

# Enhancement of date palm value chain in Yemen

Environmental and Social Management Plan (ESMP)

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## 1. Introduction

This enhancement of date palm value chain project in Yemen supports the National Agriculture Sector Strategy (NASS) which has a strong focus on the improvement of productivity and enhancing food security. The project is also in line with other national strategies including the National Food Security Strategy (NFSS), and the National Poverty Reduction Strategy and Investment Program (NWSSIP). Implementing special training for using pesticides for protecting the palm in Hadramout. Moreover, strengthen institutions that support the development of market-oriented agriculture for smallholders by better integrating smallholders in profitable value chains, through enhancing the capacity of producers and their associations.

The project is categorized as moderate because it will use pest control/management strategy (Ephestia Cautella pheromones (capsules) and RPW pheromone (capsules)). Although the use of these controllers is safe, the project has been rated as moderate to avoid any adverse impact related to the use of the pest control and management tools.

This Environmental and Social Management Plan (ESMP) was prepared according to the FAO's FESM which includes all required information about the date palm pest control tools activity.

#### 1.1. Project activities and components

The project activities aim at helping introduce new technologies and build the capacity of farmers to increase palm production and enhance the quality of the produced dates. They will include the transfer of technology, water, and crop management including integrated crop/pest management, in addition to applying value chain techniques and post-harvest technologies reaching marketing and storage. The project outcome is that Yemeni date farmers, processors, and traders consistently produce and market good quality dates. To achieve this outcome, the following activities will be implemented:

# Output 1: Capacities of date producers enhanced to improve farm productivity and produce good quality dates

**Activity 1.1:** Assess the status of the sector and identify the main actors in the date value chain in Hadramout

- Organize the inception workshop with all the counterpart ministries and relevant departments. (1 day, 40 participants)
- Assess the field situation of the date palm sector, identify the main actors of the date value chain process, and conduct a mapping exercise on the existing knowledge and capacity of farmers in the project target area (6 days, 20)

**enumerators)** These activities are co-led by three international Experts (International Expert on setting specifications and standards for date palm and date palm strategy; International expert on date palm value chain; and International expert on innovative technology for date production and marketing), supported by National Expert.

## Activity 1.2: Conduct training on improved date production and quality

- Conduct Training of Trainers (ToT) for agricultural extension staff working in the
  date palm sector, and agricultural workers, extensionists, and representatives
  from associations dealing with date palm, on date palm GAP (production, crop
  management, and quality control) (7 days, 10 participants). ToT is co-led by
  international expert on date palm value chain; and international expert on
  innovative technology for date production and marketing, supported by National
  Expert.
- Conduct GAP training to date producers and labourers. Training will be delivered by the participants of the TOT above. (2 days, 400 participants)

**Activity 1.3:** Establish dates palm value enhancement strategy upon organizing consultation workshops and undertaking desk review.

 Develop a date palm value enhancement strategy and obtain endorsement by the Government, led by the International Expert on setting specifications and standards for date palm and date palm strategy, supported by National and International value chain experts.

# Output 2: Capacities of dates traders and processors enhanced to meet market needs, focusing on the harvest and post-harvest handling

**Activity 2.1:** Conduct the study on dates traders and processors in Hadramout

- Collect data on the current situation of dates traders and processors in Hadramout
- Analyse and prepare the study report

**Activity 2.2:** Conduct the training course for harvest and post-harvest management of dates production

- Prepare the training course on harvest and post-harvest management of date production (1 working day, by National Exert on date palm value chain)
- Conduct training on harvest and post-harvest management of dates production,
   delivered through LOA (100 participants, 5 days. Lead trainer is National

Expert with technical backstopping of international expert on innovative technology for date production and marketing.

# Output 3: A pest management action plan for Hadramout established and capacities built to roll it out, with a focus on the Red Palm Weevil

#### Activity 3.1: Prepare and roll out the IPM action plan

• Establishment of a pest management action plan focused on controlling the Red Palm Weevil by the international IPM Expert in consultation with government authorities, supported by National Expert

## Activity 3.2: Conduct the IPM ToT training

- Conduct training of trainers on dates diseases and pest management, especially for RPW (15 participants, 5 days) Trainer is International Expert on IPM. They will deliver a IPM module in the GAP training (activity 1.2)
- Provide input to implement IPM for RPW

# Activity 3.3: Distribute IPM inputs

 Select and register the beneficiaries and distribute the IPM inputs (done through LOA) FAO will provide the targeting criteria. The SP will select and register the beneficiaries, undertake distributions and give on-site training on how to use the inputs.

The project targets the date palm in Yemen that suffers from several insects mainly the red palm weevil, which has posed serious challenges to two newly established factories for packing dates to work efficiently. The plant pests and diseases, production practices, and infrastructural obstacles are considered as main limiting factors of the date production and marketing in Yemen which threaten local and regional food security and the livelihoods of millions of people especially in the poorest areas

#### 1.2. Nature and Scope of Work

The nature and scope of work are to provide and distribute materials, supplies and equipment related to the date palm pest control tools to the beneficiaries. The items that will be distributed are in the following table:

Table 1: Materials, supplies and equipment (items to be distributed to the beneficiaries)

No.	Item	No. of units
1	Pollination machine	4
2	Fuel-powered drills for the control of the RPW	4
3	Manual 15-liter sprayers	4
4	Ephestia Cautella pheromones (capsules)	60
5	RPW pheromone (capsules)	50
6	Pollen extract machine	4
7	Palm leaf shredder	4

These materials, supplies and equipment will be distributed to the beneficiaries in four districts in Hadharamout governorate: Tareem, Alqatn, Saioun, and Shebam. These items will be procured, important, stored, transported, distributed and handled in the field within the projects. The materials, supplies and equipment will be used to explain to the beneficiaries how to be used for pest control and management. The procurement, importation, storage and transportation will be conducted through a supplier, while the distribution and handling will be implemented by the FAOYE IP and FAO technical staff. The supplier and IP activities will be conducted under the supervision, follow up and monitoring of FAOYE staff through contracts and LoAs.

#### 1.3. Location

The planned activities will focus and cluster in Hadramout, in particular Tareem, Alqatn, Saioun, and Shebam, as Hadramout Governorate alone represents around 40 percent of the total palm cultivation area in Yemen. Around 90 percent of the palm plantations in the Hadramout Governorate are individual/family orchards ranged between 1-10 ha. The following table includes the target districts and date palm cultivation area.

Table 2: Date palms cultivation in Hadramout governorate

No.	District	Area/ ha
1	Tareem	505.85
2	Alqatn	377.70
3	Saioun	344.39
4	Shebam	268.36

# 2. Policy, legal and institutional framework

This section discusses and summarizes the provisions of key policy and legal framework and requirements of government related to the environmental, social, pest management. The section also discusses other international policies/regulations on use of environmental and social safeguards as well as FAO Framework for Environmental and Social Management (FESM) including the Environmental and Social Standard related to pest management and its key requirements.

# 2.1 Environmental Policy, Strategies, Regulations and Law in Yemen

The environmental related polices and laws in Yemen include inter alia: The Environment Protection Law (EPL) number 26 of 1995, forming the basis for environmental protection, issuance of permits, and environmental impact assessments (EIAs). The provisions of this law are implemented through Executive Regulations (By-Law 148-2000), issued by a decree of the Council of Ministers to protect the environment, natural resources, society, and health. In addition, the law is designed to protect the national environment from activities practiced beyond national boundaries and to implement international commitments ratified by the Republic of Yemen in relation to environmental protection, control of pollution, conservation of natural resources, and such globally important environmental issues, such as ozone layer depletion and climate change.

The law equally stipulates the incorporation of environmental considerations in economic development plans at all levels and stages of planning for all sectors. It also requires the preparation of EIAs for projects proposed by the public and private sectors. However, to date there is still no regulatory framework to support the implementation of the EPL and the provision of undertaking EIAs for projects is not strictly enforced.

Equally important, environmental standards and specifications have been prepared by the former Environment Protection Council as annexes to the Executive Regulations, covering potable water quality, wastewater quality for agriculture, and ambient air quality, emissions, noise, biodiversity, and protected areas. These include standard application forms intended for use by all relevant government bodies. Also, there are other policies, strategies, and programs in Yemen to safeguard the Environment. The list of these policies, strategies and programs are:

- National Environmental Action Plan
- Environment & Sustainable Investment Program
- Biodiversity Strategy
- Environmental Impact Assessment Policy for the Republic of Yemen
- Reports on the State of Environment (by Environment Protection Authority [EPA])
- Evaluation of Future Development of the EIA System in Yemen

#### National Environmental Action Plan

The foundational document for environmental management in Yemen is the National Environmental Action Plan (NEAP) that the ROY prepared in 1995, with the support of the UNDP and the World Bank. The NEAP defines priority actions regarding key environmental issues such as water resources, land resources, natural habitats, and waste management.

#### • Environmental Protection Law

The Environmental Protection Law (Law 26/1995; EPL), was enacted in 1995 in the wake of the NEAP. It constitutes the framework environmental legislation for Yemen, including provisions for environmental protection, the issuance of permits, and the requirement to prepare Environmental Impact Assessments (EIAs). The provisions of the law are implemented through By-Law 148/000.

# Environmental Protection Authority1

The EPL established an Environmental Protection Council (EPC) and granted it power to take all measures necessary to protect and improve the quality of the environment and to prevent pollution of the environment. Decree 101/2005 established the Public Environmental Protection Authority (EPA) to replace the EPC and lays down its objectives, tasks, and management.

