

イラク共和国  
食糧自給のための小麦生産性改善プロジェクト  
詳細計画策定調査報告書

平成 23 年 7 月  
(2011年)

独立行政法人国際協力機構  
農村開発部

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## 序 文

日本政府は、イラク共和国政府からの要請に基づき「灌漑セクターローン」事業に円借款を供与し、イラク共和国政府が本借款資金を利用して、灌漑排水ポンプ、灌漑用排水路の維持管理に係る資機材、発電機などの調達により灌漑農業開発を進めています。

イラク共和国政府は、この円借款事業のより一層の効果発現のため農業セクターへの総合的、包括的な技術支援を日本政府に要請し、日本政府は協力の実施を決定しました。

これを受け、独立行政法人国際協力機構は、農業分野における技術支援の必要性や可能性を検討するため、2011年2月20日から3月12日まで詳細計画策定調査団を派遣し、プロジェクトの現状などについてイラク共和国政府関係者と協議を行うとともに、現場調査や関連資料の収集を行いました。

本報告書は、これら調査結果、協議結果を取りまとめたものであり、今後の本プロジェクト実施にあたり、広く関係者に活用されることを願うものです。

ここに、本調査にご協力とご支援を頂いた内外の関係各位に対し、心より感謝の意を表します。

平成 23 年 7 月

独立行政法人国際協力機構  
農村開発部長 熊代 輝義

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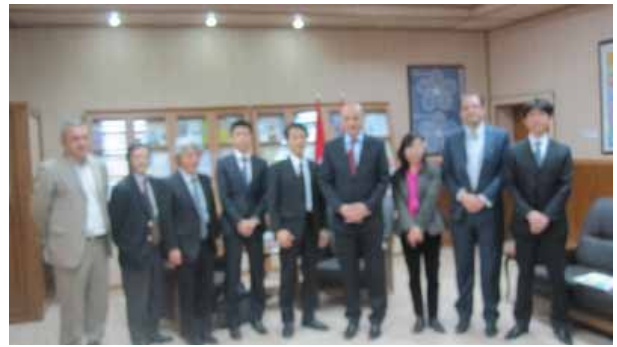
# 調査対象地域地図



写 真



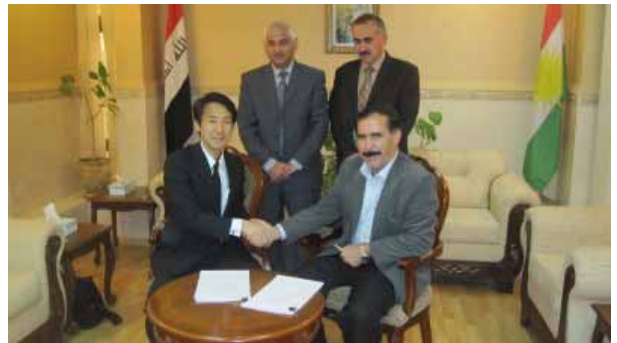
食糧自給のための小麦生産性改善プロジェクト ワークショップ



計画大臣報告



イラク農業省報告



技術協力プロジェクト M/M 署名

## 略 語 表

| 略 語    | 正 式 名   | 日 本 語              |
|--------|---|--------------------|
| ACIAR  | Australian Centre for International Agricultural Research | オーストラリア国際農業研究センター  |
| AusAID | Australian Agency for International Development           | オーストラリア国際開発事業団     |
| FAO    | Food and Agriculture Organization of the United Nations   | 国連食料農業機関           |
| ICARDA | International Agricultural Research in the Dry Areas      | 国際乾燥地農業研究センター      |
| IFAD   | International Fund for Agricultural Development           | 国際農業開発基金           |
| IPM    | Integrated Pest Management                                | 総合防除               |
| M/M    | Minutes of Meeting  | 協議議事録              |
| PDM    | Project Design Matrix                                     | プロジェクト・デザイン・マトリックス |
| PO     | Plan of Operations  | 活動計画               |
| R/D    | Record of Discussions                                     | 討議議事録              |
| TOT    | Training of Trainers                                      | トレーナーズ・トレーニング      |
| USAID  | United States Agency for International Development        | 米国国際開発庁            |



# 第1章 調査の概要

## 1-1 調査団派遣の経緯

独立行政法人国際協力機構（JICA）は供与中の「灌漑セクターローン」によるハードの整備に加え、要請のあったソフトの支援を組み合わせ、イラク共和国（以下、「イラク」と記す）農業セクターへの総合・包括的な支援を目的として、これら要請案件を円借款附帯プロジェクト「食糧自給のための小麦生産性改善プロジェクト」（以下「本プロジェクト」と記す）として実施することを計画しており、今般、プロジェクトの枠組み、計画及び実施体制を確認し、事前評価表作成に必要な情報を収集することを目的として調査団を派遣することとなった。

## 1-2 調査の目的

- (1) プロジェクトの枠組み及び計画（案）をイラク側関係機関とともに検討し、プロジェクト・デザイン・マトリックス（Project Design Matrix：PDM）、活動計画（Plan of Operations：PO）、討議議事録（Record of Discussions：R/D）案を含む協議議事録（Minutes of Meeting：M/M）にて共通認識の醸成を図る。
- (2) 評価5項目の観点から事業事前評価を行うために必要な情報を収集する。
- (3) 調査結果を基に、事業事前評価表（案）の作成に必要な情報を整理する。

## 1-3 団員構成

| 担 当  | 氏 名   | 所 属                 |
|------|-------|---------------------|
| 総括   | 高橋 政行 | JICA 農村開発部 畑作地帯第二課長 |
| 小麦栽培 | 中林 一夫 | JICA 国際協力専門員        |
| 園芸作物 | 相川 次郎 | JICA 国際協力専門員        |
| 農業普及 | 財津 吉壽 | 国際耕種株式会社            |
| 評価分析 | 奥田 浩之 | 合同会社適材適所            |

## 1-4 調査期間

- (1) 調査期間  
2011年2月20日（日）～3月12日（土）（21日間）
- (2) 調査日程  
付属資料1 調査日程のとおり。

## 第2章 協力プロジェクトの概要

### 2-1 プロジェクト実施の背景

#### 2-1-1 現状と課題

イラクでは、1980年以降、3度にわたる戦争と10年以上に及ぶ経済制裁により、社会インフラは破壊され国内経済も後退したが、2003年のイラク戦争後は、国際社会の支援を得つつ復興開発が進んでいる。イラクは、国土の大部分が年間降水量250mm以下の砂漠気候に属するが、近隣諸国と比べると水資源に恵まれており、農業セクターはGDPの約10%（2010年推定）を生産し、労働人口の約22%が農業に従事するなど、石油・ガス部門につぐ重要産業である。農地面積約520万haは国土の12%を占め、このうち約4割はイラク北部に広がる天水耕地、残りはチグリス・ユーフラテス川を水源とする中・南部の灌漑耕地である。イラクの戦後復興・国家開発に向けて2007年に策定された「第3次国家開発戦略」においても、農業セクターは「経済成長のための基盤強化」の重点分野と位置づけられている。しかし、農業生産基盤の老朽化、灌漑農地での塩類集積、農業技術・知識の不足などにより、農業の生産性は低位にとどまっている。主な農作物の国内生産は、デーツを除いて自給が達成されておらず、イラク全体の需要量の小麦は5割、大麦は4割、トマトは6割を輸入するなど、農業セクターの停滞は、食糧輸入への依存、国家経済の石油への依存を高めている。

こうしたことから、2010年に公表された「イラク国家開発計画（2010～2014年）」では、農業セクターのビジョンとして、食糧安全保障のための国内生産の振興、農業生産の増加による農村部の貧困削減と石油依存からの経済多様化、を掲げている。特に、2007～2009年にかけて早魃の影響により平年の50%にまで収量が落ち込んだ小麦をはじめ、優先作物を定めて2014年を目標とする生産計画を示し、生産性向上や投資の促進などを図っていくとしている。

イラク北部に位置するクルド自治区（エルビル県、ドホーク県、スレイマニア県）は、イラク国内でも400mm～1,200mmと年間降水量が多いことから潜在的な農業生産性は高く、イラク全体の食糧自給のためには、クルド地域の生産性向上は重要である。しかし、イラク前政権における弾圧と農村破壊、近年の早魃などの影響でクルド地域の農業生産は減退し、クルド地域においても食糧自給に向けた農業の復興が命題となるとともに、農村部における高い失業率と都市への人口流出といった社会問題にもつながっている。

主要作物である小麦については、クルド地域の小麦栽培面積の9割を占める天水農業において、播種時と収穫時の作業以外はほとんど手をかけない粗放的生産が行われている。天水小麦は天候により生産性が大きく左右されるので、農家は栽培への資材投入を控える状況下で、最大の課題である水資源の利用・供給のほか、優良品種の導入や栽培管理技術の向上により、クルド地域の小麦の生産性を改善していくことが求められている。

#### 2-1-2 相手国政策上の位置づけ

2010年に公表された「イラク国家開発計画（2010～2014年）」では、農業セクターのビジョンとして、食糧安全保障のための国内生産の振興、農業生産の増加による農村部の貧困削減と石油依存からの経済多様化、を掲げている。イラクの主要農産物の自給率をみると、小麦49%、大麦59%、ジャガイモ76%、トマト40%、食肉15%、卵16%などとなっており、農業セクターの停滞は食糧輸入への依存を高めている。このため、同計画では小麦、デーツ、果樹、トマ

ト、タマネギなど優先作物を掲げ、生産計画を示して生産振興を図ることとしている。

特に小麦については、特に同計画において、クルド自治区 3 県を除いたイラク 15 県の現行の小麦生産 191 万 t（河川を水源とする表流灌漑 144 万 t、地下水を水源とするスプリンクラーなどによる補助灌漑 18 万 t、天水栽培 29 万 t）を、362 万 t（表流灌漑 170 万 t、補助灌漑 170 万 t、天水栽培 22 万 t）にまで増大させる生産計画を掲げている。特に補助灌漑栽培における小麦の生産性の向上と天水栽培地域への補助灌漑の導入などにより、国内小麦の生産増を図っていく計画である。

一方、クルド自治政府においても、「農業セクター戦略計画（2009～2013 年）」では、前政権下での農村破壊の影響によりクルド地域が有する自然条件の優位性が農業生産に発揮されていないとし、農業セクターの使命として、自然・予算・人的リソースの利用と先進技術・知識の活用により、クルド地域の食糧自給を達成することとしている。そのために、小麦、野菜、試験研究、農業研修などの生産振興と、水資源開発、投入資材補助などの広範な活動を含むプロジェクトを掲げている。特に小麦生産振興については、クルド自治政府農業水資源省（以下「クルド農業資源省」）のプロジェクトのなかでは最大の予算措置を講じる計画となっている。

