



**Standing Committee  
for Economic and Commercial Cooperation  
of the Organization of Islamic Cooperation (COMCEC)**

## **Proceedings of the 7<sup>th</sup> Meeting of the COMCEC Agriculture Working Group**

### **“Reducing On-Farm Food Losses in the OIC Member Countries”**



**COMCEC COORDINATION OFFICE  
March 2016**



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**PROCEEDINGS OF THE 7<sup>TH</sup> MEETING OF THE COMCEC  
AGRICULTURE WORKING GROUP  
ON**

**“REDUCING ON-FARM FOOD LOSSES IN THE  
OIC MEMBER COUNTRIES”**

(3 March 2016, Ankara, Turkey)

**COMCEC COORDINATION OFFICE  
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## Introduction

The 7<sup>th</sup> Meeting of the COMCEC Agriculture Working Group was held on March 3<sup>rd</sup>, 2016 in Ankara, Turkey with the theme of “Reducing On-Farm Food Losses in the OIC Member Countries”.

The Meeting was attended by the representatives of 15 Member Countries namely, Bangladesh, Brunei Darussalam, Gabon, Iran, Jordan, Malaysia, Mauritania, Oman, Palestine, Saudi Arabia, Senegal, Sudan, Uzbekistan, Tunisia and Turkey. Representatives of COMCEC Coordination Office, Islamic Development Bank (IDB), International Institute of Tropical Agriculture (IITA), Food and Agriculture Organization of the United Nations (FAO), SESRIC and TAT Plant have also attended the Meeting.<sup>1</sup>

The Meeting began with a recitation from Quran. Afterwards, Mr. Selçuk KOÇ, Director at the COMCEC Coordination Office (CCO), and Dr. Ali Osman SARI, Deputy Director General, Ministry of Food, Agriculture and Livestock (MFAL) of Turkey and the Chairman of the Meeting, made their opening remarks. Afterwards, the representative of the CCO made a presentation on “COMCEC Agriculture Outlook 2015”. During the presentation of the COMCEC Agriculture Outlook 2015, the participants were informed about the state of agriculture sector in the OIC Member Countries through focusing macro agricultural indicators.

Thereafter, the Meeting considered the analytical study titled “Reducing On-Farm Food Losses in the OIC Member Countries” which was conducted by the WFLO, specifically for the 7<sup>th</sup> Meeting with a view to enriching the discussions.

A moderation session was held at the beginning of afternoon session. The participants deliberated on the policy recommendations for reducing on-farm food losses in the OIC Member Countries. The Room Document prepared by the CCO, in light of the findings of the analytical study and the answers of the Member Countries to the policy questions was discussed during the meeting. At the outset, a representative of the CCO made a short presentation introducing the responses of the Member Countries to the policy questions as well as the Room Document. Then, participants shared their views and observations about the policy recommendations included in the Room Document.

Following the moderation session, a presentation was made by a representative of the CCO to inform the participants about the COMCEC Project Cycle Management.

The representatives of Sudan, Tunisia and Turkey have shared their experiences, achievements and challenges regarding on-farm food losses in their respective countries..

Lastly, FAO, International Institute of Tropical Agriculture (IITA) and TAT Plant have made presentations on their experiences with regards to on-farm food losses.

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<sup>1</sup> The list of participants is attached as Annex 4.

## 1. Opening Session

In line with the tradition of the Organization of the Islamic Cooperation (OIC), the Meeting started with the recitation from the Holy Quran. Afterwards, Mr. Selçuk KOÇ, Director at the COMCEC Coordination Office welcomed all participants. Thereafter, Mr. KOÇ explained the detailed programme of the Meeting.

Afterwards, Dr. Ali Osman SARI, Deputy Director General, Ministry of Food, Agriculture and Livestock (MFAL) of Turkey, was chosen as the chairman of the Meeting and he welcomed all the participants to the 7<sup>th</sup> Meeting of the Agriculture Working Group. Following his opening remarks, Dr. SARI invited Mr. E. Emrah HATUNOĞLU to present COMCEC Agriculture Outlook 2015.

## 2. The COMCEC Agriculture Outlook 2015

Mr. E. Emrah HATUNOĞLU, Expert from the COMCEC Coordination Office has presented some of the key findings of the COMCEC Agriculture Outlook 2015.

In his presentation, Mr. HATUNOĞLU explained the state of agriculture sector in the OIC Member Countries through focusing macro agricultural indicators which are agricultural value added, growth rates, population, employment, and trade, with a special emphasize on sectoral indicators such as land use, crop production, and agricultural productivity in the OIC member countries. He also informed the participants about the state of food security in the OIC Member Countries. In this respect, he expressed that the state of undernourishment is directly and indirectly related to the availability, access, utilization, and stability of food.

Mr. HATUNOĞLU stated that in 1990, OIC's agricultural GDP was 192 billion US Dollars which was 15 percent of world's agricultural production. In 2014, its agricultural GDP reached to 682 billion US Dollars with a share of 21 percent in the world's agricultural production. This shows the increasing trend of OIC's agricultural production in the world agricultural production even though the share has slightly decreased in 2014. In this framework, looking three sub-regions of OIC, he mentioned that Asian Group has made the highest contribution to agricultural production over the years. With 367 billion US Dollars agricultural production, Asian Group has more than half of the total agricultural GDP of the OIC Member Countries. However, the relative performance of African Group is getting strong compared to the Arab and Asian Groups. From 1990 to 2014, the share of African Group's agricultural GDP in OIC's agricultural GDP had increased from 16 percent to 24 percent.

Furthermore, he expressed that the share of agricultural GDP in total GDP of OIC Countries has been decreasing. In this context, the share of agriculture sector in the economies of OIC Countries has decreased from 16,6 percent in 1990 to 9,8 percent in 2014.

Mr. HATUNOĞLU also emphasized that top ten OIC member countries produce more than 75 percent of the 57 OIC Member Countries. Moreover, the critical role of agriculture sector in national economies can be understand by looking the share of agricultural GDP in country's total GDP. In the top ten country rankings, Turkey, Iran and Malaysia are only three countries whose shares of agriculture sector in the economy is lower than 10 percent.

Then, Mr. HATUNOĞLU, underlined that according to SESRIC, the agricultural population of the OIC Member Countries was 492 million people in 1990 with 47 percent share in total population. Then, it increased to almost 568 million people, which constituted 35 percent of the total OIC population in recent years. He stated that in 1990, OIC agriculture sector employed almost 182 million people, where total employment was 344 million. In 2013, the number of people

employed in agriculture sector reached to 240 million people. In the same year, total employment in the OIC Member countries was realized as nearly 670 million people. Even though employment in agriculture sector is increasing, the proportion of employment in agriculture has been decreasing over time. The share of agriculture sector in total employment was 52 percent in 1990, 44 percent in 2000, and 36 percent in 2013.

Furthermore, Mr. HATUNOĞLU informed the participants that agricultural commodity trade of the 57 OIC Member Countries had increased considerably in the period from 1990 to 2012. In this framework, total agricultural trade in the OIC Member Countries grew by more than 5 times from 1990 to 2012 and reached 340 billion US Dollars. In 2012, total agricultural commodity import of the OIC Member Countries reached to 208 billion US Dollars from 35 billion US Dollars in 1990. Correspondingly, total agricultural commodity export of OIC was as 133 billion US Dollars in 2012, while it was 20 billion US Dollars in 1990. Highlighting the export/import ratio, he mentioned that while the ratio of export to import was around 58 percent in 1990, it increased to almost 64 percent in 2012. Although the OIC Member Countries have an agricultural trade deficit, the increasing trend in export/import ratio is a promising point for the economies of OIC Member Countries. Furthermore, the share of the OIC Member Countries' agricultural imports in the world increased to 15.2 percent in 2012 from 9.9 percent in 1990. Correspondingly, the contribution of OIC agricultural exports to world total agricultural export reached to 9.9 percent.