# • Environmental Impact Assessments (EIA)

The EPL requires the preparation of EIAs for projects proposed by the public and private sectors. The proponent is responsible for undertaking the EIA, but the report may be prepared by the proponent or the competent authority or both. Line ministries and Government bodies commission EIA studies at the request of funding agencies and seek the advice of the EPA.

The EPA is responsible for implementing screening procedures, assisting in scoping, evaluation and approval of the Environmental Impact Statement (EIS). However, there is still no regulatory framework to support the implementation of the EPL and the provision of undertaking EIAs for projects is not strictly enforced, particularly for projects that are not internationally funded.

Given the current context, modifications to the EIA procedures are not expected during the project. Current procedures will be considered, but there is no expectation at this point that the EPA will review the Project's safeguard instruments.

#### National Environmental Standards and Specifications

<sup>&</sup>lt;sup>1</sup> The information regarding the Environmental Protection Authority is purely indicative, as the EPA will not play any role during Project implementation.

The former Environment Protection Council (EPC) issued environmental standards and specifications as annexes to the Executive Regulations, covering potable water quality, wastewater quality for agriculture, and ambient air quality, emissions, noise, biodiversity and protected areas. These include standard application forms intended for use by all relevant government bodies.

The EPC has released draft standards for wastewater quality and air quality, but a comprehensive set of standards is not yet available. In their place international standards, primarily those of the World Health Organization (WHO), are used.

#### Labor Law

The Labor Law (Law 5/1995) requires employers to address Occupational Health and Safety issues, including ventilation and lighting of workspaces; protection from emissions (gas, dust, etc.) hazards; protection from machine accidents and hazards; provision of gender-specific toilet facilities; provision of safe drinking water for workers; basic firefighting equipment and emergency exits; provision of appropriate personal protection equipment; fair compensation; access to periodic medical examinations; availability of first aid.

The Labor Law regulates the rights and wages of workers, their protection, occupational health and safety. In addition, the Social Insurance Law regulates retirement compensation. Article 5 of the law mentioned "Work is a natural right of every citizen and a duty for everyone who is capable of working, based on equal conditions, opportunities, guarantees and rights without discrimination on grounds of sex, age, race, color, beliefs or language. The State shall, as far as possible, regulate the right to access to work through development planning of the national economy<sup>2</sup>.

#### • Pesticide Law in Yemen

The Pesticides Law was decreed in 1999 (Law No. 25 of 1999) and includes seven chapters and 36 articles. Executive regulations for enforcement are to be issued by resolution of the Minister of Agriculture and Irrigation. A registration guide and executive regulations were prepared to facilitate enforcement. Penalties for violations are stated. The law's objectives are to regulate the handling, registration, and inspection of pesticides and to avoid the poisonous effects on humans, and animals, the environment, and economically beneficial insects. The competent authority for enforcing the law is the General Directorate of Plant Protection (GDPP) of the MAIF, and the Directorate is to coordinate its work with the EPA. Captafol, Dichlorvos, DD, Methiocarb, Methomyl, Methidathion, Carbofuran, Monocrotophos, Fenamiphos, Propetamphos and Captan are some of the most important prohibited pesticides.

<sup>&</sup>lt;sup>2</sup> International Labor Organization, Yemeni Labor Law, Presidential Legislative Order to promulgate the Labour Code, Act No. 5 of 1995:

https://natlex.ilo.org/dyn/natlex2/r/natlex/fe/details?p3\_isn=44043&cs=1MMgUTx8tBtZbtZf3gtE\_5mtqgtRB\_RDKxrI0sS0e\_GXJfXBMk-vKuzBaF8hU2r3TaJcFmyhWCQgSE9dIC1Oissw

The list of all prohibited and smuggled pesticide in Yemen is attached in annex 1. And the list of homologated/authorized pesticides as well as the major pest of economic and agricultural importance in Yemen are in annex 2.

In order to control the quality of imported pesticides, the government established the "Pesticides Formulation Laboratory". In 1999, Parliament approved the Agricultural Pesticides Act. Procurement of pesticides is envisaged under the project. Precautions to avoid excessive and improper pesticide use are required. A mechanism will be put in place to demonstrate Integrated. Pest Management procedures and to develop a farmer education program that stresses good and safe practices for storage and application of pesticides

# 2.2 FAO's Environmental and Social Management Relevant Policies and Procedures

The project is classified as moderate risk according to FAO's Framework for Environmental and Social Management. To ensure the project does not pose any negative environmental and social impacts, some mitigation actions are necessary. The triggers FAO FESM's standards related to the project are Standard 1 on Biodiversity conservation and sustainable management of natural resources, Standard 2 on resource efficiency and pollution prevention and management, Standard 4 on decent work, Standard 5 on community health, safety and security, and Standard 6 Gender equality and prevention of gender-based violence.

#### • 4.4.1 Criteria for Pesticide Selection and Use

In instances where pesticides/pest management and control tools are used in the project areas, the following criteria apply to the selection and use of such pesticides: (a) they will have negligible adverse human health effects; (b) they will be shown to be effective against the target species; (c) they will have minimal effect on non-target species and the natural environment.; (d) their use will take into account the need to prevent the development of resistance in pests; (e) where registration is required, all pesticides will be registered or otherwise authorized for use on the crops and livestock, or for the use patterns for which they are intended under the project; and (f) another important consideration in choosing a pesticide is its toxicity. The LD50 value of an insecticide is commonly used as a measure of its toxicity.

The LD50 is defined as the single dose of a chemical that results in a 50 percent mortality to a population within a specified time. It is expressed in milligrams (mg) of pesticide per kilogram (mg/kg) of the test animal's body weight. Generally, the lower the number the higher the acute toxicity. LD50s tell us nothing of the possible chronic effects of these compounds nor possibilities of sublethal toxicity. A high acute LD50 (low acute toxicity) does not mean that a compound can be used

carelessly, or that it is safe as long as exposure levels are below that of acute toxicity.

The methods, timing, and frequency of pesticide/ pest management and control tools application are aimed to minimize damage to natural enemies. Pesticides used in public health programs will be demonstrated to be safe for humans and domestic animals in the treated areas, as well as for the personnel applying them. Some instances may warrant the use of pesticides that have impacts on non-target species.

# • FAO Guidelines on Good Practice for Ground Application of Pesticides (2001)

These guidelines are aimed at decision-makers, managers, field supervisors and spray operatives. However, it must be emphasized that in some countries, legislation is already in place to control safe and efficient pesticide use and application. Accordingly, local legislation, or voluntary codes must be the first point of reference with this set of guidelines offered as additional information. This is an important point, as compliance with local legislation may have legal significance in the event of a claim against the poor field performance of a pesticide.

https://www.fao.org/fileadmin/templates/agphome/documents/Pests Pesticides/Code/Old guidelines/Ground application.pdf

# • FAO Guidelines on Management Options for Empty Pesticide Containers (2008)

These guidelines provide advice on the management of one-way pesticide containers following the deployment of their contents. Unless empty pesticide containers are managed correctly, they are hazardous to both mankind and the environment. There is a danger that empty containers could be reused for storing food and water, which could result in pesticide poisonings. Containers abandoned in the environment can lead to pesticide pollution in soil and groundwater. A container management scheme can minimize these risks and is part of the "life-cycle concept" as addressed in the International Code of Conduct on the Distribution and Use of Pesticides.

A container management scheme should ensure that:

- The containers are decontaminated directly following the use of their contents;
- Inappropriate use of the empty containers is prevented; and
- The project will procure drum cleaners and crushers to ensure the cleaning and crushing of empty containers immediately after use.

The safety of pesticide users and the public is of paramount importance when designing a container management scheme. Successful container management schemes around the world have been achieved only with the engagement and support of all stakeholders in the supply chain for pesticides. These stakeholders include government bodies, manufacturers, users, distributors and suppliers, recyclers and disposers, NGOs, and trade unions. This guideline identifies how each of these stakeholders can contribute to a container management scheme. The guideline considers the role of manufacturers in the design of the containers and the formulation of the product as well as their responsibility for product stewardship.

http://www.fao.org/3/a-bt563e.pdf

# 2.3 International Policies, Regulations and Guidelines on Use of Pesticides

# • International Plant Protection Convention (IPPC) of FAO (1952)

The IPPC is an international treaty to secure action to prevent the spread and introduction of pests of plants and plant products, and to promote appropriate measures for their control.

http://www.fao.org/fileadmin/user\_upload/legal/docs/004s-e.pdf

# United Nations Framework Convention on Climate Change (1992)

The convention seeks to regulate levels of greenhouse gases (GHGs) concentration in the atmosphere, to avoid the occurrence of climate change at levels that would harm economic development, or that would impede food production activities. In essence, the locust thrives on vegetative and forage parts of plant and therefore depleting carbon sinks. Abating the invasion will not save vegetation cover but allow for rejuvenation of the damaged forage.

https://unfccc.int/files/essential\_background/background\_publications\_htmlpdf/application/pdf/conveng.pdf

#### • Convention on Biological Diversity (1992)

The Convention on Biological Diversity adopts a broad approach to conservation. It requires Parties to the Convention to adopt national strategies, plans and programs for the conservation of biological diversity, and to integrate the conservation and sustainable use of biological diversity into relevant sectorial and cross-sectorial plans, programs, and policies. The proposed program is expected to conserve biodiversity, especially the rare and endangered species in the project area and its environs. In addition, the United Nations Convention on Biological Diversity (CBD) provides a regulatory framework for the conservation of biological resources at the international level.