### 2-1-3 わが国援助政策との関連、JICA 国別援助実施方針上の位置づけ

2003 年のイラク復興支援国会合での支援表明を端緒に、わが国はこれまで電力、石油、上下水道、保健・医療、農業などのセクターで無償資金協力、円借款、技術協力（本邦・第三国での研修）を実施してきた。農業開発分野については、2009 年 7 月に策定された JICA「国別援助実施方針」において、イラク開発課題の協力方針のなかに位置づけられている。すなわち、協力方針にある 4 つの重点分野のなかの「経済成長を実現するための非石油経済の振興」に農業セクターが含まれている。これまで灌漑セクターローンでイラク全土にポンプ・建設機材を供与し、本邦研修と、シリア、エジプト、ヨルダン等における第三国研修を通じて、農業・農村振興に寄与する人材の育成が取り組まれてきた。さらに、同実施方針には、農業関連技術の向上などのための技術協力を検討し、効果的なプロジェクトの形成につなげていくことが明記されており、本プロジェクトの形成は、こうした方針を踏まえたものである。

### 2-1-4 農業セクターにおけるドナー協力の現状

イラクでの国連機関の活動としては、現在、国連食料農業機関（Food and Agriculture Organization of the United Nations : FAO）が、イラク政府をカウンターパートとして農業情報システムの導入、農業民間セクターの育成、農業雇用促進、畜産振興などのプロジェクトを実施しているが、クルド自治区、小麦生産、園芸振興を対象としたものではない。

小麦などの穀物を対象としては、オーストラリア国際開発事業団（Australian Agency for International Development : AusAID）及びオーストラリア国際農業研究センター（Australian Centre for International Agricultural Research : ACIAR）が出資し、国際乾燥地域農業研究センター（International Agricultural Research in the Dry Areas : ICARDA）を実施機関とする環境保全型作付システムの導入プロジェクトが現在進行中である。「フェーズ I（2005 年 7 月～2008 年 6 月）」に続く「フェーズ II（2008 年 6 月～2011 年 6 月）」であり、クルド自治区と同じく天水小麦を栽培しているニナワ県を対象地域としていることから、小麦に関する種子生産や栽培管理といった当該プロジェクトの成果や知見を入手し、今後活用していくことも考えられる。ICARDA

が実施しているプロジェクトとしては、このほかにも、ACIAR からの出資による「土壌塩類管理プログラム（2010年12月～2012年10月）」がイラク中・南部において、また国際農業開発基金（International Fund for Agricultural Development : IFAD）からの出資による「総合防除・有機肥料を通じた小規模農家の生計向上プロジェクト（2009年1月～2012年1月）」がニナワ県、バグダード県、カディシヤ県で実施されている。しかし、これらのプロジェクトはクルド地域を対象としたものではない。

クルド地域内で実施されているドナー機関の活動としては、米国国際開発庁（United States Agency for International Development : USAID）がコンサルタントへの委託により「INMA アグリビジネスプログラム」（INMA はアラビア語で「成長」の意）を実施している。イラクの全18県において、畜産、園芸、ビジネス振興の分野で、技術研修、実証圃場の設置、ワークショップ開催などの活動を実施しており、クルド地域においても、2010年1月より農民を対象に「園芸作物生産性向上プロジェクト」が実施されている。実証展示圃を設置し、米国から輸入した園芸作物の種子・種苗を増殖して園芸農家に配布し、定期的にファーマーズ・スクールも開催されている。

## 2-2 「食糧自給のための小麦生産性改善プロジェクト」の基本計画と活動

### 2-2-1 協力概要

別添の付属資料2プロジェクトイメージ図のとおり。

### 2-2-2 プロジェクトの基本方針

#### (1) 目標に向けて段階的アプローチを採用する

上位目標、すなわち、「イラクの食糧安定供給のためにクルド地域の小麦の生産性が向上する」は十分な普及活動によって農民の小麦栽培技術が改善された時に初めて達成される。しかしながら、クルド地域における普及員の能力は、農民のニーズに応えるにはいまだ不十分である。まず初めに現場での研究者による研修をとおして普及員の能力強化を図ることが必要である。

したがって、本プロジェクトの目標は「クルド地域の栽培条件に適した小麦の品種、栽培技術、水管理技術を研究者をとおして農業普及員が習得し、その技術を農家に対して圃場にて実証する」と確認された。このプロジェクト目標が達成された時に、次のステップ、すなわち、「農民が普及員を通じて小麦生産技術を習得する」ことが速やかに続けられなければならない。

#### (2) 乾燥地での農業研究における ICARDA の専門技術を活用する

ICARDA（在シリア）は育種、種子生産、栽培技術、水管理など乾燥地における小麦生産に関する農業研究に豊富な専門技術をもっている。ICARDA のあるシリア北部の農業環境はクルド地域の農業環境と似ている。したがって、JICA の総合的な調整の下で、ICARDA でクルドの研究者に対する 트레이ナーズ・トレーニング（Training of Trainers : TOT）を行い、ICARDA 専門家をクルド地域内での現地研修と圃場実証試験のサポートするために招くことが有益である。

(3) クルド地域内での現地活動を重視する

プロジェクトの主たる活動は、クルド地域内の農家の圃場、普及センター、農業研究センターなど現場で行われる。すなわち、普及員や先進農家のための現地研修や圃場実証試験、新技術のデモンストレーションがプロジェクト期間内に集中的に行われる。

必要な数の研究者とクルド農業水資源省スタッフを ICARDA に研修を受けるために送る。彼らはクルド地域に戻ったのち、必要に応じて ICARDA 専門家のサポートを受けつつ講師として現地研修を行う。

一方、ICARDA 専門家は ICARDA での研修のフォローアップのためにクルド地域に派遣される。彼らはクルド地域全県における普及員のための現地研修をサポートし、研究センターでの試験及び農家の圃場実証試験や新技術のデモンストレーションを監督する。

また、プロジェクト・コーディネータや土地適正区分調査の JICA 専門家は、総合的プロジェクト管理や農村開発の視点からプロジェクトの目標が効果的、効率的に達成できるように助言を行う。

## 2-2-3 プロジェクトの枠組み (M/M 記載)

JICA及びクルド農業水資源省は暫定的なプロジェクトの枠組みについて合意した。ただし、この枠組みはR/D署名の前の議論の過程で修正、ファイナライズされる。

(1) タイトル

食糧自給のための小麦生産性改善プロジェクト

(2) プロジェクト目標

クルド地域の栽培条件に適した小麦の品種、栽培技術、水管理技術を研究者をとおして農業普及員が習得し、その技術を農家に対して圃場にて実証する

(3) 対象地域と裨益グループ

対象地域はエルビル県、スレイマニヤ県、ドホーク県の研究センターと普及センター及び周辺地域である。裨益グループは対象地域の研究者と普及員及びクルド農業水資源省スタッフである。

(4) 協力期間

プロジェクト期間は、専門家がクルド地域で活動を開始してから3年半である。

(5) プロジェクト管理

実施機関はクルド農業水資源省である。

合同調整委員会が設置され、少なくとも年1回あるいは必要に応じて開催される。構成メンバーと役割は後述のとおりである。

適正なプロジェクト・モニタリングのために、6カ月ごとに進捗報告書がプロジェクト・チームによって作成され、クルド農業水資源省と JICA に提出される。また、年間報告書がプロジェクト・チームによって作成され、合同調整委員会に提出される。また、プロジェクトの達成度を見極め、プロジェクト終了以降の方向性について提言を行うために、終

了時評価が JICA とクルド自治政府の関係機関と共同でプロジェクト終了の 6 カ月前に実施される。

これらのプロジェクト管理については、JICA が派遣するプロジェクト・コーディネータが全般にわたり指導・助言を行う。

#### 2-2-4 ICARDA における TOT

研究者（クルド農業水資源省スタッフ）は TOT を受けるため ICARDA に送られる。彼らはクルド地域に戻ってから、必要に応じて ICARDA 専門家のサポートを受けつつ講師として普及員（先進農家）のため現地研修を行う。

##### (1) 品種選定及び種子生産

（品種選定トライアル、圃場検定、種子テスト）

2011 年 7 月、2012 年 6 月、2013 年 6 月（Seed health）

6 人×3 週間

##### (2) 小麦栽培技術

病害虫・雑草防除（総合防除管理、IPM）

2012 年 3 月、2013 年 3 月、2014 年 3 月

5 人×2 週間

施肥、輪作、不耕起栽培

2011 年 9 月、2012 年 9 月、2013 年 9 月

5 人×2 週間

##### (3) 補給灌漑

（必要水量、灌漑及びウォーター・ハーベスティングの実践）

2012 年 3 月、2013 年 3 月、2014 年 3 月

5 人×3 週間

##### (4) 社会経済

（ベースライン調査、エンドライン調査）

2011 年 12 月、2014 年 6 月

1 人×2 週間

#### 2-2-5 ICARDA 専門家の派遣

ICARDA 専門家が TOT のフォローアップのためにクルド地域に派遣される。すなわち、ドホーク、エルビル、スレイマニヤ 3 県での普及員に対する現地研修のサポート、3 県の農業研究センターでの試験及び圃場実証試験と新技術のデモンストレーションの監督、年間報告の作成と次年度の活動計画策定の監督を行う。また、ICARDA 専門家はクルド地域と ICARDA でベースライン調査とエンドライン調査を JICA 派遣の業務調整専門家（プロジェクト・コーディネータ）とともに監督する。

- (1) 品種選定と種子生産  
種子生産：2011年7月、2012年6月、2013年6月、各2週間  
品種選定：2011年10月、2012年10月、2013年10月、  
2014年10月、各2週間
- (2) 小麦栽培技術  
病害虫・雑草：2012年4月、2013年4月、2014年4月、各2週間  
施肥、不耕起：2011年10月、2012年10月、2013年10月、各2週間
- (3) 水管理  
2012年3月、2013年3月、2014年3月、各2週間
- (4) 社会経済  
2011年7月、2014年9月、各2週間
- (5) モニタリング  
2012年9月、2013年9月、2014年9月、各2週間
- (6) 最終ワークショップ  
2014年12月、2週間

#### 2-2-6 プロジェクト・チーム

- ・ プロジェクト・ディレクター 研究普及局長
  - ・ プロジェクト・マネジャー エルビル農業研究センター所長
  - ・ 種子グループ長 種子生産部長
  - ・ 栽培グループ長 研究部長
  - ・ 灌漑グループ長 主任研究者
  - ・ 普及グループ長 農業普及部長
  - ・ 社会経済グループ長 統計部長
- ① エルビル県（アインカワ）  
種子生産（2名）、栽培技術（2名）、水管理（2名）、農業普及（4名）
  - ② スレイマニヤ県（バクラジョ）  
種子生産（2名）、栽培技術（2名）、水管理（2名）、農業普及（4名）
  - ③ スレイマニヤ県（カラール）  
種子生産（1名）、栽培技術（1名）、水管理（1名）、農業普及（2名）
  - ④ ドホーク県（マルタ）  
種子生産（1名）、栽培技術（1名）、水管理（1名）、農業普及（4名）