Mr. HATUNOĞLU expressed that OIC Member Countries' total land area is nearly 3.2 billion hectares and it is equal to 24 percent of the world. With regards to the crops and livestock production, he mentioned that there is an improvement in main crops production such as cereal, oil crops, fruit, vegetable from 2000-2013. As of 2013, OIC Member Countries contributed 409 million tons to the world cereal production, representing almost 15 percent of the world total cereals production. Moreover, in 2013, 67 million tons of oil crops were produced in the OIC, where it was 31 million tons in 2000, and the share of oil crops production has reached to 34 percent in the world.

Mr. HATUNOĞLU also emphasized that land and labour are important inputs that are used in the production process. In this regard, in 2012, average agricultural land productivity of OIC Member Countries reached to 2,235 US dollars/ha, and OIC Countries and World have a very similar value over time. Regarding the labour productivity Mr. HATUNOĞLU stated that labour productivity in the OIC had been higher than the world average in the OIC Countries during the period 1995 and 2013. In 2013, average agricultural labour productivity of OIC Member Countries reached to 2,819 US dollars/person; while it was 2,453 US dollars/person for the world average.

Regarding the food insecurity, Mr. HATUNOĞLU, mentioned that during 2014-2016 period, 168.6 million people are expected to be undernourished in the OIC Member Countries which accounts for 21.2 percent of undernourished people in the world. He emphasized that in last 25 years, while the number of undernourished people in the world has fallen gradually, it has remained almost the same in the OIC Member Countries. Therefore, the share of the OIC undernourished people in the world has risen from 16.6 percent in 1990-1992 to 21.2 percent 2014-2016. In this framework, he stated that according to the Global Food Security Index, which includes 34 OIC Countries, most of the OIC countries have improved their Food Security Score incredibly in 2015, compare to 2014. While 30 out of 34 OIC countries has improved their score, only 4 OIC countries, Sierra Leone, Tajikistan, Uganda and Syria, have declined their score.

### 3. Reducing On-Farm Food Losses in the OIC Member Countries

#### 3.1. Overview of the On-Farm Food Losses in the OIC Member Countries

Dr. Hala Chahine-TSOUVALAKIS, Consultant, The World Food Logistics Organization (WFLO), presented the key concepts regarding on-farm food losses and the main findings of the research titled “Reducing On-Farm Food Losses in the OIC Member Countries”.

Dr. TSOUVALAKIS, firstly explained the methodology used in the said report to assess on-farm losses in the OIC Member Countries. Then, she stated that there are three production periods namely pre-harvest factors, harvesting and handling. She also mentioned about the specific on-farm losses assessment by food groups namely, cereals, roots and tubers, fruits and vegetables, oilseeds and pulses, meat and eggs, milk and dairy, and fish and seafood.

With regards to the methodology, she expressed that the study reviews the literature on on-farm losses throughout Africa, Asia, and the Middle East by compiling and analysing the existing literature on levels, causes, and sources of food losses. The study also reviews information, documents and experience of international institutions. She explained that surveys with 100 key informants in 50 OIC Member Countries and online and email-based surveys were conducted, in order to collect data on perceived food losses by agricultural commodity groups. Furthermore, specific cases were studied by using Commodity System Assessment Methodology (CSAM) for 8 key foods/crops in 6 countries, and levels and causes of on-farm losses for key crops and animal-based foods in 8 OIC Member Countries were examined. Lastly, recommendations were provided to reduce on-farm losses.

Afterwards, she informed the participants that literature review indicates that there is an increasing international attention to food losses especially that the following UN Sustainable Development Goals (SDG):

- Goal 12: Sustainable Production and Consumption.
- Target 12.3: Calls to cut per capita food wastage in half by 2030.

In addition, the African Union Malabo Declaration in June 2014 stated clearly that hunger should end and the current postharvest food losses should be reduced by half in 2025.

Dr. TSOUVALAKIS, stressed that according to FAO one-third of annual global food production is lost in the supply chain before reaching the final consumer. This represents a loss of 1.5 quadrillion kcalories per year; as a result a huge amounts of resources including seeds, labour, land, water fertilizer and energy used during production are wasted. Moreover, she expressed that that according to the Swedish Institute for Food and Biotechnology (SIK) in developing countries, losses mainly occur during production, handling, storage and processing periods. This is often due to technical limitations at the producer level; while in developed countries, waste mostly occurs at the consumer level.

She stated that food loss and waste (FLW) percentages differ by region. The estimates based on the findings of a small assortment of field studies for specific foods in specific countries are 30% for Cereals; 40-50 percent for Root Crops, Fruits and Vegetables; 20 percent for Oil Seeds, Meat and Dairy; 30 percent for Fish. The literature review also indicates three major types of FLW as follows;

- Quantitative Loss: weight, volume; discards due to physical damage or serious decays.
- Qualitative Loss: damage, loss of freshness, poor visual appearance, changes in colour, wilting, dehydration or water loss, decay, or nutritional losses.



- Economic Loss: Monetary value per unit.

She mentioned that general causes include financial, managerial and technical limitations in production practices, harvesting techniques, and postharvest handling technologies.

Dr. TSOUVALAKIS briefed the participants that there is a lack of solid data on OIC Member Countries with no comparisons known between OIC Member Countries and rest of world. However it is confirmed that high losses are expected to occur mainly during on-farm and postharvest stages as most OIC Member Countries are developing countries. In this framework, she expressed that the specific on-farm losses assessment by food group indicates that:

- In Bangladesh, Cameroon, Iran, Tajikistan, Turkey and Uganda cereal losses mainly occur due to shattering and spillage. The losses during on-farm drying, stacking and truck loading range between 0.5–4 percent for maize, 1-14 percent for rice and 4.3-9.1 percent for wheat.
- In Benin, Guyana, Nigeria, Tajikistan and Turkey Roots and Tubers the level of losses range between 6.5-28 percent for Cassava, 37 percent for Yams and 4.9-7 percent for Potatoes. Harvest wounds during digging is the most common cause of damage and on-farm losses for roots and tubers.
- Regarding the oilseeds and pulses: information was only found for groundnuts and dry beans in Mali and Uganda. In Uganda, losses for dry beans range between 5-15 percent. Yields are 30 percent and it is below potential yields due to cultivation practices and nutrient deficiencies. Pod losses during harvesting are substantial at 20-30 percent due to the method of harvest, excessive soil moisture content, drought, pod shattering from delayed harvest and pests.
- With respect to fruits and vegetables study focuses on bananas, mangoes, litchis, olives, citrus, tomatoes, peppers, leafy greens and onions. The level of losses due to harvesting practices was estimated between 4-12 percent by Kader et al (2012). Losses are 12.3 percent for banana, it ranges between 3.5-15 percent for Mango, 8 percent for lichi and 10-30 percent for citrus and 30 percent for olives. Literature was found for Bangladesh, Benin, Guyana, Morocco, Egypt, Turkey and Sub-Saharan Africa.
- Meat Products assessment was found to have high animal mortality during production or transport caused by pneumonia, digestive diseases and parasites. In Mali, Calf mortality rate overall is 17 percent during the first year of life with a 5 percent perinatal loss. In Pakistan Calf mortality rate in Peshawar city is 18 percent in one year. Moreover, in Turkey, 10 percent loss occurs due to diseases, poor environmental conditions, feeding practices and animal care.
- Dairy products losses are mostly due to mastitis, unhygienic milk handling, cleanliness of vessels, spillage, and market forces failure to access remote farm due to poor road, especially during wet season and lack of cooling. Avian flu virus can cause 50 percent or higher mortality if left uncontrolled.
- Thanks to the establishment of capital intensive value chains, fisheries losses and wastage from the farm-produced seafood are normally controlled and well managed. It is indicated that physical losses at the on-farm in seafood and fisheries are low, and it is ranging from less than 5 to 10 percent.