# World Food Security and the Plan of Action of November (1996)

This declaration seeks to secure effective prevention and progressive control of plant and animal pests and diseases, including especially those which are of transboundary nature, such as Desert Locust, where outbreaks can cause major food shortages, destabilize markets, and trigger trade measures. It promotes regional collaboration in plant pests and animal disease control and the widespread development and use of safe pest management methods such as integrated pest management practices.

http://www.fao.org/3/w3548e/w3548e00.htm

# • FAO/WHO International code of conduct on pesticide management, guidelines for personal protection when handling and applying pesticides (2020)

These guidelines were prepared by the FAO/WHO Joint Meeting on Pesticide Management (JMPM) to provide further guidance on the provisions of the FAO/WHO International Code of Conduct on Pesticide Management that are related to personal protection of pesticide users. These guidelines update and replace the 1990 FAO guidelines on personal protection when working with pesticides in tropical climates. They reflect the joint FAO/WHO approach to pesticide management, thus addressing personal protection of both agricultural and public health operators and applicators, the latter being engaged in using insecticides for vector control.

These guidelines are intended to provide guidance on pesticide risk reduction through reduced exposure by effective personal protection with special attention to the use of Personal Protective Equipment (PPE). First, they provide technical information on personal protection and on the selection and use of PPE. Second, in line with the FAO/WHO International Code of Conduct on Pesticide Management, they address policy issues and recommend measures to improve personal protection and specifically the use and availability of adequate quality and affordable PPE.

They are primarily aimed at government authorities in charge of pesticide management and risk reduction but are also considered useful to public and private sectors such as pesticide industry, non-governmental organizations (NGO) and other relevant entities. More specifically, these guidelines are targeted at stakeholders in low- and middle-income countries (LMICs) where it is acknowledged that there is limited legislation, compliance and enforcement, and PPE availability.

## 3. Environmental and social baseline

# 3.1 Physical environment:

#### 3.1.1 Topography

Hadhramaut is geographically divided into Inner Hadhramaut which is made up of Wadi Hadhramaut, smaller tributary wadis south from the main wadi, and Coastal Hadhramaut which consists of a narrow, arid coastal plain bounded by the steep escarpment of a broad plateau locally known as the Jowl. The undefined northern edge of Hadhramaut slopes down to the desert of the Empty Quarter, where the Hadhramaut Plateau or Highlands meets the Gulf of Aden in the Arabian Sea, elevation abruptly decreases.

The topography of Hadhramout governorate is diverse and comprises several distinct features:

**Mountain Ranges**: The governorate includes the Hadhramaut Mountains, which run parallel to the coast and feature rugged terrain, steep cliffs, and valleys. The mountains can reach elevations of over 2,000 meters<sup>3</sup>.

**Coastal Plains**: Along the Arabian Sea, Hadhramout has coastal plains that are generally flat and fertile, suitable for agriculture and fishing.

**Deserts and Plateaus**: Inland areas consist of arid desert landscapes and plateaus, characterized by sandy terrain and sparse vegetation.

**Wadis**: Numerous dry riverbeds, known as wadis, traverse the region, providing seasonal water flow and supporting local agriculture during rainy periods.

**Valleys**: Fertile valleys within the mountain ranges are important for agriculture, allowing for the cultivation of various crops.

Generally, the topography of Hadhramout plays a crucial role in shaping its agricultural practices, water resources, and settlement patterns<sup>4</sup> <sup>5</sup>.

#### 3.1.2 Climate

Hadhramaut Governorate is characterized by the diversity of its climate, depending on the diversity of its surface. The temperature of Hadhramout is generally high temperatures, especially in the summer months (June to September), where daytime temperatures can exceed 40°C (104°F). Winters (December to February) are milder, with temperatures ranging from 15°C to 25°C (59°F to 77°F)<sup>6</sup>. About the precipitation, the region receives limited rainfall, averaging between 100 to 300 mm

<sup>&</sup>lt;sup>3</sup> https://en-ie.topographic-map.com/map-dkcv3l/Hadramaut-Governorate/?center=16.84759%2C48.54309&popup=17.25722%2C49.61975

<sup>&</sup>lt;sup>4</sup> https://humanitarianatlas.org/yemen/

<sup>&</sup>lt;sup>5</sup> https://en.wikipedia.org/wiki/Hadhramaut

<sup>&</sup>lt;sup>6</sup> https://www.timeanddate.com/weather/@75411/climate

(4 to 12 inches) annually. Most of the rainfall occurs during the monsoon season, typically from late summer to early autumn (July to October). As for the humidity, the coastal areas experience higher humidity levels due to proximity to the Arabian Sea, while inland areas are drier.

The climate can vary significantly between coastal and inland areas, with coastal regions being more temperate and the interior regions experiencing more extreme temperatures and aridity.

Coastal parts: The coastal climate prevails and is often hot in summer and moderate in winter.

Mountainous parts: Its climate is moderate in summer and cold in winter. The desert parts climate prevails and is hot and dry throughout the year<sup>7</sup>.

#### 3.1.3 Soils:

The soils in the districts of Tarim, Al-Qatn, Sayun, and Shibam in Hadhramout exhibit specific characteristics influenced by the region's climatic and geographical conditions. The first chractistrics is the alluvial Soils. Many areas, particularly along wadis, have alluvial soils deposited by seasonal floods. These soils tend to be more fertile due to the nutrient-rich sediments brought by water. Clayey and loamy textures are common in the targeted districts. In some regions, especially in agricultural zones, soils may have clay or loamy textures, which retain moisture better and are more suitable for crop cultivation. For desertification, parts of these districts may also experience desertification, leading to soil degradation and loss of arable land. About the irrigation practices: Traditional irrigation methods, such as the use of qanats (underground channels), are common in these districts, helping to manage water resources and improve soil conditions for agriculture<sup>8 9</sup>.

# 3.2 Biological environment

#### 3.2.1 Flora

The vegetation cover in the governorate varies according to the diversity of the surface and the nature of the prevailing climate. The mountainous parts cover the surface with different types of perennial trees such as Sidr, Samr, Qardh, Talh, in addition to palm trees spread in most of the directorates located in those parts, in addition to that many types of grasses and small plants grow, especially during the rainy seasons.

<sup>7</sup> 

https://ar.wikipedia.org/wiki/%D8%AD%D8%B6%D8%B1%D9%85%D9%88%D8%AA\_(%D9%85%D8%ADD8%B8%D8%AA)

<sup>8</sup> https://www.britannica.com/place/Hadhramaut

<sup>9</sup> https://journalpro.ru/articles/yemenis-soil-features-and-its-geographical-distribution/

In the desert districts, the vegetation cover is represented by Athl, Sisan, Ashar, Arak trees, in addition to Sidr, Qardh, Samr trees that are spread in some of those directorates, in addition to grasses and small seasonal plants.

It is crucial to highlight that palm trees are the most widespread in most of the governorate distorts and thus constitute a large percentage of the total types of vegetation cover available in the governorate<sup>10</sup>.

#### 3.2.2 Funa

There are some types of wild animals in different parts of the governorate, the most important of which are lions, tigers, foxes, rabbits, hedgehogs, which are found rarely in desert areas.

There are different types of birds, the most important of which are falcons, kites, owls, and wild pigeons, in addition to other types of birds of different sizes and names, which are concentrated in agricultural areas and valleys with dense trees.

#### 3.2.3 Location

Hadhramoutt Governorate is a governorate of Yemen. Lying within the large historical region of Hadhramaut, it is the country's largest governorate. The capital of Hadhramout is the city of Mukalla. Other cities in Hadhramaut include the historical towns of Shebam, Sena, Saioun, Tareem, and Ash Shihr<sup>11</sup>. Hadhramout is located in the southeastern part of the Republic of Yemen, 794 kilometers east of the capital of Sana'a, between Al-Mahra to the east and Al-Jawf, Marib, and Shabwah to the west. The governorate is divided administratively into 28 districts, with the city of Mukalla as its capital. Hadhramout is the largest governorate of Yemen by area. It borders the Kingdom of Saudi Arabia in the north<sup>12</sup>.

#### 3.3 Socio-economics Issues

# 3.3.1 Economic issues

Most of the economically active population in Hadhramout is engaged in agriculture, fishing, or livestock rearing. The governorate produces around 5% of Yemen's total agricultural production, notably dates, cereals, and cash crops. Hadhramout's coast includes rich fisheries in the Arabian Sea. Alongside Marib and Shabwah, the governorate is home to the main oil-producing region of Yemen. Other mineral

<sup>10</sup> 

https://ar.wikipedia.org/wiki/%D8%AD%D8%B6%D8%B1%D9%85%D9%88%D8%AA\_(%D9%85%D8%AD%D8%A7%D9%81%D8%B8%D8%A9)

<sup>11</sup> https://en.wikipedia.org/wiki/Hadhramaut\_Governorate

<sup>&</sup>lt;sup>12</sup> Local Governance in Hadhramout, Yemen – maps, data and resources

resources, such as gold, are present. Hadhramout has many cultural landmarks, but tourism is very limited.

According to Hadhramout's 2014 budget, grants and central subsidies constituted 89% of the total revenue for the governorate, while local revenues accounted for 11%. The most significant sources of local revenue were local shared revenues, taxes, income from the sale of goods and services, and fines and penalties.