## 2-2-7 合同調整委員会の構成

### 1) JICA

- ・ プロジェクト・コーディネータ
- ・ イラク事務所長

### 2) ICARDA

- ・ プロジェクト・コーディネータ

### 3) KRG

- ・ プロジェクト・ディレクター\*
- ・ プロジェクト・マネジャー
- ・ 種子生産部長
- ・ 計画・フォローアップ局長
- ・ エルビル農業局長
- ・ スレイマニヤ農業局長
- ・ ゲルミヤン農業局長
- ・ ドホーク農業局長

\* 議長 Chairperson

必要に応じて適切な人を招くことができる。少なくとも年1回開催する。

## 2-2-8 技術委員会の構成

### 1) JICA

- ・ プロジェクト・コーディネータ
- ・ イラク事務所代表

### 2) ICARDA

- ・ プロジェクト・コーディネータ
- ・ 品種選定/種子専門家
- ・ 小麦栽培専門家
- ・ 水管理専門家

### 3) KRG

- ・ プロジェクト・ディレクター
- ・ プロジェクト・マネジャー
- ・ 種子生産部長
- ・ 普及・訓練部長
- ・ スレイマニヤ農業研究センター所長
- ・ カラール農業研究センター所長
- ・ ドホーク農業研究センター所長

※少なくとも年1回（9月ころ）開催する。合同調整委員会の前に2日間程度



## 第3章 事前評価結果

### 3-1 5項目評価

#### 3-1-1 妥当性

次の理由から、本プロジェクトの妥当性は高いと判断できる。

「イラク国家開発計画（2010～2014年）」では、食糧自給、経済多様化、農村開発、貧困削減に向けて小麦生産の振興が明確に掲げられている。その一方で、その生産計画実現のための具体的な技術内容やシナリオが示されているわけではない。クルド地域において品種導入、栽培管理、水管理技術を組み合わせて小麦生産性の改善を図る本プロジェクトは、モデル性のある技術の波及や人材育成により、国家開発計画に基づくイラク小麦生産振興のニーズに応えるものである。

プロジェクトが実施されるクルド地域は、中東全体のなかでも降水量が多いことから農業の潜在的な生産性は高い。よってプロジェクトに必要な試験の試行錯誤が行える自然環境であることに加えて、導入技術の他地域への移転や、更には生産量増加に向けた高いポテンシャルによって、イラクにおける食糧自給率の向上に効果的に寄与できる地域である。

クルド自治区「農業セクター戦略計画（2009～2013年）」では、クルド地域における食糧自給を最大の課題とし、特に小麦については最優先品目としてクルド農業水資源省のなかでも最大の予算措置を講じている。これまで政治・社会・自然環境などの要因により小麦生産量が減退してきたクルド自治区にとっても、小麦の生産性改善を図るプロジェクトは、地域のニーズと合致するとともに農業セクターにおける政策とも整合している。

プロジェクトは、間接裨益者としてイラク政府の担当者も想定し、活動のなかで研修やセミナーなどに招へいするとともに、適応可能な技術については他地域への移転も図る。プロジェクトをとおして、クルド自治政府とイラク政府の担当部局間の交流が進み、両者の今後の協働につながれば、イラク国内の国民統合や平和の推進にも貢献する可能性がある。よって平和の定着と国づくりへの支援の観点からも、本プロジェクト実施の意義は大きい。

イラクについては、外務省による「国別援助計画」は策定されていない。しかしJICA「国別援助実施方針（2009年7月）」では、農業分野への支援は4つの重点分野の1つのなかで「経済成長を実現するための非石油経済の振興（農業セクター）」に位置づけられていることから、本プロジェクトは日本の援助方針にも整合している。

#### 3-1-2 有効性

本プロジェクトは、以下の理由から有効性が高いと見込める。

ICARDAとの連携による本プロジェクト実施の事業効果は、①適正品種の選定と種子増産、②栽培管理の改善、③圃場内の水管理技術の向上、④研究員・普及員の育成、が期待される。プロジェクト目標は、「クルド地域の栽培条件に適した小麦の品種、栽培技術、水管理技術を研究者をとおして農業普及員が習得し、その技術を農家に対して圃場にて実証する」と明確に記述されており、この目標は事業効果の発現により達成されると見込まれる。

わが国のイラク復興支援について、2009年10月には水利用・農業分野における技術協力強化の要望が出されたことから、JICAはクルド自治地域に対して、2009年12月に「基礎情報収集・確認調査」、2010年4～6月に「プログラム形成・協力準備調査」を実施した。さらに、2010

年 8 月から 2011 年 2 月の間に水資源、農業の各分野で政策アドバイザーを複数回派遣した。本プロジェクトは、こうした現況調査と課題分析、クルド農業水資源省との度重なる協議を踏まえて協力の枠組みが形成されている。したがって、プロジェクト目標・成果・活動は明確に設定され、それらの間の因果関係は確保されているだけでなく、これまでの協力準備によりカウンターパート機関のプロジェクト内容に対する認識も極めて高い。

指標と目標値、指標の入手手段に関し、事前調査の時点では農業試験場の栽培試験データ、村落ごとの農家数や生産統計、農家家計状況などの基礎情報がなかったことから、プロジェクト開始後、まず小麦栽培に係るベースライン調査を実施する計画であり、その結果をもって指標と目標値の詳細を設定していく必要がある。

### 3-1-3 効率性

本プロジェクトは、以下の理由から高い効率性が見込める。

本調査のなかで、ICARDA、クルド農業水資源省、JICA 調査団の三者でワークショップを開催し、本プロジェクトに係る協力の枠組み、活動計画の内容を検討した。さらに、合同調整委員会の構成、ICARDA における研修、ICARDA 専門家によるクルド現地研修の内容などについても検討し、これらの議事録が三者間で共有された。したがって協力内容と実施体制の原案については、既に三者で了解されている。

本邦及び第三国（ICARDA）からの長期・短期の専門家の指導科目も具体化されており、プロジェクトに従事するクルド側カウンターパートもほぼ選任されているとの発言があった。プロジェクト事務所が設置される予定のアインカワ農業試験場には、既に専門家の事務スペース、机、椅子、インターネット接続が準備されている。加えてプロジェクト活動のためのクルド側の予算も措置されていることなどから、迅速なプロジェクト活動の開始が予想される。

同時並行して「園芸技術改善・普及プロジェクト」を実施することになる各県の農業試験場のキャパシティについては、職員数、各分野の研究者数、年次活動計画に基づく予算配分、所有する試験圃場面積などからみて、プロジェクト業務の遂行能力に不足はないと判断される。各県の試験場職員数は、エルビル県 151 名（うち研究員は 96 名）、ドホーク県 128 名（うち研究員は 47 名）、スレイマニア県 320 名（うち研究員は 96 名）であり、2010 年度予算は 1 億 1,500 万～2 億 7,500 万ディナール（約 800 万円～約 2,000 万円）である。各県で、アインカワ試験場、マルタ試験場、バグラジョ試験場を中心に、それぞれ 4 カ所、4 カ所、6 カ所の試験場を有している。

農業普及所については、エルビル県内に 12 カ所、ドホーク県内に 9 カ所、スレイマニア県内に 15 カ所設置され、職員数は、エルビル県 31 名（うち普及員は 7 名）、ドホーク県 73 名（うち普及員は 29 名）、スレイマニア県 218 名（うち普及員は 47 名）である。普及員数だけをみれば全体で 83 名で、各農業普及所における普及員数は 2 名程度と少ないことから、実証圃場での技術紹介、農家への訪問指導などの活動対象は、地域の優良農家に限られている状況である。プロジェクトでは、先進農家によるデモ圃場提供を得ることで広く農民への普及につなげていく計画となっている。プロジェクトで実施するベースライン調査の結果も踏まえて、対象とする農業普及所の選択、農業試験場が行っている普及活動の利用なども、場合により検討していく必要がある。

### 3-1-4 インパクト

本プロジェクトのインパクトは、以下のように複数の正のインパクトが予測できる。

上位目標は、「イラクの食糧安定供給のためにクルド地域の小麦の生産性が向上する」と明確であり、これはプロジェクト目標達成によりインパクトとしての発現が見込まれる。プロジェクトでは、現在既に行われている灌漑圃場において水利用最適化に向けた補助灌漑技術の普及が検討される。また、クルド側から要望の強い天水の有効利用のためのウォーター・ハーベスティング技術（小規模なため池を含む）についても実証試験などで検討されて、本プロジェクトと同時期に派遣される農業政策アドバイザーにより別途支援の可能性が検討される。こうした支援が組み合わされることで、上位目標の達成が期待される。

プロジェクト効果は、クルド自治区内にとどまらずイラク政府にも波及するよう、イラク政府の研究者・担当者を研修・セミナーなどに招へいするよう計画されている。クルド地域に隣接するニナワ県の天水小麦、近代的な圧力灌漑（スプリンクラー、センターピボットなど）による補助灌漑が行われている小麦栽培地域において、プロジェクトからの技術移転や人材育成により生産性の底上げが期待される。

自然環境に対するインパクトとしては、補助灌漑の利用による影響が考えられるが、プロジェクトの活動は現在の灌漑条件下での水利用最適化であり、新たな灌漑施設の開発を伴うものではない。また、大規模農家による現行の無計画な水利用による灌漑小麦栽培に対しても、水利用最適化技術を普及していくことから、環境に対してのマイナスの影響は予見されない。

### 3-1-5 持続性

以下のとおり、これらプロジェクトによる効果は、プロジェクト終了後も相手国政府により維持されると見込まれる。

クルド農業水資源省の試験研究所、農業普及所は、エルビル県、ドホーク県、スレイマニア県の各地区に配置され、活動は各機関とも年間計画に基づいて実施されている。新規技術・知識の習得機会は限られ、試験結果の蓄積や普及資料の保管への認識も欠いていることなどから、試験研究の発展は停滞しているものの、限られた知識・技術・手法のなかでの活動は実践されている。プロジェクト活動は既存の組織体制の上に行われることから、プロジェクト終了後も活動の持続性は高いと判断される。

小麦生産振興については、食糧自給の重要性から、イラク国家開発計画やクルド農業セクター戦略計画に沿って、今後もイラク政府及びクルド自治政府の政策的・予算的な支援は続くことと予想される。イラクはその国家歳入の9割以上を石油部門に依存し、イラク国家開発計画では財政の17%をクルド地域に振り分けるよう明記されている。今後、産業多角化などによるイラク経済の健全な成長が進めば、クルド自治政府の予算についても安定していくものと考えられる。

