

---



---

REPUBLIC OF IRAQ

Emergency Operation for Development Project (P150732)  
 Emergency Operation for Development Project - Additional Financing  
 (P161010)



*Updated Environmental and Social Management Framework (ESMF)*

November 28, 2023



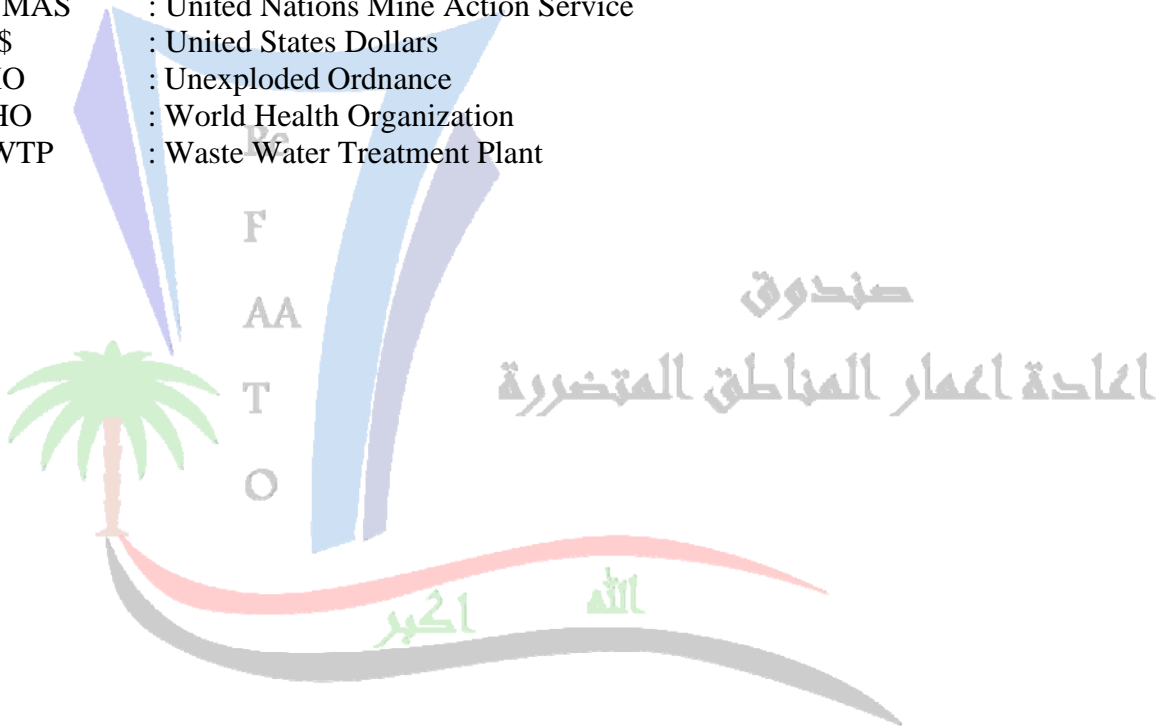
## CURRENCY EQUIVALENTS

1 USD = 1,163,86 IQD

## ABBREVIATIONS AND ACRONYMS

°C	: Degree Celsius
°F	: Degree Fahrenheit
%	: Percent
AF	: Additional Finance
BCM	: Billion Cubic Meter
DRB	: Directorate of Roads Bridges
EA	: Environmental Assessment
EERP	: Emergency Electricity Reconstruction Project
EHSG	: Environmental, Health and Safety Guidelines
EMP	: Environmental Management Plan
EOD	: Explosive Ordnance Disposal
EODP	: Emergency Operation for Development
EODP-AF	: Emergency Operation for Development – Additional Finance
EOI	: Expression of Interest
E&S	: Environmental and Social
ESAP	: Environment and Social Action Plan
ESIA	: Environment and Social Impact Assessment
ESMF	: Environmental and Social Management Framework
ESMP	: Environment and Social Management Plan
EWR	: Explosive War Remnants
FY	: Financial Year
GDP	: Gross Domestic Product
GOI	: Government of Iraq
GRS	: Grievance Redress Service
GSCOM	: General Secretariat of the Council of Ministers
IBRD	: International Bank for Reconstruction and Development
IDA	: International Development Association
IDPs	: Internally Displaced Persons
IEDs	: Improvised explosive devices
IFC	: International Finance Corporation
IQD	: Iraqi Dinar
IUCN	: The International Union for Conservation of Nature
Km	: Kilometer
Km <sup>2</sup>	: Square Kilometer
Mg/l	: milligram per liter
m <sup>3</sup>	: Cubic meter
M&E	: Monitoring and Evaluation
MENA	: Middle East and North Africa
MoCH	: Ministry of Construction and Housing
MoE	: Ministry of Electricity
MoH	: Ministry of Health
MoMPW	: Ministry of Municipalities and Public Works
NSWMP	: National Solid Waste Management Plan
OP/BP	: Operation Policy/Best Practice

PAD	: Project Appraisal Document
PCR	: Physical Cultural Resources
PCU	: Project Coordination Unit
PDO	: Project Development Objective
PMT	: Project Management Team
PMU	: Project Management Unit
Qty	: Quantity
RAP	: Resettlement Action Plan
RF	: Reconstruction Fund
RPF	: Resettlement Policy Framework
SBA&H	: State Board of Antiquities & Heritage
TA	: Technical Assistance
TOR	: Terms of Reference
UN	: United Nations
UNOCHA	: United Nations Office for the Coordination of Humanitarian Affairs
UNMAS	: United Nations Mine Action Service
US\$	: United States Dollars
UXO	: Unexploded Ordnance
WHO	: World Health Organization
WWTP	: Waste Water Treatment Plant



---

## EXECUTIVE SUMMARY

---

### 1. Introduction

---

#### 1.1 Background

The conflict in northern Iraq has unfolded at a time of severe fiscal crisis. In the last two decades, Iraq has witnessed a dramatic fall in almost all human development indicators including poverty, health standards, life expectancy, and literacy. Extreme poverty is widespread, particularly in rural areas and a number of governorates. The government's recovery strategy is to jump-start the delivery of basic infrastructure and services and rehabilitate critical infrastructure in the liberated areas from the insurgency. In response to the request of the Government of Iraq, the World Bank's support, through the proposed Emergency Operation for Development – Additional Finance (EODP-AF), is aimed at supporting the Republic of Iraq in the reconstruction of damaged infrastructure and restoration of public services delivery in Targeted Municipal Areas.

The parent EODP is being implemented in urban agglomerations of Tikrit, Al-Dour, Al-Alam and Al Dhuluiya located in the Salah Al-Din Governorate as well as urban agglomerations of Jallawla, As-Sadiya and Al-Azeem located in Diyala Governorate. In addition, suburban areas, villages and infrastructure across open range land may also be included for project-financed activities. The EODP is already expanding its support to additional municipalities such as Ramadi and few others that were liberated over the past year, where immediate support to reinstate services was much needed. The EODP-AF would expand the support further to other liberated areas and extend to other priority sectors. This proposed EODP-AF would expand scope from electricity, water, sanitation and solid waste management, transport (roads and bridges) and health sectors to include agriculture, water resources and irrigation, municipal services and education. These newly introduced sectors would address important segments of the society who are living in lagging regions, poor, with high unemployment and where women's employment in the agriculture is a viable one. Similarly, the improvement of municipals services and the return of the younger generations to a modern schools and curriculum would rehabilitate them from the nearly two years of fierce conflict and extremist ideologies.

Geographically, the expansion would go beyond today's Salah Ad-Din and Diyala governorates to more cities that have been recently liberated in two additional governorates such as Mosul in Ninawa, Ramadi in Anbar and few others. These cities have experienced enormous damage to all aspects of from public and private assets whether in terms of infrastructure, services, housing or businesses.

Beyond these areas that were directly affected by the conflict, the EODP-AF will also support communities who are hosting IDPs for the past three years to continue and improve their ability to deliver services to IDPs. These communities are in many cities in Iraq including in Kurdistan region.

In most cases the project interventions will be within pre-existing footprints of buildings, structures, and linear infrastructure, which was damaged, destroyed, sabotaged, or stolen during combat activities and occupation by the terrorist groups. However, in order to serve returning IDPs and meet the increasing demands of local communities for services, the project interventions may go beyond the pre-existing footprints given that: (i) the interventions are not included in the ineligible subprojects per Table 3 of the ESMF; (ii) appropriate ESIA/ESMPs are prepared per the

procedures of the ESMF and cleared by the Bank before procurement procedures; and (iii) the adherence to the existing footprint of damage facilities will not be sufficient to provide the needed services and the need for the expansion is technically justified”

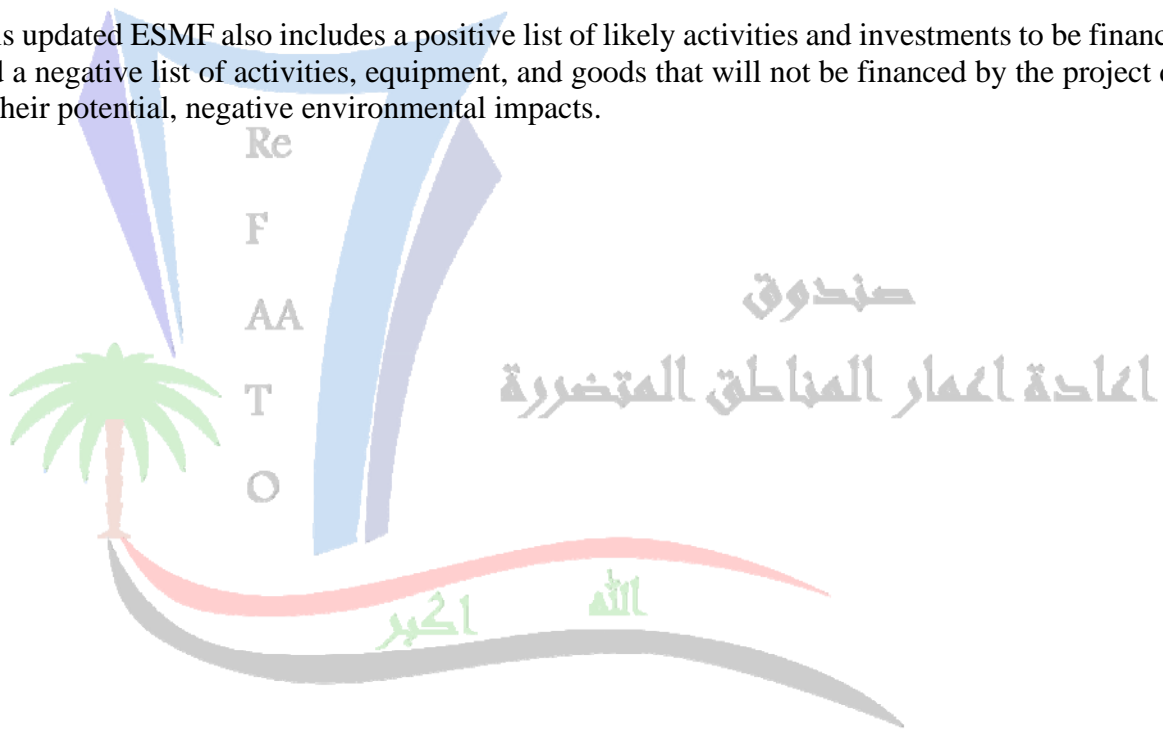
### ١,٢ Project Development Objective and Rationale for Additional Finance

The Project development objective is to support the Republic of Iraq in the reconstruction of damaged infrastructure and the restoration of public services delivery in Targeted Municipal Areas. The PDO for the EODP-AF is consistent with the PDO for the parent EODP but with an expansion in geographical and sectoral coverage: to support the GoI in the reconstruction of the damaged infrastructure and the restoration of public service delivery in Targeted Areas.

### ١,٣ Rationale for the updated ESMF

According to the World Bank requirements for financing this project, the Project Owner prepared an Environmental and Social Management Framework (ESMF) that covers the entire scope of potential investment sub-projects. The ESMF for the parent EODP was prepared, consulted and disclosed before any EODP physical activities started. Given that a new scope has been added to the original EODP, the ESMF needs to be updated to incorporate the new geographical and sectoral expansion.

This updated ESMF also includes a positive list of likely activities and investments to be financed, and a negative list of activities, equipment, and goods that will not be financed by the project due to their potential, negative environmental impacts.



## ٢. Project Description

### ٢.١ Overview

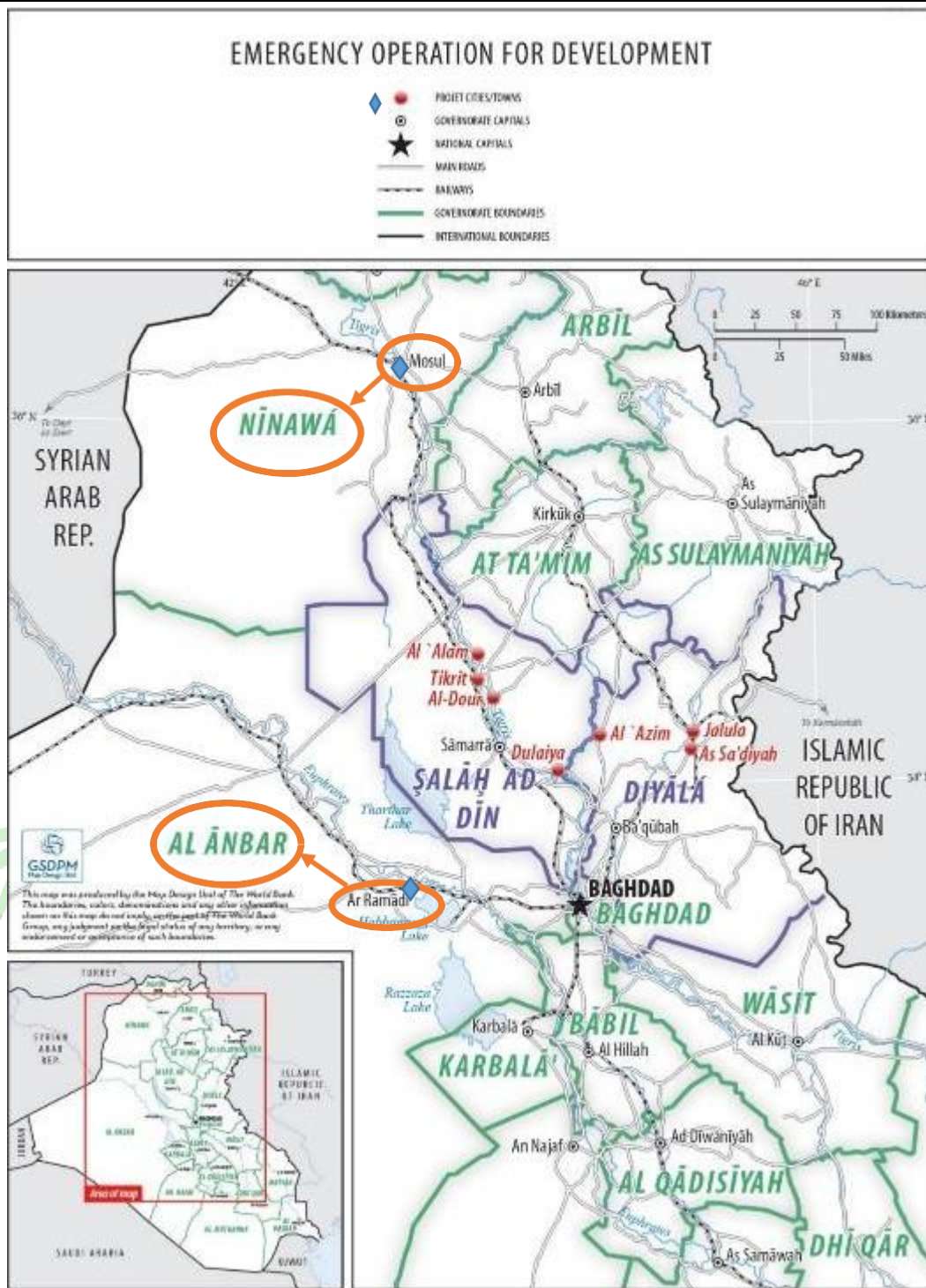
The project adopts an integrated and pragmatic approach to the reconstruction and rehabilitation of damaged infrastructure and housing in conflict-affected cities in Iraq. For the water, energy, transport, social services, agriculture, water resources and irrigation, municipal services and health sectors, this will be conducted through the repair and reconstruction of damaged infrastructure in the selected geographical areas which are described below. The project will also support technical assistance towards planning and designing urban development and future infrastructure schemes and will also support project management, sensitization and monitoring and evaluation component. The design of the project components provides flexibility to include newly liberated and secure municipal areas.

### ٢.٢ Project Locations and Physical Features

The parent EODP is currently focusing on the originally seven targeted municipalities/cities in two governorates that were identified during project preparation in May ٢٠١٥ including the cities of Tikrit, Dour, Al Dhulo'eyya and Al-Alam in the Salah ad-Din governorate and Jalula, As-Sadiya and Al-Azeem in the Diyala governorate. The EODP is already expanding its support to additional municipalities such as Ramadi and few others that were liberated over the past year, where immediate support to reinstate services was much needed.

The EODP-AF would expand the support further to other liberated areas and extend to other priority sectors. The expansion is expected to go beyond today's Salah Ad-Din and Diyala governorates to more cities that have been recently liberated in two additional governorates such as Mosul in Ninawa, Ramadi in Anbar and few others which have not yet been identified at this stage of preparing the updated ESMF.





**Figure 1:** Republic of Iraq: Emergency Operation for Development Project Locations  
 (◆ Symbol highlights the new project locations in Al-Anbar and Ninawa Governorates)

## ٢,٣ Project Components

### **Component ١: Restoring Electricity Infrastructure and Connectivity**

This component aims to support restoration of electricity services to the liberated areas, with particular emphasis on (i) public sector led interventions covering the reconstruction of damaged transmission and distribution assets (as per the original EODP) and (ii) where feasible, private sector- led efforts to expand access to electricity based on service contracts for installing new infrastructure for electricity generation and distribution (fee per KWh) and SPV systems for institutions and households.

### **Component ٢: Restoring Municipal Waste, Water and Sanitation Services**

This component is largely similar to that described for the EODP and aims to restore water, wastewater and solid waste services through the repair, reconstruction, and rehabilitation of damaged infrastructure in selected municipalities. Reconstruction of public works will generate local employment opportunities, and successful completion of public works in this sector will reduce the incidence of public health risks through water-borne diseases.

However, the AF will incorporate the following modifications to the original component: i) it will now focus on three governorates (Anbar, Ninaweh and Salahadin, including the districts and sub-districts surrounding Mosul and Ramadi) and ii) prioritize reconstruction and rehabilitation of sewage treatment plants and solid waste management equipment (garbage trucks, etc.)

### **Component ٣: Restoring Transport Infrastructure**

Transport infrastructure (bridges, roads, airports, and railway) is key to the economic development of Iraq. Most of the transport infrastructure in the war-impacted regions suffered destruction and damages resulting from the recent military operations, sabotage and vandalism during the crisis. Critical bridges, road sections, airports and railways have been significantly damaged. This has led to severe disruption of service delivery, closure of several bridges, road sections as well as other modes of transport such as airports and railway systems. In addition, lack of maintenance funding and institutional weaknesses have further deteriorated the quality of the transport infrastructure and service delivery of the sector.

The objective of this component under the AF is to expand coverage to liberated areas in Al Anbar, Diyala, Ninawa and Salahadeen governorates to restore service delivery, connectivity and access to economic and social services that have been disrupted due to the destruction of roads and bridges in military operations against ISIS. Activities under this component will include the reconstruction of key bridges that have been fully damaged, and rehabilitation of partially damaged bridges in affected areas, particularly in Mosul that has endured wide-ranging destruction to physical assets and infrastructure.

Activities for this component AF will include: preparation of detailed plans, designs and bidding documents for the repair, rehabilitation and reconstruction of roads and bridges, and technical assistance and consultancy services for supervision and implementation of transport subprojects. In addition, the proposed reconstruction and rehabilitation works would support the Gol's plans for economic recovery, social reconciliation and employment creation for working-age youth. These works will be implemented by the Iraq Reconstruction Fund in coordination with sector authorities as well as local government agencies to the extent possible.

The AF will support the preparation of a feasibility study for the reconstruction, operation and maintenance of Mosul airport financed by a public-private partnership scheme. This work will draw upon the World Bank's experience in Jordan and other best practice examples. To avoid duplication and random rehabilitation of the Iraq Republic Railway IRR, the AF will finance the railway rehabilitation priority. The AF will also finance the rapid repair of key public transport terminals as well as an assessment for a PPP in operation and maintenance of selected term.

Year 1 of the Project will focus on maintenance and quick repairs of critical bridges and roads; and the reconstruction of damaged public transport terminals, recruitment of consultants; and preparation of plans and detailed designs for the reconstruction of complex and highly technical transport facilities. Years 2–5 of the Project will focus on the actual implementation of rehabilitation and reconstruction of damaged roads and bridges.

#### **Component 4: Restoring Health Services**

EODP financing will continue with the originally available funding but with minor revisions to the activities supported i.e. EODP will finance the repair and supply of medical equipment to partially damaged hospitals and clinics in place of supply of mobile hospitals. No additional funding is proposed to this component. The State of Kuwait, through the Kuwait Fund for Arab Economic Development has made available a grant of US\$ 100 million to restore the country's health services in areas recently regained from the ISIS.

#### **Component 5: Technical Assistance**

**Sectoral Development:** This component will develop and espouse a systematic, programmatic and integrated approach towards recovery and reconstruction efforts. This approach is intended to support the preparation of a range of potential sector investment projects underpinned by strategic and medium to long-term needs assessments that will be undertaken by the Bank and the GoI over the AF implementation period. will continue to constitute a platform for providing Technical Assistance for all of the Project components. The AF will continue to provide support to finalize and implement the General Framework of the National Recovery and Reconstruction Framework for Iraq, and to avail of possible opportunities to enhance the PCU's capacity to manage multi-sector recovery as part of the WB's collaboration with the ReFAATO.

**Technical Assistance:** This component will continue to implement a detailed and nuanced approach to various facets of *state/citizen trust-building and promoting reconciliation in the broader Project context* including: (i) inclusive participation by local communities, (ii) transparency of resource allocations, (iii) measures to promote tolerance amongst various social groups through community-led sub projects, (iv) dissemination of information regarding the Project to build trust and confidence by using targeted media, social media and communications campaigns, (v) youth initiatives to build social capital and foster reconciliation and (vi) effective grievance redressal and increased accountability on service delivery issues at the local level . In addition, technical assistance in this area will be geared towards working on a *broad strategy for the sustainable management of physical cultural resources (PCRs)*. This activity will entail a systematic and detailed damage assessment of physical cultural resources that have been damaged; the preparation of a prioritized list of required interventions; the development of a reconstruction and restoration strategy for PCRs (including related standards, guidelines, knowledge and technical resources, and design codes); and design and preparation to establish a fund to support the restoration and maintenance of PCR on a more sustainable basis. Technical assistance will be offered to the stakeholders including the Ministry of Culture, the Governorate of Ninawa, the Religious endowments, the educational, cultural and scientific institutions, as well as professional associations of the city, to: (a) document and conduct a detailed survey of the damaged heritage site; (b) develop strategic guidelines, work plan, and M&E plan to reconstruct historic urban landscape of Mosul; and (c) train youth and vulnerable groups in the City for skills necessary for the restoration work.

#### **Component 7: Project Management, Sensitization and Communications and Monitoring and Evaluation**

This component will continue to cover costs associated with the management and coordination of the Project, including social and environmental safeguards, procurement and financial management,

communication and community sensitization, and monitoring and evaluation (M&E). The remit of this component will be extended to supervise effective execution of citizen's engagement initiatives.

Strategic communication and citizen engagement activities will be administered throughout the project preparation, implementation and monitoring to promote an inclusive approach in the reconstruction process. Efforts to promote citizen participation in the Project will be underpinned by a strategic communications campaign that is part of an overall holistic citizens engagement strategy. The aim will be to raise awareness of the Project's objectives, scope and activities; potential benefits (and costs) for beneficiaries; its relevance to the GoI's broader vision for recovery and reconstruction; and various avenues that are available for beneficiaries and citizens to remain apprised of Project developments and to engage in the design and implementation of sub projects across a range of sectors. Communication messages and modalities will be tailored to the information seeking habits of specific vulnerable groups (IDP's, women, youth, unemployed, business, etc.) and proactive dissemination of timely and comprehensive information through appropriate media will establish a precedent for transparency and signal the GoI's willingness for the local populace to be informed and engaged. This approach will also be useful to manage expectations and promote buy-in and ownership.

A baseline beneficiary survey will determine modes of engagement and appropriate communication channels around which the existing the above components of the CE strategy will be modified, from their current format. The key elements of the citizen engagement strategy for this Project will include the following: (i) early disclosure of important project related information by the GoI on its website and at the appropriate local levels and disclosure procedures agreed with the Bank, (ii) framework for consultation with the key stakeholders ensuring all targeted beneficiaries are informed, through relevant stakeholders and their representatives to obtaining broad community support as a part of preparation of specific sub-projects relevant to that area; (iii) ensure the continuity in existing and establishment and implementation of GRM within new PMTs and at the PCU, to meet specific grievance redress requirements of this operation; and (iv) promote community based initiatives with the participation of and networking with relevant stakeholders including women, school children, youth, IDPs, host communities, civil society organizations, and local bodies.

### **Component V: Restoring Agriculture Productivity**

Widespread unavailability of traditional agricultural inputs and service supplies in newly liberated zones, combined with soaring farm gate prices for agricultural inputs<sup>1</sup> represent significant constraints to productivity growth, and employment and enterprise development in Iraq's rural sector. In addition, emergency assistance is essential for returning farm households, IDPs, producer groups and farmer associations to gain some measure of food security and to establish the foundation of a more measured approach to agriculture sector recovery.

The key focus of this component is to revive agricultural and related activities in the conflict-affected regions across the country. Project activities will utilize a combination of emergency and short-term measures to improve the capacity of the Ministry of Agriculture to support farmers with critical agricultural services, technologies and investments.

The four sub-components are emergency implementation of local area development plans, restoration of critical agriculture support services, emergency agriculture credit facilitation and project management.

### **Component A: Emergency repair of water control infrastructure and irrigation schemes**

The reconstruction of the irrigation system is crucial to the success of the agricultural sector in most parts of the country. Irrigated agriculture, which accounts for bulk of the total production of cereals and other

---

<sup>1</sup> (relative to international levels)



crops was affected by ISIS. Strategic barrages, link canals, major irrigation headworks and pumping stations were severely damaged. In addition, necessary maintenance was not carried out on the irrigation and drainage water distribution network, leaving the irrigation and drainage systems in a state of disrepair. The total area under irrigation decreased by 50 percent and crop productivity has fallen below 30 percent of pre-war levels.

There are two sub-components to the rehabilitation of the irrigation infrastructure. The first would support emergency repair of the Falluja barrage in addition to emergency repairs to six irrigation schemes, and the second would include management, engineering studies and M&E.

### **Component 9: Restoring Education Services**

This component aims to support the restoration of education services in liberated and affected areas of Iraq, while laying the foundation for further development in the education sector. It will place emphasis on vocational education for youth and the economic empowerment of women. The three sub-components are: rehabilitation, reconstruction, upgrading and equipping of education infrastructure, Support to Teachers, School and Community Leaders, and Out-Of-School Youth Training and Support Programs, and institutional strengthening and sector development support.

### **Component 10: Restoring Municipal Infrastructure and Services and Preserving Cultural Heritage Assets**

This component will support the restoration of basic municipal infrastructure and services in the selected municipalities in Anbar, Salaj-Ad-Din, and Diyala governorates, paving the way for the return of displaced residents and laying the ground work for extensive housing repair and reconstruction in the future.

The implementation of this sub component will be based on a framework for sub project preparation and implementation that will be composed of core elements including i) a set of selection and evaluation criteria, ii) a cap for individual sub-projects cost and iii) clear requirements for environmental and social safeguards.

Sub-projects will be identified based on a clear rationale, prioritization criteria and an integrated area-based approach. Revitalization of economic activities will be a key priority in sub project identification, and, as such, sub projects will therefore focus on neighborhoods where i) there is promise of rejuvenating commerce and trade and ii) the majority of housing has withstood partial damage. Eligible sub-projects will also have to be economically viable, avoid the possibility of major or irreversible environmental and social impacts, and have financing, procurement, and implementation plans in plans that are satisfactory as per Bank standards. Eligible sub projects may include, inter alia, facilities for youth and sports activities, community centers, parks, cultural heritage sites, public markets, internal roads (streets) and urban water and waste water networks.

This component will be implemented by the four beneficiary governorates technical support from consulting firms. As a result of the ongoing devolution process, the governorates are expected to have increased responsibilities and autonomy in the provision of urban services. This will contribute towards strengthening the administrative and technical capacities of the governorates, and potentially pave the way for future actions and programs.

This component will also finance a pilot conservation, rehabilitation and/or restoration of selected cultural heritage in Mosul's historic old core. The works part of the pilot will enable the creation of job opportunities through Employment Intensive methods (EI) for the restoration of historical buildings and Historic Urban Landscape. This pilot will be coordinated closely between the UNESCO, Ministry of Culture, the Governorate of Ninawa and the Mosul municipal council.

Based on the Broad Strategy for the Sustainable Management of Physical Cultural Resources (PCRs) developed under the Component 9 (Technical Assistance), the local government will work with UNESCO

to develop conservation plan of selected cultural heritage in Mosul's historic old core. Once the conservation plan is completed, the component will finance some selected cultural heritage properties on pilot basis with limited amount of funding.



## ٣. LEGAL AND INSTITUTIONAL FRAMEWORK

### ٣.١ National Legislations and Regulations

The project is subject to the following Iraqi laws and regulations:

- Law no. ٣٧ for the year ٢٠٠٨: The Ministry of Environment
- Law no. ٢٧ for the year ٢٠٠٩: Protection and Improvement of Environment
- Regulations no. ٢ for the year ٢٠٠١: Preservation of Water Resources
- Law on ١٧ for the year ٢٠١٠: Protection of Wild Animals and Birds
- Law no. ٥٥ for the year ٢٠٠٢: The Law of Antiquities and Heritage

### ٣.٢ World Bank Safeguard Requirements

In addition to the Iraqi laws and regulation the ESMF and subsequent ESMPs should comply with the safeguards policies and procedures of the World Bank. Originally OP/BP ٤,٠١ on Environmental Assessment, Physical Cultural Resources (OP٤,١١), Involuntary Resettlement (OP/BP ٤,١٢), and International Waterways (OP٧,٥٠) were triggered for the parent project. Therefore, these policies will continue to be triggered for EODP-AF, in addition to OP/BP ٤,٠٩ on Pest Management which has been triggered after introducing the agriculture sector in the additional finance.

Under the Bank's safeguard requirements, the EODP has been assigned an EA Category "B" given that the nature of the proposed activities which will not have highly significant adverse environmental and social impacts, and this category will also continue for the EODP-AF.

In addition, due to the nature of the EODP activities, the General and Industry guidelines on Environmental, Health and Safety Guidelines (EHSGs) in particular the General Guidelines and Sector Guidelines for Construction and Decommissioning should be used as appropriate<sup>١</sup>.

<sup>١</sup> See ifc.org/ehs guidelines

## 4. Baseline Conditions

### 4.1 Overview

The common feature for all project interventions is the strict adherence to pre-existing footprints of buildings, structures and linear infrastructure, which was damaged or destroyed during combat activities.

The majority of interventions is expected in urbanized areas, which are generally characterized by the nonexistence of environmentally sensitive areas or natural habitats of importance - being in urbanized areas - which require special attention or protection.

### 4.2 Climate<sup>r</sup>

#### 4.2.1 General

The climate of Iraq is mainly a hot desert climate or a hot semi-arid climate to the northernmost part. Averages high temperatures are generally above 40 °C (104 °F) at low elevations during summer months (June, July and August) while averages low temperatures can drop to below 0 °C (32 °F) during the coldest month of the year during winter. Most of the rainfall occurs from December through April and averages between 100 and 180 millimeters annually.

The wind regime is characterized by the winds prevailing from the western and north-western direction throughout the year. In spring the south of Iraq often occur south-west winds accompanied by dust storm. Mean annual wind velocity reading 2,1-3,9 meter per second, maximum register at Mosul 26 meter per second, 31 meter per second at Kirkuk and 40 meter per second near Basra, Evaporation varies from 1300 mm in the northern region to 2400 mm. in the central region of which 400-500 mm. occurs in both July and August only.

The climate of the Iraqi plains is sub-tropical, continental. Summer is long, hot and dry. Winter is short with mean monthly temperatures above zero and some year's daily temperature falls two to three degree below zero. Intensive cyclonic activity in the atmosphere provoking rainfall, most precipitations occurs between October and May.

#### 4.2.2 Salah Al-Din Climate

Salah Al-din has three different climates and is dominated by BWh.

<sup>r</sup> Source: <https://en.climate-data.org>



**Table ١: Salah Al-Din Climate Classifications**

Classification	Count	Köppen-Geiger	Examples
Hot desert climates	٢١٢١	BWh	<u>Qaryat al Haranah</u> , <u>Qaryat Albu Talhah</u> , <u>Qaryat Albu Talhah</u> , <u>Albu Talhah</u> , <u>Qaryat al Kazakazah</u>
Hot semi-arid climates	٣٥٨	BSh	<u>Amirli</u> , <u>Garmak</u> , <u>Zindana i Pichuk</u> , <u>Takhta Mina</u> , <u>Chala Duana</u>
Hot-summer Mediterranean climate	١	Csa	<u>Aziz Bag</u>

**٤, ٢, ٣ Diyala Climate**

Diyala has three different climates and is dominated by BWh.

**Table ٢: Diyala climate Classifications**

Classification	Count	Köppen-Geiger	Examples
Hot desert climates	١٤٨٩	BWh	<u>Husaywat</u> , <u>Mahmud al Khalaf</u> , <u>Badwi al Ali</u> , <u>Abu Bakr</u> , <u>Quraish</u>
Hot semi-arid climates	٨٤١	BSh	<u>Chahar Shakh</u> , <u>Chwarshakh</u> , <u>Kani Shirin</u> , <u>Ali Khalah</u> , <a href="http://en.climate-data.org/location/٩٤٧٠٠٠/">http://en.climate-data.org/location/٩٤٧٠٠٠/</a>
Hot-summer Mediterranean climate	٩٣	Csa	<u>Nawde</u> , <u>Nawday</u> , <u>Saraw</u> , <u>Chuardaran</u> , <u>Darband</u>

**٤, ٢, ٤ Al-Anbar Climate**

Al Anbar has two different climates and is dominated by BWh.

**Classifications**

Classification	Count	Köppen-Geiger	Examples
<u>Hot desert climates</u>	<u>٨٣١</u>	<u>BWh</u>	Al Khalidiyah, Qaryat Nahhalah, Arak Jasim, Abd Manfi, Abd Allah Ulaywi
<u>Cold desert climates</u>	<u>٥</u>	<u>BWk</u>	Qaryat Barim, Tanif, Al Walid, Kharjah, Mahfur al Jandali

## ٤,٢,٥ Ninawa Governorate

Ninawa has three different climates and the most prevalent ones are BSh, Csa.

### Classifications

Classification	Count	Köppen-Geiger	Examples
Hot semi-arid climates	٨١٦	BSh	Qaryat Lazagah, Qaryat al Karamah, Mansuriyat as Salamiyah, Qaryat as Salamiyah, Namrud
Hot-summer Mediterranean climate	٧٤١	Csa	Mosul, Hanis, Barrasha, Maghara, Khirbat Kajuri
Hot desert climates	١٧	BWh	Qaryat al Ghazlaniyat, Tall Abu Arbid, Tall Rabak, Ayn at Tarfawi, As Sakhriyat

## ٤,٣ Geographical features

Iraq can be divided into the following five physiographic zones (FAO/UNESCO/WMO, ١٩٦٢).

- Zagros Mountain Region
- Foothills Region
- Desert Region
- Jazeera Region
- Mesopotamian Plain Region

*Concerning EODP, the expected interventions and activities will take place between Jazeera Region and the lower fold of the Mesopotamian Plain Region which is mainly composed of flat plateau.*

- **Jazeera Region:** includes the remnant of an old inland sea in which mainly gypsum was deposited. It is a steppe and desert plateau. The area is relatively flat broken by some hills and low mountain ridges which are an extension of the mountain ridges to the east. The mountain ridges go in an east west direction; in between there are level to undulating and at places rolling terrain.
- **Mesopotamian Plain Region:** is a geological depression filled with river sediments which covers the central and southern parts of Iraq. It is a plain of the Tigris and Euphrates rivers.

## ٤,٤ Water Resources

### ٤,٤,١ Surface Water Resources

Iraq is traversed by two major rivers, the Tigris and the Euphrates, both of which rise in the eastern mountains of Turkey and enter Iraq along its northwestern borders. Before their confluence just north of Basra, the Euphrates flows for about ١,٠٠٠ km and the Tigris for some ١,٣٠٠ km within Iraqi territory. Downstream from this point, the combined rivers form the tidal Shatt al-Arab waterway, which flows ١٩٠ km into the Gulf.

The Euphrates basin (٥٧٩,٣١٤ km<sup>٢</sup>) embraces parts of Iraq (roughly ٤٩% of the basin). The Euphrates River does not receive water from permanent tributaries within Iraqi territory and is fed only by seasonal runoff from wadis.

Within Iraq, the Tigris River receives water from four main tributaries, the Khabour, Great Zab, Little Zab and Diyala, which rise in the mountains of eastern Turkey and northwestern Iran and flow in a southwesterly direction until they meet the Tigris.

The great alluvial plains of the Tigris and Euphrates Rivers comprise more than a quarter of Iraq's surface area. Topographically, the region is extremely flat, with a fall of only ٤ cm/km over the lower ٣٠٠ km of the Euphrates and ٨ cm/km along the Tigris. Under natural conditions, the region was rich in wetlands and subject to annual flooding of up to ٣m.

The major river flow annual cycle can be divided into three periods:

- a- spring flood period, February to June
- b- summer low flow period, July to October
- c- autumn - winter rainfall period, November to February

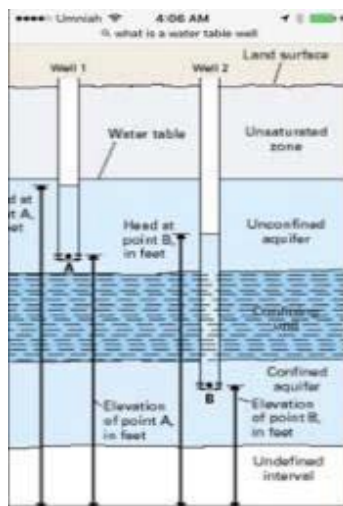
During spring flood period, Tigris River conveys about ٧٥ % of the annual flow, during low flood period ١٠ % and ١٥ % during autumn period. The volume and duration of floods on the Tigris depends greatly on flood flow of the tributaries. The spring flood of Diyala tributary occur before that on the Lesser Zab, while this event precedes the spring flood on Greater Zab, The Euphrates carries ٧٠% of annual flow during spring period, ١٠% in the summer period, and ٢٠% during autumn period.

The Euphrates peak flows usually occur in the beginning of May, whereas that of the Tigris occurs in March or April.

Water quality in the Euphrates is affected by return flows from irrigation projects in Turkey and Syria, and is expected worsen as irrigated land is added. Within Iraq, much of the return flow is now drained into the Persian Gulf through the Main Outfall Drain, but considerable saline return flow enters the river system. On the Tigris River, the quality is further degraded with flood flows diverted into off-stream storage in the highly saline Tharthar Lake, and later returned to the river system carrying salts washed from the lake.

#### ٤,٤,٢ Groundwater

According to the hydrological map as shown in the figure below, there are no specific aquifer in the area, and according to the water table contour lines in the map the nearest water table is more than ١٠٠m away from the surface. Therefore, the interaction between the project activities and the water aquifer is not expected.



**Figure 7: Hydrogeological Map in the Regions where EODP will operate**

**4.1 Biodiversity**

**4.1.1 Ecosystem in Iraq**

The combination of rain shortage and extreme heat makes much of Iraq a desert. Because of very high rates of evaporation, soil and plants rapidly lose the little moisture obtained from the rain, and vegetation could not survive without extensive irrigation. Some areas, however, although arid, do have natural vegetation in contrast to the desert. The majority of sites important for biodiversity conservation have no protected area status, although many have been recommended for designation.

**4.1.2 Mesopotamian Marshlands**

The Mesopotamian marshlands are unique ecological features at the confluence of the Tigris and Euphrates. They fall into three distinct areas: Hawizeh Marsh in the north, fed by the Tigris and Karkheh rivers, the Central (Qurnah) Marsh, which lies between the Tigris and the Euphrates, and the Hammar Marsh to the south, traditionally fed by the Euphrates. These three marshes were once contiguous and covered 20,000 km<sup>2</sup>. The marshes are important economically and ecologically to all peoples of this area and are of global environmental significance.

**4.1.3 Biodiversity in EODP and EODP-AF Intervention Areas**

The ecosystem conditions in the areas where EODP and EODP-AF activities will take place are considered near the “Plateau Area” and is far from the marshlands (which is located in the east-southern part of Iraq) and far from the desert areas (located in the far west of the country). In the EODP and EODP-AF intervention areas (plateau), the fauna and flora species are not classified as rare or endangered. These species are common and abandoned in many locations. No significant terrestrial habitats or ecosystems are present in the EODP or EODP-AF intervention areas. The only important habitat is mainly the aquatic environment of the rivers which cross through the intervention areas.

## ٤,٦ Economic Activities and Land-use

### ٤,٦,١ Oil industry

Iraq's economy is dominated by the oil sector, which has typically provided ٩٥% of foreign exchange earnings. Production is concentrated in two main areas, namely northern Iraq in and around Kirkuk, and, in the south, around Basra.

### ٤,٦,٢ Natural gas

Iraq has ٣,١١٤ trillion m<sup>٣</sup> of proven natural gas reserves, and approximately ٤,٢٥ trillion m<sup>٣</sup> in probable reserves. About ٧٠% of Iraq's natural gas reserves are 'associated' (meaning that the gas occurs with oil reserves). In ٢٠٠١, Iraq produced ٢,٧٥ billion m<sup>٣</sup> of natural gas, down drastically from peak output levels of ١٩,٨٢ billion m<sup>٣</sup> in ١٩٧٩. Iraq has had a long-term strategy of increasing its domestic consumption of natural gas to free as much oil as possible for export.

### ٤,٦,٣ Agriculture

The agricultural sector contributes to ٣٥% of Iraq's non-oil GDP and up to about ٣٠% of employment for the rural poor. The development of hydraulic infrastructure, consisting of large dams, reservoirs and distribution networks for water supply and irrigation was central to economic planning. Iraq developed more than ٣ million hectares of irrigated-agricultural lands. Traditionally the main crops were wheat, barley, maize, beseem and vegetables. Crop yields for most crops are usually low when compared with other countries and rural poverty is high. Unsustainable water management practices, including construction of large dams and irrigation schemes, have resulted in deterioration of the quality of soil and land productivity.

The desert plateau provides the country's main rangeland grazing, as well as limited dryland cultivation. The uplands and mountains yield acorns, almonds, walnuts and pine nuts, with additional grazing and dryland cultivation. Irrigated agriculture occurs mainly in the alluvial plain. The principal crops include dates, wheat, barley, maize, rice and cotton, as well as a wide variety of fruit and vegetables.

### ٤,٧,٣,١ Irrigation

Water use in agriculture is currently estimated at about ٤٤ BCM per year constituting ٩٠ percent of total abstractions. With the exception of about ١ BCM groundwater, the irrigation water is abstracted by diversion from rivers and distributed through an extensive system of barrages, irrigation canals, and on-farm channels and approximately half of the diverted water is lost in conveyance. In addition, on-farm water use efficiency is also low. Irrigation of date palms with highly saline water has been practiced since ١٩٧٧, while the use of brackish groundwater for tomato irrigation has also been reported in the south of the country.

## ◦. Assessment of environmental and social impacts and Impact mitigation framework

Guidance for identification of potential environmental and social impacts of the project components will be presented in addition to proposing general mitigation measures. At later stages and during the preparation of site specific ESMPs/ESIAs, environmental and social impacts should be carefully examined and detailed. Appropriate mitigation measures should also be discussed in relation to each subproject, baseline conditions and capacity of the implementing agency. However, it is important at the beginning to note that some subprojects will have to be excluded from financing under EODP and EODP-AF due to their highly anticipated significant negative environmental and/or social impacts.

### ◦. Ineligible Subprojects

Some of the activities or subprojects which have significant environmental and/or social impacts have been excluded from implementation under EODP and/or EODP-AF. In all ESMPs or ESIAs which will be prepared prior to construction, the following exclusion list of criteria should be referred to in order to ensure that the proposed subproject is eligible for support under EODP and/or EODP-AF.

**Table 3: Criteria for Ineligible Subprojects**

<ul style="list-style-type: none"> <li>• <b>General Characteristics</b></li> </ul>
a) Concerning significant conversion or degradation of critical natural habitats.
b) Damages cultural property, including but not limited to, any activities that affect the following sites: <ul style="list-style-type: none"> <li>• Archaeological and historical sites; and</li> <li>• Religious monuments, structures and cemeteries.</li> </ul>
c) Requiring pesticides that fall in WHO classes IA, IB, or II.
<ul style="list-style-type: none"> <li>• <b>Sanitation</b></li> <li>• New wastewater treatment plants to serve 10,000 or more households.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Solid Waste</b></li> <li>• New disposal site or significant expansion of an existing disposal site.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Irrigation</b></li> <li>• New irrigation and drainage schemes.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Dams</b></li> <li>• Construction of dams more than 10 meters high. Rehabilitation of dams more than 10 meters high.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Power</b></li> <li>• New power generating capacity of more than 10 MW.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Income Generating Activities</b></li> <li>• Activities involving the use of fuelwood, including trees and bush.</li> <li>• Activities involving the use of hazardous substances.</li> </ul>

### **Note on Unexploded Ordnance (UXO):**

An important precondition to infrastructure repair and reconstruction will be the removal of debris and rubble, as well as structures which have been damaged beyond economic repair in order to clear space for subsequent reconstruction works. Due to the risks of explosive war remnants (EWR) concealed in and under the rubble (both unexploded ordnance - UXO, and deliberately planted explosives) an extensive explosive ordnance disposal (EOD) would have to be an integral



part of rubble removal. The GoI with assistance from the European Union, and the rest of the international community including specialized agencies such as the United Nations Mine Action Service (UNMAS) will ensure that improvised explosive devices (IEDs) and UXOs are properly detected and removed prior to works activities begin especially where rubble is accumulated. Any rubble removal, repairs or reconstruction financed by the Bank will only apply to those areas that have been declared safe of EWRs. Confirmation that sub-Project locations have been cleared of EWR, IEDs and UXOs will be sought from the relevant authorities (the Ministries of Interior and Defense). No sub-project activities will be undertaken without this assurance. In a similar manner as the completion of the required safeguards documents, the declaration of absence of ERW will be a criterion to allow any Bank-financed works to proceed.

#### ◦, ٢ Preliminary Assessment of Environmental Impacts of EODP and EODP-AF

In general, following is the list of broad positive and negative impacts that are very likely to arise from the sub-projects funded under the EOPD and EODP-AF.

#### ◦, ٢, ١ Overall positive impacts of the project

The proposed project and its subcomponents are expected to have major positive environmental and social benefits which will contribute to the improvement of the living conditions of the Iraqi people in addition to improvement in the overall environmental status in the liberated lands. The following is a list of key economic, environmental and social benefits which will result from EODP and EODP-AF activities:

- Economic and social development of the liberated lands;
- Improved environmental conditions due to management of solid and liquid wastes;
- Reduced air pollution and traffic congestions
- Improved accessibility of people, goods and services;
- Improved public health due to provision of clean drinking water, reliable sanitation systems and municipal waste management;
- Improved safety conditions due to provision of reliable electricity service;
- Improved productivity of agriculture land and livestock
- Improved management of water resources
- Restoration of some PCR sites under the municipal services sector
- Job creation and local economic development

#### ◦, ٢, ٢ Overall negative impacts of the project

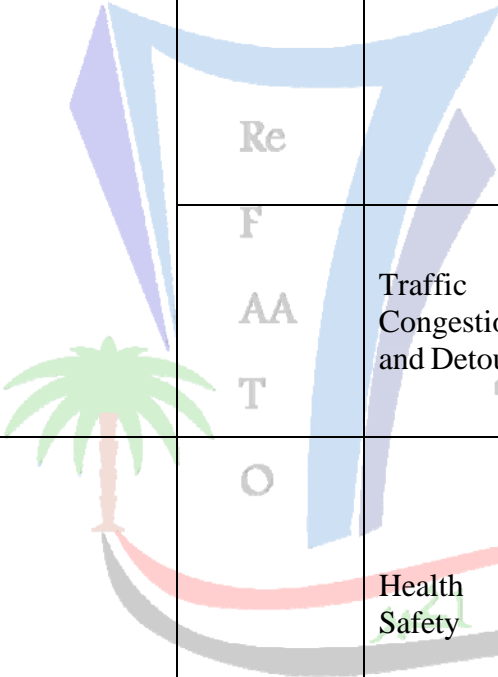
The preliminary assessment of impacts that can be linked to the EODP and EODP-AF can be generalized under (i) typical construction/rehabilitation impacts which can be mitigated with good construction practices and (ii) specific impacts that can arise due to engineering interventions proposed for some sub-projects and hence require more detailed analysis at a later stage.

In general, the following is the list of broad negative impacts that are very likely to arise from the sub-projects funded by the EODP and EODP-AF. These impacts though occurring in most of the sub-projects will vary in extent and significance **hence individual assessment for each subproject is of utmost importance.** However, for ease of presentation and reference typical construction impacts related to the project have been discussed under the following thematic categories.

**Table 4: Preliminary Identification of Potential Negative Impacts during Construction**

EODP Component(s)	Activities	Receptor/EHS Aspects	Related Potential Impacts
<p>١, ٢, ٣, ٤, ٧, ٨, ٩ and ١٠</p> <p>Re F</p> <p>General construction activities</p>		Air	<ul style="list-style-type: none"> <li>• Emission of pollutants from engines of construction machinery and equipment.</li> <li>• Dust “lifting” due to earthwork and movement of construction trucks and equipment on unpaved roads.</li> </ul>
		Noise	<ul style="list-style-type: none"> <li>• Noise emission from engines of construction machinery and equipment</li> </ul>
		Soil, subsoil and land	<ul style="list-style-type: none"> <li>• Land occupation due to the installations in the working areas</li> <li>• Soil/subsoil contamination due to accidental spills and leaks from construction equipment</li> <li>• Improper discharge of domestic sewage from construction camps/offices.</li> <li>• Improper disposal of wastes from construction camps/offices.</li> </ul>
		Solid and hazardous waste	<ul style="list-style-type: none"> <li>• Production of construction wastes/demolition debris</li> <li>• Solid wastes from construction camps/offices</li> <li>• Improper disposal of fuel barrels, removed asphalt, paint containers, asbestos materials.... etc.</li> <li>• Improper disposal of dredging waste of irrigation channels</li> </ul>
		Water resources	<ul style="list-style-type: none"> <li>• Improper disposal of debris or construction wastes on river banks</li> <li>• Improper discharge of domestic sewage from construction camps/offices into surface or subsurface water bodies</li> <li>• Improper use of construction chemicals in underwater structures. Water consumption for construction works</li> </ul>
Biodiversity and sensitive habitats	<ul style="list-style-type: none"> <li>• Removal of trees or green cover for rehabilitation or construction purposes may result in loss of habitats</li> <li>• Pollution of rivers or waterways may negatively affect the aquatic ecosystem,</li> </ul>		



EODP Component(s)	Activities	Receptor/EHS Aspects	Related Potential Impacts
	Re	Cultural heritage	<ul style="list-style-type: none"> <li>• During rehabilitation, sites or structures of cultural significance may be negatively affected from construction works.</li> </ul>
	F	Socio-economic environment	<ul style="list-style-type: none"> <li>• Temporary nuisance and inconvenience as a result of the construction activities including noise, emissions.</li> <li>• Influx of workers and the potential implications on host communities.</li> <li>• Employment, working conditions and safety of workers at the construction site</li> <li>• Potential child labor employment by local subcontractors</li> <li>• Disturbance of public health and quietness due to construction/rehabilitation activities;</li> <li>• Land acquisition or obstructing access to amenities due to construction/rehabilitation activities.</li> </ul>
	AA T O	Traffic Congestion and Detours	<ul style="list-style-type: none"> <li>• Traffic impacts due road blockages for construction purposes and detours. This may be associated with traffic congestions, increasing commuting time and creating inconvenience to roads users.</li> </ul>
		Health and Safety	<ul style="list-style-type: none"> <li>• Falling from moderate heights;</li> <li>• Vehicle/pedestrian accidents;</li> <li>• Falling into trenches;</li> <li>• Being buried in tunnels/excavations;</li> <li>• Breathing dust and other air pollutants;</li> <li>• Back aches caused by handling heavy material;</li> <li>• Suffering hearing loss from noise</li> </ul>

**Table 2: Preliminary Identification of Potential Negative Impacts during Operation**

<b>Receptor/EHS Aspects</b>	<b>Related Potential Impacts</b>
Air	<ul style="list-style-type: none"> <li>• Emission of pollutants due to increased traffic and mobility on the rehabilitated roads</li> <li>• Emissions from landfill operations and waste incinerators in veterinary clinics</li> <li>• Increased emissions due to increase in electricity consumption</li> </ul>
Noise	<ul style="list-style-type: none"> <li>• Increase in noise emission due to increased traffic and mobility on the rehabilitated roads</li> </ul>
Soil, subsoil and land	<ul style="list-style-type: none"> <li>• Improper management of landfills may result in contamination of soil and land</li> <li>• Improper disposal of sewage</li> <li>• Leakages in sewage networks</li> </ul>
Solid and hazardous waste	<ul style="list-style-type: none"> <li>• Improper management of waste disposal sites and untreated sludge</li> <li>• Disposal of empty chemical containers used in water/wastewater treatment and agrochemicals</li> <li>• Medical wastes from mobile clinics and hospitals</li> </ul>
Water resources	<ul style="list-style-type: none"> <li>• Increase in fresh water consumption</li> <li>• Leakages in water network</li> </ul>
Biodiversity and sensitive habitats	<ul style="list-style-type: none"> <li>• Improper disposal of sewage and wastes</li> <li>• Improper use of pesticides</li> </ul>
Cultural heritage	<ul style="list-style-type: none"> <li>• Increase in vibration levels due to heavy traffic in roads passing through culturally important sites.</li> </ul>
Socio-economic	<ul style="list-style-type: none"> <li>• Positive Social amenities and social benefits</li> </ul>

## ٦. Environmental Management & Monitoring Framework

### ٦.١ Objectives of the ESMMF

The objectives of this Environmental and Social Management and Monitoring Framework, is to outline a mechanism for analyzing and mitigating potential negative impacts and for monitoring the application and performance of mitigation measures. The ESMMF identifies roles and responsibilities for different stakeholders for implementation and monitoring of mitigations.

As explained previously, the proposed project (parent EODP and Additional Finance) is to be implemented mainly in ٤ governorates (with possibility to expand in other governorates depending on government priority and agreement with the Project). Institutional and technical capacities, as well as physical and social environments may vary between them. Identical mitigation measures for all governorates may not provide the flexibility required for dealing effectively with some of the negative impacts which require taking the local context into account. Wherever applicable, the ESMMF is designed to accommodate alternative context-specific mitigations.

### ٦.٢ General Mitigation Measures

The following are general mitigation measures that need to be detailed according to each subproject and in relation to the site specific baseline conditions.