Despite the disruption of central government subsidies in various governorates, the local authority in Hadhramout has kept its local revenues, being far from military confrontations. This has enabled the government to continue regular payment of salaries and to cover the operational costs of the governorate. In addition, the governorate covers the investment budget for services and infrastructure maintenance from oil income, which the governorate currently receives according to a 20%-80% formula. The residents of Hadhramout had previously called for a share of oil income. The "all-inclusive Hadhramout Conference", held on 26 April 2017, for example, called for increasing the governorate's share to 20% for reinvestment in the governorate. Hadhramout has also received support from its large diaspora, which has been instrumental for the governorate to continue service provision. According to the 2014 Household Budget Survey, the poverty rate in Hadhramout was 60% of the total population. This number has likely increased since. Despite the absence of open conflict in the governorate, rapid inflation has eroded purchasing power among the population<sup>13</sup>.

#### 3.3.2 Access to basic services

There are approximately 1,000,000 people in need of assistance in Hadhramout (approximately 62% of the population), 56% of whom are in dire need. The current IDP population of Hadhramawt is 450,000 (status December 2022). In the health sector, hospitals and health centers are working regularly to provide services to the population. They are supported by the local authority and by donors. This support has allowed the maintenance of service provision levels as well as expansion and construction of new health facilities and equipment. Despite functioning health facilities, the services provided are insufficient to meet the demands of the population, especially with the influx of people displaced from Al-Mahra and Shabwah. Schools in the governorate have not been affected by the conflict. Teachers' salaries are being paid regularly and education has continued without disruptions. As for drinking water, 94% of households in Hadhramout had access to potable water in 2017<sup>14</sup>.

<sup>13</sup> https://yemenlg.org/governorates/hadhramout/

<sup>14</sup> https://yemenlg.org/governorates/hadhramout/

#### 3.3.3 Demographics:

The governorate of Hadhramout is 187,542 km<sup>2</sup> and consists of 28 districts and the city of Mukalla is the capital of the governorate. The governorate total population is 1,551,346 people (725,885 female and 825,461 males) as of 2021 according to OCHA<sup>15</sup>. About the population in the four targeted districts, the total number of population is 499,281 people (234,147 female and 265,134 male) according to OCHA in its Humanitarian Needs Overview in 2021<sup>16</sup>.

Dietriet		Population		
District	Female	Male	Total	
Tareem	74,030	85,737	159,767	
Alqatn	47,584	52,809	100,393	
Saioun	75,677	85,861	161,538	
Shebam	36,856	40,727	77,583	
Total	234,147	265,134	499,281	

Table 3: Number of populations in the target districts in Hadhramout Governorate

# 4. Risk classification and management

For moderate-risk programme or projects, FAO requires a limited social and environmental assessment and review. The Environmental and Social management plan (ESMP) will identify the potential environmental and social risks and impacts, along with appropriate mitigation measures. It will emphasize the application of recognized good practices to ensure the effectiveness and relevance of the interventions. Once the potential environmental and social risks and impacts of program or project activities are identified, appropriate measures to mitigate, monitor and manage these impacts need to be established. These measures will be documented in the integrated into the assessment.

The project has been categorized as moderate based on the ESS screening checklist in FPMIS by the Project LTO. The nature of the activities and scope of work which include pest management control tools, materials, supplies and equipment, shows that there will be potential environmental, health, safety and social impacts and risks.

The project has been classified as moderate risk based on the ESS screening checklist in FPMIS by the Project LTO. The nature of the activities and scope of work which include pest management control tools, materials, supplies and equipment, shows that there will be potential environmental, health, safety, and social impacts

<sup>&</sup>lt;sup>15</sup> The 2021 Humanitarian Needs Overview Yemen, OCHA: <u>Local Governance in Taiz, Yemen – maps, data</u> and resources (yemenlg.org)

<sup>16</sup> https://yemenlg.org/governorates/taiz/

associated with pest management control tools, materials, supplies, and equipment. Effective risk management is crucial to be in place. Conducting a health risk assessment for workers handling these materials is essential, alongside providing proper training and personal protective equipment (PPE). Engaging with local communities will inform them about pest management activities and establish feedback mechanisms for addressing concerns. Additionally, adopting sustainable pest management practices and maintaining transparent documentation will further enhance risk management, ensuring a safe and environmentally responsible project implementation.

# 5. Describe the potential environmental and social risks and impacts

The potential environmental, social, health, safety, SEA, HS impacts and risks associated with the planned activities of the project are classified moderate. The potential impacts and risks are the different stage of the planned activities: during transportation, storage, distribution and implementation.

The negative impacts during transportation are damage, leakage, spillage and contamination by the pest control products, product loss and potential human and environmental exposure, traffic accidents.

In the storage stage, the potential adverse impacts associated with the storage of the materials, supplies and equipment are:

- Damage, leakage/spillage and contamination
- Inadequate storage at farm level
- Lack, uncompleted protective gear and absorbent materials
- Poorly built store, lack of ventilation and floor space leading to containers wrongly stored.
- Prolonged storage of products causes caked formulations.
- Looted or damaged procured assets under the project (especially the pesticide).

About Distribution and implementation/application of the Integrated Pest Management (IPM) inputs, the potential risks are as follows:

#### Environmental Risks:

- Chemical Exposure: The use of pheromones and other pest control materials may lead to unintended environmental contamination if not handled and applied correctly.
- Improper application of pest management tools could harm non-target species, disrupting local ecosystems and reducing biodiversity.
- Soil and Water resources Contamination: Runoff from treated areas could lead to contamination of soil and water bodies, affecting local agriculture and

wildlife as well as due to poor storage and poor disposal and management for waste and construction materials.

# Health and Safety Risks:

- Trainers/workers and beneficiaries' safety: Individuals handling the IPM inputs, such as sprayers and pheromones, may face health risks due to exposure to chemicals or physical injuries from equipment.
- Falls from height during application on date palms.
- Equipment Malfunction: Fuel-powered drills and other machinery may malfunction, leading to delays and potential safety hazards during usage.
- Community Health: If not properly communicated, the application of these inputs could pose risks to local communities, particularly if they are unaware of the chemicals used and their potential effects.

#### Social Risks:

- Community Acceptance: There may be resistance or skepticism from local communities regarding the use of new pest management tools, impacting the effectiveness of training and implementation.
- Lack of complaints resolutions
- Gener Based Violence (GBV), Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)
- Conflict Issues: Security risk for the project team due to exclusion from the project benefits.

# 5.1 General environmental and social mitigations and monitoring responsibility plan

Table 4 Environmental and social mitigations and monitoring plan

Risks at various stages	Potential Risk	Potential Risk Type	Mitigation Measures	Responsibilities and monitoring	Timeframe	Cost
Enhancement	Not follow/	Social &	In the local rural communities,	MAIF/Associations /AREA	Projects	Integrated
of Date Palm	responding to	Environmental	the sheikhs and Aqils, who		implements	within
Value Chain in	the instructions		rule the community by		activities	project
Yemen Project	from government		consent based on the Koran,			activities
activities	MAIF/FAO /		the Islamic Sharia law and the			
	Associations		traditional or tribal law - Urf.			
	/AREA by the		Such laws or customs, which			
	local offices and		often include a significant			
	during the		element of environmental and			
	materials		land use rules, tend to			
	distributed and		regulate rural life to a much			
	pesticides		greater extent than the			
	training and		legislation of the central			
	safety about		government. However, needs			
	importance of		to implement consultation			
	the mitigations		with the local community and			
	and avoidance		palm farmers considered their			
	measures.		concerns and suggestions,			
			which have updated the			
			mitigation plan accordingly.			
			Moreover, they will play an			
			important part in increasing			
			awareness for the community			
			about the effects of using and			
			proper way of utilizing,			
			hazards of pesticides and			

Risks at various stages	Potential Risk	Potential Risk Type	Mitigation Measures	Responsibilities and monitoring	Timeframe	Cost
			applying mitigations and avoidances measures.  Communicating with Sheikhs and Aqils in the operation areas.  Communications with teachers and Mosque preachers.			
Enhancement of Date Palm Value Chain in Yemen Project activities	Fatigue associated social stress arising from pressure and long working hours for timely delivery of product	Social	Conduct rapid social impact assessment to enable formulation and implementation of livelihood restoration programmes during and following control disease damage the palms	MAIF/Associations /AREA	During implemented the Pesticides training	Integrated within project activities
Enhancement of Date Palm Value Chain in Yemen Project activities	Expose people, aquatic and wildlife to intoxication	Environmental & Occupational Health	The response will take into account the conditions on the ground – for example, control areas with bodies of water will be avoided to mitigate risk of contamination of aquatic habitats. Buffer zones should be maintained during spraying, which range will be updated after the fields assessment, and wells or water holes in the target area for treatment should always be covered. It is also	MAIF/Associations /AREA	During Particle using the equipment's and pesticides	Integrated within project activities

