

Republic of the Sudan

Upgrading the Sudanese Sesame seeds value chain

STDF Project Grant Application Form



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION (UNIDO)

Project number:	160117
Project title:	Upgrading the Sudanese sesame seed value chain Market
Relationship to integrated programme:	Not applicable
Thematic area code:	Trade Capacity Building (TCB), DD13, Quality and compliance infrastructure
Estimated starting date:	TBD
Duration:	3 years
Project site:	Sesame-seed growing areas in Sudan; particularly North Kordofan and Al Qatariif states.
Government Coordinating agency:	Ministry of Agriculture and Forestry Ministry of Industry
Counterpart:	Ministry of Agriculture and Forestry – Quality Control and Export Development Unit (MOAF-QCEDU)
Executing agency/cooperating agency:	Ministry of Agriculture and Forestry (MOAF) Lead Agency – United Nations Industrial Development Organization (UNIDO) – Outcome 2 Cooperating Agency – Food and Agriculture Organization of the United Nations – Outcome 1 (implemented under Interagency Agreement between UNIDO and FAO)
Project Inputs:	
- Donor inputs:	USD 904,989
- Counterpart inputs:	In-kind contribution (worth USD = 376,200)

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Acronyms

ARC	Agricultural Research Corporation - Sudan
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GHP	Good Hygiene Practices
GMP	Good Manufacturing Practices
HACCP	Hazard Analysis Critical Control Point
IAEA	International Atomic Energy Agency
IFAD	International Fund for Agricultural Development
ISO	International Standards Organization
MOAF	Ministry of Agriculture and Forestry
MoH	Federal Ministry of Health
MOI	Ministry of Industry
MSP	Multi-stakeholder Partnerships
NPC	National Project Coordinator
NQIS	National Quality Infrastructure System
PPD	Plant Protection Directorate
PPP	Public-Private Partnership
PSC	Project Steering Committee
QCEDU	Quality Control & Export Development Unit
RBM	Result Based Monitoring
SNAIP	Sudan National Agriculture Investment Plan
SPS	Sanitary and Phytosanitary
SSMO	Sudanese Standard and Metrology Organization
STDF	Standards and Trade Development Facility
SDNAIP	The Sudan National Agriculture Investment Plan
TBT	Technical Barriers to Trade
ToT	Training of Trainers
UNIDO	United Nations Industrial Development Organization
WTO	World Trade Organization

1. PROJECT BRIEF

Title	Upgrading the Sudanese Sesame-seed Value Chain to Meet SPS Measures and Facilitate Access to International Market
Beneficiary Country	Republic of the Sudan
Category of Project	Tier 2 – Technical Assistance and Capacity Building
Objective	Increase export revenues through compliance with food safety and SPS measures along the sesame-seed sector value chain in Sudan.
Brief Description of the Project	<p>This project aims to increase export revenues of sesame-seed in Sudan by improving the quality of sesame-seed, increasing capacity to comply with food safety and phytosanitary requirements, and enhancing market access to value-added markets. The project encompasses a series of interventions, based on a value chain approach, involving stakeholders from sesame-seed farmers, post-harvest handlers, facility owners, exporters, cooperatives and sesame-seed producer/exporter associations, etc. Stakeholders in the sesame-seed value chain including small farmers (of which many are women) will play a key role in the implementation of activities. The project will engage public and private partnership for promoting sesame-seed exports to value added markets. Local government departments take responsibility in extension and training, and related Ministries are responsible for demonstrating compliance with the SPS requirements for trading partners.</p> <p>Ensuring compliance with SPS measures necessitates effective testing, certification and inspection procedures aimed at providing acceptable evidence, recognized at the international level that products, services, processes, conform to quality requirements. Therefore, this project will assess the current testing, inspection and certification capacities and identify gaps with regard to what the country will need so as to define a strategy and action plan for filling the gaps.</p>
Project Duration	3 years
Project Start Date	TBD
Project Budget	STDF contribution: USD 904,989 In-kind estimated contributions by the country (41.6=): USD 376,200
Requesting Organization	Sudanese Ministry of Agriculture and Forestry (MOAF) United Nations Industrial Development Organization (UNIDO)

<p>Partnering Organization and the Focal Point Person of Republic of the Sudan</p>	<p>Focal Person for the project: Ministry of Agriculture and Forestry Quality Control and Export Development Administration Manager Mrs. Samia Gaafar Mohamed Bitik samiabitik@yahoo.com moafsqu@yahoo.com</p> <p>Partnerships and contact information: Ministry of Industry International Cooperation Director Ms. Lymia El Nour limyaelnour@hotmail.com Sudanese Standards & Metrology Organization – SSMO Director General Dr. Awad Mohamed AhmedSokrab awadsokrab@hotmail.com</p> <p>Agriculture Research Corporation Dr. El Gilani Adam Abdallah Director, El Obeid Station elgilani_ers@hotmail.com</p>
<p>Proposed implementing agency</p>	<p>Lead Agency: United Nations Industrial Development Organization (UNIDO) Sub-contractor: Food and Agriculture Organization of the United Nations (FAO)</p>
<p>Full name and contact address of contract person for follow-up</p>	<p>Dr. Toshiyuki Miyake Industrial Development Officer. Standards and Trade Facilitation Division Department of Trade, Investment and Innovation Email: t.miyake@unido.org Phone: +43-1-26026-3735</p>

Approved by and Date;

(STDF)

(UNIDO)

(FAO)

(Ministry of Agriculture and Forestry)

(Ministry of Industry)

2. BACKGROUND AND RATIONALE

2.1 General Context

Republic of the Sudan (hereafter, Sudan) is located in northern Africa, with coastline bordering the Red Sea. It shares border with Chad and the Central African Republic on the west, Egypt and Libya on the North, Ethiopia and Eritrea on the east, and South Sudan, Kenya, Uganda, and Democratic Republic of the Congo on the south. Sudan is one of the least developed countries of the world, with GNI per capita of \$1,710 and poverty rate of 46.5%. The country has been beset by conflict for most of its independent history and, under terms of the 2005 Comprehensive Peace Agreement, the Southern states seceded from the Republic of South Sudan in July 2011. The secession of South Sudan induced multiple economic shocks. The most important and immediate was the loss of the oil revenue which accounted for over half of government revenues and 95% of exports. This has left huge macro-economic and fiscal challenges, much reduced economic growth, and double-digit consumer price inflation that, together with increased fuel prices, triggered violent protests in September 2013. Reinforcing competitiveness in the export of non-oil products and opening new exports markets is the country's urgent task for expanding its export base and encouraging further foreign direct investment for economic growth.

Away from oil, agriculture and livestock are essential to Sudan's economy diversification, and remained as the main source of income and employment in Sudan, hiring 80% of Sudanese and making up a third of the economic sector. The sector presently contributes approximately 29.2% of GDP, however it plays a significant role in greater investment and better governance. Sudan now recognizes the need of greater attention to agriculture and livestock, as reflected in its Interim Poverty Reduction Strategy Paper (I-PRSP) and the Five-year Program for Economic Reforms approved by its parliament in December 2014.

One of the most important problems encountered in marketing of agro-food products for Sudan is the problem of quality control to follow the set of rules and regulations specified by the importing markets. Trade in agricultural products faces significant problems satisfying stricter SPS requirements in trade and competitiveness in export markets. In particular, contamination of aflatoxin and pesticide residue is causing economic loss to farmers and merchants, and ultimately national loss through export reduction.

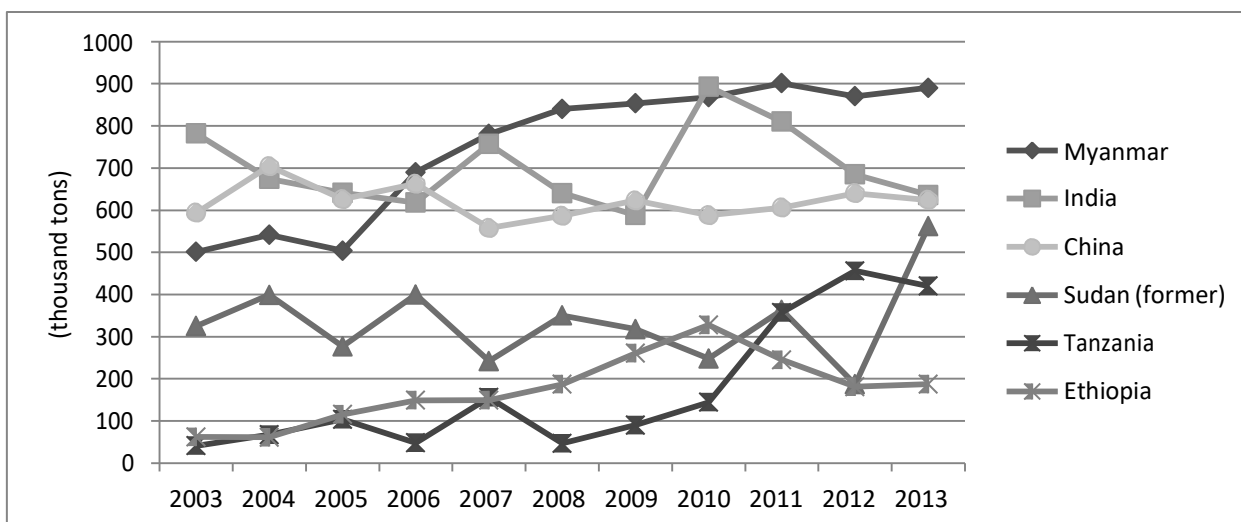
This project focuses on SPS measures of sesame-seed value-chain, which is one of the most exported agricultural commodities of Sudan, and aims to comply with the SPS requirements of the importing country along the value chain. The project is expected to benefit the country by increasing its export revenue of sesame-seed through exploiting the market access opportunities in particular with value-added markets by complying with food safety and health regulations or standards in the importing markets. Ensuring compliance with SPS measures necessitates *inter alia* an effective SPS control system aimed at defining minimum safety requirements and providing acceptable evidence, recognized at the international level that products, services, processes, comply with such quality requirements. Therefore, this project will assess the current system and identify gaps with regard to what the country will need in terms of testing, inspection and certification capacities and a strategy and action plan for filling the gaps will be formulated.

2.2 Sesame-seed Industry of the World

Sesame, or *sesamum*, is native to savanna area in sub-Saharan Africa and considered to be originated in Eastern part of Sudan. Sesame-seed is an erect annual plant, growing up to one meter. It is suitable for light (sandy), medium (loamy) and heavy (clay) soils and prefers well-drained soil. It is sensitive to salt, but tolerant to drought-like conditions making it an adapted plant for rain-fed cultivation in Central and Eastern Sudan (rainfall between 300 and 1,000 mm). Sesame-seed occur in many colors depending in cultivation areas. The most traded variety of sesame-seed is off-white colored, and other common colors are buff, tan, gold, brown, red, gray, and black.

In 2014, world production of sesame-seed was 5.5 million tons, led by Myanmar, India, and China. The production amount was 890 thousand tons in Myanmar, 636 thousand tons in India, and 624 thousand tons in China. The total world sesame-seed production has increased for over 66% in the last decade; from 2006 to 2014, the production increased from 3.6 million to 5.5 million tons.

Figure 1 World's Sesame-seed Production per Year (2003-2013)



Source: FAOSTAT

In terms of area of cultivation, Sudan has the largest sesame-seed harvest area of the world, with 2.53 million ha in 2014, followed by India harvesting 1.86 million ha, Myanmar 1.14 million ha, and Tanzania 6.52 million ha. However, Sudan is the fourth largest in terms of total volume of production whilst Tanzania is the fifth. This figure shows that production yield per ha in African countries such as Sudan and Tanzania is not as effective in terms of production yield per ha as in Asian countries such as China and Myanmar. China, Japan, and EU are the major sesame-seed consumers of the world. China is the third largest sesame-seed producer of the world and at the same time the largest importer. In 2012, China imported 434 thousand tons of sesame-seed while producing 624 thousand tons locally. In the same year, Japan imported 158 thousand tons, while EU imported 132 thousand tons.

Importers of quality sesame-seed pay different import prices per ton, according to COMTRADE. The average import price of sesame-seed for the United States is US\$1.9 thousand per ton, followed by EU for US\$1.75 thousand per ton, and Korea for US\$1.71 thousand per ton. China imports at a lower

price, with the average price being of \$1.30 thousand per ton.

Table 1: Average import price of sesame-seed (US\$/ton)

Country	Total Import (thousand US\$)	Import amount (tons)	Average price (thousand US\$/ton)
USA	66,797	35,228	1.90
EU	230,727	132,023	1.75
Korea	125,753	73,401	1.71
Viet Nam	97,395	61,936	1.57
Japan	240,681	158,820	1.52
Israel	71,552	48,003	1.49
Turkey	159,933	115,583	1.38
Saudi Arabia	56,307	42,171	1.34
China	563,432	434,568	1.30

Source: COMTRADE

2.3 Sesame-seed Production in Sudan

In Sudan, sesame-seed cultivation accounts for the most significant portion of agricultural activity and major cash crop today. In Sudan, 45.8% of the total land is for agriculture, and of which approximately 2.53 million hectares of land were sown with sesame-seed respectively in 2014. The majority of the sesame-seed production site is located in south-east of Sudan where it borders with South Sudan and Ethiopia. Kordofan State is the largest production site with 1,050 ha of land growing sesame-seed, or over 52% of the total sesame-seed production. Kassala State follows with area of 231ha.

Sesame-seed production in Sudan is categorized into two types of farming; semi-mechanized rainfed farming and traditional rainfed farming. Semi-mechanized rainfed farming is practiced by large farmers and companies with large investment from the federal government or commercial banks. Access to land from privileged investment allows horizontal expansion, and enables large scale farming. Semi-mechanized rainfed farming including sesame and other commodities covers 5.9 million ha of farming in Sudan, and 62% of sesame-seed produced in the country is by semi-mechanized rainfed farming. On the contrary, traditional rainfed farming is practiced by family households farming for income and subsistence. Traditional rainfed farming of sesame and other commodities covers about 7.56 million ha of Sudanese land, and 38% of the country's sesame-seed production is by traditional rainfed farmers.

Sudan is the fourth largest sesame-seed producer after Myanmar, India and China. In 2013, the country produced 562 thousand tons of sesame-seed, which amounts approximately 10.3% of the world total production. The majority of sesame-seed production in Sudan is by small subsistence farming and small agricultural farmers that depend on rain-fed cultivation, and there is no complementation with irrigation. Therefore production is unstable over the years where 562 thousand tons were produced in 2013 while only 187 thousand tons in 2012.

2.4 Sesame-seed Export in Sudan

According to Central Bank of Sudan, out of 562 thousand tons of sesame-seed produced in Sudan in 2013, about 239 thousand tons were exported to the world. The major importers of the Sudanese sesame-seed are China (22% of the total export), Saudi Arabia (15.8%), Egypt (15.7%), Syria (11.9%), Lebanon (6.9%), and Jordan (4%).

According to UNComtrade data, Sudan exported 206 thousand tons of sesame-seeds out of 562 thousand tons production in 2013. The major importers of the Sudanese sesame-seed are China, Saudi Arabia, India, Lebanon, and the EU.

Table 2: Net weight, value and share of Sudan Sesame-seed export (2013)

Country	Net weight (tons)	Value (thousand US\$)	Percent share of Sudan sesame-seed export (%)
China	67,846	114,455	32.9
Saudi Arabia	31,802	56,239	15.4
India	24,875	38,354	12.1
Lebanon	18,696	34,985	9.1
EU	16,005	28,547	7.8
Korea	4,097	7,967	2.0
Japan	775	1,350	0.4
Export TOTAL	206,244	354,676	100.0

Source: COMTRADE

Table 3: World Top Sesame-seed Importer and % Share of Sudan (2013)

Country	Sesame-seed Import Ranking	World share	Total import amount (thousand tons)	Import amount from Sudan (thousand tons)	Percent share of Sudan sesame-seed
China	1	31.3%	434.6	35.9	8.3%
Japan	2	11.4%	158.8	0.9	0.6%
EU	3	9.5%	132.0	9.2	7.0%
Turkey	4	8.3%	115.6	2.6	2.2%
Korea	5	5.3%	73.4	0.0	0.0%
Viet Nam	6	4.5%	61.9	1.0	1.6%
Israel	7	3.5%	48.0	0.0	0.0%
World	-	-	1390.3	175.5	12.6%

Source: COMTRADE

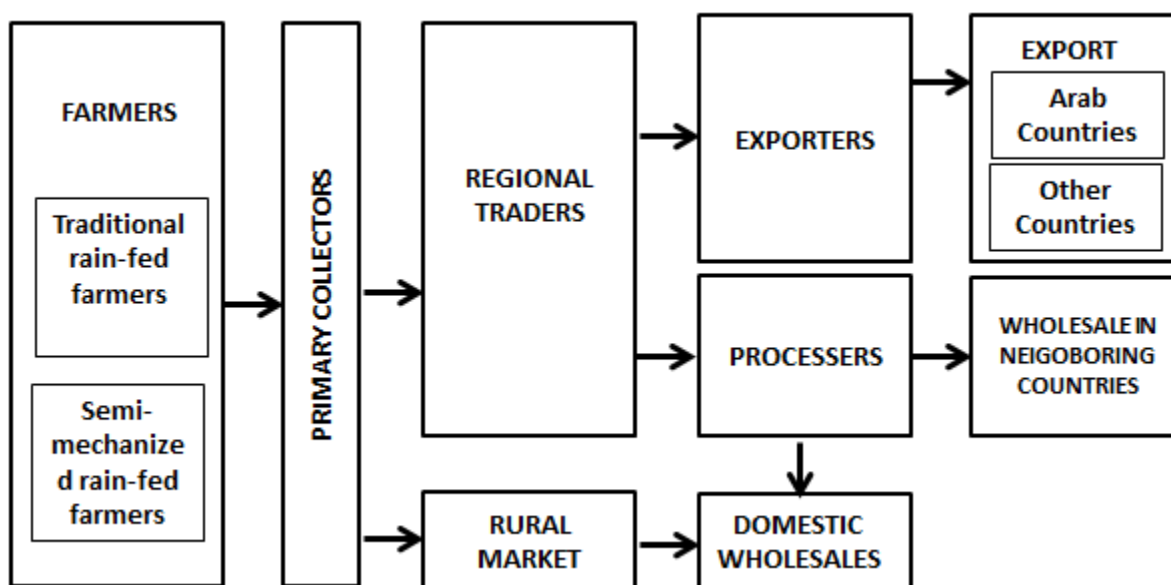
The key issue of Sudan sesame-seed export is that the country is having difficulty of exporting to value-added markets. The country hardly exports to any of the value-added market, listed above in the Table 2. In addition, the country fails to export to world major sesame-seed markets besides

China. In particular, Japan and Korea, which have large amount of import and at the same time imports in high-price, are the two countries where Sudan struggles to export sesame-seed. This large economic opportunity loss is due to non-fulfillment of the exact specified regulations on SPS measures of value-added markets, in particular with contamination of aflatoxin and pesticides residues, as further explained in the next chapter.

2.5 Sesame-seed Value Chain and Actors in Sudan

Figure 2 presents a schematic picture of the sesame-seed value chain in Sudan. The sesame-seed value chain is composed of various actors including sesame-seed farmers, traders at different administrative levels (district, regional and national levels), transporters, small-scale and large-scale processors and exporters. Other institutions that have a bearing on sesame-seed marketing include: the Ministry of Agriculture and Forestry (MOAF), the Ministry of Industry (MOI), Agriculture Research Corporation (ARC), and Sudanese Standards & Metrology Organization (SSMO), and industry stakeholder associations, and International Organizations and NGOs working to improve livelihood of Sudanese farmers.

Figure 2: Sesame-seed Value Chain Mapping in Sudan



Farmers: Sesame-seed is produced by semi-mechanized rainfed farmers and traditional rainfed farmers depending on the regions. Inputs at this stage include land, water, seeds, labor, farm equipment, fertilizers and pesticides. Most of traditional rainfed farmers use animal draught for land preparation, broadcasting for planting and manual weeding, harvesting, drying and threshing, while some semi-mechanized rainfed farmers use simple mechanics in each process. Sesame-seed farming is relatively low-resource use with limited mechanization. Planting and growing techniques are traditional, and there is only partial adoption of new better performing varieties. Horizontal linkages of farmers are limited - farmer cooperatives or associations have limited functions if not non-existent in many regions in Sudan such that dissemination of market information and promoting non-organic fertilizer and chemical pesticides could be a challenge.

