière de résoudre ce problème. Un article de Ruforum, un réseau d'universités Africaines pour le renforcement des capacités dans le domaine de l'agriculture, se penche sur son rôle dans le développement agricole en Afrique. Le Comité Permanent inter-États de lutte contre la sécheresse dans le Sahel a fait part de l'expérience de l'organisation dans le domaine de la gestion de l'eau. La publication sur l'événement de promotion de l'huile d'olive dans les pays membres de l'OCI s'est penchée sur une session hybride conjointe de l'IOFS avec le Ministère de l'Agriculture, des Ressources hydrauliques et de la Pêche de Tunisie et a discuté de l'industrie de l'huile d'olive dans les pays membres de l'OCI, ainsi que de la fourniture d'une assistance pour stimuler le commerce intra-OCI. Un article de recherche informatif sur le potentiel nutritionnel du manioc en Afrique, explore les perspectives du secteur de la production de manioc en tant que moteur de la croissance agricole en évaluant les indicateurs de la demande et les tendances de la production de manioc en Afrique. La section des articles se termine par un article sur les services de cartographie de Kazakhstan Gharysh Sapary, qui exploitent les données des satellites et d'autres plateformes pour fournir des cartes actualisées permettant de comprendre les systèmes biophysiques de la Terre.

On peut également trouver des informations sur toutes les éditions précédentes du Hub de la Sécurité Alimentaire, qui peuvent être consultées et téléchargées sur le site web de l'IOFS https://iofs.org.kz/

نبذة عن العدد التاسع لإصدارات الأمن الغذائي في اللغة العربية

يغطي الإصدار الخاص التاسع من IOFS Food Security Hub الفترة من يوليو إلى سبتمبر 2022 والتي أبرزت جدول الأعمال العالمي للمنظمة (عام إفريقيا2022). تم إنشاء هذا العدد بهدف تسليط الضوء على الأحداث والمبادرات الرئيسية التي قامت بها المنظمة خلال هذا الربع، مما يوفر منتدى لنشر المقالات والأبحاث الأصلية.

تشمل فترة المراجعة ملخصًا لزيارات العمل التي قام بها المدير العام للمنظمة الإسلامية للأمن الغذائي، السيد يرلان بيدوليت إلى عدد من الدول سواء من خارج او ضمن منظمة التعاون الإسلامي، مثل سويسرا وماليزيا والمملكة الأردنية الهاشمية وجمهورية رواندا ودولة فلسطين والمملكة العربية السعودية وجمهورية مصر العربية والإمارات العربية المتحدة، جمهورية تركيا. يغطي العدد الحالي أيضًا بإيجاز الأحداث الرئيسية للمنظمة بين يوليو وسبتمبر، بما في ذلك مشاركة وفد المنظمة في الاجتماع السابع لمنظمة التعاون الاقتصادي ECO لوزراء الزراعة في طشقند، أوزبكستان في 5 يوليو، اجتماع للمدير العام للمنظمة السيد. يرلان أ. بيدوليت مع مجلس التعاون الخليجي، مدير إدارة الزراعة والأغذية، معالي د. م. حسين ابراهيم. علاوة على ذلك، خلال الفترة من 1 إلى 4 أغسطس، أجرت المنظمة في الأردن برنامج بناء القدرات بشأن قيمة التغذية وسلامة الأغذية لتعزيز طريقة "الجين إلى الشوكة" في الدول الأعضاء في منظمة التعاون الإسلامي. في 28 يوليو، قام المدير العام المنظمة بزيارة مزرعة بستانيكا المائية التي تعمل في الإمارات العربية المتحدة، دبي. في 4 أغسطس، ناقشت المنظمة الاسلامية للأمن الغذائي ووزارة الزراعة في جمهورية الصومال التعاون الذي يركز على الفرص الأفريقية من خلال الاجتماع عبر الإنترنت.

عقد السيد. يرلان أ. بيدوليت، المدير العام للمنظمة اجتماعًا افتراضيًا مع البروفيسور Adipala Ekwamu ، الأمين التنفيذي لمنتدى الجامعات الإقليمية لبناء القدرات في الزراعة (RUFORUM) ، لمتابعة المشاورات السابقة حول المسائل ذات الاهتمام المشترك . في 12 سبتمبر زار وفد المنظمة أمانة لجنة العلوم والتكنولوجيا من أجل التنمية المستدامة في الجنوب (COMSATS) في إسلام أباد، جمهورية باكستان الإسلامية. في 20 سبتمبر أيضًا، بدأت ورشة العمل التدريبية الإقليمية التي استمرت يومين حول التخطيط الاستراتيجي وتطوير السياسات في مجال الأمن الغذائي في القاهرة، مصر. في 26 سبتمبر، عقدت المنظمة ورشة عمل تدريبية حول "إدارة الموارد الوراثية وبنوك الجينات" في أنقرة، تركيا.