現在のクルド農業水資源省の研究・普及部門の業務遂行状況からみて、プロジェクトで導入する改善技術のクルド側の吸収・定着には問題がなく、プロジェクト終了後の技術の維持を阻害するような特別の要因は見当たらない。

小麦の栽培技術に関するクルド農業水資源省の研究者、普及員の能力が向上し、今後も独自にICARDAとの関係を維持することにより、プロジェクトの活動・成果が自立発展的に継続していけば、行政機関と最終的な裨益者である農家との関係も強まり、農家側の意識啓発によっ

て更に研究者・普及員の活動が後押しされることも期待される。

### 3-1-6 結論

以上のように、プロジェクトの妥当性や必要性を確認し、協力内容と協力効果を明らかにして、インパクトや持続性も踏まえて協力実施の適用性を総合的に検討した結果、本プロジェクトによる協力の実施は適切と判断される。

### 3-2 貧困・ジェンダー・環境などへの配慮

イラク全体では、人口の23%が貧困ライン以下と推定されている。また2010年に国連が発表した飢餓マップによると、イラク国内18県のうち、飢餓・低栄養に直面している人口の割合はクルド自治区3県とニナワ県を含む6県では5%以下であるが、ディーヤラー県、バービル県などの6県においては17~51%と高い。飢餓・低栄養については、食糧不足というより世帯に食糧を購入できる収入がないことが原因である。農村世帯の収入は都市・郊外世帯と比べると低く、FAOの推定によると、これら貧困ラインまたは飢餓・低栄養に面している人口の70%は農村世帯である。こうしたことから、小麦の生産性改善による農業振興は農村部における食糧自給に寄与していくものと考えられる。具体的にプロジェクト実施段階における貧困農民の参加・普及に関する配慮については、ベースライン調査の実施の際に、配慮の中心に置かれることとなる。

ジェンダーに関しては、「イラク国家開発計画(2010~2014年)」のなかで、農村における高い失業率と都市への人口流入、農業労働における女性の重要性の高まり(2000年推定では農業労働者の50%以上は女性)、の2点が農村の社会開発の側面として指摘されている。クルド自治区においても、園芸作物、養蜂、家畜飼養、農産物加工などで女性が主な役割を果たしている。このため、例えばスレイマニア農業普及所の全職員・普及員218名のうち女性は45名配置され、農作業ダイアリーや農産物加工など女性向け研修も数多く開催されている。したがって、本プロジェクトの活動でも、ジェンダーに関する配慮は問題なく取り込まれると予想される。

## 第4章 その他留意点

### 4-1 イラク支援における本プロジェクトの位置づけと留意点

本プロジェクトと同時に「クルド地域園芸技術改善・普及プロジェクト」（技術協力プロジェクト）と「クルド地域農業政策アドバイザー」（個別専門家派遣）が採択された。この3案件は、イラク戦争後最初の日本人専門家派遣を伴う技術協力として重要な意味をもつものと理解できる。

ただし、3案件ともにイラク全体の2割に満たないクルド自治地域を対象としており、これは専門家の安全確保という観点から致し方ないものの、イラク政府から理解を得ることに常に配慮が必要となる。

これまでの調査や資料で確認されたとおりクルド地域の農業ポテンシャルは高いにもかかわらずイラク戦争以前には農業振興が図られていなかったことから、イラク復興期においてクルドでの農業開発に高い優先度を置くことは客観的にみても妥当性の高いものである。

しかしながら、歴史的経緯、民族間感情などに配慮すれば、理詰めの説明にとどまらずさまざまな角度からクルド自治政府、イラク政府、各地域農民と良好なコミュニケーションの輪を形成しながらプロジェクトを展開させていく配慮が必要である。このような配慮は、国内対立を経た復興期の社会における開発事業では、不可避の重要な課題として見据えておくべきであろう。クルド地域での協力が全イラクの開発に貢献することを説明することは可能であり整理しておくべきと思われる。

なお、本プロジェクトは円借款付帯事業の位置づけであり、日本の灌漑セクターローンの投入に際して、栽培技術や普及技術の面からプロジェクトの成果を円借款のサイトでも有効活用していけるよう、イラク政府とのコミュニケーションや活動への取り込みを図る必要がある。

### 4-2 イラク（クルド自治政府）側のイニシアティブ

本詳細計画策定調査全般を通じてクルド自治政府の真摯なイニシアティブが認められた。農業水資源省大臣から地方の現場（試験場や普及所）に至るまで、日本の技術協力を期待していることが実感できた。

ただし、プロジェクトの受益者（カウンターパート機関）として未経験であるがゆえに、彼らが十分には理解していない事項は少なくないと心得ておくべきであろう。実施段階でも基礎的な認識まで含めて説明や指導が必要になることを想定しておきたい。

また、主管であるクルド農業水資源省を軸としつつも、適宜計画省、イラク政府（農業省、水資源省、首相府など）に説明とアピールを行うことで、運営を円滑にする配慮が必要であろう。この点では JICA イラク事務所からの示唆と調整、支援に負うところが大きく、継続的な支援を依頼したい。またミクロの視点（県レベルから更に小さい範囲まで）での現地事情を汲み取る努力も必要であろう。3県のなかでもスレイマニア県は歴史的に他2県と反目するところもあるという。さらに（イラン、シリア、トルコなどとの）国境を越えて展開する3,000万人といわれるクルド人の歴史や民族感情にも配慮する必要がある。

上記のとおりミクロからマクロまでさまざまな視点をもって取り組んでいく必要のある新たな協力展開であることを関係者間で共有していきたい。

#### 4-3 安全対策に関する留意点

クルド地域はイラク国内他地域と比べて治安が良いとされているが、厳重なセキュリティルールを適用しなければならない特別な地域であることに変わりはない。

現地で調査している時の感覚としては他国と変わらない素朴な農村のように感じられるが、常に十分な事前情報を得てから行動する必要がある。現行のままでは JICA 専門家の外出に多くの制約と費用がかかる。費用面での積み上げは軽んじられないレベルになる。事業面では普及などの郊外の活動が制約される一方、専門家の生活面での制約やストレスも大きく、追加的な休暇も必要となる。

また、バグダッドでのイラク政府とのコミュニケーションの重要性を述べたが、更に厳しい治安状況にあるバグダッドでの安全対策との兼ね合いを十分に検討する必要がある。

## 付 属 資 料

1. 調査日程
2. プロジェクトイメージ図
3. Project Design Matrix
4. Plan of Operation
5. Minutes of Meeting (M/M) < 詳細計画策定調査時 >
6. Record of Discussion (R/D)
7. Minutes of Meeting (M/M) < 付属資料 6. R/D署名時 >

# 1. 調査日程

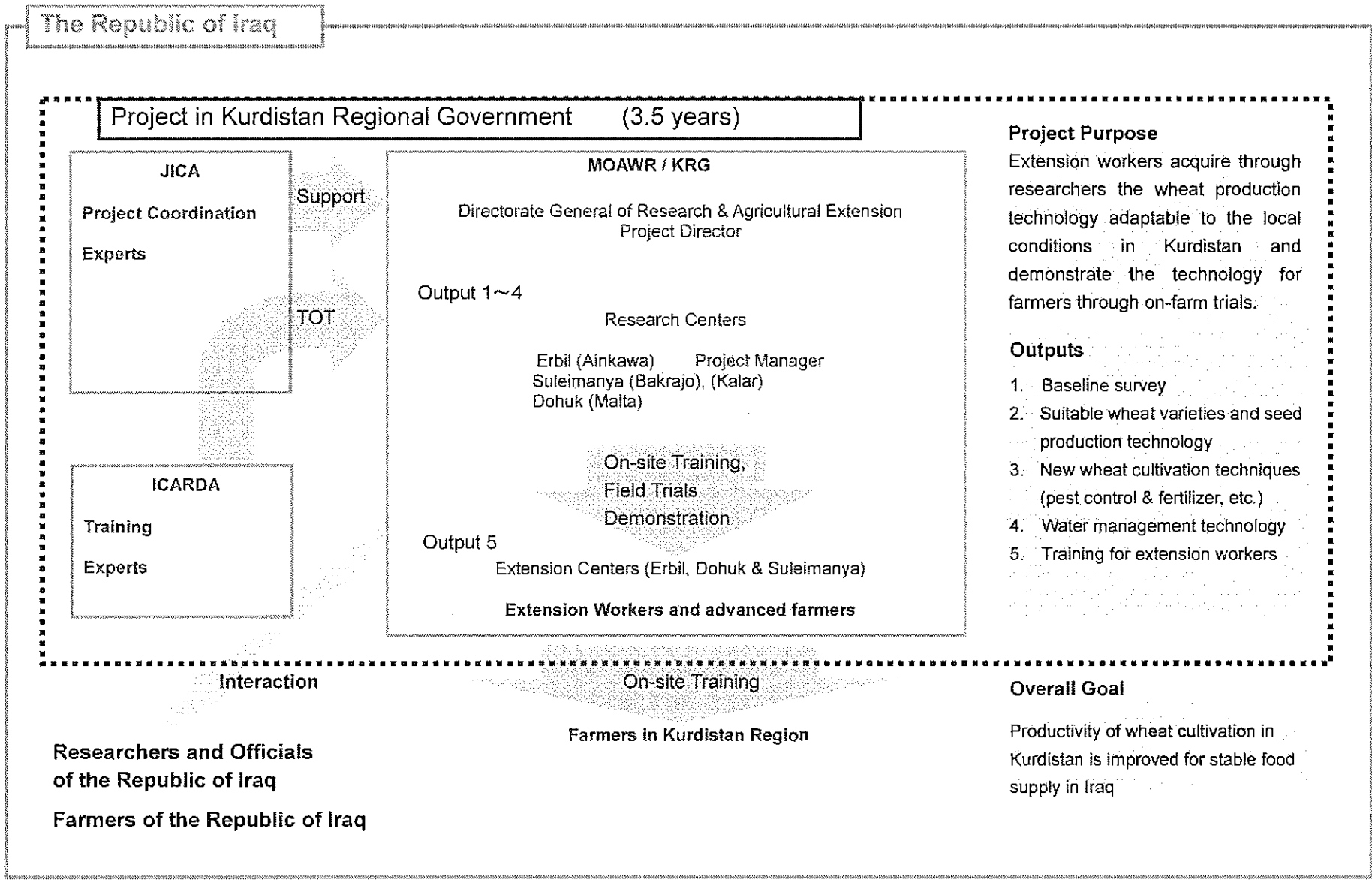
イラク農業分野 園芸作物・小麦生産性向上プロジェクト（円借款附帯）に係る調査日程