She lastly underlined that on-farm losses for perishable plant based foods (roots and tubers and fruits and vegetables) are higher than on-farm losses for staple crops (cereals, oilseeds and pulses). Furthermore, on-farm losses for meats, eggs, milk and dairy products and fish and seafood are generally low, but vary more widely from country to country, depending on availability of cooling, which occurs via ice or refrigeration after harvesting or collection to slow

the rate of losses. Lastly, on-farm losses for perishable crops were rated higher than on-farm losses of less perishable crops.

## Questions and Remarks

**Question:** Representative from SESRIC expressed that it would be better if the recommendations for the OIC countries were divided into regions or country clusters since the member countries located in different geographic areas face different challenges and solutions to be advised to these challenges should be different.

**Answer:** Dr. TSOUVALAKIS pointed out that the analysis in the study cover the countries which have data on the issue and relevant data cannot be found in some member countries. Thus, the recommendations have been made according to the existing data and assessments in these countries. In addition, there are three case study countries; namely, Sudan, Tunisia and Turkey where detailed research has been made. There are specific analysis and advices for these three countries in the study.

**Question:** Representative of Sudan asked whether there is any organization that can assist the member countries on food losses?

**Answer:** Dr. TSOUVALAKIS responded that FAO and some universities such as Illinois and California have been working on food losses and they can be benefitted. Furthermore, there are also foreign aid agencies like USAID. She added that conducting projects with these organizations or universities is not enough to reduce food losses in the long term. Rather, the member countries should transfer their know-how regarding on farm food losses through knowledge sharing platforms such as COMCEC.

**Question:** Sudanese participant stated that the member countries face poor environment conditions, insufficient electricity for farmers and weak water management. If the problem is the organization structure of agriculture sector, she asked whether a transition from family farming to agro-business is necessary to surmount the problems?

**Answer:** Dr. TSOUVALAKIS expressed that family farming should not be abandoned since it would not be a solution. Rather, technical support and knowledge should be provided to the farmers. She added that capacity development activities would also be very useful in the long term.

## 3.2. On-Farm Food Losses in Case OIC Member Countries

Dr. Hala Chahine-TSOUVALAKIS began the second part of her presentation with giving information about the methodology used for case studies. In this respect, she mentioned that a value chain assessment was conducted using a modified Commodity System Assessment Methodology (CSAM) to conduct the case studies. The assessment focused on the pre-production and production periods, up to harvest and farm gate. Each case study focused on one commodity in one country, on six farms. In this framework, farm visits were done using direct measurements of damaged crops, temperature and relative humidity at harvest.

### 3.2.1. Nigeria (Sweetpotato)

Regarding the on-farm Losses for sweetpotato in Ogun State, Nigeria, Dr. TSOUVALAKIS mentioned that the conservative estimate of on-farm losses is 2-5 percent. Farmers harvest only what is expected to be sold and this is done early in the morning one day before sale. The harvest is done manually by family members using hoes and cutlasses at maturity where women are involved in cultivation and harvesting. The main factors causing on-farm loss in Sweetpotato are rodent bites, cuts or bruised roots, broken roots, circular rot, sunburn, infected termite bites,

heavy rainfall or not enough rainfall, storage diseases, several rot types and no curing on farm before sale. The physical losses are estimated at 2-5 percent. With a total annual production of 3.45 million tonnes, losses are in the range of 69,000 to 172,000 tonnes/yr. Damage and defects are reflected in the low offered prices. The average farm gate value of \$87.50-\$100, which leads economic losses of farmers is US\$ 6-17.2 million/yr. Loss in food value is 59.34 billion kilocalories/69,000 tonnes, a quantity that could feed 65,000 persons for a full year at 2,500 kcal/day.

She underlined the following lessons learned and recommendations regarding this case study:

- Harvest indices should be followed for optimum quality and yield.
- Pest control should be improved on roots left in the field after full maturity.
- Harvest and handling should be done gently to prevent physical damage.
- Shade should be provided for harvested crops during transport delays from field to market.
- The value chain should be streamlined to decrease delays in transport from the farm.

### 3.2.2. Nigeria (Cassava)

Dr. TSOUVALAKIS continued her presentation with cassava case of Nigeria. She mentioned that the estimated losses in weight, value and calories for Cassava in Nigeria are as follows: price per kilogram differs by season and time of year. Furthermore, with a conservative estimate of on-farm losses, 2-5 percent losses are caused by diseases and physical losses. In other words, the level of losses is between 2 to 5 percent of the total production of 45 million tonnes which are equal to 900,000 to 2,250,000 tonnes of cassava roots per year. Also, rough digging and handling during harvesting lead to broken roots, and rough handling after harvesting causes physical damage. She pointed out that the market value is US\$ 20-40 per tonne and the economic losses to farmers range from US\$18 to US\$90 million per year. She stressed that cassava has a food value of 1,600 kilocalories per kg. The on-farm losses in food value at a minimum equal approximately 14.4 trillion kilocalories. This could feed 15.78 million persons for a full year at 2,500 kcal/day, which is equal to 10 percent of Nigeria's population.

Dr. TSOUVALAKIS stated that several lessons can be learned from cassava case of Nigeria are as follows:

- Offering price incentives for quality and quantity leads to producers paying attention to harvest indices for optimum quality and yield.
- Gentle harvesting and digging of roots and tuber crops can prevent physical damage.
- Avoiding rough handling after harvest such as stepping on or sitting on the heaps of crops can reduce physical damage.
- Avoiding rough handling after harvest, and providing shade for harvested crops during delays in transport from the field to the market can reduce produce temperatures and reduce on-farm losses.

### 3.2.3. Benin (Groundnuts Farms)

Afterwards, Dr. TSOUVALAKIS briefed the participants about Benin (Groundnuts Farms) case. She expressed that according to the conservative estimates, on-farm losses are 10 to 20 percent. The main cause reported for loss in groundnuts is aflatoxin contamination. Additionally the other causes are on-farm practices such as fertilizing, seed treatment, drying, handling, transportation, packaging and storage.

She mentioned that farmers should disinfect seeds, apply fertilizers and pesticides at correct rates, dry harvested plants in the sun. The use of hermetic storage Perdue University bags (PICS bags) reduce aflatoxin contamination in groundnut. Furthermore, manual shelters should be used to reduce damage to kernels.

#### **3.2.4. Egypt (Tomato Farms)**

Later on, Dr. TSOUVALAKIS informed the participants about tomato farms in Egypt. She indicated that conservative estimate of on-farm losses of 15-20 percent is caused by the lack of pruning and thinning, poor blossom end rot control and improper maturity at harvest. Furthermore, lack of stems from rough harvesting reduce market value, and leaving non-marketable fruits on the plants or in the field.

She underlined that in order to reduce the losses, there is a need to improve harvesting at proper maturity, gentle harvesting to reduce damage, improve containers and use liners for palm rib crates. Moreover, there is a need to using reusable plastic vented crates, and using shade for the crops after harvesting and before transport, especially when temperatures are above 25°C.

#### **3.2.5. Indonesia (Fish and Shrimp)**

Then, Dr. TSOUVALAKIS informed the participants about fish and shrimp in Indonesia. She expressed that on-farm losses are very low, 5 percent or less. However, there is low productivity due to lack of quality and certified fry as well as high feeding costs. Farm gate prices depend on size and quality of harvested product. The level of losses is 5 percent of the total production of 3.8 million tonnes of aquaculture which is equal to 190,000 tonnes per year. The factors causing on-farm food loss for fish and shrimp in Indonesia are the poor quality starting materials such as fry or seeds, poor production practices, aquatic insects, poor quality stock reduces productivity, diseases during production, poor quality feed, pests and predators including insects and birds that eat fish/shrimp.