#### ٦.٢.١ During Construction

With the purpose to reduce the impacts related to emissions of gaseous pollutants from construction equipment, the following mitigation measures and good practice are to be taken into account:

##### Air

- Employ construction machines with low emissions to reduce pollution, arranging sources of emission far from people's houses and public places
- All construction machines and vehicles should meet the standard on emissions and have passed the emission test
- No burning of wastes on site
- Limit traffic congestion through proper planning and operating of traffic diversions
- Do not let machines idle when not necessary

Concerning dust control methods and measures, the following actions are to be taken into account to reduce the generation of dust:

- Regular watering of roads for dust suppression in urban, residential areas and in areas with sensitive receptors
- Covering of excavated soil temporary stored on site
- Daily cleaning of tires of vehicles
- Covering up any vehicle transporting materials and spoil to and from construction sites
- Daily cleaning of streets and pathways in vicinity of construction site that are affected by soil and dust
- Imposing speed controls for construction vehicles

## Noise and vibration

Mitigation measures foreseen to minimize the impact related to the noise emission during the construction phase are:

- Apply appropriate schedule to avoid any works that may cause noise and vibration during 10 pm – 7 am especially near inhabited areas. Any nighttime activities should be done using noise reducing means or low-noise technologies
- Use vehicles and equipment that meet national standards for noise and vibration.
- Publishing and registering working time of construction machines with local authorities and strictly compliance therewith.
- Restricting use of noisy machines near sensitive receptors such as schools and hospitals, use noise-reducing means for construction machines, if required.

## Soil, subsoil and land

- Earthwork should be carried out during dry weather periods;
- Stockpiling of earth should be done a safe distance away from waterways;
- Other construction materials containing small/ fine particles should be stored in a place not subjected to flooding;
- If necessary, silt/sedimentation traps should be used to prevent soil particles from getting into drains and canals.

## Solid and hazardous waste

- Work sites should be cleared of residual solid waste and wastewater before work commences;
- Temporary storage of solid wastes shall be done with appropriate containment to avoid spreading of waste, odor and avoid dust;
- Temporary storage of solid waste should be done to avoid interfering with traffic obstacles and aesthetics;
- Sites for collecting solid waste in each sub-project area should be determined prior to commencement of construction. These sites must be suitable with the transport, in order not to obstruct the activities of human beings and the waste must be transported during the day;
- Construction wastes should be removed as much as possible within 24 hours from the site to ensure public safety in urban areas;
- All waste should be collected and disposed in compliance with the local and national laws, in sites identified by the respective local authorities;
- Excavated soil, if suitable, should be used for leveling and backfilling;
- Dredging waste, resulting from clearing the canals, need to be handled according to its constituents;
- No solid waste should be burned at the site;
- Clean the construction site of solid wastes, wastewater etc. before its closing

## Domestic waste

- Construction camps should be sited appropriately with consent from the necessary public authority or the implementing agency,
- Labor camps shall be provided with adequate and appropriate facilities for disposal of sewage and solid waste

- Domestic solid waste shall be collected and disposed of daily at the local authorities designated site or given for collection by the local authorities
- Discharge and disposal domestic waste from worker camps into water sources should be strictly avoided
- Burying and burning domestic waste in the project site should also be strictly avoided
- Avoid construction workers staying overnight in the construction sites

### ***Hazardous wastes***

- Wastes identified as “hazardous” will need special handling, transportation and disposal. For contaminated sites, a hazardous waste disposal plan will need to be prepared.
- The contractor should be trained and made aware of the requirements prior to commencement of the sub-project. Special guidelines for handling of contaminated soils or hazardous wastes should be prepared and published.
- Hazardous wastes and contaminated soils should not be dumped on-site but removed to landfill/dumpsite designated by the local authority or the environmental agency as appropriate;
- Oil and lubricant waste should not be buried or burnt in the project site, but collected and stored in proper oil-cans and disposed for re-use or local authority approved designated sites.

### **Water resources**

- Identification of the reliable water resources and obtain necessary approvals from the relevant authorities to extract water prior to commencement of construction work;
- Contractor should not obstruct or prevent water flow when working closer to water bodies;
- Silt traps and erosion control measures should be used where the construction carry out closer proximity to the water bodies to avoid entering of construction materials which cause turbidity and sediments;
- Construction material and stock piles should be covered to avoid wash off to water bodies;
- Water conservation practices should be in place in construction offices and camps;
- Camps should not be located near water ways, human settlements or near drinking water intakes.

### **Biodiversity and sensitive habitats**

- Underwater construction chemicals should be friendly to the marine environment;
- A compensatory tree planting program should be developed to replant native species wherever available space beside the proposed project;
- Workers should be instructed to protect flora and fauna including aquatic life as well as their habitats;
- Hunting and poaching should be strictly prohibited;
- Washing, maintenance and service of vehicles and machinery should not be done closer to the freshwater habitats;
- Solid waste, construction debris should not be dump into wetlands or natural habitats.

### **Cultural heritage**

#### ***1. Infrastructure Development***

The initial impact assessment on PCRs from infrastructure development interventions under the project will be undertaken as part of the environmental screening. This would involve a site

inspection and reference to maps of heritage building, property and landscapes prepared by the competent authority<sup>‡</sup>. The goal of environmental screening is to:

- determine the presence or absence of PCR sites within the project boundary and its area of influence
- if yes, to describe the extent, character and ownership of the PCR and investigate the significance of it
- Evaluate the scope for impacts on each site in the event of project proceeding and document them.

Depending on the significance of the PCR, its ownership and location, EMPs may need to be reviewed and cleared by the SBA&H. For municipal projects that may include restoration of PCRs, this should be supervision of a specialized person after being reviewed and cleared by SBA&H.

#### ***٢. Chance finds procedures***

Contracts for civil works involving earth moving and excavation activities, especially in known archaeological and heritage areas, should normally incorporate procedures for dealing with situations in which buried PCRs are unexpectedly exposed.

#### ***٣. Recognition of unknown PCRs***

For EODP contracts, an initial consultation with the Department of Antiquities should be held before work commencement to identify the likelihood of such material being uncovered, especially where trenching work is expected for pipe laying etc. Upon discovery of such material during execution of work, the contractor should carry out the following;

- Immediately stop construction activities.
- With approval of the resident engineer delineate the discovered site area.
- Secure the site to prevent any damage or loss of removable objects. In case of removable antiquities or sensitive remains, a night guard should be present until the responsible authority takes over.
- Through the Resident Engineer, notify the responsible authorities (SBA&H and local authorities) within ٢٤ hours.
- Submit a brief chance find report, within a specified time period, with date and time of discovery, location of discovery, description of finding, estimated weight and dimension of PCR and temporary protection implemented.
- Responsible authorities would be in charge of protecting and preserving the site before deciding on the proper procedures to be carried out.
- An evaluation of the finding will be performed by the SBA&H who may decide to either remove the PCR deemed to be of significance, further excavate within a specified distance of the discovery point and conserve on-site, and/or extend/reduce the areas demarcated by the contractor etc.
- Construction work could resume only when permission is given from the Department of Archaeology after the decision concerning the safeguard of the heritage is fully executed.

<sup>‡</sup> State Board of Antiquities & Heritage (SBA&H)



## **Socio-economic**

- In case of temporary or permanent land acquisition, apply the Resettlement Policy Framework (RPF)<sup>°</sup> and the implement a Resettlement Action Plan (RAP).
- Mobilizing maximum capacity of skilled and unskilled labor force from the surrounding project area;
- Identify location of camps with consultation with the local community and local authority;
- Ensure installation of adequate construction camps and sanitation facilities for construction workers to control of transmission of infectious diseases.
- The social risk related to labor influx for EODP AF might not be high. The contractors for efficiency purposes will resort in many cases to local labors as long as the qualifications are met. The number of skilled and non-skilled workers would be between in the age between ٤٠-٦٠ years old. The majority of the workers do not need accommodation onsite because they have regular transportation to/from their nearby home towns/villages. Few non-skill workers may require accommodation in the construction camps such as guards, cooks and drivers. (see Annex ٩ on labor influx guidance note).
- PMTs should intervene and monitor closely the working conditions and ensure appropriate accommodation on site (if necessary).
- Child labor should be totally prohibited. PMTs should include clear clauses in their work contracts to prevent child labor. In addition, close monitoring and supervision, especially on local subcontractors, should be performed by the PMTs.

## **Health and Safety**

The proposed project interventions will mostly involve small to medium scale construction sites. As such, extreme dangers posed by working in environments such as great heights, deep water and involving dangerous chemicals and radioactive material will not be present. Health and safety of workers and the public should be designed into constructions, before and during and after the building phase.

The following safety measures can be used as general guidelines:

Environmental Assessment for each site should mandatorily include a risk assessment as to what are the hazards involved in the work site, who might be harmed and how seriously, how likely this harm might happen and what actions are required to eliminate or reduce the risk and incorporate such measures in the EMP and clearly set out in the tender documents. All sub-projects must observe health and safety regulations, hence during implementation it is important to check if these control measures are put in place and are meeting the legal requirement.

## **Training**

- Ensure constructors carry out suitable training programs on occupational health and safety for workers prior to commencement of construction.
- Ensure only experienced and well trained workers are used for the handling of machinery, equipment and material processing plants
- Ensure all persons, including managers, are trained and able to carry out their work without risk to the safety or health of themselves, other workers or the public

## **Personal Protective Equipment**

<sup>°</sup> A Resettlement Policy Framework (RPF) is separately prepared which outlines the necessary procedures to be followed in case of involuntary resettlement.

- Ensure appropriate safety equipment, tools and protective clothing are provided to workers and that safe working methods are applied. A safety inspection checklist should be prepared taking into consideration what the workers are supposed to be wearing and monitored.
- Any person who works or operates in an area where there is a risk of flying objects, such as splinters, should wear safety goggles at all time. These should be securely fitted to the face. Welders should protect the entire face from hot sparks and bright rays by using a welding mask.
- Any person exposed to high levels of dust or hazardous gases (when working in tunnels) should wear respiratory protection in the form of disposal masks or respiratory masks which fit more snugly around the nose and mouth.
- Any person working in an area where there is the risk of being struck on the head by a falling or flying object should wear a hard hat at all times. These should be well maintained in order to be fully effective, and any helmets or hard hats that are damaged or cracked should immediately be replaced.
- All workers will be required to wear shoes or strong boots to prevent sharp objects from penetrating or crushing the foot. Those working in muddy conditions and in canals with polluted water should avoid hand/foot contact with water and should never wear slippers.
- Road workers should wear reflective vests to avoid being hit by moving vehicular traffic.

#### ***Site Delineation and Warning Signs***

- Ensure delineation devices such as cones, lights, tubular markers, orange and white strips and barricades are erected to inform oncoming vehicular traffic and pedestrians in the area about work zones.
- Ensure all digging and installing work items that are not accomplished are isolated and warned of by signposts and flash lamps in nighttime.
- Ensure dangerous warning signs are raised to inform public of particular dangers and to keep the public away from such hazards.
- Ensure rehabilitation of trenches progressively once work is completed.
- The safety inspection checklist must look to see that the delineation devices are used, whether they are appropriately positioned, if they are easily identifiable and whether they are reflective.

#### ***Equipment safety***

- Work zone workers use tools, equipment and machinery that could be dangerous if used incorrectly or if the equipment malfunctions. Inspections must be carried out to test the equipment before it is used, so that worker safety can be secured. Inspections should look for evidence of wear and tear, frays, missing parts and mechanical or electrical problems.

#### ***Traffic management***

- Ensure traffic control plans and procedures are in place when work zone is set up and how to handle full or partial road closure, blocked intersections, sidewalk closure etc
- Ensure installation of transport signs and lighting systems in conspicuous places to assure transport safety. Transport signs should be installed at places where accidents may be easily happened (populated centers, schools, hospitals, commercial areas etc )

#### ***Material management***

- Ensure easily flammable materials are not be stored in construction site and that they are transported out of project site



### ***Emergency Procedures***

- Ensure an emergency aid service is in place in the work zone.
- Ensure all site staff is properly briefed as to what to do in the event of an emergency, such as who to notify and where to assemble for a head count. This information must be conveyed to employees by the site manager on the first occasion a worker visits the site.

### ***Construction camps***

- Ensure installation of adequate construction camps and sanitation facilities for construction workers to control of transmission of infectious diseases.

### ***Information management***

- Provide advance notice to local communities by way of information boards about the schedule of construction activities.
- Develop and establish contractor's own procedure for receiving, documenting and addressing complaints that is easily accessible, culturally appropriate and understandable to affected communities.

### **Worker consultation**

Consulting the workforce on health and safety measures is not only a legal requirement, it is an effective way to ensure that workers are committed to health and safety procedures and improvements. Employees should be consulted on health and safety measures and before the introduction of new technology or products.

### **٦,٢,٢ During Operation**

During operation, each of the EODP and EODP-AF subprojects should follow the requirements of the national environmental legislations WB safeguard policies and EHS guidelines and maintain records to ensure continuous environmental compliance. During the operation of subprojects, the measures described above for the reconstruction phase would also apply (by different degrees) in case of maintenance and repair of the project assets.

Furthermore, as the AF triggered OP ٤,٠٩ for Pest management, the principals of integrated pest management should be applied to: minimize health hazards by minimizing human exposure to pesticides, avoid ecological impacts to beneficial species and avoid development of resistance to pesticides. The following measures should be considered during operating agriculture projects that would include procurement, handling and/or application of pesticides.

***Alternatives to Pesticide Application.*** Where feasible, the following alternatives to pesticides should be considered:

- Rotate crops to reduce the presence of pests and weeds in the soil ecosystem;
- Use pest-resistant crop varieties;
- Use mechanical weed control and / or thermal weeding;
- Support and use beneficial organisms, such as insects, birds, mites, and microbial agents, to perform biological control of pests;
- Protect natural enemies of pests by providing a favorable habitat, such as bushes for nesting sites and other original vegetation that can house pest predators and by avoiding the use of broad-spectrum pesticides;
- Use animals to graze areas and manage plant coverage;
- Use mechanical controls such as manual removal, traps, barriers, light, and sound to kill, relocate, or repel pests.

- Ensure delineation devices such as cones, lights, tubular markers, orange and white strips and barricades are erected to inform oncoming vehicular traffic and pedestrians in the area about work zones.
- Ensure all digging and installing work items that are not accomplished are isolated and warned of by signposts and flash lamps in nighttime.
- Ensure dangerous warning signs are raised to inform public of particular dangers and to keep the public away from such hazards.
- Ensure rehabilitation of trenches progressively once work is completed.
- The safety inspection checklist must look to see that the delineation devices are used, whether they are appropriately positioned, if they are easily identifiable and whether they are reflective.

**Pesticide Application.** If pesticide application is warranted, users are recommended take the following actions:

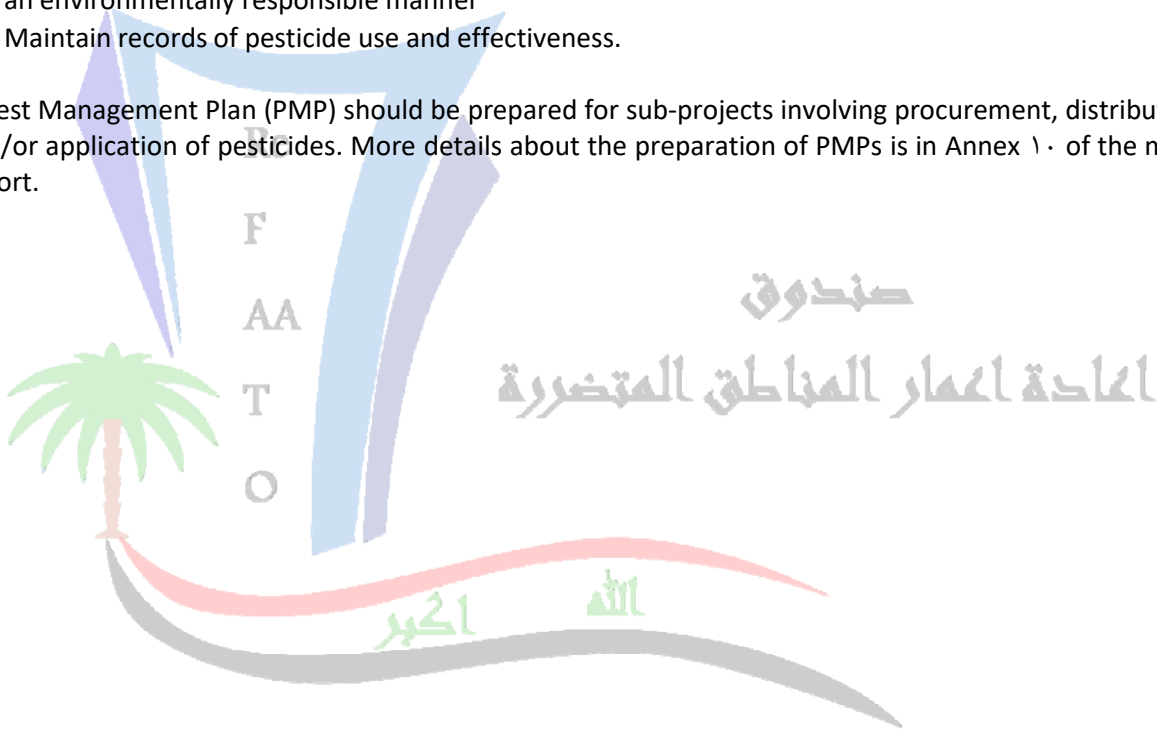
- Train personnel to apply pesticides and ensure that personnel have received applicable certifications or equivalent training where such certifications are not required;
- Review and follow the manufacturer’s directions on maximum recommended dosage or treatment as well as published reports on using the reduced rate of pesticide application without loss of effect, and apply the minimum effective dose;
- Avoid routine “calendar-based” application, and apply pesticides only when needed and useful based on criteria such as field observations, weather data (e.g. appropriate temperature, low wind, etc.),
- Avoid the use of highly hazardous pesticides, particularly by uncertified, untrained or inadequately equipped users. This includes:
  - Pesticides that fall under the World Health Organization Recommended Classification of Pesticides by Hazard Classes I a, II b and II should be avoided in all cases
  - Avoid the use of pesticides listed in Annexes A and B of the Stockholm Convention, except under the conditions noted in the convention and those subject to international bans or phase outs;
  - Use only pesticides that are manufactured under license and registered and approved by the appropriate authority and in accordance with the Food and Agriculture Organization’s (FAO’s) International Code of Conduct on the Distribution and Use of Pesticides;
  - Use only pesticides that are labeled in accordance with international standards and norms, such as the FAO’s Revised Guidelines for Good Labeling Practice for Pesticides;
- Select application technologies and practices designed to reduce unintentional drift or runoff only as indicated in an IPM program, and under controlled conditions;
- Maintain and calibrate pesticide application equipment in accordance with manufacturer’s recommendations. Use application equipment that is registered in the country of use;
- Establish untreated buffer zones or strips along water sources, rivers, streams, ponds, lakes, and ditches to help protect water resources;
- Avoid use of pesticides that have been linked to localized environmental problems and threats.

**Pesticide Handling and Storage.** Contamination of soils, groundwater, or surface water resources, due to accidental spills during transfer, mixing, and storage of pesticides should be prevented by following the hazardous materials storage and handling recommendations. These are the following:

- Store pesticides in their original packaging, in a dedicated, dry, cool, frost-free, and well aerated location that can be locked and properly identified with signs, with access limited to authorized people. No human or animal food may be stored in this location. The store room should also be designed with spill containment measures and sited in consideration of potential for contamination of soil and water resources;

- Mixing and transfer of pesticides should be undertaken by trained personnel in ventilated and well lit areas, using containers designed and dedicated for this purpose.
- Containers should not be used for any other purpose (e.g. drinking water). Contaminated containers should be handled as hazardous waste, and should be disposed in specially designated for hazardous wastes sites. Ideally, disposal of containers contaminated with pesticides should be done in a manner consistent with FAO guidelines and with manufacturer's directions;
- Purchase and store no more pesticide than needed and rotate stock using a "first-in, first-out" principle so that pesticides do not become obsolete. Additionally, the use of obsolete pesticides should be avoided under all circumstances; a management plan that includes measures for the containment, storage and ultimate destruction of all obsolete stocks should be prepared in accordance to guidelines by FAO and consistent with country commitments under the Stockholm, Rotterdam and Basel Conventions.
- Collect rinse water from equipment cleaning for reuse (such as for the dilution of identical pesticides to concentrations used for application);
- Ensure that protective clothing worn during pesticide application is either cleaned or disposed of in an environmentally responsible manner
- Maintain records of pesticide use and effectiveness.

A Pest Management Plan (PMP) should be prepared for sub-projects involving procurement, distribution and/or application of pesticides. More details about the preparation of PMPs is in Annex 10 of the main report.



## **٧. Institutional Framework for Safeguards Management**

It is necessary to have a well-defined institutional and implementation mechanism for identifying, appraising, managing and monitoring safeguards at all levels. The focus of this section is to lay out the roles, responsibilities of various parties and the due diligence process that will need to take place from the preparation of an investment through implementation completion.

### **٧,١ Overall project implementation arrangements**

The overall responsibility for Project coordination lies with Iraqi Council of Ministers through a Project Coordination Unit (PCU) under the Reconstruction Fund for Areas Affected by Terroristic Operations<sup>١</sup>. In turn Project Management Teams (PMTs) established within counterpart Ministries will be responsible for sectoral (energy, transport, water and sanitation, municipal solid waste management, housing, health, agriculture, water resources and governorates) project implementation. During implementation, additional sectors may be added to the Project, subject to these fulfilling the basic selection criteria. Furthermore, it is possible, that additional ministries and PMTs would be added to the overall implementation structure. At each of the municipalities (project sites), the PMTs will be supported by Technical staff from the Ministries' regional offices.

To identify and prioritize the subprojects, the Ministries and their PMTs will coordinate closely with the local Governorate staff and authorities, to ensure the identified subprojects are in line with local expectations.

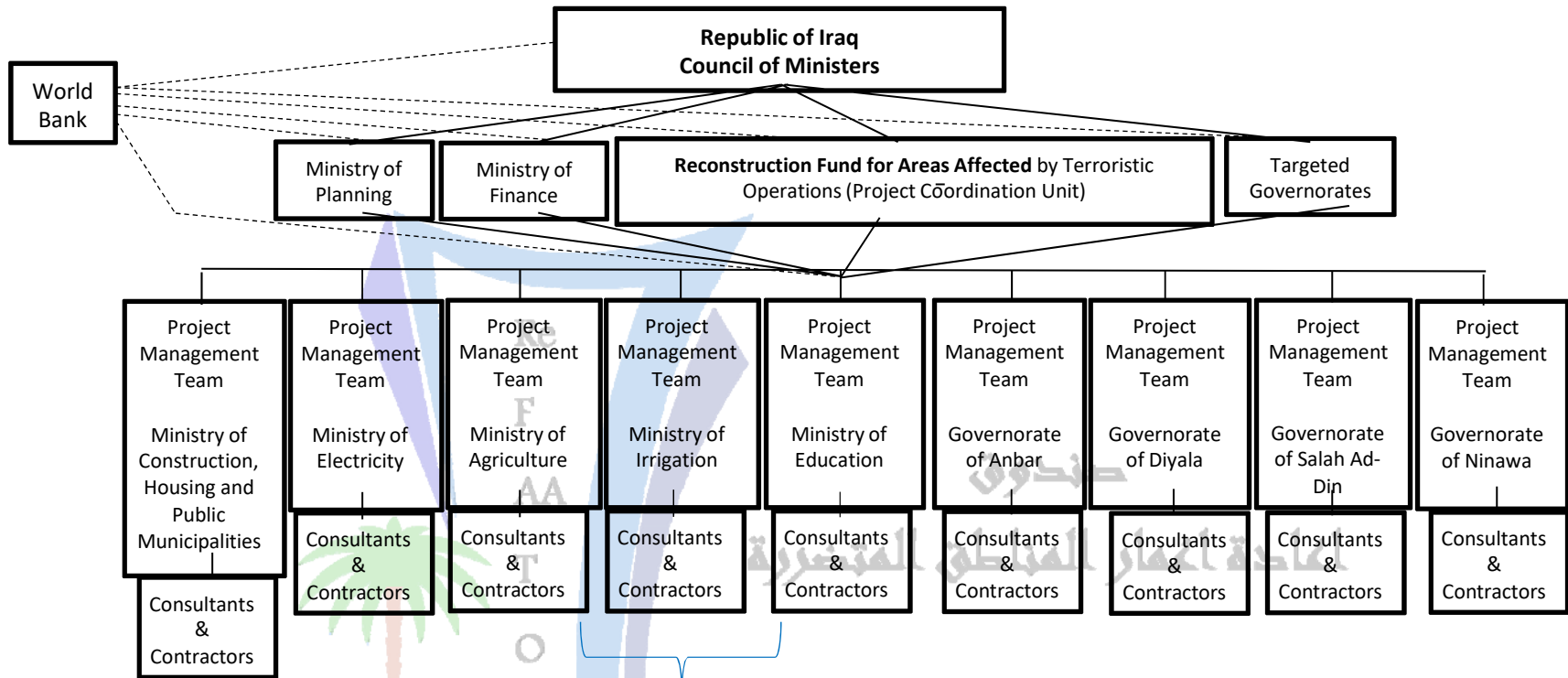
### **٧,٢ Implementation arrangements for environmental and social safeguards**

Planning, implementation and supervision of environmental safeguards will take place at three levels;

#### **٧,٢,١ PCU Level**

Among its key tasks, the PCU will be responsible for providing the overall policy direction, technical assistance, review and endorsement of screening reports, environmental and social assessment and management plans, capacity building for effective safeguards management to the implementing agencies, monitoring of environmental compliance and progress reporting to the World Bank.

<sup>١</sup> The Reconstruction Fund has been established by the Government of Iraq reporting to the Council of Ministers with an allocated budget of ٥٠٠ trillion Iraqi Dinars, equivalent to about USD ٤٣١ million, to reconstruct damages incurred from the liberation activities from ISIS insurgency.



Newly added PMTs

### ٧,٢,٢ **Project Management Teams (PMTs)**

The responsibility of day to day planning, implementation and supervision of environmental/social safeguards specific to sub-projects will be borne by the PMTs. Each agency will assign focal point(s) for environmental and social safeguards who will ensure timely and sound application of the ESMPs to the planned investments. The environmental/social focal points will work closely with the PCU environmental/social consultants to ensure harmonization and coordination of activities according to the ESMMF requirements. The focal points for environmental and social affairs should have sufficient background to support the implementation of the ESMPs. In case of need for additional capacity, the PMTs may recruit external consultants who have sufficient expertise to support PMTs' focal points.

At the field level, it is expected that the PMTs environmental and social focal points will conduct regular field supervision to ensure compliance of contractors, their workers and practices, to the ESMPs. PMTs will also require the engineering and technical firms to recruit specialized staff in environment, social development and health and safety to conduct daily supervision on field activities and prepare non-compliance reports on which the PMT will investigate and take action accordingly.

### ٧,٢,٣ **Contractors**

Implementation of the ESMPs will largely be the contractors' responsibility and for this the contractor will have to nominate qualified environmental, health and safety consultant and a social development consultant (if needed) in order to ensure compliance with the ESMPs during construction.

### ٧,٣ **Environmental and Social Monitoring**

The EODP will focus on effective environmental and social monitoring. As majority of the anticipated environmental and social impacts from the project are general in nature and related to construction and civil works, site management, worker/public safety...etc., monitoring will be largely carried out in the form of compliance monitoring through regular site supervision by the responsible officers. A general monitoring checklist and a specific construction safety monitoring checklist to be used and filled during site supervision is provided in Annexes ٣ and ٤ in the main ESMF document. These lists should be updated and expanded to include impacts which are mostly case-specific and other site-specific environmental impacts based on actions agreed in the ESMPs. Monitoring of environmental and social parameters (such as air, water, salinity, sediment quality, affected people etc.) will be conducted based on the requirements specified in the individual ESMPs. However, given the ambient levels of noise and emissions in the surroundings, pollution in the waterways...etc., no significant impacts on the surroundings' environmental quality are anticipated as a result of project activities.

As such, the need for regular and systematic measuring of air, noise and water quality to monitor contribution to environmental degradation (and social impacts) from the project per se is not considered essential except in few cases.

The overall project impacts will be monitored during project implementation through a number of selected indicators which reflect the positive environmental and social contribution from the project to the overall environment. As such, no additional environmental and social indicators are proposed.

Most importantly, the project will support independent environmental and social audits on an annual basis throughout project implementation.

#### ٧,٤ Progress Reporting

Progress reporting on safeguards compliance will take place as indicated below.

- Contractor's environmental compliance reports to the PMTs on a monthly basis;
- PMTs environmental/social progress reports to the PCU on a quarterly basis
- PCU environmental/social progress reports to the WB, Council of Ministers on a quarterly basis (this will be part of the quarterly project progress report produced by the PCU)

#### ٧,٥ Capacity Development Requirements

For effective environmental/social safeguards management, the project agencies will require implementation support in three main areas; (i) dedicated staff and resources (ii) technical assistance and (ii) training and awareness.





### ٧, ٦ Estimation of Environmental Safeguards implementation cost

#### Table ٦: Estimated Cost of Environmental Monitoring

Activity	Unit	Unit Rate (US\$)	QTY	Total in US\$
١. ESMP preparation				
- Simple checklist	Checklist	٥٠٠٠	١٥٠	١,٧٥٠,٠٠٠
- Extensive ESMP/ESIA	Report	٢٠٠٠٠	٥٠	
<b>Sub-total (1)</b>				١,٧٥٠,٠٠٠
٢. Personnel	Man Month (MM)			
<b>PCU Level</b>				
- Environmental/social Consultant		٣٠٠٠	٣٠	٩٠,٠٠٠
<b>PMT Level (١٠ PMTs)</b>				
- Environmental and social Officer/Consultant		٣٠٠٠ x ١٠	٤٨	١,٤٤٠,٠٠٠
<b>Contractor Level</b>				
- Environmental Officer/Consultant		Included in construction costs		Included in construction costs
- Social development officer/consultant				
<b>Sub-total (2)</b>				١,٥٣٠,٠٠٠
٣. Training and awareness				
- Training and awareness programs (short-term and long-term)				
- Training on sector environmental/social management issues	Lump-sum	Lump-sum	Lump-sum	
- Training programs on environmental safeguards, monitoring for project staff, contractors...etc.				
<b>Sub-total (3)</b>				١٠٠,٠٠٠
٤. Environmental monitoring (through <i>independent third party institutions</i> ) to be covered in construction contracts				Included in construction costs
٥. Contingencies (approx. ٧% of total costs)				٢٣٤,٠٠٠
<b>Total Cost</b>				<b>US\$ 3,614,000</b>



## **Λ. Determination of E&S Instruments**

This section will provide clear guidance on

- ϭ. Which types of safeguards instruments will be required;
- Ϯ. Examples for damage patterns and related project typologies, ranging from simple, routine civil reconstruction works (e.g. road repair and building rehabilitation) to more complex repairs of e.g. bridges and larger structures;
- ϯ. Reference to the entire anticipated scope of management, mitigation and monitoring measures (as shown in Annex ϯ in the ESMF main document).

### **Λ, ϭ Types of Safeguards Instruments**

The types of safeguards instruments anticipated for the project range from abbreviated, checklist type ESMPs for simple, routine repair works, over more elaborate and comprehensive ESMPs to ESIA within clearly defined project boundaries. Also some projects would require some specific instruments (such as Medical Waste Management Plan for health projects and Pest Management Plans for some agriculture projects). All project activities involving civil works on any scale will require some type of environmental / social management instrument, which will be determined and defined by the methodology presented in this section.

Most typologies within the expected scope of subprojects are expected to involve routine, simple civil works pertaining only to existing structures and footprints, where conflict-related damage was incurred. All of the expected types of interventions and civil works, e.g. repair / reconstruction of roads, transmission lines, municipal infrastructure, health, agriculture and irrigation infrastructure, social services as well as the restoration of public services, will require safeguards instruments in form of ESMPs (E&S management plans) that would become part of the works contracts, set the E&S standards and compliance mechanisms, and serve as contractual basis for supervision and enforcement of good E&S practice during the works. However, considering the mostly simple nature of such repair and reconstruction works, for these typologies abbreviated, “checklist type” ESMPs (see Annex ϫ in the ESMF main document for a template) will be prepared as appropriate safeguards instrument.

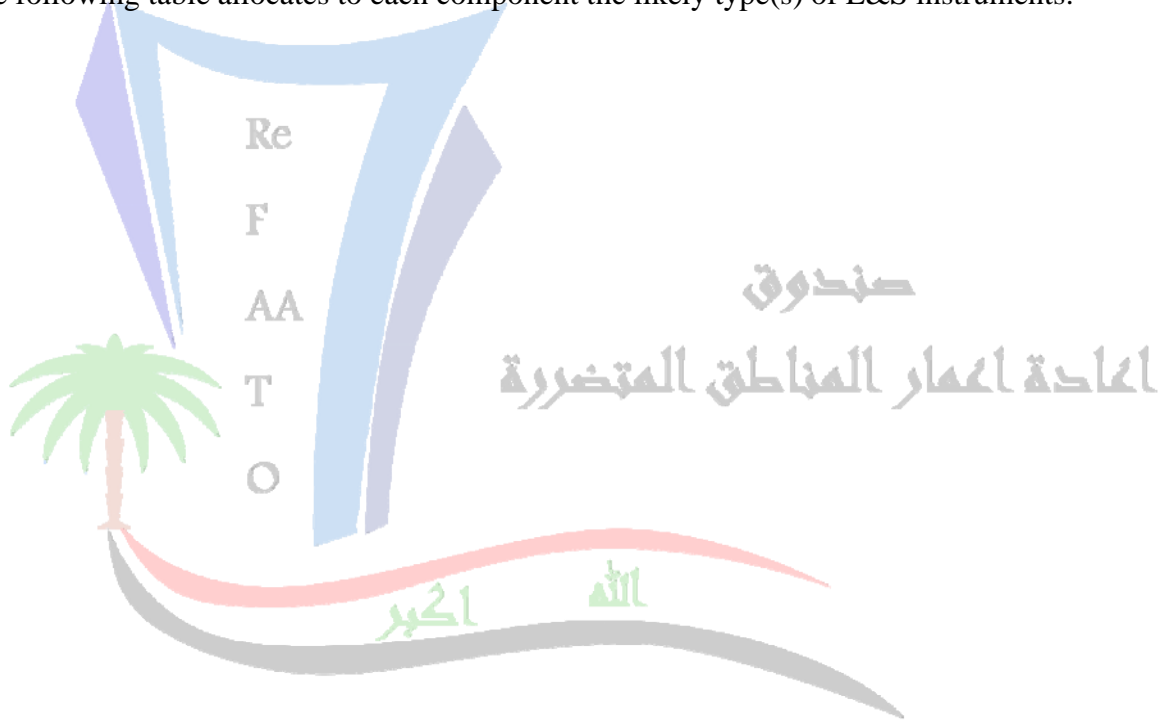
For some larger projects, e.g. reconstruction of bridges, barrages or wastewater treatment plants (WWTP), a limited ESIA (meaning within clear project boundaries) may be required (see Annex ϯ in the ESMF main document), as the works would be more substantial in scale, and rivers are more sensitive and vulnerable to environmental impacts. Also the ESMPs produced with input from the ESIA would be more specific on measures to protect water quality, riverine / aquatic ecosystems, and retain the hydrological regime around the bridge. Additional social considerations, such as continued access to the river for fishing and water abstraction, may become relevant. Similar principles would apply to projects that are located close to, or affecting natural habitats, including wetlands or forests.

The majority of projects, namely roads repair and reconstruction, water and energy infrastructure, and large buildings in urban and rural settings will only require the “checklist type” ESMP as appropriate due diligence instrument (see Annex ϫ in the ESMF main document for template). If only minor repairs are planned for bridges and WWTP, even if in sensitive settings, that same principle applies.

Rehabilitation of healthcare facilities will require developing a Medical Waste Management Plan (MWMP) to ensure that hazardous medical waste is handled according to best available technologies.

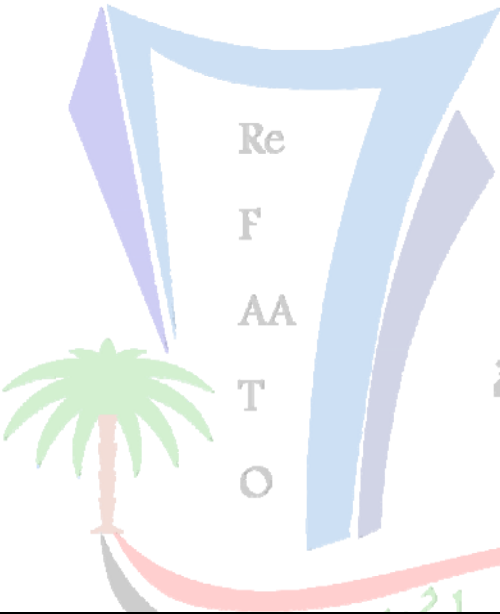
Agriculture projects that will involve procurement, handling and/or application of pesticides will require a PMP. The content of the Pest Management Plan should apply to all the activities and individuals working in sub-projects involving procurement, distribution and/or application of pesticides. It should be emphasized also that non-chemical control efforts will be used to the maximum extent possible before pesticides are used. The Pest Management Plan should be a framework through which pest management is defined and accomplished. The Plan should identify elements of the program to include health and environmental safety, pest identification, and pest management, as well as pesticide storage, transportation, use and disposal. Management Plan is to be used as a tool to reduce reliance on pesticides, to enhance environmental protection, and to maximize the use of integrated pest management techniques. More details are in Annex 10 of the main report.

The following table allocates to each component the likely type(s) of E&S instruments:



**Table ٧: Anticipated E&S Instruments by Component**

Component / Activities	Anticipated E&S Instruments
<p><b>Component ١:</b> acquisition of equipment for the repair and reconstruction of damaged electricity distribution and transmission infrastructure; through technical assistance, supervision of the implementation of Electricity Subprojects, which will include engineering and civil works.</p>	<ul style="list-style-type: none"> <li>• No E&amp;S instruments for sourcing for equipment</li> <li>• Checklist ESMPs for most planned repair and reconstruction works</li> <li>• Possibly specific ESMPs when encountering sensitive baseline conditions</li> </ul>
<p><b>Component ٢:</b> (Year ١) urgent restoration of water, wastewater and solid waste services, repair, reconstruction and rehabilitation of damaged infrastructure; including water intakes, pipelines, treatment / purification plants, pumping stations, storage tanks, distribution networks, house connections, sewers and trunk lines, wastewater treatment plants, and storm water drains, reservoirs and outfalls.</p> <p>(Years ٢ - ٥) (i) additional water and sanitation damage and needs assessment, identification of further water and sanitation subprojects; (ii) preparation of detailed plans and designs; and (iii) provision of TA for implementation of water and sanitation subprojects.</p>	<ul style="list-style-type: none"> <li>• No E&amp;S instruments for sourcing for equipment</li> <li>• Checklist ESMPs for most planned repair and reconstruction works</li> <li>• Site-specific ESMPs for larger reconstruction works (WWTP, pumping stations) combined with <i>less sensitive baseline conditions</i></li> <li>• ESIA + ESMPs for larger reconstruction works (e.g. WWTP, pumping stations) in combination with more sensitive baseline conditions</li> <li>• E&amp;S assessments and management systems will be mainstreamed into identification of further subprojects, as well as planning / design works and the TOR for supervision.</li> </ul>
<p><b>Component ٣</b> improvement of road assets, repairing and rehabilitating highly damaged segments of primary road network</p> <p>Repairing and reconstructing critical bridges and major culverts</p>	<ul style="list-style-type: none"> <li>• Checklist ESMPs for most planned road repair and reconstruction works, site-specific ESMPs for road works in combination with more sensitive baseline conditions</li> <li>• Checklist ESMPs for minor bridgerepair works, such as repairing the deck and surface.</li> <li>• site-specific ESMPs for more extensive reconstruction works (e.g. involving abutments and pylons, requiring access to river) combined with <i>less sensitive baseline conditions</i></li> <li>• ESIA + ESMPs for more extensive reconstruction works (e.g. involving abutments and pylons, requiring access to river) in combination with <i>more sensitive baseline conditions</i>.</li> </ul>
<p><b>Component ٤:</b> Supply of mobile hospitals, mobile clinics, medical equipment and ambulances.</p>	<ul style="list-style-type: none"> <li>• Checklist ESMPs for erection of clinics</li> </ul>

Component / Activities	Anticipated E&S Instruments
	<ul style="list-style-type: none"> <li>• Medical Waste Management Plans (MWMP) for operation of clinics and mobile hospitals</li> </ul>
<p><b>Component ٩ and ١٠:</b> Restoring Social Services (education and social centers)</p>	<ul style="list-style-type: none"> <li>• No E&amp;S instruments for sourcing for equipment</li> <li>• Checklist ESMPs for most planned repair and reconstruction works</li> <li>• Possibly specific ESMPs when encountering sensitive baseline conditions</li> </ul>
<p><b>Component ٧:</b> Restoring Agriculture Infrastructure</p> 	<ul style="list-style-type: none"> <li>• No E&amp;S instruments for sourcing for equipment (except pesticides applying equipment)</li> <li>• Checklist ESMPs for most planned works of rehabilitation of agriculture support services buildings (such as stores, cold stores, extension buildings ... etc.)</li> <li>• site-specific ESMPs for more extensive reconstruction works of seeds multiplication, processing facilities (which will use pesticides), <i>less sensitive baseline condition</i> and <i>vet clinics without an incinerator</i></li> <li>• Pest Management Plan (PMP) for procurement and distribution of pesticides and applying equipment on centers and farmers</li> <li>• ESIA + ESMPs for <i>vet clinics with an incinerator</i></li> </ul>
<p><b>Component ٨:</b> Restoring Irrigation Infrastructure</p>	<ul style="list-style-type: none"> <li>• No E&amp;S instruments for sourcing for equipment</li> <li>• Checklist ESMPs for repairing small irrigation canals (secondary canals or smaller)</li> <li>• site-specific ESMPs for more extensive reconstruction works of irrigation canals (e.g. primary canals directly fed from a river) combined with <i>less sensitive baseline condition</i></li> <li>• Pest Management Plan (PMP) for procurement and distribution of pesticides and applying equipment on centers and farmers</li> <li>• ESIA + ESMPs large irrigation canals (e.g. primary canals directly fed from the river) in combination with <i>more</i></li> </ul>

Component / Activities	Anticipated E&S Instruments
	<i>sensitive baseline conditions and barrages (all barrages need ESIA)</i>



## ٩. Disclosure and Consultation Activities

The parent EODP ESMF was consulted upon with a number of stakeholders twice. The first consultation was mainly conducted with representatives from the participating ministries in a meeting that was held on September ٢٢, ٢٠١٥ at the Reconstruction Fund (RF) headquarters in Baghdad (Annex ٨ in the ESMF main document).

The second consultation meeting was held with representatives of nine (٩) Nongovernmental Organizations (NGOs) and Civil Society Organizations (CSOs) on May ١٦, ٢٠١٦ also at the RF headquarters in Baghdad (Annex ٨ in the ESMF main document).

For this updated ESMF, RF carried out a new round of consultation with the main stakeholders, line ministries, NGOs and Civil Society Organizations as further detailed below.

For all types of environmental analyses conducted under the EODP/EODP-AF (including screening), communities in the project sites should be consulted within a structured and culturally appropriate manner. Further, environmental assessment documentation and ESMPs should be made available to the public (in accordance with the World Bank's policy on Access to Information) by the RF PCU/PMTs prior to tendering of works contracts through the website of the project and notices through media, as appropriate.

In addition, it will be necessary to conduct discussions with the regulatory agencies on relevant issues and other implementing agencies who would have a stake in the project due to various reasons. Consultation will enable the project implementing agency to understand the stakeholder's requirements and for the stakeholders to develop an understanding of the project so that potential conflicts could be eliminated or minimized.

The process of consultation should be documented and account taken of the results of consultation, including any actions agreed resulting from the consultation. Public disclosure of the relevant safeguards documentation will be a pre-requisite for tendering civil works contracts.

The contract documents for each contract package will mandatorily include the relevant environmental mitigation provisions stipulated in the ESMPs (which would have community concerns reflected, if any) for the given sub-projects in order to ensure contractor compliance with safeguards requirements.

### ٩.١ Results of the ESMF Public Consultation

Stakeholder consultations should be carried out as part of the ESMF preparation process. The purpose of the consultations sessions is to present the overall project design; explain its broader benefits at the national level; and begin to outline some of the anticipated adverse environmental and social impacts expected to result from project activities, and to enable the stakeholders to understand the project and its activities, as well as to ensure that their concerns and issues are considered during all phases of the project, including at the planning phase. Specifically, the objectives of the consultations sessions will be to:

١. Inform the stakeholders and the public about the project.
٢. Identify the main project stakeholders and their concerns.
٣. Provide the opportunity for identified stakeholders to participate in the process of scoping significant environmental and social impacts.

٤. Identify those environmental and social impacts/concerns which are considered to be of key relevance and importance for the RPF.
٥. Ensure that appropriate approach and adequate focus are adopted during the RPF.

For this updated ESMF, the RF representative carried two round of consultation meetings with key stakeholders, line ministries and government officials in Mosel and in Ramadi on Aug ٢٢, ٢٠١٧ and on Aug ٣٠, ٢٠١٧ respectively. Please refer to annex ٨ below for more details.





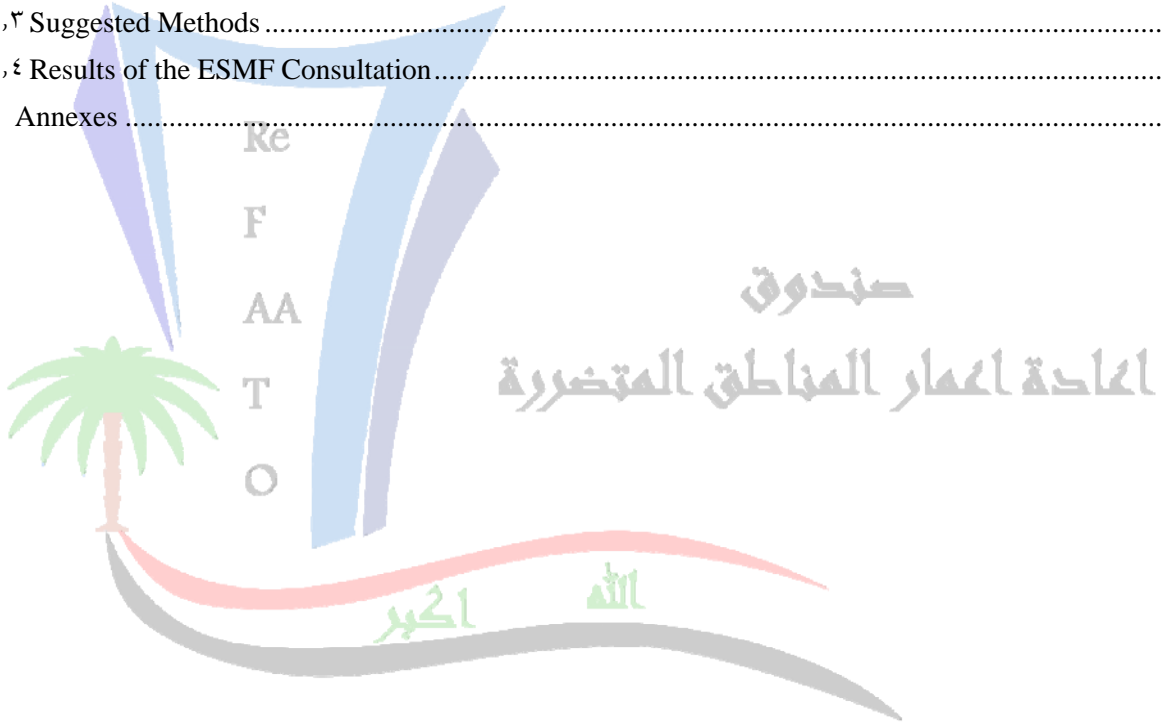
CONTENTS

Executive Summary .....	- ١ -
١. INTRODUCTION .....	١
١,١ Background .....	١
١,٢ Project Development Objective (PDO) and Rationale for Additional Finance.....	٢
١,٣ Rationale for the updated ESMF.....	٢
٢. Project description .....	٤
٢,١ Overview .....	٤
٢,٢ Project Locations and Physical Features .....	٤
٢,٣ Project Components.....	٧
Component ١: Restoring Electricity Infrastructure and Connectivity .....	٧
Component ٢: Restoring Municipal Waste, Water and Sanitation Services.....	٧
Component ٣: Restoring Transport Infrastructure .....	٨
Component ٤: Restoring Health Services.....	٨
Component ٥: Technical Assistance.....	٨
Component ٦: Project Management, Sensitization and Communications and Monitoring and Evaluation .....	٩
Component ٧: Restoring Agriculture Productivity .....	١٠
Component ٨: Emergency repair of water control hydraulic infrastructure and irrigation headworks and canals .....	١١
Component ٩: Restoring Education Services (MoEd) .....	١٢
Component ١٠: Restoring Basic Urban Infrastructure and Services and Cultural Heritage Preservation in Selected Municipalities .....	١٤
٣. Legal and Institutional Framework.....	١٦
٣,١ National Legislations and Regulations.....	١٦
٣,٢ World Bank Safeguard Requirements.....	١٧
٣,٣ Public Consultation and Disclosure .....	١٩
٤. Baseline Conditions .....	٢٠
٤,١ Overview .....	٢٠
٤,٢ Climate.....	٢٠
٤,٢,١ General.....	٢٠
٤,٢,٢ Diyala Climate .....	٢٨
٤,٢,٣ Al-Anbar Climate.....	٣٣
Qaryat al Karamah .....	٣٧
Mansuriyat as Salamiyah.....	٣٧
Qaryat as Salamiyah.....	٣٨
Namrud .....	٣٨

IRAQ EODP - ESMF

4.3 Geographical features .....	39
4.4 Water Resources .....	39
4.4.1 Surface Water Resources .....	39
4.4.2 Groundwater .....	40
4.5 Biodiversity.....	41
4.5.1 Ecosystem in Iraq.....	41
4.5.2 Mesopotamian Marshlands .....	42
4.5.3 Biodiversity in EODP Intervention Areas .....	42
4.6 Economic Activities and Land-use .....	43
4.6.1 Oil industry .....	43
4.6.2 Natural gas .....	43
4.6.3 Agriculture .....	43
5. Assessment of environmental and social impacts and Impact mitigation framework .....	45
5.1 Ineligible Subprojects .....	45
5.2 Preliminary Assessment of Environmental Impacts of EODP and EODP-AF.....	46
5.2.1 Overall positive impacts of the project .....	46
5.2.2 Overall negative impacts of the project .....	46
5.3 Methodology for assessment of impact significance .....	49
6. Environmental Management & Monitoring Framework .....	53
6.1 Objectives of the ESMMF .....	53
6.2 General Mitigation Measures.....	53
6.2.1 During Construction.....	53
6.2.2 During Operation .....	59
7. Institutional Framework for Safeguards Management.....	62
7.1 Overall project implementation arrangements.....	62
7.2 Implementation arrangements for environmental and social safeguards.....	62
7.2.1 PCU Level.....	62
7.2.2 Project Management Teams (PMTs) .....	.
7.2.3 Contractors.....	.
7.3 Key roles and responsibilities of various parties involved in safeguards management .....	.
7.3.1 Environmental Consultant - Project Coordination Unit.....	.
7.3.2 Environmental/Social Focal Point – Project Management Team .....	1
7.3.3 Environmental Focal Point - Contractor .....	1
7.4 Environmental and Social Monitoring.....	1
7.5 Progress Reporting.....	2
7.6 Capacity Development Requirements.....	2
7.6.1 Dedicated staff and resources.....	2
7.6.2 Short-term training and awareness programs .....	2

٧,٦,٣ Technical assistance .....	٣
٧,٧ Estimation of Environmental Safeguards implementation cost .....	٣
٨. Determination of E&S Instruments.....	٥
٨,١ Types of Safeguards Instruments .....	٥
٨,٢ Description of E&S Instruments for the Scope of Subprojects.....	٧
٨,٣ Environmental safeguards due diligence process (screening, review and approval) at the sub-project level.....	١٠
٩. Disclosure and Consultation Activities.....	١٢
٩,١ Objectives of stakeholder consultations.....	١٢
٩,٢ Elements of Effective Stakeholder Consultations.....	١٢
٩,٣ Suggested Methods .....	١٣
٩,٤ Results of the ESMF Consultation.....	١٤
١٠. Annexes .....	١٦



## List of Figures

Figure ٤: Republic of Iraq: Emergency Operation for Development Project Locations.....	- ٤ -
Figure ٥: Hydrogeological Map in the Regions where EOPD will operate .....	- ١٥ -
Figure ٤: Republic of Iraq: Emergency Operation for Development Project Locations.....	٥
Figure ٥: Maps Showing the Target EODP and AF Interventions Governorates and locations within Iraq	٦
Figure ٦: Hydrogeological Map in the Regions where EOPD will operate .....	٤١
Figure ٧: Iraq Land Use Map .....	٤٤
Figure ٨: Decision matrix for selection of E&S instruments .....	٦
Figure ١٢: Representatives from different authorities (including Ministry of Environment) discussing EODP activities (Sept ٢٢, ٢٠١٥) .....	٧٨
Figure ١٣: NGOs/CSOs Participants discussing EODP activities in the Consultation Session (May ١٦, ٢٠١٦) .....	٨٠
Figure ١٤: RF team responding to the inquiries of the participants in the consultation session (May ١٦, ٢٠١٦).....	٨١

## List of Tables

Table ١: Salah Al-Din Climate Classifications .....	- ١٢ -
Table ٢: Diyala climate Classifications .....	- ١٢ -
Table ٣: Criteria for Ineligible Subprojects .....	- ١٧ -
Table ٤: Preliminary Identification of Potential Negative Impacts during Construction.....	- ١٩ -
Table ٥: Preliminary Identification of Potential Negative Impacts during Operation .....	- ٢١ -
Table ٦: Estimated Cost of Environmental Monitoring .....	- ٣ -
Table ٧: Anticipated E&S Instruments by Component.....	- ٦ -
Table ٨: Required E&S Safeguards Instruments and their Status.....	٣
Table ٩: EODP-AF Applicable World Bank Safeguard Requirements .....	١٨
Table ١٠: Salah Al-Din Climate Classifications .....	٢١
Table ١١: Diyala climate Classifications .....	٢٨
Table ١٢: Criteria for Ineligible Subprojects .....	٤٥
Table ١٣: Preliminary Identification of Potential Negative Impacts during Construction.....	٤٧
Table ١٤: Preliminary Identification of Potential Impacts during Operation.....	٤٩
Table ١٥: Basic Impact Index .....	٥٢
Table ١٦: Impact Significance .....	٥٢
Table ١٧: Estimated Cost of Environmental Monitoring .....	٣
Table ١٨: Anticipated E&S Instruments by Component .....	٦
Table ١٩: Description of E&S instrument types for subprojects .....	٨
Table ٢٠: Environmental Safeguards Identification Responsibilities .....	١٠

## 1. INTRODUCTION

### 1.1 Background

The conflict in northern Iraq has unfolded at a time of severe fiscal crisis. In the last two decades, Iraq has witnessed a dramatic fall in almost all human development indicators including poverty, health standards, life expectancy, and literacy. Extreme poverty is widespread, particularly in rural areas and a number of governorates. Owing to multiple shocks, economic growth is declining in Iraq and also affecting humanitarian outcomes. The impact of the double shock of the terrorists' insurgency and the decline in oil prices has affected the economy.

The government's recovery strategy is to jump-start the delivery of basic infrastructure and services and rehabilitate critical infrastructure in the liberated areas from the insurgency. In response to the request of the Government of Iraq, the World Bank's support, through the proposed Emergency Operation for Development – Additional Finance (EODP-AF) for Iraq, is aimed at supporting the Republic of Iraq in the reconstruction of damaged infrastructure and restoration of public services delivery in Targeted Municipal Areas.

The EODP Project is being implemented in urban agglomerations of Tikrit, Al- Dour, Al-Alam and Al Dhalooeya located in the Salah Al-Din Governorate as well as urban agglomerations of Jallawla, As-Sadiya and Al-Azeem located in Diyala Governorate. In addition, suburban areas, villages and infrastructure across open range land may also be included for project-financed activities. The EODP is already expanding its support to additional municipalities such as Ramadi and few others that were liberated over the past year, where immediate support to reinstate services was much needed. The EODP-AF would expand the support further to other liberated areas and extend to other priority sectors. This proposed EODP-AF would expand scope from electricity, water, sanitation and solid waste management, transport (roads and bridges) and health sectors to include agriculture, water resources and irrigation, municipal services and education. These newly introduced sectors would address important segments of the society who are living in lagging regions, poor, with high unemployment and where women's employment in the agriculture is a viable one. Similarly, the improvement of municipals services and the return of the younger generations to a modern schools and curriculum would rehabilitate them from the nearly two years of fierce conflict and extremist ideologies.