| No. | 月日    | 曜日 | 行程   |   | 宿泊地             |
|-----|-------|----|--|---|-----------------|
|     |       |    | 総括、小麦栽培、園芸作物、協力企画  | 農業普及、評価分析   |                 |
| 1   | 2月20日 | 日  | /  | 成田 (12:25) →ウィーン (16:10) (OS052)                  | ウィーン            |
| 2   | 2月21日 | 月  |  | ウィーン (10:05) →エルビル (15:45) (OS829)                | エルビル            |
| 3   | 2月22日 | 火  |  | 安全対策ブリーフィング<br>JICAイラク事務所との打合せ                    |                 |
| 4   | 2月23日 | 水  |  | 農業水資源省キックオフミーティング                                 |                 |
| 5   | 2月24日 | 木  |  | アインカワ農業試験場（執務室、ラボ、試験圃場）                           |                 |
| 6   | 2月25日 | 金  |  | 近郊小麦農家（大規模及び小規模）（エルビル）                            |                 |
| 7   | 2月26日 | 土  |  | 近郊園芸農家、園芸作物出荷先<br>資料作成                            |                 |
| 8   | 2月27日 | 日  | 成田 (12:25) →ウィーン (16:10) (OS052)                           | 農業水資源省との打合せ                                       | ウィーン/エルビル       |
| 9   | 2月28日 | 月  | ウィーン (10:05) →エルビル (15:45) (OS829)                         | 他ドナーからの情報収集<br>団内打合せ                              | エルビル            |
| 10  | 3月1日  | 火  | 総括、園芸作物、農業普及、評価分析  | 小麦栽培、協力企画   | スレイマニヤ/<br>エルビル |
| 11  | 3月2日  | 水  | バグラジョ農業試験場（執務室、ラボ、試験圃場）<br>小規模園芸農家（スレイマニヤ）                 | ICARDAとの協議  | エルビル            |
|     |       |    | 小規模園芸農家（スレイマニヤ）  | アインカワ農業試験場（執務室、ラボ、試験圃場）<br>近郊小麦農家（大規模及び小規模）（エルビル） |                 |
| 12  | 3月3日  | 木  | 農業水資源省大臣表敬<br>農業水資源省との打合せ                                  |   |                 |
| 13  | 3月4日  | 金  | 農業水資源省との打合せ  |   |                 |
| 14  | 3月5日  | 土  | 団内打合せ  | スレイマニヤへ移動（小麦栽培）                                   | ドホーク/<br>スレイマニヤ |
| 15  | 3月6日  | 日  | 団長レター案作成<br>ドホークへ移動  | 種子クリーニング施設（小麦栽培）<br>小麦農家（小麦栽培）                    |                 |
| 16  | 3月7日  | 月  | マルタ農業試験場（執務室、ラボ、試験圃場）<br>小規模園芸農家（ドホーク）                     | エルビルへ移動（小麦栽培）<br>団長レター協議                          | エルビル            |
| 17  | 3月8日  | 火  | M/M協議<br>M/M署名<br>JICAイラク事務所報告                             |   |                 |
| 18  | 3月9日  | 水  | 総括、小麦栽培  | 園芸作物、農業普及、評価分析、協力企画                               | バグダッド/<br>ウィーン  |
| 19  | 3月10日 | 木  | エルビル→バグダッド   | エルビル (16:50) →ウィーン (19:00) (OS830)                | バグダッド/<br>機内    |
| 20  | 3月11日 | 金  | 連邦政府農業省<br>連邦政府首相府<br>在バグダッド日本大使館                          | ウィーン (13:15) →                                    |                 |
| 21  | 3月12日 | 土  | バグダッド (9:30) →イスタンブール (11:30) (TK803)<br>イスタンブール (17:50) → | 成田 (8:25) (OS051)                                 | 機内              |
| 21  | 3月12日 | 土  | 成田 (12:25) (TK050)   |   |                 |

※ICARDAとの協議はICARDA担当者 (Dr.Nasri Haddad, Consultant, Regional Coordinator for West Asia Regional Program 他2名) がエルビルに來訪して実施



# The Project for Wheat Productivity Improvement towards Food Self-Sufficiency



## PROJECT DESIGN MATRIX (PDM) Draft

Project Title: The Project for Wheat Productivity Improvement towards Food Self-Sufficiency

Project Period: 3.5 years (July 2011 ~ December 2014)

Drafted: March 3<sup>rd</sup> .2011

Target Area: Research Centers in Ainkawa (Erbil), Bakrajo / Kalar (Sulaymaniyah), Malta (Duhok) and extension centers in the area.

Project Beneficiaries: Researchers and extension workers of the target area as well as officers of Ministry of Agriculture and Water Resources, Kurdistan Regional Government.

PDM Ver. 5

| Narrative Summary   | Objectively Verifiable Indicators  | Means of Verification   | Important Assumptions   |
|---|--|---|---|
| <p><b>Overall Goal</b></p> <p>Productivity of wheat cultivation in Kurdistan is improved for stable food supply in Iraq.</p>  | <p>Increase in productivity of wheat irrigated (kg / donum, kg / cum. water used)</p> <p>Stabilize and increase productivity of wheat rain-fed (kg / donum, kg harvested / kg sown)</p>  | <ul style="list-style-type: none"> <li>• Ex-post project evaluation report</li> <li>• Baseline survey report</li> </ul> | /   |
| <p><b>Project Purpose</b></p> <p>Extension workers acquire through the researchers the wheat production technology adaptable to the local conditions in Kurdistan and demonstrate the technology for the farmers through on-farm trials.</p>  | <ul style="list-style-type: none"> <li>• Number of selected suitable varieties, improved cultivation techniques and proper supplemental irrigation practices</li> <li>• Number of extension workers with a certain level (to be specified) of knowledge and techniques through trainings.</li> </ul>   | <ul style="list-style-type: none"> <li>• Project progress report</li> <li>• End-line report</li> </ul>                  | <p>Staff and budget are committed to advance agricultural extension</p> <p>The outputs of project are disseminated by extension workers and adopted by farmers</p>                        |
| <p><b>Outputs</b></p> <ol style="list-style-type: none"> <li>1. Basic data are collected and land suitability maps of wheat cultivation in Kurdistan are prepared,</li> <li>2. Suitable wheat varieties are selected for Kurdistan and seed production technology is adopted.</li> <li>3. New wheat cultivation techniques including pest control and fertilizer application etc. are presented by ICARDA and their applicability to the local conditions are verified by field trials.</li> <li>4. New water management technology including supplemental irrigation is presented by ICARDA and its adaptability to the local conditions is verified by field trial.</li> <li>5. Trainings for extension workers on improved technologies are conducted in Kurdistan to transfer technology to the farmers.</li> </ol> | <ol style="list-style-type: none"> <li>1. Completion of the baseline report.</li> <li>2. Selection of suitable varieties and their characteristics.<br/>Establishment of seed multiplication technology.<br/>Completion of the technical guidelines.</li> <li>3. Number of improved cultivation techniques.<br/>Completion of the technical guidelines.</li> <li>4. Number of developed water management technologies.<br/>Completion of the technical guidelines.</li> <li>5. Number of extension workers with a certain level (to be discussed for specification) of knowledge and techniques through</li> </ol> | <ul style="list-style-type: none"> <li>• Project progress report</li> <li>• End-line report</li> </ul>                  | <p>The implementation arrangement of the project is sustained (MOAWR / KRG, D.G. of Research &amp; Extension, Research Centers in Kurdistan, ICARDA and other relevant organizations)</p> |

|  |   |   |   |
|--|---|---|---|
|  | trainings.<br>Number of extension materials.  |   |   |
| <b>Activities</b>  | <b>Inputs</b>   |   |   |
|  | <b>Japan side</b>   | <b>Iraq side</b>  |   |
| <p><b>Activity 1:</b></p> <p>1-1. Conduct a basic data collection and baseline survey on wheat cultivation in Kurdistan and prepare a baseline survey report.</p> <p>1-2. Conduct land suitability classification and prepare land suitability maps of wheat cultivation under rain-fed and irrigated conditions</p> <p>1-3. Conduct end-line survey and prepare end-line report</p> <p><b>Activity 2:</b></p> <p>2-1. Conduct training at ICARDA on wheat variety selection and seed production technology for selection and multiplication of improved varieties (high-yielding, drought resistant, pest resistant etc.).</p> <p>2-2. Conduct field trials on the adaptability of improved varieties to the locations as well as research centers in Kurdistan.</p> <p>2-3. Prepare technical guidelines on wheat varieties selection and seed production technology.</p> <p><b>Activity 3:</b></p> <p>3-1 Conduct training at ICARDA on wheat cultivation technology including pest control, fertilization, crop rotation, non-tillage and harvesting etc.</p> <p>3-2 Conduct field trials on new wheat cultivation techniques to verify their applicability to Kurdish conditions.</p> <p>3-3 Prepare technical guidelines on wheat cultivation in Kurdistan.</p> <p><b>Activity 4:</b></p> <p>4-1 Conduct training at ICARDA on water management including supplemental irrigation and water harvesting.</p> <p>4-2 Conduct field trials on supplemental irrigation and water harvesting to introduce suitable irrigation technology in Kurdistan.</p> <p>4-3 Prepare technical guideline on supplemental irrigation in Kurdistan</p> <p><b>Activity 5:</b></p> <p>5-1. Review current extension activity and extension materials.</p> <p>5-2. Establish demonstration plots for improved technologies at field trial sites.</p> <p>5-3. Prepare technical materials for extension workers in accordance with the progress of activity 2~4.</p> | <p>1. Dispatch of Experts</p> <p>(1) Long-term Expert<br/>Project Coordination</p> <p>(2) Short-term Experts</p> <p>1) Japan</p> <ul style="list-style-type: none"> <li>• Land suitability classification ( MM)</li> </ul> <p>2) Third country(ICARDA)</p> <ul style="list-style-type: none"> <li>• Variety selection/seed technology ( MM/year)</li> <li>• Wheat cultivation (pest control, fertilization etc. ( MM/year)</li> <li>• Water management ( MM/year)</li> <li>• Socio-economy ( MM)</li> </ul> <p>2. Provision of Machinery, Equipment and Materials</p> <ul style="list-style-type: none"> <li>• Equipment for administration such as PC and printer</li> <li>• Equipment needed for field trials, demonstration plot and laboratory works</li> </ul> <p>3. Counterpart Training</p> <ul style="list-style-type: none"> <li>• Third country (ICARDA)</li> </ul> <p>4. Local Costs</p> <ul style="list-style-type: none"> <li>• Costs for preparation of technical guidelines, extension materials, holding local training and farmer's day</li> </ul> | <p>1. Assignment of Counterpart Personnel and support staff</p> <ul style="list-style-type: none"> <li>• Project Director</li> <li>• Project Manager (Director of Agricultural Research Centre)</li> <li>• Support staff</li> <li>• Selection of Qualified trainees for training at ICARDA</li> </ul> <p>2. Facilities<br/>Office and working place for experts (such as desk, chair and internet connection,)</p> <p>3. Running expenses for project management and implementation</p> <ul style="list-style-type: none"> <li>• Domestic travel allowance for Iraqi officials</li> <li>• Basic materials necessary for project activities such as field experiments and laboratory works.</li> </ul> | <p>Natural condition is normal without extreme weather such as drought.</p> <p>The collaboration with ICARDA is sustained.</p> <p>Research Centers in Kurdistan does not go through big changes in staffing and budget.</p> <hr/> <p><b>Pre-conditions</b></p> <p>Policies to promote wheat production are sustained by MOAWR / KRG.</p> <p>The federal government approves and supports the project.</p> |

|   |  |  |
|---|--|--|
| 5-4. Conduct local training for extension workers and MOAWR staff in Kurdistan. |  |  |
| 5-5. Transfer applicable technology to other areas in Iraq                      |  |  |