The actors in the food supply chain, especially the producers, seemed aware of the possibility of losses and the strategies to overcome the challenges. The producers should start with good quality seed or fish fry, use high quality feeds, protect fish and shrimp from predators, prepare nursery ponds and develop larger ponds.

#### **3.2.6. Uganda (Bananas and Plantains Farms)**

With regards to the on-farm losses at bananas and plantains farms in Western Uganda, she stated that conservative estimate of on-farm losses ranges between 5-15 percent caused by lack of containers for the harvested fruits, rough handling and heaped in stacks. She indicated that losses in plantains and bananas in Uganda relatively low due to the direct market linkages with buyers.

She stressed that rough handling and dropping of bunches during harvesting and handling cause physical damages. Also, fruits left in heaps exposed to the sun became very hot and suffered from rapid quality deterioration. In order to reduce the losses there is a need to reduce rough handling and apply proper harvesting (timing and handling practices). Therefore, farmers should be trained to reduce rough handling, increase proper harvesting practices and temperature management.

#### **3.2.7. Uganda (Maize)**

Dr. TSOUVALAKIS informed the participants that the study indicates that according to conservative estimate, on-farm losses is 10-15 percent which causes an economic loss of US\$ 70-126 million for Maize in Uganda. The factors causing on-farm losses for maize are the improper

use of fertilizers and herbicides, the poor pest and disease management practices and the poor harvesting practices. The lack of grading and lack of local or national regulatory standards are mentioned as other factors that cause losses.

Dr. TSOUVALAKIS underlined the following recommendations for reducing on-farm food losses:

- The harvesting should be done at the optimum time, which is when the stalks have dried and moisture of maize is about 30 percent.
- Ensuring that harvesting tools, drying location and equipments are clean and disinfected.
- Lastly, avoid beating maize to shell the kernels from the cobs, because it makes grains more susceptible to the diseases and rots.

### **3.2.8. Turkey (Broiler Meat)**

Dr. TSOUVALAKIS, briefed the participants that the estimated mortality rates for on-farm chickens range from 4 to 8 percent in Turkey. Most of Turkish poultry farms are “intensive” and are well managed. Most mortality occurs in the first or last week of life. The level of losses is 4 percent of the total production of 1.758 million tonnes of poultry produced per year in Turkey, and the economic value of this losses is 1,000 to 1.100 US dollar per tonne. Furthermore, food value of on-farm food losses approximately equals to 101 billion kilocalories and 11.4 billion grams of protein. The lost food could have provided enough protein nutrition for 625,000 persons for a full year at 50 g/day. The factors causing on-farm food loss in Broiler Meat in Turkey are the improper poultry house management, the overcrowding, the lack of ready access to water, the poor quality feeds and poor temperature management.

She pointed out that in order to reduce the losses there should be proper feeding and lighting programs, immunization programs, proper management of space, water, feed and light and individual administration of live vaccines against New Castle disease. She also mentioned that healthy chicks are vaccinated as early as day 1–4 of life.

## **3.3. Overall Policy Recommendations**

Dr. TSOUVALAKIS lastly touched upon general recommendations for the OIC Member Countries as follows:

- Extension or training needs: Identified causes of on-farm losses can be addressed via immediate training.
- Research needs: Global research institutes share their findings and solutions with other potential users.
- Advocacy issues: Problems at the macro level that must be addressed by policy makers and investors including missing infrastructure, lack of access to extension services, poorly regulated input suppliers (poor quality seeds or feeds), poorly regulated contracting practices, lack of access to credit.
- Identifying gaps in knowledge and information for key crops and find specific causes for on-farm food losses. The OIC Member Countries can offer to lead loss assessments and/or can participate in FAO-sponsored food loss assessment case studies.
- Investments in upgrading the food supply chain through understanding local supply chains, determining when and where to invest directly to better connect farmers to

buyers and shortening the chain between farmers and users to reduce on farm food losses, reduce time for spoilage and reduce potential risk from spillage and infestations.

- Capacity Building to address gaps in the technical and training capacity of on-farm food loss researchers and extension specialists.
- The OIC Member Countries should address gaps in the managerial capacity of national extension workers, farmers, fishers, ranchers and food supply chain workers.
- OIC Member Countries should develop projects to address losses in either durable or perishable value chains. These projects should describe key actions, Technology packages and budgets that could be used to develop projects on reducing losses in the value chains.

**Question:** Representative from Tunisia mentioned that cold storage depots can be utilized to reduce food losses like milk or fisheries.

**Answer:** Dr. TSOUVALAKIS mentioned that the cold storage is important to prevent such losses. However, she indicated that cold storage is a very expensive technology and it is hard to afford it in many countries. Therefore, there should be support from government for building the storages and ensuring the electricity at a cheap price for these depots.

**Question:** Participant from Turkey asked that what was the selection criteria for the products analysed in the report?

**Answer:** Dr. TSOUVALAKIS pointed out that the products have been determined in light of the literature reviews and the different reasons such as importance of the product for the country or high losses in that product.

## 4. Policy Discussion Session

The session was moderated by Dr. Ali Osman SARI, Deputy Director General, Ministry of Food, Agriculture and Livestock (MFAL) of Turkey.

At the beginning of the session, Mr. Mehmet FİDAN, Expert from the COMCEC Coordination Office, made a brief presentation on the responses of the Member Countries to the policy questions on reducing on-farm food losses which were already sent by the CCO. Afterwards, he presented the policy recommendations provided in the room document.

Following Mr. FİDAN's presentation, the participants expressed their views and comments for each policy recommendations as well as the experience of their respective countries in this regard. Based on intensive deliberations, the participants have highlighted the following policy recommendations:

- Identifying the knowledge and information gaps regarding the levels and specific causes of on-farm food losses for key crops and food products with a view to providing solutions for each OIC Member Countries
- Improving/developing agricultural extension, training and outreach activities for reducing on-farm food losses
- Developing specific programs/projects to address on-farm losses in agricultural value chains in cooperation with the relevant OIC Institutions

The policy recommendations are attached to this report as annex 3

## 5. The Way Forward: Utilizing the COMCEC Project Cycle Management (PCM)

Mr. Ali ORUÇ, Expert at the COMCEC Coordination Office made a presentation on the COMCEC Project Funding introduced by the COMCEC Strategy.

First, Mr. ORUÇ briefed the participants about where the COMCEC Project Funding stands in the COMCEC Strategy.

He underscored the basic qualifications of the COMCEC Project Funding as “simple and clearly defined procedures and financial framework”, and mentioned that CCO provided continuous support to the member countries during the all stages of the COMCEC Project Funding Mechanism.

After briefly mentioning the Project Cycle Management (PCM) concept, Mr. ORUÇ underlined the potential project owners. It was emphasized that relevant ministries and other public institutions of the Member Countries and the OIC Institutions operating in the field of economic and commercial cooperation could submit projects. He also underlined that member countries have to be registered to respective working group in order to submit their project proposals.

Mr. ORUÇ continued his presentation by explaining the “Project Selection Criteria” namely, compliance with Strategy’s Principles, and targeting strategic objectives of the Strategy, focusing on output areas and pursuing multilateral cooperation among the OIC Member Countries. Furthermore, he underscored that project proposals submitted by the member countries should be compliant with the sectoral themes for the third call stated in the Program Implementation Guidelines.

He mentioned the importance of the multilateralism for project appraisal, and expressed that project proposals should focus on common problems of at least three member countries and also should offer joint solutions for these problems.