Risks at various stages	Potential Risk	Potential Risk Type	Mitigation Measures	Responsibilities and monitoring	Timeframe	Cost
			recommended that beehives			
			be moved away (at least 5 km)			
			from the treated area. Human			
			re-entry periods, livestock			
			withholding periods and pre-			
			harvesting crop intervals are			
			strictly observed during			
			pesticides spray. Negative			
			environmental impacts will be			
			minimized by avoiding blanket			
			spraying and conducting			
			targeted control operations (if			
			possible). Moreover,			
			communities in general, and			
			beekeepers in particular, will			
			be alerted and sensitized			
			before/during/post the			
			planned control operations.			
Transportation /	Spillage and fire.	Environmental &	Pesticides should not be	Drivers	Before and	Integrated
distribution:	Spills if not	Occupational	transported with any	FAO/MAIF/Associations	during	within
Integrated Pest	cleaned or	Health	foodstuffs and should be	/AREA	Pesticides	project
Management	decanting and		covered and well labelled.		transportation	activities
(IPM) inputs for	replacing					
beneficiaries in,			Drivers transporting pesticides			
the targeted area for the	Lack of		should be trained on accident			
tools includes	knowledge by		prevention and dealing with			
(pollination	pesticides		emergencies such as spillage			
machines, fuel-	drivers and		or fire during transportation.			
powered drills	distributors.		Turining of how 0			
for the control	Maran		Training of handlers and users			
TOT THE CONTINUE	Wrong		(personnel) on safe use and			

Risks at various stages	Potential Risk	Potential Risk Type	Mitigation Measures	Responsibilities and monitoring	Timeframe	Cost
of the RPW, Manual 15-liter	transportation exposing		management of pesticides.			
sprayers, Ephestia	products to human and		Further details in link PMP documents			
Cautella	environment.					
pheromones (capsules),	In a a surity 0 th oft		Insurance clause should be			
RPW	Insecurity & theft leading to loss of		integrated in procurement of			
" " " " " " " " " " " " " " " " " " "	pesticides.		pesticides and transportation agreement.			
	Lack,	Occupational	Provision of personal	MAIF & FAO	During	Integrated
	uncompleted	Health	protective equipment (PPE) to		pesticides	within
	protective gear and absorbent		all pesticide handlers and		training and	project
	materials		users.		use	activities
Storage	Poorly built	Environmental	Advocating for proper storage	MAIF/ FAO/ AREA	Before, during	Integrated
	store, lack of		facility in terms of site and		and after	within
	ventilation and		design.		training and	project
	floor space				use pesticides	activities
	leading to containers		Further, adherence to the			
	wrongly stored.		appropriate store			
	wrongty stored.		management by applying the rule of the thumb i.e. first in			
	Spillage,		first out and provision of right			
	corrosive		store equipment and			
	buckets.		materials to curtail or			
			minimize store accidents,			
	Prolonged		leakages and spillages.			
	storage of		Safe storage of the pesticides			
	products causes		in the proposed locations and			
	caked		controlled/ documented			
			release of the pesticides.			

Risks at various stages	Potential Risk	Potential Risk Type	Mitigation Measures	Responsibilities and monitoring	Timeframe	Cost
_	formulations.					
			In each store, a bucket with			
	Looted or		sand, a shovel and re-sealable			
	damaged		bags (materials use if any Spill			
	procured assets		occurs) should be present. In			
	under the project		the event of a pesticide spill,			
	(especially the		put sand on the liquid on the			
	pesticide).		ground to absorb the			
			pesticide, collect this sand			
			and put it in a closed bag +			
			decant the pesticide into an			
			undamaged drum and label			
			this new drum well.			
			In order to remedy possible			
			looting episodes, the project			
			assets will only be kept and			
			stored in secured areas and			
			buildings guarded by security			
			personnel (private or			
			government).			
Handling	Improper use	Human Health	Handling and spraying will be	MAIF/ FAO/ AREA	During	Integrated
	and spray of	and	made only by skilled staff to		pesticides	within
	pesticides.	Environmental	use the materials and		transport and	project
			pesticides, and never by		use	activities
	Lack of		farmers with any training and			
	protective gear.		awareness and have PPE			
	Improper		Pesticide handling and			
	labelling leading		spraying will be ensured in the			
	to wrong usage,		respect of good practices,			

Risks at various stages	Potential Risk	Potential Risk Type	Mitigation Measures	Responsibilities and monitoring	Timeframe	Cost
	cleaning of		including respect of spraying			
	sprayers and		parameters, buffer zones,			
	equipment.		protected areas, etc.			
			Ensuring that all control staff are sufficiently trained to use the selected pesticides with minimum risk.			
			Training of all the persons to involved in spraying on safety and the provisions of this PMP.			
			Ensuring that qualitative and sufficient PPE are available, and that treatment agent wear them correctly.			
			Ensuring that proper sprayer maintenance is carried out. Ensure control teams are insured in case of incidence and how to use the emergency plan			
Disposal	Disposal, spillage and left- over pesticide. (capsules)	Human Health and Environmental	Adherence to FAO Guidelines on safe disposal of pesticide and empty containers.	MAIF/ FAO/ AREA/Associations	During training and use the pesticides	Integrated within project activities
			Designated officers should be deployed and capacitated to monitor and enforce the			

Risks at various stages	Potential Risk	Potential Risk Type	Mitigation Measures	Responsibilities and monitoring	Timeframe	Cost
			irregularities by monitoring stores making inspections advising on strict management, import control and quality control to ensure compliance to protect human health and environment.  Training of all the persons to			
			involved in disposal on safety and the provisions of this PMP.			
	Improper disposal of empty bucket's /box handed to governmental offices for burning Leftovers in wrongly disposed containers cause persistence and lasting in soil.	Human Health and Environmental	Safe disposal of the empty (used) drums carrying the pesticides/immediately crushed.  Update the hazardous of the waste management plan	AREA/Associations	During and before use pesticides	Integrated within project activities
	Sex abuse from interaction of spray teams (beneficiaries) and the civilians in the villages	Social	Sensitization of involved government agencies on compliance with environmental and social safeguards with special emphasis to do no harm principle (sexual abuse,	MAIF/ FAO/ AREA/Associations	During and before use pesticides	Integrated within project activities

Risks at various stages	Potential Risk	Potential Risk Type	Mitigation Measures	Responsibilities and monitoring	Timeframe	Cost
			gender violence, inclusivity among others).			
	Loss of livelihood palm loss	Social	Awareness creation and communication activities to communities where spraying is carried out.  Extension material and mass media campaigns will be prepared/ensured so that local populations adopt the required safety measures before, during and after treatments for themselves, their cattle and their crops.	MAIF/ FAO/ AREA/Associations	During using the pesticides	Integrated within project activities
	Lack of communication channels	Social	The MAIF/AREA to produce letters to local councils, branches offices of MAIF and the security department to facilitate cooperation, inform the beekeepers to move their bees from the invasion areas by palm pesticides activities and protecting/consultation trainers  In addition, increasing the awareness of the local community to maintain the good relation, and dispatch		During pesticides use	Integrated within project activities

Risks at various stages	Potential Risk	Potential Risk Type	Mitigation Measures	Responsibilities and monitoring	Timeframe	Cost
			the GRM leaflets to local			
			community.			
			Coordinate with religion			
			speakers to spread the			
			awareness messages during			
			Juma'a Prays and with			
			schools' managers to convey			
			the awareness messages of			
			the palm treated and use			
			pesticides			
			Liaise with existing			
			beekeepers associations to			
			find a proper way to solve the			
			beekeepers concerns			
			regarding the palm pesticides			
	1	0:-1	spray.	MAIE/EAG/	Di.	lanka manaka al
	Low	Social	Conduct rapid social impact	MAIF/ FAO/	During	Integrated
	participation of the affected		assessment to enable	AREA/Associations	pesticides use	within
			formulation and			project activities
	people (top- down		implementation of livelihood restoration programmes			activities
	interventions)		restoration programmes during and following control of			
	hampering feed		the palms.			
	backs		the pathis.			
	Poisoning of staff	Human Health	Follow the Emergency plan	MAIF/ FAO/	Before and	Integrated
	/ local	and	For field officers, to reduce	AREA/Associations	during the	within
	population	Environmental	risks of overexposure to	7.11.12.37.1000010110110	Pesticides	project
	during handling		chemical pesticides, all field		used	activities
	and spraying		officers will be equipped with			
	operations either		appropriate personal			

Risks at various stages	Potential Risk	Potential Risk Type	Mitigation Measures	Responsibilities and monitoring	Timeframe	Cost
	accidentally or		protective equipment. In			
	during the		addition, all operators will			
	normal course of		have access to the Materials			
	their work.		Safety Data Sheet and			
			relevant materials to contain			
			and absorb accidental spills.			
	Pesticide Spill	Human Health	The MAIF/FAO/AREA through	MAIF/ FAO/	During	Integrated
	during	and	designated teams shall	AREA/Associations	pesticides use	within
	transportation	Environmental	transport the pesticides			project
			according to the best practice			activities
			of transporting pesticides and			
			will be followed up by the			
			project team during the training and first use.			
Community	Exposure to	Human Health	Promote awareness to ensure	MAIF/ FAO/	During	Integrated
Health and	poison through	and	that communities respect the		pesticides use	within
Safety	consumption of	Environmental	re-entry time for their livestock			project
	contaminated		and withholding periods for			activities
	food grown in		their harvests.			
	sprayed areas					
			Avoid spraying near or around			
			water bodies to mitigate risk of			
			contamination of aquatic			
			habitats. Buffer zones should			
			be maintained during			
			spraying, which range from 300 m (ground spraying) to			
			1 500 m (ground spraying), and			
			wells or water holes in the			
			target area for treatment			