Primary Collectors: The collection process involves a variety of participants, first of which are the primary village collectors. These collectors accumulate sesame-seed directly from farmers and they are normally paid in cash. The primary collectors sell to processors, exporters, regional traders, or sell directly in local markets for domestic consumption.

Regional Traders: After sesame-seed is collected from farmers, it is transported to regional markets located in the center of each State. A significant proportion of the crop is auctioned in several auction centers. Purchases are made by commodity traders with well-established businesses and the capacity to handle large volume of sesame-seed. They handle not only sesame-seed but other grains and legumes produced in the area. Normally facilitators receive investment from commercial banks or local government in storage and transport facilities. They also have adequate access to formal credit.

Exporters and Processors: Most exporters and processors are found in port cities such as Khartoum and Port Sudan. In these cities, exporters screen, clean and bag sesame-seed into 50kg bags. The bagged sesame-seed is then packed into 20 and 40 metric ton containers which are transported to the shipping lines for onward shipment to the export destinations. Majority of exported sesame-seed is in raw material form. Domestic processors handle limited quantities of sesame-seed that they process into oil and snacks to distribute in retail shops and supermarkets, or export to neighboring countries. There is very little export of processed sesame seed.

2.6 Governmental Bodies and responsibilities for safety and quality of agricultural products:

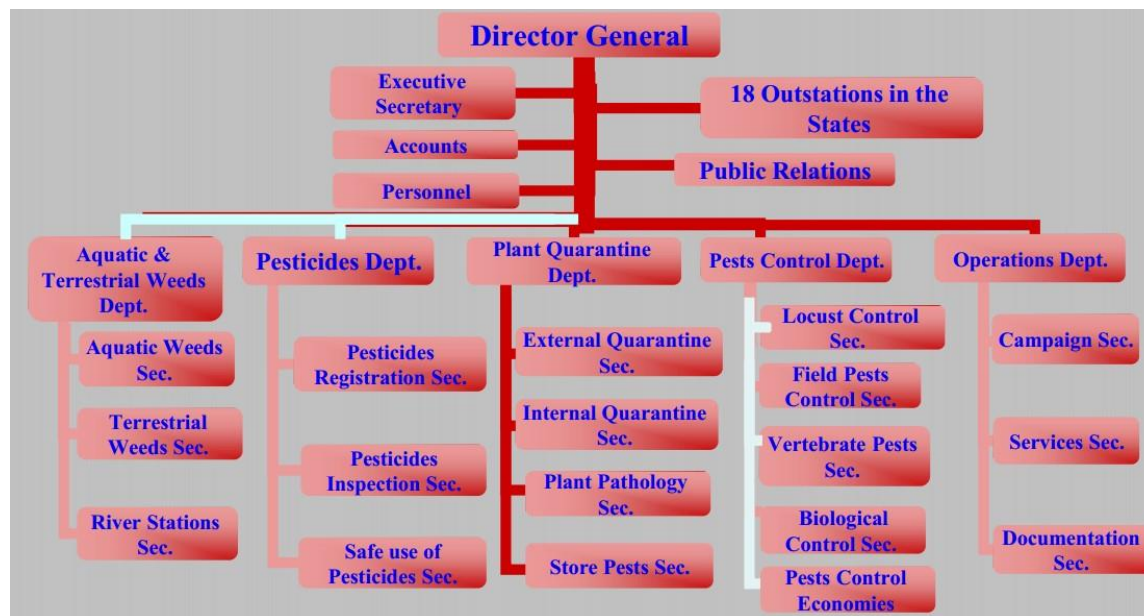
Plant health conditions

The Ministry of Agriculture and Forestry is in charge of agricultural policies, including implementation of Sudan Agricultural Investment Plan (SDNAIP), and performs important SPS functions.

Responsibility for plant health and pesticide management in the Sudan rests with the Plant Protection Directorate (PPD) within the Ministry of Agriculture and Forestry. Its organization structure (see Figure 3) provides for a Pesticides Department (with a Pesticides Inspection Section) as well as 18 outstations in the States. It provides import licenses for active compounds and controls the use of pesticides. However, effectiveness of the control system is limited by lack of equipment, training and applicable legal framework in distribution and use. The PPD is recognized by the IPPC as the National Plant Protection Organization for Sudan, and is authorized to issue the phytosanitary certificates attesting to plant health conditions of exported plant products.

Research on agricultural products in Sudan is carried out by the Agricultural Research Corporation Sudan (ARC) under the Ministry of Agriculture and Forestry where its mission is to plan and implement research for sustainable production system in Sudan.

Figure 3: Plant Protection Directorate



Source: Mohamed Ahmed Abdelmoti, Report on Plant Protection in Sudan, Strengthening Regional Cooperation and Knowledge Sharing in Plant Protection between the Near East Countries, 2-4 Dec. 2012, Cairo, Egypt

Food safety conditions

As in many countries, several institutions in different ministries are engaged in implementing regulatory controls for food safety¹.

The PPD under the Ministry of Agriculture and Forestry undertakes some monitoring of food safety of products of plant origin. These include setting Maximum Residue Levels (MRLs), pesticide residue monitoring and aflatoxins. However, these issues are not addressed within the phytosanitary certification. Also within the Ministry, the Quality Control and Export Development Unit (QCEDU) of the Ministry of Agriculture and Forestry is responsible for coordinating the quality control of exported agricultural products to support exporters and official control bodies in ensuring that exported products meet international standards of safety and quality.

The Federal Ministry of Health (MoH), Directorate of Environmental Health, employs Public Health Officers, including in regional branches of the Ministry. They operate under the Food Control Act 1973 which gives power to the Federal Authority to supervise food control activities. Each State also has its own Environmental Health Ordinance. However, the food safety legal framework is not fully in line with the WTO requirements for a risk based system. The MoH and State health authorities perform no specific functions in relation to agricultural products in the supply chain, however, it is authorized

¹ Source: Food Safety System In Sudan, prepared by Sirageldin Mustafa Mohamed AHMED Environmental Health and Food Safety Adviser, Federal Ministry of Health http://www.merid.org/~media/Files/Projects/Aflatoxin%20microsite/Comesa%20Workshop/Sudan_Food%20Safety%20System.pdf

to regulate food safety of exports and imports. The Public Health Laboratory can undertake some food safety tests in relation to pathogens, mycotoxins, heavy metals, pesticides and veterinary drugs residues.

The Sudanese Standards and Metrology Organization (SSMO) under the Ministry of the Council of Ministers, was established in the year 1992 and issues standards including for food. The organization has issued more than 1,000 food standards following CODEX and ISO recommendations, including code of practices, guidelines, sanitary requirements and measures of food establishments and transportation vehicles. According to the Specifications Act of 2008, the SSMO standards are considered to be mandatory in relation to imports and exports, and are enforced by the SSMO, which grants export certificates in relation to exported consignments of sesame and other commodities. To support this service the SSMO operates laboratories in Khartoum and Port Sudan.

2.7 Existing Laws and Regulations Related to Sesame-seed Production and Exports in Sudan

The Ministry of Agriculture and Forestry (MOAF) is the main actor who plays a vital role in controlling agricultural products by building producers' awareness and enforcement of its different Acts and regulations on agricultural products, including the sesame-seed, such as:

- Federal Pesticides and Pest Control Product Act 1994 (Amendment has been done and is under the process in the Ministry of Justice for adoption)
- Federal Agricultural Fertilizers Act 2010
- Federal Seeds and Species Protection Act 2010

On the technical side, Sudanese standards are prepared by technical committees of SSMO, which include members from various stakeholders such as industries, business, research centers, universities, ministries, labor associations, consumer protection associations and exports to guarantee a wide range of consultation. The organization issued more than 1,000 food safety standards following the CODEX and ISO recommendations. SSMO is given authority to inspect all food commodities produced locally, as well as imported and exported. Some of the technical standards issued by SSMO on food standards that relate to the sesame-seed production and exports include:

- Maximum levels of mycotoxins in sesame-seed (SDS2928:2005)
- Sesame (SDS116:2009)
- Sesame Oil (SDS0047:2009)
- Information on package or label of the food commodities (SDS28890:2007)
- Pesticide residue in food – 1.1 Primary food commodities of plant origin (SDS3287-3289:2005)

In particular, a national standard was explicitly developed for sesame-seed (SDS116:2015) that covers packaging, labeling, shelving, transport, storage, and sampling. Along with other food safety standards that relates to the sector, these national standards should be assessed to quality and compliance with international standards.

3. RELEVANCE FOR THE STDF

3.1 Sudan's candidacy for WTO membership

Sudan is currently in the process of negotiating its accession to the WTO. Given the secession of South Sudan induced large loss of the oil export revenue which used to account over 95% of the export, the country is in urgent need of revitalizing the economy by enhancing and strengthening non-oil export sector. The membership in the WTO will provide Sudan a more favorable environment for its export and expand market access of the world. Agriculture and agricultural trade is the most important for Sudan's economy, and the agricultural sector is expected to benefit from trade and foreign investment from WTO accession.

As a candidate for WTO membership, Sudan must bring the regulations and standards to impose on compliance with WTO SPS and TBT Agreements. The Sudanese government needs to prepare to undertake reforms on laws and regulations to comply with the international standards. SSMO, along with MOAF, have been gradually developing standards for major agricultural commodities; on the other hand implementation of those standards still remains as an issue.

Sesame-seed is the most important exported agricultural product of Sudan, with exports valued at 233 million USD or 8% of the total export from Sudan. However, the export destination is limited to other Arabic countries (Saudi Arabia, Egypt, Syria, Lebanon, Jordan) and China. Exporters have difficulty penetrating value added markets such as EU, Japan, and Korea due to low quality, and inability to prove compliance with SPS measures.

3.2 Quality requirements for international trade in sesame seed and its products

3.2.1 Overview

There are a number of ways in which SPS and TBT standards can impact on the acceptability for international trade for sesame seeds and its products. Specific food safety issues are a particular problem, and poor handling and storage conditions can give rise to the presence of aflatoxins and pathogenic bacteria (sesame seed is sometimes eaten without further heat processing and in some cases should be considered to be a ready to eat food). Although these hazards are not specifically addressed by Codex Alimentarius standards which cover sesame seeds, in several jurisdictions, and especially in developed country markets, these food safety hazards are subject to regulatory controls.

As with all food crops, sesame may be affected by plant diseases and pests, and farmers may protect their plants with agricultural chemicals. Care is required to ensure that if the sesame seed and its products are to be exported to other markets, the plant protection regime delivers compliant products (i.e. no use of banned substances, and residues of permitted substances within the required limits).

Additional requirements may apply to oils processed from sesame, where a Codex Alimentarius standard does apply, and sets out a wide range of compositional requirements, some of which relate to safety issues such as heavy metal limits; others concern commercial quality standards such as fat oxidation and densities.

Some of the regulatory requirements applied by the authorities of importing countries are considered in more detail below. However, it should also be considered that as well as formal compliance with regulatory standards, exported products should also comply with commercial requirements. This can be in the form of a simple specification (in which case operators are often concerned with purity (5 of foreign seeds)), consistency of colour, and moisture content. If the seeds are to be used for oil extraction, then specific quality parameters for the oil may also be specified. Other aspects of commercial quality may relate to the conditions of production. A common requirement is for importers in higher value markets to require production of crops under GlobalGAP standards. There is also a market for sesame seeds grown and handled in accordance with standards for organic production. Producers and importers are free to agree on the specific conditions to be applied to any contract, including where appropriate certification to relevant standards such as these.

Food traceability is another issue. According to Codex Alimentarius Commission, the traceability is defined as “the ability to follow the movement of a food through specified stage(s) of production, processing and distribution. As the traceability is crucial to quickly respond to food crisis or to prevent or minimize the risk of consumer exposures to the affected products, many developed countries have implemented legal requirements for traceability. A comparative study among 28 OECD countries made on food traceability regulations showed that the EU countries ranked as most “Progressive” on traceability for both domestic and import products, while others like Canada and US are ranked as “Moderate”, and China as “Regressive”, Japan was ranked as “Moderate” for domestic and “Progressive” for import products. (Korea was absent in this study.) Although China is ranked as “Regressive”, it has been accelerating its requirements in the past decade and is coming into alignment with international practices. Increasing the export to world market requires establishing or implementing the traceability of each stage throughout the value chain, based on record keeping at minimum.

3.2.2 Aflatoxins

Sesame seeds are frequently contaminated during storage by high levels of aflatoxins (B1, B2, G1, G2), which are toxic secondary metabolites produced by the fungi *Aspergillus flavus* and *A. parasiticus*. The fungus develops when many kinds of seeds and nuts are kept under warm moist conditions, such as those typically encountered during the rainy season in Sudan. In addition, the low level of technological organization along the supply chain and inappropriate product handling promotes conditions for the growth. The issue is of major concern for public health in national and export markets because of the carcinogenic and genotoxic effects of aflatoxins in human beings.

Many authorities have therefore established regulatory limits. Most sesame seed exports from Sudan are destined for Middle East and Chinese markets. Although these markets set limits (e.g. Egyptian Standard UDC 615.91 Maximum Limits for Mycotoxin In Foods Part I: Aflatoxin) these standards may not always be effectively applied.

However, Sudan is now considering entering the European Union (EU) market and other high value markets such as Japan, where food safety standards for import are stricter, and rigorously applied, as are the quality standards applied by commercial operators.

The European Union has established maximum levels of 4 µg/kg for total aflatoxins and 2 µg/kg for aflatoxin B1 in seeds, nuts and derived products for direct human consumption or as an ingredient in

food products, and 15 µg/kg for total aflatoxins and 8 µg/kg for aflatoxin B1 in nuts subject to sorting or other physical treatment before their human consumption or use as ingredient (see Table 4).

In Japan, the limit is expressed in the Specifications and Standards for Foods, Food Additives, etc. Under the Food Sanitation Act². The limit is set at 10ppb (sum of B1, B2, G1 and G2) with no distinction based on usage.

Codex has not set a standard for aflatoxins in sesame seeds (only in groundnuts).

Table 4: EU Limits for aflatoxins in named oilseeds.

	Aflatoxins	B1 ppb	Sum of B1, B2, G1 and G2 ppb
2.1.1.	Groundnuts (peanuts) and other oilseeds to be subjected to sorting, or other physical treatment, before human consumption or use as an ingredient in foodstuffs, with the exception of: — groundnuts (peanuts) and other oilseeds for crushing for refined vegetable oil production	8,0	15,0
2.1.5.	Groundnuts (peanuts) and other oilseeds and processed products thereof, intended for direct human consumption or use as an ingredient in foodstuffs, with the exception of: — crude vegetable oils destined for refining — refined vegetable oils	2,0	4,0

Source: COMMISSION REGULATION (EC) No 1881/2006 of 19 December 2006 setting maximum levels for certain contaminants in foodstuffs (as amended)

As Sudan prepares to enter higher value markets for sesame, aflatoxin control represents a major impediment to exports. The need for strengthening the export quality control system for this hazard in sesame is therefore a *sine qua non*.

3.2.3 Microbiological contamination

Sesame seeds are dried in the field before threshing packing into sacks, often in the same location. Poor sanitation and hygiene during this process can result in contamination from human and animal feces. Furthermore, an important value added product for international trade is hulled sesame seeds. The seeds are frequently hulled following softening in warm water, which unless there is an adequate control (chlorination, temperature above 60°C), can also be a source of contamination between

² See: Japan External Trade Organization
https://www.jetro.go.jp/ext_images/en/reports/regulations/pdf/foodext2010e.pdf

batches³. Hulled sesame seeds may be consumed raw (for example sprinkled onto foods) and, unless specifically labelled to the contrary, are therefore considered to be a ready to eat food. Hulled seeds should therefore also meet microbiological specifications for the presence of pathogens. Good hygienic practices should be in place (for example hulled and natural sesame seeds should therefore not be allowed to be in contact with each other). EU requirements for salmonella and *E.coli* in ready to eat seeds and pre-cut vegetables (which are applicable to ready to eat foods) are set out in Table 5.

Table 5: Microbiological specifications applicable to sesame seeds.

Food category	Micro-organisms/their toxins, metabolites	Sampling plan		Limits		Analytical reference method	Stage where the criterion applies
		n	c	m	M		
1.18 Sprouted seeds (ready-to-eat)	Salmonella	5	0	Absence in 25 g		EN/ISO 6579	Products placed on the market during their shelf-life
2.5.1 Precut fruit and vegetables (ready-to-eat)	E. coli	5	2	100 cfu/g	1 000 cfu/g	ISO 16649-1 or 2	Manufacturing process

Source: Commission Regulation (EC) No 2073/2005 of 15 November 2005 on microbiological criteria for foodstuffs

3.2.4 Phytosanitary and pesticides controls

Pesticide use during production

Concerns have been expressed regarding the pesticide content of sesame seeds entering international trade. The main concern is from the use of banned substances. In terms of high value international markets for sesame, the Pesticide Action Network International (<http://pan-international.org/>) indicates that Japan bans a total of 18 pesticides. The EU has banned 48 and listed a further 169 pesticides which are not currently permitted. Many of these are not banned but not approved either. These may be used, providing that there is an appropriate risk assessment undertaken to justify the use and set a Maximum Residue Limit (MRLs) for the crop. The MRLs for permitted pesticides in Japan applicable to sesame seeds are published by the Japan Food Chemical Research Foundation.⁴

The Sudanese regime of permitted pesticides is not harmonized with these requirements (it has not reported a list of banned substances) and there is a risk that substances may be applied in Sudan which are not permitted in these higher value export markets. For example, the EU has banned endosulfans and carbaryl. However, they are still permitted (or at least used) in Sudan. According to different sources, the maximum amount of pesticide residues allowed, including carbaryl, is 0.01ppm for Japanese market⁵, whereas it is 0.05mg/kg for EU market⁶ and 0.008mg/kg for Chinese⁷ market. This lack of

³ Final Report of an Audit Carried Out In India From 09 December 2014 To 17 December 2014 In Order To Assess The Control Systems In Place To Control Microbiological Contamination In Seeds For Human Consumption Intended For Export To The European Union. European Commission, Directorate-General For Health And Food Safety, Directorate F - Food and Veterinary Office, DG(SANTE) 2014-7170 - MR

⁴ see: http://www.m5.ws001.squarestart.ne.jp/foundation/fooddtl.php?f_ing=12100

⁵ Food Sanitation Act, Ministry of Health, Labour and Welfare of Japan

⁶ Regulation (EC) NO 396/2005

harmonization of controls governing the use of agro-chemicals illustrates the compliance challenge for Sudanese farmers in accessing higher value markets.

Table 6: Comparison of maximum Level of aflatoxin and carbaryl in Sesame-seed in various countries

Country	Aflatoxins ⁸	Carbaryl
China	10 µg/kg	0.008mg/kg (=8ppm)
EU	4~10 µg /kg	0.05mg/kg (=50ppm)
Japan	10 µg/kg	0.01ppm
Korea	15 µg/kg	

It should be noted that it is not the intention to develop an export certification system based on pesticide analysis (since it is doubtful whether this would be cost effective). There is however a need to develop a restricted and export market compliant list of authorized pesticides for use in the sesame sector, set MRLs in line with requirements of target markets and ensure that there is an appropriate sampling and monitoring system in place. Controls on distribution and usage of pesticides via agrochemical wholesale and retail operators also need to be strengthened. Also required is a monitoring system to identify where and when non-authorized pesticides are being used, and to correct the practices, and to ensure that the MRLs are in compliance with the market requirements.

Post-harvest controls

In all cases, in line with the requirements of the International Plant Protection Convention (IPPC) all export markets require the exporting NPPO to issue a certificate of plant health. This certifies that the consignment is free from infectious diseases and pests.

The fumigation of sacks of threshed sesame seed is a standard practice in some regions, and in others it is undertaken only where there is evidence of insect pests, or as a condition of trade (with the issue of a fumigation certificate by the National Plant Protection Organization). Typically, aluminum phosphide is used (sold under various brand names such as QuickPhos and Celphos) which releases phosphine gas (PH₃). This is a universally permitted treatment.

Residues do not remain in fumigated commodities in appreciable amounts since phosphine aerates rapidly from foodstuffs. An FAO/WHO joint meeting in 1967 considered the issue and concluded that there was no necessity to establish a figure for acceptable daily intake. For cereals in international trade, a tolerance of 0.1 mg/kg expressed as PH₃ was recommended, a level which would yield a much lower residue in bread or other food ready for consumption.