During the presentation, three key actors and their responsibilities under the COMCEC Project Funding were identified; Project Owner (Project Submission and Implementation); the CCO (Program Management) and the Intermediary Bank (Project Monitoring and Financing). Moreover, steps and roles of these key actors throughout the project application process were defined.

Monitoring of projects was another issue explained in the presentation. Mr. ORUÇ informed the participants that the Bank would be mainly responsible for financial and technical monitoring of projects while the CCO would oversee the overall implementation of the PCM.

Regarding the financial framework, He emphasized that the funds are grant in nature and would be provided by the CCO.

Mr. ORUÇ also gave information on 2014 and 2015 Projects. He stated that member countries and OIC institutions had shown great interest and 209 project proposals were submitted by member countries and OIC institutions in three-year period (2013-2015). He also stated that totally five agriculture projects were implemented under the COMCEC Project Funding in 2014 and 2015.

These projects are:

- Pakistan Bioremediation Model for wastewater treatment and capacity building program among OIC countries. (Pakistan)
- Project for Support to the Agricultural Training Centers. (Chad)

- Good Agricultural Practices (GAP) for Greenhouse Vegetable Crops; Principles for Tropical Climate Areas. (Indonesia)
- Improving the Income of Small and Medium Scale Farmers in OIC Member Countries through Integrated Farming System. (Suriname)
- The establishment of database, network connection and web pages of smallholders/family farmer's agricultural cooperatives between COMCEC member states, (Turkey)

Mr. ORUÇ briefly mentioned about the online project submission system and stated that member countries could submit their project proposals easily by using this user-friendly system.

Lastly, He reminded participants that fourth call for project proposals would start as of early September 2016 and project proposals would be submitted to the CCO until 31st September, 2016. He also invited all esteemed member countries and the relevant OIC institutions to submit their project proposals.

### Questions and Remarks

**Questions:** Who are the potential beneficiaries of projects financed by the COMCEC Project Funding?

**Answer:** OIC Member Countries which are registered to the COMCEC Working Groups and the relevant OIC Institutions are potential beneficiaries of projects financed by the COMCEC Project Funding.

## 6. Member Country Presentations

In this section, member country representatives had chance to present their experiences with regards to reducing on-farm food losses. Participants from Sudan, Tunisia and Turkey made presentations.

### 6.1. Sudan

Mr. AZHARI AHMED ELGALI, Agricultural Engineer at the Ministry of Agriculture and Forests of Sudan, made a presentation on on-farm food losses in Sudan.

In his presentation Mr. ELGALI briefed the participants that losses take place at three main stages pre-harvest, harvesting and post-harvest. He stressed that Sudan suffers severely from the losses at pre-harvest stage. This is due to pre-planting tillage which results in bad seed bed and rain infiltration. He mentioned that 90 percent of the cereal and oil crops were planted with wide level disc (WLD) and chisel plow with tine harrow. Using these two methods in land preparation results in bad tillage under heavy trash condition, ineffective kill of grass and lack of control in depth of seeds placement during seeding. Therefore, this cause bad establishment of crops leading to lodging and then losses occur.

Afterwards, he expressed that most the Sudanese farmers, especially in rain-fed area, using WLD which has several limitations as follows:

- Seeding depth which is reducing crops establishment and contributing to weak root system.
- It provide no soil packing which reduced germination due to poor soil to seed contact in drying surface and heavy trash condition.

Mr. ELGALI briefed the participants that an important issue in reducing losses is effective usage of combine. In order to provide effective use of combine there is need to provide adjustment in



combine, training of combine operator and proper time of introducing the machine to the Field. Furthermore, he mentioned that on-farm food losses regarding wheat grains mostly occur in pre-harvest, header and processing. Some survey results showed that the forward speed, time of harvest and machine age affects the harvesting losses.

Lastly, he underlined that with a conservative estimate the level of losses is between 15 to 25 percent in rice due to high temperature at time of harvesting. Losses are high in wheat and cereals. For sesame the level of losses is severe due to scattering results from scarcity in machines. Moreover, the use of improved storage techniques and the use of post harvesting crop treatment is extremely low and it causes high level of losses in fruits and vegetables.

## 6.2. Tunisia

Mrs. Nadoua Gmir DHAOU, Director of studies and Planification at Ministry of Agriculture Water Resources and Fisheries of Tunisia, made a presentation on the on-farm food losses in Tunisia.

At the outset, Mrs. DHAOU briefly stated about the importance of agriculture sector for Tunisian economy. In this regard, she mentioned that agriculture contributes 9 percent to the total Gross Domestic Products (GDP) of Tunisia, and agricultural exports account for 9 percent of the total national exports. Main exported products are olive oil, sea products, dates and citrus fruit. Agriculture sector's contribution to the employment is 16 percent.

She informed the participants that there is not any study which investigated a complete evaluation of food losses and waste throughout the food supply chains. However, some research and studies have been conducted for some specific segments such as:

- Evaluation of losses during cereal harvesting on sloping fields in the northwest region,
- Evaluation of the impact of some post-harvest processing technics, storage to extend the period of preservation some fruits (apples, pears, peaches, citrus, etc.),
- Evaluation of bread waste at the level of consumer (about 50 million dollars/year)

Then Mrs. DHAOU underlined that the food losses and waste is a serious matter in Tunisia for many reasons like lack of good agriculture practices, lack of infrastructure and financing and services providers, inefficient transportation and storage equipment, lack of cold chain and low market value for the products.

Afterwards, Mrs. DHAOU informed the participants about the food losses and waste project which was developed in cooperation with Food and Agriculture Organization. She stated that the project aims to enhance food security and nutrition for the Near East and North Africa (NENA) as well as small-scale agriculture for inclusive development. The implementation period of Project is 2016-2018 and its total budget is 2,3 million US Dollar. Its expected outputs are as follows:

- Improve the knowledge on the status, magnitude and extend of food losses
- Increase technical and managerial capacity of defined food value chain organizations to better coordinate, negotiate and organize in food chain activities
- Acquire and adopt technologies and good practices to reduce food losses and waste by defined value chain actors.

Lastly, she expressed that during implementation period following activities are expected to be carried out:

- Adapt the food loss and waste analysis methodologies developed by FAO to the Tunisian agro-food sector context and make analyses and assessments for the selected food value chains in Tunisia

- Conduct appraisals, analyses and assessments of the value chains in specific geographic zones and provide identified food chains actors with in-field training on improved technologies in harvesting and post harvesting operations, storage and processing
- Build the capacity of small-scale traders and small and medium agro-food firms on value addition and support elaboration of business plans for them to introduce technologies and best practices for all operations.
- Organizing inter-country and intra-country working groups on lessons learnt and developing recommendations for policy makers for upscaling good practices.

### 6.3. Turkey

Mr. REFİ RATİP ÖZLÜ, Engineer, Ministry of Food, Agriculture and Livestock of Turkey, made a presentation on experience of Turkey regarding the on-farm food losses.

Mr. ÖZLÜ briefed the participants that one of the most recent expedients targeted to minimize the crop losses during the harvest on the field is to use combine harvesters representing the most improved technology reached as today. The harvesting and the threshing of grain crops has been mostly conducted by combine harvesters in Turkey. He mentioned that as of 2015, there are 15.899 combine harvesters in the harvest machineries park. In 2002, the total number of combine harvesters in the park was 11.539, and the combine harvester number per 1.000 ha was about 0.6. Contrary to that, in 2014, the total number of combine harvesters in the park have increased to 15.899 combines, and the combine harvester number per 1.000 ha reached to 1 combine.