Risks at various stages	Potential Risk	Potential Risk Type	Mitigation Measures	Responsibilities and monitoring	Timeframe	Cost
			should always be covered.			
	Lack of pesticide management	Environmental, Social and Human Health	Close monitoring on pesticide management will be ensured by FAO, together with specific reporting, i.e. monthly updates and end-of-activities.		During pesticides use	Integrated within project activities
	Impacts related to main accidents scenarios, such as pesticide spills, pesticide fires, accidental poisoning or exposure, chemical burns	Environmental, Social and Human Health	An Emergency Response Plan will be prepared as per the template in annex with the PMP for each site to address the main accidents scenarios, such as pesticide spills, pesticide fires, accidental poisoning or exposure, chemical burns	AREA/Associations	Before transporting and storing of pesticides, During and after handling palm pesticides	Integrated within project activities

# 6. Environmental and social management measures

Mitigation and control measures have been developed and proposed to address the potential risks and impacts identified above. These measures aim to eliminate, mitigate and minimize the potential adverse effects of the activities. The mitigation measures were proposed through incorporating best practices and relevant guidelines. The following are the potential impacts and their proposed management and mitigation measures:

A. Transportation stage: The transportation of materials, supplies and equipment

#### Potential impacts and risks:

- Damage, leakage/spillage and contamination.
- Capsules can be fragile and may break or crack during transportation due to rough handling or inadequate packaging.
- Loss of Efficacy: Physical damage can compromise the integrity of the capsules, leading to reduced effectiveness in pest management.
- Accidental spillage, leakages, and fire during transportation exposing products to human and environment
- Product loss and potential human and environmental exposure
- Insecurity & theft leading to loss of pest control products.

#### **Proposed mitigation measures:**

- Drivers transporting pesticides should be trained on accident prevention and dealing with emergencies such as spillage or fire during transportation
- Employ high-quality, impact-resistant packaging that can withstand rough handling during transit and apply the standards for transporting such materials.
- Monitor any spillage and damage for material during transportation.
- Include responsibilities for the suppliers' contract to apply mitigation measures for spillage (spill response kits)
- The products should not be transported with any foodstuffs and should be covered and well labelled.
- Insurance clause should be integrated in procurement of pesticides and transportation agreement.

# B. Storage stage: Storage of the materials, supplies and equipment before distribution

#### Potential impacts and risks:

- Damage, leakage/spillage and contamination
- Inadequate storage at farm level
- Lack, uncompleted protective gear and absorbent materials
- Poorly built store, lack of ventilation and floor space leading to containers wrongly stored.
- Prolonged storage of products causes caked formulations.
- Looted or damaged procured assets under the project (especially the pesticide).

#### **Proposed mitigation measures:**

- Provision of personal protective equipment (PPE) to all pesticide handlers and users.
- Provision of medical diagnosis services for stakeholders to determine their contamination/ toxic levels and examining them for acute or chronic poisoning symptoms when such need arises.
- Advocating for proper storage facility in terms of site and design.
- Adherence to the appropriate store management by applying the rule of the thumb
  i.e. first in first out and provision of right store equipment and materials to curtail or
  minimize store accidents, leakages and spillages.
- In order to remedy possible looting episodes, the project assets will only be kept and stored in fenced and secured areas and buildings guarded by security personnel ((private or government).

#### C. Distribute and application of Integrated Pest Management (IPM) inputs:

#### Potential environmental Risks:

 Chemical Exposure: The use of pheromones and other pest control materials may lead to unintended environmental contamination if not handled and applied correctly.

#### Proposed mitigation measures:

- Provide thorough training for all users on the safe handling, application, and disposal of pest control materials. This should include information on potential hazards and safety protocols.
- Ensure that all trainers/workers and beneficiaries have access to and are trained in the proper use of PPE, such as gloves, masks, goggles, and protective clothing.
- Ensure that all pest control products are clearly labelled with usage instructions, safety precautions, and first aid information.
- Establish and distribute clear guidelines on the best practices for applying pest control materials, including recommended weather conditions and safe distances from sensitive areas (e.g., water bodies, residential areas).

- Develop and communicate an emergency response plan for accidental exposure or spills. This should include procedures for containing spills, decontamination, and reporting incidents.
- Establish protocols for the safe storage of pest control materials, ensuring they
  are kept in designated areas away from children and wildlife. Provide guidance on
  the proper disposal of empty containers and unused products to prevent
  environmental contamination.
- 2. Improper application of pest management tools could harm non-target species, disrupting local ecosystems and reducing biodiversity.

Proposed mitigation measures:

- Provide thorough training for all users on the safe handling, application, and disposal of pest control materials. This should include information on potential hazards and safety protocols.
- Use IPM strategies that prioritize, biological, and mechanical controls.
- Establish guidelines for the timing of pest control products applications to avoid periods when non-target species, such as pollinators, are active.
- Implement buffer zones around sensitive habitats, such as water bodies, pollinator habitats, and areas with high biodiversity.
- Soil and Water resources Contamination: Runoff from treated areas could lead to contamination of soil and water bodies, affecting local agriculture and wildlife as well as due to poor storage and poor disposal and management for waste and construction materials

Proposed mitigation measures:

- Provide thorough training for all users on the safe handling, application, and disposal of pest control materials. This should include information on potential hazards and safety protocols.
- Use IPM strategies that prioritize, biological, and mechanical controls.
- Establish guidelines for the timing of pest control products applications to avoid periods when non-target species, such as pollinators, are active.
- Implement buffer zones around sensitive habitats, such as water bodies, pollinator habitats, and areas with high biodiversity.
- Implement strict protocols for the safe storage and disposal of pest control tools and chemical containers and ensure that storage facilities are secure, well-ventilated, and equipped to handle spills.

## **Potential Health and Safety Risks:**

1. Trainers/workers and beneficiaries' safety: Individuals handling the IPM inputs, such as sprayers and pheromones, may face health risks due to exposure to chemicals or physical injuries from equipment.

#### Proposed mitigation measures:

- Provide thorough training on the safe handling and application of IPM inputs, including proper techniques for using sprayers and handling pheromones. Training should cover potential hazards and first aid measures.
- Ensure that all trainers, workers, and beneficiaries are equipped with appropriate PPE, such as gloves, masks, goggles, and protective clothing, to minimize exposure to chemicals and protect against physical injuries.
- Develop and disseminate clear safety guidelines and standard operating procedures for the use of IPM inputs, including instructions on emergency procedures for handling spills or exposure.
- Ensure that all equipment used in pest management, such as sprayers and drills, is regularly maintained and inspected to prevent malfunctions that could lead to injuries.
- Establish protocols for the safe storage of chemicals and equipment, ensuring that all materials are clearly labelled and stored in secure locations away from unauthorized access.
- 1. Falls from height during application on date palms

#### Proposed mitigation measures:

- Clearly marks the excavated areas with warning signs to alert workers/ people to the potential hazard.
- Ensure that workers are equipped with appropriate PPE, including safety harnesses, helmets, and non-slip footwear, to minimize the risk of injury from falls.
- Utilize appropriate access equipment, such as ladders, platforms, or lifts, designed for safe use at height. Ensure that all equipment is regularly inspected and maintained.
- Implement fall protection systems, such as guardrails or safety nets, particularly in areas where workers are applying treatments from significant heights.
- Monitor weather conditions and avoid work at heights during adverse conditions, such as high winds or rain, which can increase the risk of falls.
- In case of any serious incidents, report FAO within 24 hours.
- 2. Equipment Malfunction: Fuel-powered drills and other machinery may malfunction, leading to delays and potential safety hazards during usage

#### Proposed mitigation measures:

- Establish a routine maintenance schedule for all equipment to ensure it is in good working condition.
- Provide comprehensive training for all operators on the proper use and handling of equipment.

- Implement a checklist for operators to complete before using equipment. This should cover essential checks like fuel levels, oil, and safety features to ensure the machinery is safe to operate.
- Ensure that equipment is stored in a clean, dry, and secure environment to prevent damage and deterioration when not in use.
- Establish clear operating procedures and guidelines for using and troubleshooting equipment. Ensure that all operators are familiar with these procedures.
- 3. Community Health: If not properly communicated, the application of these inputs could pose risks to local communities, particularly if they are unaware of the chemicals used and their potential effects

## Proposed mitigation measures:

- Inform the local communities on the activities and the potential health risks and impacts associated with.
- Organize information sessions and workshops to educate community members about the pest management practices being implemented, including safety measures and emergency contacts.
- Gather feedback and address concerns to foster trust and cooperation.
- Ensure that all treated areas are clearly marked with appropriate signage indicating the use of chemicals and any restrictions on access. Include information about re-entry times and safety precautions.
- Ensure that those applying chemicals are trained not only in safe application practices but also in how to effectively communicate with the community about potential risks and safety measures.

#### **Social Risks**

1. Community Acceptance: There may be resistance or skepticism from local communities regarding the use of new pest management tools, impacting the effectiveness of training and implementation

## Proposed mitigation measures:

- Conduct stakeholder engagement and consultation and involve them in the decision-making process for the pest control and management tools.
- Conduct educational campaigns to inform the community about the benefits and safety of the new pest management tools. Use various mediums (workshops, pamphlets, social media) to reach diverse audiences.
- Actively listen to community concerns. Address these issues transparently and provide evidence-based information to alleviate fears.
- Collaborate with local leaders and influencers who can help advocate for the new pest management practices.
- Be sensitive to local customs, beliefs, and practices. Tailor communication and implementation strategies to align with cultural values and practices.