3.2.5 Commercial Quality parameters in sesame seed

⁷ National Food Safety Standard – Maximum Residue Limits for Pesticides in Foods, Chinese National Health and Family Planning Commission

⁸ Romer Labs, <https://www.romerlabs.com/en/knowledge-center/knowledge-center/articles/news/worldwide-mycotoxin-regulations/>

Sesame seeds are marketed either as natural (in pod) or hulled. Colours may be white, red or black. Commercial grading is typically based on an expression of purity (% of non-sesame within the batch), and with minimum specifications for moisture content (less than 4% or 6%) and FFA (as an indicator of oil rancidity (typically 1% maximum). Different grades are applied according to the values of the parameters, with the lowest graded parameter determining the overall grade.

Table 7 shows a typical quality commercial grading scheme, applied for the Japanese market. Note that these are very close to the standards set out in the Codex Standard described above.

Table 7: Japanese Specifications for Sesame Seeds for Oil Production

Measure	Specification
Normal condition	Good sesame flavor and nearly clear
Color	Characteristic sesame color
Moisture (water) and foreign material	Below 0.25% (refined below 0.1%)
Specific gravity (25 degree centigrade)	0.914-0.921
Refractive Index (25 degree centigrade)	1.471-1.474
Acid Value	Below 4.0 (refined below 0.2)
Saponification number	186-195
Iodine value	103-118
Unsaponifiable matter	Below 2.5% (refined below 2.0%)

Source: Market Intelligence Report: Alternative Markets for Nigerian Sesame Exports, October 2010; Nathan Associates Inc. on behalf of United States Agency for International Development.

3.2.6 Standards for sesame seed oil

A small but significant proportion of the Sudanese production is processed into oil. The Codex Standard for Named Vegetable Oils (Codex Standard No.210 - 1999⁹) may be applied where importing countries have not set specific standards. The Standard describes the official terms Edible vegetable oils, Virgin oils and Cold pressed oils. It also sets the limits for a wide range of parameters.

Generic limits for heavy metal contamination of edible oils are set at 0.1 mg/kg for both lead (Pb) and arsenic (As). Generic conditions for use of permitted antioxidants (and other additives such as anti-foaming agents) are also established. It also sets specifications for a range of chemical and physical characteristics in all named vegetable oils such as volatile matter, insoluble impurities, iron and copper content, acidity and peroxide values. In addition, specific compositional requirements are also set for specific oils. The Baudouin test (also known as the sesame oil test which detects the characteristic compounds of sesamin and epi-sesamin) should be positive. Sesame seed oil should also comply with the parameters set out in Table 6. Finally, the Codex standard describes the standard methods of analysis and sampling for the parameters specified.

⁹see: http://www.fao.org/fao-who-codexalimentarius/sh-proxy/zh/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252Fstandards%252FCODEX%2B210-1999%252FCXS_210e_2015.pdf

Table 8: Chemical and physical characteristics of crude sesame seed oil

Parameter	Sesame seed oil
Relative density (x^o C/water at 20°C)	0.915- 0.924 $x=20^o$ C
Refractive index (ND 40°C)	1.465- 1.469
Saponification value (mg KOH/g oil)	186-195
Iodine value	104-120
Unsaponifiable matter (g/kg)	≤20
Cholesterol	0.1-0.5
Brassicasterol	0.1-0.2
Campesterol	10.1-20.0
Stigmasterol	3.4-12.0
Beta-sitosterol	57.7-61.9
Delta-5-avenasterol	6.2-7.8
Delta-7-stigmastenol	0.5-7.6
Delta-7-avenasterol	1.2-5.6
Others	0.7-9.2
Total sterols (mg/kg)	4500-19000

An unknown proportion of the sesame production from Sudan is exported with the intention of processing into edible sesame oil. Where an international buyer is purchasing for such a purpose there will be an interest to ensure that the oil content of the seed meets these specifications.

As can be seen, developing the capacity to certify compliance to this standard would be a considerable challenge, requiring a significant investment in specialized laboratory testing, staff recruitment and training, equipment, and quality assurance systems.

3.3 Implications for export controls for sesame seed and its products from Sudan

Any country importing sesame seeds or sesame seed oil from Sudan may justifiably, within the terms of the WTO SPS Agreement, request certification from a relevant competent authority that the product complies with the relevant standard. This can either be a national regulation such as the case of aflatoxins limits set by the EU and Japan, or microbiological specifications set by the EU. Or in the case of sesame oils it could be the standard set by the Codex Alimentarius Commission. Furthermore, the importing country may also require guarantees that the crop was not treated with a pesticide which is banned in their jurisdiction or that where approved pesticides have been used, their presence is within established limits.

At present, the Competent Authorities in Sudan do not have in place a suitable control regime to ensure that only products compliant with these requirements are presented for export. Neither is the technical capacity in place to undertake the relevant confirmatory analyses. The Government of Sudan cannot therefore provide any such guarantee of compliance. As a result, the full export potential for this product is not being realized.

The development of export control systems (which include sampling, analysis, and ensuring traceability, to link the certification to the batch being exported) is hence indicated. This should be undertaken in steps with the short-term priority (addressed within the current project proposal) being to establish

effective controls, testing and certification of sesame seeds only. Future investments will further extend the system to apply to value added products such as sesame seed oil.

Thus, in the first place there is a need to develop a capacity to assess the basic SPS conditions for the export of sesame seeds. This is the subject of this proposal which aims to improve the capacity of farmers, processors, exporters, and government agencies to meet SPS measures, in particular relating to food safety and plant health. Diversity of organizations and individuals including involvement of multiple Ministries often raises the challenge of managing partnership and implementation of SPS projects. This programme clarifies the role of each institutional mandates and ensures all relevant stakeholders are committed to the objective of imposing SPS measures for enhancing sesame-seed export.

This project will seek to clarify and strengthen the role of each mandated institution involved in ensuring the quality and safety of exported sesame seed. It will help relevant stakeholders in the value chain to strengthen their quality management systems with a view to enhancing sesame-seed export. It will strengthen the compliance with SPS measures (in relation to food safety and plant health) by mandated state institutions, by helping to clarify their lawful roles, and strengthen the capacity of the control systems to prevent the export on non-compliant products. It will also support the strengthening of the relevant testing laboratories and inspection and certification services. Whilst the project will be concerned with the sesame sector (with specific GAPS, training, control systems and laboratory testing capacities developed in relation to this sector), the methodology, institutional framework and lessons learnt will be equally applicable to other important agricultural exports from the Sudan (such as millet and sorghum). The project will therefore help the Sudan to establish a sound foundation for agro-led economic development arising from the enhanced access to international markets to be gained by future WTO membership.

3.4 SPS challenges in Sudan's Sesame-seed value chain

There are several key areas of non-compliance with food safety standards that have been identified along the sesame-seed value chain, as follows:

Farmers

- Improper use of pesticides and fertilizers:
Farmers have limited knowledge about adverse effects of the pesticides they use, its proper use, and banned pesticides. According to analysis by ARC on pesticides used by sesame-seed farmers in the field, out of 10 total identified pesticides used at the farm, 5 types were not suitable.
- Lack of implementation of good agricultural practices (GAP):
Farmers lack knowledge of GAP, pest control, harvesting and post-harvesting practices which possibly lead to contamination at harvesting, drying, and transporting processes.

Primary Collectors / Regional Traders

- Lack of post-harvest practices:
Inappropriate handling and sorting during collection and storage cause contamination of product. Collectors and traders often re-use bags that once contained sesame-seed which used restricted fertilizers, resulting contamination of sesame-seed that are grown organic or with permitted pesticides.
- Improper storage:

Lack of knowledge on adequate pest-control among storage owners and shopkeepers is causing contamination of pests such as sesame-seed bug (*elasmolomus sordidus*), sesame-seed webworm (*antigastra catalaunalis*), green bug (*nezara viridula*) and rats (multiple species).

Exporters and Processors

- Contamination of mycotoxins and others:
Limited knowledge and inadequate equipment along the sector value chain (drying, collecting, storing) for harvesting, post-harvesting, transporting and storage leads products contaminated with mycotoxin-producing fungi (in particular aflatoxins), pests, and rodent infestations. There is limited or no vertical connection along the value chain to monitor the product safety making difficult to remove contaminated sesame seed – leading devaluation of entire products.

Governmental Level

- Weak enforcement of SPS
A regulatory framework on SPS measures including regulation on chemical fertilizers is not fully enforced along the sesame-seed sector value chain. A national standard on sesame-seed was newly developed by SSMO in 2015, but the implementation plan along the value chain is uncertain. In addition, SSMO issued a standard on maximum levels of mycotoxins in sesame-seed (SDS2928:2005), though enforcement is not coherent throughout the value-chain.
- Lack of an adequate laboratory for food safety and quality testing
Sudanese Standards & Metrology Organization (SSMO), a member of ISO, has taken over the full responsibility of issuing all commodity standards including sesame-seed. Existing laboratory support services in regulatory agencies include radiation, pathogens, mycotoxins, heavy metals, pesticides, and veterinary drug residues; however the equipment available is limited and outdated.
- Lack of traceability system
The sesame-seed value chain has no traceability system developed along the value-chain. For this reason, essential information such as production region, date of handling, batch number, and laboratory-testing data cannot be traced, increasing the risk of contamination.

3.5 Impacts of SPS Issues Related to Sudanese Sesame-seed Exports

Capacity to comply with SPS requirement of importing countries is weak throughout the sesame-seed value chain from production to export in Sudan. Majority of the production and trading of sesame-seed, no matter if it is traditional rainfed farming or semi-mechanized farming, have limited or no forward or backward linkages along the supply chain. Difficulties in meeting import countries' regulation on sesame-seed have led to reduce export earnings when substandard sesame-seed is sold at discounted prices. For example, Sudan would have gained additional 17% in export revenue of sesame-seed assuming all amount exported to China in 2013 (35.9 tons) were exported to countries that buy at higher prices such as Japan. Weak SPS measures, inadequate post-harvest preparations, lack of laboratory facilities and inadequate legislative control act against advancing the sesame-seed export. Building capacity to meet foreign countries' SPS measure, in particular with those of value added markets, is critical for increasing export revenues.

The major challenges for Sudan to export sesame-seed to value added market are to minimize risk of mycotoxins-producing fungi and pesticide residues. In particular, aflatoxins, salmonella, and use of restricted agricultural chemicals such as endosulfan and carbaryl are the major reasons why the

sesame-seeds are rejected at the border of import countries. Table 3 shows some of the case studies on the reasons sesame-seed were rejected at the border.

Table 9: Border Rejection of Sudanese Sesame-seed (2007-2015)

Year	Notifying Country	Reason for rejection	Total weight (tons)
2015	Poland	Rodent excrements (8, 20, 20, 20, 10 /kg)	n/a
2013	Cyprus	Salmonella (presence /25g)	38
2009	Japan	Carbaryl (0.09ppm detection)	n/a
2009	Japan	Carbaryl (0.02ppm detection)	n/a
2009	Germany	Aflatoxins (B1 = 11.3; Tot. = 11.3 µg/kg - ppb)	23
2007	Netherlands	Aflatoxins (B1 = 7.8; Tot. = 9.1 / B1 = 11.2; Tot. = 14.6 µg/kg - ppb)	36
2007	Netherlands	Aflatoxins (B1 = 20.6; Tot. = 23.6 µg/kg - ppb)	14

Source: RASFF Porta (EU), Ministry of Health, Labour and Welfare (Japan)

Frequent border rejection is not only economic loss for both importers and exporters, but also causes stricter monitoring at the border. For instance, in 2013 Japan announced rising inspection of Sudanese sesame-seed import from 5% to 30% of the total import. It is not given that enforcement of stricter inspections trigger economic loss but the fact remains that it discourages exporters, causing large opportunity loss for enterprises that are trying to export to value added markets. More serious economic damage is the decrease in the current and future demand resulting from the loss of consumer confidence in the importing country.

4. PROJECT RATIONALE

4.1 The Sudan Country Programming Framework (CPF)

Co-owned by FAO and the Government of Sudan, the CPF is a roadmap to support the country to overcome the challenges related to food security, rural poverty, sustainable management of natural resources and overall development of the country's agriculture sector. It presents the broad commitment of the Organization to assist the Federal and State Governments in their efforts to achieving their own national and state development objectives. These are specific to agriculture, food and nutrition security and natural resource management (NRM). The CPF also supplements and contributes to the United Nations Development Assistance Framework (2013-2016). The CPF identified four priority areas, namely:

- Priority Area 1: Capacity building and consolidation of policy, laws, planning and information institution, systems and mechanisms reforms and development in agriculture, forestry, fisheries of Sudan.
- Priority Area 2: Capacity building of agricultural research, technology and knowledge development and transfer for enhanced productivity, production and competitiveness institutions, systems and mechanisms in agriculture, forestry, fisheries of Sudan.
- Priority Area 3: Capacity building of natural resources development and conservation institutions, systems and mechanisms in agriculture, forestry and fisheries of Sudan.
- Priority Area 4: Capacity building of disaster risk management institutions, systems and

mechanisms in agriculture, forestry, and fisheries of Sudan.

4.2 The Sudan National Agriculture Investment Plan (SDNAIP) 2016-2020

The National Agriculture Investment Plan (NAIP) is a five-year investment plan for Sudan that maps the investments and activities needed to achieve 6% annual growth for the agricultural sector by 2020. The Plan's key objectives include: promotion of exports of crops and livestock, increase productivity and efficiency of Sudan's agricultural sector; industrialization, value chain development and exploitation of agricultural capacities; enhanced production and productivity and modernization of the agriculture systems; improve national food security and nutrition; reduce rural poverty by 50 percent by 2020 and generate job opportunities (especially for youth and women); encourage settlement in the rural areas to achieve balanced economic growth; and development and protection of natural resources to ensure its renewal and sustainability.

The proposed project well aligns with SDNAIP particularly in value chain development and exploitation of agricultural capacities, along with some other goals such as promotion of export of crops, and increase productivity and efficiency of agricultural sector.

4.3 Issues to be Solved and Approach

SPS Issues Related to Sudan Sesame-seed Production

A 2011 study of the agricultural marketing chain in the Sudan, supported by FAO¹⁰ indicated that for several crops, sesame included, some agronomic and institutional constraints needed to be resolved to make commodities competitive in the world market. The study suggested "establishing a marketing agency to help exporters in international marketing and export trade, which requires special type of skills, incentives, incubation and support. In conclusion, improving market communication and market information systems as well as reduction in transport costs, increase storage capacity, and improvement in handling means will improve the marketing margins, reduce transaction costs and hence leads to improved market efficiency." Some of the specific issues identified in the preparation of this proposal are set out below.

Weak quality management in the supply chain

Sesame is a traditional crop, with long established production practices. Whilst new higher yielding and better quality seed varieties are available, limited seed supply systems restrict their widespread adoption; many farmers continue to use traditional varieties and retained seeds, and have not adopted more efficient crop management methods such as in-line cultivation and sowing techniques (Shawgi et, al, 2012). Few producers of sesame apply good agricultural practices (GAPs) based on modern management principles, such as integrated pest management, responsible use of plant protection products, record keeping. There is a lack of modern pest risk assessments to underpin the conditions for the application of pesticides, consequently, the use of pesticides continues; according to an analysis by

¹⁰ Price And Market-Structure Analysis For Some Selected Agricultural Commodities In Sudan: Marketing Costs And Margins, Food Security Technical Secretariat / Ministry of Agriculture and Irrigation (FSTS), FAO- Sudan Integrated Food Security Information For Action (SIFSIA), May 2011

ARC on pesticides used by sesame-seed farmers in the field, 50% of farmers are using unsuitable pesticides. As a result, crops are often subject to pest attack (for example the sesame-seed bug (*Elasmolomus sordidus*), sesame-seed webworm (*Antigastra catalaunalis*), and green bug (*Nezara viridula*) cause substantial losses (both pre- and post-harvest).

Many localities have established local producer organizations and/or farmer or village cooperatives. However, these are not usually specifically linked to the sesame sector, nor are they focused on productivity and quality related issues. They are generally weak and not linked horizontally, nor vertically to any national apex organization. Delivery of extension services to farmers and ensuring proper targeting of investment in infrastructure is hampered by the lack of a coherent means of communication with all levels of the supply chain, a generic problem of agricultural development faced by the country.

Harvest conditions and handling practices immediately post-harvest (during drying, threshing and winnowing at field level) leave much to be desired and present major sources of foreign material and microbiological contamination. Sesame is often transported and stored in unsuitable conditions (for example with re-used packaging), and exposed to insect and rodent attack, with further risk of microbiological contamination and exposure of the seeds to oxidation and fungal growth resulting in mycotoxin development. Product entering auctions is not graded other than by visual means. Limited availability of reliable testing services to assess quality (see below) limits the capacity of exporters to grade product accurately with a view to better meeting the quality requirements of different markets. Lack of traceability and linking of specific consignments purchased at auction to specific production practices further limits effect control over the quality of export consignments.

Under-developed SPS controls

SPS measures concern regulatory requirements for food safety, animal health and plant health. SPS measures are implemented by states as a means of protecting their consumers and farmers against transmission of hazards associated with plants, animal and food. Currently the regulatory system for SPS controls in Sudan is only partially developed and is not fully in line with WTO requirements. Insofar as SPS measures impact upon the food safety and plant health conditions for the production and marketing of sesame seed and its products, the current system of SPS controls is characterized by:

Phytosanitary controls

- Controls are implemented by the Plant Protection Directorate, which counts on a well established presence in central and regional officers of the MOAF
- However, there is out of date legislation on plant health controls (the Phytosanitary Act and regulations do not fully reflect IPPC requirements as set out in International Standards for Phytosanitary Measures (although amendments were in process during 2016)
- A regime for control of distribution and use of pesticides is implemented at national level by the National Pesticides Council (NPC) under the Pesticides and Pest Control Products Act 1994
- There is a lack of effective risk-based inspection and control protocols for checks on pesticide distribution and usage at farm level, as well as storage conditions of harvested products
- Weak technical skills and knowledge of agricultural inspection services to ensure compliance
- Maximum Residue Limits for pesticides are not set in line with risk based principles;

- No residue monitoring programme in place to help determine extent of mis-use and abuse of non-authorized and authorized compounds in production and distribution.

Food safety controls

- Overlapping lawful mandates in relation to food safety measures (SSMO, Ministry of Health and Ministry of Agriculture)
- Lack of risk based approach
- Ineffective/partial regional coverage, especially in relation to production and primary processing
- Lack of monitoring of food safety conditions and hazards in plant based foods (hygiene and HACCP in storage and processing)
- Ineffective export certification (not linked to adequacy of food safety conditions in the supply chain)

A national standard on sesame-seed was newly developed by SSMO in 2015, but the implementation plan along the value chain is uncertain. In addition, SSMO issued a standard on maximum levels of mycotoxins in sesame-seed (SDS2928:2005), though enforcement is not coherent throughout the value-chain.

There is a lack of adequate testing capacity to support the implementation of controls. Existing laboratory support services in regulatory agencies include radiation, pathogens, mycotoxins, heavy metals, pesticides, and veterinary drug residues, however the equipment available are limited and outdated.

The lack of effective controls along the supply chain undermines the effectiveness of the export certification system, which is designed to prevent the export of non-compliant products. Even if improved testing capacities become available, the issue of certificates, based on a sampling of export consignments and testing of samples in a laboratory cannot be fully effective. There is therefore a need to limit exports to those supply chains that can prove compliance at all levels, including producers, so that exports are sourced only from farmers applying minimum standards of GAP and which have been stored and distributed in accordance with specified conditions. The prevention of exports from supply chains which do not meet these conditions will be the primary means by which the project will seek to increase the compliance of Sudanese exports on the international market.

It is notable that many of these issues are generic in their nature, and in the long term their solution is bound to a wider reform of the SPS regulatory system, beyond the scope of this project. However, a number of controls will be strengthened with a focus on those which contribute to removing SPS barriers to trade in the sesame sector, and with implementation, in the first instance, focused in that sector, given its relevance for the rural economy. The project will seek to demonstrate the viability of this approach in the sesame sector, and will thereby be immediately transferable to other export sectors in future.

Lack of laboratory testing capacity

In parallel, the capacity for testing services needed in the sesame value chain is not fully appropriate to

meet the current needs for supporting quality at all levels of the value chain (production, processing, storage, ready for export). In the area of testing capacity for sesame within various laboratories, it is observed that:

- a) laboratory testing equipment is lacking (e.g. instruments for testing pesticide residues or aflatoxins)
- b) no use of portable field testing/screening kits (e.g. for aflatoxins) are used to control quality along the value chain,
- c) laboratories are not participating in proficiency testing programmes to assure external quality checks on test results,
- d) laboratories are not engaged in the process of preparing for accreditation in line with the requirements of the international standard “*ISO/IEC 17025, General requirements for the competence of testing and calibration laboratories*” - and therefore there is a lack of awareness and tools for guiding them on this path.