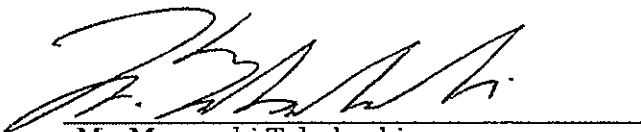
MINUTES OF MEETING  
BETWEEN  
THE DETAILED PLANNING SURVEY TEAM AND  
AUTHORITIES CONCERNED OF  
KURDISTAN REGIONAL GOVERNMENT OF THE REPUBLIC OF IRAQ  
ON JAPANESE TECHNICAL COOPERATION FOR  
THE PROJECT FOR WHEAT PRODUCTIVITY IMPROVEMENT  
TOWARDS FOOD SELF-SUFFICIENCY

For the Project for Wheat Productivity Improvement towards Food Self-Sufficiency (hereinafter referred to as "the Project"), the Japan International Cooperation Agency (hereinafter referred to as "JICA") has sent a detailed planning survey team (hereinafter referred to as "the Team") headed by Mr. Masayuki Takahashi from 20 February to 12 March 2011.

During its stay in the Kurdistan Region of the Republic of Iraq, the Team exchanged views and ideas with the authorities concerned of the Kurdistan Region Government (hereinafter referred to as "KRG") through a series of meetings and field surveys in relation to the Project.

As a result of the study, both parties have reached common understandings concerning the matters in the documents attached hereto. This Minutes reflects discussions and initial agreements made between the authorities concerned of KRG and the Team.

Erbil, March 8th, 2011



Mr. Masayuki Takahashi

Leader

Detailed Planning Survey Team

Japan International Cooperation Agency  
(JICA)



Mr. Anwar Omer Qadir

Director General of Planning and Following

Ministry of Agriculture and Water Resources

Kurdistan Regional Government

## ATTACHED DOCUMENTS

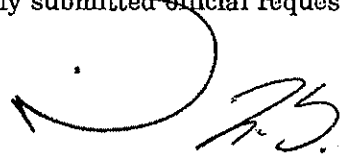
### I. Background

Iraq is endowed with natural resources in terms of agriculture, in general. In fact, agriculture sector has large potential as major industry following oil industry in the country. However, dependency on food import has been aggravated due to long-lasting internal conflict, following economic sanction. Crop production has decreased drastically, and self-sufficiency in food has dropped. As a result, agricultural system and infrastructure, including irrigation facilities have deteriorated and such situation makes it further difficult to recover agriculture in Iraq.

Kurdistan produced large amount of grains in Iraq in the past. However, destruction of agricultural infrastructure as well as urban migration has resulted in reduction in crop production. Kurdistan is expected to play a key role in achieving the country's self-sufficiency of food, while there are many points to be improved. For example, extensive agricultural systems are common in the rain-fed cultivation areas covering majority of land in Kurdistan. It is considered that introduction of suitable crop varieties and cultivation techniques such as fertilizing, pest control and harvesting needs to be improved. Furthermore, supplemental irrigation techniques should be introduced so that the limited water resources could be utilized for maximizing crop productivity.

Third Country Training Program titled "Enhancing Human Resources Development in Iraq" was conducted by JICA at the International Agricultural Research in the Dry Areas (ICARDA), Aleppo, Syria from 2005 to 2009. This program consisted of three fields, namely water management for improved water use efficiency in the dry areas, integrated crop and livestock production, and biotechnology application in crop improvement. Researchers and engineers of Ministry of Agriculture and Water Resources (MOAWR), KRG attended the training courses, in particular, 12 researchers and engineers from Erbil, Duhok and Sulaymaniyah participated in water management course in 2008. The training program has accomplished successfully, therefore, ICARDA understands that comprehensive technical cooperation of JICA for the theme utilizing ICARDA's knowledge and experience is highly appreciated by KRG.

Under such situation, MOAWR/KRG requested to JICA for further cooperation. Responding to the request, JICA dispatched the Fact Finding Mission in December 2009 and Preparatory Survey on Agricultural Project Formulation Mission in May 2010 for Kurdistan Region. Based on the recommendation from those Missions and the Agriculture Policy Advisor dispatched by JICA, in August 2010, Iraq government formally submitted official request to

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the Government of Japan for the technical cooperation Project for Wheat Productivity Improvement towards Food Self-Sufficiency to develop capacity of extension workers through researchers support.

## II. Project Strategy

### 1. Applying the step-wise approach to achieve the overall goal

The overall goal, that is, "Productivity of wheat cultivation in Kurdistan is improved for stable food supply in Iraq" will be achieved when the farmer's wheat production practices are improved by the full support of extension activities. However, the capacity of extension workers in Kurdistan is still insufficient to meet the farmer's needs. First of all, it is necessary for extension workers to strengthen the capacity through the on-site training by researchers.

Accordingly, the purpose of this project was confirmed as "Extension workers acquire through the researchers the wheat production technology adaptable to the local conditions in Kurdistan and demonstrate the technology for the farmers by on-farm trials."

When achieve the project purpose, the next step, that is, "farmers acquire through the extension workers the wheat production technology" should follow without delay.

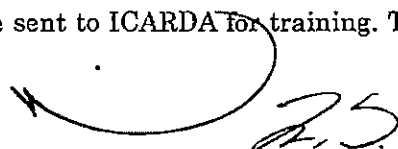
### 2. Utilizing the ICARDA's expertise in agricultural research

The ICARDA has rich expertise in agricultural research on wheat production including breeding, seed production and water management in dry areas. The agricultural environments of Aleppo where ICARDA is located are similar to those of Kurdistan. Therefore, it is useful to carry out training of researchers for trainers at ICARDA and to invite ICARDA experts for support on-site training and field trials in Kurdistan under the comprehensive coordination of JICA.

### 3. Concentrating the activities on the site in Kurdistan

Main activities of the project is carried out on the site, that is, farmer's fields, extension centers and research centers in Kurdistan. Namely, on-site training for extension workers and advanced farmers as well as field trials and demonstration of new technology are conducted intensively during the project period.

The necessary numbers researchers and MOAWR staff are sent to ICARDA for training. They

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should carry out on-site training as lecturers after coming back to Kurdistan with support of ICARDA experts when necessary.

On the other hand, ICARDA experts are dispatched to Kurdistan for follow-up the training at ICARDA, that is, they support the on-site training for extension workers in all provinces in Kurdistan and they supervise the field trials and demonstration of new technology on the site as well as the experiments at the research centers.

JICA experts such as Project Coordinator and land suitability classification will advise for that the project goal would be achieved effectively and efficiently through the point of view of comprehensive project management and rural development.

### III. Tentative Framework of the Project

The both parties have agreed on the following Tentative Framework of the Project. However, it may be modified and finalized over the course of discussions prior to the official signing of the document titled Record of Discussions (hereinafter referred to as "R/D")(draft is attached as Annex V).

The detailed content of the tentative framework of the Project is shown in the Annex I Project Design Matrix, Annex II Plan of Operation and Annex III Project Image.

1. Project Title: the Project for Wheat Productivity Improvement towards Food Self-Sufficiency

#### 2. Project Purpose

Extension workers acquire through the researchers the wheat production technology adaptable to the local conditions in Kurdistan and demonstrate the technology for the farmers through on-farm trials.

#### 3. Target Area and Groups:

Target areas are research centers in Ainkawa (Erbil), Bakrajo / Kalar (Sulaymaniyah), Malta (Duhok) and extension centers in the area.

Project beneficiaries are researchers and extension workers of the target area as well as officers of Ministry of Agriculture and Water Resources, Kurdistan Regional Government.



#### 4. Duration

Project duration is three and a half (3.5) year from the date of Experts start activities in Kurdistan.

#### 5. Administration of the Project

##### (1) Implementing Organization

Implementation organization is Ministry of Agriculture and Water Resources, Kurdistan Regional Government.

##### (2) Joint Coordinating Committee

The Joint Coordinating Committee (hereinafter referred to as "JCC") will be established and be held at least once a year or whenever necessity arises. Members and their main roles are shown in the Annex IV and Annex V.

##### (3) Project Monitoring and Evaluation

Progress reports are made every six months by the Project and submitted to Ministry of Agriculture and Water Resource, KRG and JICA for appropriate monitoring of the Project.

Annual reports are made by the Project and submitted to JCC.

Terminal evaluation will be conducted jointly by JICA and KRG authorities concerned six months prior to the termination of the Project in order to examine the achievements and to recommend a direction after the Project.

#### V. Undertakings Required to Both Sides before Commencement of the Project

In addition to the measures to be taken by JICA and KRG in close collaboration as described in R/D which will be signed later, the both parties confirmed the followings:

##### 1. Budget for the Project

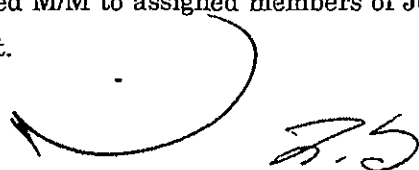
The both sides will make their best efforts to secure necessary budget for implementing the Project in accordance with the contents which are tentatively agreed upon by the both sides.

##### 2. Office space and facilities for the Project

KRG will make utmost efforts to prepare office space and facilities for the Project in Erbil. In addition, necessary working space and facilities for JICA experts will be granted in the field offices in Sulaymaniyah and Duhok.

##### 3. Notification

Kurdistan side will distribute the copies of this signed M/M to assigned members of Joint Coordinating Committee and explain them its content.