- Share success stories and testimonials from other communities that have successfully adopted similar pest management tools. Highlight the positive impacts on agriculture, health, and the environment
- 1. Lack of complaints resolutions

## Proposed mitigation measures:

- A complaint mechanism will be in place, and this will feed into the FAOYE Call Center.
- Distribute GRM cards to the stakeholders and raise their awareness on FAOYE GRM and environmental and social issues.
- Follow up any complaint received until it is resolved, and record lessons learned.
- 2. Gender Based Violence (GBV), Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)

## Proposed mitigation measures:

- Put the Code of Conduct into practice and provide training and awareness raising among the workers on the prevention of GBV, SEA and SH.
- Understand the local context and respect local culture.
- Inform both men and women about project objectives and ensure their engagement throughout the project cycle.
- Setup appropriate mechanism that can measure the adequacy of interventions, ensure transparency and address concerns and complaints of both men and women of different ages.
- Apply policy on protection from sexual exploitation, abuse and harassment and use sensitive GM for handling SEA/SH cases. Distribute GRM flyers and explain the GRM mechanism to facilitate community feedback or complaints.
- 3. Conflict Issues: Security risk for the project team due to exclusion from the project benefits

## Proposed mitigation measures:

- Ensure that all the eligible beneficiaries are involved in project planning, beneficiary selection.
- Conduct consultation with beneficiaries and stakeholders
- Raise the beneficiaries and stakeholder awareness on the project activities, criteria, GRM through consultation and flyers and other suitable methods.
- Coordinate closely with authorities and community leaders.
- Train the project team about how to deal with the conflict and threats in the field.

# 7. Institutional and implementation arrangements, and estimated costs

The institutional and implementation arrangement of the mitigation and control measures will be implemented by the suppliers, the implementing partners (MAIF and AREA), FAO technical staff. The responsibilities of the implementation of such mitigation measures have been identified as in the table .... Below. Abou the cost of implementing the mitigation measures, it should be included in the contracts with suppliers, Letters of Agreements with IPs and the implementation expenses.

## 8. Monitoring arrangements

The monitoring activities for implementing the mitigation measures are be under the responsibility of FAO technical team, M&E and ESS staff in addition to IP in addition to the cooperatives. The monitoring will be conducted according to the implementation stages and before, during and after implementation. for more details, the responsible parties and timeframe of monitoring can be found in the ESMP Matrix, s.

## 9. Stakeholder engagement

The project's main stakeholders in the country include the Ministry of Agriculture, Irrigation and Fisheries (MAIF), the Agricultural Research and Extension Authority (AREA), palm growers (including cooperatives) and rural communities, palm nurseries, NGOs, universities, and scientific associations.

Before implementing any activities, FAO will arrange inception workshop with stakeholders, communities, local NGOs and representatives from other relevant sectors. The outcomes of the inception workshop, including stakeholders' feedback and concerning will be reflected in the Stakeholder Engagement Plan (SEP), which will be update accordingly, their opinions should be reflecting in the SEP which will be update according.

The majority of palm growers in Yemen are smallholders, who will be the main direct beneficiaries of the project, farmers including women will benefit from the program implemented to gain new knowledge and experience through training on Good Agricultural Practices (GAP), Integrated Pest Management (IPM) and Natural Resource Management (NRM). The project will ensure the participation and involvement of women in the project activities who represent 70% of the rural population and farmers' communities contributing to the farming system in the affected areas.

The stakeholder engagement and consultations will be conducting during the coming period before and during the implementation. They will take different forms including meeting with the MAIF and AREA, inception workshop, consultations with beneficiaries, sensitization session, survey, trainings and communication and coordination with authorities at different levels. The inception workshop will take place in Aden and or Hadhramout and it will be participated by 40 persons representing different stakeholders and beneficiaries.

Consultation will take place in the field during the field study data collection (value chain assessment) through a survey. The consultation will be conducted by 20 persons targeting the different parties in the value chains.

Moreover, different training sessions will be implemented including training of trainers, training of palm producers and training on date palm production and training on IMP. In all these training, the consultation will be conducted, and awareness-raising will take place.

Therefore, stakeholder engagement and consultations are integral part of the implementation as it will take place before implementation and continuously during implementation.

## 10. Grievance Redress Mechanism

The FAO has an existing grievance mechanism (GM) that will be utilized to handle grievances and complaints related to the activity of enhancement of date palm value chain in Yemen. The GM system has been developed to be applied for all activities and projects, including the palms producers, to allow beneficiaries to communicate their complaints and concerns regarding the project activities.

Additionally, the implementing party will establish their own GM system for their workers. The FAO and MAIF will conduct separate sessions in sites targeted areas to inform the targeted communities and workers about the project activities, expected impacts, and safety measures to be observed, and to solicit inputs from stakeholders.

During implementation, the FAO and MAIF will maintain a complaint record database to enable complaint tracking and review and establish a complaint handling committee (institutions representatives FAO's IP AREA) involving grievance handling committees in any grievance processes. Overall, the goal of theses mechanisms is to ensure that grievance and complaint are addressed in a timely and effective manner to mitigate any negative impacts of the project on communities and workers in the same compound.

FAO is providing multiple access points to the FAO GM focal point for beneficiaries to voice and raise their concerns. The FAO Yemen Beneficiaries Feedback Mechanism (BFM) also accepts anonymous grievances. Prior to proceeding with the resolution, the validity of the complaint will be verified and then communicated to respective staff or Units for follow up and resolution. These access points include GM contact information: hotline and landline toll-free and SMS (800 19 19) for all mobile networks, WhatsApp (776 01 30 30), email (Yemen-Feedback@fao.org) and offline, see figure below form as follow:

Toll-free telephone	<b>800 19 19</b> For all mobile networks and landline phone			
number and SMS	customers			
WhatsApp	776 01 30 30			
Email	Yemen-Feedback@fao.org			
Interviews	During field visits, FAO Field Monitors and Technical			
	Specialists, in case of a complaint, will fill in a report and			
	share with the Toll-Free Phone Operator at the FAO			
	Representation level for actions. Similar template and			
	mechanism will be applied if a person approaches any			

offices of FAO to file a complaint.

Accordingly, FAO has established grievance access database to register, follow-up and take action on the complaints. In addition, an offline form was designed to record the field complaints or offline grievances. FAO also has a person in charge of the call centre.

Grievances can be brought up by affected people in case of: (i) beneficiary and community selection; (ii) assistance quantities and qualities; (iii) corruption or theft; (iv) staff abuse, etc.

FAO obliged all palms beneficiaries' contractors to create a complaint box, signboard with GM FAO's number and a have a dedicated phone number to receive complaints and suggestions from workers at the palms farmers activities sites.

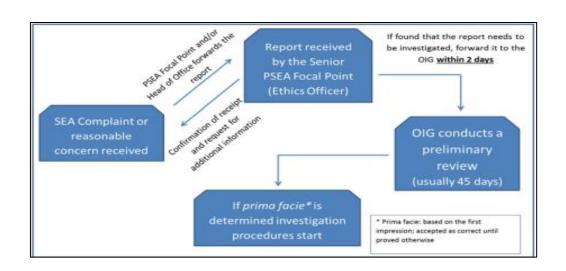
Protection from Sexual Exploitation and Abuse mechanism

In the case of sexual exploitation and abuse (SEA) complaints, confidentiality and safety measures regarding the complainant is ensured. Therefore, upon receipt of the complaint, sharing of this sensitive information should be on a need-to-know basis, i.e. only those strictly necessary for the process of SEA complaints handling should be involved. Noteworthy, FAO Yemen has a dedicated PSEA Focal Point. Based on procedures presented in FAO's PSEA Policy (AC 2013/27), the FAOR should forward the complaint or reasonable concern of SEA directly to the Ethics Officer (Senior PSEA Focal Point in headquarters) as soon as possible for action. The following chain of action is observed once the Ethics Officer receives the report.





Figure 1: FAOYE GRM leaflet/flayer



## 11. Incidents and accidents

The following table includes detalies of environmental impacts associated risks, mitigation measures and roles and , roles and responsibilities, and the timeframe for implementing the Pest management Plan (PMP). In addition, the table ( ) show an emergency response plan for the accidents site scenarios as mitigation measure to address the main accidents scenarios during the pesticide transport, spray operation and using during the training session conducted. No spray or distributing any pesticides by FAO. The potential accidents scenarios (during the training involving equipment and pesticides such as (Ephestia cautella pheromones and Red Palm Weevil (RPW) pheromone capsules may which they may include the following:

Emergency of Response for the Accidents Site Plan Scenarios to protect the Community and Environment

Effect	Human	Environment	Material/Production	Public image
Minor Emergencies	Minor Injuries	Minor release of	Insignificant Material	Nil to minor
-Call for help		pollutant	Damage,	Media interest
-Even minor injuries that may just need a		pesticides		
band-aid must be reported				
-Fill out an incident report				
Pesticide Spills	Assess the	Assess the	Assess the Material	Keep public
-Assess the situation	Injuries	release of	Damage or loss, use	persons back
-Call for help		pollutant	the spill response	from the incident
-Fill out an incident report		pesticides, use	materials	
		the spill		
		response		
		materials		
Pesticide Fire	Assess the	Assess the	Assess the Situation,	Assist to move all
-Assess the situation	Injuries	Situation, use	use Fire	public persons to

Effect	Human	Environment	Material/Production	Public image
-Call for help and notify related		Fire	extinguishers of	a safe distance
emergency department		extinguishers of	adequate number	
-Remove yourself to a safe distance		adequate	and appropriate type	
-Call security if needed		number and appropriate type		
-Fill out an incident report				
-Even minor injuries that may just need a				
band-aid must be reported				
Accidental Poisoning and exposure to	Assess the	Assess the	Assess the Situation	Assist to move all
Pesticide	Poison cases,	Situation		public persons to
-Call for help and notify related	use the first aid			a safe distance
emergency department				
-Remove yourself to a safe distance				
-Provide the affected person with the				
Antidote (if need)				
-Fill out an incident report				
-Even minor injuries that may just need a				
band-aid must be reported				
Chemical Burns	Assess the	Assess the	Assess the Situation	Assist to move all
-Do not intervene without assistance	Burns cases,	Situation		public persons to
-Call for help and notify related	use the first aid			a safe distance
emergency department				
-Remove yourself to a safe distance				
-Fill out an incident report				
-Even minor injuries that may just need a				
band-aid must be reported				

- Allocation of spill containment equipment and spill response kits in chemical storage areas, and the application points.
- In the events of a chemical spill, the basic response principle is as follows: the
  first responder at the incident site must quickly confirm and control the nature
  and source of the spill, determine its quantity and volume and identify the
  impacted area. Containment of the spill is essential to minimize the spread of
  potential contamination.
- The MAIF, Associations and AREA transport teams will require training in spill response protocol. FAO will be implementing training for MAIF, Associations workers on the Emergency Spill Response in the targeted areas.