In the area of inspection and certification services, there seems to be little use of such services for supporting the application of effective controls along the sesame value chain. If inspection in combination with field testing kits and improved traceability were used effectively, that would have rendered more efficient the process of grading to ensure appropriate certification of export consignments. This would be expected to lead to better linking prices with quality during auctions. It would also allow segregating bad products from good ones, which visual grading cannot always accomplish, e.g. separating aflatoxin-contaminated products from non-contaminated ones.

It should be noted that if proper inspection procedures are implemented in the sector, it would support fair trading practices, mostly for the benefit of the farmer, who is the poorest party and often lacking a bargaining power when selling his product. Since the objective of this project is to reduce poverty, the use of inspection within a well-conceived procedure could provide an innovative approach to support fair trade based on quantitative quality data.

Impact of SPS Non-compliance in the Sudanese Sesame-seed Export

As a consequence of the weak capacity to comply with SPS requirements throughout the sesame-seed value chain, much of the production and trading of sesame-seed is limited by difficulties in meeting import countries’ regulations in relation to sesame-seed phytosanitary and food safety conditions.

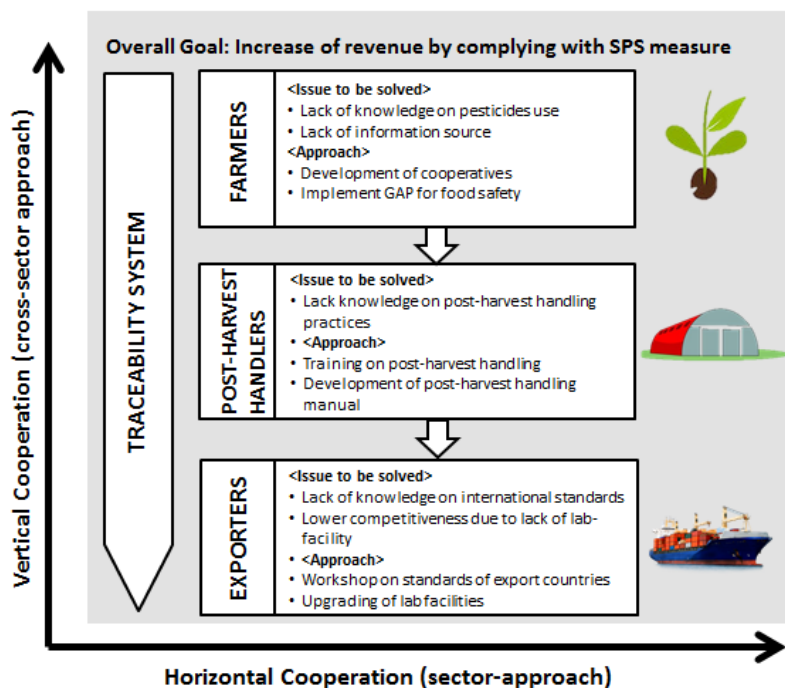
The major challenges for Sudan to export sesame-seed to value added market are to minimize risk of pests, microbiological contamination, mycotoxins-producing fungi and non-compliant pesticide residues in the final product. In particular, aflatoxins, salmonella, and restricted agricultural chemical use such as carbaryl are the major reasons why the sesame-seeds are rejected at the border of import countries. Table 3 showed some of the case studies on the reasons sesame-seed were rejected at the border. Furthermore, non-SPS quality defects (such as higher levels of rancidity, presence of foreign matter) reduce the acceptability of the product to higher value markets.

The overall objective of the proposed project is to support sesame-seed farmers and post-handlers by increasing revenue by complying with SPS measures and international standards, and furthermore contribute to increase the country’s export revenue from non-oil export. In addition, the project will

attempt to develop business linkages between Sudanese exporters and value-added markets such as EU, Japan, and South Korea by enhancing quality and food safety compliance and to meet the conformity requirements of those markets. Simultaneously, the project will facilitate to improve appropriate technologies to provide food-safety testing necessary for exporting to value-added markets within the country to increase competitiveness in the international market.

The proposed project will use a combination of vertical and horizontal value-chain approach to increase revenue of sesame-seed industry by complying with SPS measures as shown in below Figure 4.

Figure 4: Horizontal and Vertical Cooperation for Sesame-seed Value-chain Development



The strengthening of horizontal cooperation aims to enhance cooperation among the sector to take collective action towards complying with SPS measures. The approach includes technical cooperation to build the capacity of targeted stakeholders in each level of value-chain to comply with SPS issues, and enhance regional cooperation among actors in the same value-chain. The project proposes to divide the actors along the value-chain into three groups: farmers grouped into organizations, post-harvest handlers (primary collectors & regional traders), and exporters. For each stakeholder, the project supports to solve the following issues to comply with SPS measures for increasing household income and export revenue.

Farmers: Farmers lack knowledge on pesticides use that leads to over-using pesticides and usage of banned pesticides. There is no strong network between farmers such as farmer cooperatives and associations in the regions for systematically updating and imparting knowledge to farmers. The project proposes supporting the development of farmer cooperatives to become service providers to their members and thereby develop continuous and sustainable knowledge development of farmers. The project will develop a capacity development plan based on the needs identified by the farmers themselves and including training on good agricultural practices (GAP) to ensure safety and quality

sesame-seed production in the value-chain.

Post-harvest Handlers: Post-harvest handlers such as primary collectors and regional traders lack knowledge on post-harvest handling practices such as packaging and storage that during the process that may cause serious SPS issues such as contamination of pesticides, mycotoxin, and pests. The project proposes to provide both theoretical and practical trainings for primary collectors and regional traders to eliminate risks of contamination and maximize their revenue from trade. In addition, manuals for post-harvest handlers covering good storage practices, good hygiene practices, packaging and transportations to encourage local ownership and further implementation beyond project target groups will be elaborated.

Exporters: Exporters lack knowledge on SPS regulation and international standards such that the products are often rejected at the border. In addition, the exporters are currently unable to obtain laboratory-testing data on food safety to affirm the project ranges in export quality and standards, but forced to take analysis outside of the country, leading to disadvantage in international competitiveness in terms of cost and lead time for the export. The project proposes trainings for exporters to obtain up-to-date international regulatory information particularly in value-added markets. In addition, exporters will benefit from the project by upgraded laboratory-testing equipment to comply with international food-safety testing and requirements.

On the other hand, vertical cooperation approaches the same issue by enhancing cross-sector integration and cooperation across the value chain. Ability to track through all stages of production to export is crucial to identify risk and prevent contaminated products, yet it is difficult for private sectors to develop on its own since stakeholders are widely spread along the value-chain. Hence, government intervention for setting up and managing traceability systems, including defining institutional mandates at regional and national levels are needed. The project proposes pilot-launch of traceability system of Sudanese sesame-seeds from production to export, limiting to tracking value-chain from North Kordofan and Al Qadarif to export market.

4.4 Past, On-going or Planned Programmes and Projects

So far, no specific project focusing on SPS related issues, in particular on food safety, has been implemented in the sesame-seed sector in Sudan. The key agriculture target projects are for food security and productivity improvements. Project implementation focusing on SPS issues along sesame-seed value chain will complement other agricultural projects, especially sesame-seed or other export commodity production products, as it will provide opportunities for the stakeholders along the value chain to maximize profit for the production and export.

Following are on-going and closed projects and programmes that relate to export commodity production and quality improvements:

FAO:

In December 2015 FAO completed a project in Sudan named “Development of a Quality Seed Production System and Value Addition in Sudan”. The project provided the basis for the development of viable, sustainable source of local and improved germ plasma for the oil and vegetable seed sector including sesame-seed through; 1) Strengthening the capacity of plant breeding, seed production, marketing, and seed certification administration; 2) safeguarding and

improving the indigenous oil and vegetable crop varieties including sesame-seed; 3) enforcing the legal framework of the Seed law regarding the protection of breeders' rights and regulations to create a favorable environment for the development of the seed sector and reinforcing of the technical capacity of the Seed certification administration/agency. As for the implementation of this proposed project activities, FAO has existing field offices, one in Al Gedaref state to oversee the implementation of the activities in Al Gedaref, and one in Kadugli town-South Kordofan to oversee the implementation of the project activities in North Kordofan.

IAEA:

A regional project was launched by the IAEA (International Atomic Energy Agency) Technical Cooperation Branch in 2007 for consumer safety and trade development through competent nuclear testing and metrology laboratories. The overall objective was to strengthen the capacity and enhance the competence of testing and calibration laboratories for the purpose of providing safe, reliable and internationally recognized services to support consumer safety and trade. Furthermore, the project aims to; 1) Enhance the profile and relevance of testing and calibration laboratories through awareness building of all stakeholders; 2) Further improve and sustain human resources development programmes; 3) Strengthen the testing and metrology laboratories capabilities and relevance.

IFAD:

IFAD has an on-going project called "Seed Development Project in Sudan" which aims at increasing crop productivity for about 108,000 smallholders adopting certified seeds in North and South Kordofan. The seed supply system for sesame-seed in Sudan is at the embryonic stage characterized by limited human, technical and financial capacity of the National Seed Administration (NSA) compounded with an ineffective organizational set up causing inadequacy of the existing seed quality control standards. It is believed that the IFAD project could contribute to the identification of quality sesame seed ideal for targeting the international market. Recently released sesame-seed varieties: NCRIBEN-01M and NCRIBEN-02M, and Ex-Sudan (exotic variety), readily meet the premium quality requirements for sesame-seed export (1000 seed weight 3.0 g, 40- 50 per cent oil content and pearly-white seed color).

5. PROJECT FRAMEWORK

5.1. Project Objective, Outputs, and Activities

Objective of the Project:

The overall objective of the proposed project is to increase revenue of stakeholders, in particular small farmers along the sesame-seed value chain in Sudan, by enhancing the competitiveness of their value chain and reinforce them to face the competition at the global market. Furthermore, the project will attempt to increase export revenue from non-oil industry by developing business linkages between exporters and potential business partners in value-added markets.

The direct impact or immediate impact of the proposed project is to support the sesame-seed industry in Sudan to enhance quality and food safety compliance (SPS) and to meet with the country requirements of value-added markets such as EU, Japan, South Korea and other high-end markets.

Outcome / Immediate Objective:

The project will have two outcomes, where each outcome will be under responsibility of FAO and UNIDO in cooperation with the counterpart.

- **Outcome 1** [Implementation agency: FAO + MOAF]

Capacity of farmers in two target states strengthened to improve compliance with SPS measures by enhancing implementation of GAP.

- **Outcome 2** [Implementation agency: UNIDO+MOAF]

Export opportunities for Sudanese sesame-seed improved by complying with SPS measures and other international food safety standards.

Output / Activities:

Inception Phase: Develop detailed activity plan and validate the project with stakeholders on strengthening SPS compliances of sesame-seed production for enhancing access to international market in Sudan.

During three months of inception phase, baseline data will be collected in the form of a survey and interviews among the farmers, post-harvest handlers (primary collectors and regional traders), exporters, and regulatory control officers to assess compliance with relevant SPS measures and perform gap analysis will be conducted.

In particular, farmers will be assessed regarding the implementation of GAP, including the application of pesticides. Basic economic surveys will also take place to investigate household income level, sesame-seed sales price and amount, gender matters, and others.

Post-harvest handlers such as primary collectors and regional traders will be assessed from both a technical inspection and interview basis. The storage facility assessment will be done with respect to handling and storage of sesame-seed stock from farmers and availability of inspection equipment (such as humidity tester) and source of hazards. In addition, interview will be held to assess investment, income level, gender matters, and others.

Exporters will be assessed by interview regarding the export destination, sales amount, SPS concerns, frequency of laboratory testing, and others.

In addition to the above mentioned, a survey will be held for Government institutions to assess Ministerial mandates and cooperation regarding SPS compliance measures. Institutional overlaps or uncertainties, if any, shall be discussed during the inception phase among key stakeholders. Gap analysis between international requirement and existing services provided by SSMO will also be conducted. SSMO will submit a full-list of existing equipment for analysis.

An evaluation of testing needs and the most appropriate test equipment to be procured will be made. The laboratories that are the best capable of providing testing services will be confirmed. In

particular, the request from Sudan to procure GC-MS (Gas chromatograph – Mass spectrometer) and HPLC (High performance liquid chromatograph) equipment should be evaluated to decide whether it would not be better to procure LC MS/MS (Liquid Chromatograph-MS/MS). The latter offers more possibilities for monitoring pesticide residues and is also the right equipment for measuring aflatoxins.

Project Steering Committee consisting of UNIDO, MOAF, FAO, SSMO, and ARC will be established. Any other stakeholder will be invited on need-basis. Based on inception report, the project will decide on details of activities, and final project document will be validated during the first Project Steering Committee among project partners.

Activity 0.1.1: Draft an inception report including baseline data (production of sesame-seed, storage facilities, exporters, and laboratory facilities), activity plan (timeframe, progress evaluation, risk assessment, gender)

Within three month inception phase, two experts will be dispatched for approximately 10 days each to Sudan for assessment. One expert will assess farmers and other will assess post-harvest handling as well as drafting inception report.

Activity 0.1.2: Establishment of the Project Steering Committee and conduct validation workshops on project implementation plan, budget, and monitoring & evaluation scheme for partners to secure their active involvement.

MOAF will host one full-day Project Steering Committee at Khartoum, involving high-level officials from each Ministries and agencies involved. Finalized project documents will be validated during this meeting, and responsibilities of each stakeholder will be clarified.

Output 1.1: Support the development of farmer cooperatives in targeted two states to develop baseline for horizontal cooperation among farmers.

The project will support the development of farmer cooperatives in partnership with local authorities and sector associations to enhance knowledge of the GAP and SPS measures. By developing horizontal connection among farmers, strong and efficient cooperatives will act as a service provider in order to help its farmer members adopt GAP under this project; cooperatives will also be instrumental to providing information to its farmer members as well as training activities. From this perspective, the cooperative shall be managed by local authorities under MOAF for sustainability and project elasticity.

Activity 1.1.1: Organize farmer cooperatives taking enhancing gender equality and youth employment into consideration. Select trainers for leading the cooperatives on strengthening their capacity.

At least 100 farmers from each state (North Kordofan and Al Qatari) will form farmer cooperatives, among which at least 30% should be women and 50% should be youth. Trainers will be identified and selected for providing support for training in cooperative levels.

Activity 1.1.2: Conduct inception workshops for farmers in the target states of North Kordofan and Al Qatari, in partnership with local authorities and sector associations.

At least 100 farmers from each region will be trained on quality and food safety aspects of sesame- seed for export and on SPS implementation measures. The aim is to assess their knowledge through their participation in inception workshop. Their feedback is to be used to align the training and coaching approach for the selected farmers in the in depth programs.

Output 1.2: Sesame-seed growers strengthen their capacity to implement GAP and develop better understanding of international standards.

The activities will benefit members of the cooperatives by enhancing their capacities of sesame-production to comply with SPS standards from implementing GAP. The goal of this output is to enhance farmers' knowledge on SPS measures, as well as to train trainers for implementing training program on GAP.

Activity 1.2.1: Develop training materials and training curricula on adapting GAP for sesame-seed farmers.

Develop a set of training materials for farmers to easily understand concept of GAP that briefly explains sesame-seed harvesting and management. Also develop curricula for trainers to train farmers and implement GAP through cooperatives.

Activity 1.2.2: Conduct Training of Trainers (ToT) and expert capacity building training programme to build the technical and outreach capacities of sector associations and/or advisors to provide advice to farmers in the area of GAP, compliance with SPS measures.

The capacity of selected experts and extension officers will be enhanced to assist farmers to produce sesame-seeds that align with SPS measures. A minimum of 30 selected trainers will receive two 5-day theoretical and practical training courses in the area of GAP, pest and diseases management, usage of quality production inputs (seeds, fertilizers, and pesticides), harvest and post-harvest practices, and phytosanitary and food safety standards. One international expert will be hired for 30 days to provide intense ToT, as well as providing support on selecting trainers.

Activity 1.2.3: Organize practical training on GAP implementation and monitoring, compliance with SPS measures for farmers and sector associations in the target states of North Kordofan and Al Qadarif.

The knowledge and skills of farmers and cooperative representatives to produce safe sesame-seed will be enhanced. The training will be provided to at least 200 farmers in two selected states. The training will be conducted in batches for 20 selected farmers in duration of one week. The areas covered in the training will be on GAP, pest and diseases control, usage of quality production inputs (seeds, fertilizers, and pesticides), harvest and post-harvest practices, phytosanitary and food safety standards. The detailed training content and duration will be confirmed and agreed in consultation with the relevant stakeholders.

Output 2.1: Improved quality and hygiene conditions in the supply chain.

Given the relative size and importance of the sesame sector in relation to Sudan's agricultural production and export, there is surprisingly little concrete information on which to base investments in improved quality and compliance.

Activity 2.1.1 Baseline survey of product quality and hazards:

To address the above-mentioned gap, the project will conduct during the inception period a rapid assessment of the quality and safety related issues impacting on the sector. This will be conducted by surveys at different levels of the value chain (farm, storage, distribution, export) of:

- product quality and safety (by sampling and testing in national and regional laboratories)
- infrastructure, facilities and handling conditions
- packaging and labeling
- skills and knowledge of operators

The result will be a comprehensive diagnostic report setting out the quality and safety related problems, identifying the hazards and places where they occur in the supply chain and proposing the controls and investments required to address them. Importantly, this will allow an assessment of the relative risk of SPS and quality related problems to be addressed within the activities proposed in the project. The survey will be reproduced at least once during the project as a means of monitoring effectiveness of the intervention activities

Activity 2.1.2 Establish a national network of sesame producer and marketing operators:

There is a need to strengthen the national network of producer and marketing organizations as means of communicating with sesame producers and distributors and providing a vehicle for delivery of the capacity building. The project will seek to identify existing local agricultural producer groups (associations, cooperatives) in all of the main provinces involved in sesame production, as well as individual traders, auction operators and exporters. It will host a conference and directly support the costs of establishing of a national network of sesame business operators, for example under the auspices of the Chamber of Commerce as the apex organization, with regional and local groups defined in the network. This will provide:

- a unified voice in national and international fora
- the primary means for communicating and delivery of the intervention activities to the sector (consultations on new regulatory measures, training, technical assistance)
- a framework for collective activities for improving the business environment for sesame producers (collective inputs supplies e.g. seeds, investment support such as agricultural credit schemes, collective marketing activities e.g. export promotion)

Activity 2.1.3 Prepare and pilot GAP and quality manuals, training materials:

Based on the identified needs of the sector the project will prepare a range of guides to best practices in the production and marketing of sesame. These will draw on a range of sources, and include topics such as:

- Guides to seeds and fertilizers
- Integrated pest management
- Organic production of sesame
- Good agricultural practices
- Good practices in storage and distribution
- Good practices in packaging and labeling
- Quality assessment guide and grading
- Traceability and its implementation

The precise titles and content will be developed during the inception period. The guides will draw on existing materials prepared under other projects (for example by TradeMarkAfrica, and EU EDES project). They will be produced in local languages and dialect and as far as possible rely on pictorial communication. They will be produced as training materials for use in the training activities. ICT solutions (for example demonstration videos for field training) will also be considered.

Activity 2.1.4 Identify and train trainers and implement national training programme:

The project will identify and train a corps of future trainers. These may be drawn from a range of organizations – farmers’ associations, Chambers of Commerce, Ministry of Agriculture and Irrigation QCEDU and Plant Protection Department. Private sector operators (such as seed, or other input suppliers) could also be recruited. The trainers will be trained on the relevant content of the guides, and the rationale behind them, and will also receive pedagogical training. They will thus have the technical and educational skills to deliver training courses.

The project will design a training programme to be implemented under the project by the host organizations. The project will finance the cost of the delivery of the training, to include, where appropriate (e.g. non-governmental organizations), a fee or honorarium for the training services.

The training will be delivered to local associations and groups applying to the project, and will be delivered via farmer field schools, and training sessions organized in association with the regional auction events. It is expected that 30 training events will be delivered under the project at different levels of the supply chain. These will be focused on the regions of North Kordofan and Al Qatariif and participants will be selected with a preference for younger and female participants.