Geographically, the expansion would go beyond today's Salah Ad-Din and Diyala governorates to more cities that have been recently liberated in two additional governorates such as Mosul in Ninawa, Ramadi in Anbar and few others. These cities have experienced enormous damage to all aspects of from public and private assets whether in terms of infrastructure, services, housing or businesses.

Beyond these areas that were directly affected by the conflict, the EODP-AF will also support communities who are hosting IDPs for the past three years to continue and improve their ability to deliver services to IDPs. These communities are in many cities in Iraq including in Kurdistan region.

In most cases the project interventions will be within pre-existing footprints of buildings, structures, and linear infrastructure, which was damaged, destroyed, sabotaged, or stolen during combat activities and occupation by the terrorist groups. However, in order to serve returning IDPs and meet the increasing demands of local communities for services, the project interventions may go beyond the pre-existing footprints given that: (i) the interventions are not included in the

ineligible subprojects per Table 3 of the ESMF; (ii) appropriate ESIA/ESMPs are prepared per the procedures of the ESMF and cleared by the Bank before procurement procedures; and (iii) the adherence to the existing footprint of damage facilities will not be sufficient to provide the needed services and the need for the expansion is technically justified”.

### ١,٢ Project Development Objective (PDO) and Rationale for Additional Finance

The Project development objective is to support the Republic of Iraq in the reconstruction of damaged infrastructure and the restoration of public services delivery in Targeted Municipal Areas. The PDO for the EODP-AF is consistent with the PDO for the parent EODP but with an expansion in geographical and sectoral coverage: to support the GoI in the reconstruction of the damaged infrastructure and the restoration of public service delivery in Targeted Areas.

The proposed AF is aligned with the Iraq Country Partnership Strategy (FY١٨-٢٣) and will provide support for the: (i) renewing the social contract; (ii) promoting regional cooperation; (iii) increasing resilience to IDP/refugee shocks; and (iv) supporting recovery and reconstruction.

### ١,٣ Rationale for the updated ESMF

According to the World Bank requirements for financing this project, the Project Owner prepared an Environmental and Social Management Framework (ESMF) that covers the entire scope of potential investment sub-projects. The ESMF for the parent EODP was prepared, consulted and disclosed before any EOPD physical activities started. Given that a new scope has been added to the original EODP, the ESMF needs to be updated to incorporate the new geographical and sectoral expansion.

This updated ESMF also includes a positive list of likely activities and investments to be financed, and a negative list of activities, equipment, and goods that will not be financed by the project due to their potential, negative environmental impacts.

The updated ESMF defines the scope of Sub-project specific E&S instruments: During the implementation phase specific E&S management instruments, mainly Environmental and Social Management Plans (ESMPs), and potentially Abbreviated Resettlement Action Plans (ARAPs) will be produced on a running basis for the expected typologies, e.g. repair / reconstruction of housing, roads, transmission lines, municipal infrastructure agriculture infrastructure, social services as well as the restoration of public services. These would become part of the works contracts, set the Environmental and Social (E&S) standards and compliance mechanisms, and serve as contractual basis for supervision and enforcement of good E&S practices during the works. For some larger projects, e.g. bridge reconstruction, a more detailed ESMP, with possibility to prepare a site specific ESIA, will be required, as the works would be more substantial in scale, and rivers may be more sensitive and vulnerable to environmental impacts. Also the ESMPs would be more specific on measures to protect water quality, riverine / aquatic ecosystems, and retain the hydrological regime around the bridge. Also, additional social considerations, such as continued access to the river for fishing and water abstraction, may become relevant. For the expected scope of subprojects, comprehensive ESIA's will not be required, as the structures and installations had existed before, and the project would only finance their repair, reconstruction or reinstatement.

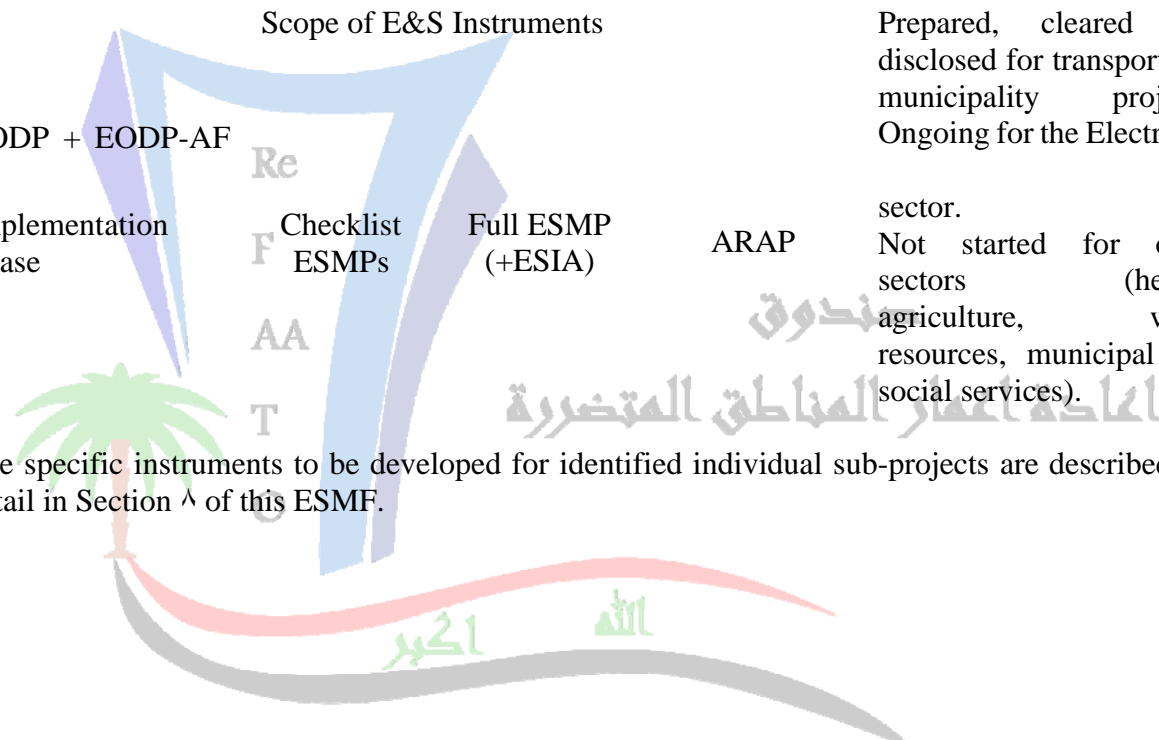


The following Table figure summarizes the types, sequence and status of safeguards instruments prepared or shall be prepared over the project lifetime.

**Table 1: Required E&S Safeguards Instruments and their Status**

Project Phase	Applicable E & S Safeguards Instruments	Status
EODP Preparation Phase	Environmental and Social Action Plan	Prepared, cleared and disclosed
EODP Implementation Phase (0-3 months)	Environmental and Social Management Framework, and Resettlement Policy Framework	Prepared, cleared and disclosed
EODP-AF Preparation Phase	Update of Environmental and Social Management Framework, and Resettlement Policy Framework	Under preparation
EODP + EODP-AF Implementation Phase	Scope of E&S Instruments Checklist ESMPs Full ESMP (+ESIA) ARAP	Prepared, cleared and disclosed for transport and municipality projects. Ongoing for the Electricity sector. Not started for other sectors (health, agriculture, water resources, municipal and social services).

The specific instruments to be developed for identified individual sub-projects are described in detail in Section 4 of this ESMF.



## ٢. PROJECT DESCRIPTION

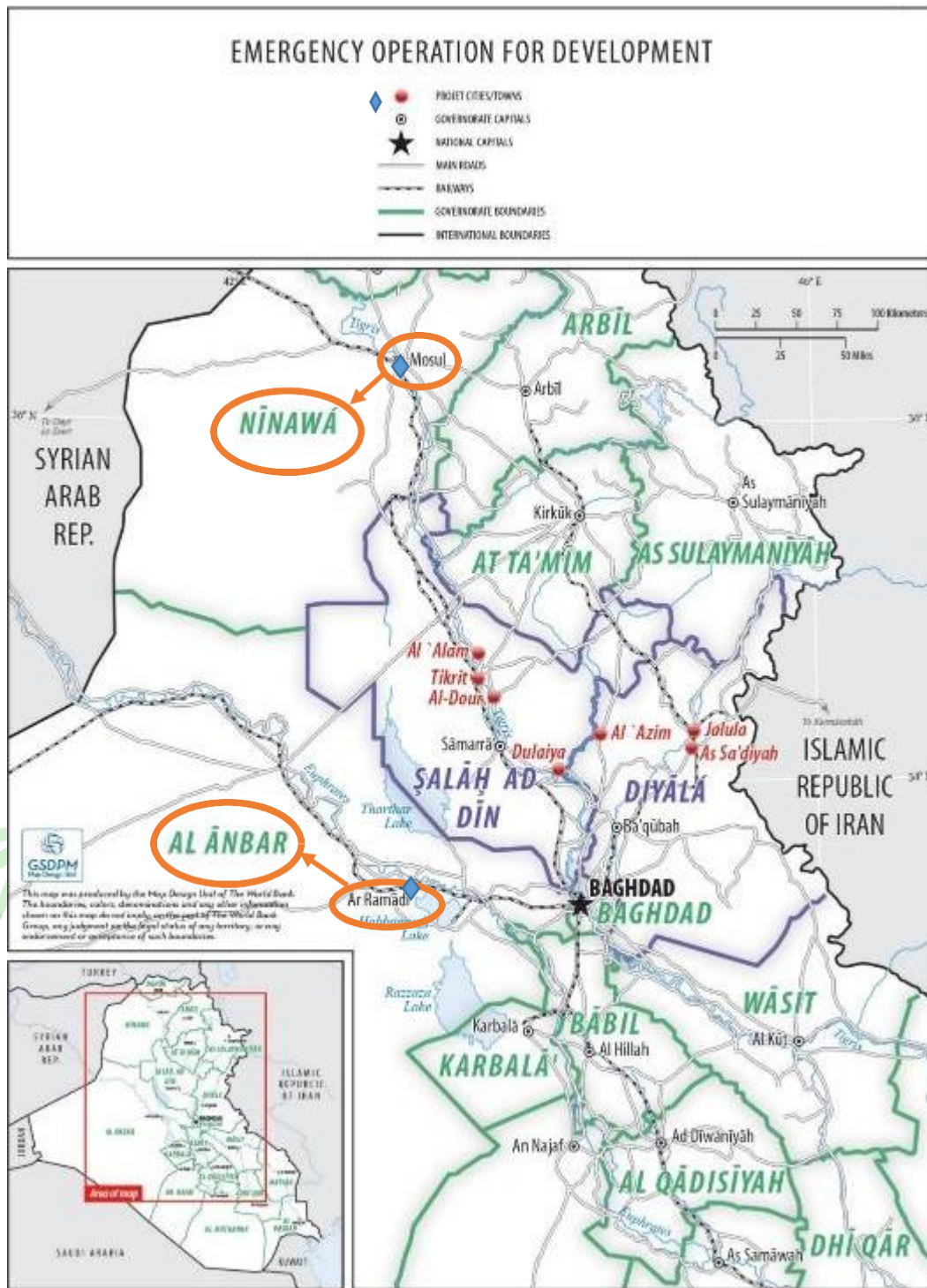
### ٢.١ Overview

The project adopts an integrated and pragmatic approach to the reconstruction and rehabilitation damaged infrastructure and housing in conflict-affected cities in Iraq. For the water, energy, transport, social services, agriculture and health sectors, this will be conducted through the repair and reconstruction of damaged infrastructure in the selected geographical areas which are described below. Each of these sectoral interventions are sub-divided into: rapid repairs/supply and installation of damaged infrastructure, damage and need assessment, planning and design and procurement of emergency equipment and goods/materials; implementation of the rehabilitation and reconstruction of works as per the damage assessment. These interventions, in addition to promoting state/citizen trust-building and reconciliation, will be designed to generate local employment opportunities and help develop the local small- and medium-sized contracting industry including demand in a number of other sectors, such as construction materials and related. The project will also support technical assistance towards planning and designing urban development and future infrastructure schemes and will also support project management, sensitization and monitoring and evaluation component. The design of the project components provides flexibility to include newly liberated and secure municipal areas.

### ٢.٢ Project Locations and Physical Features

The EODP is currently focusing on the originally seven targeted municipalities/cities in two governorates that were identified during project preparation in May ٢٠١٥ including the cities of Tikrit, Dour, Al Dhulo'eyya and Al-Alam in the Salah ad-Din governorate and Jalula, As-Sadiya and Al-Azeem in the Diyala governorate. The EODP is already expanding its support to additional municipalities such as Ramadi and few others that were liberated over the past year, where immediate support to reinstate services was much needed.

The additional financing would expand the support further to other liberated areas and extend to other priority sectors. The expansion is expected to go beyond today's Salah Ad-Din and Diyala governorates to more cities that have been recently liberated in two additional governorates such as Mosul in Ninawa, Ramadi in Anbar and few others which have not yet been identified at this stage of preparing the updated ESMF.



**Figure 3:** Republic of Iraq: Emergency Operation for Development Project Locations  
 (◆ Symbol highlights the new project locations in Al-Anbar and Ninawa Governorates)



## 2.2 Project Components

### Component 1: Restoring Electricity Infrastructure and Connectivity

This component aims to support restoration of electricity services to the liberated areas, with particular emphasis on (i) public sector led interventions covering the reconstruction of damaged transmission and distribution assets (as per the original EODP) and (ii) where feasible, private sector- led efforts to expand access to electricity based on service contracts for installing new infrastructure for distributed generation (fee per KWh) and SPV systems for institutions and households.

Sub component 1. *Transmission and Distribution Grid Reconstruction* to support procurement and installation of equipment, materials, spare parts and civil works to rehabilitate and reconstruct the heavily damaged transmission and distribution networks in the project areas.

Sub component 2 (New): *Emergency Electricity Service Restoration* to support service contracts (fee/KWh) for private rental of emergency generation services in areas where it will take some time to reconstruct the electricity network. This will provide an effective transitory solution and facilitate restoration of basic services such as water supply and health services. A detailed feasibility assessment will be undertaken within the first six months of the Project to identify viable business models. Privately owned generation and distribution of electricity services is widespread in most of the governorates in Iraq due to the poor reliability of the grid supply service, with the current national average of about 10 hours per day. However, there is no regulatory oversight of the activities of private operators. Given the high cost of fuel and the limited number of consumers, private operators are not functioning at full capacity- as a consequence electricity service charge is about 100 times the cost of the grid supply.

Sub component 3 (New): Support for the installation of *Solar Photovoltaic (SPV)* systems via the private sector, to address gaps in the provision of electricity services. A detailed assessment will be undertaken within the first six months of the Project to identify feasible business models, including financial incentives (for working capital or consumer loans) that could be supported by the Project. Although private solar development is a compelling solution due to resource abundance, the modular nature of solar energy and minimal dependencies on existing infrastructure, investments in this area are hindered by Government subsidies that have been put into place to maintain electricity prices at artificially low levels, combined with the challenge that most electricity consumers do not pay their electricity bill. The Government has initiated actions to increase tariffs, including operations efficiency (including electricity bills collections and disconnections for non-payment) and enforcement of bill payment. The Project will play a crucial role in creating a market, and potentially supporting transformation of the renewable energy landscape in Iraq, specifically by providing technical knowledge and catalysing the installation of initial systems for renewable energy generation.

### Component 2: Restoring Municipal Waste, Water and Sanitation Services

This component is largely similar to that described for the EODP and aims to restore water, wastewater and solid waste services through the repair, reconstruction, and rehabilitation of damaged infrastructure in selected municipalities. Reconstruction of public works will generate local employment opportunities, and successful completion of public works in this sector will reduce the incidence of public health risks through water-borne diseases.

However, the AF will incorporate the following modifications to the original component: i) it will now focus on three governorates (Al Anbar, Ninawa and Salah Ad-Din, including the districts and sub-districts surrounding Mosul and Ramadi) and ii) prioritize reconstruction and rehabilitation of sewage treatment plants, and solid waste management equipment (garbage trucks, etc.)



**Component ٣: Restoring Transport Infrastructure**

Transport infrastructure (bridges, roads, airports, and railway) is key to the economic development of Iraq. Most of the transport infrastructure in the war-impacted regions suffered destruction and damages resulting from the recent military operations, sabotage and vandalism during the crisis. Critical bridges, road sections, airports and railways have been significantly damaged. This has led to severe disruption of service delivery, closure of several bridges, road sections as well as other modes of transport such as airports and railway systems. In addition, lack of maintenance funding and institutional weaknesses have further deteriorated the quality of the transport infrastructure and service delivery of the sector.

The objective of this component under the AF is to expand coverage to liberated areas in Al Anbar, Diyala, Ninawa and Salah Ad-Din governorates to restore service delivery, connectivity and access to economic and social services that have been disrupted due to the destruction of roads and bridges in military operations against ISIS. Activities under this component will include the reconstruction of key bridges that have been fully destroyed, and rehabilitation of partially damaged bridges in affected areas, particularly in Mosul that has endured wide-ranging destruction to physical assets and infrastructure.

Activities for this component AF will include: preparation of detailed plans, designs and bidding documents for the repair, rehabilitation and reconstruction of roads and bridges, and technical assistance and consultancy services for supervision and implementation of transport subprojects. In addition, the proposed reconstruction and rehabilitation works would support the Gol's plans for economic recovery, social reconciliation and employment creation for working-age youth. These works will be implemented by the Iraq Reconstruction Fund in coordination with sector authorities as well as local government agencies to the extent possible.

The AF will support the preparation of a feasibility study for the reconstruction, operation and maintenance of Mosul airport financed by a public-private partnership scheme. This work will draw upon the World Bank's experience in Jordan and other best practice examples. To avoid duplication and random rehabilitation of the Iraq Republic Railway IRR, the AF will finance the railway rehabilitation priority. The AF will also finance the rapid repair of key public transport terminals as well as an assessment for a PPP in operation and maintenance of selected term.

Year ١ of the Project will focus on maintenance and quick repairs of critical bridges and roads and the reconstruction of damaged public transport terminals; recruitment of consultants; and preparation of plans and detailed designs for the reconstruction of complex and highly technical transport facilities. Years ٢–٤ of the Project will focus on the actual implementation of rehabilitation and reconstruction of damaged roads and bridges.

**Component ٤: Restoring Health Services**

EODP financing will continue with the originally available funding but with minor revisions to the activities supported i.e. EODP will finance the repair and supply of medical equipment to partially damaged hospitals and clinics in place of supply of mobile hospitals. No additional funding is proposed to this component. The State of Kuwait, through the Kuwait Fund for Arab Economic Development has made available a grant of US\$ ١٠٠ million to restore the country's health services in areas recently regained from the ISIS.

**Component ٥: Technical Assistance**

Sectoral Development: This component will develop and espouse a systematic, programmatic and integrated approach towards multi-sectoral recovery and reconstruction efforts. This approach is intended to support the preparation of a range of potential sector investment projects underpinned by strategic and medium to long-term needs assessments that will be undertaken by the Bank and the Gol over the AF implementation period. The AF will continue to provide support to finalize and implement the General Framework of the National Recovery and Reconstruction Framework for Iraq, and to avail of

possible opportunities to enhance the PCU's capacity to manage multi-sector recovery as part of the WB's collaboration with the ReFAATO.

Technical Assistance: This component will continue to implement a detailed and nuanced approach to various facets of *state/citizen trust-building and promoting reconciliation in the broader Project context* including: (i) inclusive participation by local communities, (ii) transparency of resource allocations, (iii) measures to promote tolerance amongst various social groups through community-led sub projects, (iv) dissemination of information regarding the Project to build trust and confidence by using targeted media, social media and communications campaigns, (v) youth initiatives to build social capital and foster reconciliation and (vi) effective grievance redressal and increased accountability on service delivery issues at the local level.

In addition, technical assistance in this area will be geared towards working on a *broad strategy for the sustainable management of physical cultural resources (PCRs)*. This activity will entail a) a systematic and detailed assessment of physical cultural resources that have been damaged; b) the preparation of a prioritized list of required interventions; c) the development of a reconstruction and restoration strategy for PCRs (including related standards, guidelines, knowledge and technical resources, and design codes); and d) design and preparation to establish a fund to support the restoration and maintenance of PCR on a more sustainable basis. Technical assistance will be offered to the stakeholders including the Ministry of Culture, the Governorate of Ninawa, the Religious endowments, the educational, cultural and scientific institutions, as well as professional associations of the city, to: (a) document and conduct a detailed survey of the damaged heritage site; (b) develop strategic guidelines, work plan, and M&E plan to reconstruct historic urban landscape of Mosul; and (c) train youth and vulnerable groups in the City for skills necessary for the restoration work.

### **Component 7: Project Management, Sensitization and Communications and Monitoring and Evaluation**

This component will continue to cover costs associated with the management and coordination of the Project, including social and environmental safeguards, procurement and financial management, communication and community sensitization, and monitoring and evaluation (M&E). The remit of this component will be extended to supervise effective execution of citizen's engagement initiatives.

Strategic communication and citizen engagement activities will be administered throughout the project preparation, implementation and monitoring to promote an inclusive approach in the reconstruction process. Efforts to promote citizen participation in the Project will be underpinned by a strategic communications campaign that is part of an overall holistic citizen's engagement strategy. The aim will be to raise awareness of the Project's objectives, scope and activities; potential benefits (and costs) for beneficiaries; its relevance to the GoI's broader vision for recovery and reconstruction; and various avenues that are available for beneficiaries and citizens to remain apprised of Project developments and to engage in the design and implementation of sub projects across a range of sectors. Communication messages and modalities will be tailored to the information seeking habits of specific vulnerable groups (IDP's, women, youth, unemployed, business, etc.) and proactive dissemination of timely and comprehensive information through appropriate media will establish a precedent for transparency and signal the GoI's willingness for the local populace to be informed and engaged. This approach will also be useful to manage expectations and promote buy-in and ownership.

A baseline beneficiary survey will determine modes of engagement and appropriate communication channels around which the existing the above components of the CE strategy will be modified, from their current format. The key elements of the citizen engagement strategy for this Project will include the following: (i) early disclosure of important project related information by the GoI on its website and at the appropriate local levels and disclosure procedures agreed with the Bank, (ii) framework for consultation with the key stakeholders ensuring all targeted beneficiaries are informed, through relevant stakeholders and their representatives to obtaining broad community support as a part of preparation of specific sub-



projects relevant to that area; (iii) ensure the continuity in existing and establishment and implementation of GRM within new PMTs and at the PCU, to meet specific grievance redress requirements of this operation; and (iv) promote community based initiatives with the participation of and networking with relevant stakeholders including women, school children, youth, IDPs, host communities, civil society organizations, and local bodies.

This component will also develop a data visualization, analysis and information sharing (digital) platform, commonly used for the Disaster Needs Assessment (DNA). This platform will enable the GoI, WB, their partners and other stakeholders to compile and utilize real-time-data to support implementation, supervision and monitoring of geo-referenced projects and planning of future recovery and peacebuilding planning initiatives. This platform will therefore contribute towards improving coordination among various stakeholders, and minimizing gaps and overlaps in the coverage of recovery interventions. The interactive nature of the platform will allow communities to interact through text and visuals and to provide positive feedback or relay complaints regarding project implementation which would be uploaded in real time into the portal. Various data sources, analytical work and information would be aggregated in an integrated and phased manner. The platform's key features will include:

Geo-referencing of facilities across various sectors

Availability of geo-coded data layers for various types of analysis (damage, quality of service delivery, recovery needs, social analysis, institutional analysis, forced displacement patterns, conflict analysis, economic assessments)

Ability to read both geo-coded Excel spreadsheets and GIS Shape files for easy aggregation of additional geo-data and analysis

Coverage of both rural areas (district-level) and urban centers (neighborhood level)

Concurrent visualization of multiple layers of data

Availability of real-time updates

#### **Component V: Restoring Agriculture Productivity**

Widespread unavailability of traditional agricultural inputs and service supplies in newly liberated zones, combined with soaring farm gate prices for agricultural inputs<sup>y</sup> represent significant constraints to productivity growth, and employment and enterprise development in Iraq's rural sector. In addition, emergency assistance is essential for returning farm households, IDPs, producer groups and farmer associations to gain some measure of food security and to establish the foundation of a more measured approach to agriculture sector recovery.

The key focus of this component is to revive agricultural and related activities in the conflict-affected regions across the country. Project activities will utilize a combination of emergency and short-term measures to improve the capacity of the Ministry of Agriculture to support farmers with critical agricultural services, technologies and investments.

The four sub-components are as follows:

Subcomponent 1: *Emergency implementation of local area development plans* will finance procurement and distribution of 0,000 farm household starter packages consisting of different combinations of farm tools, livestock, materials and service vouchers. This sub-component will also support the formation and functioning of groups of poor rural households at the community level to help them improve their food security and nutrition. This program will be implemented with the involvement of local NGOs, who will help identify eligible group members, assist in the formation of such groups, provide basic training, and help monitor program implementation and impact. These local NGOs will take the lead in community and group information and mobilization and in facilitating the formal constitution of the community

<sup>y</sup> (relative to international levels)

production groups (CPGs). The CPGs will have simple, locally appropriate, governance arrangements to ensure transparency, probity, inclusion, and accountability. Three major categories of CPGs are envisaged: (i) crop CPGs (wheat, fodder crops, oilseeds), (ii) vegetable and fruit CPGs (potatoes, vegetables, spices, soft fruits), and (iii) small livestock CPGs (poultry).

Sub-component ٢: *Restoration of critical agriculture support services* will finance restoration and modernization of key agriculture knowledge and service centers, including warehouses, veterinary centers and certified seed multiplication and processing facilities to revive the agriculture service and agribusiness industry.

Sub-component ٣: *Emergency agriculture credit facilitation* will include measures to improve accessibility of farmers and farmer groups to technical knowledge, services and technologies. This sub component will support TA and capacity building for institutional strengthening of the local input supply industry and provide working capital to local agribusinesses. This sub component will also support development of a private network of agro-input dealers who would supply farmers with quality inputs at affordable prices and technical knowledge that would increase farm incomes and reverse the low-input, low-output spiral. This component will finance the following set of activities: (i) improvement of farmers' purchasing power through distribution of input vouchers; (ii) help to agriculture input dealers to find supplies and credit and expand business. The project would also demonstrate to farmers the profitable return from investing in improved inputs and farming techniques. Given better access to inputs afforded by vouchers distributed by the project farmers would seek competitive suppliers to obtain better input prices and more reliable delivery. The resultant increase in demand would strengthen the competition in the private input supply market and create a more level playing field, to the benefit of farmers and overall sector output. The project will also support organized input dealers' groups through training, better equipped, technology to enhance their services to farmers.

Sub-component ٤: *Project Management* will include the costs of consultants, limited purchases of office equipment and furniture, cars, and recurrent costs of the Project Management Team. This component will be managed by a new PMT under the auspices of the MoA.

#### **Component A: Emergency repair of water control infrastructure and irrigation schemes**

The reconstruction of the irrigation and drainage system is crucial to the success of the agricultural sector in most parts of the country. Irrigated agriculture, which accounts for bulk of the total production of cereals and other crops was affected by ISIS. Strategic barrages, link canals, major irrigation headworks and pumping stations were severely damaged. In addition, necessary maintenance was not carried out on the irrigation and drainage water distribution network, leaving the irrigation and drainage systems in a state of disrepair. All the offices of the Operation and Maintenance Directorates at the Governorates have been burned and/or looted. The total area under irrigation decreased by ٥٠ percent and crop productivity has fallen below ٣٠ percent of pre-war levels.

Iraq has an extensive water hydraulic infrastructure that comprises of a series of dams and barrages that are located on the Euphrates and Tigris rivers and their tributaries. The big dams are multi-purpose (hydroelectric, irrigation, flood control). Smaller dams have been built to supply water to cities and irrigation schemes. Much of this needs urgent repairs as it is crucial to ensure rapid increases in agricultural crop yields. Of urgency, is the need to prepare the conditions for IDPs from rural areas and the agricultural sector, in order to increase food security for all and re-generate rural livelihood and employment.

There are two subcomponents to the rehabilitation of the irrigation infrastructure. Sub-

component ١: *Emergency repair of water control infrastructure and irrigation schemes*

This would support emergency repair of the Falluja barrage. In addition, emergency repairs to six irrigation schemes ٧٧,٠٠٠ ha. Typical emergency works would include repair of headworks, main canal water control structures, groundwater wells, small canal bridges and culverts. This component would also include rebuilding of damaged MoWR offices and O&M offices including the procurement of machinery and equipment for operations and maintenance.

Sub component ٢ Management, engineering studies and M&E

This component will support the operation of the component in the MoWR. The PMT has been well established. The PMU will coordinate the overall planning, coordination, implementation and supervision of component activities including central procurement and management of funds.

This sub-component will provide funding for consulting services: engineering support, construction supervision and quality control; environmental and social management plan; monitoring and evaluation (M&E), including carrying out technical and safety assessment of Falluja barrage, technical assessment of Thathar link canal, and water management study. Finally, this sub-component will finance training and capacity building activities targeted to staff in MoWR and O&M staff at the Governorates

### Component ٩: Restoring Education Services (MoEd)

This component aims to support the restoration of education services in liberated and affected areas of Iraq, while laying the foundation for further development in the education sector. It will place emphasis on vocational education for youth and the economic empowerment of women. The three sub-components are as follows:

Sub-component ١: *Rehabilitation, Reconstruction, Upgrading and Equipping of Education Infrastructure.*

This is intended to provide urgent support for swift restoration of education services, thus incentivizing the return of IDPs and return to normalcy in liberated and conflict-affected areas, particularly Mosul. The Project will finance activities related to reconstruction, rehabilitation, upgrading and equipping of existing schools on state-owned land in six governorates (Nineveh which includes Mosul, Al Anbar, Diyala, Kirkuk, Salah Ad-Din and the outskirts of Baghdad). The Project will focus its efforts on a total of ١٣٦ schools (٣٢ in Mosul) which consisting of ٩٣ primary schools and ٤٣ secondary schools which serve about ٤٠,٠٠٠ primary students and ٧٥,٠٠٠ secondary students. The Project will also support rehabilitation of ٢ vocational training schools.

An international consultant will review existing technical specifications (norms) of school equipment to ensure compliance with international standards. These revised technical specifications will be adopted for all project related infrastructure. In addition, access ramps and fixed bars will also be installed to facilitate access by students and teachers with disabilities. The MoEd directorate responsible for school infrastructure will implement, monitor and report on activities related to rehabilitation and reconstruction.

Below is a breakdown of schools, classrooms, teachers, and students per governorate:

Governorates	Schools	Classrooms	Teachers	Students
Salah Ad-Din	٢٠	٢٠٠	٢١٨	٤,٩١٠
Al Anbar	٢٠	٢٠٨	٤٢١	٦,٦٧٥
Diyala	١٠	١٢٠	٢٠٩	٢,٤٨٣
Kirkuk	٢١	٣٠٨	٦٣١	١٣,٣٤١
Baghdad	٣٣	٤٠٤	٨٧١	١٩,١٧١
Ninawa	٣٠	٣٨٤	٨٥١	١٦,٩٤٢
TVET Mosul	٢	٣٠	-	-
<b>Total</b>	<b>١٣٦</b>	<b>١,٧٠٤</b>	<b>٣,٢٠١</b>	<b>٦٣,٥٢٢</b>

Subcomponent 2: *Support to Teachers, School and Community Leaders, and Out-Of-School Youth Training and Support Programs*. This sub component will focus on providing specialized support for a smaller percentage of the population, including vulnerable groups such as children and adolescents who display significant psychological distress or mental disorders as a result of the traumas that they have witnessed or endured during the conflict. The Project will therefore rely on assessments conducted by other agencies (led by the Ministry of Labor and Social Affairs with support from the World Bank's social protection operation) that are already delivering support at the community level to inform the design of classroom interventions and specialized teacher training programs, and to identify channels for children and adolescents in need of specialized psychological support.

Although there are counselors in schools to support students who are contending with psychological distress, there is need for additional training as well as service providers to work with such youngsters and to serve as liaisons between schools and communities on a sustainable basis.

With 48 percent of the 1 million youth and child IDPs out of school, equipping young people with the skills and qualifications that are required to gain relatively quick access to the job market is essential to ease the strain on youth to reduce the risk of further splintering within communities and between ethnic and religious groups, and degeneration into further conflict to avoid falling prey to another wave of conflict unleashed by violent extremism. In addition to the rehabilitation of 2 vocational training schools, the Project will support the design and implementation of short-term (6-9 months) courses geared towards youth who are either out of school or above school age, and who have difficulty in pursuing a higher level of education. These courses will be based on assessments conducted by the Ministry of Labor and Social Affairs (MOLSA) to ensure that they respond appropriately to the demands of the job market and complement existing job placement mechanisms. The team will also collaborate with UNICEF and other UN that are already providing life skills training and capacity building.

This subcomponent will support the following activities:

Training of 10,000 teachers and school administrators (20 trainers of trainees of which 12 will be from the central directorate and inspectorate, 18 from Baghdad, and 2 from each of the five targeted governorates). Two high-level training sessions will be provided on pedagogical skills and/or psychosocial and emotional support to upgrade their knowledge and skills in order to be able to provide effective psychosocial and emotional support to children;

Recruitment and training of women (2-3 per school or 300 women in total) from each community to serve as school-community liaisons and to provide schooling and psychosocial support to students as well as other youngsters in the community. The Project will finance service fees for up to 18 months at the rate of US\$ 30 per month for each counselor. The Project will also finance support for more inclusive participation of community members in recreational and cultural school activities;

Provide short-term support to identify and train 300 female graduates from communities targeted by the Project as teachers' aides. Upon completion of training within 6-9 months, at least 200 candidates will be certified for teaching and will acquire employment at newly rehabilitated schools for one school year. The Project will provide support for identification/shortlisting of appropriate candidates, training and capacity building as well as financing monthly service fees of teachers' aides for a period of ten months at the rate of US\$ 40 per aide;

Design and provide training for 300 out-of-school youth to be ready to enter the job market.

Subcomponent ٣: *Institutional Strengthening and Sector Development Support*. This sub component will support the following activities:

Increasing the engagement of private schools: Given the limited concentration of private schools, the Project will support the development and institutionalization of rules and regulations for the private sector's involvement in education, including the strengthening of MoEd's oversight and quality control system.

Developing governorate level education strategies: The Project will support a pilot initiative to develop education sector plans in ٣-٤ governorates to help operationalize the national education strategy. These education plans will cover a period of five years, with yearly targets for improving the accessibility and quality of education, while strengthening the capacity of governorates to manage and implement education sector reforms effectively.

Data System: In order to establish a unified and cohesive data management system that can support better analysis for policy formulation and planning, the Project will provide support for strengthening governorate level data collection systems by linking them with the central system and enabling them to correspond with the data systems of other technical entities such as the MOE's directorates in charge of teacher training and school construction. The Project will support analysis and technical support aimed at developing the knowledge base for policy making and preliminary preparation of a new operation in the education sector.

The Directorate of Planning and Statistics at MoEd will be responsible for the overall implementation and monitoring of these activities.

### **Component ١٠. Restoring Municipal Infrastructure and Services and Preserving Cultural Heritage Assets**

This component will support the restoration of basic municipal infrastructure and services in the selected municipalities in Al Anbar, Salah Ad-Din, Diyala and Ninawa governorates, paving the way for the return of displaced residents and laying the ground work for extensive housing repair and reconstruction in the future.

The implementation of this component will be based on a framework approach for sub project selection, preparation and implementation. This will be composed of core elements including i) a set of selection and evaluation criteria, ii) a cap for individual sub-projects cost, and iii) clear requirements for environmental and social safeguards.

Sub-projects will be identified based on a clear rationale, prioritization criteria and an integrated area-based approach. Revitalization of economic activities will be a key priority in sub project identification, and, as such, sub projects will therefore focus on neighborhoods where i) there is promise of rejuvenating commerce and trade, and ii) the majority of housing has withstood partial damage. Eligible sub-projects will also have to be economically viable, avoid the possibility of major or irreversible environmental and social impacts, and have financing, procurement, and implementation plans in plans that are satisfactory as per Bank standards. Eligible sub projects may include, inter alia, facilities for youth and sports activities, community centers, parks, cultural heritage sites, public markets, internal roads (streets) and urban water systems and waste water networks.

This component will be implemented by the four beneficiary governorates with technical support from consulting firms. Hence, given the ongoing devolution process, the governorates are expected to have increased responsibilities and autonomy in the provision of urban services. This will contribute towards strengthening the administrative and technical capacities of the governorates, and potentially pave the way for future actions and programs.

This component will also finance a pilot conservation, rehabilitation and/or restoration of selected cultural heritage in Mosul's historic old core. The works part of the pilot will enable the creation of job opportunities through Employment Intensive methods (EI) for the restoration of historical buildings and Historic Urban Landscape. This pilot will be coordinated closely between the UNESCO, Ministry of Culture, the Governorate of Ninawa and the Mosul municipal council.

**Based on the Broad Strategy for the Sustainable Management of Physical Cultural Resources (PCRs) developed under the Component 0 (Technical Assistance), the local government will work with UNESCO to develop conservation plan of selected cultural heritage in Mosul's historic old core. Once the conservation plan is completed, the component will finance some selected cultural heritage properties on pilot basis with limited amount of funding.**





## ٣. LEGAL AND INSTITUTIONAL FRAMEWORK

### ٣.١ National Legislations and Regulations

The project is subject to the following Iraqi laws and regulations:

- Law no. ٣٧ for the year ٢٠٠٨: The Ministry of Environment
- Law no. ٢٧ for the year ٢٠٠٩: Protection and Improvement of Environment
- Regulations no. ٢ for the year ٢٠٠١: Preservation of Water Resources
- Law on ١٧ for the year ٢٠١٠: Protection of Wild Animals and Birds
- Law no. ٥٥ for the year ٢٠٠٢: The Law of Antiquities and Heritage

#### **Law no. ٣٧ of ٢٠٠٨ establishing the Ministry of Environment**

Because of the importance of protecting and improving Environment and since Ministry of Environment bears the prime responsibility for protecting the environment and the public health to ensure the sustainable development and to achieve international and regional cooperation in this respect. This Law was legislated to define MOE structure, goals and the means of implementing them.

The law requires an agency carrying out activities that could affect the environment to prepare an environmental impact assessment. It also establishes Standards, Specifications, Principles, and Controls required to determine the projects and fields that have been submitted to evaluate the studies of environmental impact assessment and prepares lists on the these projects, and put system and procedures for environmental impact assessment.

#### **Law no. ٢٧ of ٢٠٠٩ on the Protection and Improvement of the Environment**

The law aims at protecting and improving the environment through elimination and treatment of existing damages or damages likely to be caused. It also aims at preserving public health, natural resources, biodiversity as well as natural and cultural heritage; in coordination with the relevant authorities in a manner that ensures sustainable development through International and Regional cooperation in this regard. This law addresses the following major points:

- The environmental protection provisions such as importance of conducting Environmental Impact Assessment for projects that may impact the environment;
- The water protection from contamination, air quality protection and control of noise emissions, land protection, ecological protection and hazardous waste management.

Articles ١٠ of the Law for the Protection and Improvement of Environment further describes the procedures related to EIA studies as follows:

A project owner must be committed to providing an EIA Study prior to project commencement.

The EIA study must include the following:

- Assessment of positive and negative impacts as a result of project activities;
- Propose mitigation measures to prevent or treat contamination and pollution sources in accordance with the acceptable environmental standards and guidelines.
- Adopt and discuss measures for the prevention of potential contamination and accidental pollution.
- Assessment of alternatives in terms of utilizing proper means/technologies that cause the least negative impacts on the environment; in addition to rationalizing and managing the consumption of resources.
- Reduce and manage wastes and adopt measures for reuse or recycling wherever possible.
- Estimating the environmental feasibility of the project and estimate the cost of pollution to production ratio.



The technical and economic feasibility study for any project must be included in the EIA study as described in the first item.

#### **Regulations no. ٢ of ٢٠٠١ on Preservation of Water Resources**

As mentioned in article ٨, it is prohibited to discharge or throw any kind or any amount of waste from the location to the common water of any kind or quantity, or whether the discharge was regular, irregular or temporary, for any reason, unless granted permission from the office of protecting and improving Environment or whom it shall authorize.

#### **Law on ١٧ of ٢٠١٠: Protection of Wild Animals and Birds**

This law aims to protect wild animals and birds as a national resource and organize hunting areas and procedures for granting hunting permits and to identify illegal hunting practices.

#### **Law no. ٥٥ of ٢٠٠٢: The Law of Antiquities and Heritage**

This law defines all movable and immovable antiquities, archaeological properties and artefacts in Iraq. It regulates communication channels between the public and the authorities for each type of contact between the public and the revealed and non-revealed archaeological sites. Regulations governing contact with archaeological sites extend also to encompass developmental activities like road construction and rehabilitation wherever these developmental activities lie within archaeological vicinity.

It should be noted that legislation relating to social safeguards issued in Iraq since ٢٠٠٢ has focused primarily on the ratification of international conventions and protocols on issues such as cultural heritage. As yet there are no formally adopted requirements for social assessments relating to agricultural and other infrastructural works. Hence, social safeguards issues remain very largely uncovered except to the extent they are referred to under environmental laws.

#### **٣.٢ World Bank Safeguard Requirements**

In addition to the Iraqi laws and regulation the updated ESMF and subsequent ESMPs (+ESIAs) should comply with the safeguards policies and procedures of the World Bank—specifically OP/BP ٤,٠١ on Environmental Assessment, Physical Cultural Resources (OP٤,١١), Involuntary Resettlement (OP/BP ٤,١٢), and International Waterways (OP٧,٥٠) were triggered for the parent project. Therefore, these policies will continue to be triggered for EODP-AF, in addition to OP/BP ٤,٠٩ on Pest Management which has been triggered after introducing the agriculture sector in the additional finance..

Under the Bank's safeguard requirements, the EODP has been assigned an EA Category "B" given that the nature of the proposed activities which will not have highly significant adverse environmental and social impacts, and this category will also continue for the EODP-AF

The table below presents a synthesis of the Bank's safeguards policies and indicates which ones have been triggered by project activities funded under EODP-AF.

**Table 9: EODP-AF Applicable World Bank Safeguard Requirements**

Yes	<i>If applicable, how might it apply</i>
[√]	<p><i>Environmental Assessment (OP/BP/GP 4.01)</i></p> <p>Environmental Assessment should be conducted for projects which fall under World Bank Category B. OP 4.01 is triggered as the project could have impacts on the environment due to the rehabilitation of damaged infrastructures and associated civil works. To identify and manage potential adverse impacts on the environment from project funded interventions –such as those mentioned above- the borrower will prepare an Environmental and Social Impact Assessment (ESIA)/ Environmental and Social Management Plan (ESMP) for site-specific schemes/activities. Where ESMF is applied, the ESMP will need to be prepared, approved, and disclosed before any construction works would start on the ground.</p>
[√]	<p><i>OP 4.11, Physical Cultural Resources (PCR):</i></p> <p>The proposed operations are not expected to pose risks of damaging cultural property. However, Iraq is a country extremely rich in PCR, and the destruction experienced during combat activities are highly likely to have affected historical buildings, religious sites such as mosques and shrines, and monuments. Destruction may have been random acts of war, but also targeted acts of sectarian violence. Dealing with PCR has been included into this updated ESMF and will be part of the municipal component and the planned TA component. This may identify and include assistance for the preservation of historic sites and/or re-building of damaged historical buildings. If these opportunities occur, cultural property management plans would be prepared for these subprojects.</p>
[√]	<p><i>Involuntary Resettlement (OP/BP 4.12)</i></p> <p>The need for involuntary resettlement or land acquisition in specific subproject areas will only be known during project implementation, when site-specific plans are available. Therefore, subprojects will be screened for applicability of the resettlement policy and any subprojects involving involuntary resettlement or land acquisition will only be approved after preparation of a resettlement plan acceptable to the Bank. Several issues will increase the complexity of land acquisition. For example, the lack of reliable land record systems, and the inability of people losing land to either document ownership or be physically present to make their claims for eligibility. The safeguards framework will, therefore, include procedures for identifying eligible project-affected people, calculating and delivering compensation, and mechanisms for land dispute grievance redress.</p> <p>OP 4.12 covers those persons affected by involuntary taking of land. The other social dimensions including poverty impacts, gender, and civic engagement, etc. will be covered by ESIA of site specific subprojects. The site specific ESMPs will include measures to minimize and mitigate adverse social impacts, particularly on poor and vulnerable groups.</p>
[√]	<p><i>Pest Management (OP/BP 4.09)</i></p> <p>OP 4.09 has been triggered as investments in the agriculture sector might include rehabilitation of seeds multiplication, processing facilities (which will use pesticides) and distribution of farm tools, possibly including pesticides, to farm households. The ESMF includes measures for selecting pesticides according to OP 4.09 requirements, handling requirements of pesticides and</p>

	using adequate PPE. The ESMF also includes requirements for preparing Pest Management Plans for activities that will comprise procurement of pesticides or pesticides application tools
[√]	<i>Projects on International Waterways (OP/BP 7.50)</i> The policy has been triggered for the parent EODP therefore this policy will continue to be triggered for this EODP-Additional Finance, especially that rehabilitation of irrigation infrastructure is included in the additional finance.

In view of this, the updated ESMF will address the requirements of the triggered policies. Under the requirements of OP 7.50, environmental screening enables project classification for proposed projects into three main categories, depending on the type, location, sensitivity and nature of environmental impacts.

- Category A: Significant adverse environmental impacts, broad, irreversible, major resettlement.
- Category B: The impacts are localized, short-term, and reversible and have no severe effects on the environment. Simple and low/moderate cost mitigation measures will be sufficient to restore the potential damage or keep it to the lowest possible.
- Category C: likely to have minimal or no adverse environmental impacts

As earlier explained, EODP-AF has been classified as a **Category B project**.

In addition, due to the nature of the EODP-AF activities, the General and Industry guidelines on Environmental, Health and Safety Guidelines (EHSGs) in particular the General Guidelines and Sector Guidelines for Construction and Decommissioning should be used as appropriate<sup>^</sup>.

### ٣,٣ Public Consultation and Disclosure

The World Bank's mandatory Policy on Disclosure applies to this project. Under this requirement, this ESMF and other instruments related to environmental and social aspects of the project have to be publicly consulted and disclosed prior to project appraisal. This process:

- Gives the public and other stakeholders the opportunity to comment on the potential environmental and social impacts of the project,
- Enables the Appraisal Team to enhance the ESMF, i.e., its measures and plans to prevent or mitigate any adverse environmental and social impacts

In line with this requirement, the environmental and social assessments will be disclosed:

- In-country on RF website and other public locations , before project appraisal, in Arabic and in English
- World Bank's external website: before project appraisal in English (documents can be in draft but must meet World Bank standards)

<sup>^</sup> See ifc.org/ehsguidelines

## ٤. BASELINE CONDITIONS

### ٤,١ Overview

The common feature for all project interventions is the strict adherence to pre-existing footprints of buildings, structures and linear infrastructure, which was damaged or destroyed during combat activities.

The majority of interventions is expected in urbanized areas, which are generally characterized by the nonexistence of environmentally sensitive areas or natural habitats of importance - being in urbanized areas - which require special attention or protection. In addition, the areas where the project will intervene have been severely damaged due to acts of war activities. Therefore, the environmental conditions in the intervention areas have deteriorated to a large extent. For instance, damaged structures rubble, improper waste disposal and leakages from sewage pipelines as well as oil spills have resulted in soil degradation and pollution of waterways. Air quality has also been affected by the increase in dust levels due to damaged roads. In addition to deterioration in the surface water quality and potentially ground water quality.

The following sections will provide a general background about the environmental and social baseline conditions in the intervention areas and will provide guidance on the key environmental parameters which need further assessment during the preparation of the ESMPs.

### ٤,٢ Climate<sup>١</sup>

#### ٤,٢,١ General

The climate of Iraq is mainly a hot desert climate or a hot semi-arid climate to the northernmost part. Averages high temperatures are generally above ٤٠ °C (١٠٤ °F) at low elevations during summer months (June, July and August) while averages low temperatures can drop to below ٠ °C (٣٢ °F) during the coldest month of the year during winter. Most of the rainfall occurs from December through April and averages between ١٠٠ and ١٨٠ millimeters annually. The mountainous region of northern Iraq receives appreciably more precipitation than the central or southern desert region. Roughly ٩٠% of the annual rainfall occurs between November and April, most of it in the winter months from December through March. The remaining six months, particularly the hottest ones of June, July, and August, are extremely dry.

Rainfall in the mountains is more abundant and may reach ١,٠٠٠ millimeters a year in some places, but the terrain precludes extensive cultivation. Cultivation on non-irrigated land is limited essentially to the mountain valleys, foothills, and steppes, which have ٣٠٠ millimeters or more of rainfall annually. Even in this zone, however, only one crop a year can be grown, and shortages of rain have often led to crop failures.

Mean minimum temperatures in the winter range from near freezing (just before dawn) in the northern and northeastern foothills and the western desert to ٢ to ٣ °C (٣٥,٦ to ٣٧,٤ °F) and ٤ to ٥ °C (٣٩,٢ to ٤١,٠ °F) in the alluvial plains of southern Iraq. They rise to a mean maximum of about ١٦ °C (٦٠,٨ °F) in the western desert and the northeast, and ١٧ °C (٦٢,٦ °F) in the south. In the

<sup>١</sup> Source: <https://en.climate-data.org>

summer mean minimum temperatures range from about 27 to 31 °C (80,6 to 87,8 °F) and rise to maxima between roughly 41 and 46 °C (105,8 and 113,0 °F). Temperatures sometimes fall below freezing and have fallen as low as -1 °C (31,8 °F) at Ar Rutbah in the western desert.

The summer months are marked by two kinds of wind phenomena. The southern and southeasterly sharqi, a dry, dusty wind with occasional gusts of 80 kilometers per hour, occurs from April to early June and again from late September through November. It may last for a day at the beginning and end of the season but for several days at other times. This wind is often accompanied by violent dust-storms that may rise to heights of several thousand meters and close airports for brief periods. From mid-June to mid-September the prevailing wind, called the shamal, is from the north and northwest. It is a steady, very dry wind, absent only occasionally during this period.

The mountainous regions to the north and north-east of Iraq, have a hot dry summer and cold winter with heavy rainfall and snow fall, the minimum winter temperatures can be as low as -17 degrees centigrade to average maximum summer temperatures can be high to 47 degrees. The mean annual precipitation is 860-940 mm in the northern region and drops to 120-150 mm in Baghdad region and less than 100 mm in the south western region, variation in humidity is within the range of 30% to 60% with some limited period reading 80%.

The wind regime is characterized by the winds prevailing from the western and north-western direction throughout the year. In spring the south of Iraq often occur south-west winds accompanied by dust storm. Mean annual wind velocity reading 2,1-3,9 meter per second, maximum register at Mosul 26 meter per second, 31 meter per second at Kirkuk and 40 meter per second near Basrah, Evaporation varies from 1300 mm in the northern region to 2400 mm. in the Central region of which 400-500 mm. occurs in both July and August only.

The climate of the Iraqi plains is sub-tropical, continental. Summer is long, hot and dry. Winter is short with mean monthly temperatures above zero and some year's daily temperature falls two to three degree below zero. Intensive cyclonic activity in the atmosphere provoking rainfall, most precipitations occurs between October and May.

#### 4.2.2 Salah Al-Din Climate

Salah Al-din has three different climates and is dominated by BWh.

**Table 10: Salah Al-Din Climate Classifications**

Classification	Count	Köppen-Geiger	Examples
Hot desert climates	2121	BWh	<u>Qaryat al Haranah</u> , <u>Qaryat Albu Talhah</u> , <u>Qaryat Albu Talhah</u> , <u>Albu Talhah</u> , <u>Qaryat al Kazakazah</u>
Hot semi-arid climates	308	BSh	<u>Amirli</u> , <u>Garmak</u> , <u>Zindana i Pichuk</u> , <u>Takhta Mina</u> , <u>Chala Duana</u>

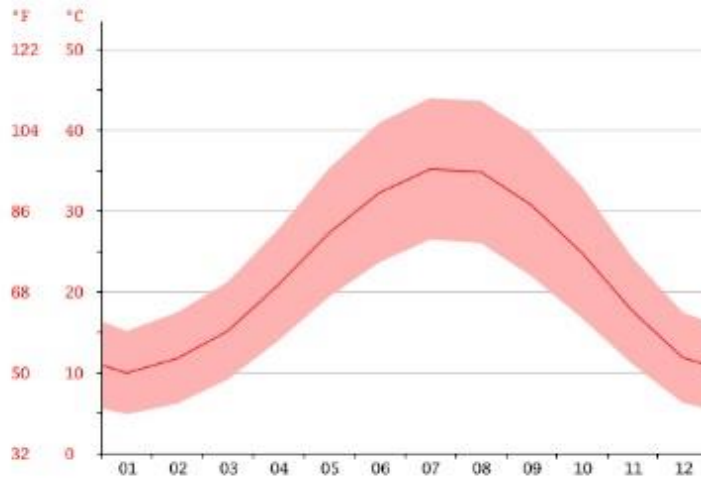
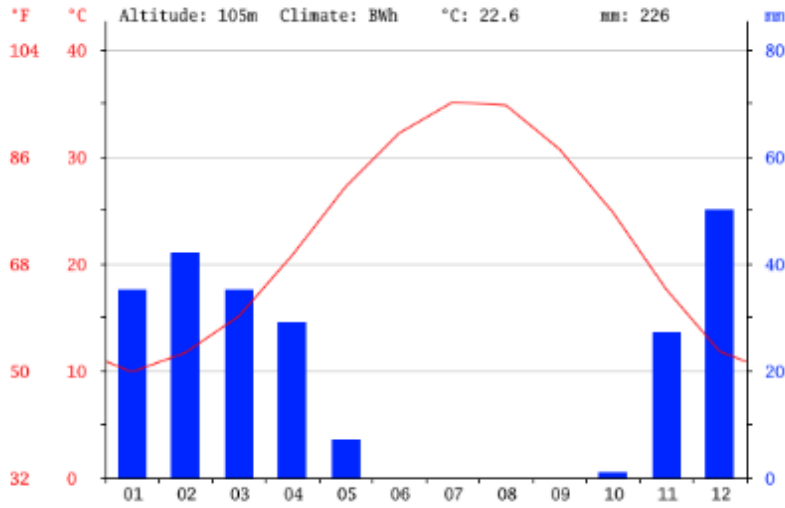
Classification	Count	Köppen-Geiger	Examples
Hot-summer Mediterranean climate	١	Csa	<u>Aziz Bag</u>





**Qaryat al Haranah**

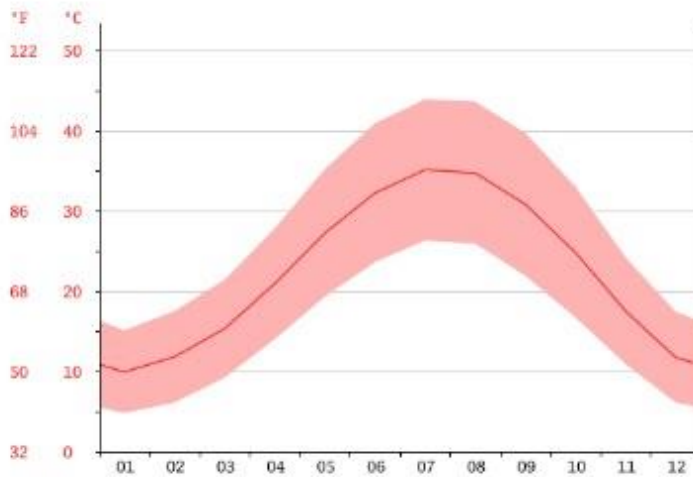
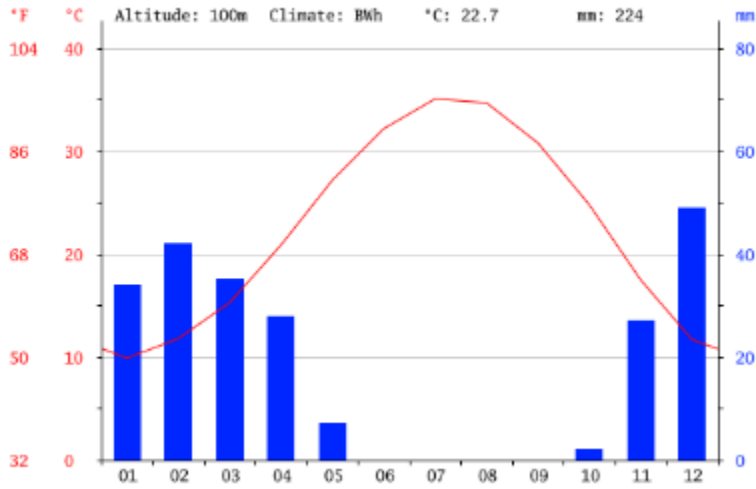
Qaryat al Haranah is considered to have a desert climate. There is virtually no rainfall during the year in Qaryat al Haranah. This location is classified as BWh by Köppen and Geiger. The average temperature in Qaryat al Haranah is 22.6 °C. In a year, the average rainfall is 226 mm.