He underlined that as of 2015, the area harvested by combine harvesters in Turkey, as an average, accounts for? 8.080.168 ha. In other words, 85 percent of the total area is being harvested by the combines. He expressed that crop harvesting system in Turkey is based on the contracting services for harvesting the crops by combine harvesters. With this system, combine harvesters are operated for harvesting the areas higher than 4-5 times of the world averages. 15-20 percent of the total crop area is not favourable for being harvested by the combine harvesters. Therefore, it is harvested by reapers and other harvesting equipment like schytes and sickles.

Mr. ÖZLÜ stated that utilization of combine harvesters through contracts made between farmers and combine harvester owners leads the increase in annually operating hours of the combines, and this decrease the economic life of combines. He also stated that in Turkey, on-farm losses in wheat due to usage of combines accounts for 1.37 percent during harvest season, and the economic value of this losses is 84 million US Dollar.

Afterwards, He stressed that being aware of the cost of losses, Turkey makes great efforts for minimizing the losses during the harvest seasons. An important one, among these efforts, is the control services of the harvest operations done by using combine harvesters. The control services of harvests with combine harvesters are planned and programmed each year by the MFAL.

Mr. ÖZLÜ underlined that operation of the unlicensed and untrained operators in the combine harvesters is an important problem. Because unsuitable and improper operation of the combine harvesters create severe grain losses. Accordingly, the overtime and heavy usage of the combine harvesters can be a factor in triggering the grain losses on the field.

He lastly expressed that in order to deal with the above mentioned challenges and minimize the grain losses, MFAL has been implementing a comprehensive control programme of harvests on combine harvesters. In this framework, Ministry arrange specific programmes and extension services on;

- Raising the awareness of farmers and training of farmers,
- Training of the combine harvester operators,
- Training of the harvest controllers,
- The certifications have been issued them following the completion of the courses.

## **7. Experiences of International Organizations and Private Sector in Reducing On-Farm Food Losses**

### **7.1. Experiences of Food and Agriculture Organization (FAO)**

Ms. Jennifer SMOLAK, Agro-Industry and Infrastructure Officer, FAO Regional Office for the Near East and North Africa, made a presentation on FAO's Experience on Food Loss and Waste Reduction.

At the outset, Ms. SMOLAK underlined that reliable data and information on the magnitude of food losses and waste (FLW) is scarce, but there is no doubt that FLW remain unacceptably high. According to FAO's current estimates global food losses and waste at one-third of all food produced for human consumption, which amounts to about 1.3 billion tons per year. She argued that food losses and waste have repercussions on food and nutrition security, negative environmental consequences and contribute to unsustainable use of resources (financial, human and natural resources).

She mentioned that the magnitude and complexity of the problem needs a global response and partnership. As a result the Global Initiative on Food Loss and Waste Reduction (Global Initiative) was developed as an umbrella for all projects and programmes in which FAO is involved, and to fulfil a major coordinating role for the many initiatives that are coming up world-wide. It takes a holistic, integrated food supply chain and food systems approach, to ensure that food losses and waste reduction is technically, economically, environmentally and socially acceptable, feasible and cost-effective. The Global Initiative works with partner organizations and member countries on five main outputs:

- Evidence-base for policies, strategies and programmes
- Increased awareness
- Collaboration and synergy created
- Policy guidance, briefs and toolkits and
- Capacity and resources for programme implementation.

Ms. SMOLAK informed the participants that in the Near East and North Africa (NENA) region, countries have recognized food losses and waste reduction as a strategic priority to address food security and nutrition challenges in the region. A major step was the goal set by FAO's member countries in 2012 to reduce food losses and waste by 50 percent over 10 years, and the subsequently developed and endorsed Regional Strategic Framework for Food Losses and Waste Reduction in the NENA Region (NENA Strategic Framework). She stressed that the NENA Strategic Framework is based on the region's socio-economic and natural resources context, and calls for evidence-based national action plans with clear objectives, baseline, indicators and targets. In terms of FAO's support to NENA member countries, food losses and waste reduction and efficient, resilient food systems are a priority area for the "Regional Initiative on Building Resilience for Food Security and Nutrition", and also cut across regional initiatives on small-scale agriculture for inclusive development and water scarcity.

Afterwards, she stated that a growing programme of work on food losses and waste reduction strategies is being developed or implemented in the NENA region with FAO assistance. In this framework,

- Food losses and waste reduction is an integral component of the new Food and Nutrition Security Strategy in Kingdom of Saudi Arabia,
- Field studies and reduction strategies for key commodities are underway in Morocco and Lebanon,
- A three-year project on 'Food Losses and Waste Reduction and Value Chain Development for Food Security in Egypt and Tunisia' was recently launched with funding from Italy,
- An project in Egypt, Iran, Lebanon and Jordan aims to strengthen capacity on improved value chain management to prevent food loss, and
- The NENA Regional Food Loss and Waste Reduction Network was launched to provide a multi-disciplinary, multi-stakeholder platform to exchange knowledge, information, and good practices on food losses and waste reduction.

Lastly, Ms. SMOLAK highlighted that for reducing food losses and waste especially in the NENA Region, FAO will develop evidence-based plans, aligned with national strategies and agriculture sector development plans, in consultation with all concerned stakeholders from production to consumption, and across disciplines (nutrition, education, health, industry, etc.). In particular, emphasis is needed to collect and share data and information on food losses and waste to better understand the causes and effects, potential solutions, and relation to national and regional food security and nutrition.

## **7.2. Experiences of International Institute of Tropical Agriculture (IITA)**

Dr. Kerstin HELL, Postharvest Expert at International Institute of Tropical Agriculture (IITA), made a presentation regarding the experience of International Institute of Tropical Agriculture (IITA) on Reducing On-Farm Food Losses.

At the outset, Dr. Kerstin HELL briefly informed the participants about the IITA. In this respect, Dr. HELL stated that IITA is one of the 15 Research Centers of the Consultative Group of International Agricultural Research (CGIAR). IITA's research for development focuses on 6 mandate crops: banana and plantain, maize, cassava, soybean, cowpea, and yam. Its mission is to enhance food security and improve livelihoods through research and development. IITA tackles these challenges by pursuing these interrelated objectives: improving food security, increasing the profitability of foods and other agricultural products, reducing risks to producers and consumers, and helping national entities to expand agricultural growth.

Afterwards, Dr. HELL mentioned that with the purpose of reducing on-farm food losses IITA has developed several solutions that mainly address abiotic and biotic constraints and improve productivity of the mandate crops, while at the same time improving adaptation to climate change. IITA has developed a large selection of higher yielding and resistant varieties that have been developed to address the above constraints, so that resistant varieties are available for the main pests and pathogens. Furthermore, for varietal release in countries IITA works with the respective national research institutions to release lines that are specific to countries. In more holistic approaches solutions have been developed to improve agronomic performance of systems through use of fertilizers, crop management, rotation, biological control, biopesticides and use of entomopathogens.

She underlined that IITA's effort have focused very much on use of varieties to improve productivity, little focus has been given to the control of weeds which are a major constraint to

productivity, impact of climate change, land use patterns and intensification. Also the positive or negative effects of mechanization, modern equipment or use of herbicides/pesticides have? not been evaluated. Dr. HELL lastly emphasized that research programs have focused in the majority on improving productivity of systems from planting to harvest, with less focus on the harvest, post-harvest, processing and market. Overall IITA's research has delivered over 70% of the CGIAR's positive impact on food security and livelihoods on over 500 million people in Sub-Saharan Africa and beyond.

### **7.3. Experiences of TAT Plant on Reducing On-Farm Food Losses**

Mr. Burak UYSAL, Agricultural Engineer at the TAT Plant, made a presentation on Experiences of TAT Plant on Reducing On-Farm Food Losses.