Activity 2.1.5 Develop traceability along the value chain:

Traceability is pre-requisite for ensuring the integrity of the supply chain to underpin claims regarding origin and the quality management measures (such as organic production methods) applied during production and distribution. It is also required to ensure effective controls in correcting the conditions causing non-compliances when they are detected at the level of the market. The core of traceability is to ensure that transactions between buyers and sellers are recorded, and that batches are identifiable and distinguished from each other. The project will therefore design a simple paper based transaction record form and coding system (based on single use, tamper-proof bag tags), and promote its adoption via the national network developed under this component. The implementation of traceability will be addressed in the design of the training materials and training activities.

The central role of the auction houses in ensuring traceability is recognized, and the possible development of the ICT systems to strengthen their management of traceability data will also be investigated. This could potentially include the use of mobile phones to transmit traceability data in advance of the auction.

Output 2.2: Strengthened SPS measures:

Legal measures setting out requirements for food safety and quality for plant health and management of associated agro-chemicals (such as pesticides) are not presently effective in preventing the export of non-compliant products.

Activity 2.2.1 Review and amend legal basis for SPS measures (sanitary conditions, pesticide management):

Legal measures will be reviewed in detail by food safety and plant health specialists, with a view to identifying gaps and dysfunctional aspects. This will necessarily include a review of the institutional framework for SPS measures, concerning the Ministry of Health, Ministry of Agriculture and Irrigation and the SSMO. The review should lead to the development of concrete proposals for amendment of relevant measures, and reform of the institutional framework. Roles and mandates of the involved institutions will be reviewed and clarified. This may need to include inter-ministerial protocol or agreements, to ensure that enforcement responsibilities are unitary (i.e. not shared within the same sector/region) and are clearly defined. The project will present these proposals in a series of stakeholder workshops, with a view to their finalization. The Government of Sudan will be supported to adopt the measures into the legal framework.

At least 10 workshops are expected to be supported. However, the precise content and scheduling of the workshops will be determined by the needs identified in the review.

Activity 2.2.2 Design and implement strengthened export control system (farm level controls, approved exporters):

The success of the project is based on the simple proposition that the solution to the problem of low quality exports of sesame is by permitting exports only of those products which are derived from supply chains which comply with minimum requirements. This cannot be achieved by sampling, testing and certifying each export consignment (since typically an export order is made up of supplies from multiple suppliers, and representative sampling is problematic). Instead, the project control will be applied by the relevant competent authorities through an approved exporter and approved supplier scheme. Export certificates for consignments to sensitive markets will only be granted subject to approved operators, who will be subject to defined sanitary and phytosanitary requirements (for example harvest conditions, pesticide management, hygienic storage conditions, traceability system, training of operators, own checks on quality and safety etc.), with a regime of risk based official controls undertaken by inspectors to confirm compliance.

It will be recommended that operators which cannot meet the requirements of the scheme will not be granted export certificates (although a period of grace, and possible derogations e.g. for low quality export markets, could be considered).

The controls for the approved exporter scheme will involve periodic inspections and sampling and testing undertaken by the Competent Authorities.

The project will provide the technical assistance for the design of the scheme, which will integrate requirements at each level of the export supply chain (farmer, trader, auction, and exporter) to provide the guarantees that product submitted for export certification is sound. The scheme will be documented in the form of operations manuals, recording forms, certificates. Legal measures required for its implementation will be drafted, discussed with stakeholder and submitted for adoption.

Activity 2.2.3 Training of inspectors (SSMO, QCEDU) responsible for export control and certification:

The staff of the competent authorities responsible for implementation of the export approval system (from the MOAF QCEDU and SSMO) will be trained in the operation of the system. This will involve two levels;

- Management of the central competent authorities, concerning the design of the system, risk-based approaches, certification procedures (10 persons, one week).
- Inspection of conditions in the supply chain (farm-level, auctions, distribution and export facilities), to be able to assess compliance, use of inspection forms, record keeping, use of simple field test requirement etc. (150 inspectors, trained in 5 one week training sessions).

The project will provide ongoing technical advice and support on implementation of the system.

Output 2.3: Improved laboratory testing, inspection and certification assessment capacity and procedures

The objective of this output is to strengthen the testing services provided by Ministry of Agriculture and Forestry, Sudanese Standards and Metrology Organization and other institutions by upgrading laboratory capabilities and equipment to provide chemical testing for food safety that is required to comply with international markets. In parallel, inspection and certification procedures will be improved to comply with international standards - the aim is to make better use of modern equipment to obtain quantitative measurements on which to base inspection decisions instead of relying only on visual inspection.

Activity 2.3.1: The capacity for testing and analysis related to the SPS conditions for the export of sesame will be assessed, gaps will be identified and a strategy and action plans for filling the gap will be formulated. This will take into account the cost benefit analysis of different testing strategies (in-house capacity versus purchase from external laboratories) and the comparative advantages of different laboratories.

The laboratories that are the best capable of providing testing services under this project will be confirmed after evaluation of their current capacities and competencies.

For each laboratory the project will prepare coherent and viable laboratory development plans, including evaluation of testing required and the most appropriate test equipment.

The need for calibration and accreditation will be assessed and if not available locally, the project will have to address how these should be accessed and provided so that testing laboratories supported under this project can be accredited. In so doing, UNIDO will approach the Arab Accreditation Cooperation Body (ARAC), which it helped create and operate, to support accreditation of the laboratories in Sudan.

Under this Activity, the action plans will be implemented through the following steps:

- a) Train laboratory staff in setting up the laboratory management system in accordance with ISO/IEC 17025, and support official laboratories with calibration support, proficiency testing, internal audit, mock assessments, etc. with the objective of getting them ready for accreditation for selected scopes of testing;
- b) Train laboratory staff in conducting tests for sesame seeds products;
- c) Supply and commission selected additional laboratory equipment required for effective testing (1) in the field, in the form of test kits for basic parameters and (2) in the official laboratories so designated by Sudan, in the form of advanced instruments for reference tests, e.g. pesticide residue monitoring, aflatoxin content;
- d) Carry out a training of trainers workshop for inspection staff from relevant authorities and organizations on *“ISO/IEC 17020 - Conformity assessment - Requirements for the operation of various types of bodies performing inspection”*;
- e) Conduct one training for SSMO in the area of certification.

Activity 2.3.2: Upgrade standards development process

The national Sudanese standards for Sesame (SDS116:2009) and Sesame Oil (SDS0047:2009) will be reviewed following testing of these products to determine whether product characteristics specified in the current standards are applicable.

Output 2.4: Economic activities of sesame-seed industry enterprises improved by enhancing development of new business linkages in the international market.

This project will improve public-private cooperation, networking and market linkages along the sesame-seed value chain, especially with trading partners of value-added market. Potential trading partners from value added market such as EU, Japan, US and Korea or international traders who have strong business channel with these countries will be invited to Sudan to conduct business networking with Sudanese exporters.

Activity 2.4.1: Organize a buyer’s mission for importers of value added markets (EU, Japan, US, Korea, etc.) to visit Sudan.

Organize 10-day buyers’ mission by inviting 12 potential buyers from value added markets such as EU, Japan, US, Korea. The mission should include few days of excursion to production site (North Kordofan /Al Qatari). An international/national expert as well as responsible persons of project partners (MOAF/MOI/ARC/SSMO) will attend to the mission to explain about the sesame-seed industry as necessary.

Activity 2.4.2: Organize a business networking event between trained and coached Sudanese sesame-seeds post-harvest handlers (including exporters) and potential buyers visiting Sudan.

At least one business networking event will be organized during the buyers' mission to develop business linkages and provide business opportunity for Sudanese exporters. The project together with the sector association will contact and mobilize exporters prior to the event. Advisory support will be provided to the selected participating companies to prepare them before the business networking event and to follow-up on the business contacts established after the event.

5.2. Project Beneficiaries

This project actively involves both public and private sector in Sudan based on a value-chain approach. On the government side, the project will closely work with the Ministry of Agriculture and Forestry for farming and cultivation of sesame-seed, and with the Ministry of Industry for enhancing trade. In addition, Sudan Standard & Metrology Organization (SSMO) will be involved in strengthening enforcement of standards and testing. On the private sector side, the project involves the complete range of stakeholders involved in sesame-seed value-chain including traditional rain-fed farmers, semi-mechanized rain-fed farmers, collectors, traders, storage owners, cooperatives and associations, and Chamber of Commerce.

The largest beneficiaries in its number are farmers and members of cooperatives. The project targets two main sesame-seed growing regions, namely North Kordofan and Al Qadarif. Total population of two districts is about 3.3 million, out of such the project targets to approach 600 farmers in total. The farmers will benefit from the project through training on good agricultural practices. Majority of these farmers are low-income with minimum access to information. It is estimated that at least 40% of the farmer beneficiaries are women or youths. The project trains at least 30 trainers and facilitators from these regions, who would lead training for farmers. The project is expected to increase farmers' average sales price of sesame-seed per kg by 20%.

Post-harvest handlers such as primary collectors, regional traders, and exporters are another group of beneficiaries along the value-chain. 100 post-harvest handlers in North Kordofan and Al Qadarif, as well as Khartoum and other port-cities that handle export processes will benefit from training on SPS measures. Through the training, post-handlers benefit by reducing contamination of mycotoxins and other objects, as well as minimize pesticide residues. In addition, the project will support post-handlers by enhancing better knowledge of SPS measures of value added sesame-seed markets such as EU, South Korea and Japan, and creating business linkages with these markets. The project is expected to increase real average annual export sales by 20% within 5 years.

Quality Control and Export Development Unit (QCEDU) under the Ministry of Agriculture and Forestry as well as Sudan Standard & Metrology Organization (SSMO) are direct beneficiaries for enforcing to comply adequate food safety testing for export. At least one laboratory in Sudan is aimed to provide full service on food safety testing including chemical testing and biological testing for the private sectors to comply with standards. At least 5 laboratory staff and related personnel from the laboratory will be trained to conduct testing.

The project is designed to involve actors from upper to lower stream of sesame-seed value chain, and strengthen vertical connection among different actors to ensure SPS measures to be enforced,

implemented, and controlled from cultivation to export. A traceability system will be developed to clarify the actions that need to be taken on each stage, at the same acting as a monitoring system to guarantee product safety.

The project will directly involve and benefit the Sudanese Government in both central and local levels. At the central level, the project will enhance the capacity of SPS authorities to obtain better understanding and demonstrate compliance with SPS requirement of Sudan's trade partners. At the local level, agricultural authorities will be strengthened through organizing and participating in training activities on good agricultural practices.

5.3. Public-Public and Public-Private Cooperation

The SPS issue along sesame-seed value-chain in Sudan involves multiple Ministries and government institutions and there is poor coordination and cooperation between these institutions. In addition, there is no vertical connection along the value-chain that information is not shared among stakeholders in different stages. The project was formulated in consultation with different stakeholders both in the public and private sectors, hence encompasses and addresses their concerns and interests.

The project will involve and build relationship between Ministries and government institutions in managing SPS issues, such as Ministry of Agriculture and Forestry (cultivation), Ministry of Industry (export), SSMO (laboratories), and ARC (research). Project Steering Committee will be formed at the launch of the project, and be held bi-annually. The Committee will discuss on progress of the activities, as well as share updates on matters regarding SPS issues.

The project will also build public-private cooperation between the above-mentioned Ministries and government organizations involved in managing SPS issues and private sector stakeholders along sesame-seed sector value chain such as farmers, collectors, and exporters. These private sectors will be the direct beneficiaries of the project, at the same time they are expected to give feed-back on their concerns and interests related to SPS.

In addition, the project will promote business linkages between Sudanese sesame-seed exporters and potential business partners in value-added markets such as EU, Japan, and South Korea. The project will contain a component to assist private sectors for strengthening access to information on regulations and standards on sesame-seed in these markets. Also, the project will promote business network by hosting potential business partners from value-added market to visit Sudan.

5.4. Sustainability, Local Ownership and Stakeholder Commitment

The Government of Sudan will provide an in-kind contribution to the total project budget as its share of project costs. As an in-kind contribution, the Government will provide meeting rooms and facilities, workshop and training venues, interpretation services, and human resources. In addition, the Government will contribute in logistics support throughout the project.

MOAF-QCEDU is the lead agency and will provide a National Project Coordinator to organize high-level coordination for the project. MOAF-QCEDU will also contribute in coordinating with related

ministries and organizations, such as MOAF, MOI, SSMO, ARC, and private sectors. MOAF will take initiative for activities in North Kordofan and Al Qadarif, with close coordination with FAO. One coordinator from each region will be selected to arrange local coordination.

Technical support during the project implementation is jointly arranged by UNIDO, FAO, and MOAF-QCEDU. Contracting national and international experts required for the project shall be made with joint agreement, and UNIDO and FAO will assist with administration of contracting depending on output.

A Project Steering Committee will be set up and hosted every six months in Khartoum for stakeholders to discuss and share progress and issues of the project. MOAF-QCEDU and UNIDO will take lead in hosting Steering Committee.

5.5. Gender Related Issues

To ensure equity in sesame-seed export complying with SPS measures in Sudan, issues such as access to information, training, and market development should be taken into consideration for gender baseline study. Gender inequality has a negative impact on women at the agricultural sector in the propose project geographies, women often receive poorer returns for their work, and minimal control over the labor output; they face customary laws that prevent them from obtaining the rights to their inheritance, lack of financial services, and limited decision making over land resources. The project will particularly target women who form the majority of sesame-seed farmers, for capacity building on good agricultural practices safe and improved methods of producing quality sesame-seed.

Access to information and resource, and social inclusion will give women the opportunity to take advantage of the value chain and to play equal role in the international market development. In order to support and advance women's equal participation as decision-makers in agricultural sector, the proposed project will ensure the representation of both men and women within the farmer cooperative management structures with training provided on leadership and management skills. All project staff will encourage and promote gender equality. Gender equality will be mainstreamed through decision-making and implementation throughout the project. The project will empower women through capacity building activities to have equal knowledge and access to information that will put them on equal pedestal with male.

In addition, the project will encourage the training of women with high-education to participate in trainings and workshops. In particular, the project will encourage women workers as traders, exporters, and laboratory experts to obtain and update on the latest information on SPS measures to lead the industry.

This project aligns with UNIDO's gender equality objectives to reduce gender inequalities in agriculture value chain and control over resources, and to advance women's equal participation with men as decision makers. The proposed project will ensure that female farmers workers throughout sesame-seed value chain are included in different levels of activities.

5.6. Environmental Related Issues

By providing trainings on GAP, this project aims to enhance better understanding of sustainable environment. Environmental sustainability is one of the key pillars of GAP, along with economic viability, social acceptability, and food safety and quality. Adoption of GAP helps promote sustainable agriculture and contributes to meeting national and international environment and social development objectives.

Through GAP training, sesame-seed growers are expected to foster no contamination of water and soils, rational handling of agro-chemicals, and concern about biodiversity. The project establishes the integrity of the natural environment and minimizes the environmental degradation. In addition, the project uses research data from ARC on organic pesticides and fertilizers, and encourages farmers for experiment of using them when and if applicable. The project will also take in consideration of forming natural resource management through more efficient use of animal and green waste in agricultural production, and better water management.

The project will be consulted with Natural Resource Offices in North Kordofan and Al Qadarif to align with Sudanese country environmental policy and associated with its legal requirements.

5.7. Risks

The variables affect the project process and pose negative deviation of the expected results at all key levels, and would be dealt through a risk mitigation plan. Amongst these risks, there would be conditions that may be beyond the project control, even from the onset; and such situations would be exempted from a risk management plan. Risks for each stakeholder are listed as below. Please find the full list of risks by each level in Logical Framework (*Annex I*).

5.7.1 Risks related to SPS issues and sesame-seed exports

Risk	Impact	Probability	Mitigation Measures
International market changes its regulation and standards on food-safety	High	Low	Obtain information on latest trend and movements of regulation and standard changes on food-safety from International Consultants.
New domestic laws and regulation set up that relates to SPS and/or sesame-seed industry	Medium	Medium	Ministry of Agriculture and SSMO share up-to-date information on movements of adapting new laws and regulation relating SPS during Project Steering Committee.
Coordination and cooperation between Ministries and government agencies on SPS measures fails	High	Low	Host Project Steering Committee bi-annually involving all Partners of the project. Invite key stakeholders to Project Steering Committee as necessary.
Traceability manuals not utilized	Medium	Low	Adapt training of trainer method for follow-up within the sector. Assign lead Ministry to be in charge for implementation of traceability system.

5.7.2 Risks related to farmer and exporter preference/decisions

Risk	Impact	Probability	Mitigation Measures
Farmers and exporters decide to move out from sesame-seeds production	High	Low	Since sesame-seed is traditionally grown, it is highly unlikely for farmers to withdraw from sesame-seed cultivation.
Farmers and exporters decide to sell sesame-seed to existing trading partners at lower prices rather than challenge to overcome SPS issues	High	Low	In theory the farmers and exporters should prefer to sell their crops in higher price therefore the probability of choosing to sell in lower price is low. However, if such case occurs, feedback needs to be collected on the reasons (e.g. export price for neighbor countries increasing, financial issues, etc.) and discussed in the Project Steering Committee.
Farmers have no interest on implementing GAP, or do not maintain knowledge on GAP after training	High	Low	Adapt training of trainers approach so trainers can follow-up on GAP implementation beyond project life cycle. Inform benefit of adapting GAP through trainers.

5.7.3 Other risks

Risk	Impact	Probability	Mitigation Measures
International market loses interest of Sudanese sesame-seed for non-SPS matter (color, species, etc.)	High	Low	Monitor closely on up-to-date market information on world sesame-seed market from international consultants or other stakeholders.
Availability of resource person for training	High	Low	Adopt Training of Trainers approach. Work closely with Partners and specify its role and responsibility in job description for qualified resource persons.
Testing laboratories do not commit the necessary human, technical and financial resources to obtain accreditation and maintain it	High	Low	High-level commitment, higher than laboratory management positions, should be formalized during the inception phase

6. PROJECT IMPLEMENTATION & MANAGEMENT

6.1. Project Partners

Project partners will serve as members of the project steering committee, and contribute in project inception and implementation by taking the following roles;

- Assist in project baseline data collection and identification of direct project beneficiaries
- Coordinate trainings and workshops, and encourage participation of sector stakeholders in capacity building activities
- Provide inputs and contribute to development of training, materials, and manuals
- Assist in finding adequate human resources for project implementation
- Promote the project to media and using other sources
- Support the development of linkages along the value-chain
- Facilitate necessary logistics, administration, and organization of activities in liaison with UNIDO field office
- Provide in-kind contribution in form of training facilities and others

Ministry of Agriculture and Forestry (MOAF): MOAF is a Ministry responsible for implementing the country's agricultural strategies, policies and programmes. Quality Control and Export Development Unit (QCEDU) of MOAF is a unit that is in charge for quality control and export development of food and agriculture in Sudan. MOAF-QCEDU will take a role as government coordinator of this project in cooperation with UNIDO. MOAF-QCEDU will be a coordinating point for all other project partners in Sudan, as well as hosting Project Steering Committee.

Ministry of Industry (MOI): MOI is a Ministry responsible for country's industry development. In this project, together with Ministry of Agriculture and Forestry, MOI is expected to play a role for coordination of project activities.

Sudan Standard Methodology Organization (SSMO): SSMO is an organization under Ministry of Counselor that was established in 1992 as scientific, supervision precaution organization with the main objectives of consumer protection through improving products quality. Also SSMO is responsible of setting out standards of different commodities and services according to internationally acceptable standards. In this project, SSMO services will be strengthened in order to provide full chemical and biological laboratory testing necessary for export in Sudan.

Agricultural Research Corporation (ARC): ARC is an organization that is under Ministry of Agriculture and Forestry, established to maintain sustainable productivity and quality of crops for an economically viable and progressing agricultural sector. It aims to improve agricultural productivity and generate surplus for export to improve income of the farmers. The organization will contribute to the project in providing farmers with technical cooperation in implementing GAP, including trainings in pest management and proper use of pesticides.

6.2. Implementing Organization

The Government of Sudan requested UNIDO for taking the role of implementing, supervising and assuring the project outcomes. The letter (Annex IV) from MOAF to UNIDO symbolizes this occurrence rendering their consent to this project implementation arrangement.

UNIDO has also initiated the discussion with FAO on establishing joint coordination and cooperation in

the area of strengthening capacity of farmers to improve compliance with GAP and SPS measures in North Kordofan and Al Qatariif regions.

UNIDO's comparative advantage to implement this project is that, its overall mandate is to promote and accelerate sustainable industrial development in developing countries and economies in transition. In recent years, UNIDO has achieved an enhanced role in the global development agenda by focusing its activities on poverty reduction, inclusive globalization and environmental sustainability. The Organization is recognized as a specialized and efficient provider of key services meeting the interlinked challenges of reducing poverty through productive activities, integrating developing countries in global trade through trade capacity building, and fostering environmental sustainability in industry. With respect to this project, UNIDO has competence in building capacities for commodities from developing economies to meet all forms of international market standards including SPS measures.