المناخ

**Qaryat Albu Talhah**

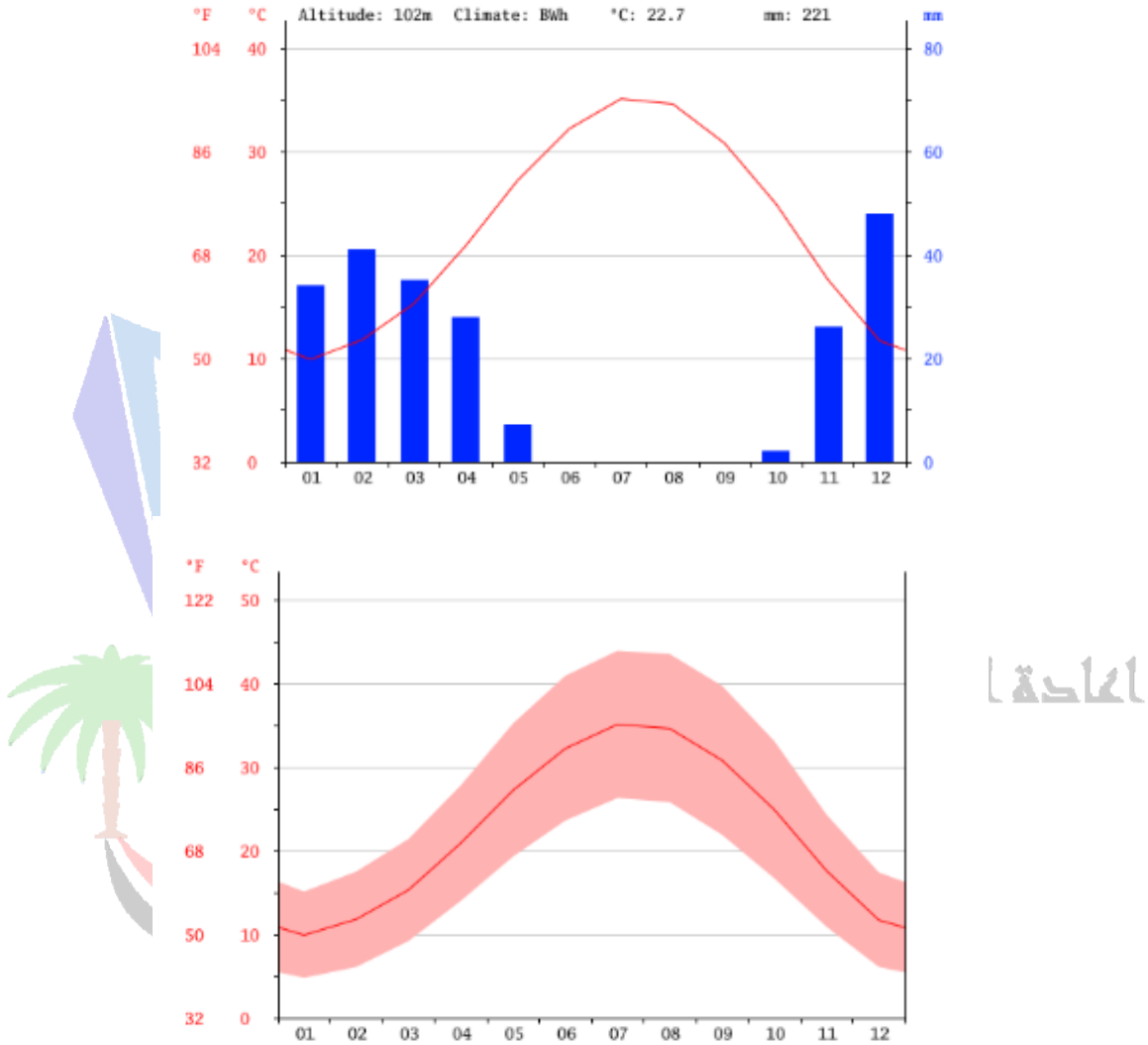
Qaryat Albu Talhah is considered to have a desert climate. There is virtually no rainfall during the year. This location is classified as BWh by Köppen and Geiger. The average temperature in Qaryat Albu Talhah is ٢٢,٧ °C. Precipitation here averages ٢٢٤ mm.



المناخ

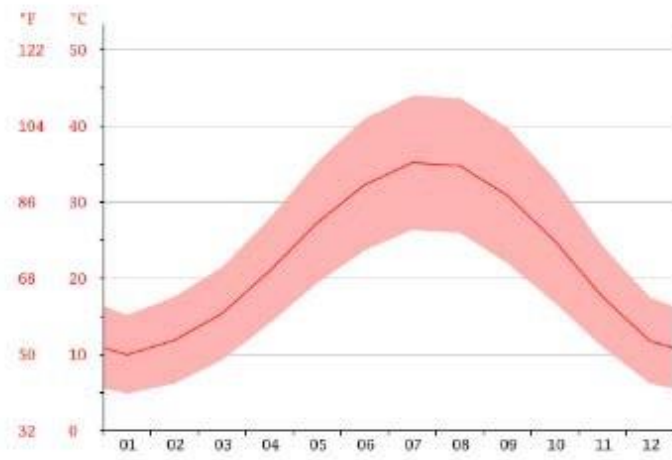
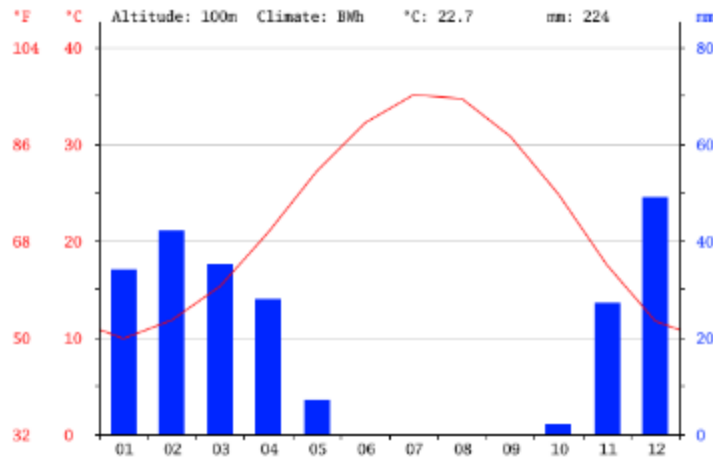
**Qaryat Albu Talhah**

Qaryat Albu Talhah is considered to have a desert climate. During the year, there is virtually no rainfall. According to Köppen and Geiger, this climate is classified as BWh. The average temperature in Qaryat Albu Talhah is 22.7 °C. The rainfall here averages 221 mm.



**ALBUTALHAH**

Albu Talhah has a desert climate. In Albu Talhah, there is virtually no rainfall during the year. This location is classified as BWh by Köppen and Geiger. The average temperature in Albu Talhah is ٢٢,٧ °C. The rainfall here averages ٢٢٤ mm.

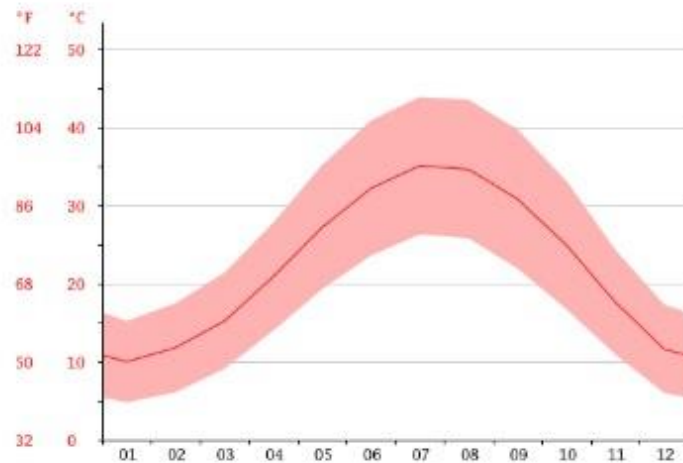
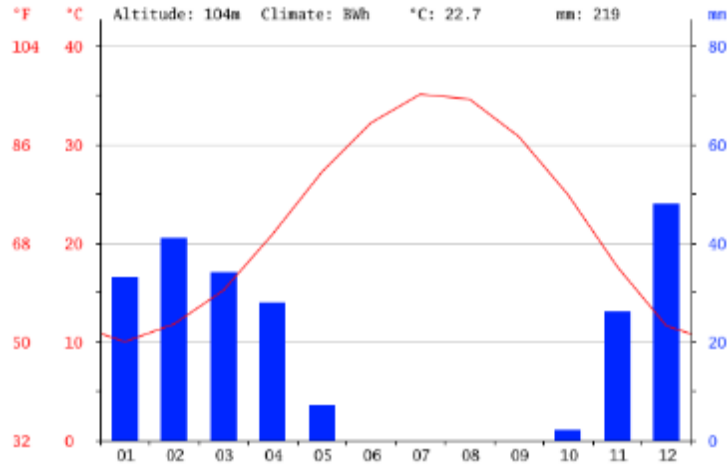


البيانات

أكبر  
max

**QARYAT AL KAZAKAZAH**

Qaryat al Kazakazah is considered to have a desert climate. There is virtually no rainfall all year long in Qaryat al Kazakazah. This climate is considered to be BWh according to the Köppen-Geiger climate classification. The average temperature in Qaryat al Kazakazah is 22.7 °C. About 219 mm of precipitation falls annually.



المناخ

### ٤,٢,٣ Diyala Climate

Diyala has three different climates and is dominated by BWh.

**Table ١١: Diyala climate Classifications**

Classification	Count	Köppen-Geiger	Examples
Hot desert climates	١٤٨٩	BWh	<u>Husaywat</u> , <u>Mahmud al Khalaf</u> , <u>Badwi al Ali</u> , <u>Abu Bakr</u> , <u>Quraish</u>
Hot semi-arid climates	٨٤١	BSh	<u>Chahar Shakh</u> , <u>Chwarshakh</u> , <u>Kani Shirin</u> , <u>Ali Khalah</u> ,
Hot-summer Mediterranean climate	٩٣	Csa	<u>Nawde</u> , <u>Nawday</u> , <u>Saraw</u> , <u>Chuardaran</u> , <u>Darband</u>

#### **HUSAYWAT**

Husaywat's climate is a desert one. In Husaywat, there is virtually no rainfall during the year. This location is classified as BWh by Köppen and Geiger. The average temperature in Husaywat is

٢٢,٨

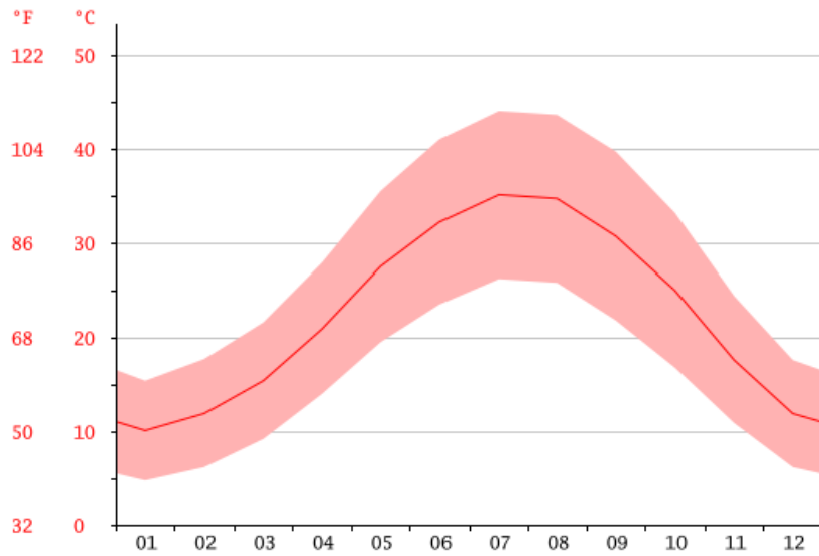
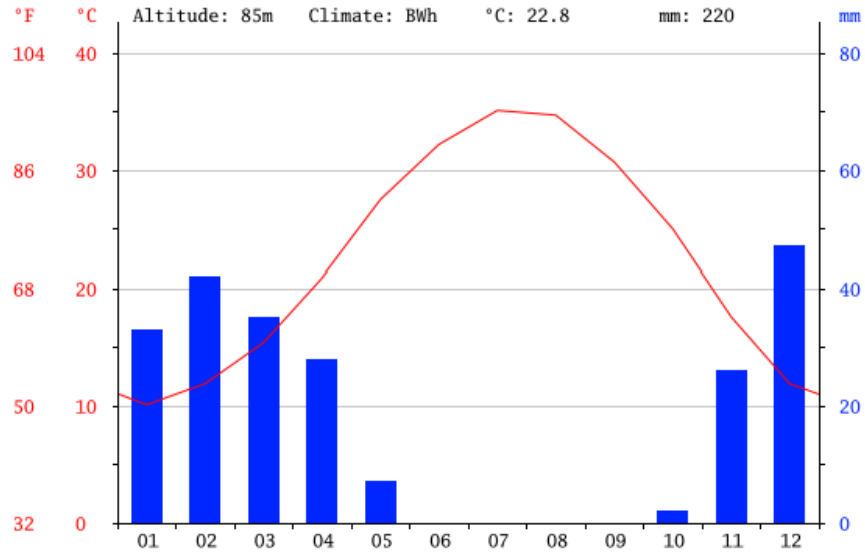
°C. In a year, the average rainfall is ٢٢٠ mm.



صندوق  
إعادة اعمار المناطق المتضررة

الله  
الخير

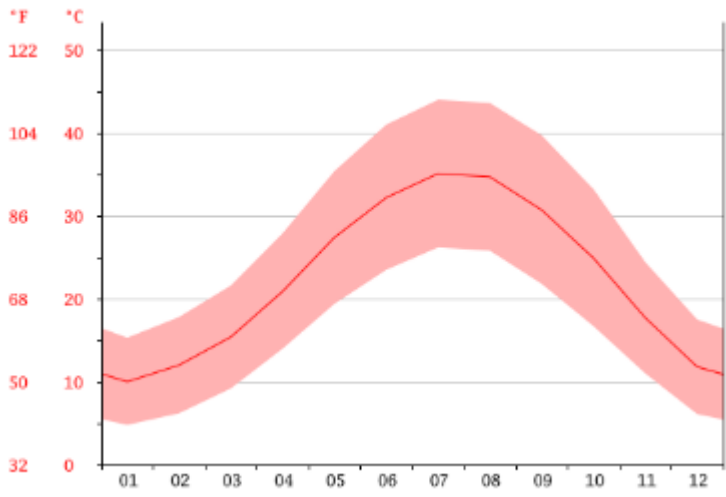
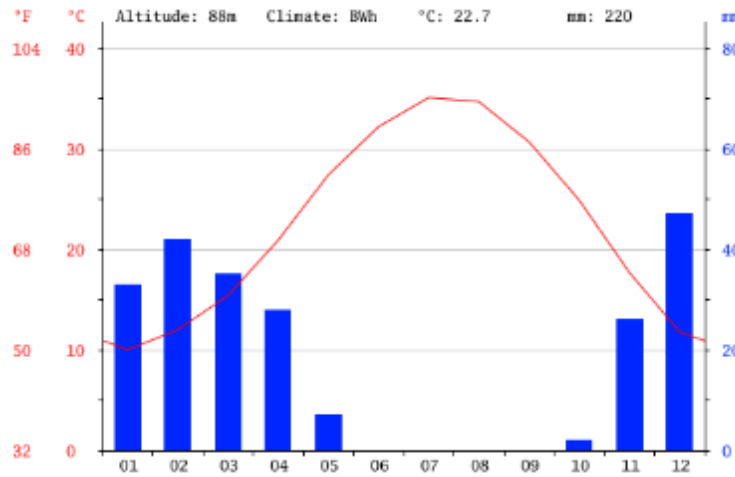




الكلد

**MAHMUD AL KHALAF**

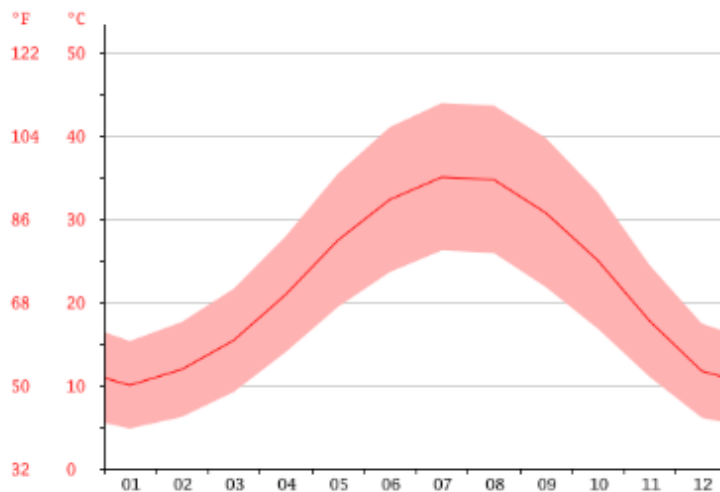
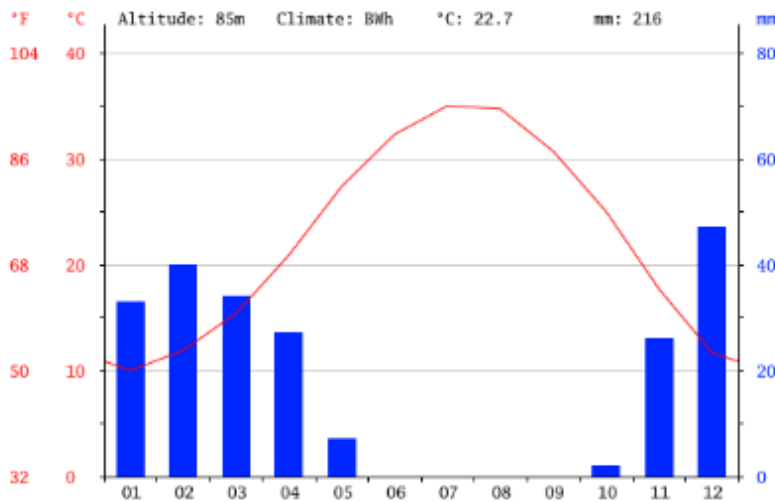
The climate here is "desert." There is virtually no rainfall all year long in Mahmud al Khalaf. The climate here is classified as BWh by the Köppen-Geiger system. The average temperature in Mahmud al Khalaf is 22.7 °C. The rainfall here averages 220 mm.



المحطة

**BADWI AL ALI**

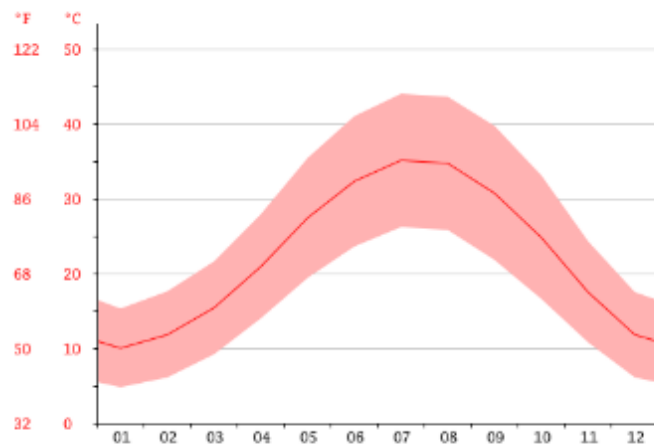
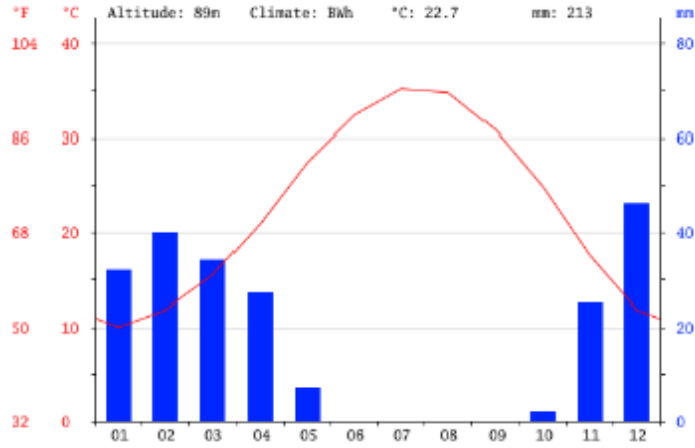
The climate in Badwi al Ali is called a desert climate. There is virtually no rainfall during the year in Badwi al Ali. This location is classified as BWh by Köppen and Geiger. In Badwi al Ali, the average annual temperature is ٢٢,٧ °C. In a year, the average rainfall is ٢١٦ mm.



المناخ

**ABUBAKR**

The climate in Abu Bakr is called a desert climate. During the year, there is virtually no rainfall in Abu Bakr. This climate is considered to be BWh according to the Köppen-Geiger climate classification. In Abu Bakr, the average annual temperature is 22.7 °C. In a year, the average rainfall is 213 mm.

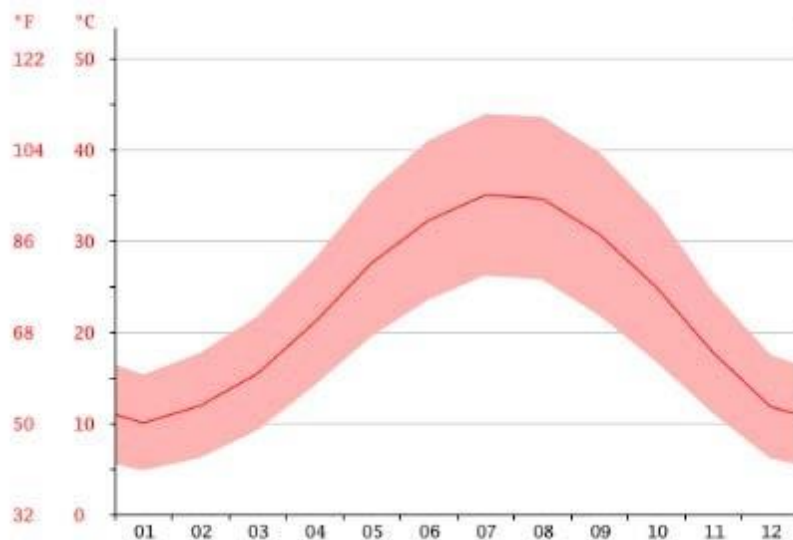
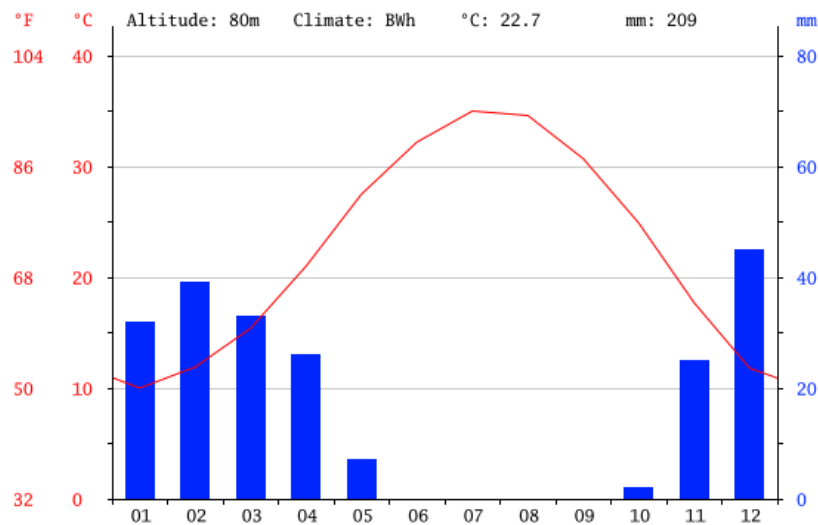


المناخ

أبواب

**OURAISH**

The climate in Quraish is called a desert climate. There is virtually no rainfall during the year. This location is classified as BWh by Köppen and Geiger. In Quraish, the average annual temperature is ٢٢,٧ °C. The rainfall here averages ٢٠٩ mm.



الكل

**٤,٢,٤ Al-Anbar Climate**

Al Anbar has two different climates and is dominated by BWh.

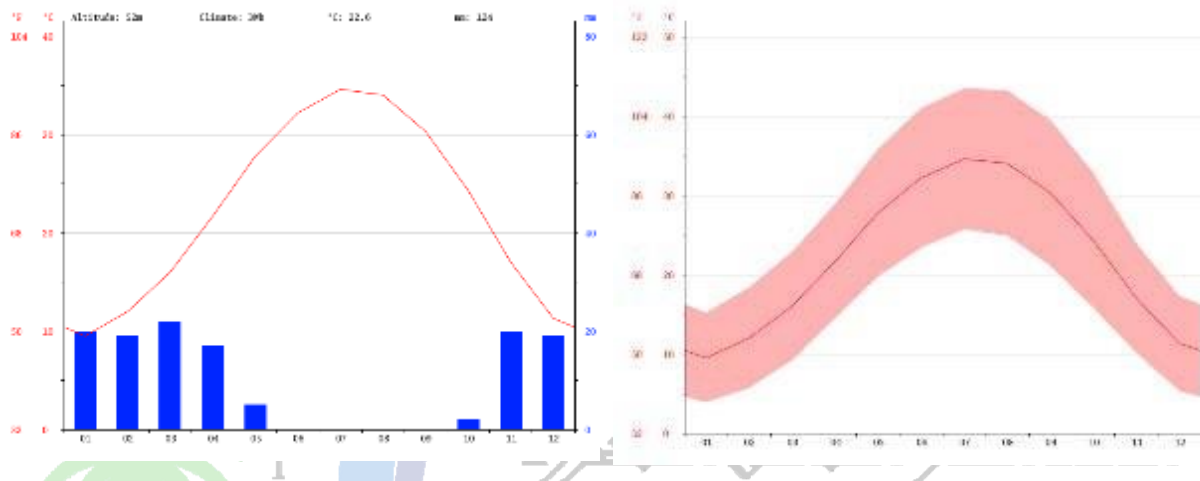
**Classifications**

<u>Classification</u>	<u>Count</u>	<u>Köppen-Geiger</u>	<u>Examples</u>
<u>Hot desert climates</u>	<u>٨٢١</u>	<u>BWh</u>	Al Khalidiyah, Qaryat Nahhalah, Arak Jasim, Abd Manfi, Abd Allah Ulaywi

<u>Classification</u>	<u>Count</u>	<u>Köppen-Geiger</u>	<u>Examples</u>
<u>Cold desert climates</u>	<u>0</u>	<u>BWk</u>	Qaryat Barim, Tanif, Al Walid, Kharjah, Mahfur al Jandali

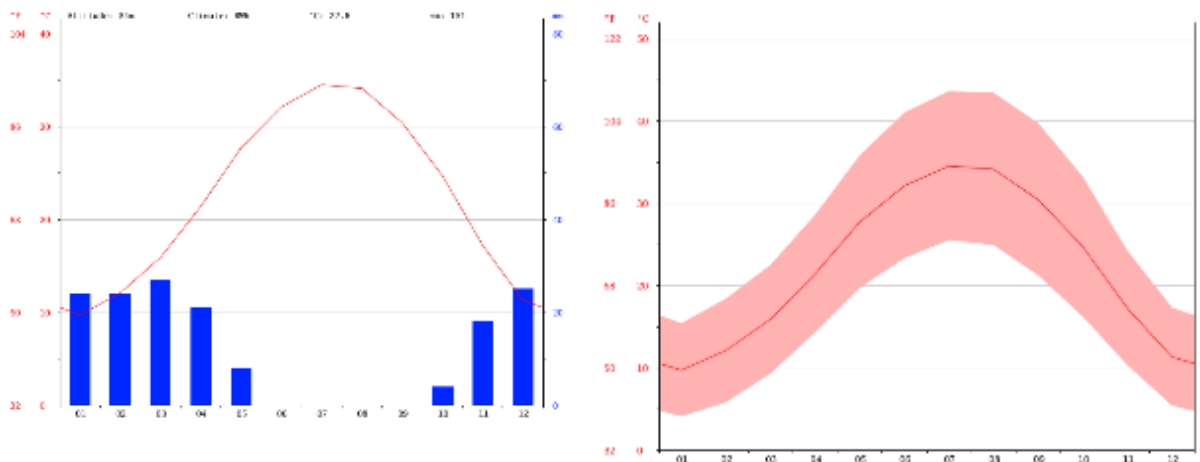
**AL KHALIDIYAH**

The climate in Al Khalidiyah is called a desert climate. During the year, there is virtually no rainfall. According to Köppen and Geiger, this climate is classified as BWk. The average annual temperature is ٢٢,٦ °C in Al Khalidiyah. In a year, the average rainfall is ١٢٤ mm.



**QARYAT NAHHALAH**

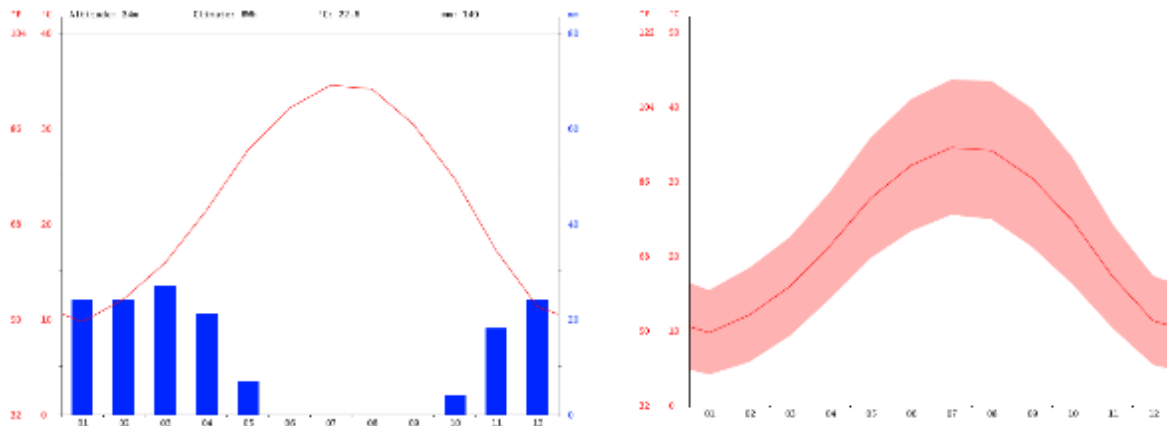
Qaryat Nahhalah is considered to have a desert climate. There is virtually no rainfall all year long in Qaryat Nahhalah. This climate is considered to be BWk according to the Köppen-Geiger climate classification. The average annual temperature in Qaryat Nahhalah is ٢٢,٦ °C. In a year, the average rainfall is ١٠١ mm.





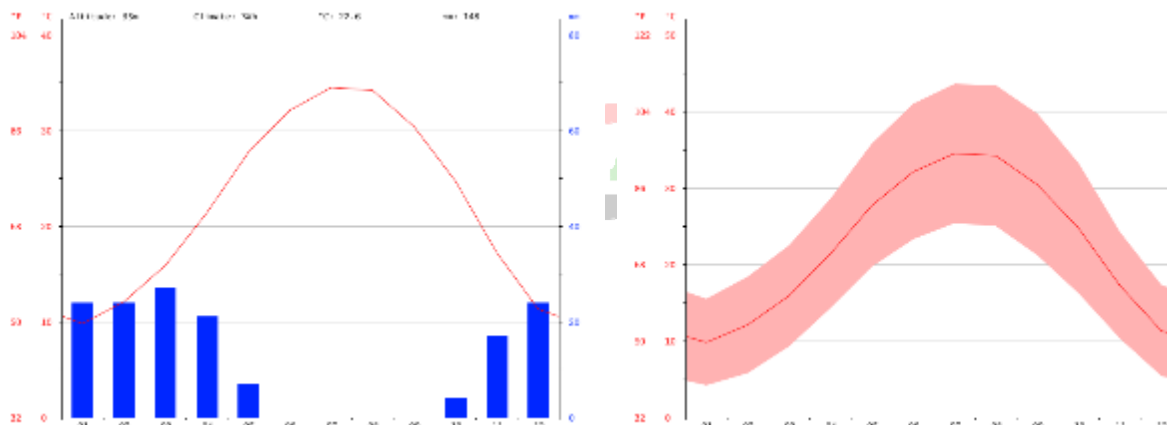
**ARAK JASIM**

Arak Jasim's climate is a desert one. During the year, there is virtually no rainfall in Arak Jasim. This climate is considered to be BWh according to the Köppen-Geiger climate classification. The average annual temperature in Arak Jasim is ٢٢,٦ °C. The rainfall here averages ١٤٩ mm.



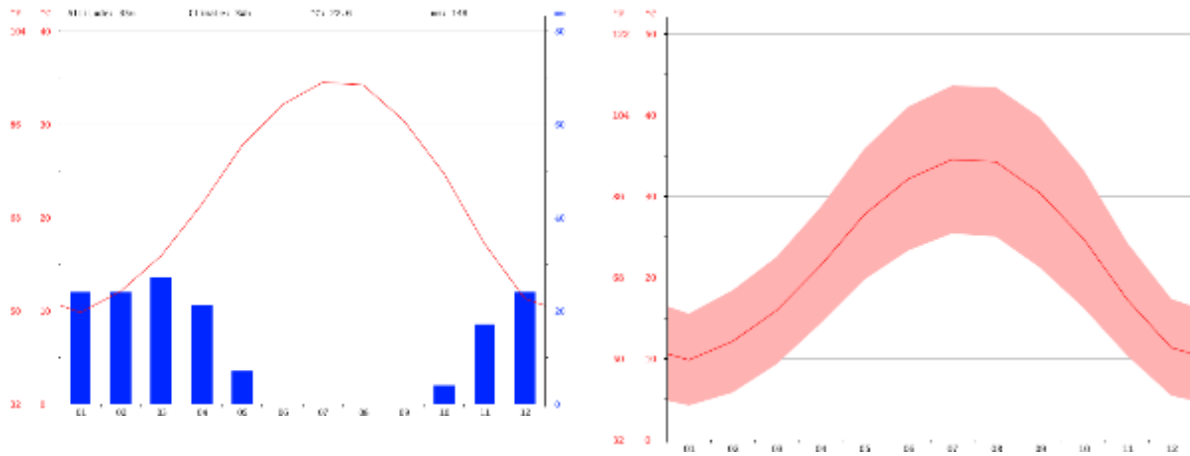
**ABD MANFI**

The climate in Abd Manfi is called a desert climate. There is virtually no rainfall during the year in Abd Manfi. This location is classified as BWh by Köppen and Geiger. The average annual temperature in Abd Manfi is ٢٢,٦ °C. Precipitation here averages ١٤٨ mm.



**ABD ALLAH ULAYWI**

The climate in Abd Allah Ulaywi is called a desert climate. There is virtually no rainfall during the year. This location is classified as BWh by Köppen and Geiger. The average annual temperature in Abd Allah Ulaywi is ٢٢,٦ °C. The rainfall here averages ١٤٨ mm.



٤,٢,٥ **Ninawa Governorate**

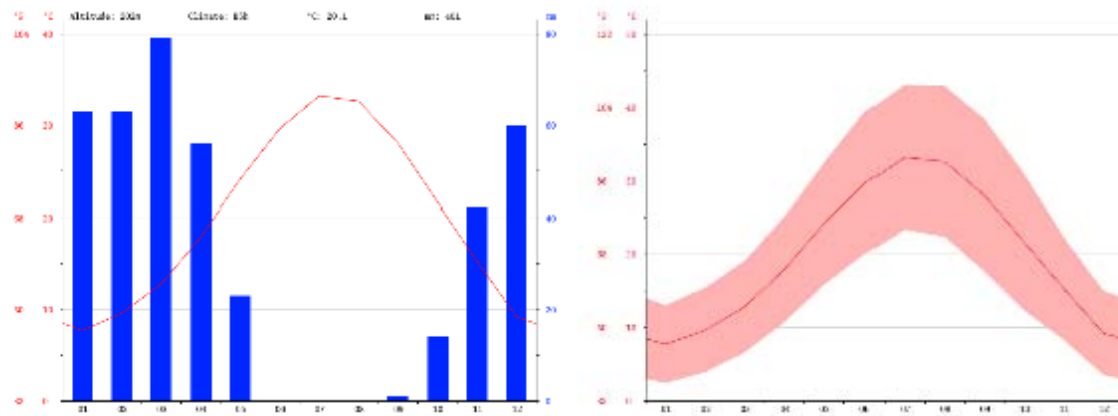
Ninawa has three different climates and the most prevalent ones are BSh, Csa.

**Classifications**

Classification	Count	Köppen-Geiger	Examples
Hot semi-arid climates	٨١٦	BSh	Qaryat Lazagah, Qaryat al Karamah, Mansuriyat as Salamiyah, Qaryat as Salamiyah, Namrud
Hot-summer Mediterranean climate	٧٤١	Csa	Mosul, Hanis, Barrasha, Maghara, Khirbat Kajuri
Hot desert climates	١٧	BWh	Qaryat al Ghazlaniyat, Tall Abu Arbid, Tall Rabak, Ayn at Tarfawi, As Sakhriyat

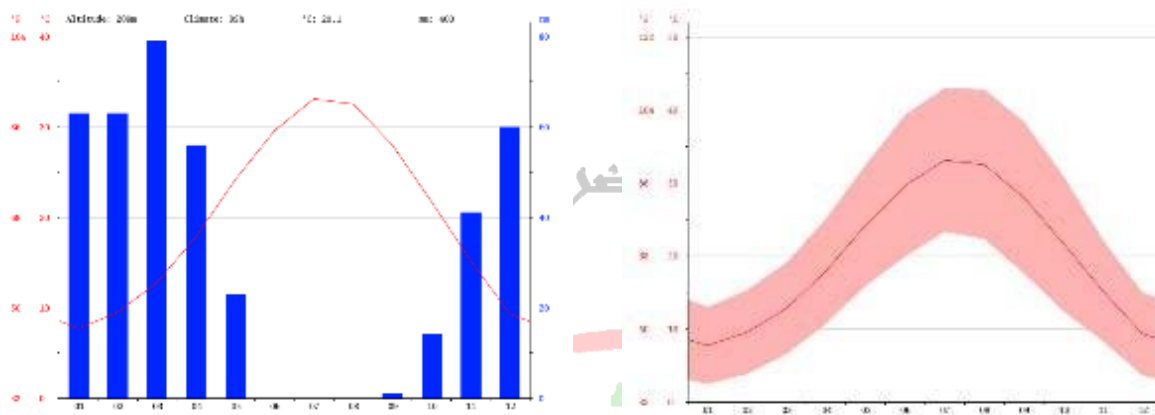
**QARYAT LAZAGAH**

The climate in Qaryat Lazagah is referred to as a local steppe climate. In Qaryat Lazagah, there is little rainfall throughout the year. According to Köppen and Geiger, this climate is classified as BSh. The average temperature in Qaryat Lazagah is ٢٠,١ °C. About ٤٠١ mm of precipitation falls annually.



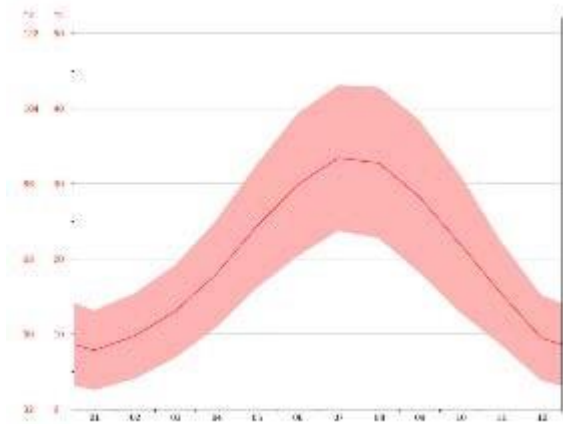
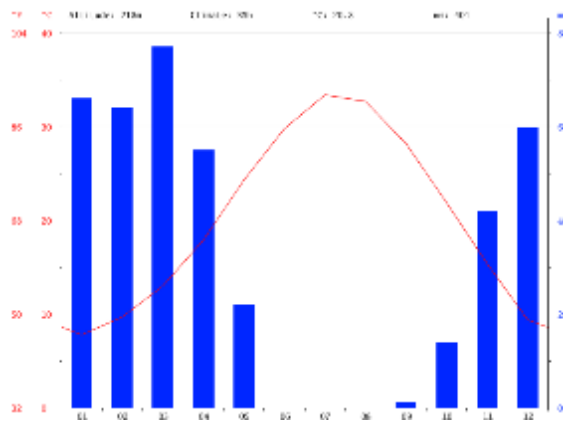
### QARYAT AL KARAMAH

Qaryat al Karamah's climate is a local steppe climate. During the year, there is little rainfall in Qaryat al Karamah. This climate is considered to be BSh according to the Köppen-Geiger climate classification. The average temperature in Qaryat al Karamah is ۲۰,۱ °C. Precipitation here averages ۴۱۱ mm.



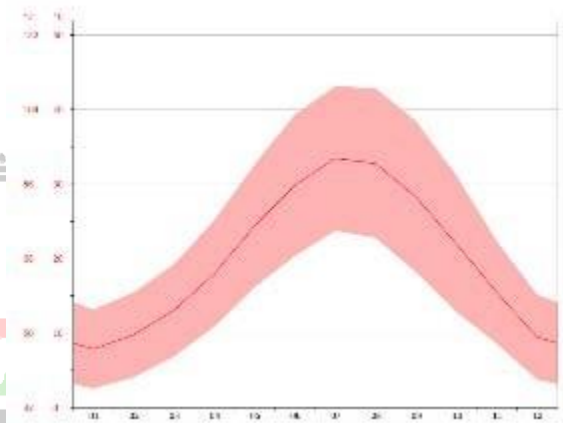
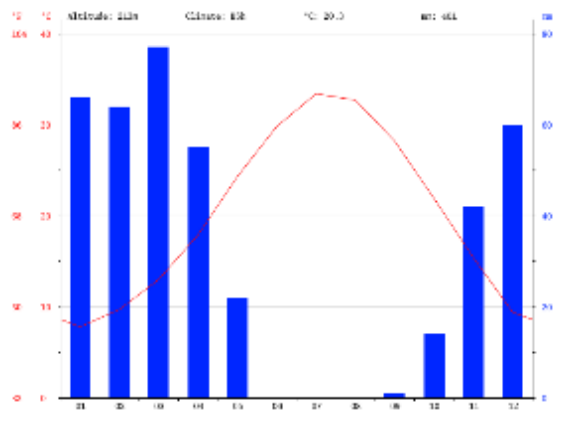
### MANSURIYAT AS SALAMIYAH

The climate in Mansuriyat as Salamiyah is referred to as a local steppe climate. During the year, there is little rainfall in Mansuriyat as Salamiyah. The climate here is classified as BSh by the Köppen-Geiger system. The average temperature in Mansuriyat as Salamiyah is ۲۰,۳ °C. In a year, the average rainfall is ۴۰۹ mm.



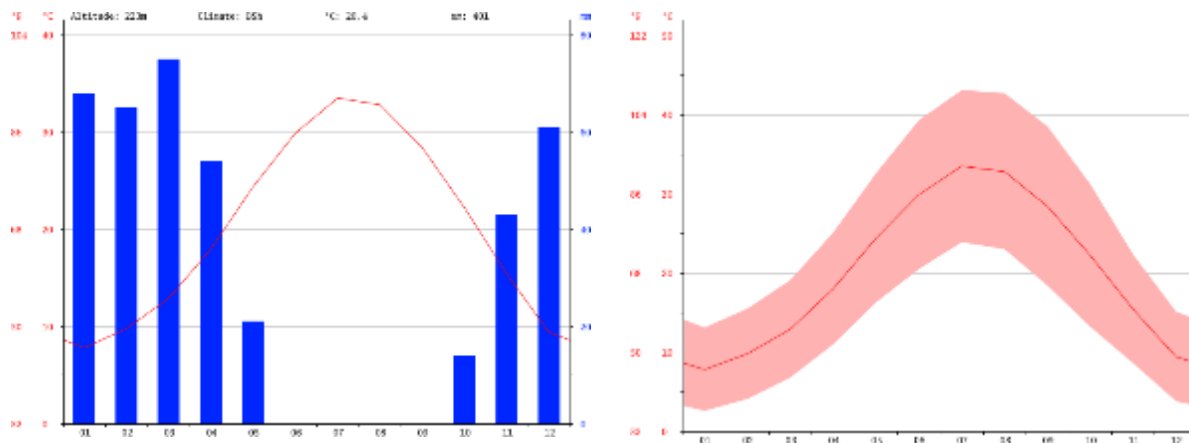
**QARYAT AS SALAMIYAH**

Qaryat as Salamiyah is influenced by the local steppe climate. There is not much rainfall in Qaryat as Salamiyah all year long. The climate here is classified as BSh by the Köppen-Geiger system. The average temperature in Qaryat as Salamiyah is 20.3 °C. In a year, the average rainfall is 41 mm.



**NAMRUD**

Namrud's climate is a local steppe climate. During the year there is little rainfall. The climate here is classified as BSh by the Köppen-Geiger system. The average temperature in Namrud is 20.5 °C. The average annual rainfall is 41 mm.



## ٤,٧ Geographical features

Iraq can be divided into the following five physiographic zones (FAO/UNESCO/WMO, ١٩٦٢).

- a) Jazeera Region
- b) Mesopotamian Plain Region
- c) Zagros Mountain Region
- d) Foothills Region
- e) Desert Region

Concerning EODP, the expected interventions and activities will take place between **Jazeera Region** and the lower fold of the **Mesopotamian Plain Region** which is mainly composed of plateau features. The following is a brief description of the two geographic regions where EODP activities will fall in between.

**Jazeera Region:** includes the remnant of an old inland sea in which mainly gypsum was deposited. It is a steppe and desert plateau. The area is relatively flat broken by some hills and low mountain ridges which are an extension of the mountain ridges to the east. The mountain ridges go in an east west direction; in between there are level to undulating and at places rolling terrain. Gypsum is the main rock but in the east and north limestone and sandstones occur. Large areas have lime and gypsum crusts exposed at the surface. The natural vegetation is of desert type in the south west and steppe in the north east. This region has been traditionally a grazing area but recently some parts in the north have been broken and ploughed to grow wheat and barley.

**Mesopotamian Plain Region:** is a geological depression filled with river sediments which covers the central and southern parts of Iraq. It is a plain of the Tigris and Euphrates rivers.

## ٤,٤ Water Resources

### ٤,٤,١ Surface Water Resources

Iraq is traversed by two major rivers, the Tigris and the Euphrates, both of which rise in the eastern mountains of Turkey and enter Iraq along its northwestern borders. Before their confluence just north of Basra, the Euphrates flows for about ١,٠٠٠ km and the Tigris for some ١,٣٠٠ km within Iraqi territory. Downstream from this point, the combined rivers form the tidal Shatt al-Arab waterway, which flows ١٩٠ km into the Gulf. The southern Shatt al-Arab forms the border between Iraq and Iran.

The Euphrates basin (579,314 km<sup>2</sup>) embraces parts of Iraq (roughly 49% of the basin), Turkey (21%), Syria (17%) and Saudi Arabia (13%).<sup>4</sup> The Euphrates River does not receive water from permanent tributaries within Iraqi territory and is fed only by seasonal runoff from wadis.

The Tigris basin (371,062 km<sup>2</sup>) covers parts of the territories of Iran (47.2% of the basin), Iraq (38%), Turkey (14%) and Syria (0.3%). Within Iraq, the Tigris River receives water from four main tributaries, the Khabour, Great Zab, Little Zab and Diyala, which rise in the mountains of eastern Turkey and northwestern Iran and flow in a southwesterly direction until they meet the Tigris. A seasonal river, Al Authaim, rising in the highlands of northern Iraq, also flows into the Tigris, and is the only significant tributary entirely within Iraq.

The great alluvial plains of the Tigris and Euphrates Rivers comprise more than a quarter of Iraq's surface area. Topographically, the region is extremely flat, with a fall of only 4 cm/km over the lower 300 km of the Euphrates and 1 cm/km along the Tigris. Under natural conditions, the region was rich in wetlands and subject to annual flooding of up to 7m. In recent years, this seasonal flooding has occurred on a much smaller scale because of dams constructed upstream, particularly on the Euphrates in Turkey and Syria, and due to large scale drainage works in Iraq itself.

The major river flow annual cycle can be divided into three periods:

- a- spring flood period, February to June
- b- summer low flow period, July to October
- c- autumn - winter rainfall period, November to February

During spring flood period, Tigris River conveys about 70% of the annual flow, during low flood period 10% and 10% during autumn period. The volume and duration of floods on the Tigris depends greatly on flood flow of the tributaries. The spring flood of Diyala tributary occur before that on the Lesser Zab, while this event precedes the spring flood on Greater Zab, The Euphrates carries 70% of annual flow during spring period, 10% in the summer period, and 20% during autumn period.

The Euphrates peak flows usually occur in the beginning of May, whereas that of the Tigris occurs in March or April. The surface water river flow in Iraq territory is made up of the runoff flowing partly from outside of the Iraqi territory and partly within the Iraqi border. The Tigris and Euphrates basins encompasses mainly parts of Turkey, Syria, Iraq and, to a lesser degree, Iran and Saudi Arabia. The recorded average yearly inflow (Crossing Iraqi Borders) is 142.2 km<sup>3</sup>. This includes 30.9 km<sup>3</sup> from the Tigris basin, 30.0 km<sup>3</sup> from Euphrates basin, 18.3 km<sup>3</sup> from Shatt Al Arab, in addition to 26.0 km<sup>3</sup> which is generated within Iraqi territory. Total water resources of Iraq are therefore 110.7 km<sup>3</sup>.

Water quality in the Euphrates is affected by return flows from irrigation projects in Turkey and Syria, and is expected worsen as irrigated land is added. Within Iraq, much of the return flow is now drained into the Persian Gulf through the Main Outfall Drain, but considerable saline return flow enters the river system. On the Tigris River, the quality is further degraded with flood flows diverted into off-stream storage in the highly saline Tharthar Lake, and later returned to the river system carrying salts washed from the lake.

#### 4.4.2 Groundwater

Groundwater with acceptably low salinity levels (below 1,000 mg/l) has been found in two regions of Iraq. The aquifer in the foothills of the northeastern mountains has an estimated sustainable discharge of between 10 and 40 m<sup>3</sup>/s, at depths of 0 to 0.5 m, while those on the right bank of the



Euphrates River are found at depths up to 300 m, and have an estimated discharge of 13 m<sup>3</sup>/s. Elsewhere, groundwater salinity always exceeds the 100 mg/l threshold.

There is concern that groundwater may be vulnerable to spillages of oil and oil-contaminated water, and possibly to contamination by hazardous substances released into the environment as a consequence of military conflict. The National Groundwater Centre, which is a part of the Commission for Integrated Water Resources Management, is responsible for quantitative and qualitative groundwater resources assessment and for developing the hydrogeological database.

According to the hydrological map as shown in the figure below, there are no specific aquifer in the area, and according to the water table contour lines in the map the nearest water table is more than 100 m away from the surface. Therefore, the interaction between the project activities and the water aquifer is not expected.

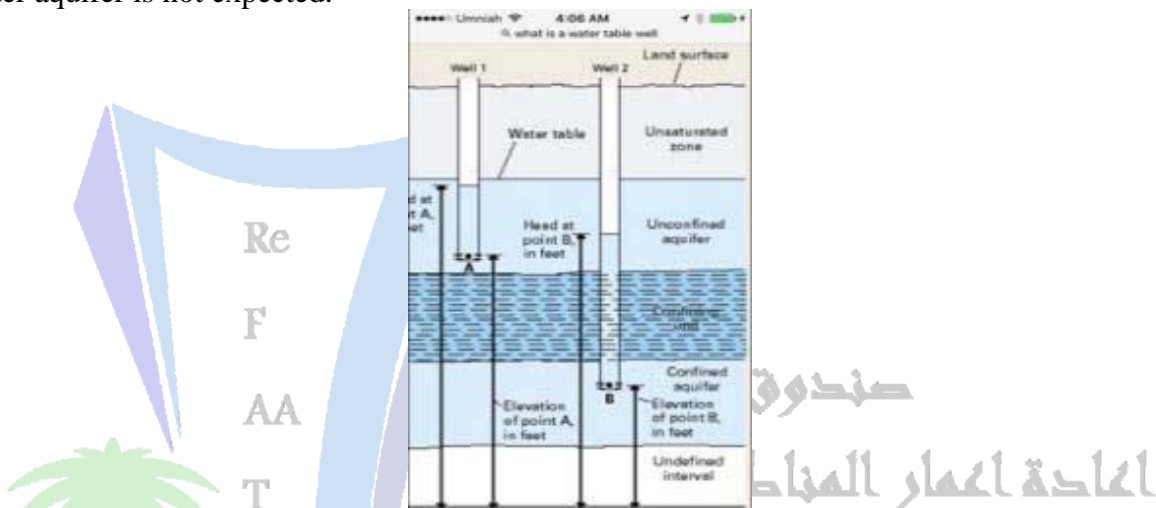


Figure 9: Hydrogeological Map in the Regions where EOPD will operate

### 4.2 Biodiversity

#### 4.2.1 Ecosystem in Iraq

The combination of rain shortage and extreme heat makes much of Iraq a desert. Because of very high rates of evaporation, soil and plants rapidly lose the little moisture obtained from the rain, and vegetation could not survive without extensive irrigation. Some areas, however, although arid, do have natural vegetation in contrast to the desert. For example, in the Zagros Mountains in northeastern Iraq there is permanent vegetation, such as oak trees. Date palms are found in the south.

The majority of sites important for biodiversity conservation have no protected area status, although many have been recommended for designation. For example, Bird-Life International has recognized a total of 42 sites as 'Important Bird Areas' (IBAs). These cover a combined area of c. 20,000 km<sup>2</sup>, or about 1% of the country's surface area.

The UNEP-WCMC Species Database lists 33 terrestrial mammal species (plus a further three species known to be extinct). 46 of these, including three bat species, Eurasian otter (*Lutra lutra*) and smooth-coated otter are listed as 'vulnerable' in the 2002 IUCN Red List.

A large number of reptiles occur in Iraq, but information on their distribution and conservation status is limited. The 2002 IUCN Red List ranks the Euphrates soft-shelled turtle (*Rafetus euphraticus*) as ‘endangered’, and common tortoise (*Testudo graeca*) as ‘vulnerable’.

Over 400 species of birds have been recorded in the northern Gulf Region (comprising Kuwait, Iraq, eastern Saudi Arabia and western Iran). Among the species occurring in Iraq, white-headed duck (*Oxyura leucocephala*) which is listed as endangered in the 2002 IUCN Red List, while Socotra cormorant (*Phalacrocorax nigrogularis*), marbled teal (*Marmaronetta angustirostris*), greater spotted eagle (*Aquila clanga*), imperial eagle (*Aquila heliaca*), lesser kestrel (*Falco naumanni*), corncrake (*Crex crex*), and sociable lapwing (*Vanellus gregarius*) are listed as vulnerable.

Nine more species are listed as ‘conservation dependent’ or ‘near threatened’. The region is especially important as part of the intercontinental flyways used by huge numbers of birds moving between Africa and Eurasia. It has been estimated that some two to three billion migrant birds move south across Arabia each autumn.

#### 4.5.2 Mesopotamian Marshlands

The Mesopotamian marshlands are unique ecological features at the confluence of the Tigris and Euphrates. They fall into three distinct areas: Hawizeh Marsh in the north, fed by the Tigris and Karkheh rivers, the Central (Qurnah) Marsh, which lies between the Tigris and the Euphrates, and the Hammar Marsh to the south, traditionally fed by the Euphrates. These three marshes were once contiguous and covered 20,000 km<sup>2</sup>. At their full extent, they were able to absorb inflows of over 16 BCM annually. The marshes were formed by flood flows from the Tigris and Euphrates, and were also fed by the Karkheh river from Iran; water spilled out from these rivers forming interconnected lakes, mud flats and wetlands. Further downstream, the Euphrates, Tigris and Karun rivers merge to form the Shatt al Arab river which drains into the Persian Gulf. As tides averaging 3m can run up the Shatt al Arab into the Euphrates and Tigris, and then into the marsh and wetland systems, the water quality of the marshes varies in brackishness.