Mr. UYSAL informed the participants that one of the main reason of high level of losses is unconscious methods that are used by farmers for growing and harvest. Methods which mainly target high yields cause decrease in the quality of food, and also decreases in the productivity of the land. Thus, necessary training and technical supports should be provided to the farmers to minimize the losses of food in the field. In this framework, in order to reduce on-farm losses, TAT Plant, among others, apply some methods such as the organizing trainings activities for farmers, supporting harvest organization, providing certified seed and seedlings planning, and utilizing contract farming

Mr. UYSAL expressed that TAT Plant uses and supports the 'contract farming' application to reduce the losses in the field. As a result of seed and seedling plant plans, TAT Plant was able to minimize the losses by creating a steady harvest period. It tries to keep under control the whole planting period through providing theoretical and practical trainings to the farmers.

He mentioned that contract farming is defined as a production and marketing model that based on an agreement between the farmers and TAT Plant. In line with the agreement TAT Plant guarantees to purchase the product that is produced in certain circumstances. With this agreement TAT Plant supports farmers with provides high quality raw material.

Regarding the seeds and the seedlings, he stated that the TAT Plant distribute the certified seeds and the seedlings plants produced from certified seeds to their contracted farmers. Distribution is done by taking into consideration the climatic factors and necessary planting-harvesting plans. Through these plans, TAT Plant tries to minimize the level of losses in the fields of their contracted farmers.

Mr. UYSAL mentioned that TAT Plant's harvesting organization is constructed in accordance with the production capacity and ripening periods. In this respect, agricultural engineers and agricultural land attendants make the land-product controls and product transport program.

Lastly, he stressed that TAT Plant provides the necessary support to the farmers at different stages of production. In this regard, TAT Plant:

- Organizes seminars at pre-production season,
- Organizes field visits with farmers,
- Conducts specific fertilizing and pesticide applying programmes in the field,
- Determines the appropriate harvesting time,

## Questions and Remarks

**Question:** Dr. Kerstin HELL, stressed that in West Africa, they have faced with a problem regarding the Contract Farming that during the season farmers may find buyers who pay higher prices for their products, and they sell their products to them. How does TAT Plant manage this problem in Turkey?

**Answer:** The representative of TAT Plant stated that they sign contract with farmers, and the contract is made with group of farmers rather than one farmer. The Contract contains heavy conditions which may prevent the farmers from selling their products to another buyer. Furthermore, if a farmer acts contrary to the contract, the whole group would be responsible?. Taking into consideration these conditions the farmers refrain from selling their products to other buyers.

## 8. Closing Remarks

The Meeting ended with closing remarks of Dr. Ali Osman SARI, Chairman of the Meeting and Mr. Selçuk KOÇ, Director at the COMCEC Coordination Office (CCO).

Dr. SARI expressed its appreciation to the all the member country representatives as well as participants from FAO, IITA, SESRIC, IDB and TAT PLANT for their participation and valuable contributions.

Mr. Selçuk KOÇ also thanked all participants for their attendance and precious contributions. He stated that the main outcome of the meeting is the Policy Recommendations Document which includes a number of policy advices for the member countries. He expressed that these recommendations will be submitted to the 32<sup>nd</sup> COMCEC Ministerial Meeting as an output of the 7<sup>th</sup> Meeting of the Agriculture Working Group.

Moreover, Mr. KOÇ informed the participants that the 8<sup>th</sup> Meeting of the COMCEC Agriculture Working Group will be held on October 13<sup>th</sup>, 2016 in Ankara with the theme of "Reducing Post-harvest Losses in the OIC Member Countries". He stated that a research report will also be shared with the focal points and other participants at least one month before the said meeting.

## ANNEXES

### Annex 1: Agenda of the Meeting



#### AGENDA

#### **7<sup>th</sup> MEETING OF THE COMCEC AGRICULTURE WORKING GROUP (March 3rd, 2016, Ankara)**

#### ***“On-Farm Food Losses in the OIC Member Countries”***

##### Opening Remarks

1. The COMCEC Agriculture Outlook
2. Overview of the On-Farm Food Losses in the World and the OIC Member Countries
3. Selected Case Studies from the Member Countries and Recommendations for Reducing On-Farm Food Losses
4. Policy Options for Reducing On-Farm Food Losses in the Member Countries
5. Member State Presentations
6. The Role of International Institutions for Reducing On-Farm Food Losses
7. Utilizing the COMCEC Project Funding

##### Closing Remarks

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## Annex 2: Programme of the Meeting



### PROGRAMME OF THE 7<sup>th</sup> MEETING OF THE COMCEC AGRICULTURE WORKING GROUP (March 3<sup>rd</sup>, 2016, Ankara, Turkey)

#### *"Reducing On-Farm Food Losses in the OIC Member Countries"*

- 08.30-09.00 **Registration**
- 09.00-09.05 **Recitation from Holy Quran**
- 09.05-09.15 **Opening Remarks**
- COMCEC Agriculture Outlook**
- 09.15-09.35 Presentation: "Outlook of Agriculture in the OIC Member Countries"  
*Mr. Erdoğan Emrah HATUNOĞLU, Expert  
COMCEC Coordination Office*
- 09.35-09.45 *Discussion*
- Overview of the On-Farm Food Losses in the OIC Member Countries**
- 09.45-10.25 Presentation: "On-Farm Food Losses in the OIC Member Countries"  
*Dr. Hala Chahine-TSOVALAKIS,  
Director, The Postharvest Education Foundation (PEF) and  
Consultant, The World Food Logistics Organization (WFLO)*
- 10.25-10.55 *Discussion*
- 10.55-11.10 *Coffee Break*
- On-Farm Food Losses in Case OIC Member Countries**
- 11.10-11.50 Presentation: "Case Country Evaluations: Benin, Egypt, Indonesia, Nigeria, Uganda and Turkey"  
*Dr. Hala Chahine-TSOVALAKIS,  
Director, The Postharvest Education Foundation (PEF) and  
Consultant, The World Food Logistics Organization (WFLO)*
- 11.0-12.30 *Discussion*
- 12.30-14.00 **Lunch**



## **Policy Options on Reducing On-Farm Food Losses in the OIC Member Countries**

There was a moderation session under this agenda item. The participants deliberated on the policy recommendations for reducing on-farm food losses in the OIC Member Countries. Room Document has been prepared by the CCO, in light of the findings of the analytical study prepared specifically for the Meeting and the answers of the Member Countries to the policy questions which were sent by the CCO. At the beginning of the session, CCO made a short presentation introducing the responses of the Member Countries to the policy questions as well as the Room Document.

- 14.00-14.15 Presentation: “Responses of the Member Countries to the Policy Questions on Reducing On-Farm Food Losses in the OIC Member Countries.”  
*Mr. Mehmet FİDAN, Expert*  
*COMCEC Coordination Office*
- 14.15-15.30 *Discussion*
- 15.30-15.45 **Utilizing the COMCEC PCM**
- Presentation: “Utilizing the COMCEC Project Cycle Management”  
*Mr. Ali ORUÇ, Expert*  
*COMCEC Coordination Office*
- 15.45-16.00 *Discussion*
- 16.00-16.15 *Coffee Break*
- 16.15-17.15 **Member Country Presentations**
- Sharing Experiences and Good Practices on Reducing On-Farm Food Losses.  
*Discussion*
- The Role of International Institutions and Private Sector for Reducing On-Farm Food Losses**
- 17.15-17.25 Presentation: “Experiences of FAO on Reducing On-Farm Food Losses”  
*Ms. Jennifer SMOLAK, Agro-Industry and Infrastructure Officer*  
Food and Agriculture Organization of the United Nations (FAO)
- 17.25-17.35 Presentation: “Experiences of International Institute of Tropical Agriculture (IITA) on Reducing On-Farm Food Losses”  
*Dr. Kerstin HELL, Postharvest Expert*  
International Institute of Tropical Agriculture (IITA)
- 17.35-17.45 Presentation: “Experiences of TAT Plant on Reducing On-Farm Food Losses”  
*Mr. Burak UYSAL, Agricultural Engineer*  
TAT Plant
- 17.45-18.05 *Discussion*
- 18.05-18.15 **Closing Remarks**

## Annex 3: The Policy Recommendations

Distinguished Members of the COMCEC Agriculture Working Group,

The COMCEC Agriculture Working Group (AWG) has successfully held its 7th Meeting on March 3rd, 2016 in Ankara, Turkey with the theme of “Reducing On-Farm Food Losses in the OIC Member Countries”. During the Meeting, Agriculture Working Group made deliberations for policy approximation among the Member Countries regarding the on-farm food losses in the OIC Member Countries. The Room Document, prepared in accordance with the main findings of the analytical study conducted for the 7th Meeting of AWG and the answers of the Member Countries to the policy questions, was the main input for the discussions. During the Meeting, the participants discussed the policy recommendations given below.