UNIDO has rich experience in trade capacity building programmes to enhance the capacity of developing countries and countries with economies in transition to comply with international standards. UNIDO provides technical assistance to ensure that before products enter global markets they are adequately tested according to international standards and testing, certification and inspection requirements. In this project, UNIDO will use value-chain approach to target and encourage effective participation of multiple actors including farmers, private sectors, Ministries and research institutes.

6.3. Project Management and Implementation Structure

The project supervision and implementation for the project are illustrated in Figure 3.

UNIDO as a main contractor, in cooperation with MOAF-QCEDU, will be lead agencies for planning and implementing this project. UNIDO headquarters will provide oversight and supervision on the projects, including monitoring on implementation, budget, and outcomes.

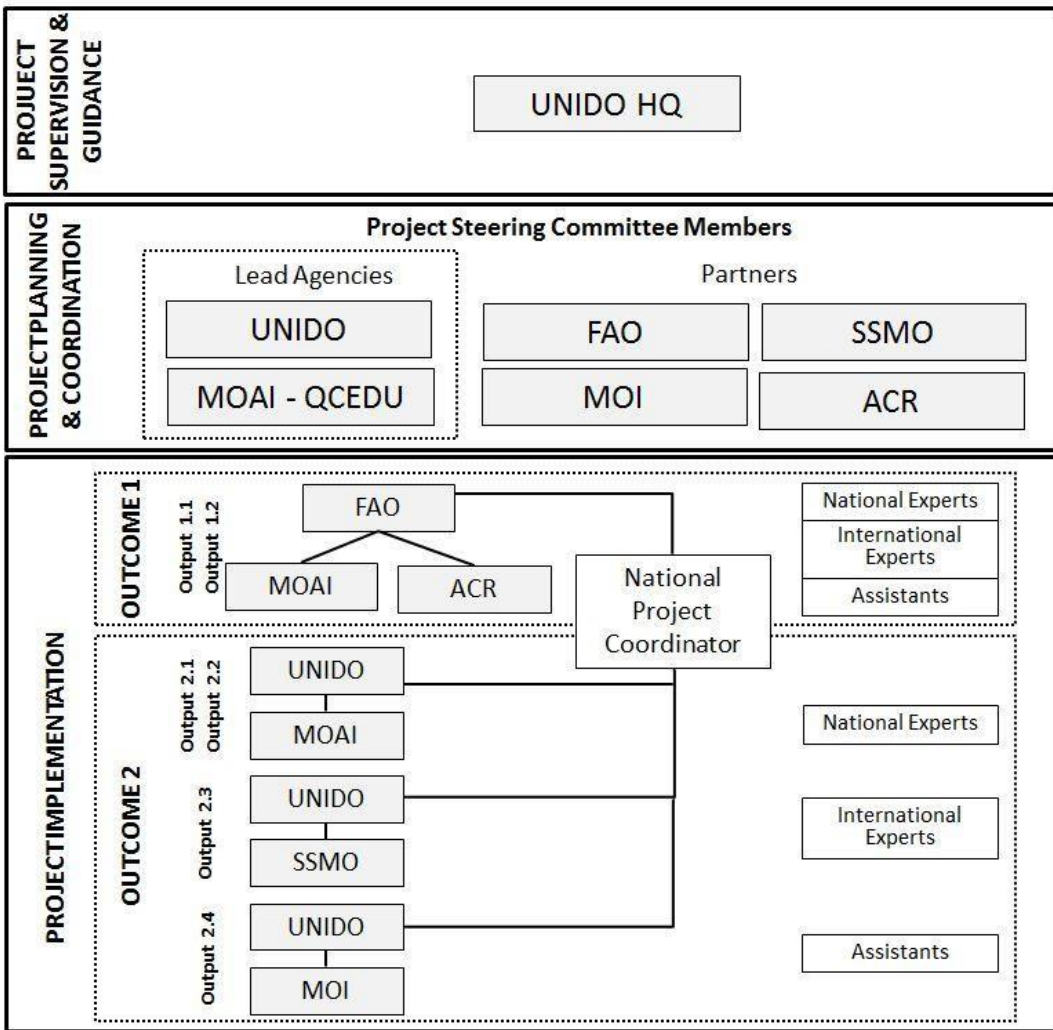
UNIDO will assign a Project Manager at headquarter for overall management of the project. He/she will make coordination with other partner agencies, as well as manage and monitor overall implementation. The project will hire an assistant at HQ and in Khartoum, who takes role on day-to-day operation of the implementation including recruitment, international and local procurement, financial arrangements, evaluation, and audit under supervision of the Project Manager.

FAO will assign a Project Manager in Kartoum for management of their Outcome. He/she will coordinate and report UNIDO team on their progress and achievements. The daily operations of FAO's activities including recruitment, international and local procurement, financial managements, are the responsibility of FAO following their rules.

The MOAF will nominate a National Project Coordinator (NPC), for the duration of the project, to ensure coordination at the central level of activities carried out. The NPC will coordinate in day-to-day basis with national project assistants and consultants for monitoring progress. In addition, he/she will take responsibility for arrangement of Project Steering Committee, in coordination with UNIDO.

A Project Steering Committee (PSC) will be established during inception phase to oversee and supervise implementation, monitor outcomes and achievements, and discuss on implementation issues as necessary. The PSC will be chaired by MOAF, and co-chaired by UNIDO. The members of PSC are representatives from MOAF, UNIDO, FAO, MOI, SSMO, and ACR. The PSC will meet on a bi-annual basis. Donors and other development partners will be invited to the meetings upon its needs.

Figure 5: Project Management and Decision Making



6.4. Project Reporting

UNIDO will report regularly on implementation of the project and progress achieved to the STDF Secretariat, based on their reporting requirements. The reporting on the results will be carried out according to the project logical-framework and following RBM principles. In addition, highlighted activities and key achievements as well as outputs such as manuals developed under this project will be reported as project outcome.

Project Inception Report: The comprehensive inception report will be prepared by UNIDO within three months of project approval. The inception report will include further defining project log-frame, the activity plan, and detailing out the budget to match the time and situational demand of the project. The inception report will be prepared based on inception research by national and international experts. The inception report will be released official during validation workshop for mutual recognition and agreement during these three months.

Bi-annual Report: UNIDO will prepare bi-annual (six-monthly) progress report, in consultation with project partners to be submitted to the STDF Secretariat. Progress report should highlight the implementation status of project components, key achievements, contentious issues, outstanding activities, adjustment needed, and budget.

Consultant's Report: Mission reports as well as any materials elaborated for this project such as training materials and manuals will be shared with STDF as output of the project.

Final Report: UNIDO will prepare, in consultation with other organizations involved in implementation of activities under the project a final report presenting the main results and conclusion of the project by the end of the project.

6.5. Monitoring and Evaluation

The monitoring framework for the project is outlined in the logical framework (*Annex I*). During the inception phase, this board framework will be elaborated and refined, based on drafted logical framework, identification of baseline data, analysis on core set of key indicators and targets to monitor performance and achievement at the different levels of the projects.

The National Project Coordinators will be responsible for day-to-day monitoring of results and report to UNIDO and MOAF. UNIDO will be responsible for reporting the result of monitoring and evaluation to the Project Steering Committee including achievement of targets and indicators. Members of Project Steering Committee as well as national project coordinators may travel periodically to the project area for monitoring purposes.

The project evaluation will be carried out according to both STDF and UNIDO evaluation procedures and guidelines with a project completion final evaluation.

6.6. Dissemination of Project Results

Project Progress

Project progress, recommendations, and visibility are monitored and reported at Steering Committee, and information is disseminated to national level through the Ministry of Agriculture and Forestry. UNIDO and FAO will release information for each outcome and ensure project coordination with other stakeholders.

Media

Media will be invited to participate in key activities and workshops, as well as some of the training activities. The MOAF-QCEDU will ensure media coverage in local level. All local media reports including newspaper, news, social media and others shall be filed and reported to UNIDO. The media

appearance will be reported to STDF in Progress Reports.

Internal Resources

Project partners and implementing agencies will disseminate information and promote the project through their internal resource materials and communication means. Information on projects progress and outcomes will also be released using adequate media source from UNIDO headquarters, such as official press release, UNIDO website, and social media.

Training Materials and Manuals

Training materials, capacity-building materials, and manuals elaborated during the project including research papers will be available in print form to all the stakeholders and institutional references. Key documents for all stakeholders along the value-chain such as Traceability Manual will be distributed to the sector in printed form as well as published online through Ministry of Agriculture and Forestry. All electric copies of resources will be compiled by UNIDO.

7. BUDGET

7.1. Budget

In terms of budget-structure, this project will be co-managed between UNIDO and FAO according to the Outcomes. Each organization will follow its own finance rules for expenditures. UNIDO will report on the budget by outcome/output and budget line. UNIDO will collect information from FAO bi-annually according to the Interagency Agreement between UNIDO and FAO, and take responsibility in financial reporting to STDF Secretariat. Financial status will also be reported for Project Steering Committee. Budgetary constraints, if any, shall be discussed in Project Steering Committee and consulted with STDF Secretariat in need basis.

BL	Description	Year 1	Year 2	Year 3	Total (USD)
Outcome: Inception Phase					
Output 0:					
11	International experts				12,140
15	Project travel				1,800
16	Staff travel				9,640
17	National experts & admin staff				2,000
21	Subcontracts				-
30	In-service training, conferences, workshops				-
35	International Meetings				-
43	Premises				-
45	Equipment				-
51	Miscellaneous				2,000
Sub-Total Output 0		-	-	-	27,580
Output 1:					

Output 1.1: Set-up farmer cooperatives in targeted two regions to develop baseline for horizontal cooperation among farmers.					
11	International experts				10,720
15	Project travel				3,600
16	Staff travel				12,180
17	National experts & admin staff				12,000
21	Subcontracts				-
30	In-service training, conferences, workshops				2,000
35	International Meetings				-
43	Premises				-
45	Equipment				-
51	Miscellaneous (including visibility)				31,000
Output 1.2: Sesame-seed growers strengthen their capacity to implement GAP and develop better understanding of international standards.					
11	International experts				31,640
15	Project travel				6,400
16	Staff travel				13,540
17	National experts & admin staff				48,000
21	Subcontracts				-
30	In-service training, conferences, workshops				8,000
35	International Meetings				-
43	Premises				-
45	Equipment				30,000
51	Miscellaneous (including visibility)				46,000
Sub-Total Output 1					255,080
Output 2:					
Output 2.1 : Improved quality and hygiene conditions in the supply chain					
11	International experts				52,520
15	Project travel				6,680
16	Staff travel				-
17	National experts & admin staff				42,000
21	Subcontracts				-
30	In-service training, conferences, workshops				1,200
35	International Meetings				-
43	Premises				-
45	Equipment				-
51	Miscellaneous (including visibility)				22,000
Output 2.2: Strengthened SPS measures					
11	International experts				60,500
15	Project travel				-
16	Staff travel				-
17	National experts & admin staff				12,000
21	Subcontracts				-
30	In-service training, conferences, workshops				1,200

35	International Meetings				-
43	Premises				-
45	Equipment				-
51	Miscellaneous				-
Output 2.3: Improved laboratory testing, inspection and certification assessment capacity and procedures					
11	International experts				57,650
15	Project travel				-
16	Staff travel				-
17	National experts & admin staff				-
21	Subcontracts				40,000
30	In-service training, conferences, workshops				31,512
35	International Meetings				-
43	Premises				-
45	Equipment				43,000
51	Miscellaneous (including visibility)				20,000
Output 2.4: Business linkages of sesame-seed industry enterprises improved by development of new business opportunities in the international market.					
11	International experts				-
15	Project travel				49,680
16	Staff travel				19,280
17	National experts & admin staff				24,000
21	Subcontracts				-
30	In-service training, conferences, workshops				3,144
35	International Meetings				-
43	Premises				-
45	Equipment				-
51	Miscellaneous (including visibility)				19,000
Sub-Total Output 2					505,366
Independent mid-term and terminal evaluation					
11	International evaluator				20,000
15	Project staff travel				
17	National evaluator(s)				
51	Miscellaneous				
Sub-Total Evaluation					-
Total excl. Indirect Costs					808,026
Implementation Services (12%)					96,963
TOTAL (USD)					904,989

Figure 6: Overview of Budget Structure and Contribution per Year

7.2. Cost Effectiveness

The project will seek for hiring national experts and assistants as possible who are knowledgeable about the country and the sector to maintain cost-effectiveness, as well as knowledge development within the country. In addition, the project will develop strong relation with Government institutions to

get their support on using existing resources such as research papers and human resources.

The project will put emphasis on trainer's training for capacity building activities to approach maximum beneficiaries in cost effective ways by avoid cost for direct training to farmers. This is beneficial for the country that training will be sustainable beyond project lifespan. The international experts will only carry out the TOT and the remaining field level training will be thereafter carried out by the officers trained as trainers. Further, the project will develop training materials available to the trainers, which will assist to ensure quality of the subsequent training program. All training and workshops will be held using existing facilities by arrangement of MOAF and other partners.

Although the program is targeted to cover only two states, the MOAF can take these states as pilot and apply its knowledge and methodology for other regions for further impact to the economy. Furthermore, the project only focuses on sesame-seed value chain, but knowledge on GAP, upgraded laboratory facilities, knowledge on traceability systems, and other materials developed under this program can be applied to other agricultural sectors in the future.

The project will benefit Sudan economy in terms of increased export revenue will be much greater than invested amount for the project, by becoming able to export sesame-seed to value-added market by complying with their food safety and SPS measures.

8. PRIOR OBLIGATIONS AND PREREQUISITES

The following are essential conditions that have to be met by the Government of Sudan prior to project implementation:

- Setup and chair the project Steering Committee;
- Provide the necessary office facilities;
- Expedite the process of any legislation or executive order which may be required for the smooth execution of the project, including provisions by the Government for duties, taxes and related charges where equipment is provided to the beneficiaries and to allow the speedy clearance and provision of such equipment;
- Ensure as much continuity as possible of personnel in beneficiary organizations, especially the coordinators assigned to the project, as well as personnel who have been given training and other knowledge transfer under this project

9. LEGAL CONTEXT

The Government of the Republic of the Sudan agrees to apply to the present project, mutatis mutandis, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed on 24 October 1978.

ANNEX I: Logical Framework

	Description	Measurable indicators/targets	Sources and means of verification	Assumptions
Goal	To increase revenue of stakeholders, in particular small farmers, along the sesame-seed value chain by enhancing the competitiveness of their product on the global market.	Increase of gross income (including labour costs) of 20% at the level of the small-farmer household	National incomes survey Central Bureau of Statistics	Increase in quality is accompanied by an increase in productivity, supported by the extension services and implemented by farmers
Immediate objective	Increase export revenues through compliance with food safety and SPS measures along the sesame- seed sector value chain in Sudan.	a) Export revenues increase by 25% by accessing premium markets b) 50% decrease in rejections in export markets	Export statistics National Bank of Sudan EU RASFF Ministry of Health, Labour and Welfare (Japan)	Climate change does not impact negatively on productivity of the sesame sector International demand not undermined by economic shocks in main markets
Expected results	1.Farmers in two target states apply GAP successfully. 2.Testing, certification and inspection procedures related to sesame VC strengthened, with additional capacity for internationally-recognized testing of all quality and safety	At least 200 farmers in target states improve their awareness and understanding on the importance of implementing GAP and practices to comply with SPS measures to increase their yields and revenue. Testing, certification and inspection gaps identified Increase in No. of test parameters offered	Reports from extension services MOAF, SSMO and MoH laboratory reports Testing, certification and inspection gap assessment report	MOAF provides the necessary resources for extension services to provide guidance in the field Testing, certification and inspection improvement plan agreed by beneficiary and implemented

	parameters required by export markets.		Laboratory test services offered on laboratory website or brochures	
Outcome 1 Implementation agency: FAO+MOAF]	Capacity of farmers in two target states strengthened to improve compliance with SPS measures by enhancing implementation of GAP.	<ul style="list-style-type: none"> At least 2 farmer cooperatives are developed at target states which consist of at least 30% women and 50% youth. 	<ul style="list-style-type: none"> Workshop reports Interview from farmers 	<ul style="list-style-type: none"> Expert/ resource person available Security stability of targeted region
Output 1.1	Support the development of farmer cooperatives in targeted two states to develop baseline for horizontal cooperation among farmers	<ul style="list-style-type: none"> 2 communities / farmer cooperatives organized 	<ul style="list-style-type: none"> Mission reports 	<ul style="list-style-type: none"> Resource person that has leadership of project implementation with farmers available
Activity 1.1.1	Organize farmer cooperatives taking enhancing gender equality and youth employment into consideration. Select trainers for leading the cooperatives on strengthening their capacity.	<ul style="list-style-type: none"> 2 communities / farmer cooperatives organized 	<ul style="list-style-type: none"> Mission reports 	<ul style="list-style-type: none"> Farmers are willing to work together under cooperatives
Activity 1.1.2	Conduct inception workshops for farmers in the target regions of North Kordofan and Al Qatari, in partnership with local authorities and sector associations.	<ul style="list-style-type: none"> 2 workshops conducted 	<ul style="list-style-type: none"> Workshop report Interview from farmers 	<ul style="list-style-type: none"> Farmers are willing to commit to receive training in sesame-seed GAPs
Output 1.2	Sesame-seed growers strengthen their capacity to implement GAP and develop better understanding of international standards.			
Activity 1.2.1	Develop training materials and training curricula on adapting GAP for sesame-seed farmers.	<ul style="list-style-type: none"> 1 training manuals and curricula prepared 	<ul style="list-style-type: none"> Mission reports Training materials 	<ul style="list-style-type: none"> Farmers have decent level of literacy
Activity 1.2.2	Conduct ToT and expert	10 workshops conducted	<ul style="list-style-type: none"> Training registered 	

	capacity building training programme to build the technical and outreach capacities of sector associations and/or advisors to provide advice to farmers in the area of GAP, compliance with SPS measures.	30 trainers/facilitators trained	<ul style="list-style-type: none"> • Mission reports • Training reports 	
Activity 1.2.3	Organize practical training on GAP implementation and monitoring, compliance with SPS measures for farmers and sector associations in the target regions of North Kordofan and Al Qadarif.	4 workshops conducted 200 sesame-seed growers trained 200 training packages distributed	<ul style="list-style-type: none"> • Training registered • Mission reports • Training reports 	
Outcome 2 Implementation agency: UNIDO+MOAF]	Export opportunities for Sudanese sesame-seed improved by complying with SPS measures and other international food safety standards.	Number of new markets accessed Number of testing, certification and inspection operations demonstrating compliance with requirements in export markets	<ul style="list-style-type: none"> • Export statistics • Test and inspection reports 	Main export markets are willing to pay premium prices for higher and consistent quality of products
Output 2.1	Improved quality and hygiene conditions in the supply chain			
Activity 2.1.1	Baseline survey of product quality and hazards	The quality and safety issues impacting on the sector assessed	<ul style="list-style-type: none"> • Assessment report 	The Government counterparts continue to be supportive in improving quality and hygiene conditions in the supply chain.
Activity 2.1.2	Establish national network of sesame producer and marketing operators	A national network of producer and marketing organizers strengthened	<ul style="list-style-type: none"> • Annual report of Chamber of Commerce 	
Activity 2.1.3	Prepare and pilot GAP and quality manuals, training materials etc.	A range of guides to best practices in the production and marketing of sesame	<ul style="list-style-type: none"> • MOAF, SSMO and MoH reports 	
Activity 2.1.4	Identify and train trainers and implement national training programme	Future trainers from farmers' associations, Chambers of Commerce, Ministry of	<ul style="list-style-type: none"> • MOAF, SSMO, MoH and Chamber of Commerce reports 	