#### PROJECT INFORMATION

PROJECT NAME	Enhancement of date palm value chain		
PROJECT LOCATION	Yemen		
GOVERNORATE			Hadrumot
DISTRICT			
PROJECT MANGER	Dr. Mohammed Farea		Provided by MAIF/
			Associations
FIELD OFFICER		Palm Officer	Provided by MAIF/
		and	Associations
		Technicians	
STORE KEEPER			Provided by MAIF/
			Associations
DRIVER			Provided by MAIF/
			Associations

## - EMERGENCY CONTACT LIST

If there is an emergency on site, please call one of the following first:

PROJECT COORDINATOR	FAO	Mobile: XXX.XXX.XXXX
OPERATION MANAGER	Provided by MAIF/	Mobile: XXX.XXX.XXX
	Associations/ AREA	
	Provided by MAIF/	Mobile: XXX.XXX.XXX
	Associations/ AREA	
SECURITY	NAME	Mobile: XXX.XXX.XXX
CIVIL DEFENCE	NAME	Mobile: XXX.XXX.XXX
HOSIPTALs	Hospital – Area	Mobile: XXX.XXX.XXX
	:	
	Hospital – Area	
	:	

Governorate:	Mobile: XXX.XXX.XXX
Names	
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Governorate:	Mobile: XXX.XXX.XXX
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- When calling these response agencies be prepared to give information as you are asked.
- Try to be brief and to the point.
- Identify any present threats when asked.
- Indicate if people are injured and how many have been evacuated are trapped or are at risk if you know this.
- Give address or closest location directions to assist response agencies.

## 12. Information disclosure

The information disclosure about the project will take place during the consultation and stakeholder engagement. FAO staff and IP will work closely and inform beneficiaries and other stakeholders and about the project before and during implementation. Furthermore, the project information and documents will be disclosing the FAO portal website share with stakeholders and beneficiaries.

# 13. Annexe

**A- Completed environmental and social screening checklist**: Please attach here a copy of the most updated risk screening checklist of FPMIS.

Environmen tal and Social Safeguard question	Second-level question	Answer	Risk category	Reference Guidance	Risk mitigation measures (if any)
ESS 1	ESS 1.4 Could the project implement aquaculture activities?	Yes	Moderate		in a positive and sustainable modality
ESS 2	ESS 2.4 Could the project directly or indirectly lead to the use and/or management of pesticides?  * This also includes activities related to management or disposal of waste pesticides, obsolete pesticides or pesticide contaminated waste materials.	Yes	Moderate	* Examples of pesticide use include projects that distribute treated seeds or implement locust campaigns and may include projects that implement grants and funds;  * Utilize Integrated Pest Management and Integrated Vector Management approaches as the frameworks for sustainable pest management;  * The types and quantities of pesticides and the associated application and protective equipment that people are provided with must always comply with the conditions specified in FAO's Framework for Environmental and Social Management under ESS2 and should be included or referenced in the project document.  *Follow the guidance in the FAO Environmental Management Toolkit for obsolete pesticides.	Better use of Pesticides
ESS 2	ESS 2.5 Could the project lead to the use and/or management of	Yes	Low	* Follow FAO International Code of Conduct for Sustainable Use and Management of Fertilizers (the	Sustainable use of Fertilisers

Environmen tal and Social Safeguard question	Second-level question	Answer	Risk category	Reference Guidance	Risk mitigation measures (if any)
question	fertilizers?			Fertilizer Code);  * Practice Integrated Soil Fertility Management.  Utilize the Protocol for the assessment of Sustainable Soil Management to assess impact on soil health;  * Include (synthetic and organic) fertilizer and soil nutrient quality analysis according to the standard protocols and guidelines provided by the International Network on Fertilizer Quality.	
ESS 3	ESS 3.1 Could the project activities negatively affect communities not targeted by the project that rely on the same natural resources? E.g. a community that depends on the same river downstream.	Yes	Low		saving the native palm trees varaities
ESS 5	ESS 5 - Community Health, Safety and Security  Could the project positively or negatively affect health, safety and livelihoods of communities (including women, men, youth, as well as marginalized, disadvantaged and vulnerable groups)?	Yes			The government of Yemen considers the date palm as one of the most important economic and strategic crops, as it grows in arid areas where other plant species could not grow as favorably. In particular, it has been identified as an important driver for rural and agricultural development, food security, and income and employment generation in Hadramout and Hudeidah governorates.
ESS 6	ESS 6 - Gender equality and	Yes			As FAO policy applies

Environmen tal and Social Safeguard question	Second-level question	Answer	Risk category	Reference Guidance	Risk mitigation measures (if any)
	prevention of gender-based violence (GBV)  Could the project positively or negatively affect people based on their gender, through activities or policy?				
ESS 6	ESS 6.3 How is the project planning to address Sexual Exploitation and Abuse (SEA) risks? (Describe risk mitigation measures in the comments column)			* Note that SEA would refer to misconduct by FAO employees, or any other personnel associated with the work of FAO, against beneficiaries and vulnerable populations, meaning any person who benefits or may benefit from FAO assistance, including any vulnerable member of the affected population (not limited to women, children, elderly, disabled, ethnic minorities, etc.);  * Examples of risk mitigation measures:  * * Budgetary support to Prevention of SEA (PSEA) such as for hiring PSEA expertise, raising awareness in the local communities etc;  * * Ensure all project staff completed the mandatory FAO course on SEA before starting their work (in particular frontline workers e.g. M&E personnel, personnel involved in the distribution of inputs and/or cash; drivers, security guards supporting the project implementation etc);  * * Assess PSEA capacity of project IPs before engaging with them and build their capacity accordingly;  * * Sensitize project staff working on stakeholder engagement (in particular at community level) on how to communicate effectively on SEA (i.e. language	PSEA is integrated into the entire programme of FAO Yemen

Environmen tal and Social	Second-level question	Answer	Risk category	Reference Guidance	Risk mitigation measures (if any)
Safeguard question					
				and means of communication);  ** Ensuring project beneficiaries/local community know how to submit complaints on SEA issues (i.e. OIG FAO hotline);  ** Make use of inter-agency/joint Community Based Complaint Mechanism and SEA referral pathways (when applicable);  ** Sensitize project staff on the importance of confidentiality when dealing with SEA matters.  * For more information, see the ESS 6 Guidance Note and the SEA section in the GBV assessment conducted by the GBV sub-cluster/sub-sector in the project country if available;  * Stored data, including documents and material related to SEA allegations, should only be accessible to authorized persons and must be stored safely to prevent accidental disclosure. Options for secure data storage include locked filing cabinets; digital storage on a secure server, computer or laptop; and official cloud storage.	

# **B.** Governmental Requesting

Republic of Yemen	المالحات.	للمفودت بالتنب
Ministry of Agriculture, Irrigation	AND DESCRIPTION OF THE PARTY OF	زارة الزراعة والري والثروة السمكيا
and Fish Wealth	The state of the s	
Minister's Office	ديوان وزارة الزراعة والزي والتروة السمكية	مكتب الوزيسر
Date: النَّارِيخَ ا	ادارة السكرتارية والإرشيف	اـرقم ; No.
	المادر: وزئس 1.00 ١٠١٤ ١٠٤٤ ١٤٤٠	
	التاريخ، ١٤٨٤ع.ع.ع+ الرفقات:	
		الأخ/د. حسين جساديسسن
اليمن المحسترم	ية والزراعة للأمم المتحدة (الفاو) في	المثل القيم لنظمة الأغذ
	قدّ طيد ، ويعد ،،	
(278.)		
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	ي والثروة السكية اطببالنجات وتنسى لك	
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	ساد الزراعسي والغنذائي من خلال تع	
	كذا الحضاظ على التراث الزراعي،	
	هذا للحصول التي تحد من إنتاجية	
	ة سوسة النخيل الحمراء بمحافظتي حض	
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<del>ئا ئو</del> ن؛ 02-240803		لموقع الإلكتسروني: http://maif-ye.com
ت فاكس: 240805 / 02-240804		info@maif-ye.com 1