The Member Countries of the AWG are kindly invited to communicate their observations on this document, if there is any, to the COMCEC Coordination Office by March 30th, 2016. The comments received before March 30th, 2016 will be able to be incorporated into the Document. After incorporating the Member Countries’ contributions, this document will be submitted to the 32nd Ministerial Meeting of the COMCEC to be held on 21-24 November 2016 in İstanbul, as an outcome of the 7th AWG Meeting.

### **Policy Advice I: Identifying the knowledge and information gaps regarding the levels and specific causes of on-farm food losses for key crops and food products with a view to providing solutions for each OIC Member Countries**

#### **Rationale:**

Globally, great efforts have been exerted on improving agricultural productivity, increasing agricultural production, promoting farm activities, and encouraging entrepreneurs in agri-business investments to meet the growing demand for food. Recently, many developed countries, international organizations, multilateral platforms such as G20 have put the issue of food losses and waste on their agenda. Despite the global progress in terms of food loss assessments and food loss reduction, the endeavours for reducing food losses are not at desired levels in the OIC Region, which have vast resources such as labor, land, water, fertilizer, capital and energy.

In this regard, identifying the possible causes of on-farm losses and providing solutions for the losses of crops, animal foods and fishery products of highest interest to the OIC Member Countries would help preventing food losses and ensuring food security in the OIC Region. Nonetheless, most of the OIC Member Countries do not have necessary data/information on the levels and specific causes of on-farm food losses. Therefore, in order to reveal the exact level of on-farm losses and develop sound policies for addressing them, full scale food loss assessment studies may be conducted for the Member Countries by utilizing national and international resources. Furthermore, participation of the Member Countries to the international organizations-sponsored food loss assessment case studies may be encouraged.

### **Policy Advice II: Improving/developing agricultural extension, training and outreach activities for reducing on-farm food losses**

**Rationale:**

Agricultural extension services, training and outreach activities and providing necessary information to farmers are very instrumental in preventing on-farm food losses. In this regard, providing necessary information to farmers about the basic practices such as integrated pest management, sanitation and hygiene, soil and water management, use of maturity indices, gentle harvesting and handling, proper curing of roots and tubers or drying of cereals, pulses, and oilseeds is of particular importance in this respect. To illustrate, in order to properly use agrochemicals in pest management, farmers should know the proper application rates, the time and conditions for application, safety procedures, and so forth.

Agricultural extension services and training and outreach activities may also be very crucial in identifying and analysing farmers' production problems. Moreover, new farming methods and techniques can be introduced by agricultural extension, training and outreach activities so that efficiency and productivity of agricultural sector increase. Furthermore, dissemination and extension of the various technologies through demonstrations to farmers would also contribute to enhance agricultural production processes.

**Policy Advice III: Developing specific programs/projects to address on-farm losses in agricultural value chains in cooperation with the relevant OIC Institutions.**

**Rationale:**

Practices or methods undertaken during the harvesting stage of the production directly affect the level of on-farm food losses and thereby agricultural productivity. For instance, if crops do not receive adequate nutrition, or suffer from pests, sun-burn or wind damages, it would lead to decrease in yield.

In this framework, OIC institutions in collaboration with the relevant international organizations and NGOs may design and provide type projects, e-learning programs and a series of workshops for farmers on food loss assessment, reduction of food losses, and the costs and benefits of making changes in harvesting and handling practices for the various food groups. These 'type projects' may describe key actions, technology packages and include budgets that could be used to develop similar projects in the OIC Member Countries on reducing losses in the value chains. Hence, developing projects which are open to collaborative efforts and feasible with the current resources can enhance collective actions to reduce food losses in the OIC Member Countries.

**Instruments to Realize the Policy Advices:**

**COMCEC Agriculture Working Group:** In its subsequent meetings, the Working Group may elaborate on the above-mentioned policy areas in a more detailed manner.

**COMCEC Project Funding:** Under the COMCEC Project Funding, the COMCEC Coordination Office calls for projects each year. With the COMCEC Project Funding, the member countries participating in the Working Groups can submit multilateral cooperation projects to be financed through grants by the COMCEC Coordination Office. For the above-mentioned policy areas, the member countries can utilize the COMCEC Project Funding and the COMCEC Coordination Office may finance the successful projects in this regard. These projects may include organization of seminars, training programs, study visits, exchange of experts, workshops and preparing of analytical studies, needs assessments and training materials/documents, etc.

## **Annex 4: List of Participants**

### **LIST OF PARTICIPANTS OF 7<sup>th</sup> MEETING OF THE COMCEC AGRICULTURE WORKING GROUP (MARCH 3<sup>rd</sup> 2016, ANKARA)**

#### **A. INVITED COUNTRIES**

##### **THE PEOPLE'S REPUBLIC OF BANGLADESH**

- Mr. SABUJ AHMED  
Third Secretary, Embassy of Bangladesh in Ankara

##### **BRUNEI DARUSSALAM**

- Ms. OSFINITA TAHIR  
Embassy of Brunei Darussalam in Ankara

##### **THE GABONESE REPUBLIC**

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##### **MALAYSIA**

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##### **THE ISLAMIC REPUBLIC OF MAURITANIA**

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#### **THE SULTANATE OF OMAN**

- Mr. ABDULLAH AL TOUQI  
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#### **THE STATE OF PALESTINE**

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#### **KINGDOM OF SAUDI ARABIA**

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#### **THE REPUBLIC OF SENEGAL**

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#### **THE REPUBLIC OF SUDAN**

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- Mr. MUHSİN TEMEL  
Deputy Director General, Ministry of Food, Agriculture and Livestock
- Dr. İSA ÖZKAN  
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- Mr. CEZMİ ÖZDEMİR  
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- Ms. SELDA ÇOŞKUN  
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- Mr. İZZET YILMAZ  
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- Ms. ÖZLEM YÜCE ALTUNTAŞ  
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#### **THE REPUBLIC OF UZBEKISTAN**

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#### **B. INVITED INSTITUTIONS**

#### **THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO)**

- Ms. JENNIFER SMOLAK  
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#### **ISLAMIC DEVELOPMENT BANK GROUP (IDB GROUP)**

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#### **STATISTICAL, ECONOMIC AND SOCIAL RESEARCH AND TRAINING CENTER FOR ISLAMIC COUNTRIES (SESRIC)**

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- Mr. MUSTAFA TEKİN  
Head of Department
- Mr. E. EMRAH HATUNOĞLU  
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- Mr. MEHMET FİDAN  
Expert
- Mr. MUSTAFA ADİL SAYAR  
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- Mr. GÖKTEN DAMAR  
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- Mr. AHMET OKUR  
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- Mr. OZAN LİF  
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- Mr. KEMAL ARSLAN  
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- Mr. ALİ VURAL  
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- Mr. ERCAN İBİK  
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- Mr. NAZIM GÜMÜŞ  
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