The marshes are important economically and ecologically to all peoples of this area and are of global environmental significance. For over 6000 years the *madan*, the Marsh Arabs, made these wetlands their home, building an economy and lifestyle centered around the ecology of the area. The wetlands ecosystem is rich in bio-diversity, supporting giant reeds, wetland rice cultivation and many species of plants, fish and animals.

Most of the original riverine forest which once lined the banks of the Euphrates and Tigris rivers has been replaced by orchards and other cultivated land, although some significant stands of forest still exist, especially on small islands. The surviving patches of forest provide important breeding habitat for a wide variety of birds, notably regional specialties such as the grey hypocolius (*Hypocolius ampelinus*), Iraq babbler (*Turdoides altirostris*) and Dead Sea sparrow (*Passer moabiticus*), and are used as staging areas by large numbers of migratory passerines. Other important natural wetlands in central Iraq include two large brackish to saline lakes, Shari Lake to the east of the Tigris north of Samarra, and Haur Al Shubaicha on the plains to the east of the Tigris southeast of Baghdad.

#### 4.5.3 Biodiversity in EODP Intervention Areas

The ecosystem conditions in the areas where EODP and EODP-Af activities will take place are considered near the “Plateau Area” and is far from the marshlands (which is located in the east-

southern part of Iraq) and far from the desert areas (located in the far west of the country). In the EODP and EODP-AF intervention areas (plateau), the fauna and flora species are not classified as rare or endangered. These species are common and abandoned in many locations. No significant terrestrial habitats or ecosystems are present in the EODP or EODP-AF intervention areas. The only important habitat is mainly the aquatic environment of the rivers which cross through the intervention areas

## ٤,٦ Economic Activities and Land-use

### ٤,٦,١ Oil industry

Iraq's economy is dominated by the oil sector, which has typically provided ٩٠% of foreign exchange earnings. It was the first country in the Middle East region to strike oil and, at peak production, prior to the ١٩٩٠ invasion of Kuwait, had an output of ٣ million barrels of oil per day. Iraq has the second largest proven oil reserves in the world (some ١١٢ billion barrels), next only to Saudi Arabia, with an estimated ٢٢٠ billion barrels of potential reserves. Production is concentrated in two main areas, namely northern Iraq in and around Kirkuk, and, in the south, around Basra.

### ٤,٦,٢ Natural gas

Iraq has ٣,١١٤ trillion m<sup>٣</sup> of proven natural gas reserves, and approximately ٤,٢٠ trillion m<sup>٣</sup> in probable reserves. About ٧٠% of Iraq's natural gas reserves are 'associated' (meaning that the gas occurs with oil reserves). In ٢٠٠١, Iraq produced ٢,٧٠ billion m<sup>٣</sup> of natural gas, down drastically from peak output levels of ١٩,٨٢ billion m<sup>٣</sup> in ١٩٧٩. Iraq has had a long-term strategy of increasing its domestic consumption of natural gas to free as much oil as possible for export.

### ٤,٦,٣ Agriculture

The agricultural sector contributes to ٣٥% of Iraq's non-oil GDP and up to about ٣٠% of employment for the rural poor. The development of hydraulic infrastructure, consisting of large dams, reservoirs and distribution networks for water supply and irrigation was central to economic planning. Iraq developed more than ٣ million hectares of irrigated-agricultural lands. Traditionally the main crops were wheat, barley, maize, beseem and vegetables. Crop yields for most crops are usually low when compared with other countries and rural poverty is high. Unsustainable water management practices, including construction of large dams and irrigation schemes, have resulted in deterioration of the quality of soil and land productivity.

The desert plateau provides the country's main rangeland grazing, as well as limited dryland cultivation. The uplands and mountains yield acorns, almonds, walnuts and pine nuts, with additional grazing and dryland cultivation. Irrigated agriculture occurs mainly in the alluvial plain. It is estimated that about ١١,٠ million ha, or approximately one quarter of the country's total area, are cultivable. However, due to land degradation, the practice of leaving some land uncultivated, and the recent unstable political situation of recent years, it is estimated that only ٣ to ٥ million ha are currently cultivated annually. The principal crops include dates, wheat, barley, maize, rice and cotton, as well as a wide variety of fruit and vegetables.

### ٤,٧,٣,١ Irrigation

Water use in agriculture is currently estimated at about ٤٤ BCM per year constituting ٩٠ percent of total abstractions. With the exception of about ١ BCM groundwater, the irrigation water is abstracted by diversion from rivers and distributed through an extensive system of barrages,

irrigation canals, and on-farm channels and approximately half of the diverted water is lost in conveyance. In addition, on-farm water use efficiency is also low.

It was estimated in 1990 that over 20 million ha of Iraqi territory are potentially suitable for irrigation, with 63% of this land occurring in the Tigris basin, 30% in the Euphrates basin, and 7% along the Shatt al-Arab. However, irrigation development depends to a large extent on the volume of water released by the upstream countries. The risk of elevated soil salinity and waterlogging as a consequence of poor irrigation practices has long been a priority concern in the country, and was already recorded as a cause of crop yield reductions some 3,800 years ago. Recent estimates showed that 4% of irrigated areas were severely saline, 20% moderately saline and 76% slightly saline (i.e. a total of 80% of irrigated land suffered from some degree of elevated salinity). Irrigation of date palms with highly saline water has been practiced since 1977, while the use of brackish groundwater for tomato irrigation has also been reported in the south of the country.

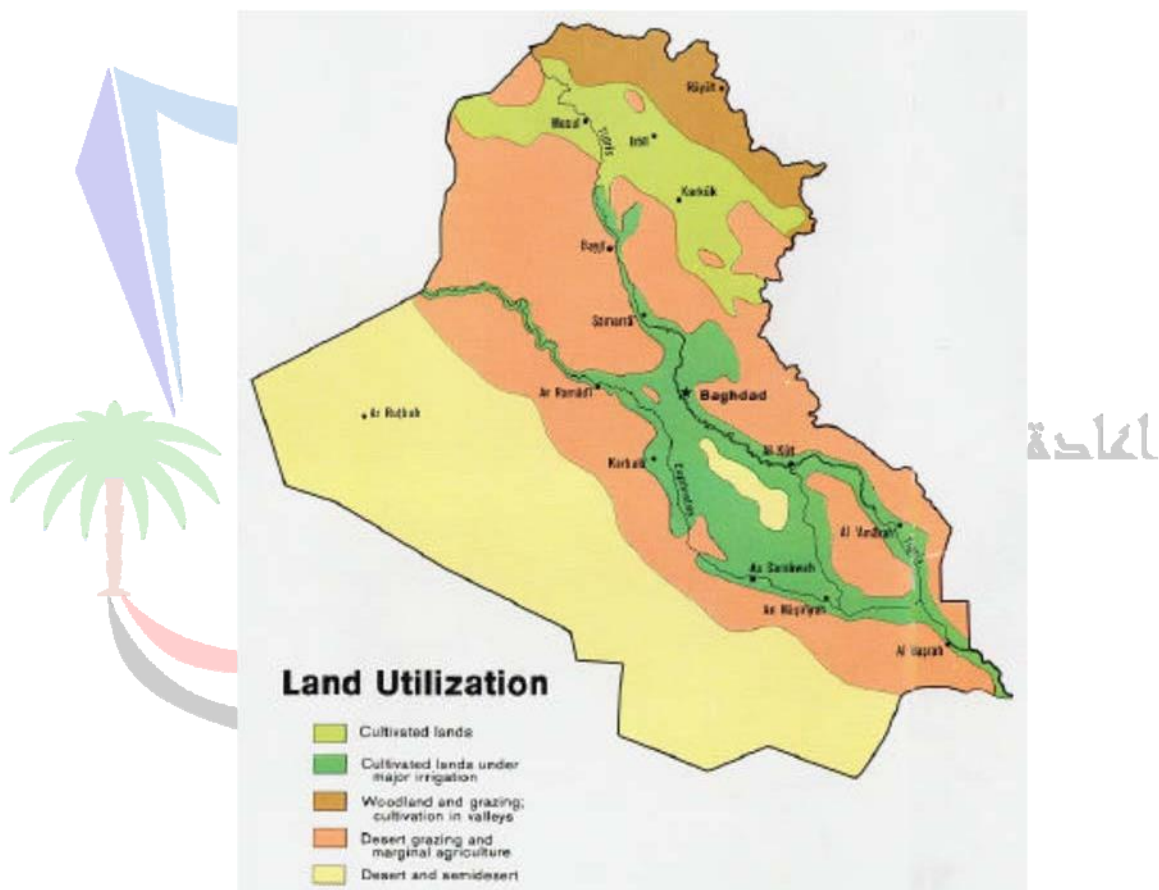


Figure 3: Iraq Land Use Map

## ٥. ASSESSMENT OF ENVIRONMENTAL AND SOCIAL IMPACTS AND IMPACT MITIGATION FRAMEWORK

In this section, guidance for identification of potential environmental and social impacts of the project components will be presented in addition to proposing general mitigation measures. At later stages and during the preparation of site specific ESMPs/ESIAs, environmental and social impacts should be carefully examined and detailed. Appropriate mitigation measures should also be discussed in relation to each subproject, baseline conditions and capacity of the implementing agency. However, it is important at the beginning to note that some subprojects will have to be excluded from financing under EODP and EODP-AF due to their highly anticipated significant negative environmental and/or social impacts.

### ٥.١ Ineligible Subprojects

Some of the activities or subprojects which have significant environmental and/or social impacts have been excluded from implementation under EODP and/or EODP-AF. In all ESMPs or ESIAs which will be prepared prior to construction, the following exclusion list of criteria should be referred to in order to ensure that the proposed subproject is eligible for support under EODP and/or EODP-AF.

**Table ١٢: Criteria for Ineligible Subprojects**

<ul style="list-style-type: none"> <li>• <b>General Characteristics</b></li> </ul>
٤. Concerning significant conversion or degradation of critical natural habitats.
<ul style="list-style-type: none"> <li>• Damages cultural property, including but not limited to, any activities that affect the following sites:           <ul style="list-style-type: none"> <li>• Archaeological and historical sites; and</li> <li>• Religious monuments, structures and cemeteries.</li> </ul> </li> </ul>
٦. Requiring pesticides that fall in WHO classes IA, IB, or II.
<ul style="list-style-type: none"> <li>• <b>Sanitation</b></li> <li>• New wastewater treatment plants to serve ١٠,٠٠٠ or more households.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Solid Waste</b></li> <li>• New disposal site or significant expansion of an existing disposal site.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Irrigation</b></li> <li>• New irrigation and drainage schemes.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Dams</b></li> <li>• Construction of dams more than ٥ meters high. Rehabilitation of dams more than ١٥ meters high.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Power</b></li> <li>• New power generating capacity of more than ١٠ MW.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Income Generating Activities</b></li> <li>• Activities involving the use of fuelwood, including trees and bush.</li> <li>• Activities involving the use of hazardous substances.</li> </ul>

### Note on Unexploded Ordnance (UXO):

An important precondition to infrastructure repair and reconstruction will be the removal of debris and rubble, as well as structures which have been damaged beyond economic repair in order to clear space for subsequent reconstruction works. Due to the risks of explosive war remnants (EWR) concealed in and under the rubble (both unexploded ordnance - UXO, and deliberately



planted explosives) an extensive explosive ordnance disposal (EOD) would have to be an integral part of rubble removal. The GoI with assistance from the European Union, and the rest of the international community including specialized agencies such as the United Nations Mine Action Service (UNMAS) will ensure that improvised explosive devices (IEDs) and UXOs are properly detected and removed prior to works activities begin especially where rubble is accumulated. Any rubble removal, repairs or reconstruction financed by the Bank will only apply to those areas that have been declared safe of EWRs. Confirmation that sub-Project locations have been cleared of EWR, IEDs and UXOs will be sought from the relevant authorities (the Ministries of Interior and Defense). No sub-project activities will be undertaken without this assurance. In a similar manner as the completion of the required safeguards documents, the declaration of absence of ERW will be a criterion to allow any Bank-financed works to proceed.

## ٥,٢ Preliminary Assessment of Environmental Impacts of EODP and EODP-AF

In general, following is the list of broad positive and negative impacts that are very likely to arise from the sub-projects funded under the EOPD and EODP-AF

### ٥,٢,١ Overall positive impacts of the project

The proposed project and its subcomponents are expected to have major positive environmental and social benefits which will contribute to the improvement of the living conditions of the Iraqi people in addition to improvement in the overall environmental status in the liberated lands. The following is a list of key economic, environmental and social benefits which will result from EODP and EODP-AF activities:

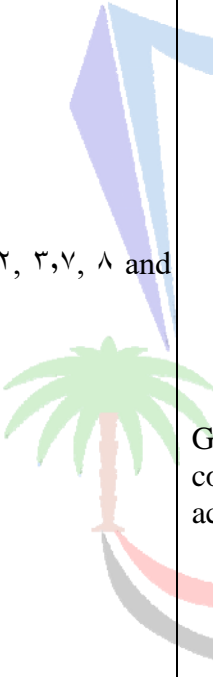
- Economic and social development of the liberated lands;
- Improved environmental conditions due to management of solid and liquid wastes;
- Reduced air pollution and traffic congestions
- Improved accessibility of people, goods and services;
- Improved public health due to provision of clean drinking water, reliable sanitation systems and municipal waste management;
- Improved safety conditions due to provision of reliable electricity service;
- Improved productivity of agriculture land and livestock
- Improved management of water resources
- Restoration of some PCR sites under the municipal services sector
- Job creation and local economic development

### ٥,٢,٢ Overall negative impacts of the project

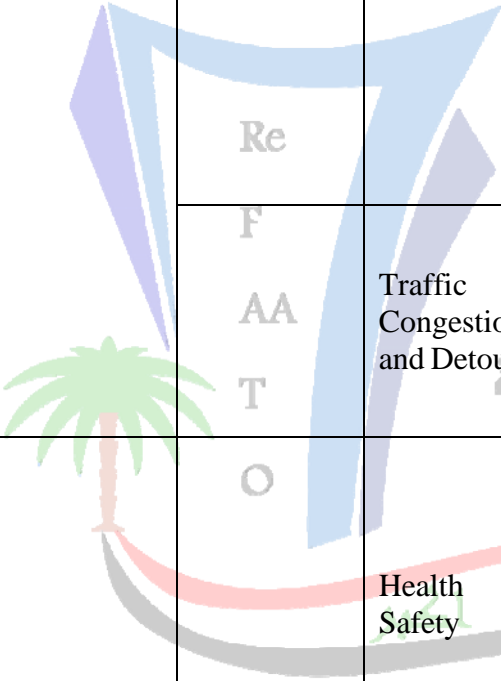
The preliminary assessment of impacts that can be linked to the EODP and EODP-AF can be generalized under (i) typical construction/rehabilitation impacts which can be mitigated with good construction practices and (ii) specific impacts that can arise due to engineering interventions proposed for some sub-projects and hence require more detailed analysis at a later stage.

In general, the following is the list of broad negative impacts that are very likely to arise from the sub-projects funded by the EODP and EODP-AF. These impacts though occurring in most of the sub-projects will vary in extent and significance **hence individual assessment for each subproject is of utmost importance.** However, for ease of presentation and reference typical construction impacts related to the project have been discussed under the following thematic categories.

**Table ١٣: Preliminary Identification of Potential Negative Impacts during Construction**

EODP Component(s)	Activities	Receptor/EHS Aspects	Related Potential Impacts
<p>١,٢, ٣,٧, ٨ and ٩</p> 	<p>Re F AA T General construction activities</p>	Air	<ul style="list-style-type: none"> <li>• Emission of pollutants from engines of construction machinery and equipment.</li> <li>• Dust “lifting” due to earthwork and movement of construction trucks and equipment on unpaved roads.</li> </ul>
		Noise	<ul style="list-style-type: none"> <li>• Noise emission from engines of construction machinery and equipment</li> </ul>
		Soil, subsoil and land	<ul style="list-style-type: none"> <li>• Land occupation due to the installations in the working areas</li> <li>• Soil/subsoil contamination due to accidental spills and leaks from construction equipment</li> <li>• Improper discharge of domestic sewage from construction camps/offices.</li> <li>• Improper disposal of wastes from construction camps/offices.</li> </ul>
		Solid and hazardous waste	<ul style="list-style-type: none"> <li>• Production of construction wastes/demolition debris</li> <li>• Solid wastes from construction camps/offices</li> <li>• Improper disposal of fuel barrels, removed asphalt, paint containers, asbestos materials.... etc.</li> <li>• Improper disposal of dredging waste of irrigation channels</li> </ul>
		Water resources	<ul style="list-style-type: none"> <li>• Improper disposal of debris or construction wastes on river banks</li> <li>• Improper discharge of domestic sewage from construction camps/offices into surface or subsurface water bodies</li> <li>• Improper use of construction chemicals in underwater structures Water consumption for construction works</li> </ul>
		Biodiversity and sensitive habitats	<ul style="list-style-type: none"> <li>• Removal of trees or green cover for rehabilitation or construction purposes may result in loss of habitats</li> <li>• Pollution of rivers or waterways may negatively affect the aquatic ecosystem,</li> </ul>



EODP Component(s)	Activities	Receptor/EHS Aspects	Related Potential Impacts
		Cultural heritage	<ul style="list-style-type: none"> <li>• During rehabilitation, sites or structures of cultural significance may be negatively affected from construction works.</li> </ul>
		Socio-economic environment	<ul style="list-style-type: none"> <li>• Temporary nuisance and inconvenience as a result of the construction activities including noise, emissions.</li> <li>• Influx of workers and the potential implications on host communities.</li> <li>• Employment, working conditions and safety of workers at the construction site</li> <li>• Potential child labor employment by local subcontractors</li> <li>• Disturbance of public health and quietness due to construction/rehabilitation activities;</li> <li>• Land acquisition or obstructing access to amenities due to construction/rehabilitation activities.</li> </ul>
		Traffic Congestion and Detours	<ul style="list-style-type: none"> <li>• Traffic impacts due road blockages for construction purposes and detours. This may be associated with traffic congestions, increasing commuting time and creating inconvenience to roads users.</li> </ul>
		Health and Safety	<ul style="list-style-type: none"> <li>• Falling from moderate heights;</li> <li>• Vehicle/pedestrian accidents;</li> <li>• Falling into trenches;</li> <li>• Being buried in tunnels/excavations;</li> <li>• Breathing dust and other air pollutants;</li> <li>• Back aches caused by handling heavy material;</li> <li>• Suffering hearing loss from noise</li> </ul>

**Table ١٤: Preliminary Identification of Potential Impacts during Operation**

<b>EODP Component(s)</b>	<b>Receptor/EHS Aspects</b>	<b>Related Potential Impacts</b>
١, ٢, ٣, ٧, ٨ & ٩	Air	<ul style="list-style-type: none"> <li>• Emission of pollutants due to increased traffic and mobility on the rehabilitated roads</li> <li>• Emissions from landfill operations and waste incinerators in veterinary clinics</li> <li>• Increased emissions due to increase in electricity consumption</li> </ul>
٣ & ٩	Noise	<ul style="list-style-type: none"> <li>• Increase in noise emission due to increased traffic and mobility on the rehabilitated roads</li> </ul>
٢ & ٩	Soil, subsoil and land	<ul style="list-style-type: none"> <li>• Improper management of landfills may result in contamination of soil and land</li> <li>• Improper disposal of sewage</li> <li>• Leakages in sewage networks</li> </ul>
٢ & ٧ & ٩	Solid and hazardous waste	<ul style="list-style-type: none"> <li>• Improper management of waste disposal sites and untreated sludge</li> <li>• Disposal of empty chemical containers used in water/wastewater treatment and agrochemicals</li> <li>• Medical wastes from mobile clinics and hospitals</li> </ul>
٢, ٧ & ٩	Water resources	<ul style="list-style-type: none"> <li>• Increase in fresh water consumption</li> <li>• Leakages in water network</li> <li>• Release of contaminants during maintenance of irrigation channels</li> </ul>
٢, ٧ & ٩	Biodiversity and sensitive habitats	<ul style="list-style-type: none"> <li>• Improper disposal of sewage and wastes</li> <li>• Improper use of pesticides</li> </ul>
٣ & ٩	Cultural heritage	<ul style="list-style-type: none"> <li>• Increase in vibration levels due to heavy traffic in roads passing through culturally important sites.</li> </ul>
١, ٢, ٣, ٧, ٨ and ٩	Socio-economic	<ul style="list-style-type: none"> <li>• Positive Social amenities and social benefits</li> </ul>

#### ٥.٣ Methodology for assessment of impact significance

The significance of each potential impact will depend on the project activities and the potential impacts on the environmental receptor. The impact evaluation should be conducted using two sets of criteria, described respectively as basic and supplementary. The basic criteria for defining an impact include:

- **Magnitude:** describes the quantity of the resource (or receptor) potentially affected by the activity.
- **Spatial extent:** the geographical area over which the impact is experienced.
- **Duration:** the length of time over which the impact will be experienced. An impact may be present only while an activity is active, or it could persist long after the activity has ceased, in which case the duration may be regarded as the time the VR needs to recover from the effect.

Each potential impact should be evaluated by applying descriptors to each of the above criteria, based on qualitative or, to the extent possible, quantitative evaluation, as follows.

The magnitude of impact is allocated one of the following categories:

Very Low (١)	A very small proportion of the receptor is affected.
Low (٢)	A small proportion of the receptor is affected.
Moderate (٣)	A moderate proportion of the receptor is affected.
High (٤)	A large proportion of the receptor is affected.
Very High (٥)	A very large proportion or all of the receptor is affected.

The spatial extent of impact is allocated one of the following categories:

Nil (٠)	No effect.
Very Low (١)	Local scale impact in the immediate area of the activity.
Low (٢)	Local impact in the study area.
Moderate (٣)	Regional scale impact.
High (٤)	National scale impact.
Very High (٥)	Global scale impact.

Duration of impact is described by one of the following categories:

Nil (٠)	No effect.
Very Low (١)	Less than one year.
Low (٢)	One to five years.
Moderate (٣)	Five to ten years.
High (٤)	Greater than ten years.
Very High (٥)	Irreversible.

The relative importance of each criterion, as illustrated in

Table ١٥, will be evaluated on a scale from zero to five, and expressed as follows: Nil (N), Very Low (VL), Low (L), Moderate (M), High (H), and Very High (VH). The highest figure is assigned to an impact when there is uncertainty about the criteria, so as to reduce the chance of underestimating an impact thereby minimizing risk.



**Table ١٥: Basic Impact Index**

BASIC IMPACT INDEX	N	VL	L	M	H	VH
Magnitude	٠	١	٢	٣	٤	٥
Spatial Extent	٠	١	٢	٣	٤	٥
Duration	٠	١	٢	٣	٤	٥

The Basic Impact index is obtained by the weighted average of these three values, to obtain a whole number between ٠ and ٥. The magnitude's weight is twice that for spatial extent and duration.

The final impact significance is the result of the combination of the Basic Impact Index and the Receptor Categorization, as shown in Table ١٦: where impact significance may result in one of the following classes: Insignificant (IN), Minor (MI), Moderate (MO) or Major (MA).

**Table ١٦: Impact Significance**

Receptor Categorisation	Basic Impact Index					
	N	VL	L	M	H	VH
L	IN	IN	IN	MI	MO	MA
M	IN	IN	MI	MO	MA	MA
H	IN	MI	MO	MA	MA	MA

Those impacts rated as minor, moderate or major are considered to require mitigation measures in order to eliminate the impact or, where this is not possible, to reduce their significance ranking to minor or insignificant.

Environmental impacts are caused by environmental aspects and can have a direct impact on the environment, contribute indirectly to a larger environmental change, or be cumulative.

## ٦. ENVIRONMENTAL MANAGEMENT & MONITORING FRAMEWORK

### ٦.١ Objectives of the ESMMF

The objectives of this Environmental and Social Management and Monitoring Framework, is to outline a mechanism for analyzing and mitigating potential negative impacts and for monitoring the application and performance of mitigation measures. The ESMMF identifies roles and responsibilities for different stakeholders for implementation and monitoring of mitigations.

This section also presents an assessment of the institutional capacity for implementing this ESMMF, along with recommendations for improving capacity and resources.

As explained previously, the proposed project (parent EODP and Additional Finance) is to be implemented mainly in ٤ governorates (with possibility to expand in other governorates depending on government priority and agreement with the Project). Institutional and technical capacities, as well as physical and social environments may vary between them. Identical mitigation measures for all governorates may not provide the flexibility required for dealing effectively with some of the negative impacts which require taking the local context into account. Wherever applicable, the ESMMF is designed to accommodate alternative context-specific mitigations.

### ٦.٢ General Mitigation Measures

The following are general mitigation measures that need to be detailed according to each subproject and in relation to the site specific baseline conditions.

#### ٦.٢.١ During Construction

With the purpose to reduce the impacts related to emissions of gaseous pollutants from construction equipment, the following mitigation measures and good practice are to be taken into account:

##### Air

- Employ construction machines with low emissions to reduce pollution, arranging sources of emission far from people's houses and public places
- All construction machines and vehicles should meet the standard on emissions and have passed the emission test
- No burning of wastes on site
- Limit traffic congestion through proper planning and operating of traffic diversions
- Do not let machines idle when not necessary

Concerning dust control methods and measures, the following actions are to be taken into account to reduce the generation of dust:

- Regular watering of roads for dust suppression in urban, residential areas and in areas with sensitive receptors
- Covering of excavated soil temporarily stored on site
- Daily cleaning of tires of vehicles
- Covering up any vehicle transporting materials and spoil to and from construction sites
- Daily cleaning of streets and pathways in vicinity of construction site that are affected by soil and dust
- Imposing speed controls for construction vehicles

## **Noise and vibration**

Mitigation measures foreseen to minimize the impact related to the noise emission during the construction phase are:

- Apply appropriate schedule to avoid any works that may cause noise and vibration during 10 pm – 7 am especially near inhabited areas. Any nighttime activities should be done using noise reducing means or low-noise technologies
- Use vehicles and equipment that meet national standards for noise and vibration.
- Publishing and registering working time of construction machines with local authorities and strictly compliance therewith.
- Restricting use of noisy machines near sensitive receptors such as schools and hospitals, use noise-reducing means for construction machines, if required.

## **Soil, subsoil and land**

- Earthwork should be carried out during dry weather periods;
- Stockpiling of earth should be done a safe distance away from waterways;
- Other construction materials containing small/ fine particles should be stored in a place not subjected to flooding;  
If necessary, silt/sedimentation traps should be used to prevent soil particles from getting into drains and canals.

## **Solid and hazardous waste**

- Work sites should be cleared of residual solid waste and wastewater before work commences;
- Temporary storage of solid wastes shall be done with appropriate containment to avoid spreading of waste, odor and avoid dust;
- Temporary storage of solid waste should be done to avoid interfering with traffic obstacles and aesthetics;
- Sites for collecting solid waste in each sub-project area should be determined prior to commencement of construction. These sites must be suitable with the transport, in order not to obstruct the activities of human beings and the waste must be transported during the day;
- Construction wastes should be removed as much as possible within 24 hours from the site to ensure public safety in urban areas;
- All waste should be collected and disposed in compliance with the local and national laws, in sites identified by the respective local authorities;
- Excavated soil, if suitable, should be used for leveling and backfilling;
- Dredging waste, resulting from clearing the canals, need to be handled according to its constituents;
- No solid waste should be burned at the site;
- Clean the construction site of solid wastes, wastewater etc. before its closing

## **Domestic waste**

- Construction camps should be sited appropriately with consent from the necessary public authority or the implementing agency,
- Labor camps shall be provided with adequate and appropriate facilities for disposal of sewage and solid waste
- Domestic solid waste shall be collected and disposed of daily at the local authorities designated site or given for collection by the local authorities



- Discharge and disposal domestic waste from worker camps into water sources should be strictly avoided
- Burying and burning domestic waste in the project site should also be strictly avoided
- Avoid construction workers staying overnight in the construction sites

### ***Hazardous wastes***

- Wastes identified as “hazardous” will need special handling, transportation and disposal. For contaminated sites, a hazardous waste disposal plan will need to be prepared.
- The contractor should be trained and made aware of the requirements prior to commencement of the sub-project. Special guidelines for handling of contaminated soils or hazardous wastes should be prepared and published by the PMU.
- Hazardous wastes and contaminated soils should not be dumped on-site but removed to landfill/dumpsite designated by the local authority or the environmental agency as appropriate;
- Oil and lubricant waste should not be buried or burnt in the project site, but collected and stored in proper oil-cans and disposed for re-use or local authority approved designated sites.

### **Water resources**

- Identification of the reliable water resources and obtain necessary approvals from the relevant authorities to extract water prior to commencement of construction work;
- Contractor should not obstruct or prevent water flow when working closer to water bodies;
- Silt traps and erosion control measures should be used where the construction carry out closer proximity to the water bodies to avoid entering of construction materials which cause turbidity and sediments;
- Construction material and stock piles should be covered to avoid wash off to water bodies;
- Water conservation practices should be in place in construction offices and camps;
- Camps should not be located near water ways, human settlements or near drinking water intakes.

### **Biodiversity and sensitive habitats**

- Underwater construction chemicals should be friendly to the marine environment
- A compensatory tree planting program should be developed to replant native species wherever available space beside the proposed project;
- Workers should be instructed to protect flora and fauna including aquatic life as well as their habitats;
- Hunting and poaching should be strictly prohibited;
- Washing, maintenance and service of vehicles and machinery should not be done closer to the freshwater habitats;
- Solid waste, construction debris should not be dump into wetlands or natural habitats.

## **Cultural heritage**

### **1. Infrastructure Development**

The initial impact assessment on PCRs from infrastructure development interventions under the project will be undertaken as part of the environmental screening. This would involve a site inspection and reference to maps of heritage building, property and landscapes prepared by the competent authority<sup>11</sup>. The goal of environmental screening is to:

- Determine the presence or absence of PCR sites within the project boundary and its area of influence
- If yes, to describe the extent, character and ownership of the PCR and investigate the significance of it
- Evaluate the scope for impacts on each site in the event of project proceeding and document them.

Depending on the significance of the PCR, its ownership and location, EMPs may need to be reviewed and cleared by the SBA&H. For municipal projects that may include restoration of PCRs, this should be supervision of a specialized person after being reviewed and cleared by SBA&H.

### **2. Chance finds procedures**

Contracts for civil works involving earth moving and excavation activities, especially in known archaeological and heritage areas, should normally incorporate procedures for dealing with situations in which buried PCRs are unexpectedly exposed.

### **3. Recognition of unknown PCRs**

For EODP contracts, an initial consultation with the Department of Antiquities should be held before work commencement to identify the likelihood of such material being uncovered, especially where trenching work is expected for pipe laying etc. Upon discovery of such material during execution of work, the contractor should carry out the following;

- Immediately stop construction activities.
- With the approval of the resident engineer delineate the discovered site area.
- Secure the site to prevent any damage or loss of removable objects. In case of removable antiquities or sensitive remains, a night guard should be present until the responsible authority takes over.
- Through the Resident Engineer, notify the responsible authorities (SBA&H and local authorities) within 24 hours.
- Submit a brief chance find report, within a specified time period, with date and time of discovery, location of discovery, description of finding, estimated weight and dimension of PCR and temporary protection implemented.
- Responsible authorities would be in charge of protecting and preserving the site before deciding on the proper procedures to be carried out.
- An evaluation of the finding will be performed by the SBA&H who may decide to either remove the PCR deemed to be of significance, further excavate within a specified distance of the discovery point and conserve on-site, and/or extend/reduce the areas demarcated by the contractor etc.
- Construction work could resume only when permission is given from the Department of Archaeology after the decision concerning the safeguard of the heritage is fully executed.

<sup>11</sup> State Board of Antiquities & Heritage (SBA&H)

## Socio-economic

- In case of temporary or permanent land acquisition, apply the Resettlement Policy Framework (RPF)<sup>11</sup> and the implement a Resettlement Action Plan (RAP).
- Mobilizing maximum capacity of skilled and unskilled labor force from the surrounding project area;
- Identify location of camps with consultation with the local community and local authority;
- Ensure installation of adequate construction camps and sanitation facilities for construction workers to control of transmission of infectious diseases.
- The social risk related to labor influx for EODP AF might not be high. The contractors for efficiency purposes will resort in many cases to local labors as long as the qualifications are met. The number of skilled and non-skilled workers would be between in the age between ٤٠-٦٠ years old. The majority of the workers do not need accommodation onsite because they have regular transportation to/from their nearby home towns/villages. Few non-skill workers may require accommodation in the construction camps such as guards, cooks and drivers. (see Annex ٩ on labor influx guidance note).
- PMTs should intervene and monitor closely the working conditions and ensure appropriate accommodation on site (if necessary).
- Child labor should be totally prohibited. PMTs should include clear clauses in their work contracts to prevent child labor. In addition, close monitoring and supervision, especially on local subcontractors, should be performed by the PMTs.

## Health and Safety

The proposed project interventions will mostly involve small to medium scale construction sites. As such, extreme dangers posed by working in environments such as great heights, deep water and involving dangerous chemicals and radioactive material will not be present. Health and safety of workers and the public should be designed into constructions, before and during and after the building phase.

The following safety measures can be used as general guidelines:

Environmental Assessment for each site should mandatorily include a risk assessment as to what are the hazards involved in the work site, who might be harmed and how seriously, how likely this harm might happen and what actions are required to eliminate or reduce the risk and incorporate such measures in the EMP and clearly set out in the tender documents. All sub-projects must observe health and safety regulations, hence during implementation it is important to check if these control measures are put in place and are meeting the legal requirement.

## Training

- Ensure constructors carry out suitable training programs on occupational health and safety for workers prior to commencement of construction.
- Ensure only experienced and well trained workers are used for the handling of machinery, equipment and material processing plants
- Ensure all persons, including managers, are trained and able to carry out their work without risk to the safety or health of themselves, other workers or the public

<sup>11</sup> A Resettlement Policy Framework (RPF) is separately prepared which outlines the necessary procedures to be followed in case of involuntary resettlement.

### ***Personal Protective Equipment***

- Ensure appropriate safety equipment, tools and protective clothing are provided to workers and that safe working methods are applied. A safety inspection checklist should be prepared taking into consideration what the workers are supposed to be wearing and monitored.
- Any person who works or operates in an area where there is a risk of flying objects, such as splinters, should wear safety goggles at all time. These should be securely fitted to the face. Welders should protect the entire face from hot sparks and bright rays by using a welding mask.
- Any person exposed to high levels of dust or hazardous gases (when working in tunnels) should wear respiratory protection in the form of disposal masks or respiratory masks which fit more snugly around the nose and mouth.
- Any person working in an area where there is the risk of being struck on the head by a falling or flying object should wear a hard hat at all times. These should be well maintained in order to be fully effective, and any helmets or hard hats that are damaged or cracked should immediately be replaced.
- All workers will be required to wear shoes or strong boots to prevent sharp objects from penetrating or crushing the foot. Those working in muddy conditions and in canals with polluted water should avoid hand/foot contact with water and should never wear slippers.
- Road workers should wear reflective vests to avoid being hit by moving vehicular traffic.

### ***Site Delineation and Warning Signs***

- Ensure delineation devices such as cones, lights, tubular markers, orange and white strips and barricades are erected to inform oncoming vehicular traffic and pedestrians in the area about work zones.
- Ensure all digging and installing work items that are not accomplished are isolated and warned of by signposts and flash lamps in nighttime.
- Ensure dangerous warning signs are raised to inform public of particular dangers and to keep the public away from such hazards.
- Ensure rehabilitation of trenches progressively once work is completed.
- The safety inspection checklist must look to see that the delineation devices are used, whether they are appropriately positioned, if they are easily identifiable and whether they are reflective.

### ***Equipment safety***

- Work zone workers use tools, equipment and machinery that could be dangerous if used incorrectly or if the equipment malfunctions Inspections must be carried out to test the equipment before it is used, so that worker safety can be secured. Inspections should look for evidence of wear and tear, frays, missing parts and mechanical or electrical problems.

### ***Traffic management***

- Ensure traffic control plans and procedures are in place when work zone is set up and how to handle full or partial road closure, blocked intersections, sidewalk closure etc
- Ensure installation of transport signs and lighting systems in conspicuous places to assure transport safety. Transport signs should be installed at places where accidents may be easily happened (populated centers, schools, hospitals, commercial areas etc )

### ***Material management***

- Ensure easily flammable materials are not be stored in construction site and that they are transported out of project site

### ***Emergency Procedures***

- Ensure an emergency aid service is in place in the work zone.
- Ensure all site staff is properly briefed as to what to do in the event of an emergency, such as who to notify and where to assemble for a head count. This information must be conveyed to employees by the site manager on the first occasion a worker visits the site.

### ***Construction camps***

- Ensure installation of adequate construction camps and sanitation facilities for construction workers to control of transmission of infectious diseases.

### ***Information management***

- Provide advance notice to local communities by way of information boards about the schedule of construction activities.
- Develop and establish contractor's own procedure for receiving, documenting and addressing complaints that is easily accessible, culturally appropriate and understandable to affected communities.

### ***Worker consultation***

- Consulting the workforce on health and safety measures is not only a legal requirement, it is an effective way to ensure that workers are committed to health and safety procedures and improvements. Employees should be consulted on health and safety measures and before the introduction of new technology or products.

### **٦,٢,٢ During Operation**

During operation, each of the EODP and EODP-AF subprojects should follow the requirements of the national environmental legislations WB safeguard policies and EHS guidelines and maintain records to ensure continuous environmental compliance. During the operation of subprojects, the measures described above for the reconstruction phase would also apply (by different degrees) in case of maintenance and repair of the project assets.

Furthermore, as the AF triggered OP ٤,٠٩ for Pest management, the principals of integrated pest management should be applied to: minimize health hazards by minimizing human exposure to pesticides, avoid ecological impacts to beneficial species and avoid development of resistance to pesticides. The following measures should be considered during operating agriculture projects that would include procurement, handling and/or application of pesticides.

***Alternatives to Pesticide Application.*** Where feasible, the following alternatives to pesticides should be considered:

- Rotate crops to reduce the presence of pests and weeds in the soil ecosystem;
- Use pest-resistant crop varieties;
- Use mechanical weed control and / or thermal weeding;
- Support and use beneficial organisms, such as insects, birds, mites, and microbial agents, to perform biological control of pests;
- Protect natural enemies of pests by providing a favorable habitat, such as bushes for nesting sites and other original vegetation that can house pest predators and by avoiding the use of broad-spectrum pesticides;
- Use animals to graze areas and manage plant coverage;
- Use mechanical controls such as manual removal, traps, barriers, light, and sound to kill, relocate, or repel pests.



- Ensure delineation devices such as cones, lights, tubular markers, orange and white strips and barricades are erected to inform oncoming vehicular traffic and pedestrians in the area about work zones.
- Ensure all digging and installing work items that are not accomplished are isolated and warned of by signposts and flash lamps in nighttime.
- Ensure dangerous warning signs are raised to inform public of particular dangers and to keep the public away from such hazards.
- Ensure rehabilitation of trenches progressively once work is completed.
- The safety inspection checklist must look to see that the delineation devices are used, whether they are appropriately positioned, if they are easily identifiable and whether they are reflective.

**Pesticide Application.** If pesticide application is warranted, users are recommended take the following actions:

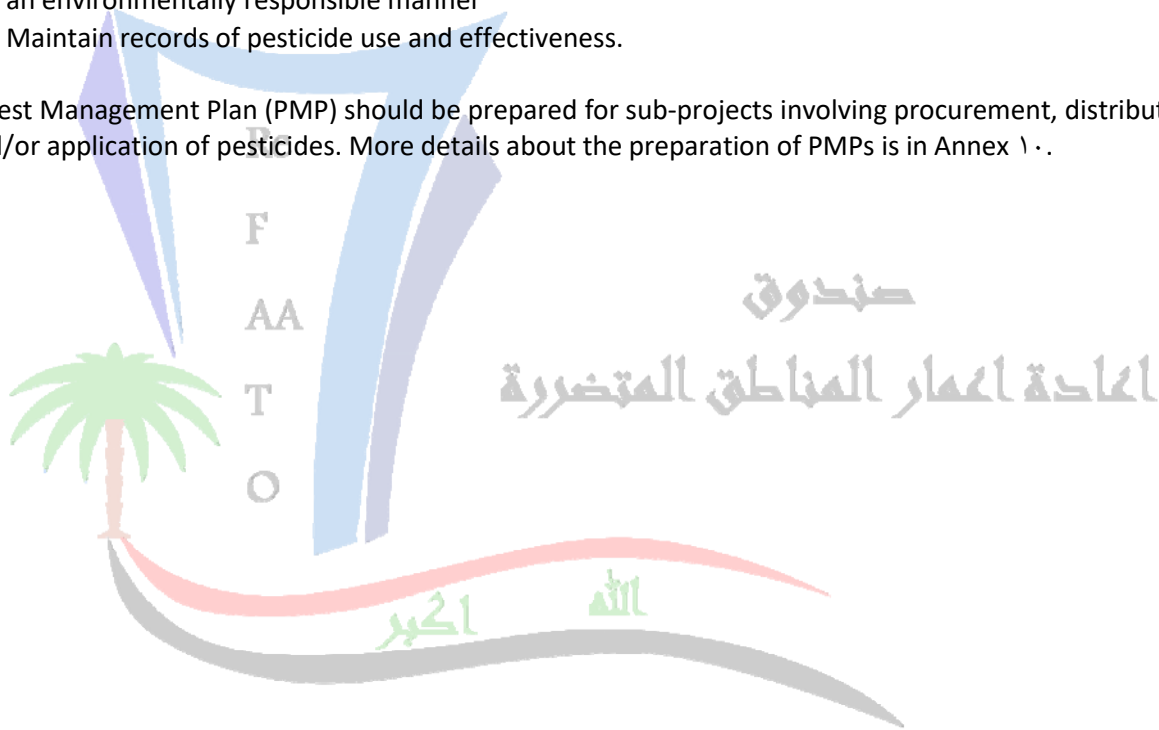
- Train personnel to apply pesticides and ensure that personnel have received applicable certifications or equivalent training where such certifications are not required;
- Review and follow the manufacturer’s directions on maximum recommended dosage or treatment as well as published reports on using the reduced rate of pesticide application without loss of effect, and apply the minimum effective dose;
- Avoid routine “calendar-based” application, and apply pesticides only when needed and useful based on criteria such as field observations, weather data (e.g. appropriate temperature, low wind, etc.),
- Avoid the use of highly hazardous pesticides, particularly by uncertified, untrained or inadequately equipped users. This includes:
  - Pesticides that fall under the World Health Organization Recommended Classification of Pesticides by Hazard Classes I a, II b and II should be avoided in all cases
  - Avoid the use of pesticides listed in Annexes A and B of the Stockholm Convention, except under the conditions noted in the convention and those subject to international bans or phase outs;
  - Use only pesticides that are manufactured under license and registered and approved by the appropriate authority and in accordance with the Food and Agriculture Organization’s (FAO’s) International Code of Conduct on the Distribution and Use of Pesticides;
  - Use only pesticides that are labeled in accordance with international standards and norms, such as the FAO’s Revised Guidelines for Good Labeling Practice for Pesticides;
- Select application technologies and practices designed to reduce unintentional drift or runoff only as indicated in an IPM program, and under controlled conditions;
- Maintain and calibrate pesticide application equipment in accordance with manufacturer’s recommendations. Use application equipment that is registered in the country of use;
- Establish untreated buffer zones or strips along water sources, rivers, streams, ponds, lakes, and ditches to help protect water resources;
- Avoid use of pesticides that have been linked to localized environmental problems and threats.

**Pesticide Handling and Storage.** Contamination of soils, groundwater, or surface water resources, due to accidental spills during transfer, mixing, and storage of pesticides should be prevented by following the hazardous materials storage and handling recommendations. These are the following:

- Store pesticides in their original packaging, in a dedicated, dry, cool, frost-free, and well aerated location that can be locked and properly identified with signs, with access limited to authorized people. No human or animal food may be stored in this location. The store room should also be designed with spill containment measures and sited in consideration of potential for contamination of soil and water resources;

- Mixing and transfer of pesticides should be undertaken by trained personnel in ventilated and well lit areas, using containers designed and dedicated for this purpose.
- Containers should not be used for any other purpose (e.g. drinking water). Contaminated containers should be handled as hazardous waste, and should be disposed in specially designated for hazardous wastes sites. Ideally, disposal of containers contaminated with pesticides should be done in a manner consistent with FAO guidelines and with manufacturer's directions;
- Purchase and store no more pesticide than needed and rotate stock using a “first-in, first-out” principle so that pesticides do not become obsolete. Additionally, the use of obsolete pesticides should be avoided under all circumstances; a management plan that includes measures for the containment, storage and ultimate destruction of all obsolete stocks should be prepared in accordance to guidelines by FAO and consistent with country commitments under the Stockholm, Rotterdam and Basel Conventions.
- Collect rinse water from equipment cleaning for reuse (such as for the dilution of identical pesticides to concentrations used for application);
- Ensure that protective clothing worn during pesticide application is either cleaned or disposed of in an environmentally responsible manner
- Maintain records of pesticide use and effectiveness.

A Pest Management Plan (PMP) should be prepared for sub-projects involving procurement, distribution and/or application of pesticides. More details about the preparation of PMPs is in Annex 10.





## ٧. INSTITUTIONAL FRAMEWORK FOR SAFEGUARDS MANAGEMENT

It is necessary to have a well-defined institutional and implementation mechanism for identifying, appraising, managing and monitoring safeguards at all levels. The focus of this section is to lay out the roles, responsibilities of various parties and the due diligence process that will need to take place from the preparation of an investment through implementation completion.

### ٧,١ Overall project implementation arrangements

The overall responsibility for Project coordination lies with Iraqi Council of Ministers through a Project Coordination Unit (PCU) under the Reconstruction Fund for Areas Affected by Terroristic Operations<sup>١٢</sup>. In turn Project Management Teams (PMTs) established within counterpart Ministries will be responsible for sectoral (energy, transport, water and sanitation, municipal solid waste management, housing, health, agriculture, water resources and governorates) project implementation. During implementation, additional sectors may be added to the Project, subject to these fulfilling the basic selection criteria. Furthermore, it is possible, that additional ministries and PMTs would be added to the overall implementation structure. At each of the municipalities (project sites), the PMTs will be supported by Technical staff from the Ministries' regional offices.

To identify and prioritize the subprojects, the Ministries and their PMTs will coordinate closely with the local Governorate staff and authorities, to ensure the identified subprojects are in line with local expectations.

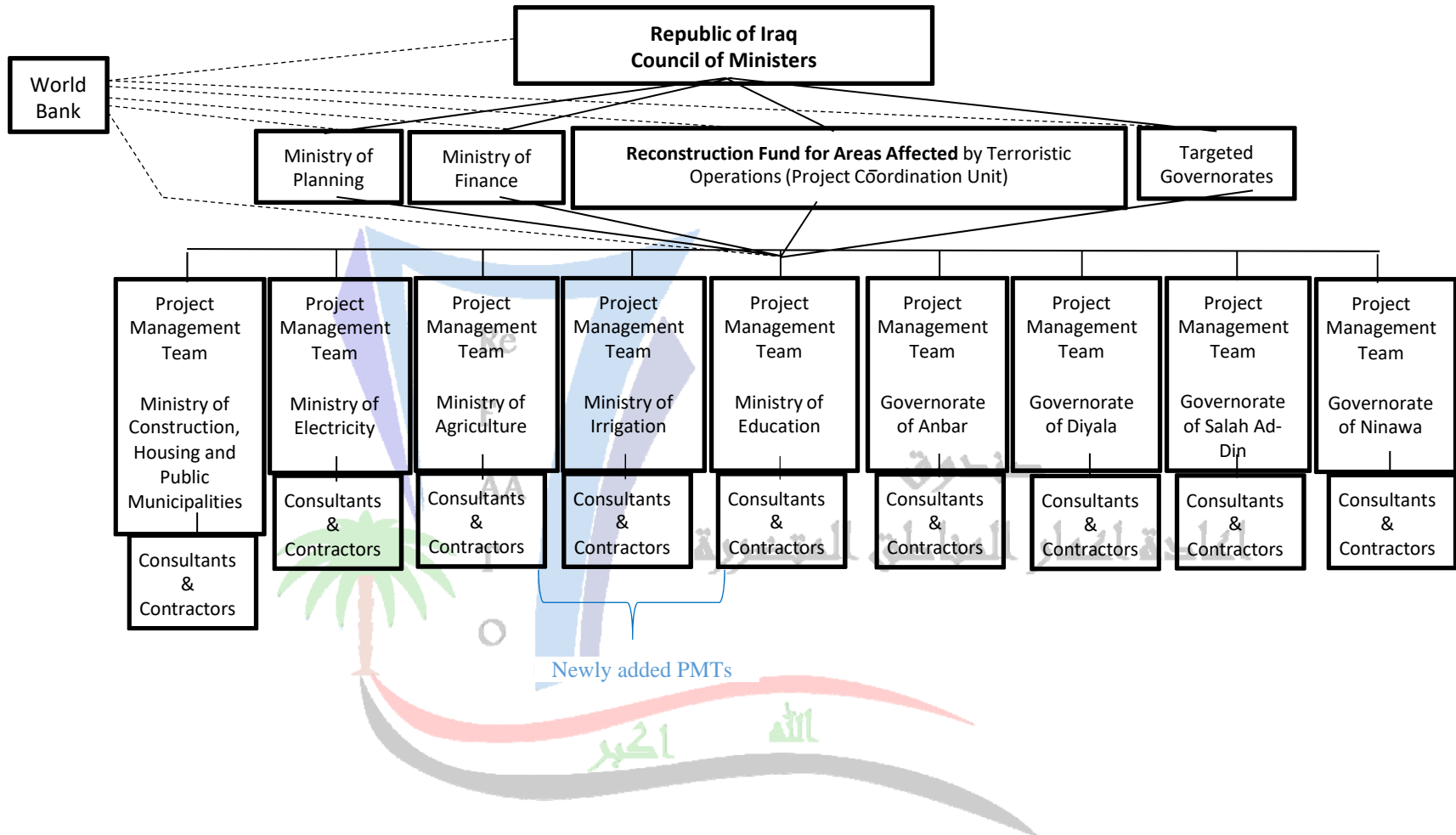
### ٧,٢ Implementation arrangements for environmental and social safeguards

Planning, implementation and supervision of environmental safeguards will take place at three levels;

#### ٧,٢,١ PCU Level

Among its key tasks, the PCU will be responsible for providing the overall policy direction, technical assistance, review and endorsement of screening reports, environmental and social assessment and management plans, capacity building for effective safeguards management to the implementing agencies, monitoring of environmental compliance and progress reporting to the World Bank.

<sup>١٢</sup> The Reconstruction Fund has been established by the Government of Iraq reporting to the Council of Ministers with an allocated budget of ٥٠٠ trillion Iraqi Dinars, equivalent to about USD ٤٣١ million, to reconstruct damages incurred from the liberation activities from terrorists' insurgency.



### ٧,٢,٢ **Project Management Teams (PMTs)**

The responsibility of day to day planning, implementation and supervision of environmental/social safeguards specific to sub-projects will be borne by the PMTs. Each agency will assign focal point(s) for environmental and social safeguards who will ensure timely and sound application of the ESMPs to the planned investments. The environmental/social focal points will work closely with the PCU environmental/social consultants to ensure harmonization and coordination of activities according to the ESMMF requirements. The focal points for environmental and social affairs should have sufficient background to support the implementation of the ESMPs. In case of need for additional capacity, the PMTs may recruit external consultants who have sufficient expertise to support PMTs' focal points.

At the field level, it is expected that the PMTs environmental and social focal points will conduct regular field supervision to ensure compliance of contractors, their workers and practices, to the ESMPs. PMTs will also require the engineering and technical firms to recruit specialized staff in environment, social development and health and safety to conduct daily supervision on field activities and prepare non-compliance reports on which the PMT will investigate and take action accordingly.

### ٧,٢,٣ **Contractors**

Implementation of the ESMPs will largely be the contractors' responsibility and for this the contractor will have to nominate qualified environmental, health and safety consultant and a social development consultant (if needed) in order to ensure compliance with the ESMPs during construction.

## ٧,٣ **Key roles and responsibilities of various parties involved in safeguards management**

### ٧,٣,١ **Environmental Consultant - Project Coordination Unit**

- a. Provide overall policy and technical direction for environmental safeguards management under the EODP (as defined by this framework);
- b. Ensure suitably qualified and experienced personnel are in place in each PMT;
- c. Co-ordinate closely with the Environmental Officers in the PMTs in planning and managing the EA cycle in relation to the project implementation schedule; and provide necessary technical assistance to facilitate the implementation, management and monitoring of environmental and social safeguards
  - Review and endorse environmental screening reports, site specific environmental assessments/management plans prepared for each Category B and C sub-project ;
  - Ensure that applicable measures in the EMP are included in the design, and condition on compliance with EMP is included in the bidding documents
  - Develop, organize and deliver environmental training programs and workshops for the staff of PMTs, contractors, field supervision staff and other implementing agency officials (responsible for the supervision of Maintenance works), as needed, on safeguard requirements and their management
  - Develop programs to build long-term capacity in the PMTs for improved environmental and social management and monitoring
  - Prepare additional technical guidelines, if necessary, to support the ESMF in order to strengthen the implementation of environmental safeguards

- Report to WB and the PCU on the overall environmental performance of the project as part of PCU's periodic progress reporting.
- Hold regular review meetings with the environmental officers of the PMTs
- Promote community participation in the process of planning, management and monitoring of environmental impacts of sub-projects; provide guidelines on community participation in environmental monitoring to the PMTs
- Support technical components of the project such as SWM and draft TORs for technical studies and consultancies, if the need arises.

#### ٧,٣,٢ **Environmental/Social Focal Point – Project Management Team**

- Ensure environmental screening is carried out for each sub-project as soon as conceptual technical design and scope have been defined;
- Closely co-ordinate with the PCU for review and endorsement of the screening decision and recommendation
- Ensure timely preparation of Environmental Assessments/Management Plans for sub-projects, as necessary (depending on screening outcome);
- Co-ordinate with PCU for hiring technical assistance, where necessary, and for review and endorsement of these safeguard documents
- Ensure consistency of safeguard documents with national environmental regulations; work with the PCU to obtain necessary clearances from environmental authorities for sub-projects, where applicable;
- Ensure relevant ESMP provisions are included in the design; and ESMPs are included in the bid documents; and condition on compliance with ESMP is included in the contractor's agreement;
- Ensure compliance with ESMPs during the construction period and maintain close co-ordination with the site engineer and the Environmental focal point of the contractor;
- Co-ordinate with PCU for planning and delivering short training programs and workshops for the contractors and field supervision staff on the project's safeguards requirements and procedures;
- Prepare and submit regular environmental monitoring and implementation progress reports to the PCU;
- Ensure adequate public consultation during environmental screening and ESMP preparation; encourage community participation in sub-project planning, management and monitoring
- Ensure public complaints relating to nuisance and inconvenience caused by sub-project implementation are addressed with corrective action and adequately documented

#### ٧,٣,٣ **Environmental Focal Point - Contractor**

- Ensure implementation of relevant provisions of the ESMP during sub-project implementation; prepare contractor's plan for implementing the ESMP
- Ensure close co-ordination with the Environmental Officer from the PMT offices and report progress on compliance on a regular basis

#### ٧,٤ **Environmental and Social Monitoring**

The EODP will focus on effective environmental and social monitoring. As majority of the anticipated environmental and social impacts from the project are general in nature and related to construction and civil works, site management, worker/public safety etc, monitoring will be largely carried out in the form of compliance monitoring through regular site supervision by the

responsible officers. A general monitoring checklist and a specific construction safety monitoring checklist to be used and filled during site supervision is provided in Annexes ٣ and ٤. These lists should be updated and expanded to include impacts which are mostly case-specific and other site-specific environmental impacts based on actions agreed in the ESMPs.

Monitoring of environmental and social parameters (such as air, water, salinity, sediment quality, affected people etc.) will be conducted based on the requirements specified in the individual ESMPs. However, given the ambient levels of noise and emissions in the surroundings, pollution in the waterways...etc., no significant impacts on the surroundings' environmental quality are anticipated as a result of project activities.