### VIII. Other Remarks

1. Both sides have been convinced of importance of public relations regarding the Project. The KRG promised that the Project activities and their results will be widely disseminated to the concerned stakeholders.

|           |   |
|-----------|---|
| ANNEX I   | Project Design Matrix                                   |
| ANNEX II  | Plan of Operation                                       |
| ANNEX III | Project Image   |
| ANNEX IV  | Minutes of Discussion for the Workshop on March 3, 2011 |
| ANNEX V   | Draft of Record of Discussions                          |

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**ANNEX I**

**PROJECT DESIGN MATRIX (PDM) Draft**

Project Title: The Project for Wheat Productivity Improvement towards Food Self-Sufficiency

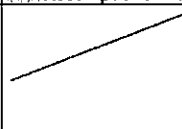
Project Period: 3.5 years (July 2011 ~ December 2014)

Drafted: March 3<sup>rd</sup> ,2011

Target Area: Research Centers in Ainkawa (Erbil), Bakrajo / Kalaz (Sulaymaniyah), Matia (Duhok) and extension centers in the area.

Project Beneficiaries: Researchers and extension workers of the target area as well as officers of Ministry of Agriculture and Water Resources, Kurdistan Regional Government.

PDM Ver. 5

| Narrative Summary   | Objectively Verifiable Indicators   | Means of Verification  | Important Assumptions  |  |
|---|---|--|--|--|
| <p><b>Overall Goal</b></p> <p>Productivity of wheat cultivation in Kurdistan is improved for stable food supply in Iraq.</p>  | <p>Increase in productivity of wheat irrigated (kg / donum, kg / cum. water used)</p> <p>Stabilize and increase productivity of wheat rain-fed (kg / donum, kg harvested / kg sown)</p>   | <ul style="list-style-type: none"> <li>Ex-post project evaluation report</li> <li>Baseline survey report</li> </ul>  |   |  |
| <p><b>Project Purpose</b></p> <p>Extension workers acquire through the researchers the wheat production technology adaptable to the local conditions in Kurdistan and demonstrate the technology for the farmers through on-farm trials.</p>  | <ul style="list-style-type: none"> <li>Number of selected suitable varieties, improved cultivation techniques and proper supplemental irrigation practices</li> <li>Number of extension workers with a certain level (to be specified) of knowledge and techniques through trainings.</li> </ul>  | <ul style="list-style-type: none"> <li>Project progress report</li> <li>End-line report</li> </ul>   | <p>Staff and budget are committed to advance agricultural extension</p> <p>The outputs of project are disseminated by extension workers and adopted by farmers</p>   |  |
| <p><b>Outputs</b></p> <ol style="list-style-type: none"> <li>Basic data are collected and land suitability maps of wheat cultivation in Kurdistan are prepared.</li> <li>Suitable wheat varieties are selected for Kurdistan and seed production technology is adopted.</li> <li>New wheat cultivation techniques including pest control and fertilizer application etc. are presented by ICARDA and their applicability to the local conditions are verified by field trials.</li> <li>New water management technology including supplemental irrigation is presented by ICARDA and its adaptability to the local conditions is verified by field trial.</li> <li>Trainings for extension workers on improved technologies are conducted in Kurdistan to transfer technology to the farmers.</li> </ol>  | <ol style="list-style-type: none"> <li>Completion of the baseline report.</li> <li>Selection of suitable varieties and their characteristics. Establishment of seed multiplication technology. Completion of the technical guidelines.</li> <li>Number of improved cultivation techniques. Completion of the technical guidelines.</li> <li>Number of developed water management technologies. Completion of the technical guidelines.</li> <li>Number of extension workers with a certain level (to be discussed for specification) of knowledge and techniques through trainings. Number of extension materials.</li> </ol>   | <ul style="list-style-type: none"> <li>Project progress report</li> <li>End-line report</li> </ul>   | <p>The implementation arrangement of the project is sustained (MOAWR / KRG, D.G of Research &amp; Extension, Research Centers in Kurdistan, ICARDA and other relevant organizations)</p>   |  |
| <p><b>Activities</b></p> <p><b>Activity 1:</b></p> <ol style="list-style-type: none"> <li>1-1. Conduct a basic data collection and baseline survey on wheat cultivation in Kurdistan and prepare a baseline survey report.</li> <li>1-2. Conduct land suitability classification and prepare land suitability maps of wheat cultivation under rain-fed and irrigated conditions</li> <li>1-3. Conduct end-line survey and prepare end-line report</li> </ol> <p><b>Activity 2:</b></p> <ol style="list-style-type: none"> <li>2-1. Conduct training at ICARDA on wheat variety selection and seed production technology for selection and multiplication of improved varieties (high-yielding, drought resistant, pest resistant etc.).</li> <li>2-2. Conduct field trials on the adaptability of improved varieties to the locations as well as research centers in Kurdistan.</li> <li>2-3. Prepare technical guidelines on wheat varieties selection and seed production technology.</li> </ol> <p><b>Activity 3:</b></p> <ol style="list-style-type: none"> <li>3-1. Conduct training at ICARDA on wheat cultivation technology including pest control, fertilization, crop rotation, non-tillage and harvesting etc.</li> <li>3-2. Conduct field trials on new wheat cultivation techniques to verify their applicability to Kurdish conditions.</li> <li>3-3. Prepare technical guidelines on wheat cultivation in Kurdistan.</li> </ol> <p><b>Activity 4:</b></p> <ol style="list-style-type: none"> <li>4-1. Conduct training at ICARDA on water management including supplemental irrigation and water harvesting.</li> <li>4-2. Conduct field trials on supplemental irrigation and water harvesting to introduce suitable irrigation technology in Kurdistan.</li> <li>4-3. Prepare technical guideline on supplemental irrigation in Kurdistan</li> </ol> <p><b>Activity 5:</b></p> <ol style="list-style-type: none"> <li>5-1. Review current extension activity and extension materials.</li> <li>5-2. Establish demonstration plots for improved technologies at field trial sites.</li> <li>5-3. Prepare technical materials for extension workers in accordance with the progress of activity 2~4.</li> <li>5-4. Conduct local training for extension workers and MOAWR staff in Kurdistan.</li> <li>5-5. Transfer applicable technology to other areas in Iraq</li> </ol> | <p><b>Inputs</b></p> <table border="0"> <tr> <td style="vertical-align: top;"> <p>Japan side</p> <ol style="list-style-type: none"> <li>Dispatch of Experts                             <ul style="list-style-type: none"> <li>(1) Long-term Expert                                     <ul style="list-style-type: none"> <li>Project Coordination</li> </ul> </li> <li>(2) Short-term Experts                                     <ol style="list-style-type: none"> <li>1) Japan   <ul style="list-style-type: none"> <li>Land suitability classification ( MM)</li> </ul> </li> <li>2) Third country(ICARDA)   <ul style="list-style-type: none"> <li>Variety selection/seed technology ( MM/year)</li> <li>Wheat cultivation (pest control, fertilization etc. ( MM/year)</li> <li>Water management ( MM/year)</li> <li>Socio-economy ( MM)</li> </ul> </li> </ol> </li> </ul></li></ol> <li>Provision of Machinery, Equipment and Materials                             <ul style="list-style-type: none"> <li>Equipment for administration such as PC and printer</li> <li>Equipment needed for field trials, demonstration plot and laboratory works</li> </ul> </li> <li>Counterpart Training                             <ul style="list-style-type: none"> <li>Third country (ICARDA)</li> </ul> </li> <li>Local Costs                             <ul style="list-style-type: none"> <li>Costs for preparation of technical guidelines, extension materials, holding local training and farmer's day</li> </ul> </li> </td> <td style="vertical-align: top;"> <p>Iraq side</p> <ol style="list-style-type: none"> <li>Assignment of Counterpart Personnel and support staff                             <ul style="list-style-type: none"> <li>Project Director</li> <li>Project Manager (Director of Agricultural Research Centre)</li> <li>Support staff</li> </ul> </li> <li>Facilities                             <ul style="list-style-type: none"> <li>Office and working place for experts (such as desk, chair and internet connection,)</li> </ul> </li> <li>Running expenses for project management and implementation                             <ul style="list-style-type: none"> <li>Domestic travel allowance for Iraq officials</li> <li>Basic materials necessary for project activities such as field experiments and laboratory works.</li> </ul> </li> </ol> </td> </tr> </table> | <p>Japan side</p> <ol style="list-style-type: none"> <li>Dispatch of Experts                             <ul style="list-style-type: none"> <li>(1) Long-term Expert                                     <ul style="list-style-type: none"> <li>Project Coordination</li> </ul> </li> <li>(2) Short-term Experts                                     <ol style="list-style-type: none"> <li>1) Japan   <ul style="list-style-type: none"> <li>Land suitability classification ( MM)</li> </ul> </li> <li>2) Third country(ICARDA)   <ul style="list-style-type: none"> <li>Variety selection/seed technology ( MM/year)</li> <li>Wheat cultivation (pest control, fertilization etc. ( MM/year)</li> <li>Water management ( MM/year)</li> <li>Socio-economy ( MM)</li> </ul> </li> </ol> </li> </ul></li></ol> <li>Provision of Machinery, Equipment and Materials                             <ul style="list-style-type: none"> <li>Equipment for administration such as PC and printer</li> <li>Equipment needed for field trials, demonstration plot and laboratory works</li> </ul> </li> <li>Counterpart Training                             <ul style="list-style-type: none"> <li>Third country (ICARDA)</li> </ul> </li> <li>Local Costs                             <ul style="list-style-type: none"> <li>Costs for preparation of technical guidelines, extension materials, holding local training and farmer's day</li> </ul> </li> | <p>Iraq side</p> <ol style="list-style-type: none"> <li>Assignment of Counterpart Personnel and support staff                             <ul style="list-style-type: none"> <li>Project Director</li> <li>Project Manager (Director of Agricultural Research Centre)</li> <li>Support staff</li> </ul> </li> <li>Facilities                             <ul style="list-style-type: none"> <li>Office and working place for experts (such as desk, chair and internet connection,)</li> </ul> </li> <li>Running expenses for project management and implementation                             <ul style="list-style-type: none"> <li>Domestic travel allowance for Iraq officials</li> <li>Basic materials necessary for project activities such as field experiments and laboratory works.</li> </ul> </li> </ol> | <p>Natural condition is normal without extreme weather such as drought.</p> <p>The collaboration with ICARDA is sustained.</p> <p>Research Centers in Kurdistan does not go through big changes in staffing and budget.</p> <p><b>Pre-conditions</b></p> <p>Policies to promote wheat production are sustained by MOAWR / KRG</p> <p>The federal government approves and supports the project.</p> |
| <p>Japan side</p> <ol style="list-style-type: none"> <li>Dispatch of Experts                             <ul style="list-style-type: none"> <li>(1) Long-term Expert                                     <ul style="list-style-type: none"> <li>Project Coordination</li> </ul> </li> <li>(2) Short-term Experts                                     <ol style="list-style-type: none"> <li>1) Japan   <ul style="list-style-type: none"> <li>Land suitability classification ( MM)</li> </ul> </li> <li>2) Third country(ICARDA)   <ul style="list-style-type: none"> <li>Variety selection/seed technology ( MM/year)</li> <li>Wheat cultivation (pest control, fertilization etc. ( MM/year)</li> <li>Water management ( MM/year)</li> <li>Socio-economy ( MM)</li> </ul> </li> </ol> </li> </ul></li></ol> <li>Provision of Machinery, Equipment and Materials                             <ul style="list-style-type: none"> <li>Equipment for administration such as PC and printer</li> <li>Equipment needed for field trials, demonstration plot and laboratory works</li> </ul> </li> <li>Counterpart Training                             <ul style="list-style-type: none"> <li>Third country (ICARDA)</li> </ul> </li> <li>Local Costs                             <ul style="list-style-type: none"> <li>Costs for preparation of technical guidelines, extension materials, holding local training and farmer's day</li> </ul> </li>  | <p>Iraq side</p> <ol style="list-style-type: none"> <li>Assignment of Counterpart Personnel and support staff                             <ul style="list-style-type: none"> <li>Project Director</li> <li>Project Manager (Director of Agricultural Research Centre)</li> <li>Support staff</li> </ul> </li> <li>Facilities                             <ul style="list-style-type: none"> <li>Office and working place for experts (such as desk, chair and internet connection,)</li> </ul> </li> <li>Running expenses for project management and implementation                             <ul style="list-style-type: none"> <li>Domestic travel allowance for Iraq officials</li> <li>Basic materials necessary for project activities such as field experiments and laboratory works.</li> </ul> </li> </ol>  |  |  |  |