		Agriculture and Irrigation QCEDU and Plant Protection Department, etc. identified and trained.		
Activity 2.1.5	Develop traceability along the value chain (traceability manual)	Training materials on traceability prepared and training on traceability conducted	<ul style="list-style-type: none"> MOAF, SSMO, MoH and Chamber of Commerce reports 	
Output 2.2	Strengthened SPS measures			
Activity 2.2.1	Review and amend legal basis for SPS measures (sanitary conditions, pesticide management)	Legal measures setting out requirements for food safety and quality, for plant health and management of associated agro-chemicals (such as pesticides) reviewed and gaps and dysfunctional aspects identified.	<ul style="list-style-type: none"> MOAF, SSMO, MoH reports 	The Government counterparts continue to be supportive in strengthening SPS measures.
Activity 2.2.2	Design and implement strengthened export control system (farm level controls, approved exporters)	Design of the scheme, integrating requirements at each level of the export supply chain to provide the guarantees developed.	<ul style="list-style-type: none"> Operations manuals, recording forms, certificates, etc. 	
Activity 2.2.3	Training of inspectors (SSMO, QCEDU) responsible for export control and certification	The staff of the competent authorities responsible for implementation of the export approval system (from the MOAF QCEDU and SSMO) trained in the operation of the system.	<ul style="list-style-type: none"> Reports of MOAF QCEDU and SSMO 	
Output 2.3	Improved laboratory testing, inspection and certification assessment capacity and procedures	Improvement plan of laboratory testing, inspection and certification assessment capacity and procedures endorsed by relevant Ministry or government No. of test parameters offered	<ul style="list-style-type: none"> Government decision or policy document or similar Availability of testing services and fees published on website of laboratories 	Relevant Ministry formally takes responsibility for undertaking to upgrade laboratory testing, inspection and certification assessment capacity and procedures Producers/exporters interested to use testing

				services
Activity 2.3.1	<p>The capacity for testing, certification and inspection services needed in the sesame value chain will be assessed, the needs for supporting quality at all levels of the value chain (production, processing, storage, export- ready) will be identified, proposals for filling any gap will be made and the following activities will be implemented under the project:</p> <p>a) The laboratories that are the best capable of providing testing services under this project will be confirmed after evaluation of their current capacities and competencies. Prepare coherent and viable laboratory development plans, including evaluation of testing required and the most appropriate test equipment, Supply and commission laboratory equipment required for effective testing in the field, in the form of test kits for basic parameters and (2) in the official laboratories so designated by Sudan, in the form of advanced instruments for reference tests, e.g. pesticide residue monitoring, aflatoxin content. Train laboratory staff in</p>	<p>Gaps in testing, inspection and certification identified and agreed by testing and calibration laboratories, certification and inspection bodies</p> <p>Laboratories to be supported and strengthened through procurement of equipment and training selected and agreed upon</p> <p>Selected laboratories publish their quality manuals and participate in proficiency testing programmes</p> <p>Mock assessments of selected labs against ISO/IEC 17025 show decreasing non-conformities</p> <p>Selected laboratories prepared for accreditation for relevant scopes</p> <p>Number of training activities held</p> <p>Number of tests on sesame increases by 20% every year as from second year of project implementation</p>	<ul style="list-style-type: none"> • Training programmes • Mission reports • Report/feedback from trainees • Laboratory assessment reports 	<p>Experts available for conducting training</p> <p>Experienced laboratory personnel available at selected laboratories</p> <p>Basic chemical testing services already offered by selected laboratories</p> <p>Upgrade of laboratories possible within allocated budget</p> <p>State budget supports laboratory investment and operating costs</p> <p>Laboratory heads receiving equipment commit to prepare for accreditation</p> <p>Business operators not required to finance higher laboratory overheads support increased testing capacity (through fees for mandatory testing)</p> <p>Foreign accreditation body agrees to undertake accreditation of selected laboratories</p>

	<p>conducting tests using existing and new equipment for sesame,</p> <p>Train laboratory staff in setting up the laboratory management system in accordance with ISO/IEC 17025, and support official laboratories with calibration support, proficiency testing, internal audit, mock assessments, etc. with the objective of getting them ready for accreditation for selected scopes of testing,</p> <p>Initiate the process of accreditation for selected laboratories</p> <p>Carry out 1 training workshop for inspection staff from relevant authorities and organizations on ISO/IEC 17020, Conduct one training for SSMO in the area of certification.</p>			
<i>Activity 2.3.2</i>	<p>The national Sudanese standards for Sesame (SDS116:2009) and Sesame Oil (SDS0047:2009) will be reviewed following testing of these products to determine whether product characteristics specified in the current standards are applicable.</p>	<p>SSMO technical committee work programme includes revision work items</p> <p>Technical committee discusses work items</p>	<ul style="list-style-type: none"> • Technical committee reports and minutes 	<p>Stakeholders participate in technical committee work and share information on their products</p>
Output 2.4	<p>Economic activities of sesame-seed industry enterprises improved by enhancing development of new business linkages in the international market.</p>	<p>1 buyer’s mission conducted with at least 12 potential buyers who are from value added markets, or sells to value added markets.</p>	<ul style="list-style-type: none"> • Mission reports/feedbacks from potential buyers • Feedback from post-harvest handlers who 	<p>Buyers interested in business with Sudanese sesame-seeds exporters</p> <p>Non-SPS issue does not exist or does not give major</p>

		At least 50% of the post-harvest handlers who participated in the event receive order/letter of intent from buyers or business partners.	joined the event.	impact on business in value added market
Activity 2.4.1	Organize a buyer's mission for importers of value added markets (EU, Japan, US, Korea, etc.) to visit Sudan.	1 buyer's mission organized in cooperation with UNIDO/counterpart (002) 12 potential buyers invited	<ul style="list-style-type: none"> • Mission reports/feedbacks from potential buyers • Mission programme 	Stable security in Sudan Potential buyer identified
Activity 2.4.2	Organize a business networking event between trained and coached Sudanese sesame-seeds post-harvest handlers (including exporters) and potential buyers visiting Sudan.	1 business networking event organized 50 post-harvest handlers and exporters participate	<ul style="list-style-type: none"> • Feedback forms completed by participants after the event 	Exporters willing to join the event in his/her own expense

ANNEX II: WORK PLAN

Outputs & Activities	Responsibility	Year 1				Year 2				Year 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Inception Phase: Develop detailed activity plan and validate the project with stakeholders on strengthening SPS compliances of sesame production for enhancing access to international market in Sudan.													
Activity 0.1.1	UNIDO												
Activity 0.1.2	FAO MOAF												
Output 1.1: Support the development of farmer cooperatives in targeted two states to develop baseline for horizontal cooperation among farmers													
Activity 1.1.1	FAO												
Activity 1.1.2	MOAF												
Output 1.2: Sesame-seed growers strengthen their capacity to implement GAP and develop better understanding of international standards.													
Activity 1.2.1	FAO												
Activity 1.2.2	MOAF												
Activity 1.2.3													
Output 2.1: Improved conditions in the supply chain													
Activity 2.1.1	UNIDO												
Activity 2.1.2	MOAF												
Activity 2.1.3													

Activity 2.1.4														
Activity 2.1.5														
Output 2.2: Strengthened SPS measures														
Activity 2.2.1	UNIDO													
Activity 2.2.2	MOAF													
Activity 2.2.3														
Output 2.3: Improved laboratory testing, inspection and certification assessment capacity and procedures														
Activity 2.3.1	UNIDO													
Activity 2.3.2	SSMO													
Output 2.4: Economic activities of sesame-seed industry enterprises improved by enhancing development of new business linkages in the international market.														
Activity 2.4.1	UNIDO MOI													
Activity 2.4.2														

ANNEX III: BUDGET

Budget Breakdown for explanatory purposes

Outcomes/Outputs/Activities	Expenditures						Contribution	
	Expenditures	Detail	Budget Line	Rate	Quantity	Total	STDF	In-kind
Inception Phase:								
Develop detailed activity plan and validate the project with stakeholders on strengthening SPS compliances of sesame-seed production for enhancing access to international market in Sudan.								
Activity 0.1.1 Draft an inception report including baseline data (production of sesame-seed, storage facilities, exporters, and laboratory facilities), activity plan (timeframe, progress evaluation, risk assessment, gender)	International consultant (7 days on-site / 3 days home-based)	Fee (day)	1100	500	10	5,000	5,000	
		Travel (ticket+terminals)	1100	3,500	1	3,500	3,500	
		Travel (DSA/Khartoum)	1100	220	7	1,540	1,540	
		Car hire	1100	300	7	2,100	2,100	
	National consultant (throughout Inception Phase)	Fee (month)	1700	2,000	1	2,000	2,000	
		Travel (domestic flight + terminals)	1500	500	2	1,000	1,000	
		Travel (DSA/elsewhere)	1500	80	10	800	800	
		Miscellaneous (taxi, telecom, etc.)	5100	1,000	1	1,000	1,000	
Activity 0.1.2 Establishment of the Project Steering Committee, and conduct validation workshops on project implementation plan, budget, and monitoring & evaluation scheme for partners to secure their active involvement.	Meeting	Meeting room, facilities, equipment		2,000	1	2,000		2,000
		Lunches, refreshments		500	1	500		500
Others	Staff travel (1 UNIDO + 1 FAO)	Travel (ticket+terminals)	1600	3,500	2	7,000	7,000	
		Travel (DSA/Khartoum)	1600	220	12	2,640	2,640	
	Miscellaneous	Printing, telecoms, mails, etc.	5100	1,000	1	1,000	1,000	
Subtotal (Inception Phase)						30,080	27,580	2,500

Outcome 1:								
Capacity of farmers in two target regions strengthened to improve compliance with SPS measures by enhancing implementation of GAP.								
Output 1.1:								
Set-up farmer cooperatives in targeted two regions to develop baseline for horizontal cooperation among farmers.								
Activity 1.1.1 Organize farmer cooperatives taking into account gender and youth participation and select trainers for leading the cooperatives in strengthening their capacity.	International consultant (10 days on-site / 3 days home- based)	Fee (day)	1100	500	13	6,500	6,500	
		Travel (DSA/Khartoum)	1100	220	3	660	660	
		Travel (DSA/elsewhere)	1100	80	7	560	560	
		Car hire	1100	300	10	3000	3,000	
	Meeting facility		500	2	1000	0	1,000	
	Meeting	Lunches, refreshments	3000	1,000	2	2000	2,000	
		Interpretation services	5100	500	10	5000	5,000	
Activity 1.1.2 Conduct inception workshops for farmers in the target regions of North Kordofan and Al Qatarif, in partnership with local authorities and sector associations.	National consultant (throughout 1.1)	Fee (month)	1700	2,000	6	12000	12,000	
		Travel (domestic flight + terminals)	1500	500	4	2,000	2,000	
		Travel (DSA/elsewhere)	1500	80	20	1600	1,600	
		Miscellaneous (taxi, telecom, etc.)	5100	1,000	1	1000	1,000	
Others	Staff travel	Travel (ticket+terminals)	1600	3,500	3	10500	10,500	
		Travel (DSA/elsewhere)	1600	80	10	800	800	
		Travel (DSA/Khartoum)	1600	220	4	880	880	
	Miscellaneous	Visibility, printing, telecoms, mails, etc.	5100	25,000	1	25000	25,000	
Total (Output 1.1)						72,500	71,500	1,000

Output 1.2:								
Sesame-seed growers strengthen their capacity to implement GAP and develop better understanding of international standards.								
Activity 1.2.1	International consultant (10 days home-based)	Fee (day)	1100	500	8	4,000	4,000	
Develop training materials and training curricula on adapting GAP for sesame-seed farmers.								
Activity 1.2.2	International consultant (26 days on-site / 4 days home- based)	Fee (day)	1100	500	40	20,000	20,000	
Conduct ToT and expert capacity building training programme to build the technical and outreach capacities of sector associations and/or advisors to provide advice to farmers in the area of GAP, compliance with SPS measures.								
		Travel (ticket+terminals)	1100	3,500	1	3,500	3,500	
		Travel (DSA/Khartoum)	1100	220	4	880	880	
		Travel (DSA/Others)	1100	80	22	1,760	1,760	
		Car hire	1100	300	5	1,500	1,500	
	Training/Workshop	Workshop/training facility		500	22	11,000		11,000
		Interpretation services		500	22	11,000		11,000
Activity 1.2.3	National consultant (throughout 1.2) *2 person	Fee (month)	1700	2,000	24	48,000	48,000	
Organize practical training on GAP implementation and monitoring, compliance with SPS measures for farmers and sector associations in the target regions of North Kordofan and Al Qadarif.								
		Travel (domestic flight + terminals)	1500					
		Travel (DSA/elsewhere)	1500	80	80	6,400	6,400	
		Miscellaneous (taxi, telecom, etc.)	5100	3,000	2	6,000	6,000	
	Training/Workshop	Workshop/training facility		500	20	10,000		10,000
		Lunches, refreshments	3000	1,000	8	8,000	8,000	

	Equipment	Seeds, farming equipment, basic testing equipment, etc.	4500	30,000	1	30,000	30,000	
Others	Staff travel	Travel (ticket+terminals)	1600	3,500	3	10,500	10,500	
		Travel (DSA/elsewhere)	1600	80	16	1,280	1,280	
		Travel (DSA/Khartoum)	1600	220	8	1,760	1,760	
	Miscellaneous	Visibility, printing, telecoms, mails, etc.	5100	40,000	1	40,000	40,000	
Total (Output 1.2)						215,580	183,580	32,000
Subtotal (Outcome 1)						288,080	255,080	33,000
Outcome 2:								
Export opportunities for Sudanese sesame-seed improved by complying with SPS measures and other international food safety standards.								
Output 2.1:								
Improved quality and hygiene conditions in the supply chain								
Activity 2.1.1 Baseline survey of product quality and hazards	National consultant	Fee (month)	1700	2,000	3	6,000	6,000	
Activity 2.1.2 Establish national network of sesame producer and marketing operators	National consultant	Fee (month)	1700	2,000	18	36,000	36,000	
		Travel (domestic flight + terminals)	1500	500	4	2,000	2,000	
		Travel (DSA/elsewhere)	1500	80	15	1,200	1,200	
		Miscellaneous (taxi, telecom, etc.)	5100	2,000	1	2,000	2,000	
Activity 2.1.3 Prepare and pilot GAP and quality manuals, training materials etc.	International consultant	Fee (month)	1100	11,000	2	22,000	22,000	
		Travel (ticket+terminals)	1100	3,500	1	3,500	3,500	
		Travel (DSA/Khartoum)	1100	220	5	1,100	1,100	
		Travel (DSA/elsewhere)	1100	80	9	720	720	
		Car hire	1100	150	14	2,100	2,100	

Activity 2.1.4 Identify and train trainers and implement national training programme	Training/Workshop	Workshop/training facility		500	14	7,000		7,000
		Lunches, refreshments	3000	12	100	1,200	1,200	
Activity 2.1.5 Develop traceability along the value chain (traceability manual)	International consultant	Fee (month)	1100	11,000	2	22,000	22,000	
		Travel (domestic flight + terminals)	1500	500	6	3,000	3,000	
		Travel (DSA/elsewhere)	1500	80	6	480	480	
		Travel (DSA/Khartoum)	1100	220	5	1,100	1,100	
		Miscellaneous (Visibility, taxi, telecom, etc.)	5100	20,000	1	20,000	20,000	
Total (output 2.1)						131,400	124,400	7,000
Output 2.2: Strengthened SPS measures								
Activity 2.2.1 Review and amend legal basis for SPS measures (sanitary conditions, pesticide management)	International consultant	Fee (month)	1100	11,000	2	22,000	22,000	
	National consultant	Fee (month)	1700	2,000	3	6,000	6,000	
		Workshop/training facility		500	10	5,000		5,000
		Lunches, refreshments	3000	12	100	1,200	1,200	
Activity 2.2.2 Design and implement strengthened export control system (farm level controls, approved exporters)	International consultant	Fee (month)	1100	11,000	1.5	16,500	16,500	
	National consultant	Fee (month)	1700	2,000	3	6,000	6,000	
Activity 2.2.3 Training of inspectors (SSMO, QCEDU) responsible for export control and certification	International consultant	Fee (month)	1100	11,000	2	22,000	22,000	
	Workshop/training facility			500	14	7,000		7,000
Total (output 2.2)						85,700	73,700	12,000
Output 2.3: Improved laboratory testing, inspection and certification assessment capacity and procedures								

Activity 2.3.1 The capacity for testing, certification and inspection services will be assessed, the needs for supporting quality at all levels of the value chain will be identified, proposals for filling any gap will be made and the following activities will be implemented under the project:								
Activity 2.3.1.1 Prepare coherent and viable laboratory development plans, including evaluation of testing required and the most appropriate test equipment – Provide technical specifications for equipment in the form of bidding documents as per UNIDO procedures for procurement	International consultant	Fee (month)	1100	11,000	1	11,000	11,000	
Activity 2.3.1.2 Supply laboratory equipment required for effective testing (1) in the field, in the form of test kits for basic parameters and (2) in the official laboratories so designated by Sudan, in the form of advanced instruments for reference tests, e.g. pesticide residue monitoring, aflatoxin content.	Equipment	For pesticide residue	4500	250,000	1	250,000	0	250,000
	Equipment accessories	For pesticide residue	4500	43,000	1	43,000	43,000	
	Laboratory rooms	For pesticide residue	5100	27,000	2	54,000		54,000
Activity 2.3.1.3 Train laboratory staff in setting up the laboratory management system in accordance ISO/IEC 17025	International consultant	Fee (day)	1100	500	14	7,000	7,000	
		Travel (ticket+terminals)	1100	3,500	1	3,500	3,500	
		Travel (DSA/Khartoum)	1100	220	10	1,100	1,100	
		Car hire	1100	200	5	1,000	1,000	
		Training/Workshop	3000	500	10	5,000		5,000
		Lunches, refreshments	3000	12	20	240	240	
	Contractual services	Accreditation	2100	40,000	1	40,000	40,000	
Activity 2.3.1.4 Carry out1 training workshop for inspection staff from relevant authorities and organizations on ISO/IEC 17020,	International consultant	Fee (month)	1100	11,000	1	11,000	11,000	
		Travel (ticket+terminals)	1100	3,500	1	3,500	3,500	

		Travel (DSA/Khartoum)	1100	220	10	2,200	2,200	
		Car hire	1100	150	5	750	750	
		Training/Workshop facility	3000	500	10	5,000		5,000
		Lunches, refreshments	3000	12	100	1,200	1,200	
		Participation from Al Qadarif, etc.	3000	1,500	20	30,000	30,000	
Activity 2.3.1.5		Fee (day)			10			
Conduct one training for SSMO in the area of certification.		Travel (ticket+terminals)	1100	3,500	1	3,500	3,500	
		Travel (DSA/Khartoum)	1100	220	5	1,100	1,100	
		Car hire	1100	200	5	1,000	1,000	
		Training/Workshop facility	3000	500	5	2,500		2,500
		Lunches, refreshments (5 days)	3000	12	6	72	72	
Activity 2.3.2	International consultant	Fee (month)	1100	11,000	1	11,000	11,000	
The national Sudanese standards for Sesame (SDS116:2009) and Sesame Oil (SDS0047:2009) will be reviewed following testing of these products to determine whether product characteristics specified in the current standards are applicable.		Miscellaneous (testing sesame and sesame oil, visibility materials)	5100	20,000	1	20,000	20,000	
Total (output 2.3)						508,662	192,162	316,500
Output 2.4:								
Economic activities of sesame-seed industry enterprises improved by enhancing development of new business linkages in the international market.								
Activity 2.4.1	Buyer's travel (10 days including travel) * 12 countries	Travel (ticket+terminals, economy class)	1500	2,500	12	30,000	30,000	
Organize a buyer's mission for importers of value added markets (EU, Japan, US, Korea, etc.) to visit Sudan.		Travel (DSA/Khartoum)	1500	220	72	15,840	15,840	
		Travel (DSA/elsewhere)	1500	80	48	3,840	3,840	
		Car hire (van)	5100	300	10	3,000	3,000	

		Interpretation services	3000	300	10	3,000	3,000	
	National consultant (throughout 2.4)	Fee (month)	1700	2,000	12	24,000	24,000	
		Miscellaneous (taxi, telecom, etc.)	5100	1,000	1	1,000	1,000	
Activity 2.4.2		Meeting room, facilities, equipment	3000	2,000	2	4,000		4,000
Organize a business networking event between trained and coached Sudanese sesame-seeds post-harvest handlers (including exporters) and potential buyers visiting Sudan.		Interpretation services		300	4	1,200		1,200
		Lunches, refreshments	3000	12	12	144	144	
		Travel (ticket+terminals)	1600	3,500	4	14,000	14,000	
		Travel (DSA/Khartoum)	1600	220	24	5,280	5,280	
		Visibility, printing, telecoms, mails, etc.	5100	15,000	1	15,000	15,000	
Total (Output 2.4)						120,304	115,104	5,200
Subtotal (Outcome 2)						846,066	505,366	340,700
Evaluation							20,000	
Total Outcomes 0,1 and 2						1,184,226	808,026	376,200
Implementation Services (12%)							96,963	
Total						1,281,189	904,989	376,200

ANNEX IV: LETTERS OF SUPPORT



جمهورية السودان
Republic Of Sudan
وزارة الزراعة والغابات
MINISTRY OF AGRICULTURE & FORESTRY
مكتب الوكيل
U.S. OFFICE



Date 22/03/2017.....