As such, the need for regular and systematic measuring of air, noise and water quality to monitor contribution to environmental degradation (and social impacts) from the project per se is not considered essential except in few cases.

The overall project impacts will be monitored during project implementation through a number of selected indicators which reflect the positive environmental and social contribution from the project to the overall environment. As such, no additional environmental indicators are proposed. Most importantly, the project will support independent environmental and social audits on an annual basis throughout project implementation.

#### **٧,٥ Progress Reporting**

Progress reporting on safeguards compliance will take place as indicated below.

- Contractor's environmental compliance reports to the PMTs on a monthly basis;
- PMTs environmental/social progress reports to the PCU on a quarterly basis
- PCU environmental/social progress reports to the WB, Council of Ministers on a quarterly basis (this will be part of the quarterly project progress report produced by the PCU)

#### **٧,٦ Capacity Development Requirements**

Currently, the capacity of the PCU and PMTs in managing environmental and social safeguards is not adequate. Therefore, dedicated staff and resources should be mobilized in order to support the implementation of the environmental and social requirements.

For effective environmental/social safeguards management, the project agencies will require implementation support in three main areas; (i) dedicated staff and resources (ii) technical assistance and (ii) training and awareness.

##### **٧,٦,١ Dedicated staff and resources**

(See section ٧,٣ above and ٧,٦ below).

##### **٧,٦,٢ Short-term training and awareness programs**

In order to ensure safeguard procedures, instruments and monitoring needs of the EODP and EODP-AF are well understood by the PCU and its implementing partners, short-term training and awareness workshops will be conducted targeting primarily project and contractor staff on (i) World Bank's safeguard policies (ii) national environmental regulations and (iii) safeguards planning, management and monitoring requirements of the EODP and EODP-AF as specified in the parent ESMF and this updated ESMF.

### ٧,٦,٣ Technical assistance

Where stand-alone EAs/ESMPs are required as screening outcomes, the PCU will hire independent consultants. In addition, for contracts which may contain substantive quantities of hazardous wastes (such as asbestos), the PCU will hire specialist services who will prepare appropriate management and disposal plans, carry out additional sampling (if needed) and site monitoring, conduct awareness for implementing agencies and contractors of disposal plans, monitor compliance and ensure control measures are adequately implemented.

### ٧,٧ Estimation of Environmental Safeguards implementation cost

**Table ١٧: Estimated Cost of Environmental Monitoring**

Activity	Unit	Unit Rate (US\$)	QTY	Total in US\$
٦. ESMP preparation				
- Simple checklist	Checklist	٥٠٠٠	١٥٠	١,٧٥٠,٠٠٠
- Extensive ESMP/ESIA	Report	٢٠٠٠٠	٥٠	
<b>Sub-total (1)</b>				١,٧٥٠,٠٠٠
٧. Personnel	Man Month (MM)			
<b>PCU Level</b>				
- Environmental/social Consultant		٣٠٠٠	٣٠	٩٠,٠٠٠
<b>PMT Level (٦ PMTs)</b>				
- Environmental Officer/Consultant		٣٠٠٠ x ٦	٤٨	١,٤٤٠,٠٠٠
- Social development officer/consultant		٣٠٠٠ x ٦	٣٠	٥٤٠,٠٠٠
<b>Contractor Level</b>				
- Environmental Officer/Consultant		Included in construction costs		Included in construction costs
- Social development officer/consultant				
<b>Sub-total (2)</b>				١,٥٣٠,٠٠٠
٨. Training and awareness				
- Training and awareness programs (short-term and long-term)				
- Training on sector environmental/social management issues	Lump-sum	Lump-sum	Lump-sum	
- Training programs on environmental safeguards, monitoring for project staff, contractors...etc.				
<b>Sub-total (3)</b>				١٠٠,٠٠٠

٩. Environmental monitoring ( <i>through independent third party institutions</i> ) to be covered in construction contracts				Included in construction costs
١٠. Contingencies (approx. ٧% of total costs)				٢٣٤,٠٠٠
<b>Total Cost</b>				<b>US\$ 3,614,000</b>





## Λ. DETERMINATION OF E&S INSTRUMENTS

This section will provide clear guidance on

- ϭ. Which types of safeguards instruments will be required;
- Ϯ. Examples for damage patterns and related project typologies, ranging from simple, routine civil reconstruction works (e.g. road repair and building rehabilitation) to more complex repairs of e.g. bridges and larger structures;
- ϯ. Reference to the entire anticipated scope of management, mitigation and monitoring measures (as shown in Annex ϯ).

### Λ, ϭ Types of Safeguards Instruments

The types of safeguards instruments anticipated for the project range from abbreviated, checklist type ESMPs for simple, routine repair works, over more elaborate and comprehensive ESMPs to ESIA's within clearly defined project boundaries. Also some projects would require some specific instruments (such as Medical Waste Management Plan for health projects and Pest Management Plans for some agriculture projects). All project activities involving civil works on any scale will require some type of environmental / social management instrument, which will be determined and defined by the methodology presented in this section.

Most typologies within the expected scope of subprojects are expected to involve routine, simple civil works pertaining only to existing structures and footprints, where conflict-related damage was incurred. All of the expected types of interventions and civil works, e.g. repair / reconstruction of roads, transmission lines, municipal infrastructure, health, agriculture and irrigation infrastructure, social services as well as the restoration of public services, will require safeguards instruments in form of ESMPs (E&S management plans) that would become part of the works contracts, set the E&S standards and compliance mechanisms, and serve as contractual basis for supervision and enforcement of good E&S practice during the works. However, considering the mostly simple nature of such repair and reconstruction works, for these typologies abbreviated, "checklist type" ESMPs (see Annex ϫ for a template) will be prepared as appropriate safeguards instrument.

For some larger projects, e.g. reconstruction of bridges, barrages or wastewater treatment plants (WWTP), a limited ESIA (meaning within clear project boundaries) may be required (see Annex Ϯ), as the works would be more substantial in scale, and rivers are more sensitive and vulnerable to environmental impacts. Also the ESMPs produced with input from the ESIA's would be more specific on measures to protect water quality, riverine / aquatic ecosystems, and retain the hydrological regime around the bridge. Additional social considerations, such as continued access to the river for fishing and water abstraction, may become relevant. Similar principles would apply to projects that are located close to, or affecting natural habitats, including wetlands or forests.

Rehabilitation of healthcare facilities will require developing a Medical Waste Management Plan (MWMP) to ensure that hazardous medical waste is handled according to best available technologies.

Agriculture projects that will involve procurement, handling and/or application of pesticides will required a PMP. The content of the Pest Management Plan should apply to all the activities and individuals working in sub-projects involving procurement, distribution and/or application of pesticides. It should be emphasized also that non-chemical control efforts will be used to the maximum extent possible before pesticides are used. The Pest Management Plan should be a framework through which pest management is defined and accomplished. The Plan should identify

elements of the program to include health and environmental safety, pest identification, and pest management, as well as pesticide storage, transportation, use and disposal. Management Plan is to be used as a tool to reduce reliance on pesticides, to enhance environmental protection, and to maximize the use of integrated pest management techniques. More details are in Annex 10 of the main report.

The figure below depicts the selection methodology for the appropriate E&S instrument for a given subproject type. It takes into consideration four types of sub-project typologies (roads, energy and water infrastructure, large and small buildings (e.g. hospitals, clinics, schools, substation buildings..etc.) or estates, bridges, barrages, vet clinics and WWTP. These typologies are combined with 3 environmental baseline scenarios, ranging from urban (= least sensitive) to rural (= more sensitive) to rivers and natural habitats (= most sensitive).

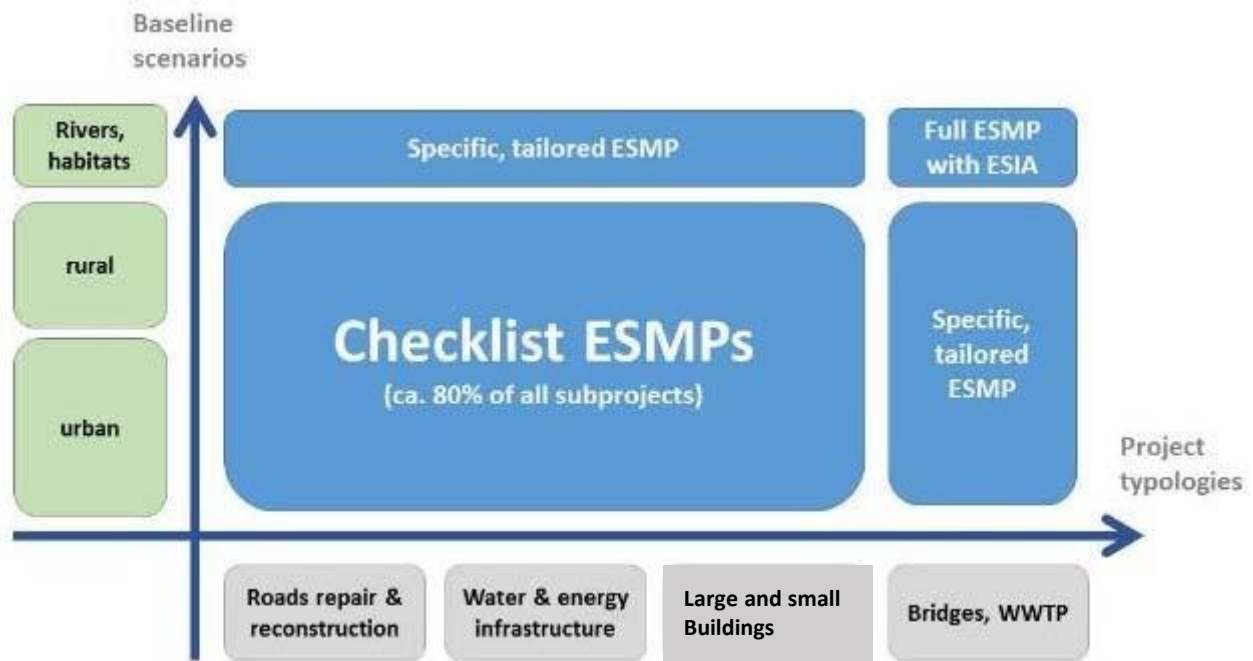


Figure 9: Decision matrix for selection of E&S instruments

As Figure 9 illustrates, the majority of projects, namely roads repair and reconstruction, water and energy infrastructure, and large and small buildings (e.g. hospitals, schools, substation buildings...etc.) in urban and rural settings will only require the “checklist type” ESMP as appropriate due diligence instrument (see Annex 4 for template). If only minor repairs are planned for bridges and WWTP, even if in sensitive settings, that same principle applies.

The following table details the information contained in Figure 9, and allocates to each component the likely type(s) of E&S instruments:

Table 11: Anticipated E&S Instruments by Component

Receptor/EHS Aspects	Related Potential Impacts
Air	<ul style="list-style-type: none"> <li>Emission of pollutants due to increased traffic and mobility on the rehabilitated roads</li> </ul>

	<ul style="list-style-type: none"> <li>• Emissions from landfill operations and waste incinerators in veterinary clinics</li> <li>• Increased emissions due to increase in electricity consumption</li> </ul>
Noise	<ul style="list-style-type: none"> <li>• Increase in noise emission due to increased traffic and mobility on the rehabilitated roads</li> </ul>
Soil, subsoil and land	<ul style="list-style-type: none"> <li>• Improper management of landfills may result in contamination of soil and land</li> <li>• Improper disposal of sewage</li> <li>• Leakages in sewage networks</li> </ul>
Solid and hazardous waste	<ul style="list-style-type: none"> <li>• Improper management of waste disposal sites and untreated sludge</li> <li>• Disposal of empty chemical containers used in water/wastewater treatment and agrochemicals</li> <li>• Medical wastes from mobile clinics and hospitals</li> </ul>
Water resources	<ul style="list-style-type: none"> <li>• Increase in fresh water consumption</li> <li>• Leakages in water network</li> </ul>
Biodiversity and sensitive habitats	<ul style="list-style-type: none"> <li>• Improper disposal of sewage and wastes</li> <li>• Improper use of pesticides</li> </ul>
Cultural heritage	<ul style="list-style-type: none"> <li>• Increase in vibration levels due to heavy traffic in roads passing through culturally important sites.</li> </ul>
Socio-economic	<ul style="list-style-type: none"> <li>• Positive Social amenities and social benefits</li> </ul>

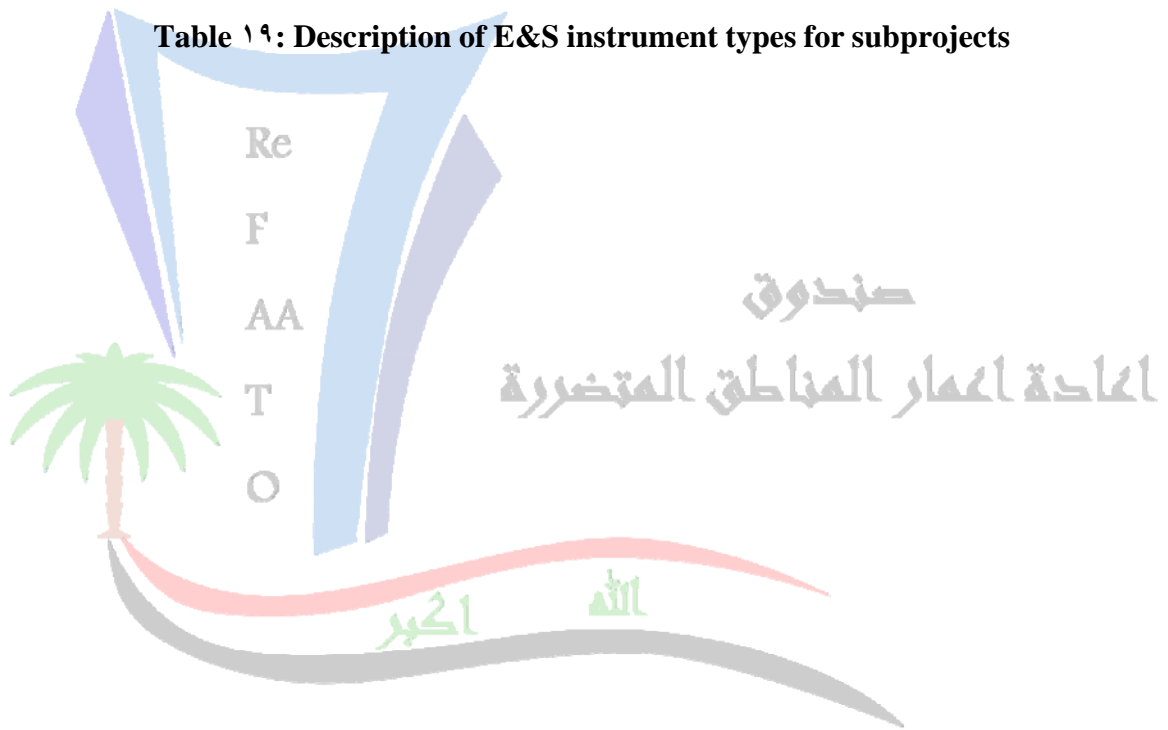
If e.g. a transmission line were to be repaired bordering or crossing a sensitive habitat (which need not necessarily be a formally protected area), a more comprehensive ESMP would have to be produced, taking into account specific baseline conditions, sensitivities and vulnerabilities, and ensuring that E&S provisions are formulated with specific reference to the local conditions.

If e.g. a large bridge crossing a river with sensitive riverine vegetation at the banks, perhaps including wetlands and backwaters with high biodiversity value, and if the repairs of the bridge were substantial, as e.g. to include work on foundations, removal of fallen debris, and generally necessitating access to pylons, foundations etc., a full and comprehensive ESIA would have to be prepared, analyzing and assessing baseline conditions, valued environmental components, and specific vulnerabilities. This ESIA would inform the ESMP, which would have to be specifically tailored to this sub-project, and comprehensively address all issues identified in the ESIA.

#### ^, † Description of E&S Instruments for the Scope of Subprojects

This section briefly characterizes the types of E&S instruments envisaged for the scope of activities under the project. The following Table is a concise summary of their key properties, and also makes reference to Annexes with detailed templates, TOR or descriptions.

**Table ١٩: Description of E&S instrument types for subprojects**



Instrument	Purpose	Scope and Contents	Annex
Checklist ESMP	(i) To Ensure basic compliance and good housekeeping for minor, routine civil works in non-sensitive environmental settings; (ii) simple, easily enforceable contractual basis for E&S compliance during construction works	Not very site-specific, covers all generic impacts that can occur during civil works; preconfigured template, where planned activities are checked and trigger clearly described, can be monitored and verifiable management and mitigation measures	#٤
Site specific ESMP	(i) To capture E&S baseline conditions that are more sensitive and could require management and mitigation measures beyond the standard good practice approach prescribed by the checklist ESMP; (ii) to provide technical guidance and contractual basis to deal with specific, more sensitive or complex E&S issues	Besides the standard set of measures for good housekeeping, E&S management and mitigation, this instrument contains tailored measures and provisions to deal with E&S issues of higher sensitivity and complexity, e.g. the protection of sensitive areas or habitats, old trees, cultural heritage, or agricultural / horticultural lands.	#٥
ESIA and ESMP	(i) To screen for, and assess anticipated E&S impacts of larger scale works that are situated in areas / locations where higher E&S sensitivities are expected; (ii) to provide technical guidance and contractual basis to carry out the required assessments during subproject design, and implement specific, more sensitive or complex E&S management, mitigation and monitoring measures during implementation & operation	This would be a full set of ESIA and specific, derivative ESMP according to the requirements for an environmental Category B project under the World Bank's OP 4.01. It would contain a screening assessment of valued or sensitive environmental components and anticipated impacts, a detailed assessment thereof, and the design of specific, tailored management, mitigation and monitoring measures.	#٥
MWMP	To ensure appropriate planning and preparation for the management and disposal of medical and infectious waste during operation of mobile hospitals and clinics.	Estimates the types and quantities of anticipated wastes; defines and describes systems to separate and collect, safely store, transport and treat medical wastes. Takes stock of existing capacities and installations, and describes the need for additional facilities (e.g. incinerators).	#٦

PMP	To ensure application of the Integrated Pest Management Principals	Provides measures to be taken to minimize health impacts and exposure of humans to pesticides, avoid ecological impacts to non-targeted species and avoid developing resistance to pesticides	# <sup>١٠</sup>
ARAP / RAP	To ensure that all negative impacts on peoples land, livelihoods or property are properly accounted for and compensated, and that no one is worse off after project implementation, than before.	A detailed description is contained in the RPF prepared for this project.	none <sup>١١</sup>

### <sup>١٠, ١١</sup> Environmental safeguards due diligence process (screening, review and approval) at the sub-project level

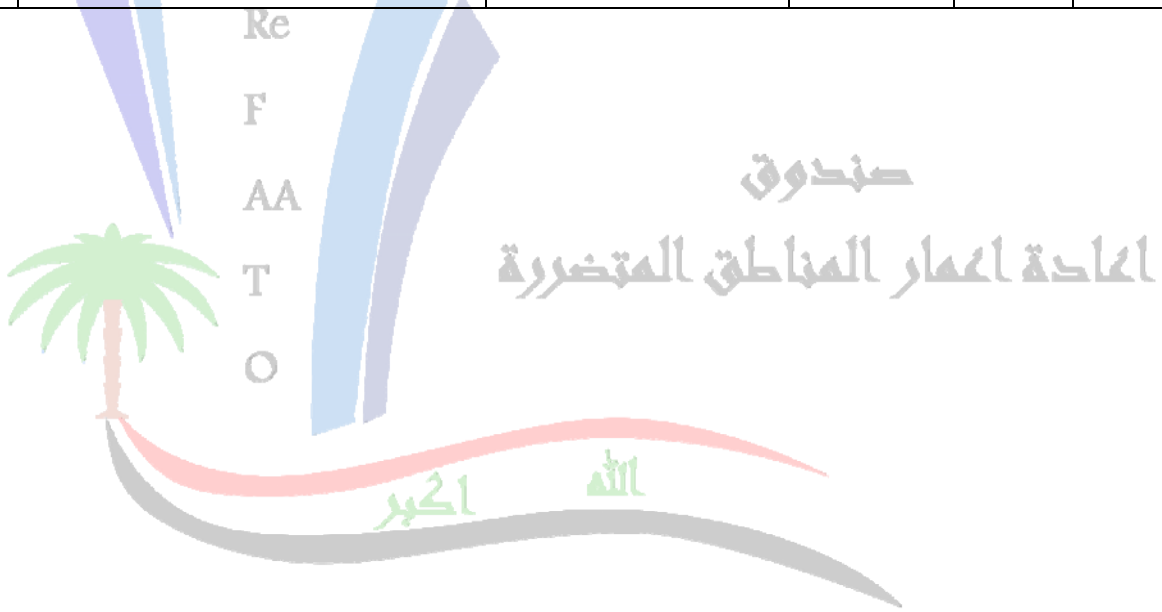
The following table shows the key steps in the sub-project cycle and the main responsibilities among the different project partners.

**Table ١٠ : Environmental Safeguards Identification Responsibilities**

Key steps in a sub-project cycle (in chronological order)		Responsibility			
		PCU	PMT	Contractor	WB
١	Identification of sub-project ; Application preparation and its submission to PCU		X		
٢	Review of sub-project application; Endorsement/rejection	X			X
٣	Completion of environmental screening		X		
٤	Review and endorsement of screening report and decision Category B and C	X			X
٥	EA/EMP financing and preparation (if determined by screening outcome)	X	X preparation		
٦	Review and clearance of EA/EMP	X In prescribed projects the PMU will submit			X

<sup>١١</sup> A separate RPF is prepared.

		documents to MEON and obtain approvals			
٧	Obtain clearances from local environmental/regulatory authorities	X			
٨	Implement sub-project in line with EMP		X	X	
٩	Monitor environmental compliance based on EMP	X Documents review	X sample basis	X Daily basis	X Missions
١٠	Reports to PMT on EMP compliance			X	
١١	Reports to PCU on EMP compliance		X		
١٢	Maintaining records of safeguards documents for all sub-projects	X	X		X





## 9. DISCLOSURE AND CONSULTATION ACTIVITIES

The parent EODP ESMF was consulted upon with a number of stakeholders twice. The first consultation was mainly conducted with representatives from the participating ministries in a meeting that was held on September 22, 2010 at the Reconstruction Fund (RF) headquarters in Baghdad (Annex A).

The second consultation meeting was held with representatives of nine (9) Nongovernmental Organizations (NGOs) and Civil Society Organizations (CSOs) on May 16, 2011 also at the RF headquarters in Baghdad (Annex A).

For this updated ESMF, RF carried out two new rounds of consultation with the main stakeholders, line ministries and government officials as further detailed below under annex A.

For all types of environmental analyses conducted under the EODP/EODP-AF (including screening), communities in the project sites should be consulted within a structured and culturally appropriate manner. Further, environmental assessment documentation and ESMPs should be made available to the public (in accordance with the World Bank's policy on Access to Information) by the RF PCU/PMTs prior to tendering of works contracts through the website of the project and notices through media, as appropriate.

In addition, it will be necessary to conduct discussions with the regulatory agencies on relevant issues and other implementing agencies who would have a stake in the project due to various reasons. Consultation will enable the project implementing agency to understand the stakeholder's requirements and for the stakeholders to develop an understanding of the project so that potential conflicts could be eliminated or minimized.

The process of consultation should be documented and account taken of the results of consultation, including any actions agreed resulting from the consultation. Public disclosure of the relevant safeguards documentation will be a pre-requisite for tendering civil works contracts.

The contract documents for each contract package will mandatorily include the relevant environmental mitigation provisions stipulated in the ESMPs (which would have community concerns reflected, if any) for the given sub-projects in order to ensure contractor compliance with safeguards requirements.

Given below is a brief framework for planning consultation under EODP. It has to be noted that only the appropriate consultation method will be applied to sub-project during implementation and the responsibility of consultation lie primarily with the PMTs.

### 9.1 Objectives of stakeholder consultations

The prime objectives of stakeholder consultation are;

- Provide the stakeholders an opportunity to inform and influence the decision making process.
- partner with the stakeholders so as to make the project widely accepted and to lower the potential impacts

### 9.2 Elements of Effective Stakeholder Consultations

Some of the most concerned elements of effective consultations are as follows;

- Well targeted
- Early enough so as to make sure to get the stakeholder views adequately reflected in the project decisions
- Transparent – provide all the information without hiding anything
- Make the consultation process very simple and understandable so that clear answers and comments can be obtained
- Ensure gender equity
- Documentation of consultation
- Based on the principle of "Two way Process"
- Focus the consultation on Risks, impacts, mitigation measures and opportunities

### ٩,٣ Suggested Methods

Participatory workshops, focus group meetings and face to face and informal individual interviews are the three most commonly adopted methods of stakeholder consultations and a mix of these can be employed under EODP-AF, as determined by the requirement.

#### **Participatory workshops**

Participatory workshops are effective when a large number of stakeholders with different interests and specializations get involved. Conducting effective participatory consultation workshop should consist of following elements;

- i. Orient the workshop towards a clear destination. In this connection it is necessary for the evaluator to present a very good project brief and the purpose of the consultation.
- ii. The evaluator should be able to build bridges and consensus among stakeholders.
- iii. Divide the participants into sub groups to represent adequate mixture of different interest groups and allow the sub groups to brainstorm among the group members and submit their views and comments as those of not individuals but of the sub groups.

#### **Focus groups discussions**

The focus group consultation meetings are relevant when the stakeholders have similar interest thus their objectives are focused towards one common objective. This kind of consultation meetings are recommended for projects that involve relocation of families or protection of natural resources etc.

#### **Stakeholder group meetings**

Stakeholder consultations are extremely useful in creating the right kind of understanding about the project among those it will likely affect or interest, and to learn how these external parties view the project and its attendant risks, impacts, opportunities and mitigation measures.

#### **Individual - face to face interviews**

When the stakeholders are not large in number and represent specialized areas of interest face to face interviews which are informal are very effective. This system is very flexible, permits in depth discussions to understand the issues and is low cost. However individual stakeholder consultations should be well planned as if not it may lead to "heavy focus on individual issues and interest". This method is recommended for the kind of consultation envisaged as part of sub-project screening as the sub-projects under EODP-AF as they are relatively small in size, potential impacts are very specific, and stakeholders are small in numbers.

The stakeholder consultation process should be continuous. However since practical difficulties exists for continued consultation, at least consultation needs to be carried out at three stages; project preparatory / design stage, project implementation stage and project end stage so as to make

sure that stakeholder concerns, interest, comments are adequately built into the whole project management process.

#### ٩, ٤ Results of the ESMF Consultation

Stakeholder consultations have been carried out as part of the ESMF updating process. The purpose of the consultations sessions is to present the overall project design; explain its broader benefits at the national level; and begin to outline some of the anticipated adverse environmental and social impacts expected to result from project activities, and to enable the stakeholders to understand the project and its activities, as well as to ensure that their concerns and issues are considered during all phases of the project, including at the planning phase. Specifically, the objectives of the consultations sessions will be to:

١. Inform the stakeholders and the public about the project.
٢. Identify the main project stakeholders and their concerns.
٣. Provide the opportunity for identified stakeholders to participate in the process of scoping significant environmental and social impacts.
٤. Identify those environmental and social impacts/concerns which are considered to be of key relevance and importance for the RPF.
٥. Ensure that appropriate approach and adequate focus are adopted during the ESMF.

For this updated ESMF, the RF representatives carried two round of consultation meetings with key stakeholders, line ministries and government officials in Mosel and in Ramadi on Aug ٢٢, ٢٠١٧ and on Aug ٣٠, ٢٠١٧ respectively. Please refer to annex ٨ for more details.

#### ٩, ٤ Grievance Redress Mechanism

The Bank's OP ٤.١٢ on *Involuntary Land Acquisition and Resettlement* requires that affordable and accessible procedures for third party settlement of disputes arising from resettlement (i.e., grievance redress mechanisms) would be available. This GRM should take into account the availability of judicial recourse as well as traditional and community dispute resolution mechanisms.

In Iraq, the official channel is through court to hand the complaints involved in land acquisition. When the land (either owned by an individual or a government institute) cannot be purchased based on mutual agreement (through a willing buyer-willing seller approach), and there are not alternative sites for the project, the land has to be acquired by using eminent domain. In such case, the project entity or the responsible ministry will go to court and buy the land based on the value decided by the court. The land owners can appeal if they are not satisfied with the court decision. The second court decision will be the final.

In addition to the official channel, a Grievance Redress Mechanism has been established at the project level for the parent project to ensure any grievance can be addressed in an amicable manner. The same GRM will be applied the additional financing. Resolving complaints at community level is always encouraged as it could address the problem of distance and cost the PAP may have to face in pursuing grievance redress.

While the details of the project grievance redressed system will be developed during the course of RAP preparation, and also in consultation with communities, its broad steps to be refined based on further consultations might include the following for written complaints:

- First, the affected person sends his/her grievance in writing to the communities / community leaders. The grievance note should be signed and dated by the aggrieved person. Where the affected

person is unable to write, s/he should obtain assistance from the community to write the note and mark the letter with his/her thumbprint. The community should respond within ١٤ days.

- Second, if the aggrieved person does not receive a response or is not satisfied with the solution provided by the community, s/he lodges her or his grievance to PMT which should respond within ١٤ days.
- Third, if the aggrieved person is not satisfied with the solution of PMT, s/he can go to the court.

In any case, the PMT must maintain records of grievances and complaints, including minutes of discussions, recommendations and resolutions made.



١٠. ANNEXES

---

**Annex ١:** Environmental and social action Plan (ESAP)

**Annex ٢:** Project description

**Annex ٣:** Sample mitigation and monitoring plan

**Annex ٤:** Template for “checklist type” ESMP

**Annex ٥:** Minimum requirements for an ESIA for selected subprojects

**Annex ٦:** Sample Outline for a Medical Waste Management Plan (MWMP)

**Annex ٧:** Disclosure Requirements for E&S Instruments for Subprojects

**Annex ٨:** Documentation of Disclosure and Consultation Activities

**Annex ٩:** Managing the Risks of Adverse Impacts on Communities from Temporary Project Induced Labor Influx

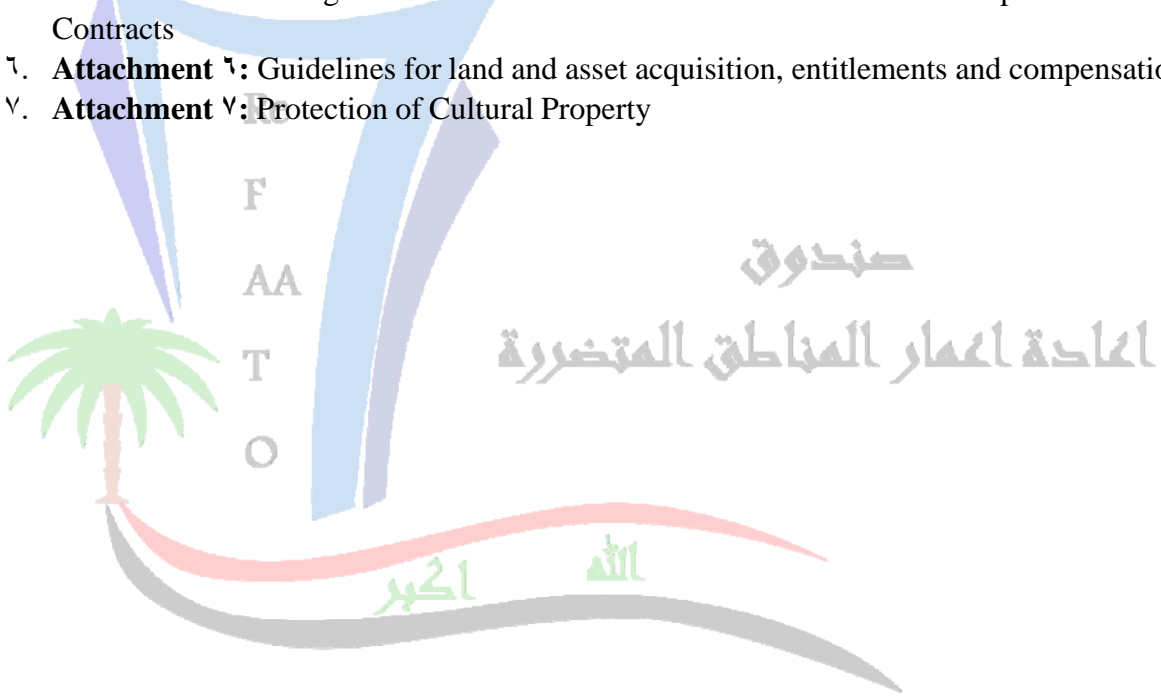


## Annex ١: Useful Environmental and Social Guidelines, Checklists and Working Documents

This Annex includes useful environmental and social guidelines, checklists and working documents that have been part of the Environmental and Social Action Plan prepared for the parent project before developing the original ESMF. The documents in the following attachments may be useful as reference during the preparation of environmental and social instruments of the AF subproject.

### Attachments:

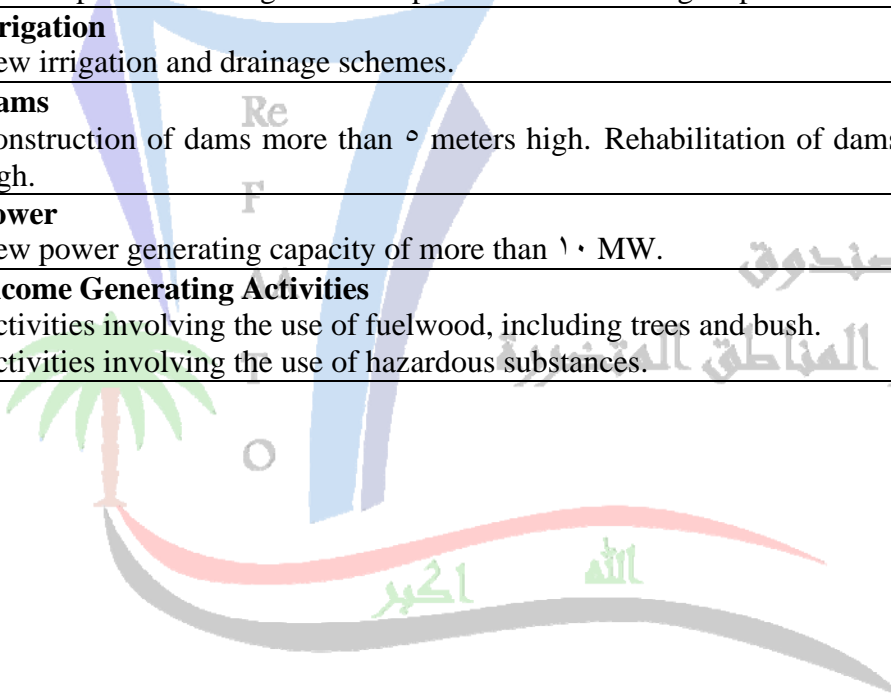
١. **Attachment ١:** List of Negative Subproject Attributes
٢. **Attachment ٢:** Checklist of Possible Environmental and Social Impacts of Projects
٣. **Attachment ٣:** Guidelines for preparation of an ESMP
٤. **Attachment ٤:** Codes of practice and mitigation of potential environmental impacts
٥. **Attachment ٥:** Safeguards Procedures for Inclusion in the Technical Specifications of Contracts
٦. **Attachment ٦:** Guidelines for land and asset acquisition, entitlements and compensation
٧. **Attachment ٧:** Protection of Cultural Property



**Attachment ١: List of Negative Subproject Attributes**

Subprojects with any of the attributes listed below will be ineligible for support under the proposed emergency infrastructure renewal project.

<b>Attributes of Ineligible Subprojects</b>	
<b>General Characteristics</b>	
	<ul style="list-style-type: none"> <li>Concerning significant conversion or degradation of critical natural habitats.</li> </ul>
	Damages cultural property, including but not limited to, any activities that affect the following sites: <ul style="list-style-type: none"> <li>Archaeological and historical sites; and</li> <li>Religious monuments, structures and cemeteries.</li> </ul>
	Requiring pesticides that fall in WHO classes IA, IB, or II.
	<b>Sanitation</b> New wastewater treatment plants to serve ١٠,٠٠٠ or more households.
	<b>Solid Waste</b> New disposal site or significant expansion of an existing disposal site.
	<b>Irrigation</b> New irrigation and drainage schemes.
	<b>Dams</b> Construction of dams more than ٥ meters high. Rehabilitation of dams more than ١٥ meters high.
	<b>Power</b> New power generating capacity of more than ١٠ MW.
	<b>Income Generating Activities</b> Activities involving the use of fuelwood, including trees and bush. Activities involving the use of hazardous substances.





**Attachment ٢:  
Checklist of Possible Environmental and Social Impacts of Projects**

**I. Subproject Related Issues**

<b>S No</b>	<b>ISSUES</b>	<b>YES</b>	<b>NO</b>	<b>Comments</b>
<b>A.</b>	<b>Zoning and Land Use Planning</b>			
١.	Will the subproject affect land use zoning and planning or conflict with prevalent land use patterns?			
٢.	Will the subproject involve significant land disturbance or site clearance?			
٣.	Will the subproject land be subject to potential encroachment by urban or industrial use or located in an area intended for urban or industrial development?			
<b>B.</b>	<b>Utilities and Facilities</b>			
٤.	Will the subproject require the setting up of ancillary production facilities?			
٥.	Will the subproject require significant levels of accommodation or service amenities to support the workforce during construction (e.g., contractor will need more than ٢٠ workers)?			
<b>C</b>	<b>Water and Soil Contamination</b>			
٦.	Will the subproject require large amounts of raw materials or construction materials?			
٧.	Will the subproject generate large amounts of residual wastes, construction material waste or cause soil erosion?			
٨.	Will the subproject result in potential soil or water contamination (e.g., from oil, grease and fuel from equipment yards)?			
٩.	Will the subproject lead to contamination of ground and surface waters by herbicides for vegetation control and chemicals (e.g., calcium chloride) for dust control?			
١٠.	Will the subproject lead to an increase in suspended sediments in streams affected by road cut erosion, decline in water quality and increased sedimentation downstream?			
١١.	Will the subproject involve the use of chemicals or solvents?			
١٢.	Will the subproject lead to the destruction of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards?			
١٣.	Will the subproject lead to the creation of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors?			
<b>D.</b>	<b>Noise and Air Pollution Hazardous Substances</b>			
١٤.	Will the subproject increase the levels of harmful air emissions?			
١٥.	Will the subproject increase ambient noise levels?			

١٦.	Will the subproject involve the storage, handling or transport of hazardous substances?			
<b>E.</b>	<b>Fauna and Flora</b>			
١٨.	Will the subproject involve the disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes)?			
١٩.	Will the subproject lead to the destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development?			
٢٠.	Will the subproject lead to the disruption/destruction of wildlife through interruption of migratory routes, disturbance of wildlife habitats, and noise-related problems?			
<b>F.</b>	<b>Destruction/Disruption of Land and Vegetation</b>			
٢١.	Will the subproject lead to unplanned use of the infrastructure being developed?			
٢٢.	Will the subproject lead to long-term or semi-permanent destruction of soils in cleared areas not suited for agriculture?			
٢٣.	Will the subproject lead to the interruption of subsoil and overland drainage patterns (in areas of cuts and fills)?			
٢٤.	Will the subproject lead to landslides, slumps, slips and other mass movements in road cuts?			
٢٥.	Will the subproject lead to erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains?			
٢٦.	Will the subproject lead to long-term or semi-permanent destruction of soils in cleared areas not suited for agriculture?			
٢٧.	Will the subproject lead to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles?			
<b>G.</b>	<b>Cultural Property</b>			
٢٨.	Will the subproject have an impact on archaeological or historical sites, including historic urban areas?			
٢٩.	Will the subproject have an impact on religious monuments, structures and/or cemeteries?			
٣٠.	Have Chance Finds procedures been prepared for use in the subproject?			
<b>H.</b>	<b>Expropriation and Social Disturbance</b>			
٣١.	Will the subproject involve land expropriation or demolition of existing structures?			
٣٢.	Will the subproject lead to induced settlements by workers and others causing social and economic disruption?			
٣٣.	Will the subproject lead to environmental and social disturbance by construction camps?			

**II. Site Characteristics**

S. No	ISSUES	YES	NO	Comments
١.	Is the subproject located in an area with designated natural reserves?			
٢.	Is the subproject located in an area with unique natural features?			
٣.	Is the subproject located in an area with endangered or conservation-worthy ecosystems, fauna or flora?			
٤.	Is the subproject located in an area falling within ٥٠٠ meters of national forests, protected areas, wilderness areas, wetlands, biodiversity, critical habitats, or sites of historical or cultural importance?			
٥.	Is the subproject located in an area which would create a barrier for the movement of conservation-worthy wildlife or livestock?			
٦.	Is the subproject located close to groundwater sources, surface water bodies, water courses or wetlands?			
٧.	Is the subproject located in an area with designated cultural properties such as archaeological, historical and/or religious sites?			
٨.	Is the subproject in an area with religious monuments, structures and/or cemeteries?			
٩.	Is the subproject in a polluted or contaminated area?			
١٠.	Is the subproject located in an area of high visual and landscape quality?			
١١.	Is the subproject located in an area susceptible to landslides or erosion?			
١٢.	Is the subproject located in an area of seismic faults?			
١٣.	Is the subproject located in a densely populated area?			
١٤.	Is the subproject located on prime agricultural land?			
١٥.	Is the subproject located in an area of tourist importance?			
١٦.	Is the subproject located near a waste dump?			
١٧.	Does the subproject have access to potable water?			
١٨.	Is the subproject located far (١-٢ kms) from accessible roads?			
١٩.	Is the subproject located in an area with a wastewater network?			
٢٠.	Is the subproject located in the urban plan of the city?			
٢١.	Is the subproject located outside the land use plan?			

Signed by Environment Specialist: Name: \_\_\_\_\_  
 Title: \_\_\_\_\_  
 Date: \_\_\_\_\_

Signed by Project Manager: Name: \_\_\_\_\_  
 Title: \_\_\_\_\_  
 Date: \_\_\_\_\_

**Attachment ٣:****Guidelines for preparation of the Environmental and Social Management Plan**

Under the ESIA process, once the potential impacts of the relevant activities have been identified, the next step of the ESIA process involves the identification and development of measures aimed at eliminating, offsetting, and/or reducing impacts to levels that are environmentally acceptable during implementation and operation of the Project. The ESMP should describe the identified negative environmental and social impacts, proposed mitigation measures, responsibilities for implementation of these measures, timeline for implementation and indicative budget for each item. A sample EMP Checklist for Low-Risk Topologies will be provided to the project implementing agencies as a stand-alone attachment.

**Description of mitigation measures**

Feasible and cost effective measures to minimize adverse impacts to acceptable levels should be specified with reference to each identified impact. The plan includes compensatory measures if mitigation measures are not feasible, cost-effective, or sufficient. Specifically, the ESIA/ESMP should:

- Identify and summarize all anticipated significant adverse environmental impacts, including those involving involuntary resettlement;
- Describe each mitigation measure, including the type of impact to which it relates and the conditions under which it is required;
- Estimate any potential environmental impacts of these measures; and
- Provide linkage with any other mitigation plan (e.g. for involuntary resettlement) required for the Project.

**Monitoring program**

In order to ensure that the proposed mitigation measures have the intended results and comply with national standards and donor requirements, an environmental performance monitoring section should be included in the ESMP. The ESMP identifies monitoring objectives and specifies the type of monitoring, with linkages to the impacts assessed and the mitigation measures described in the ESMP. The monitoring program should give details of the following:

- Monitoring indicators to be measured for evaluating the performance of each mitigation measure
- Monitoring mechanisms and methodologies;
- Monitoring frequency;
- Monitoring locations;
- Monitoring budget.

**Capacity development and training:** The ESMP will draw on the existence, role and capability of environmental units on site or at the implementing agency and ministry levels. If necessary the ESMP will include actions to strengthen environmental and social capability in the agencies responsible for its implementation.

**Institutional arrangements:** Institutions/entities responsible for implementing mitigation measures and for monitoring their performance should be clearly identified. Where necessary, mechanisms for institutional coordination should be identified, as monitoring often involves more than one institution.

**Implementing schedules and cost estimates:** The ESMP provides timing, frequency, and duration of mitigation, monitoring and capacity development measures with links to overall implementation schedule of the Project, as well as related capital and recurrent cost and sources of funding. The plan for the ESMP should be specific in its description of the individual mitigation and monitoring measures and its assignment of institutional responsibilities.

**Attachment 4:**

**Codes of Practice for Prevention and Mitigation of Environmental Impacts**

Potential Impacts	Prevention and Mitigation Measures
<p>Impacts during construction:</p> <ul style="list-style-type: none"> <li>• Fuelwood collection</li> <li>• Excessive water harvesting</li> <li>• Poor sanitation</li> <li>• Generation of solid (including hazardous) wastes</li> <li>• Groundwater contamination (oil, grease)</li> <li>• Accidents during construction</li> <li>• Impacts to physical cultural resources</li> <li>• Influx of migrant workers</li> </ul>	<ul style="list-style-type: none"> <li>• Provision of fuel and water sources at the work camps to prevent stress to local communities due to cutting of firewood and collection of water.</li> <li>• Provision of proper, gender separated sanitation facilities at the work camps.</li> <li>• Removal of work camp wastes, proper disposal of oil, bitumen and other hazardous wastes.</li> <li>• Management of worker health and safety during construction period (refer to WBG Environmental Health and Safety Guidelines).</li> <li>• Use of chance-find procedures (refer to Attachment 4).</li> <li>• Provide comprehensive community participation in the planning, migration issue to be resolved through local redress mechanism.</li> <li>• Preference to employment of local workers.</li> </ul>
<p>Medical waste</p>	<ul style="list-style-type: none"> <li>• Wastes should be segregated at the point of generation according to their type: (a) Infectious, bio-contaminated wastes (including sharp materials); (b) chemical wastes (drugs, chemical solutions, etc.); (c) noninfectious, common wastes (paper, cardboard, glass, or the like; empty chemical product containers should be treated as chemical wastes).</li> <li>• Only puncture proof, hermetic plastic containers of 2-5 liter capacity or opaque glass bottles should be used to store sharp objects</li> <li>• For each hospital room, washable and easily disinfected PVC containers with a capacity of 1-2 liters should be used. Waste should be disposed of in colored bags according to national codification. Usually they are: red bags for bio-contaminated wastes; yellow bags for chemical wastes; black bags for common wastes.</li> <li>• These wastes should then be collected separately at latest 12-24 hours. The personnel assigned to handle medical waste should be properly trained and should wear protective gear such as with aprons, masks, boots and gloves.</li> <li>• Treatment should be done according to the type of waste. Sharp materials disposed in puncture proof containers should then buried in a protected sharp pit. Existing functioning nearby waste treatment facilities should be used but only if safe means of transport can be ensured.</li> <li>• Burial area should be isolated and protected to avoid illegal recycling. However, this may not be possible in permanent health facilities, due to lack of space. In such cases, protected areas should be used at landfill sites to receive treated wastes.</li> </ul>

	<p>Common wastes may be managed by the municipal waste-collection service, as long as they are not mixed and do not contain hazardous materials.</p>
<p>Borrow sites</p>	<ul style="list-style-type: none"> <li>• Design to prevent soil erosion and maintain slope stability</li> <li>• Avoid to have a borrow area close of the settlements</li> </ul>



Potential Impacts	Prevention and Mitigation Measures
<p>Access Roads - Drainage:</p> <ul style="list-style-type: none"> <li>• Design to provide adequate drainage and to minimize changes in flows, not limited to the road reserve.</li> <li>• Hampers free drainage, causes stagnant pools of water.</li> <li>• Increased sediments into ponds, streams, rivers due to erosion from road tops and sides.</li> <li>• Increased runoff and flooding</li> </ul>	<ul style="list-style-type: none"> <li>• Design to provide adequate drainage and to minimize changes in flows, not limited to the road reserve.</li> <li>• Provision of energy dissipaters, cascades, steps and check dams.</li> <li>• Provision of sufficient number of cross drains.</li> <li>• Balancing of cut and fill.</li> <li>• Re-vegetation to protect susceptible soil surfaces.</li> <li>• Rehabilitation of borrow areas.</li> </ul>
<p>Erosion:</p> <ul style="list-style-type: none"> <li>• Erosion of land downhill from the road bed or in borrow areas;</li> <li>• Landslides, slips or slumps;</li> <li>• Bank failure of the borrow pit.</li> </ul>	<ul style="list-style-type: none"> <li>• Design to prevent soil erosion and maintain slope stability.</li> <li>• Construction in the dry season.</li> <li>• Protection of soil surfaces during construction.</li> <li>• Physical stabilization of erodible surfaces through turving, planting native vegetation for slope maintenance and creating slope breaks.</li> <li>• Rehabilitation and re-grading of borrow pits and material collection sites prior to finalization of the project.</li> </ul>
<p>Loss of vegetation:</p>	<ul style="list-style-type: none"> <li>• Balancing of cut and fill.</li> <li>• Re-vegetation with native species to protect susceptible soil surfaces.</li> <li>• Minimize loss of natural vegetation during construction.</li> <li>• Re-vegetation and replanting to compensate any loss of plant cover and tree felling.</li> </ul>



**Attachment ٥:****Safeguards Procedures for Inclusion in the Technical Specifications of Contracts****I. General**

١. The Contractor and his employees shall adhere to the mitigation measures set down and take all other measures required by the Engineer to prevent harm, and to minimize the impact of his operations on the environment.
٢. The Contractor shall not be permitted to unnecessarily strip clear the right of way. The Contractor shall only clear the minimum width for construction and diversion roads should not be constructed alongside the existing road.
٣. Remedial actions which cannot be effectively carried out during construction should be carried out on completion of each Section of the road (earthworks, pavement and drainage) and before issuance of the Taking Over Certificate:
  - (a) these sections should be landscaped and any necessary remedial works should be undertaken without delay, including grassing and reforestation;
  - (b) water courses should be cleared of debris and drains and culverts checked for clear flow paths; and
  - (c) borrow pits should be dressed as fish ponds, or drained and made safe, as agreed with the land owner.
٤. The Contractor shall limit construction works to between ٦ am and ٧ pm if it is to be carried out in or near residential areas.
٥. The Contractor shall avoid the use of heavy or noisy equipment in specified areas at night, or in sensitive areas such as near a hospital.
٦. To prevent dust pollution during dry periods, the Contractor shall carry out regular watering of earth and gravel haul roads and shall cover material haulage trucks with tarpaulins to prevent spillage.

**II. Transport**

٧. The Contractor shall use selected routes to the project site, as agreed with the Engineer, and appropriately sized vehicles suitable to the class of road, and shall restrict loads to prevent damage to roads and bridges used for transportation purposes. The Contractor shall be held responsible for any damage caused to the roads and bridges due to the transportation of excessive loads, and shall be required to repair such damage to the approval of the Engineer.
٨. The Contractor shall not use any vehicles, either on or off road with grossly excessive, exhaust or noise emissions. In any built up areas, noise mufflers shall be installed and maintained in good condition on all motorized equipment under the control of the Contractor.
٩. Adequate traffic control measures shall be maintained by the Contractor throughout the duration of the Contract and such measures shall be subject to prior approval of the Engineer.

**III. Workforce**

١٠. The Contractor should whenever possible locally recruit the majority of the workforce and shall provide appropriate training as necessary.
١١. The Contractor shall install and maintain a temporary septic tank system for any residential labor camp and without causing pollution of nearby watercourses.
١٢. The Contractor shall establish a method and system for storing and disposing of all solid wastes generated by the labor camp and/or base camp.

١٣. The Contractor shall not allow the use of fuel wood for cooking or heating in any labor camp or base camp and provide alternate facilities using other fuels.

١٤. The Contractor shall ensure that site offices, depots, asphalt plants and workshops are located in appropriate areas as approved by the Engineer and not within ٥٠٠ meters of existing residential settlements and not within ١,٠٠٠ meters for asphalt plants.

١٥. The Contractor shall ensure that site offices, depots and particularly storage areas for diesel fuel and bitumen and asphalt plants are not located within ٥٠٠ meters of watercourses, and are operated so that no pollutants enter watercourses, either overland or through groundwater seepage, especially during periods of rain. This will require lubricants to be recycled and a ditch to be constructed around the area with an approved settling pond/oil trap at the outlet.

١٦. The contractor shall not use fuel wood as a means of heating during the processing or preparation of any materials forming part of the Works.

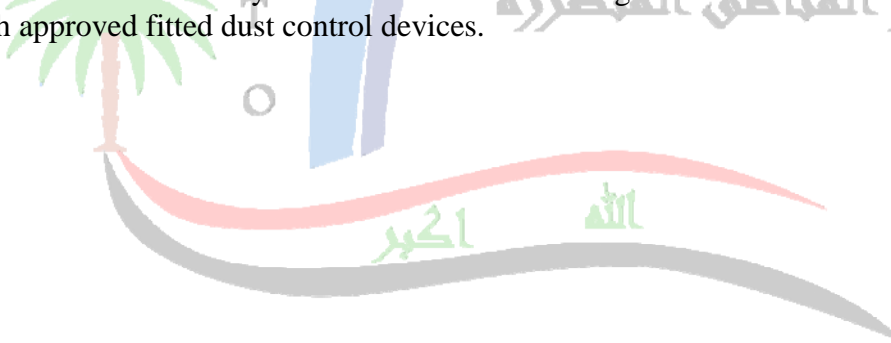
#### **IV. Quarries and Borrow Pits**

١٧. Operation of a new borrow area, on land, in a river, or in an existing area, shall be subject to prior approval of the Engineer, and the operation shall cease if so instructed by the Engineer. Borrow pits shall be prohibited where they might interfere with the natural or designed drainage patterns. River locations shall be prohibited if they might undermine or damage the river banks, or carry too much fine material downstream.

١٨. The Contractor shall ensure that all borrow pits used are left in a trim and tidy condition with stable side slopes, and are drained ensuring that no stagnant water bodies are created which could breed mosquitoes.

١٩. Rock or gravel taken from a river shall be far enough removed to limit the depth of material removed to one-tenth of the width of the river at any one location, and not to disrupt the river flow, or damage or undermine the river banks.

٢٠. The location of crushing plants shall be subject to the approval of the Engineer, and not be close to environmentally sensitive areas or to existing residential settlements, and shall be operated with approved fitted dust control devices.



## **V. Earthworks**

٢١. Earthworks shall be properly controlled, especially during the rainy season.
٢٢. The Contractor shall maintain stable cut and fill slopes at all times and cause the least possible disturbance to areas outside the prescribed limits of the work.
٢٣. The Contractor shall complete cut and fill operations to final cross-sections at any one location as soon as possible and preferably in one continuous operation to avoid partially completed earthworks, especially during the rainy season.
٢٤. In order to protect any cut or fill slopes from erosion, in accordance with the drawings, cut off drains and toe-drains shall be provided at the top and bottom of slopes and be planted with grass or other plant cover. Cut off drains should be provided above high cuts to minimize water runoff and slope erosion.
٢٥. Any excavated cut or unsuitable material shall be disposed of in designated tipping areas as agreed to by the Engineer.
٢٦. Tips should not be located where they can cause future slides, interfere with agricultural land or any other properties, or cause soil from the dump to be washed into any watercourse. Drains may need to be dug within and around the tips, as directed by the Engineer.

## **VI. Historical and Archeological Sites**

٢٧. If the Contractor discovers archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall:
  - a. Stop the construction activities in the area of the chance find.
  - b. Delineate the discovered site or area.
  - c. Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be present until the responsible local authorities and the Ministry of Culture take over.
  - d. Notify the supervisory Engineer who in turn will notify the responsible local authorities and the Ministry of Culture immediately (less than ٢٤ hours).
  - e. Contact the responsible local authorities and the Ministry of Culture who would be in charge of protecting and preserving the site before deciding on the proper procedures to be carried out. This would require a preliminary evaluation of the findings to be performed by the archeologists of the Ministry of Culture (within ٧٢ hours). The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage, including the aesthetic, historic, scientific or research, social and economic values.
  - f. Ensure that decisions on how to handle the finding be taken by the responsible authorities and the Ministry of Culture. This could include changes in the layout (such as when the finding is an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage.
  - g. Implementation for the authority decision concerning the management of the finding shall be communicated in writing by the Ministry of Culture; and
  - h. Construction work will resume only after authorization is given by the responsible local authorities and the Ministry of Culture concerning the safeguard of the heritage.