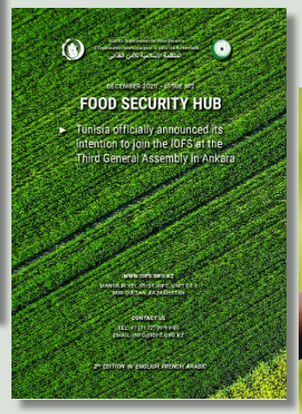
ومن النقاط البارزة الأخرى التي تم تضمينها في العدد، كشف النقاب عن الشعار وعلامات التصنيف الخاصة بالجمعية العامة الخامسة للمنظمة الاسلامية للأمن الغذائي (IOFS)، وهو رمز التعريف للتجمع الرسمي الذي سيعقد تحت شعار: "شراكات من أجل الأمن الغذائي المستدام: أفريقيا ضمن جغرافيا منظمة التعاون الإسلامي". يرمز الشعار إلى الدولة المضيفة (الجمهورية التونسية)، والجمعية العامة الخامسة، والأركان الخمسة لرؤية إستراتيجية المنظمة الاسلامية للأمن الغذائي لعام 2031، والقارات الأربع التي تقع فيها الدول الأعضاء في المنظمة الاسلامية للأمن الغذائي. كما رحب العدد بالعضو الجديد في الفريق - السيد سعيد حسين عيد، كمبعوث خاص للمنظمة لأفريقيا.

جمع العدد التاسع لمركز الأمن الغذائي فريق خبراء متميز، وقدم مقالات نوقشت بعمق حول جدول أعمال بنك جينات المنظمة لأفريقيا، بينما ناقش مقال من المركز الدولي لتكنولوجيات تغير المناخ (ICCCT) تأثير تغير المناخ على الجفاف والتصحر. الأراضي الزراعية التي تؤدي إلى ندرة المياه وسبل حل هذه المشكلة. مقال بقلم Ruforum ، وهي شبكة من الجامعات الأفريقية لبناء القدرات في الزراعة مكرسة لدورها في تطوير الزراعة في أفريقيا. كتبت اللجنة الدائمة المشتركة بين الدول لمكافحة الجفاف في منطقة الساحل عن خبرة المنظمة في مجال إدارة المياه. كان المنشور المخصص للحدث الخاص بالترويج لزيت الزيتون في البلدان الأعضاء في منظمة التعاون الإسلامي يستعرض الجلسة المختلطة المشتركة للمنظمة مع وزارة الزراعة والموارد المائية ومصايد الأسماك في تونس ومناقشتها حول صناعة زيت الزيتون في البلدان الأعضاء في منظمة التعاون الإسلامي، وكذلك تقديم المساعدة في تعزيز التجارة البينية لمنظمة التعاون الإسلامي. مقال بحثي إعلامي حول إمكانات الكسافا لتغذية إفريقيا، يستكشف آفاق قطاع إنتاج الكسافا كمحرك للنمو الزراعي من خلال تقييم مؤشرات الطلب واتجاهات إنتاج الكسافا في إفريقيا. يتم الانتهاء من قسم المقالات بمقال حول خدمات رسم الخرائط في كازاخستان ، والاستفادة من البيانات من الأقمار الصناعية والأنظمة الأساسية الأخرى لتوفير خرائط محدثة لفهم الأنظمة الفيزيائية الحيوية للأرض.

قد نجد أيضًا معلومات حول جميع الإصدارات السابقة من Food Security Hub والمتاحة لمراجعتها وتنزيلها على موقع IOFS https://iofs.org.kz

ALL PREVIOUS ISSUES OF «FOOD SECURITY HUB» ARE AVAILABLE FOR YOUR REVIEW AT THE IOFS WEBSITE HTTPS://IOFS.ORG.KZ/

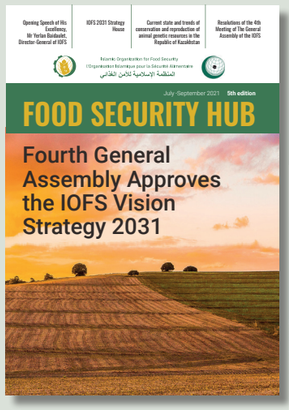
FOOD SECURITY HUB №1



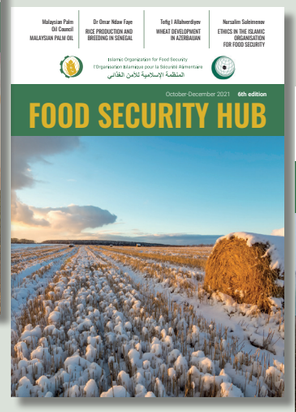
FOOD SECURITY HUB №2

FOOD SECURITY HUB №3

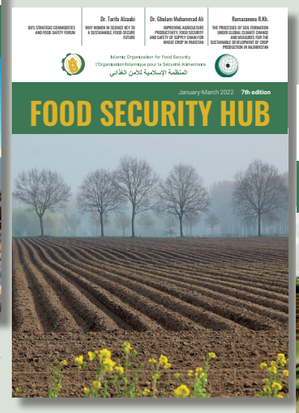
FOOD SECURITY HUB №4



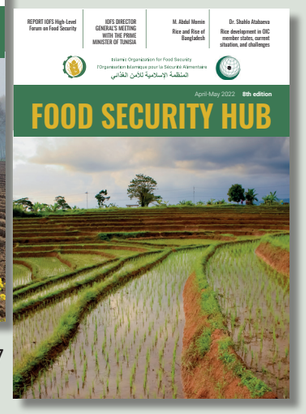
FOOD SECURITY HUB №5



FOOD SECURITY HUB №6



FOOD SECURITY HUB №7



FOOD SECURITY HUB №8

MANGILIK YEL AVE. 55/21, UNIT 4, C 4.2 (AIFC),
ASTANA, REPUBLIC OF KAZAKHSTAN

+7 (7172) 99-99-00
+7 (7172) 99-99-75
info@iofs.org.kz
www.iofs.org.kz

@Islamic Organization for Food security
@Islamic Organization for Food Security
@iofs_kz