No: 1/2/19.....


التاريخ :
اللمرة :

TO: UNIDO Representative
Dear Sir,

Subject: Government Request for Implementation of "Strengthening SPS Compliance of Sesame Production in Sudan for Enhanced to International Markets" STDF Project

With Reference to your letter Dated: 15 March 2017 concerning the above mentioned subject. I would like to appreciate your genuine effort for preparation of project grant PPG. Due to the export problems that we face in the Agricultural Sector regarding the residues in sesame, bearing in mind that the 5 year economic plan emphasized on the export of oil crops especially the sesame so we kindly request UNIDO to implement the project with the assistance and close collaboration of the government of Sudan represented by Federal Ministry of Agriculture and forest (FMOAF) and oversee the technical and administrative implementation of this project. We recommend also in this regard to share these efforts with FAO as specialized UN agency.

Sincerely Yours,


Eng. Ali Gadoom Elghali
Undersecretary of the Ministry of
Agriculture & Forests

Tel :83772648- 83780358-83768193 - Fax:83782027 - P.O.Box :285 Khartoum

E-mail : moafuso@yahoo.com



Undersecretary

جمهورية السودان
الجمهورية العربية السودانية

Republic Of The Sudan

وزارة الصناعة
Ministry Of Industry



الوكيل

Date: 30 March 2017

Ref.: MOI/UO/


Dear Mr. Mohamed,

**Subject: Upgrading the Sudanese Sesame Seed Value Chain
Market Project**

With reference to your letter dated on 15 March 2017 regarding the above mentioned subject .I would like to convey to you that Ministry of Industry has the pleasure to support Sesame Seed Value Chain, as one of the main source of edible oil in Sudan.

It would be appreciated if UNIDO enhance the exportation of sesame products to increase the value added of row sesame.

Please accept my highest consideration.


Ballal Yousif Elmubark
Undersecretary
Ministry of Industry
SUDAN



To: Mr.Mohamed Elsayed Abdelmomen
UNIDO Country Representative
Sudan Office

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



هيئة البحوث الزراعية

Agricultural Research Corporation

مكتب المدير العام

Director General Office

Date: 22/03/ 2017

Ms, Kenza le Mentee
Economic Affair Officer
Standard and Trade Development Facility
Agriculture and commodities Division
World Trade Organization
Rue de Lausanne, 154, CH1211 Geneva
Switzerland

Dear Madame,

Agriculture Research Corporation (ARC) of Sudan is one of the oldest research institute in Africa. The ARC is responsible for conducting agricultural research in field and horticultural crops and acts as technical arm for the Ministry of Agriculture. Sesame is one of the important crop that has special program to improve its production and productivity and quality. A number of improved technologies have been released and those included improved varieties and cultural practices.

Sudan was one of the major exporters of sesame and groundnut in the world during 1970s. Recently sesame producers and exporters faced a lot of problems because of poor handling and lack of quality control. ARC is capable of solving all these problems and has been working to solve the problem of bitterness and the traditional harvesting of sesame. ARC is willing to work as a partner to address all issues regarding the quality control and all those hindering production and productivity of sesame.


Prof. Dr. Elsadig Suliman Mohamed Ali
Director General

ص.ب. 30، الخرطوم بحري، السودان
Tel: +249 (185) 313912 +249 (185) 313912
فاكس: +249 (185) 310813 +249 (185) 310813

ص.ب. 126، واد مداني السودان
Tel: +249 (511) 442226 +249 (511) 442226
فاكس: +249 (511) 443213 +249 (511) 443213



The Republic of the Sudan
Ministry of Trade
Dept. Int. & Regl. Organizations
Khartoum – SUDAN
E Mail: mtdeptorg.sd@gmail.com



جمهورية السودان
وزارة التجارة
ادارة المنظمات الدولية والاقليمية
الخرطوم – السودان
البريد الالكتروني :
mtdeptorg.sd@gmail.com

2017/7/26

/Draft letter:

To: Dr. Mohamed Abdelmomen,
UNIDO Country Representative

Subject: Upgrading the Sudanese sesame seeds value chain Market

With reference to the letter of the Undersecretary of the Ministry of Agriculture addressed to Undersecretary of the Ministry of Trade and your letter dated 21 June 2017, regarding the above mentioned subject, I would like to convey to you that Ministry of Trade have the pleasure to support Sesame seeds value chain and it would be appreciated if UNIDO to strengthening SPS compliance of sesame production in Sudan for enhanced access to international markets.

Thank you for your kind cooperation.


Nadir Elrayah Awad

For/under secretariat

ANNEX V: WRITTEN CONSENT FROM STDF PARTNER

Ministry of Agriculture and Forestry (MOAF) who is a partner of the project requested UNNIDO and FAO to implement the project The Minister of MOAF has committed to support implementation of the project by providing the project with the amount of US\$ 250,000 for equipment for setting up the laboratory at Plant Protection Directorate and space for the laboratory.

ANNEX VI: TERMS OF REFERENCE FOR KEY STAFF

(For testing, certification and inspection)



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

TERMS OF REFERENCE FOR PERSONNEL UNDER INDIVIDUAL SERVICE AGREEMENT (ISA)

Title:	International Senior Consultant in laboratory upgrading
Main Duty Station and Location:	Home-based, Sudan
Mission/s to:	Sudan
Start of Contract (EOD):	
End of Contract (COB):	
Number of Working Days:	21 days

ORGANIZATIONAL CONTEXT

UNIDO is the specialized agency of the United Nations that promotes industrial development for poverty reduction, inclusive globalization and environmental sustainability. The mandate of the UNIDO is to promote and accelerate sustainable industrial development in developing countries and economies in transition. With this mandate, the Organization carries out two core functions: as a global forum, it generates and disseminates industry-related knowledge; as a technical cooperation agency, it provides technical support, policy advice and implements projects. UNIDO's vision is a world where economic development is sustainable and economic progress is equitable.

PROJECT CONTEXT

This project aims to increase export revenues of sesame-seed in Sudan by improving the quality of sesame-seed, increasing capacity to comply with food safety and SPS measures, and enhancing market access to value-added markets. The project encompasses a series of interventions, based on a value chain approach, involving stakeholders from sesame-seed farmers, post-harvest handlers, facility owners, exporters, cooperatives and sesame-seed producer/exporter associations, etc. Stakeholders in the sesame-seed value chain including small farmers (of which many are women) will play a key role in implementation of activities. The project will engage public and private partnership for promoting sesame-seed exports to value added markets. Local government departments takes responsibility in extension and training, and related Ministries responsible for demonstrating compliance with the SPS requirements for trading partners.

The project has six outputs as follows:

- **Output 1.1:** Set-up farmer cooperatives in targeted two regions to develop baseline for horizontal cooperation among farmers.
- **Output 1.2:** Sesame-seed growers strengthen their capacity to implement GAP and develop better understanding of international standards.
- **Output 2.1:** Competency and skills developed for post-harvest handlers, such as primary collectors and regional traders to comply with international food safety requirements.
- **Output 2.2:** Traceability system along sesame-seed seed value chain developed.
- **Output 2.3:** Testing, inspection and certification assessment capacity and procedures strengthened
- **Output 2.4:** Economic activities of sesame-seed industry enterprises improved by enhancing development of new business linkages in the international market

The proposed assignment will contribute to Output 2.3. To achieve the results for Output 2.3, the project provides assistance for planning and developing capacities of testing, inspection and certification assessment.

Main Duties	Concrete/measurable Outputs to be achieved	Location	Duration
First Mission			
Desk review of existing laboratory capacities (equipment, technical and scientific staff) in the area of sesame testing in Sudan	Status report of laboratory capacities	Home, Khartoum	2 days
Discuss status report with SSMO and other relevant laboratories engaged in sesame testing or envisaging such involvement in future	Updated status report	Khartoum	1 day
Assess full testing needs in the sesame sector and consult with SSMO, other relevant laboratories (private and public), producers, processors and exporters of sesame, SPS focal point and authorities/regulators involved in food safety	List of parties consulted	Khartoum	3 days
Prepare a report on gaps in testing capacity for sesame (seeds and oil) and facilitate a workshop on report with all stakeholders.	Report and presentation	Khartoum	4 days
Review undated gap analysis report with representatives of laboratories/bodies/institutions involved. Consult on testing areas that need strengthening, identify laboratories that should be supported, equipment that should be procured and obtain agreement from group.	Gaps identified Laboratories to be supported selected Equipment to be procured identified	Khartoum	4 days

Prepare technical specifications and tender document for equipment to be procured	Tender prepared	Home	4 days
Help UNIDO assess bids from equipment suppliers and provide recommendations on selection	Bids evaluated	Home	2 days
Final report	Report	Home	1 day
Total Working Days			21 days

MINIMUM ORGANIZATIONAL REQUIREMENTS

Education: Advanced university degree in chemistry, analytical chemistry or related fields

Technical and Functional Experience:

- At least 10 years of relevant practice in a modern laboratory dealing with food testing using up to date sophisticated instrumentation;
- Previous experience in testing equipment procurement and tender procedures, preferably in UNIDO projects ;
- Proven abilities for synthesizing concepts, writing and editing reports;
- International field work experience with at least one aid agency such as UNIDO, FAO, WB, or EU;
- Previous experience in food testing in an accredited laboratory, preferably in the areas concerned within this project.

Languages: Fluency in written and spoken English is required.

REQUIRED COMPETENCIES

Core values:

1. Integrity
2. Professionalism
3. Respect for diversity

Core competencies:

1. Results orientation and accountability
2. Planning and organizing
3. Communication and trust
4. Team orientation
5. Client orientation
6. Organizational development and innovation

Managerial competencies (as applicable):

1. Strategy and direction
2. Managing people and performance
3. Judgement and decision making
4. Conflict resolution



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

TERMS OF REFERENCE FOR PERSONNEL UNDER INDIVIDUAL SERVICE AGREEMENT (ISA)

Title:	International Senior Consultant in inspection
Main Duty Station and Location:	Home-based, Sudan
Mission/s to:	Sudan
Start of Contract (EOD):	
End of Contract (COB):	
Number of Working Days:	21 days

ORGANIZATIONAL CONTEXT

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PROJECT CONTEXT

This project aims to increase export revenues of sesame-seed in Sudan by improving the quality of sesame-seed, increasing capacity to comply with food safety and SPS measures, and enhancing market access to value-added markets. The project encompasses a series of interventions, based on a value chain approach, involving stakeholders from sesame-seed farmers, post-harvest handlers, facility owners, exporters, cooperatives and sesame-seed producer/exporter associations, etc. Stakeholders in the sesame-seed value chain including small farmers (of which many are women) will play a key role in implementation of activities. The project will engage public and private partnership for promoting sesame-seed exports to value added markets. Local government departments takes responsibility in extension and training, and related Ministries responsible for demonstrating compliance with the SPS requirements for trading partners.

The project has six outputs as follows:

- **Output 1.1:** Set-up farmer cooperatives in targeted two regions to develop baseline for horizontal cooperation among farmers.
- **Output 1.2:** Sesame-seed growers strengthen their capacity to implement GAP and develop better understanding of international standards.

- **Output 2.1:** Competency and skills developed for post-harvest handlers, such as primary collectors and regional traders to comply with international food safety requirements.
- **Output 2.2:** Traceability system along sesame-seed value chain developed.
- **Output 2.3:** Testing, inspection and certification assessment capacity and procedures strengthened.
- **Output 2.4:** Economic activities of sesame-seed industry enterprises improved by enhancing development of new business linkages in the international market.

The proposed assignment will contribute to Output 2.3. To achieve the results for Output 2.3, the project provides assistance for planning and developing the national quality infrastructure system (NQIS). Beyond such institutional support, the project is strengthening at operational level the testing, inspection, certification and standardization functions.

Main Duties	Concrete/measurable Outputs to be achieved	Location	Duration
Desk review of existing inspection practices in Sudan. Summary assessment of compliance of inspection practices with the requirements of ISO/IEC 17020 for inspection.	Status report of inspection practices with regard to accreditation	Home,	3 days
Prepare and conduct 1-day day awareness seminar on the requirements of ISO/IEC 17020 for around 50 food inspectors, industry quality assurance personnel and staff from regulatory agencies	Seminar programme and presence list	Khartoum	3 days
Prepare and carry out 5-day training on ISO/IEC 17020 for around 15 practicing inspectors from agencies having statutory responsibilities for inspection as well as any private entity engaged in inspection	Training programme and training materials	Home, Khartoum	9 days
Prepare a report on improvement of inspection practices and a plan for its implementation, with measurable targets.	Report and plan prepared	Khartoum	4 days
Final report	Report	Home	2 day
Total Working Days			21 days

MINIMUM ORGANIZATIONAL REQUIREMENTS

Education: Advanced university degree in science, engineering or related fields

Technical and Functional Experience:

- At least 10 years of relevant practice in inspection within an inspection body that is accredited to ISO/IEC 17020 and which deals with food products;
- Previous experience in training and assisting inspection agencies/organizations, whether in public or private sector, to prepare for accreditation. Such assistance should have resulted in the assisted agencies/organizations effectively obtaining accreditation;
- Proven abilities for synthesizing concepts, writing and editing reports;
- International field work experience with at least one aid agency such as UNIDO, FAO, WB, or EU;
- Previous experience in conducting training and technical assistance in developing countries.
- **Languages:** Fluency in written and spoken English is required.

REQUIRED COMPETENCIES

Core values:

1. Integrity
2. Professionalism
3. Respect for diversity

Core competencies:

1. Results orientation and accountability
2. Planning and organizing
3. Communication and trust
4. Team orientation
5. Client orientation
6. Organizational development and innovation

Managerial competencies (as applicable):

1. Strategy and direction
2. Managing people and performance
3. Judgement and decision making
4. Conflict resolution



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

TERMS OF REFERENCE FOR PERSONNEL UNDER INDIVIDUAL SERVICE AGREEMENT (ISA)

Title:	International Senior Consultant in laboratory accreditation
Main Duty Station and Location:	Home-based, Sudan
Mission/s to:	Sudan
Start of Contract (EOD):	
End of Contract (COB):	
Number of Working Days:	14 days

ORGANIZATIONAL CONTEXT

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PROJECT CONTEXT

This project aims to increase export revenues of sesame-seed in Sudan by improving the quality of sesame-seed, increasing capacity to comply with food safety and SPS measures, and enhancing market access to value-added markets. The project encompasses a series of interventions, based on a value chain approach, involving stakeholders from sesame-seed farmers, post-harvest handlers, facility owners, exporters, cooperatives and sesame-seed producer/exporter associations, etc.

Stakeholders in the sesame-seed value chain including small farmers (of which many are women) will play a key role in implementation of activities. The project will engage public and private partnership for promoting sesame-seed exports to value added markets. Local government departments takes responsibility in extension and training, and related Ministries responsible for demonstrating compliance with the SPS requirements for trading partners.

The project has six outputs as follows:

- **Output 1.1:** Set-up farmer cooperatives in targeted two regions to develop baseline for horizontal cooperation among farmers.
- **Output 1.2:** Sesame-seed growers strengthen their capacity to implement GAP and develop better

understanding of international standards.

- **Output 2.1:** Competency and skills developed for post-harvest handlers, such as primary collectors and regional traders to comply with international food safety requirements.
- **Output 2.2:** Traceability system along sesame-seed value chain developed.
- **Output 2.3:** Testing, inspection and certification assessment capacity and procedures strengthened.
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The proposed assignment will contribute to Output 2.3. To achieve the results for Output 2.3, the project provides assistance for planning and developing the national quality infrastructure system (NQIS). Beyond such institutional support, the project is strengthening at operational level the testing, inspection, certification and standardization functions.

MINIMUM ORGANIZATIONAL REQUIREMENTS

Education: Advanced university degree in chemistry, analytical chemistry, science, engineering or related fields

Technical and Functional Experience:

- At least 10 years of relevant practice in a modern accredited laboratory dealing with food testing using up-to-date sophisticated instrumentation;
- Previous experience in training and assisting chemical and food testing laboratories to obtain accreditation. Such assistance should have resulted in the assisted laboratories effectively obtaining accreditation;
- Proven abilities for synthesizing concepts, writing and editing reports;
- International field work experience with at least one aid agency such as UNIDO, FAO, WB, or EU;
- Previous experience in conducting training and technical assistance in developing countries.
- **Languages:** Fluency in written and spoken English is required.

REQUIRED COMPETENCIES

Core values:

1. Integrity
2. Professionalism
3. Respect for diversity

Core competencies:

1. Results orientation and accountability
2. Planning and organizing
3. Communication and trust
4. Team orientation
5. Client orientation
6. Organizational development and innovation

Managerial competencies (as applicable):

1. Strategy and direction
2. Managing people and performance
3. Judgement and decision making
4. Conflict resolution



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

TERMS OF REFERENCE FOR PERSONNEL UNDER INDIVIDUAL SERVICE AGREEMENT (ISA)

Title:	International Senior Consultant in certification
Main Duty Station and Location:	Home-based, Sudan
Mission/s to:	Sudan
Start of Contract (EOD):	
End of Contract (COB):	
Number of Working Days:	10 days

ORGANIZATIONAL CONTEXT

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PROJECT CONTEXT

This project aims to increase export revenues of sesame-seed in Sudan by improving the quality of sesame-seed, increasing capacity to comply with food safety and SPS measures, and enhancing market access to value-added markets. The project encompasses a series of interventions, based on a value chain approach, involving stakeholders from sesame-seed farmers, post-harvest handlers, facility owners, exporters, cooperatives and sesame-seed producer/exporter associations, etc.

Stakeholders in the sesame-seed value chain including small farmers (of which many are women) will play a key role in implementation of activities. The project will engage public and private partnership for promoting sesame-seed exports to value added markets. Local government departments takes responsibility in extension and training, and related Ministries responsible for demonstrating compliance with the SPS requirements for trading partners.

The project has six outputs as follows:

- **Output 1.1:** Set-up farmer cooperatives in targeted two regions to develop baseline for horizontal cooperation among farmers.
- **Output 1.2:** Sesame-seed growers strengthen their capacity to implement GAP and develop better understanding of international standards.

- **Output 2.1:** Competency and skills developed for post-harvest handlers, such as primary collectors and regional traders to comply with international food safety requirements.
- **Output 2.2:** Traceability system along sesame-seed value chain developed.
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- **Output 2.4:** Economic activities of sesame-seed industry enterprises improved by enhancing development of new business linkages in the international market.

The proposed assignment will contribute to Output 2.3. To achieve the results for Output 2.3, the project provides assistance for planning and developing the national quality infrastructure system (NQIS). Beyond such institutional support, the project is strengthening at operational level the testing, inspection, certification and standardization functions.

Main Duties	Concrete/measurable Outputs to be achieved	Location	Duration
First mission			
Desk review of existing certification practices in Sudan with regard to product certification and food safety management system (FSMS) certification. Summary assessment of compliance of certification practices with the requirements of ISO/IEC 17065 for product certification and with ISO/TS 22003 for FSMS certification.	Status report of certification practices with regard to accreditation	Home,	2 days
Prepare and carry out a 3-day training on the requirements of ISO/IEC 17065 and ISO/TS 22003 for 12 SSMO personnel and any other public sector organization closely involved in certification matters	Training programme and training materials	Home, Khartoum	7 days
Prepare a report on improvement of existing certification practices and establishment of new certification areas within SSMO, with a plan for its implementation and with measurable targets. Consult and obtain agreement of SSMO on plan	Report and plan	Khartoum	1 days
Total Working Days			10 days

MINIMUM ORGANIZATIONAL REQUIREMENTS

Education: Advanced university degree in science, engineering or related fields

Technical and Functional Experience:

- At least 10 years of relevant practice in inspection within an inspection body that is accredited to ISO/IEC 17020 and which deals with food products;
- Previous experience in training and assisting inspection agencies/organizations, whether in public or private sector, to prepare for accreditation. Such assistance should have resulted in the assisted agencies/organizations effectively obtaining accreditation;
- Proven abilities for synthesizing concepts, writing and editing reports;
- International field work experience with at least one aid agency such as UNIDO, FAO, WB, or EU;
- Previous experience in conducting training and technical assistance in developing countries.
- **Languages:** Fluency in written and spoken English is required.

REQUIRED COMPETENCIES

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