## VII. Disposal of Construction and Vehicle Waste

٢٨. Debris generated due to the dismantling of the existing structures shall be suitably reused, to the extent feasible, in the proposed construction (e.g. as fill materials for embankments). The disposal of remaining debris shall be carried out only at sites identified and approved by the project engineer. The contractor should ensure that these sites (a) are not located within designated forest areas; (b) do not impact natural drainage courses; and (c) do not impact endangered/rare flora. Under no circumstances shall the contractor dispose of any material in environmentally sensitive areas.

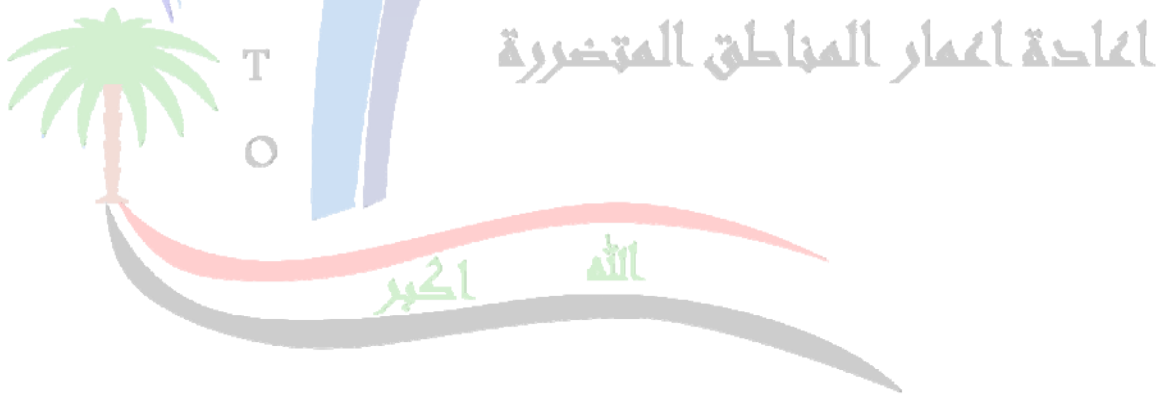
٢٩. In the event any debris or silt from the sites is deposited on adjacent land, the Contractor shall immediately remove such, debris or silt and restore the affected area to its original state to the satisfaction of the Supervisor/Engineer.

٣٠. Bentonite slurry or similar debris generated from pile driving or other construction activities shall be disposed of to avoid overflow into the surface water bodies or form mud puddles in the area.

٣١. All arrangements for transportation during construction including provision, maintenance, dismantling and clearing debris, where necessary, will be considered incidental to the work and should be planned and implemented by the contractor as approved and directed by the Engineer.

٣٢. Vehicle/machinery and equipment operations, maintenance and refueling shall be carried out to avoid spillage of fuels and lubricants and ground contamination. An oil interceptor will be provided for wash down and refueling areas. Fuel storage shall be located in proper bounded areas.

٣٣. All spills and collected petroleum products shall be disposed of in accordance with standard environmental procedures/guidelines. Fuel storage and refilling areas shall be located at least ٣٠٠ meters from all cross drainage structures and important water bodies or as directed by the Engineer.



**Attachment ٦:****Guidelines for Land and Asset Acquisition, Entitlements and Compensation****I. Objectives**

١. Resettlement and land acquisition will be kept to a minimum, and will be carried out in accordance with these guidelines. Subproject proposals that would require demolishing houses or acquiring productive land should be carefully reviewed to minimize or avoid their impacts through alternative alignments. Proposals that require more than minor expansion along rights of way should be carefully reviewed. No land or asset acquisition may take place outside of these guidelines. A format for Land Acquisition Assessment Data Sheet is attached as Attachment ٧(i).

٢. These guidelines provide principles and instructions to compensate negatively affected persons to ensure that they will be assisted to improve, or at least to restore, their living standards, income earning or production capacity to pre-project levels regardless of their land tenure status.

**II. Categorization**

٣. Based on the number of persons that may be affected by the project, Project Affected People (PAPs) and the magnitude of impacts, projects will be categorized as follows:

(a) Projects that will affect more than ٢٠٠ PAPs due to land acquisition and/or physical relocation and where a full RAP must be produced. If the RAP cannot be prepared prior to project appraisal, a waiver can be provided by the World Bank Managing Director (MD) in consultation with the Resettlement Committee. In such cases, the TT should agree with the Borrower on a timetable for preparation of the RAP.

(b) Projects that will affect less than ٢٠٠ persons require the following documentation: (i) a land acquisition assessment, (ii) the minutes or record of consultations which assess the compensation claimed and agreement reached, and (iii) a record of the receipt of the compensation, or voluntary donation, by those affected (see below).

(c) Projects that are not expected to have any land acquisition or any other significant adverse social impacts; on the contrary, significant positive social impact and improved livelihoods are expected from such interventions.

**III. Eligibility**

٤. PAPs are identified as persons whose livelihood is directly affected by the project due to acquisition of the land owned or used by them. PAPs deemed eligible for compensation are:

(a) those who have formal legal rights to land, water resources or structures/buildings, including recognized customary and traditional rights;

(b) those who do not have such formal legal rights but have a claim to usufruct rights rooted in customary law; and

(c) those whose claim to land and water resources or building/structures do not fall within (a) and (b) above, are eligible to resettlement assistance to restore their livelihood.

**IV. Compensation Principles**

٥. The project implementation agencies will ensure timely provision of the following means of compensation to affected peoples:

(a) Project affected peoples losing access to a portion of their land or other productive assets with the remaining assets being economically viable are entitled to compensation at a replacement cost for that portion of land or assets lost to them. Compensation for the lost assets will be made according to the following principles:

(i) replacement land with an equally productive plot, cash or other equivalent productive assets;

(ii) materials and assistance to fully replace solid structures that will be demolished;

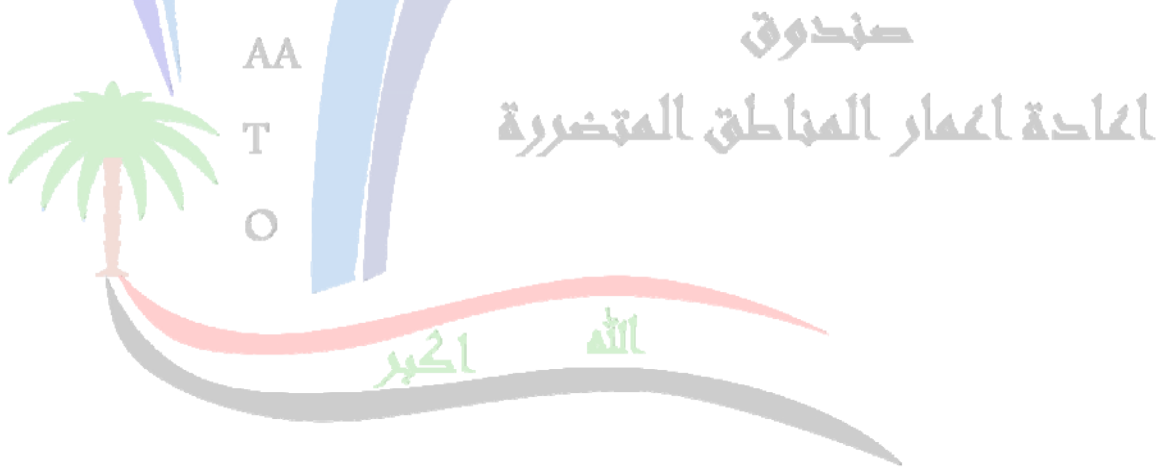
(iii) replacement of damaged or lost crops and trees, at market value;

- (iv) other acceptable in-kind compensation;
  - (v) in case of cash compensation, the delivery of compensation should be made in public, i.e., at the Community Meeting; and
  - (vi) in case of physical relocation, provision of civic infrastructure at the resettlement sites.
- (b) Project affected peoples losing access to a portion of their land or other economic assets rendering the remainder economically non-viable will have the options of compensation for the entire asset by provision of alternative land, cash or equivalent productive asset, according to the principles in (a) i-iv above.

## V. Consultation Process

٦. The PMU and the concerned implementing entity will ensure that all occupants of land and owners of assets located in a proposed subproject area are consulted. Community meetings will be held in each affected district and village to inform the local population of their rights to compensation and options available in accordance with these Guidelines. The Minutes of the community meetings shall reflect the discussions held; agreements reached, and include details of the agreement, based on the format provided in Attachment ٣(ii).

٧. The PMU and the concerned implementing entity shall provide a copy of the Minutes to affected people and confirm in discussions with each of them, their requests and preferences for compensation, agreements reached, and any eventual complaint. Copies will be recorded in the posted project documentation and be available for inspection during supervision.





**VI. Subproject Approval**

^ . In the event that a subproject involves acquisition against compensation, the PMU through the concerned implementing entity shall:

- (a) not approve the subproject unless satisfactory compensation has been agreed between the affected person and the local community; and
- (b) not allow works to start until the compensation has been delivered in a satisfactory manner to the affected persons.

**VII. Complaints and Grievances**

9 . Initially, all complaints should be registered by the PMU and the concerned implementing entity as the case maybe, which shall establish a register of resettlement/compensation related grievances and disputes mechanism. The existence and conditions of access to this register (where, when, how) shall be widely disseminated within the community/town as part of the consultation undertaken for the sub-project in general. A committee of knowledgeable persons, experienced in the subject area, shall be constituted at a local level as a Committee to handle first instance dispute/grievances. This group of mediators attempting amicable mediation/litigation in first instance will consist of the following members: (i) Head of District; (ii) Legal advisor; (iii) Local Representative within the elected Council; (iv) Head of Community Based Organization; and (v) Community leaders. This mediation committee will be set up at local level by the implementation agency on an “as-needed” (i.e. it will be established when a dispute arises in a given community).

10 . When a grievance/dispute is recorded as per above-mentioned registration procedures, the mediation committee will be established, and mediation meetings will be organized with interested parties. Minutes of meetings will be recorded. The existence of this first instance mechanism will be widely disseminated to the affected people as part of the consultation undertaken for the sub-project in general. It is important that these mediation committees be set up as soon as RAP preparation starts. Disputes documented e.g. through socio-economic surveys should be dealt with by appropriate mediation mechanisms which must be available to cater for claims, disputes and grievances at this early stage. A template form for claims should be developed and these forms be collated on a quarterly basis into a database held at project level.

**VIII. Verification**

11 . The Mediation Meeting Minutes, including agreements of compensation and evidence of compensation made shall be provided to the Municipality/district, to the supervising engineers, who will maintain a record hereof, and to auditors and socio-economic monitors when they undertake reviews and post-project assessment. This process shall be specified in all relevant project documents, including details of the relevant authority for complaints at the municipal/district or implementing agency level.



## Annex ٧: Project Description

**Component ١: Restoring Electricity Infrastructure and Connectivity**

This component aims to support restoration of electricity services to the liberated areas, with particular emphasis on (i) public sector led interventions covering the reconstruction of damaged transmission and distribution assets (as per the original EODP) and (ii) where feasible, private sector- led efforts to expand access to electricity based on service contracts for installing new infrastructure for distributed generation (fee per KWh) and SPV systems for institutions and households.

**Sub component ١. *Transmission and Distribution Grid Reconstruction*** to support procurement and installation of equipment, materials, spare parts and civil works to rehabilitate and reconstruct the heavily damaged transmission and distribution networks in the project areas.

**Sub component ٢ (New): *Emergency Electricity Service Restoration*** to support service contracts (fee/KWh) for private rental of emergency generation services in areas where it will take some time to reconstruct the electricity network. This will provide an effective transitory solution and facilitate restoration of basic services such as water supply and health services. A detailed feasibility assessment will be undertaken within the first six months of the Project to identify viable business models. Privately owned generation and distribution of electricity services is widespread in most of the governorates in Iraq due to the poor reliability of the grid supply service, with the current national average of about ١٥ hours per day. However, there is no regulatory oversight of the activities of private operators. Given the high cost of fuel and the limited number of consumers, private operators are not functioning at full capacity- as a consequence electricity service charge is about ١٠٠ times the cost of the grid supply.

**Sub component ٣ (New):** Support for the installation of *Solar Photovoltaic (SPV)* systems via the private sector, to address gaps in the provision of electricity services. A detailed assessment will be undertaken within the first six months of the Project to identify feasible business models, including financial incentives (for working capital or consumer loans) that could be supported by the Project. Although private solar development is a compelling solution due to resource abundance, the modular nature of solar energy and minimal dependencies on existing infrastructure, investments in this area are hindered by Government subsidies that have been put into place to maintain electricity prices at artificially low levels, combined with the challenge that most electricity consumers do not pay their electricity bill. The Government has initiated actions to increase tariffs, including operations efficiency (including electricity bills collections and disconnections for non-payment) and enforcement of bill payment. The Project will play a crucial role in creating a market, and potentially supporting transformation of the renewable energy landscape in Iraq, specifically by providing technical knowledge and catalysing the installation of initial systems for renewable energy generation.

**Component ٢: Restoring Municipal Waste, Water and Sanitation Services**

This component is largely similar to that described for the EODP and aims to restore water, wastewater and solid waste services through the repair, reconstruction, and rehabilitation of damaged infrastructure in selected municipalities. Reconstruction of public works will generate local employment opportunities, and successful completion of public works in this sector will reduce the incidence of public health risks through water-borne diseases.

However, the AF will incorporate the following modifications to the original component: i) it will now focus on three governorates (Al Anbar, Ninawa and Salah Ad-Din, including the districts and sub-districts surrounding Mosul and Ramadi) and ii) prioritize reconstruction and rehabilitation of sewage treatment plants, and solid waste management equipment (garbage trucks, etc.)

**Component ٣: Restoring Transport Infrastructure**

Transport infrastructure (bridges, roads, airports, and railway) is key to the economic development of Iraq. Most of the transport infrastructure in the war-impacted regions suffered destruction and damages resulting from the recent military operations, sabotage and vandalism during the crisis. Critical bridges, road sections, airports and railways have been significantly damaged. This has led to severe disruption of service delivery, closure of several bridges, road sections as well as other modes of transport such as airports and railway systems. In addition, lack of maintenance funding and institutional weaknesses have further deteriorated the quality of the transport infrastructure and service delivery of the sector.

The objective of this component under the AF is to expand coverage to liberated areas in Al Anbar, Diyala, Ninawa and Salah Ad-Din governorates to restore service delivery, connectivity and access to economic and social services that have been disrupted due to the destruction of roads and bridges in military operations against ISIS. Activities under this component will include the reconstruction of key bridges that have been fully destroyed, and rehabilitation of partially damaged bridges in affected areas, particularly in Mosul that has endured wide-ranging destruction to physical assets and infrastructure.

Activities for this component AF will include: preparation of detailed plans, designs and bidding documents for the repair, rehabilitation and reconstruction of roads and bridges, and technical assistance and consultancy services for supervision and implementation of transport subprojects. In addition, the proposed reconstruction and rehabilitation works would support the Gol's plans for economic recovery, social reconciliation and employment creation for working-age youth. These works will be implemented by the Iraq Reconstruction Fund in coordination with sector authorities as well as local government agencies to the extent possible.

The AF will support the preparation of a feasibility study for the reconstruction, operation and maintenance of Mosul airport financed by a public-private partnership scheme. This work will draw upon the World Bank's experience in Jordan and other best practice examples. To avoid duplication and random rehabilitation of the Iraq Republic Railway IRR, the AF will finance the railway rehabilitation priority. The AF will also finance the rapid repair of key public transport terminals as well as an assessment for a PPP in operation and maintenance of selected term.

Year ١ of the Project will focus on maintenance and quick repairs of critical bridges and roads and the reconstruction of damaged public transport terminals; recruitment of consultants; and preparation of plans and detailed designs for the reconstruction of complex and highly technical transport facilities. Years ٢–٥ of the Project will focus on the actual implementation of rehabilitation and reconstruction of damaged roads and bridges.

**Component ٤: Restoring Health Services**

EODP financing will continue with the originally available funding but with minor revisions to the activities supported i.e. EODP will finance the repair and supply of medical equipment to partially damaged hospitals and clinics in place of supply of mobile hospitals. No additional funding is proposed to this component. The State of Kuwait, through the Kuwait Fund for Arab Economic Development has made available a grant of US\$ ١٠٠ million to restore the country's health services in areas recently regained from the ISIS.

**Component ٥: Technical Assistance**

**Sectoral Development:** This component will develop and espouse a systematic, programmatic and integrated approach towards multi-sectoral recovery and reconstruction efforts. This approach is intended to support the preparation of a range of potential sector investment projects underpinned by strategic and medium to long-term needs assessments that will be undertaken by the Bank and the Gol over the AF implementation period. The AF will continue to provide support to finalize and implement the General Framework of the National Recovery and Reconstruction Framework for Iraq, and to avail of

possible opportunities to enhance the PCU's capacity to manage multi-sector recovery as part of the WB's collaboration with the ReFAATO.

**Technical Assistance:** This component will continue to implement a detailed and nuanced approach to various facets of *state/citizen trust-building and promoting reconciliation in the broader Project context* including: (i) inclusive participation by local communities, (ii) transparency of resource allocations, (iii) measures to promote tolerance amongst various social groups through community-led sub projects, (iv) dissemination of information regarding the Project to build trust and confidence by using targeted media, social media and communications campaigns, (v) youth initiatives to build social capital and foster reconciliation and (vi) effective grievance redressal and increased accountability on service delivery issues at the local level.

In addition, technical assistance in this area will be geared towards working on a *broad strategy for the sustainable management of physical cultural resources (PCRs)*. This activity will entail a) a systematic and detailed assessment of physical cultural resources that have been damaged; b) the preparation of a prioritized list of required interventions; c) the development of a reconstruction and restoration strategy for PCRs (including related standards, guidelines, knowledge and technical resources, and design codes); and d) design and preparation to establish a fund to support the restoration and maintenance of PCR on a more sustainable basis. Technical assistance will be offered to the stakeholders including the Ministry of Culture, the Governorate of Ninawa, the Religious endowments, the educational, cultural and scientific institutions, as well as professional associations of the city, to: (a) document and conduct a detailed survey of the damaged heritage site; (b) develop strategic guidelines, work plan, and M&E plan to reconstruct historic urban landscape of Mosul; and (c) train youth and vulnerable groups in the City for skills necessary for the restoration work.

#### **Component 7: Project Management, Sensitization and Communications and Monitoring and Evaluation**

This component will continue to cover costs associated with the management and coordination of the Project, including social and environmental safeguards, procurement and financial management, communication and community sensitization, and monitoring and evaluation (M&E). The remit of this component will be extended to supervise effective execution of citizen's engagement initiatives.

Strategic communication and citizen engagement activities will be administered throughout the project preparation, implementation and monitoring to promote an inclusive approach in the reconstruction process. Efforts to promote citizen participation in the Project will be underpinned by a strategic communications campaign that is part of an overall holistic citizen's engagement strategy. The aim will be to raise awareness of the Project's objectives, scope and activities; potential benefits (and costs) for beneficiaries; its relevance to the Gol's broader vision for recovery and reconstruction; and various avenues that are available for beneficiaries and citizens to remain apprised of Project developments and to engage in the design and implementation of sub projects across a range of sectors. Communication messages and modalities will be tailored to the information seeking habits of specific vulnerable groups (IDP's, women, youth, unemployed, business, etc.) and proactive dissemination of timely and comprehensive information through appropriate media will establish a precedent for transparency and signal the Gol's willingness for the local populace to be informed and engaged. This approach will also be useful to manage expectations and promote buy-in and ownership.

A baseline beneficiary survey will determine modes of engagement and appropriate communication channels around which the existing the above components of the CE strategy will be modified, from their current format. The key elements of the citizen engagement strategy for this Project will include the following: (i) early disclosure of important project related information by the Gol on its website and at the appropriate local levels and disclosure procedures agreed with the Bank, (ii) framework for consultation with the key stakeholders ensuring all targeted beneficiaries are informed, through relevant stakeholders and their representatives to obtaining broad community support as a part of preparation of specific sub-

projects relevant to that area; (iii) ensure the continuity in existing and establishment and implementation of GRM within new PMTs and at the PCU, to meet specific grievance redress requirements of this operation; and (iv) promote community based initiatives with the participation of and networking with relevant stakeholders including women, school children, youth, IDPs, host communities, civil society organizations, and local bodies.

This component will also develop a data visualization, analysis and information sharing (digital) platform, commonly used for the Disaster Needs Assessment (DNA). This platform will enable the GoI, WB, their partners and other stakeholders to compile and utilize real-time-data to support implementation, supervision and monitoring of geo-referenced projects and planning of future recovery and peacebuilding planning initiatives. This platform will therefore contribute towards improving coordination among various stakeholders, and minimizing gaps and overlaps in the coverage of recovery interventions. The interactive nature of the platform will allow communities to interact through text and visuals and to provide positive feedback or relay complaints regarding project implementation which would be uploaded in real time into the portal. Various data sources, analytical work and information would be aggregated in an integrated and phased manner. The platform's key features will include:

Geo-referencing of facilities across various sectors

Availability of geo-coded data layers for various types of analysis (damage, quality of service delivery, recovery needs, social analysis, institutional analysis, forced displacement patterns, conflict analysis, economic assessments)

Ability to read both geo-coded Excel spreadsheets and GIS Shape files for easy aggregation of additional geo-data and analysis

Coverage of both rural areas (district-level) and urban centers (neighborhood level)

Concurrent visualization of multiple layers of data

Availability of real-time updates

#### **Component V: Restoring Agriculture Productivity**

Widespread unavailability of traditional agricultural inputs and service supplies in newly liberated zones, combined with soaring farm gate prices for agricultural inputs<sup>14</sup> represent significant constraints to productivity growth, and employment and enterprise development in Iraq's rural sector. In addition, emergency assistance is essential for returning farm households, IDPs, producer groups and farmer associations to gain some measure of food security and to establish the foundation of a more measured approach to agriculture sector recovery.

The key focus of this component is to revive agricultural and related activities in the conflict-affected regions across the country. Project activities will utilize a combination of emergency and short-term measures to improve the capacity of the Ministry of Agriculture to support farmers with critical agricultural services, technologies and investments.

The four sub-components are as follows:

**Subcomponent 1:** *Emergency implementation of local area development plans* will finance procurement and distribution of 0,000 farm household starter packages consisting of different combinations of farm tools, livestock, materials and service vouchers. This sub-component will also support the formation and functioning of groups of poor rural households at the community level to help them improve their food security and nutrition. This program will be implemented with the involvement of local NGOs, who will help identify eligible group members, assist in the formation of such groups, provide basic training, and help monitor program implementation and impact. These local NGOs will take the lead in community and group information and mobilization and in facilitating the formal constitution of the community

<sup>14</sup> (relative to international levels)

production groups (CPGs). The CPGs will have simple, locally appropriate, governance arrangements to ensure transparency, probity, inclusion, and accountability. Three major categories of CPGs are envisaged: (i) crop CPGs (wheat, fodder crops, oilseeds), (ii) vegetable and fruit CPGs (potatoes, vegetables, spices, soft fruits), and (iii) small livestock CPGs (poultry).

**Sub-component ٢:** *Restoration of critical agriculture support services* will finance restoration and modernization of key agriculture knowledge and service centers, including warehouses, veterinary centers and certified seed multiplication and processing facilities to revive the agriculture service and agribusiness industry.

**Sub-component ٣:** *Emergency agriculture credit facilitation* will include measures to improve accessibility of farmers and farmer groups to technical knowledge, services and technologies. This sub component will support TA and capacity building for institutional strengthening of the local input supply industry and provide working capital to local agribusinesses. This sub component will also support development of a private network of agro-input dealers who would supply farmers with quality inputs at affordable prices and technical knowledge that would increase farm incomes and reverse the low-input, low-output spiral. This component will finance the following set of activities: (i) improvement of farmers' purchasing power through distribution of input vouchers; (ii) help to agriculture input dealers to find supplies and credit and expand business. The project would also demonstrate to farmers the profitable return from investing in improved inputs and farming techniques. Given better access to inputs afforded by vouchers distributed by the project farmers would seek competitive suppliers to obtain better input prices and more reliable delivery. The resultant increase in demand would strengthen the competition in the private input supply market and create a more level playing field, to the benefit of farmers and overall sector output. The project will also support organized input dealers' groups through training, better equipped, technology to enhance their services to farmers.

**Sub-component ٤:** *Project Management* will include the costs of consultants, limited purchases of office equipment and furniture, cars, and recurrent costs of the Project Management Team. This component will be managed by a new PMT under the auspices of the MoA.

### **Component ٨: Emergency repair of water control infrastructure and irrigation schemes**

The reconstruction of the irrigation and drainage system is crucial to the success of the agricultural sector in most parts of the country. Irrigated agriculture, which accounts for bulk of the total production of cereals and other crops was affected by ISIS. Strategic barrages, link canals, major irrigation headworks and pumping stations were severely damaged. In addition, necessary maintenance was not carried out on the irrigation and drainage water distribution network, leaving the irrigation and drainage systems in a state of disrepair. All the offices of the Operation and Maintenance Directorates at the Governorates have been burned and/or looted. The total area under irrigation decreased by ٥٠ percent and crop productivity has fallen below ٣٠ percent of pre-war levels.

Iraq has an extensive water hydraulic infrastructure that comprises of a series of dams and barrages that are located on the Euphrates and Tigris rivers and their tributaries. The big dams are multi-purpose (hydroelectric, irrigation, flood control). Smaller dams have been built to supply water to cities and irrigation schemes. Much of this needs urgent repairs as it is crucial to ensure rapid increases in agricultural crop yields. Of urgency, is the need to prepare the conditions for IDPs from rural areas and the agricultural sector, in order to increase food security for all and re-generate rural livelihood and employment.

There are two subcomponents to the rehabilitation of the irrigation infrastructure.

### **Sub-component ١: Emergency repair of water control infrastructure and irrigation schemes**



This would support emergency repair of the Falluja barrage. In addition, emergency repairs to six irrigation schemes ٧٧,٠٠٠ ha. Typical emergency works would include repair of headworks, main canal water control structures, groundwater wells, small canal bridges and culverts. This component would also include rebuilding of damaged MoWR offices and O&M offices including the procurement of machinery and equipment for operations and maintenance.

#### **Sub component ٢ Management, engineering studies and M&E**

This component will support the operation of the component in the MoWR. The PMT has been well established. The PMU will coordinate the overall planning, coordination, implementation and supervision of component activities including central procurement and management of funds.

This sub-component will provide funding for consulting services: engineering support, construction supervision and quality control; environmental and social management plan; monitoring and evaluation (M&E), including carrying out technical and safety assessment of Falluja barrage, technical assessment of Thathar link canal, and water management study. Finally, this sub-component will finance training and capacity building activities targeted to staff in MoWR and O&M staff at the Governorates

#### **Component ٩: Restoring Education Services (MoEd)**

This component aims to support the restoration of education services in liberated and affected areas of Iraq, while laying the foundation for further development in the education sector. It will place emphasis on vocational education for youth and the economic empowerment of women. The three sub-components are as follows:

##### **Sub-component ١: Rehabilitation, Reconstruction, Upgrading and Equipping of Education Infrastructure.**

This is intended to provide urgent support for swift restoration of education services, thus incentivizing the return of IDPs and return to normalcy in liberated and conflict-affected areas, particularly Mosul. The Project will finance activities related to reconstruction, rehabilitation, upgrading and equipping of existing schools on state-owned land in six governorates (Nineveh which includes Mosul, Al Anbar, Diyala, Kirkuk, Salah Ad-Din and the outskirts of Baghdad). The Project will focus its efforts on a total of ١٣٦ schools (٣٢ in Mosul) which consisting of ٩٣ primary schools and ٤٣ secondary schools which serve about ٤٠,٠٠٠ primary students and ٧٥,٠٠٠ secondary students. The Project will also support rehabilitation of ٢ vocational training schools.

An international consultant will review existing technical specifications (norms) of school equipment to ensure compliance with international standards. These revised technical specifications will be adopted for all project related infrastructure. In addition, access ramps and fixed bars will also be installed to facilitate access by students and teachers with disabilities. The MoEd directorate responsible for school infrastructure will implement, monitor and report on activities related to rehabilitation and reconstruction.

Below is a breakdown of schools, classrooms, teachers, and students per governorate:

Governorates	Schools	Classrooms	Teachers	Students
Salah Ad-Din	٢٠	٢٠٠	٢١٨	٤,٩١٠
Al Anbar	٢٠	٢٠٨	٤٢١	٦,٦٧٥
Diyala	١٠	١٢٠	٢٠٩	٢,٤٨٣
Kirkuk	٢١	٣٠٨	٦٣١	١٣,٣٤١
Baghdad	٣٣	٤٠٤	٨٧١	١٩,١٧١
<b>Ninawa</b>	٣٠	٣٨٤	٨٥١	١٦,٩٤٢
<b>TVET Mosul</b>	٢	٣٠	-	-
<b>Total</b>	<b>١٣٦</b>	<b>١,٧٠٤</b>	<b>٣,٢٠١</b>	<b>٦٣,٥٢٢</b>

**Subcomponent ٧: Support to Teachers, School and Community Leaders, and Out-Of-School Youth Training and Support Programs.** This sub component will focus on providing specialized support for a smaller percentage of the population, including vulnerable groups such as children and adolescents who display significant psychological distress or mental disorders as a result of the traumas that they have witnessed or endured during the conflict. The Project will therefore rely on assessments conducted by other agencies (led by the Ministry of Labor and Social Affairs with support from the World Bank's social protection operation) that are already delivering support at the community level to inform the design of classroom interventions and specialized teacher training programs, and to identify channels for children and adolescents in need of specialized psychological support.

Although there are counselors in schools to support students who are contending with psychological distress, there is need for additional training as well as service providers to work with such youngsters and to serve as liaisons between schools and communities on a sustainable basis.

With ٤٨ percent of the ١ million youth and child IDPs out of school, equipping young people with the skills and qualifications that are required to gain relatively quick access to the job market is essential to ease the strain on youth to reduce the risk of further splintering within communities and between ethnic and religious groups, and degeneration into further conflict to avoid falling prey to another wave of conflict unleashed by violent extremism. In addition to the rehabilitation of ٧ vocational training schools, the Project will support the design and implementation of short-term (٦-٩ months) courses geared towards youth who are either out of school or above school age, and who have difficulty in pursuing a higher level of education. These courses will be based on assessments conducted by the Ministry of Labor and Social Affairs (MOLSA) to ensure that they respond appropriately to the demands of the job market and complement existing job placement mechanisms. The team will also collaborate with UNICEF and other UN that are already providing life skills training and capacity building.

This subcomponent will support the following activities:

Training of ١٠,٠٠٠ teachers and school administrators (٤٥ trainers of trainees of which ١٢ will be from the central directorate and inspectorate, ١٨ from Baghdad, and ٣ from each of the five targeted governorates). Two high-level training sessions will be provided on pedagogical skills and/or psychosocial and emotional support to upgrade their knowledge and skills in order to be able to provide effective psychosocial and emotional support to children;

Recruitment and training of women (٧-٣ per school or ٣٠٠ women in total) from each community to serve as school-community liaisons and to provide schooling and psychosocial support to students as well as other youngsters in the community. The Project will finance service fees for up to ١٨ months at the rate of US\$ ٣٠ per month for each counselor. The Project will also finance support for more inclusive participation of community members in recreational and cultural school activities;

Provide short-term support to identify and train ٣٠٠ female graduates from communities targeted by the Project as teachers' aides. Upon completion of training within ٦-٩ months, at least ٢٠٠ candidates will be certified for teaching and will acquire employment at newly rehabilitated schools for one school year. The Project will provide support for identification/shortlisting of appropriate candidates, training and capacity building as well as financing monthly service fees of teachers' aides for a period of ten months at the rate of US\$ ٤٠٠ per aide;

Design and provide training for ٣٠٠ out-of-school youth to be ready to enter the job market.



**Subcomponent ٣: *Institutional Strengthening and Sector Development Support.*** This sub component will support the following activities:

Increasing the engagement of private schools: Given the limited concentration of private schools, the Project will support the development and institutionalization of rules and regulations for the private sector's involvement in education, including the strengthening of MoEd's oversight and quality control system.

Developing governorate level education strategies: The Project will support a pilot initiative to develop education sector plans in ٣-٤ governorates to help operationalize the national education strategy. These education plans will cover a period of five years, with yearly targets for improving the accessibility and quality of education, while strengthening the capacity of governorates to manage and implement education sector reforms effectively.

Data System: In order to establish a unified and cohesive data management system that can support better analysis for policy formulation and planning, the Project will provide support for strengthening governorate level data collection systems by linking them with the central system and enabling them to correspond with the data systems of other technical entities such as the MOE's directorates in charge of teacher training and school construction. The Project will support analysis and technical support aimed at developing the knowledge base for policy making and preliminary preparation of a new operation in the education sector.

The Directorate of Planning and Statistics at MoEd will be responsible for the overall implementation and monitoring of these activities.

### **Component ١٠. Restoring Municipal Infrastructure and Services and Preserving Cultural Heritage Assets**

This component will support the restoration of basic municipal infrastructure and services in the selected municipalities in Al Anbar, Salah Ad-Din, Diyala and Ninawa governorates, paving the way for the return of displaced residents and laying the ground work for extensive housing repair and reconstruction in the future.

The implementation of this component will be based on a framework approach for sub project selection, preparation and implementation. This will be composed of core elements including i) a set of selection and evaluation criteria, ii) a cap for individual sub-projects cost, and iii) clear requirements for environmental and social safeguards.

Sub-projects will be identified based on a clear rationale, prioritization criteria and an integrated area-based approach. Revitalization of economic activities will be a key priority in sub project identification, and, as such, sub projects will therefore focus on neighborhoods where i) there is promise of rejuvenating commerce and trade, and ii) the majority of housing has withstood partial damage. Eligible sub-projects will also have to be economically viable, avoid the possibility of major or irreversible environmental and social impacts, and have financing, procurement, and implementation plans in plans that are satisfactory as per Bank standards. Eligible sub projects may include, inter alia, facilities for youth and sports activities, community centers, parks, cultural heritage sites, public markets, internal roads (streets) and urban water systems and waste water networks.

This component will be implemented by the four beneficiary governorates with technical support from consulting firms. Hence, given the ongoing devolution process, the governorates are expected to have increased responsibilities and autonomy in the provision of urban services. This will contribute towards strengthening the administrative and technical capacities of the governorates, and potentially pave the way for future actions and programs.

This component will also finance a pilot conservation, rehabilitation and/or restoration of selected cultural heritage in Mosul's historic old core. The works part of the pilot will enable the creation of job opportunities through Employment Intensive methods (EI) for the restoration of historical buildings and Historic Urban Landscape. This pilot will be coordinated closely between the UNESCO, Ministry of Culture, the Governorate of Ninawa and the Mosul municipal council.

Based on the Broad Strategy for the Sustainable Management of Physical Cultural Resources (PCRs) developed under the Component 0 (Technical Assistance), the local government will work with UNESCO to develop conservation plan of selected cultural heritage in Mosul's historic old core. Once the conservation plan is completed, the component will finance some selected cultural heritage properties on pilot basis with limited amount of funding.



## Annex ٣: Sample Mitigation and Monitoring Plans

---

The following tables should be seen as a comprehensive sample compilation of mitigation and monitoring measures that can be tailored for specific sub-project contexts. They are intended to be used in the more comprehensive type of ESMPs, that go beyond the scope of “checklist type” ESMPs.

A template for this checklist type ESMP, which is expected to be used for the majority of subprojects, is attached in **Annex ٤**.



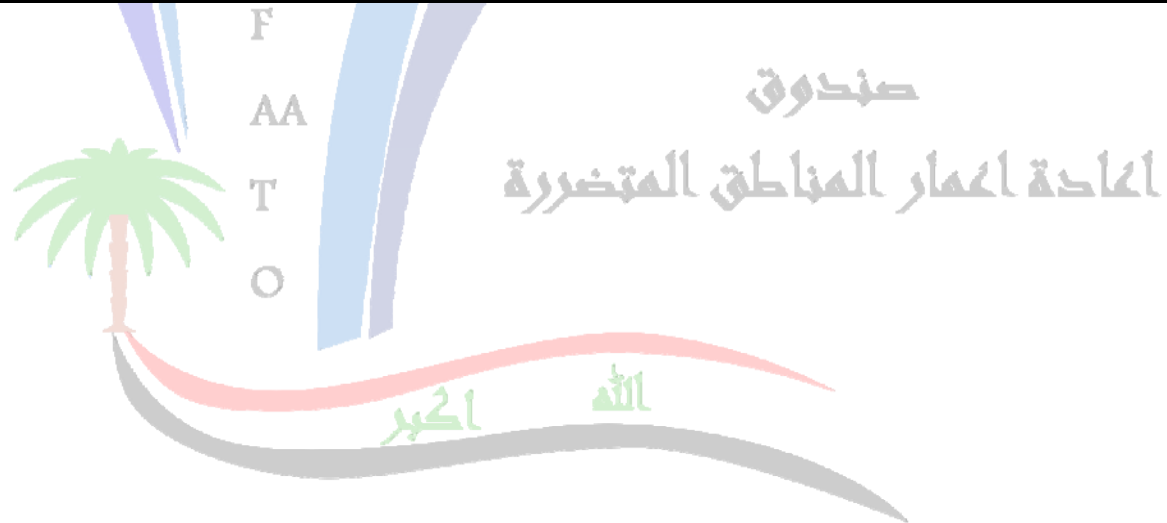
## SAMPLE MITIGATION AND MANAGEMENT PLAN

Phase	Issue	Mitigating measure	Cost		Responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
<b>Design</b>	<b>• Site Screening</b> <i>a) Screening for UXO / ERW</i> confirm that demining activities have been duly carried out and the site declares safe.  <i>b) Positive selection criteria</i> sites within urban areas, low E&S baseline conditions, and small extent / size  <i>c) Criteria for additional screening</i> sites within, bordering or sufficiently close to protected areas or sensitive habitats	If further investigations / demining is required, refer to specialized agencies and delay construction	Nil	nil	Design engineer	NA	Site screening is a key decision point, as it determines much of subsequent impacts; to be specified in design contract / bid documents
		Confirm appropriate E&S instrument, likely a checklist ESMP	Nil	nil	Design engineer, environmental specialist	NA	
		Carefully screen E&S baseline and site conditions, and determine appropriate E&S instrument, such as specific ESMP or ESIA+ESMP	Nil	nil	Design engineer, environmental specialist	NA	
<b>Design</b>	<b>• Impact on Livelihoods</b> screen for any impacts on peoples land, property or livelihoods	Refer to RPF to determine appropriate management and mitigation measures	minimal	minimal	Client Design Engineer	Supervision Engineer	

Phase	Issue	Mitigating measure	Cost		Responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
			<b>Construction</b>	<p><b>• Site Access and Preparation</b></p> <p>d) <i>Construction of access roads: loss of vegetation, old trees, potential aggravation of erosion, effects of noise and dust on people, livestock and wildlife</i></p> <p>e) <i>Risk of spills, loss of materials and risks to community health and safety due to road accidents</i></p>	<p>Minimize vegetation clearing, choose access with consideration of sensitive areas (parks, habitats, water-courses, wetlands, known, migration routes) and impose speed limits and restrict working hours to daytime only.</p> <p>Source materials (sand, gravel, rocks) locally to minimize transport</p> <p>Impose strict speed limits and code of conduct, e.g. priority for cyclists, pedestrians and animals on access road; introduce punitive action for reckless driving and causing accidents. Train all drivers and machine operators in defensive and considerate driving.</p>	<p>nil</p> <p>nil</p>	

Phase	Issue	Mitigating measure	Cost		Responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
<b>Construction</b>	<b>Material transport / storage</b>						
	f) Cement Dust	cover truck load	minimal	minimal	Contractor / Truck operator	Contractor / Truck operator	To be included into bid documents in the technical specifications for the realization of works
	a) Stones Dust	wet or cover truck load	minimal	minimal	Contractor / Truck operator	Contractor / Truck operator	
	b) Sand and gravel Dust	wet or cover truck load	minimal	minimal	Contractor / Truck operator	Contractor / Truck operator	
g) Storage of materials at construction site could cause contamination of soil and surface / groundwater by windblown dust, spills during handling, poor waste management practices and accidents	store materials in stable and secure laydown areas, which are protected from rain, storm-water runoff and wind, and clearly marked to avoid ingressions from animals, people and machinery	minimal	minimal	Supervision Engineer / Contractor	Supervision Engineer / Contractor		
<b>Construction</b>	<b>• Execution of Works</b>						

<p>h) <i>Stone quarries</i> dust, workers health and safety, ecosystem disturbance</p>	<p>Prefer (i) existing stone quarries if close to construction site or (ii) source stones at dam site (foundation construction) or in the future reservoir area</p>	<p>nil</p>	<p>nil</p>	<p>Design Engineer / Contractor</p>	<p>Supervision Engineer / Contractor</p>	<p>Identify win-win situations in terms of economy and environmental performance: sources close to dam and in reservoir area</p>
<p>i) <i>Sand and gravel borrow pits</i> disturbance of river bed, water quality, ecosystem disturbance</p>	<p>source sand at dam site (foundation construction) or in the future reservoir area</p>	<p>nil</p>	<p>nil</p>	<p>Design Engineer / Contractor</p>	<p>Supervision Engineer / Contractor</p>	<p>minimize transport, thus saving cost and emissions, and increase reservoir capacity.</p>





Phase	Issue	Mitigating measure	Cost		Responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
<b>Construction</b>	<ul style="list-style-type: none"> <li>• <b>Construction site</b></li> <li>a) <i>Noise disturbance to local communities and workers</i></li> <li>b) <i>Air Pollution</i></li> <li>c) <i>Vibrations resulting from equipment work</i></li> <li>d) <i>Traffic disruption during construction activity</i></li> <li>g) <i>Water and soil pollution from improper material storage, management and usage</i></li> </ul>	<ul style="list-style-type: none"> <li>limit activities to daylight working hours (not between 1 p.m. and 5 a.m. or as agreed with public and authorities);</li> <li>water construction site and material storage sites, maintain machinery, avoid idling, no waste burning</li> <li>limit work activities to daylight working hours (not between 1 p.m. and 5 a.m. or as agreed with public and authorities)</li> <li>especially at turnoff from main roads install warning signs for slow vehicles</li> <li>Organize and cover material storage areas; isolate concrete, and other works from watercourse by using scaled formwork; isolate wash down areas of concrete trucks/mixers and other equipment from watercourse by</li> </ul>	<ul style="list-style-type: none"> <li>minimal</li> <li>minimal</li> <li>nil</li> <li>minimal</li> <li>minimal</li> </ul>	<ul style="list-style-type: none"> <li>minimal</li> <li>minimal</li> <li>nil</li> <li>minimal</li> <li>minimal</li> </ul>	<ul style="list-style-type: none"> <li>Construction Contractor</li> <li>Construction Contractor</li> <li>Construction Contractor</li> <li>Construction Contractor</li> <li>Construction Contractor</li> </ul>	<ul style="list-style-type: none"> <li>Construction Contractor</li> <li>Construction Contractor</li> <li>Construction Contractor</li> <li>Construction Contractor</li> <li>Construction Contractor</li> </ul>	<ul style="list-style-type: none"> <li>all these provisions to be specified in bid documents - Technical Specifications - for realization of works</li> <li>Impacts on surface water and groundwater can be minimized or entirely avoided by selecting dry season as time window for main construction activities</li> </ul>

	selecting areas are not draining directly or indirectly into watercourse; treat water to remove solids.				
--	---	--	--	--	--



Phase	Issue	Mitigating measure	Cost		Institutional responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
	<i>h) Water and soil pollution from improper disposal of waste materials</i>	dispose waste material at appropriate location protected from washing out, such as sufficiently deep pit that is covered with impermeable material after construction finishes; take all noxious / toxic substances (e.g. spent engine oil) off site for disposal in licensed facility	minimal	minimal	Construction Contractor	Construction Contractor	
	<i>i) Potential contamination of soil and water from improper maintenance and fueling of equipment</i>	proper handling of lubricants, fuel and solvents by secured storage; ensure proper loading of fuel and maintenance of equipment; collect all waste and dispose to permitted waste recovery facility	minimal	minimal	Construction Contractor	Construction Contractor	
	<i>j) Destruction of crops, trees, meadows, etc.</i>	ensure control of working zone and land acquisition; compensate damage	j) NA	depends on quantity of damage	Construction Contractor; Client	a) Construction Contractor; Client	can be entirely avoided if construction area diligently planned and located
	<i>k) Workers safety</i>	provide workers with safety instructions and	k) minimal	k) minimal	a) Construction Contractor	b) Construction Contractor	

	protective equipment (glasses, masks, helmets, masks, boots, etc); safe organization of bypassing people & livestock				
--	---	--	--	--	--



Phase	Issue	Mitigating measure	Cost		Institutional responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
<b>Operation</b>	<p><b>• Hydrological Impacts</b></p> <p>a) <i>Modification of flow pattern and sediment transport, e.g. by works in river beds, sheet piling etc.</i></p>	Minimize and restricted to immediate construction period; ensure prompt removal of any obstacles to water courses after completion of works	nil	nil	NA	NA	Should be addressed in E&S baseline studies and assessments, especially on hydrology and hydrography, local geology and sediment transport as part of design. Part of the TA package shall be an operation and maintenance plan with a clearly assigned institutional responsibility for (i) regular inspections; (ii) maintenance and repairs and (iii) liaison with dam users
	<p>b) <i>Erosion of river banks, protection works or bridge abutments, resulting in damage and/or failure</i></p>	Ensure engineering and environmental due diligence, including hydrological and hydraulic studies being conducted and integrated into reconstruction works design for maximum sustainability; conduct regular technical inspections of work sites and provide “hotline” for riarians to report damage and incidents.	nil	nil	Design Engineer	Client	

## MONITORING PLAN

Phase	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?/ type of monitoring equipment	When is the parameter to be monitored? (frequency of measurement or continuous)	Why is the parameter to be monitored? (optional)	Cost		Institutional responsibility	
						Install	Operate	Install	Operate
<b><u>Design</u></b>	site selection criteria	at all potential subproject locations	by applying environmental and engineering judgment	during the design / site identification phase	to optimize E&S performance of the selected locations	nil	nil	Design Engineer / Client	NA
<b><u>Construction</u></b> • <b>Site access and preparation</b>	sensitive routing of roads, minimization of disturbances to communities, vegetation and wildlife	access route corridors	by applying environmental, social and engineering judgment	during the design / site identification and preparation phases	to optimize E&S performance of the selected locations	nil	minimal	Design Engineer / Client	Supervision Engineer / Client
• <b>Material supply</b> <i>Stone quarry</i>	ESMP and community approval in place	at stone quarry	document inspection, consultation	before exploitation / works begin	E&S and H&S compliance	minimal	NA	Supervision Engineer / Contractor	Supervision Engineer / Contractor

Phase	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?/ type of monitoring equipment	When is the parameter to be monitored? (frequency of measurement or continuous)	Why is the parameter to be monitored? (optional)	Cost		Institutional responsibility	
						Install	Operate	Install	Operate
<b>• Material transport</b> <i>Sand and gravel borrow pit</i> <i>Cement</i> <i>Stone</i> <i>Sand and gravel</i> <i>Traffic management</i>	ESMP and community approval in place	sand and gravel borrow pits	document inspection, consultation	before exploitation / works begin	E&S and H&S (health and safety) compliance	minimal	NA	Supervision Engineer / Contractor	Supervision Engineer / Contractor
	truck load covered	job site	visual inspections	unannounced inspections during work	E&S and H&S compliance;	NA	nil	NA	Supervision Consultant
	truck load covered or wetted	transport route, job site	supervision	unannounced inspections during work	traffic and community health and safety requirements;	NA	minimal	NA	Supervision Consultant
	truck load covered or wetted	transport route, job site	supervision	unannounced inspections during work	avoid traffic disruptions	NA	minimal	NA	Supervision Consultant
	hours and routes selected	transport route, job site	supervision	unannounced inspections during work		NA	minimal	NA	Supervision Consultant
<b>• Construction works</b> <i>Noise disturbance to human and animal</i>	noise levels; equivalent noise level, equipment	job site; nearest homes or temporary	noise meter and analyzer, inspection	once for each machine and equipment when works start, and on	E&S and H&S compliance;	NA	minimal	Supervision Consultant	Supervision Consultant



<i>population and workers</i>		pastoralist camps	any complaint received					
-------------------------------	--	-------------------	------------------------	--	--	--	--	--



Phase	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?/ type of monitoring equipment	When is the parameter to be monitored? (frequency of measurement or continuous)	Why is the parameter to be monitored? (optional)	Cost		Institutional responsibility	
						Install	Operate	Install	Operate
<i>Air pollution</i>	dust (solid particles) and smoke / fumes	at and near job site	visual inspections	during material delivery and construction	E&S and H&S compliance;	NA	minimal	Contractor	Supervision Consultant
<i>Vibrations resulting from equipment work</i>	limited time of activities	job site	supervision (instrument - FFT data collector)	inspections during work and on complain	E&S and H&S compliance;	NA	minimal	NA	Supervision Consultant
<i>Traffic disruption during works</i>	signposting and road markings	turnoff from main road, access road corridor	visual inspection	at start of works, monthly follow up	E&S and H&S compliance;	NA	minimal	Contractor	Supervision Consultant
<i>Water and soil pollution from material storage, management and usage</i>	water and soil quality (suspended solids, oil and grease)	runoff from site, material storage areas; wash down areas of equipment	visual observation; gravity; basic mobile laboratory equipment	during material delivery and construction, especially during rain, events	E&S and H&S compliance; pollution prevention; community H&S	NA	minimal	Contractor	Supervision Consultant
<i>Water and soil pollution from improper disposal of waste materials</i>	water and soil quality (suspended solids, oil and grease)	waste collection / depository site	(water analyzer);	in case of provisional disposal of waste at construction	E&S and H&S compliance; pollution prevention;	NA	minimal	Contractor	Supervision Consultant

			site and on complaint	community H&S			
--	--	--	--------------------------	------------------	--	--	--



Phase	What parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?/ type of monitoring equipment	When is the parameter to be monitored? (frequency of measurement or continuous)	Why is the parameter to be monitored? (optional)	Cost		Institutional responsibility	
						Install	Operate	Install	Operate
<i>Potential contamination of soil and water from maintenance and fueling of equipment</i>	water and soil quality (suspended solids, oil and grease); procedures of work	job site; equipment maintenance facilities	visual observation; gravity; basic mobile laboratory equipment (water analyzer);	in case of fueling of equipment at construction site and on complaint	E&S and H&S compliance; pollution prev.; community H&S	NA	NA	Contractor	Supervision Consultant
<i>Destruction of crops, trees, meadows, etc.</i>	land use / encroachment by works	job site, access road	visual inspections, consultations	during material delivery and construction	social impact mitigation	NA	minimal	NA	Supervision Consultant
<i>Workers safety</i>	protective equipment (glasses, masks, helmets, boots, etc); organization of bypassing traffic	job site	visual inspections	unannounced inspections during work, at least weekly	compliance with EHS (environment, health and safety) standards	NA	minimal	Design Engineer (to be incl. in specifications, TOR, contract conditions)	Supervision Consultant
<b>Operation</b> <i>Erosion of bridge abutments</i>	signs of erosion, subsrosion,	bridge abutments,	visual inspection by qualifies	twice annually during 1 <sup>st</sup> 2	to enter into maintenance and repair	NA	inspection s will bear minimal	NA	Client

<i>foundations, resulting in damage and/or failure</i>	washout, clogging by large stones or trees	river bank protection	hydraulic engineer	years of operation, the annually	routing, for sustainability of works		cost, budget for maint. & repairs to be created		
--	--	-----------------------	--------------------	----------------------------------	--------------------------------------	--	---	--	--



## Environmental and Social Management Plan (ESMP) Checklist for Civil Works

### Project Context:

This ESMP (environmental and social management plan) is based on an environmental and social action plan (ESAP) which was developed during project design. In addition the environmental and social compliance framework is mapped out in an Environmental and Social Framework (ESMF) as the primary safeguards instrument of the project. The ESMF covers the entire scope of potential investment sub-projects (e.g. road repairs, transmission lines, bridges, municipal services, health and education facilities, agriculture infrastructure, etc.), classify them into typologies along environmental and social criteria and impacts, and for each typology defines the required specific instruments and processes.

For the expected scope of subprojects, comprehensive ESIA's will mostly not be required, as all structures and installations will have existed before, and the project would only finance their repair, reconstruction or reinstatement. The expected typologies (e.g. repair/ reconstruction of housing, roads, transmission lines, municipal infrastructure, health and educational facilities), as well as the restoration of public services would mostly require simple, checklist-type ESMPs (environmental and social management plans) that will become part of the civil works contracts, set the E&S standards and compliance mechanisms, and serve as contractual basis for supervision and enforcement of good E&S practice during the works.

### General Guidelines for Using the Checklist-ESMP:

For construction projects that have minor and clearly defined environmental and social risks, such as the reconstruction of urban roads, transmission lines, public buildings or repair of housing (estates, apartments, or individual), a streamlined approach is applied to mainstream the World Bank's environmental and social safeguards requirements, as well as general good international practice into projects.

This ESMP checklist-type format covers typical key mitigation measures to civil works contracts with small, localized impacts or of a simple, low risk nature. The format provides the key elements of an Environmental and Social Management Plan (ESMP) to meet the World Bank's standards and requirements regarding assessment of, and management for Category B projects under OP ٤,٠١.

An additional purpose of this checklist is to offer practical, concrete and implementable guidance to Contractors and supervising Engineers, in the context of simple civil works contracts. The checklist ESMP should be completed during the final design phase and, either freestanding or in combination with any environmental documentation prepared under *national Iraqi* law and regulations, constitute an integral part of the bidding documents and eventually the works contracts. The bidders should be able to identify specific line items on E&S management in the bidding documents, and understand that they will be held accountable to compliance with the ESMP's provisions during implementation.

The checklist ESMP has the following sections:

Part A includes a descriptive part that characterizes the project, specifies institutional and regulatory aspects, describes technical project content, outlines any urgent need for capacity building and briefly characterizes the public consultation process. This section should indicatively be up to two pages long. Attachments for additional information may be supplemented as needed.

Part B includes a screening checklist of potential environmental and social activities and typologies, which can be checked in a simple Yes / No format. If any given activity / issue is triggered by checking “yes”, a reference to the appropriate section in the table in the subsequent Part C is linked. This in turn contains clearly formulated, actionable environmental and social management and mitigation measures.

Part C represents the actual environmental and social management plan to implement the measures and actions that follow from activities and typologies triggered under Part B. For each triggered activity or typology it contains a list of concrete, practical actionable measures and action that the Contractor needs to implement / consider during the works implementation. These measures can be easily checked, verified and reported by e.g. the supervising Engineer.

Part D contains a simple monitoring plan to enable both the Contractor as well as authorities and the World Bank specialists to monitoring due implementation of environmental management and protection measures and detect deviations and shortcomings in a timely manner. It has the same format as required for MPs produced under standard safeguards requirements for Category B projects.

Part B and C have been structured in a way to provide concrete and enforceable environmental and social measures, which are understandable to non-specialists (such as Contractor’s site managers) and are easy to check and enforce. The implementation of the ESMP should be included as a line item in the BoQ (bill of quantities) and priced by the bidders. Part D has been designed intentionally simple to enable monitoring of key parameters with basic means and non-specialist staff.



**PART A: GENERAL PROJECT AND SITE INFORMATION**

<b>INSTITUTIONAL &amp; ADMINISTRATIVE</b>				
Country	<b>IRAQ</b>			
Project title	<b>Emergency Operation for Development Project (EODP)</b>			
Scope of sub-project and activity				
Institutional arrangements (Name and contacts)	WB (Project Team Leader)	Project Management	Local Counterpart and/or Recipient	
Implementation arrangements (Name and contacts)	Safeguard Supervision	Local Counterpart Supervision	Local Inspectorate Supervision	Contactor
<b>SITE DESCRIPTION</b>				
Name of site				
Describe site location				Attachment ١: Site Map [ ]Y [ ]N
Who owns the land?	الوحدة اعمار المناطق المتضررة			
Description of geographic, physical, biological, geological, hydrographic and socio-economic context	الله الجبر			
Locations and distance for material sourcing, especially aggregates, water, stones?				
<b>LEGISLATION</b>				
Identify national & local legislation & permits that apply to project activity				
<b>PUBLIC CONSULTATION</b>				

Identify when / where the public consultation process took place	A portfolio of planned subprojects for the Governate of [.....], City of [.....] was disclosed to the public via [medium] and [website] during the period from [DD/MM/YYYY] to [DD/MM/YYYY], and a public hearing organized in [location] on [DD/MM/YYYY]. The minutes of the meetings are attached to this ESMP, and the key relevant concerns raised by the public were the following: (i) [concern ١], (ii) [concern ٢] etc.
<b>INSTITUTIONAL CAPACITY BUILDING</b>	
Will there be any capacity building?	[X] N or [ ] Y if Yes, Attachment ٢ includes the capacity building program



**PART B: SAFEGUARDS SCREENING AND TRIGGERS**

<b>ENVIRONMENTAL /SOCIAL SCREENING FOR SAFEGUARDS TRIGGERS</b>			
	<b>Activity / Typology</b>	<b>Status</b>	<b>Triggered Actions</b>
Will the site activity include/involve any of the following??	١. Reconstruction of urban, inter-urban or rural roads	[ ] Yes [ ] No	If “Yes”, see Section <b>A</b> below
	٢. Reconstruction of private homes, housing estates or public buildings	[ ] Yes [ ] No	If “Yes”, see Section <b>A</b> below
	٣. Reconstruction of / impacts on surface drainage system	[ ] Yes [ ] No	If “Yes”, see Section <b>B</b> below
	٤. Activities in Historic building(s) and districts	[ ] Yes [ ] No	If “Yes”, see Section <b>C</b> below
	٥. Required acquisition of land <sup>٥</sup> or temporary / permanent impacts on livelihoods	[ ] Yes [ ] No	If “Yes”, see Section <b>D</b> below
	٦. Handling or presence of hazardous or toxic materials <sup>٦</sup>	[ ] Yes [ ] No	If “Yes”, see Section <b>E</b> below
	٧. Impacts on forests and/or protected areas	[ ] Yes [ ] No	If “Yes”, see Section <b>F</b> below
	٨. Risk of unexploded ordinance (UXO)	[ ] Yes [ ] No	If “Yes”, see Section <b>G</b> below
	٩. Traffic and Pedestrian Safety	[ ] Yes [ ] No	If “Yes”, see Section <b>H</b> below

**Note:** In the course of sub-project screening lease tick all boxes on the anticipated activities that apply to the subproject, the proceed to the next section where the anticipated impacts, and required management and mitigation measures are explained.

<sup>٥</sup> Land acquisitions includes displacement of people, change of livelihood encroachment on private property this is to land that is purchased/transferred and affects people who are living and/or squatters and/or operate a business (kiosks) on land that is being acquired.

<sup>٦</sup> Toxic / hazardous material includes but is not limited to asbestos, toxic paints, noxious solvents, removal of lead paint, etc.

## PART C: MITIGATION MEASURES

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
<p>General Conditions</p>	<p>Notification and Worker Safety</p>	<p>a) The local construction and environment inspectorates and communities have been notified of upcoming activities</p> <p>b) The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works)</p> <p>c) All legally required permits have been acquired for construction and/or rehabilitation</p> <p>d) The Contractor formally agrees that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment.</p> <p>e) Workers' PPE will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots)</p> <p>f) Appropriate signposting of the sites will inform workers of key rules and regulations to follow.</p>
<p>A. General Rehabilitation and /or Construction Activities</p>	<p>Air Quality</p> <p>Noise</p>	<p>a. During interior demolition debris-chutes shall be used above the first floor</p> <p>b. During excavation works dust control measures shall be employed, e.g. by spraying and moistening the ground</p> <p>c. Demolition debris, excavated soil and aggregates shall be kept in controlled area and sprayed with water mist to reduce debris dust</p> <p>d. During pneumatic drilling or breaking of pavement and foundations dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site</p> <p>e. The surrounding environment (side walks, roads) shall be kept free of soil and debris to minimize dust</p> <p>f. There will be no open burning of construction / waste material at the site</p> <p>g. All machinery will comply with Polish emission regulations, shall well maintained and serviced and there will be no excessive idling of construction vehicles at sites</p> <hr/> <p>(a) Construction noise will be limited to restricted times agreed to in the permit</p> <p>(b) During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible</p>

	<p>Water Quality</p> <p>Waste management</p>	<p>(a) The site will establish appropriate erosion and sediment control measures such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in canalization and nearby streams and rivers</p> <p>(a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from excavation, demolition and construction activities.</p> <p>(b) Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers.</p> <p>(c) Construction waste will be collected and disposed properly by licensed collectors</p> <p>(d) The records of waste disposal will be maintained as proof for proper management as designed.</p> <p>(e) Whenever feasible Contractor will reuse and recycle appropriate and viable materials (except when containing asbestos)</p>
<p><b>B. Impacts on surface drainage system</b></p>	<p>Water Quality</p>	<p>(a) Drainage / canalization systems will be reconstructed according to good engineering practice, including appropriate dimensions, sedimentation basins, and connection to treatment facilities as required</p> <p>(b) Storm water drainage systems will be designed and constructed as not to silt, pollute, block or otherwise negatively impact natural streams, rivers, ponds and lakes; including during construction activities</p> <p>(c) There will be procedures in place for prevention of and rapid response to accidental spills of fuels, lubricants and other toxic or noxious substances, and for their recovery and appropriate disposal</p> <p>(d) Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies. There will be no unregulated extraction of groundwater, nor uncontrolled discharge of process waters, cement slurries, or any other contaminated waters into the ground or adjacent streams or rivers; the Contractor will obtain all necessary licenses and permits for water extraction and regulated discharge into the public wastewater system.</p>

ACTIVITY	PARAMETER	MITIGATION MEASURES CHECKLIST
C. Historic building(s)	Cultural Heritage	<p>(a) If construction works take place close to a designated historic structure, or are located in a designated historic district, notification shall be made and approvals/permits be obtained from local authorities and all construction activities planned and carried out in line with local and national legislation.</p> <p>(b) It shall be ensured that provisions are put in place so that artifacts or other possible “chance finds” encountered in excavation or construction are noted and registered, responsible officials contacted, and works activities delayed or modified to account for such finds.</p>
D. Acquisition of land	Land Acquisition Plan/Framework	<p>(c) If expropriation of land was not expected but is required, or if loss of access to income of legal or illegal users of land was not expected but may occur, that the Bank’s Task Team Leader shall be immediately consulted.</p> <p>(d) The approved Resettlement Action Plan / Policy Framework (if required by the sub-project) will be implemented</p>
E. Toxic materials	<p>Asbestos management</p> <p>Toxic / hazardous waste management</p>	<p>(a) If asbestos is located on the project site, it shall be marked clearly as hazardous material</p> <p>(b) When possible the asbestos will be appropriately contained and sealed to minimize exposure</p> <p>(c) The asbestos prior to removal (if removal is necessary) will be treated with a wetting agent to minimize asbestos dust</p> <p>(d) Asbestos will be handled and disposed by skilled &amp; experienced professionals, wearing appropriate PPE is mandatory.</p> <p>(e) If asbestos material is be stored temporarily, the wastes should be securely enclosed inside closed containments and marked appropriately. Security measures will be taken against unauthorized removal from the site.</p> <p>(f) The removed asbestos will not be reused</p> <p>(a) Temporarily storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition, properties and handling information</p> <p>(b) The containers of hazardous substances shall be placed in an leak-proof container to prevent spillage</p> <p>(c) The wastes shall be transported by specially licensed carriers and disposed in a licensed facility.</p> <p>(d) Paints with toxic ingredients or solvents or lead-based paints will not be used</p>
F. Affected forests,	Ecosystem protection	<p>(a) Any recognized natural habitats, wetlands and protected areas in the immediate vicinity of the activity will not be</p>

wetlands and/or protected areas		<p>damaged or exploited, all staff will be strictly prohibited from hunting, foraging, logging or other damaging activities.</p> <p>(b) A survey and an inventory shall be made of large trees in the vicinity of the construction activity, large trees shall be marked and cordoned off with fencing, their root system protected, and any damage to the trees avoided</p> <p>(c) Adjacent wetlands and streams shall be protected from site run-off and siltation with appropriate measures</p> <p>(d) There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas.</p>
<b>G.</b> Risk of unexploded ordinance (UXO)	Hazard to human health and safety	(a) Before start of any excavation works the Contractor will verify that the construction area has been checked and cleared regarding UXO by the appropriate authorities; the declaration of the area as “safe” will be obtained in writing
<b>H</b> Traffic and pedestrian safety	Direct or indirect hazards to public traffic and pedestrians by construction activities	<p>(b) In compliance with national regulations the Contractor will insure that the construction site is properly secured and construction related traffic regulated.</p> <p>(c) The site will be clearly visible and the public warned of all potential hazards by signposting and barriers / fencing</p> <p>(d) Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes.</p> <p>(e) Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement</p> <p>(f) If required, active traffic management by trained and visible staff at the site for safe passage for the public</p> <p>(g) Ensuring safe and continuous access to all adjacent office facilities, shops and residences during construction</p>



**PART D: MONITORING PLAN**

<b>Phase</b>	<b>What</b> (Is the parameter to be monitored?)	<b>Where</b> (Is the parameter to be monitored?)	<b>How</b> (Is the parameter to be monitored?)	<b>When</b> (Define the frequency / or continuous?)	<b>Why</b> (Is the parameter being monitored?)	<b>Cost</b> (if not included in project budget)	<b>Who</b> (Is responsible for monitoring?)
<b>During activity preparation</b>	<p>site access traffic management</p> <p>availability of waste disposal facilities</p> <p>hazardous waste inventory (asbestos)</p> <p>construction material quality control (eg. paints / solvents)</p>	<p>at the site</p> <p>at the site</p> <p>in site vicinity on site</p> <p>Contractor's store / building yard</p>	<p>check if design and project planning foresee diligent procedures</p> <p>visual / analytical if in doubt</p> <p>visual / research in toxic materials databases</p>	<p>before launch of construction</p> <p>before start of rehabilitation works before approval to use materials</p>	<p>safety of general public,</p> <p>timely detection of waste disposal bottlenecks</p> <p>public and workplace health and safety</p>	<p>marginal, within budget</p> <p>marginal, within budget; (prepare special account for analyses at PMU?)</p>	Contractor, Engineer
<b>During activity supervision</b>	<p>dust generation</p> <p>noise emissions</p> <p>waste and wastewater types, quality and volumes</p>	<p>on site and in immediate neighborhood, close to potential impacted residents</p> <p>at discharge points or</p>	<p>visual consultation of locals</p> <p>visual, analytical if suspicious count of waste transports off site, check flow</p>	<p>daily</p> <p>daily</p> <p>daily / continuous</p> <p>daily / continuous</p>	<p>avoidance of public nuisance</p> <p>avoidance of negative impacts on ground/</p>	<p>marginal, within budget</p>	Contractor, Engineer

	surface drainage soundness	in storage facilities	rates and runoff routes for wastewater	us	surface waters ensuring proper waste management and disposal		
--	----------------------------	-----------------------	--	----	--	--	--



## Annex ٥: Minimum Contents of an ESIA

The EA report should include the following items (not necessarily in the order shown):

- a. Executive summary. Concisely discusses significant findings and recommended actions.
- b. Policy, legal, and administrative framework. Discusses the policy, legal, and administrative framework within which the EA is carried out. Explains the environmental requirements of any co-financiers. Identifies relevant international environmental agreements to which the country is a party.
- c. Project description. Concisely describes the proposed project and its geographic, ecological, social, and temporal context, including any offsite investments that may be required (e.g., dedicated pipelines, access roads, power plants, water supply, housing, and raw material and product storage facilities). Indicates the need for any resettlement plan or indigenous peoples development plan (see also subparagraph (h)(v) below). Normally includes a map showing the project site and the project's area of influence.
- d. Baseline data. Assesses the dimensions of the study area and describes relevant physical, biological, and socioeconomic conditions, including any changes anticipated before the project commences. Also takes into account current and proposed development activities within the project area but not directly connected to the project. Data should be relevant to decisions about project location, design, operation, or mitigatory measures. The section indicates the accuracy, reliability, and sources of the data.
- e. Environmental and social impacts. Predicts and assesses the project's likely positive and negative impacts, in quantitative terms to the extent possible. Identifies mitigation measures and any residual negative impacts that cannot be mitigated. Explores opportunities for environmental enhancement. Identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions, and specifies topics that do not require further attention.
- f. Analysis of alternatives (optional in a category B project). Systematically compares feasible alternatives to the proposed project site, technology, design, and operation - including the "without project" situation - in terms of their potential environmental impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. For each of the alternatives, quantifies the environmental impacts to the extent possible, and attaches economic values where feasible. States the basis for selecting the particular project design proposed and justifies recommended emission levels and approaches to pollution prevention and abatement.
- g. Environmental management plan (EMP). Covers mitigation measures, monitoring, and institutional strengthening; see outline in OP ٤,٠١, Annex C.
- h. Appendixes
  - (i) List of EA report preparers--individuals and organizations.
  - (ii) References--written materials, both published and unpublished, used in study preparation.
  - (iii) Record of interagency and consultation meetings, including consultations for obtaining the informed views of the affected people and local nongovernmental organizations (NGOs). The record specifies any means other than consultations (e.g., surveys) that were used to obtain the views of affected groups and local NGOs.
  - (iv) Tables presenting the relevant data referred to or summarized in the main text.

- (v) List of associated reports (e.g. resettlement plan or indigenous peoples development plan).



---

## Medical Waste Management Plan

---

### **١. Introduction and Project Context**

Brief description of the sub-project's objective, scope and locations (description of the facilities to be established, such as mobile hospitals or health posts); relevant planned activities, which may lead to increased volumes of medical waste; description of the planned services of the hospitals / clinics and the types of medical waste expected to incur.

### **٢. Regulatory Framework and Technical Standards**

Review of DR Iraq's regulatory framework on medical waste management (MWM); of any existing technical standards, guidelines and operational procedures; and comparison to international good practice.

Description of other standards possibly used for specific waste management system, e.g. from donors' regulatory systems.

Description of current best industry practice in MWM, e.g. for collection, storage or incineration.

### **٣. Review of current Waste Management System**

Review current medical waste management and disposal procedures and practice; check compliance with domestic regulations and international good practice; identification of major gaps and deviations from regulations and good practice.

Assess / estimate of current waste volumes; number of segregated waste streams; inventory of existing equipment and facilities: e.g. collection boxes, storage facilities, transport to incinerators, incinerators available within municipalities (distance from clinic?); type and condition of incinerators; disposal of ashes, and other non-incinerated waste types (e.g. glass / plastic bottles, sharps, human tissue, food waste, non-infectious waste); (see checklist in Annex ١)

### **٤. Demand and Gap Analysis**

Assess and quantify expected additional volumes for each relevant waste type, resulting from sub-project activities; assessment of available additional capacity for each waste type; identification of capacity constraints and bottlenecks;

Assess quality and compliance of current MWM: condition, functionality of collection boxes; safety of temporary storage containers / facilities, and transport to incinerators / deposits; completeness of incineration process; odor of flue gases, prevailing wind directions, existence of sensitive receptors? (e.g. gardens, fields, residences, schools, hospital facilities, patients' wards); quality and dimensions of receptacles for incineration residue (ashes) and non-incinerated medical waste (e.g. human tissue); (see checklist Annex ٢)

### **٥. Compliance and Operational Management Plan**

Preparation of a plan for: (i) establishing compliance in current MWM system, including repairs, upgrading, replacement and new construction / procurement of equipment and facilities; (ii) creating and operating system and procedures for handling additional medical waste quantities generated by project activities, (iii) ensuring staff is aware, trained, disciplined and diligent in operating MWMS; (iv) implementing a monitoring plan for the generated quantities of the various waste types, their treatment and final disposal; include basic quality criteria such as: state of repair of system components, cleanliness around MWM facilities, completeness of incineration process, smoke development.

---

<sup>١٧</sup> Medical Waste Management Plan

**Attachment ١: Waste Management System Review**

(١) Current waste volumes

Waste type	Estd. volume/week (m <sup>٣</sup> )	Collection system	Transport	Final disposal
infectious waste				
sharps & needles				
bottles / glass				
human tissue				
food waste				
other waste				

(٢) Incinerators / disposal facilities:

Type	Weekly capacity (m <sup>٣</sup> )	Auxiliary fuel / incineration method	Condition	Remarks
Re				
F				
AA				
T				
O				

Other remarks:

.....  
 .....  
 .....



الله  
الحمد

## Attachment ٧: Demand and Gap Analysis

### (١) Current waste volumes

Component / Issues	Identified Compliance Gaps	Rectification Measures description	Remarks (e.g. time and cost requirements)
condition & functionality of collection boxes			ca. .....weeks ca. .... \$
safety of temporary storage containers / facilities			ca. .....weeks ca. .... \$
transport to incinerators / deposits: safety and functionality of route and equipment			ca. .....weeks ca. .... \$
Incinerators: completeness of incineration process; quality of flue gases, prevailing wind directions, existence of sensitive receptors? (e.g. gardens, fields, residences, schools, hospital facilities, patients' wards)			ca. .....weeks ca. .... \$
quality and dimensions of receptacles for incineration residue (ashes), protection against rain and leaching			ca. .....weeks ca. .... \$
quality and dimensions of receptacles for non-incinerated medical waste (e.g. placentas)			ca. .....weeks ca. .... \$



## Annex A: Disclosure Requirements for E&S Instruments for Subprojects

A public consultation and disclosure campaign as required by OP ٤,٠١ and OP ٤,١٢ will be prepared, organized and carried out. The Project Owner's representative (PMU or a Consultant) will assemble appropriate materials, (maps, graphs, drawings, simulations, models, key environmental figures) disclose them in a manner acceptable to Bank policies (timely prior to consultation, usually at least ٤ weeks, in a form and language that are understandable, in locations accessible with reasonable effort to the groups being consulted) and organize one or more venues which will enable the affected population to participate without excessive undue efforts. Suggested venues would be one or more of the potentially affected (by visibility, traffic, land take or other nuisances) communities near the planned project site.

The materials and information to be disclosed will have to cover the following aspects of the project: (i) General project design and layout, emphasizing areas directly impacted by permanent or temporary works and structures, access and service roads, and areas indirectly impacted by construction or operation (noise, dust, borrow pits, landscape aesthetics etc.); (ii) summary of major environmental impacts generally associated with large scale civil construction works and landfill operations, (iii) overview of relevant World Bank environmental and social safeguards policies applicable to the project (OP ٤,٠١, OP ٤,٠٤, OP ٤,١١, OP ٤,١٢) and the approaches and instruments for mitigation of environmental and social impacts, which are commonly applied in landfill projects; (iv) overview environmental and social impact assessments. (v) a presentation and discussion of any alternative sites and landfill configurations.

The Project Owner will assure the presence at the consultations of competent technical staff familiar with the project. Discussions will be conducted in local language. With assistance of the project proponent, materials will be prepared clearly describing the project in a manner understandable for non-specialists: these can be maps, pictures, plans, diagrams and other information materials which are understandable to a non-technical audience, yet truly and fully characterize the project, the expected impacts and planned mitigation measures.

The PMU or Consultant will provide documentation of the following:

- Manner in which notification of the consultation was announced: media used, date(s), description or copies of the announcement
- Date(s) consultation(s) was (were) held
- Location(s) consultation(s) was (were) held
- Who was invited (Name, Organization or Occupation, Telephone/Fax/e-mail number/address (home and/or office))
- Who attended (Name, Organization or Occupation, Telephone/Fax/e-mail number/address (home and/or office))
- Meeting Program/Schedule (What is to be presented and by whom, how much time for input by the public)
- Summary Meeting Minutes (comments, questions and response by presenters)
- List of decisions reached, and any actions agreed upon with schedules, deadlines and responsibilities.

## Excerpts on Consultation and Disclosure from OP٤,٠١:

---

### Public Consultation

١٤. For all Category A and B projects proposed for IBRD or IDA financing, during the EA process, the borrower consults project-affected groups and local nongovernmental organizations (NGOs) about the project's environmental aspects and takes their views into account. The borrower initiates such consultations as early as possible. For Category A projects, the borrower consults these groups at least twice: (a) shortly after environmental screening and before the terms of reference for the EA are finalized; and (b) once a draft EA report is prepared. In addition, the borrower consults with such groups throughout project implementation as necessary to address EA-related issues that affect them.<sup>١٨</sup>

### Disclosure

١٥. For meaningful consultations between the borrower and project-affected groups and local NGOs on all Category A and B projects proposed for IBRD or IDA financing, the borrower provides relevant material in a timely manner prior to consultation and in a form and language that are understandable and accessible to the groups being consulted.

١٦. For a Category A project, the borrower provides for the initial consultation a summary of the proposed project's objectives, description, and potential impacts; for consultation after the draft EA report is prepared, the borrower provides a summary of the EA's conclusions. In addition, for a Category A project, the borrower makes the draft EA report available at a public place accessible to project-affected groups and local NGOs. For projects described in paragraph ٩ above, the borrower/FI ensures that EA reports for Category A subprojects are made available in a public place accessible to affected groups and local NGOs.

١٧. Any separate Category B report for a project proposed for IDA financing is made available to project-affected groups and local NGOs. Public availability in the borrowing country and official receipt by the Bank of Category A reports for projects proposed for IBRD or IDA financing, and of any Category B EA report for projects proposed for IDA funding, are prerequisites to Bank appraisal of these projects.

١٨. Once the borrower officially transmits the Category A EA report to the Bank, the Bank distributes the summary (in English) to the executive directors (EDs) and makes the report available through its World Bank external website. Once the borrower officially transmits any separate Category B EA report to the Bank, the Bank makes it available through its World Bank external website.<sup>١٩</sup> If the borrower objects to the Bank's releasing an EA report through the World Bank World Bank external website, Bank staff (a) do not continue processing an IDA project, or (b) for an IBRD project, submit the issue of further processing to the EDs.

## Annex A: Documentation of Disclosure and Consultation Activities

---

<sup>١٨</sup> For projects with major social components, consultations are also required by other Bank policies--for example, [OP/BP ٤,٠١, Indigenous Peoples](#), and [OP/BP ٤,١٢, Involuntary Resettlement](#)

<sup>١٩</sup> For a further discussion of the Bank's disclosure procedures, see [The World Bank Policy on Access to Information](#) which as of July ١, ٢٠١٠, replaced *The World Bank Policy on Disclosure of Information*. Specific requirements for disclosure of resettlement plans and indigenous peoples development plans are set out in [OP/BP ٤,٠١, Indigenous Peoples](#), and [OP/BP ٤,١٢, Involuntary Resettlement](#).

## Minutes of Meetings of the First Coordination Meeting with Relevant Ministries and Authorities (Sept ٢٢, ٢٠١٥)

### محضر اجتماع

تم عقد اجتماع صباح يوم الثلاثاء المصادف ٢٢/٩/٢٠١٥ في مقر صندوق اعادة الاعمار بحضور ممثلي وزارة الكهرباء ووزارة الاعمار والاسكان والبلديات والاشغال العامة ووزارة الصحة والبيئة لبحث خطة العمل البيئية والاجتماعية وسياسة اعادة التوطين التي ستقدم الى البنك الدولي لإعادة الاعمار والتنمية المتعلقة بمشروع العمليات الطارئة للتنمية حيث تمت مناقشة تفاصيل هذه الخطة وجرى التأكيد على ان تقوم الوزارات ذات الصلة باعداد تقارير عن الاثر البيئي لمشاريع اعادة الاعمار التي يراد انجازها وترفع للجهات البيئية المعنية لغرض ابداء الرأي بشأنها والمصادقة عليها.

وتم التأكيد على عدم وجود اي عارض قانوني فيما يخص استملاك الاراضي التي سوف يتم تنفيذ مشاريع اعادة الاعمار عليها، وفي حالة استملاك اي اراضي تعود للمواطنين يتم تعويضهم وفقاً للقوانين العراقية النافذة ولم يكن لدى ممثلي الوزارات المعنية اي اعتراض على خطة العمل البيئية والاجتماعية وسياسة اعادة التوطين، وبهذا ختم المحضر.

  
عصام سعيدي رمضان

ممثل وزارة الاعمار والاسكان

البلديات والاشغال العامة/ طرق وجسور

  
قصي الحافظ

ممثل وزارة الاعمار والاسكان

والبلديات والاشغال العامة/ البلديات

  
م. ق. مازن كامل علوان

منسق وزارة الصحة

  
سري خالد محمد

مسؤول المتابعة

  
ريام امير علي

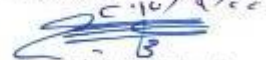
ممثل وزارة الاعمار والاسكان

البلديات والاشغال العامة/ طرق وجسور

  
رياض علي محمد

ممثل وزارة الاعمار والاسكان

والبلديات والاشغال العامة/ البلديات

  
د. محمد عبد الجليل

منسق وزارة البلديات

١٥/٩/١٥

  
د. حيدر صباح

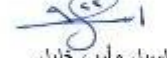
منسق وزارة الاعمار

  
غيداء عبد القادر

مساعد تنفيذي

  
تغريد احمد صالح

ممثل البيئة

  
اسيل ماريب خليل

ممثل الكهرباء

  
د. رائد محمد علي

منسق وزارة البيئة

  
م. ق. آراز صباح

منسق وزارة الكهرباء



**Figure ٨: Representatives from different authorities (including Ministry of Environment) discussing EODP activities (Sept ٢٢, ٢٠١٥)**

الله  
الحمد

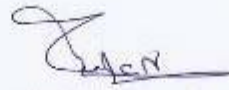
**Minutes of Meetings of the Second Consultation with NGOs/CSOs (May ١٦, ٢٠١٦)**



### محضر اجتماع

اجتمع د. عبد الباسط تركي سعيد رئيس صندوق اعادة اعمار المناطق المتضررة من العمليات الارهابية ظهر يوم الاثنين المصادف ٢٠١٦/٥/١٦ وفريق العمل في مقر الصندوق مع ممثلي منظمات المجتمع المدني العاملة في محافظتي صلاح الدين وديالى وجرى خلال الاجتماع مناقشة تفاصيل المشاريع التي ستنفذ في اطار قرض مشروع التنمية الطارئة الذي قدمه البنك الدولي لحكومة العراق لاعادة تأهيل (٤) قطاعات في (٧) مناطق في المحافظتين اعلاه، كما جرى الاستماع الى ملاحظات ومقترحات المشاركين في الاجتماع بشأن المشاريع واثرا البيئي والاجتماعي في المناطق المشمولة بالقرض ومدى مساهمة تلك المشاريع بعودة النازحين الى مناطقهم، وتم شرح آلية الاعداد والتنفيذ لهذه المشاريع وشروط البنك الدولي التي تضمن المحافظة على الظروف البيئية والاجتماعية خلال تنفيذ المشاريع، وكذلك اهمية مشاركة المجتمع المدني بمواطنيه ومنظماته بدعم تنفيذ تلك المشاريع بطريقة صانبة وشفافة.

  
د. عبد الباسط تركي سعيد  
رئيس الصندوق

  
د. د. نعمان حسين عطية  
جامعة تكريت

  
د. عبد الحق نايف محمود  
منظمة التنمية المستدامة

  
باسم عزيز كطعم  
حميرين للاغاثة

  
شفيق جاسم مهدي  
منظمة الانطلاق للتنمية


  
ساهر عبدالله جاسم  
مركز العدالة

  
علي منصور حمد  
منظمة جنان الرحمة

  
عمار لفتة خزعل  
منظمة السلام الانسانية


  
ابراهيم علي احمد  
منظمة جنان الرحمة


  
احمد علي احمد  
منظمة جنان الرحمة

  
عمار جاسم محمود  
منظمة الانطلاق للتنمية

  
غيداء عبد القادر  
مكتب رئيس الصندوق


  
قيس مالك احمد  
مؤسسة الخير

  
جاسم محمد مبارك  
منظمة كنز الانسانية


  
زهراء عدنان علي  
منظمة كنز الانسانية

  
رانة محمد علي  
متابعة محافظة ديالى

  
ارار صباح  
متابعة الكهرياء

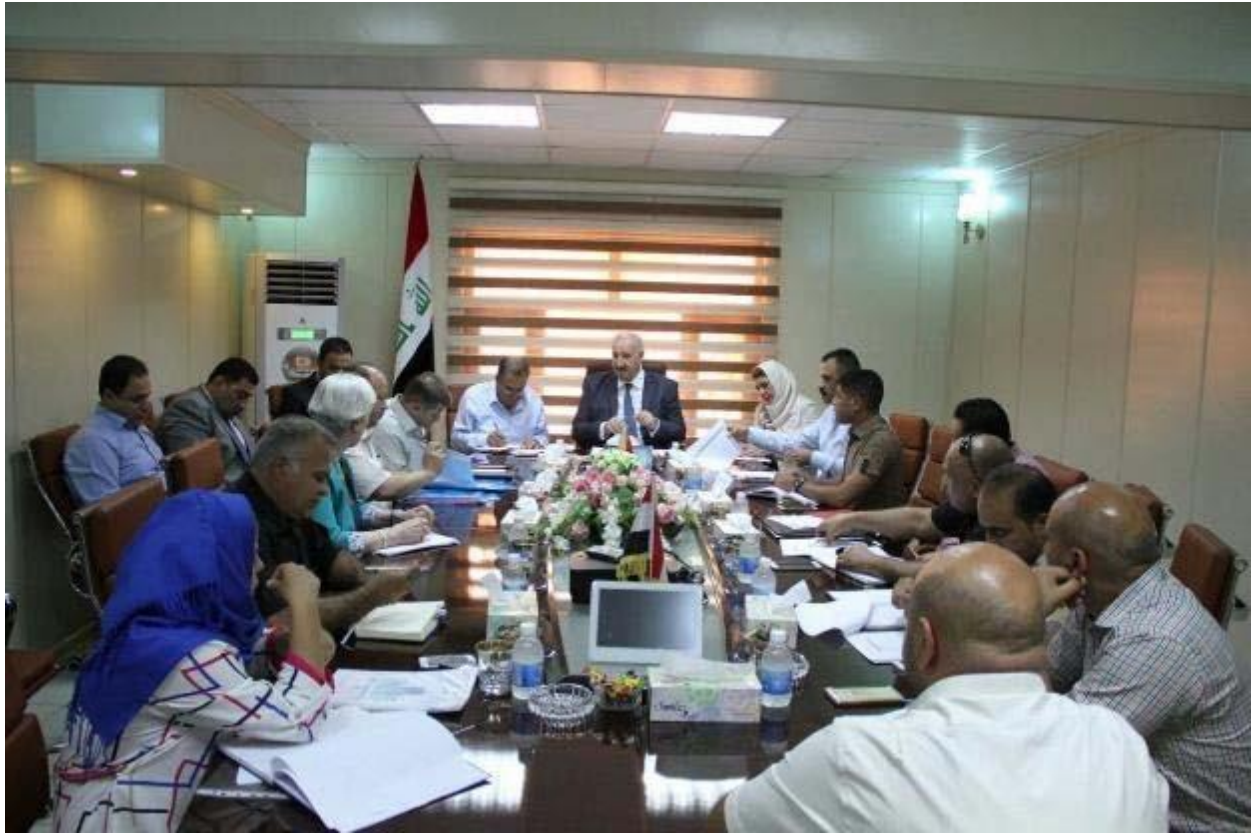
  
حيدر صباح  
متابعة طرق وجسور

  
سري خالد  
مسؤول متابعة

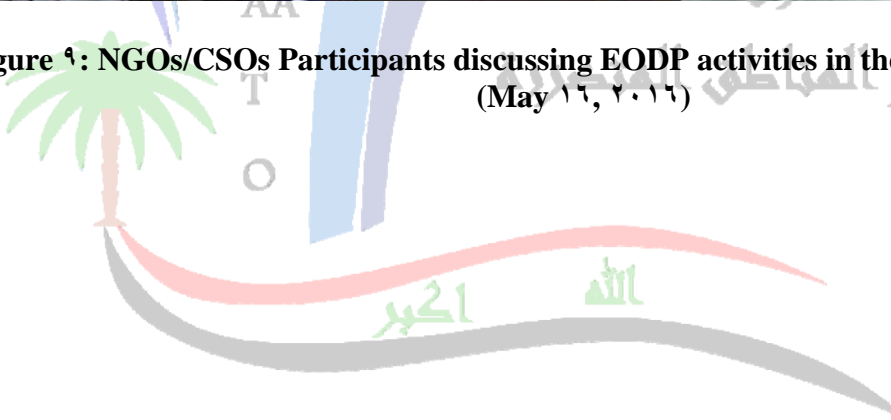
  
نايم دردار  
منظمة الانطلاق للتنمية

  
محمد عبد الجليل  
متابعة محافظة صلاح الدين

  
مظهر احمد  
متابعة بلديات واشغال عامة

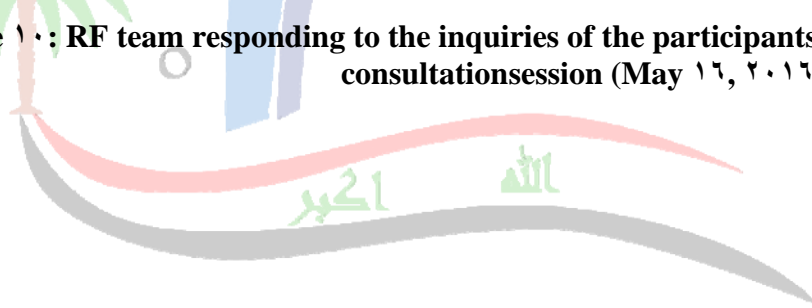


**Figure 9: NGOs/CSOs Participants discussing EODP activities in the Consultation Session (May 16, 2016)**





**Figure ١٠: RF team responding to the inquiries of the participants in the consultation session (May ١٦, ٢٠١٦)**





### **Consultation for the AF: Minutes of Consultation with the stake holders**

The Emergency Operation for Development Project Additional Financing (EODP-AF) is classified as Category B according to the WB OP ٤,٠١. Consequently, the preparation of the ESMF for the EODP AF requires at least one consultation meeting. The objectives of consultation and participation process are to inform, consult and engage the local community and other local stakeholders about the project.

For this updated ESMF, the Reconstruction Fund (RF) representatives carried two round of consultation meetings with key stakeholders, line ministries and government officials in Mosel and in Ramadi on Aug ٢٢, ٢٠١٧ and on Aug ٣٠, ٢٠١٧ respectively. The purpose of the consultations sessions was to present the overall project design; explain its broader benefits at the national level; and outline key anticipated adverse environmental and social impacts expected to result from subproject activities so that the stakeholders gain better understanding of the AF, its activities and potential impacts. Specific objectives of the consultations sessions were to:

- Inform the stakeholders and the public about the EODP-AF.
- Identify the main project stakeholders and their concerns.
- Provide the opportunity for the identified stakeholders to participate in the process of scoping significant environmental and social impacts.
- Identify and comment on the key environmental impacts/concerns.
- Ensuring that appropriate approach and adequate focus are adopted during the ESMP.

There was a General acceptance from participants to the additional financing and they all agreed that the project will give the liberated cities a great benefit besides these people need to return to their houses and farms and return to practice their lives and they can't do it unless they have the main services such as a reliable electricity and drinking water, health services, roads and bridges to activate the economy in the liberated areas. It was emphasized by the participants that there is no legal opposition to the land expropriation to which the reconstruction projects will be implemented and in the case of expropriation of any land belonging to citizens will be compensated in accordance with the Iraqi laws in force and in a manner, that does not conflict with the rules of the World Bank Environmental and Social Management Framework and the Resettlement Policy Framework.

In addition, this project will provide job opportunities for local citizens as the business implementation needs to a local staff of various certificates and even stateless certificate workers and at the same time, citizens expressed fears of extending the time period for the implementation of the project because of the urgent need to it at the moment and the possibility of covering other additional necessary opportunities during the implementation.

## ١. Arabic Minutes of Consultation with key stake holders in Mosel on Aug ٢٢, ٢٠١٧

## صندوق إعادة إعمار المناطق المتضررة من العمليات الإهابية

عملية التنمية الطارئة في العراق

إلى السيد رئيس الصندوق الدكتور مصطفى محمد أمين المحترم

م/ محضر اجتماع

تم عقد الاجتماع في يوم 2017/8/22 في مبنى محافظة نينوى من قبل فريق عمل الصندوق استشاري التواصل د. ماجدة سلمان محمد ود. محمد عبد الجليل بحضور مسؤولي القطاعات مدير عام صحة نينوى ومدراء الزراعة والبلدية والمجاري والاثواء وتوزيع الكهرباء والتربية/الابنية المدرسية وقسم التخطيط في معاونية المحافظة ومدير ادارة مشاريع المحافظة ومستشارة المحافظ لشؤون المرأة والطفل وسكرتير اعمار نينوى وممثل الـ(UNDP) ويتسبب وحضور معاون المحافظ للشؤون الفنية السيد حسن علاف وحسب قائمة الحضور المرفقة بالمحضر.

وذلك لبحث خطة العمل البيئية والاجتماعية وسياسة إعادة التوطين التي ستقدم إلى البنك الدولي لإعادة الإعمار والتنمية المتعلقة بمشروع العمليات الطارئة للتنمية حيث تمت مناقشة تفاصيل هذه الخطة وجرى التأكيد على أن تقوم القطاعات المعنية ذات الصلة بإعداد تقارير عن الأثر البيئي لمشاريع إعادة الإعمار التي يراد إنجازها وترفع للجهات البيئية المعنية لغرض إبداء الرأي بشأنها والمصادقة عليها.

وتم التأكيد على عدم وجود أي عارض قانوني فيما يخص استملاك الأراضي التي سوف يتم تنفيذ مشاريع إعادة الإعمار عليها، وفي حالة استملاك أي أراضي تعود لمواطنين يتم تعويضهم وفقاً للقوانين العراقية النافذة وبما لا يتعارض مع قواعد عمل البنك الدولي ولم يكن لدى ممثلي الوزارات المعنية أي اعتراض على خطة العمل البيئية والاجتماعية وسياسة إعادة التوطين وبهذا ختم المحضر.

تم تزويد المحافظة بنسخة من خطة العمل البيئية والاجتماعية وسياسة إعادة التوطين المقدمة من البنك الدولي.



د. ماجدة سلمان محمد

استشاري التواصل

2017/8/27



د. محمد عبد الجليل

2017/8/27

٢. Attendance Sheet of Participants in Mosel on Aug ٢٢, ٢٠١٧

جدولة إعادة الحارم لنا لعمد المتفردة مدير العمليات لارهابية  
 مشروع العملية لطارئة في العراق  
 EODP

الكصور في اجتماع ( فقط عمل سببها وابقائية ) المرصد / مبدا / محافظة سبارغ  
 ٢٠١٧/٨/٢٢

الترتيب	الاسم	المسمى	التوقيع
١	سكينة محمد علي يوسف	مشاركة محافظ الشوكية اطباءة والطفل رعدية مشر المراه والطفل	
٢	د. لينا محمد لصرين هبابه	مدير قسم كمد نينون	
٣	م. عبد القادر صبري	مدير قسم الهندسة / الحمة نينون	
٤	م. زانا احمد خليل	مديرية تدريب كينونا / الابنية المدرسية	
٥	علاء حيدر رشيد	مديرية زراعة سبوت	
٦	هيفاء دكشيتي	مديرية زراعة سبوت / القبة الاشبية	
٧	احمد محمد محمود	مديرية بلدية الموصل	
٨	عبد الله محمد سليم	مديرية جاري نينون	
٩	أحمد مدائن بوشين	مدير دائرة أنوار الموصل	
١٠	الهاشمي محمد	مديرية زراعة سبوت / كينونا	



undp  
مكتب فريق العمل الفني

١١. خالد حسين الجبوري  
١٢ - ٣. عادل عبد الستار العمري



٣. Photos of participants during consultation meeting in Mosel on Aug ٢٢, ٢٠١٧







## ٤. Arabic Minutes of Consultation with key stake holders in Ramadi on Aug ٣٠, ٢٠١٧

## صندوق إعادة إعمار المناطق المتضررة من العمليات الإهابية

عملية التنمية الطارئة في العراق

م/ محضر اجتماع

أطر الإدارة البيئية والاجتماعية المحدث لعام 2017

تم عقد الاجتماع في يوم 2017/8/30 في مبنى قائمقامية الرمادي من قبل فريق عمل الصندوق استشاري التواصل د. ماجدة سلمان محمد والسيد رواد سعيد عبد الواحد وبالتنسيق مع قائمقام الرمادي السيد ابراهيم العوسج وبحضور نائبه السيد موبد فرحان ومسؤولي القطاعات وذلك لاستعراض (أطر الإدارة البيئية والاجتماعية المحدث لعام 2017) وسياسة إعادة التوطين التي يقدمها البنك الدولي لإعادة الإعمار والتنمية المتعلقة بمشروع العمليات الطارئة للتنمية (EODP) وجرى التأكيد على أن تقوم القطاعات المعنية (البلدية، الماء، المجاري، الصحة، البيئة، الكهرباء، توزيع المنتجات النفطية، الزراعة، الموارد المائية، البريد والاتصالات) ذات الصلة بإعداد تقارير عن الأثر البيئي لمشروع إعادة الإعمار التي يراد إنجازها وترفع للجهات البيئية المعنية.

وتم مناقشة الإطار القانوني والمؤسسي للمشروع والذي يتضمن التشريعات والانظمة العراقية ومتطلبات السياسات الوقائية المعتمدة من البنك الدولي مع مراعاة الظروف البيئية والمناخية للمشروع والسمات الجغرافية وموارد المياه السطحية والجوفية والتنوع البيولوجي والانشطة الاقتصادية والارض المستخدمة.

مع التأكيد على عدم وجود أي عارض قانوني فيما يخص استملاك الاراضي التي سوف يتم تنفيذ مشاريع إعادة الإعمار عليها، وفي حالة استملاك أي اراضي تعود لمواطنين يتم تعويضهم وفقاً للقوانين العراقية النافذة وبما لا يتعارض مع قواعد عمل البنك الدولي، على أن يتم الإفصاح عن تلك المشاريع على مستوى منظمات المجتمع المدني والمجتمعات المحلية من خلال الجلسات التشاركية لتلافي حدوث النزاعات في منطقة المشروع. والإفصاح عن أية معلومات بما يتسجم مع سياسة البنك الدولي بشأن الوصول والحصول على المعلومات.

تم تزويد قائمقامية الرمادي بنسخة من (أطر الإدارة البيئية والاجتماعية) المحدث لعام 2017 وسياسة إعادة التوطين المقدمة من البنك الدولي.

أحمد مهدي إبراهيم  
بلدية الرمادي

ناجي عابر  
مدير ناحية الوفاء

موبد فرحان  
مدير ناحية الرحالية

جلال عبيد زيدان  
دائرة صحة

احمد مزعل  
مدير الماء

م. محمد خلف محمود  
مدير دائرة المجاري



٥. Attendance Sheet of Participants in Ramadi on Aug ٣٠, ٢٠١٧

صندوق إعادة إعمار المناطق المتضررة من العمليات الإهابية  
عملية التنمية الطارئة في العراق  
م/ محضر اجتماع  
أطر الإدارة البيئية والاجتماعية المحدث لعام 2017

 منعم محمد خلف دائرة كهرباء الرمادي	 م. وهاب فرحان مديرية التربة/ الابنية الهندسية	عبد خلف أحمد دائرة صحة الانبار
 سلام عزام محمد مدير الصيانة رئيسا لمتابعة الموارد المائية في الرمادي	 حاتم مرشد علي مدير سبعة زراعة الرمادي	 م. هادي محمد مرشد شركة توزيع المنتجات النفطية
 عبد الكريم حسن عضو مجلس محافظة	 م. محمد طارق مدير بيئية الرمادي وزير	 م. م. اقدم محمد دائرة اتصالات النجف الاشياء
 د. ماجدة سلمان محمد استشاري التواصل 2017/8/ 30	 حمد الله عبد عضو مجلس محافظة	 رواد سعيد عبد الواحد

٦. Photos of participants during consultation meeting in Ramadi on Aug ٣٠, ٢٠١٧





المجلة

Annex ٩: Managing the Risks of Adverse Impacts on Communities from Temporary Project Induced Labor Influx



Labor influx  
guidance note



## Annex ١٠. Principles of IPM, use and handling of pesticides

١. *Principles of the Integrated Pest Management*<sup>١٠</sup>. The primary aim of pest management is to manage pests and diseases that may negatively affect production of crops so that they remain at a level that is under an economically damaging threshold. Pesticides should be managed to reduce human exposure and health hazards, to avoid their migration into off-site land or water environments and to avoid ecological impacts such as destruction of beneficial species and the development of pesticide resistance. One important strategy is to promote and facilitate the use of Integrated Pest Management (IPM) through preparation and implementation of an Integrated Pest Management Plan (PMP). The IPM consists of the judicious use of both chemical and nonchemical control techniques to achieve effective and economically efficient pest management with minimal environmental contamination. IPM therefore may include the use of: a) Mechanical and Physical Control; b) Cultural Control; c) Biological Control, and d) rational Chemical Control. Although IPM emphasizes the use of nonchemical strategies, chemical control may be an option used in conjunction with other methods. Integrated pest management strategies depend on surveillance to establish the need for control and to monitor the effectiveness of management efforts.

٢. *Alternatives to Pesticide Application*. Where feasible, the following alternatives to pesticides should be considered:

- Rotate crops to reduce the presence of pests and weeds in the soil ecosystem;
- Use pest-resistant crop varieties;
- Use mechanical weed control and / or thermal weeding;
- Support and use beneficial organisms, such as insects, birds, mites, and microbial agents, to perform biological control of pests;
- Protect natural enemies of pests by providing a favorable habitat, such as bushes for nesting sites and other original vegetation that can house pest predators and by avoiding the use of broad-spectrum pesticides;
- Use animals to graze areas and manage plant coverage;
- Use mechanical controls such as manual removal, traps, barriers, light, and sound to kill, relocate, or repel pests.

٣. *Pesticide Application*. If pesticide application is warranted, users are recommended take the following actions:

- Train personnel to apply pesticides and ensure that personnel have received applicable certifications or equivalent training where such certifications are not required;
- Review and follow the manufacturer's directions on maximum recommended dosage or treatment as well as published reports on using the reduced rate of pesticide application without loss of effect, and apply the minimum effective dose;
- Avoid routine "calendar-based" application, and apply pesticides only when needed and useful based on criteria such as field observations, weather data (e.g. appropriate temperature, low wind, etc.),
- Avoid the use of highly hazardous pesticides, particularly by uncertified, untrained or inadequately equipped users. This includes:
  - Pesticides that fall under the World Health Organization Recommended Classification of Pesticides by Hazard Classes I a, II b and III should be avoided in all cases
  - Avoid the use of pesticides listed in Annexes A and B of the Stockholm Convention, except under the conditions noted in the convention and those subject to international bans or phase outs;

<sup>١٠</sup> This section is based on the World Bank Group in the Environmental, Health, and Safety Guidelines prepared in ٢٠٠٧.



- Use only pesticides that are manufactured under license and registered and approved by the appropriate authority and in accordance with the Food and Agriculture Organization's (FAO's) International Code of Conduct on the Distribution and Use of Pesticides;
- Use only pesticides that are labeled in accordance with international standards and norms, such as the FAO's Revised Guidelines for Good Labeling Practice for Pesticides;
- Select application technologies and practices designed to reduce unintentional drift or runoff only as indicated in an IPM program, and under controlled conditions;
- Maintain and calibrate pesticide application equipment in accordance with manufacturer's recommendations. Use application equipment that is registered in the country of use;
- Establish untreated buffer zones or strips along water sources, rivers, streams, ponds, lakes, and ditches to help protect water resources;
- Avoid use of pesticides that have been linked to localized environmental problems and threats.

٤. *Pesticide Handling and Storage.* Contamination of soils, groundwater, or surface water resources, due to accidental spills during transfer, mixing, and storage of pesticides should be prevented by following the hazardous materials storage and handling recommendations. These are the following:

- Store pesticides in their original packaging, in a dedicated, dry, cool, frost-free, and well aerated location that can be locked and properly identified with signs, with access limited to authorized people. No human or animal food may be stored in this location. The store room should also be designed with spill containment measures and sited in consideration of potential for contamination of soil and water resources;
- Mixing and transfer of pesticides should be undertaken by trained personnel in ventilated and well lit areas, using containers designed and dedicated for this purpose.
- Containers should not be used for any other purpose (e.g. drinking water). Contaminated containers should be handled as hazardous waste, and should be disposed in specially designated for hazardous wastes sites. Ideally, disposal of containers contaminated with pesticides should be done in a manner consistent with FAO guidelines and with manufacturer's directions;
- Purchase and store no more pesticide than needed and rotate stock using a "first-in, first-out" principle so that pesticides do not become obsolete. Additionally, the use of obsolete pesticides should be avoided under all circumstances; a management plan that includes measures for the containment, storage and ultimate destruction of all obsolete stocks should be prepared in accordance to guidelines by FAO and consistent with country commitments under the Stockholm, Rotterdam and Basel Conventions.
- Collect rinse water from equipment cleaning for reuse (such as for the dilution of identical pesticides to concentrations used for application);
- Ensure that protective clothing worn during pesticide application is either cleaned or disposed of in an environmentally responsible manner
- Maintain records of pesticide use and effectiveness.

٥. *Pest Management Plan (PMP).* The content of the Pest Management Plan should apply to all the activities and individuals working in sub-projects involving procurement, distribution and/or application of pesticides. It should be emphasized also that non-chemical control efforts will be used to the maximum extent possible before pesticides are used. The Pest Management Plan should be a framework through which pest management is defined and accomplished. The Plan should identify elements of the program to include health and environmental safety, pest identification, and pest management, as well as pesticide storage, transportation, use and disposal. Management Plan is to be used as a tool to reduce reliance on pesticides, to enhance environmental protection, and to maximize the use of integrated pest management techniques.

The Pest Management Plan shall contain pest management requirements, outlines the resources necessary for surveillance and control, and describes the administrative, safety and environmental requirements. The Plan should provide guidance for operating and maintaining an effective pest management program/ activities. Pests considering in the Plan may be weeds and other unwanted vegetation, crawling insects and other vertebrate pests. Without control, these pests provoke plants' deceases. Adherence to the Plan will ensure effective, economical and environmentally acceptable pest management and will maintain compliance with pertinent laws and regulations. The recommended structure of a *Pest Management Plan* is presented in the *Attachment A*.

7. *Reviewing and approving Pest Management Plan.* A PMP should be prepared in all cases of direct purchasing and usage of pesticides by all subprojects beneficiaries. The draft PMP should be reviewed by the PMT environmental specialist, who will provide its approval. These documents are also subject to WB prior review.

8. Recommended modules for Pest management trainings. Pest management Plan can include the training activities organized either broadly throughout the project districts or in some particular district of bigger importance. The recommended modules are the following:

- Basic concepts of the integrated method of plant and animal protection;
- Alternatives to the use of pesticides, training of workers in their use, and the application of the minimum effective dose;
- Study of pests, entomophages, their biology, microbiological preparations and the role of biological factors in the regulation of pest numbers;
- Compliance with the environmental requirements of the pest control system, crop diseases and weeds. Description of environmental measures to ensure the conservation and enhancement of the crop;
- Requirements for environmental and industrial safety in the storage, transportation and use of pesticides;
- Selection of technologies and applications to reduce unintentional emissions or chemical diversions, in accordance with the provisions of the integrated plant pest management program under controlled conditions, compliance with international and local environmental safety standards and standards;
- Templates of the Environmental and Social Management Plan (using the experience of other WB projects) as well as plans for combating agricultural pests.



### Attachment A. Recommended Structure of a Pest Management Plan

Following review of the Environment Screening Checklist submitted by the applicant for a sub-project loan, the PMT Environmental Specialist will determine if the applicant needs to prepare a PMP. This determination would be made on the basis of toxicity of the pesticides to be used and the environmental risks posed by the activity. When, a determination is made that a PMP is to be prepared by the sub-project loan applicant, a two stage process would be applied towards the preparation of the PMP.

#### Stage A: Additional Information Request

The applicant would provide the following information:

##### ١. *Types and application of pesticides*

- (i) What are the pesticides that are to be purchased, including name of product, type of formulation, concentrations of the active ingredient?
- (ii) Where are the pesticides to be purchased from, including name of store and location?
- (iii) What are the quantities of pesticides to be purchased and the package sizes and quantities in each package?
- (iv) What type of equipment is to be used to apply the pesticides
- (v) Are applicators trained in the proper and safe use of the pesticides?

##### ٢. *Purpose and appropriateness of pesticides*

- (i) What crops do you plan to use the pesticide?
- (ii) What pests and/or diseases are to be controlled by the pesticide?
- (iii) What non-chemical pest control measures have been used in the past to control the pests and/or diseases mentioned in (ii) above?
- (iv) How often is the pesticide to be applied and in what quantities in any given application?
- (v) How will the timing of the application of the pesticide be decided?
- (vi) Have you been trained or received advice on non-chemical pest control or integrated pest control (IPM)?
- (vii) If not trained, how do you plan to obtain assistance, advice or training in pesticide application quantities and methods; calibration of spraying equipment; use of protective gear; storage and disposal methods, etc.

##### ٣. *Handling, storage and disposal of pesticides*

- (i) How will the pesticides be transported to the project site?
- (ii) Where will the pesticides be stored in the farm?
- (iii) Will the storage location of the pesticide be secured / locked and who will have access to these stores?
- (iv) How will animals, children and unauthorized persons be excluded from access to the storage areas?
- (v) Where will mixing of pesticides happen and what precautions will be taken to keep the storage and pesticide mixing areas away from grain stores and production areas?
- (vi) How will excess unused and mixed pesticide products be disposed of?
- (vii) How will empty pesticide containers be disposed of?

- (viii) How will pesticide records in terms of purchase, use and disposal be maintained?

#### 4. **Environmental Aspects**

- (i) Are pesticide application areas near water bodies, wetlands or areas of known natural habitats?
- (ii) Are there know natural pollinators found in the vicinity of the application areas? If so what precautions would be used to ensure that non-target beneficial species are not harmed?

#### **Stage B: Preparation of Pest Management Plan**

Based on the information provided by the subproject loan applicant, the PMT will identify the risks associated with the application of the pesticide and the more important and most practical mitigation measures that need to be applied, including any complementary measures using non-chemical control measures. The PMT will advise the applicant on the scope and nature of the PMP to address potential impacts of the subproject activities. If needed, the PMT can advise the loan applicant on professional services that could be obtained for completion of the subproject specific PMP. Typically the outline of the PMP would be the following:

- (a) Purpose of Activity** provides information on extent and severity of pest and diseases in the crops to be grown
- (b) General Information of Area** which should provide data on land use and soil, water resources, layout of facilities, etc.
- (c) Review of Existing Pest Management Practices and Capacity** which should provide data on current practices (chemical and non-chemical) in control of the particular pests and diseases, constraints and track record and extent to which pest and diseases of fruit and agricultural crops have been managed and controlled; and reasons for enhanced pesticide applications through the proposed subproject loan.
- (d) Types, amounts and application of Pesticides** provides information on the types, amounts and nature of the pesticides to be purchased and used and the current and proposed handling, application, storage and disposal methods for the pesticides
- (e) Capacity, training and knowledge of the safe application and use of pesticides** provides information on existing knowledge and capacity of staff and personnel in the safe use and application of pesticides and identification of gaps in training and knowledge for improving capacity.
- (f) Potential risks and hazards associated with application and use of pesticides in subproject loan** would provide information on the environmental and human health impacts associated with the handling, application, storage and disposal of pesticides under the subproject loan, including potential impacts on non-target beneficial species, soil and water and natural habitats.
- (g) Mitigation Measures to avoid and manage potential pesticide impacts** that would provide information on the following:
- Mechanical and physical control, cultural and biological control measures, if any that can be used in conjunction with or without pesticide applications to suppress or reduce the severity of the target pest or disease to be controlled;
  - Chemicals and chemical procedures that will be used to control pests and diseases, conditions under which the chemicals will be used, including climatic conditions, vegetation conditions, timing of applications, to improve the effectiveness of the pesticide and reduce its

- environmental impacts as well as specific measures to be employed to protect sensitive ecosystems, aquatic systems and ground water;
- Management of health and safety aspects that would define measures to ensure safe handling, transport, application, storage and disposal of pesticides so as to reduce environmental and health risks;
  - Measures that would be introduced for public safety and protection during pesticide applications;
  - Measures to track and monitor pesticide use and effectiveness in controlling desired pests;
  - Measures to be undertaken to create awareness, improve information flow and improve capacity of farm workers on the hazards on the unsafe use, handling and storage of pesticides and measures for reducing such risks, as well as options for integrated pest management;
  - Measures to be taken to obtain technical support for pest management and safe use and application of pesticides, when necessary;
  - Budget estimate for implementation of the PMP.