ANNEX II

Plan of Operation (PO) The Project for Wheat Productivity Improvement Towards Food Self-Sufficiency

| Output 1<br>Basic data are collected and land suitability maps of wheat cultivation in Kurdistan are prepared   | 2011 |   |   |   | 2012 |    |    |   | 2013 |   |   |   | 2014 |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
|---|------|---|---|---|------|----|----|---|------|---|---|---|------|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|--|
|   | 6    | 7 | 8 | 9 | 10   | 11 | 12 | 1 | 2    | 3 | 4 | 5 | 6    | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |  |
| 1-1 Conduct a basic data collection and baseline survey on wheat cultivation in Kurdistan and prepare a baseline survey report  |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 1-2 Conduct land suitability classification and prepare land suitability maps of wheat cultivation under rain-fed and irrigated conditions  |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 1-3 Conduct end-line survey and prepare end-line report   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| Output 2<br>Suitable wheat varieties are selected for Kurdistan and seed production technology is adopted.  | 2011 |   |   |   | 2012 |    |    |   | 2013 |   |   |   | 2014 |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 2-1 Conduct training at ICARDA on wheat variety selection and seed production technology for selection and multiplication of improved varieties (high-yielding, drought resistant, pest resistant etc.)   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 2-2 Conduct field trials on the adaptability of improved varieties to the locations as well as research centers in Kurdistan.   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 2-3 Prepare technical guidelines on wheat varieties selection and seed production technology.   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| Output 3<br>New wheat cultivation techniques including pest control and fertilizer application etc. are presented by ICARDA and their applicability to the local conditions are verified by field trials. | 2011 |   |   |   | 2012 |    |    |   | 2013 |   |   |   | 2014 |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 3-1 Conduct training at ICARDA on wheat cultivation technology including pest control, fertilization, crop rotation, non-illage and harvesting etc.   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 3-2 Conduct field trials on new wheat cultivation techniques to verify their applicability to Kurdish conditions.   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 3-3 Prepare technical guidelines on wheat cultivation in Kurdistan.   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| Output 4<br>New water management technology including supplemental irrigation is presented by ICARDA and its adaptability to the local conditions is verified by field trial                              | 2011 |   |   |   | 2012 |    |    |   | 2013 |   |   |   | 2014 |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 4-1 Conduct training at ICARDA on water management including supplemental irrigation and water harvesting.  |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 4-2 Conduct field trials on supplemental irrigation and water harvesting to introduce suitable irrigation technology in Kurdistan.  |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 4-3 Prepare technical guideline on supplemental irrigation in Kurdistan   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| Output 5<br>Trainings for extension workers on improved technologies are conducted in Kurdistan to transfer technology to the farmers   | 2011 |   |   |   | 2012 |    |    |   | 2013 |   |   |   | 2014 |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 5-1 Review current extension activity and extension materials   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 5-2 Establish demonstration plots for improved technologies at field trial sites  |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 5-3 Prepare technical materials for extension workers in accordance with the progress of activity 2-4.  |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 5-4 Conduct focal training for extension workers and MOAWR staff in Kurdistan.  |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 5-5 Transfer applicable technology to other areas in Iraq   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |

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# ANNEX III The Project for Wheat Productivity Improvement towards Food Self-Sufficiency

The Republic of Iraq

Project in Kurdistan Regional Government (3.5 years)

**JICA**  
Project Coordination  
Experts

Support

TOT

**ICARDA**  
Training  
Experts

**MOAWR / KRG**

Directorate General of Research & Agricultural Extension  
Project Director

Output 1~4

Research Centers

Erbil (Ainkawa) Project Manager  
Suleimanya (Bakrajo), (Kalar)  
Dohuk (Malta)

On-site Training,  
Field Trials  
Demonstration

Output 5

Extension Centers (Erbil, Dohuk & Suleimanya)

Extension Workers and advanced farmers

### Project Purpose

Extension workers acquire through researchers the wheat production technology adaptable to the local conditions in Kurdistan and demonstrate the technology for farmers through on-farm trials.

### Outputs

1. Baseline survey
2. Suitable wheat varieties and seed production technology
3. New wheat cultivation techniques (pest control & fertilizer, etc.)
4. Water management technology
5. Training for extension workers

Interaction

On-site Training

Researchers and Officials  
of the Republic of Iraq

Farmers of the Republic of Iraq

Farmers in Kurdistan Region

### Overall Goal

Productivity of wheat cultivation in Kurdistan is improved for stable food supply in Iraq

*Handwritten signature and arrow pointing to the bottom left corner of the diagram.*

MINUTES OF DISCUSSIONS  
FOR THE WORKSHOP ON MARCH 3, 2011

BETWEEN  
MINISTRY OF AGRICULTURE AND WATER RESOURCES OF  
KURDISTAN REGIONAL GOVERNMENT OF THE REPUBLIC OF IRAQ  
AND  
THE DETAILED PLANNING SURVEY TEAM OF  
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
AND  
THE INTERNATIONAL CENTER FOR AGRICULTURAL RESEARCH IN  
THE DRY AREAS (ICARDA)  
ON  
THE PROJECT ON WHEAT PRODUCTIVITY IMPROVEMENT  
TOWARDS FOOD SELF-SUFFICIENCY


The representatives from Ministry of Agriculture and Water Resources of Kurdistan Regional Government of the Republic of Iraq, the Detailed Planning Survey Team of Japan International Cooperation Agency (JICA) and the International Center for Agricultural Research in the Dry Areas (ICARDA) jointly held a workshop on March 3<sup>rd</sup>, 2011 in order to discuss the ideal contents and working plan, as a first draft, concerning the Project on Wheat Productivity Improvement towards Food Self-Sufficiency.

As a result of the discussions, the three parties agreed to recommend to each authorities concerned on the matters referred to in the document attached hereto.

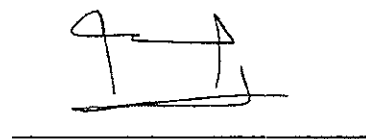
Erbil , March 3, 2011



Mr. Masayuki Takahashi  
Leader  
Detailed Planning Survey Team  
Japan International Cooperation  
Agency (JICA)



Mr. Sardar Sami Nurraddin  
Director General of Research  
and Agricultural Extension  
Ministry of Agriculture and  
Water Resources  
Kurdistan Regional Government  
The Republic of Iraq



Dr. Nasri Haddad  
Regional Coordinator for  
West Asia Regional Program  
The International Center for  
Agricultural Research in the Dry  
Areas (ICARDA)

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THE ATTACHED DOCUMENT

- I. The Draft of Project Design Matrix (PDM)
- II. The Draft of Plan of Operation (PO)
- III. Training of Trainers (TOT) at ICARDA
- IV. ICARDA Experts
- V. Project Implementation Team
- VI. Joint Coordinating Committee & Technical Committee Members
- VII. List of Attendance

Handwritten signature and initials, possibly 'F.S.', in black ink.



Attachment I

PROJECT DESIGN MATRIX (PDM) Draft

Project Title: The Project for Wheat Productivity Improvement towards Food Self-Sufficiency

Project Period: 3.5 years (July 2011 ~ December 2014)

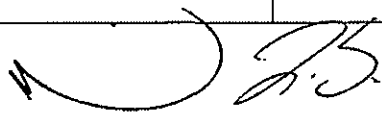
Drafted: March 3<sup>rd</sup> 2011

Target Area: Research Centers in Ainkawa (Erbil), Bakrajo / Kalar (Sulaymaniyah), Malta (Duhok) and extension centers in the area.

Project Beneficiaries: Researchers and extension workers of the target area as well as officers of Ministry of Agriculture and Water Resources, Kurdistan Regional Government.

PDM Ver. 5

| Narrative Summary   | Objectively Verifiable Indicators   | Means of Verification  | Important Assumptions   |  |
|---|---|--|---|--|
| <p><b>Overall Goal</b></p> <p>Productivity of wheat cultivation in Kurdistan is improved for stable food supply in Iraq.</p>  | <p>Increase in productivity of wheat irrigated (kg / donum, kg / cum. water used)</p> <p>Stabilize and increase productivity of wheat rain-fed (kg / donum, kg harvested / kg sown)</p>   | <ul style="list-style-type: none"> <li>Ex-post project evaluation report</li> <li>Baseline survey report</li> </ul>  |    |  |
| <p><b>Project Purpose</b></p> <p>Extension workers acquire through the researchers the wheat production technology adaptable to the local conditions in Kurdistan and demonstrate the technology for the farmers through on-farm trials.</p>  | <ul style="list-style-type: none"> <li>Number of selected suitable varieties, improved cultivation techniques and proper supplemental irrigation practices</li> <li>Number of extension workers with a certain level (to be specified) of knowledge and techniques through trainings.</li> </ul>  | <ul style="list-style-type: none"> <li>Project progress report</li> <li>End-line report</li> </ul>   | <p>Staff and budget are committed to advance agricultural extension</p> <p>The outputs of project are disseminated by extension workers and adopted by farmers</p>  |  |
| <p><b>Outputs</b></p> <ol style="list-style-type: none"> <li>Basic data are collected and land suitability maps of wheat cultivation in Kurdistan are prepared.</li> <li>Suitable wheat varieties are selected for Kurdistan and seed production technology is adopted.</li> <li>New wheat cultivation techniques including pest control and fertilizer application etc. are presented by ICARDA and their applicability to the local conditions are verified by field trials.</li> <li>New water management technology including supplemental irrigation is presented by ICARDA and its adaptability to the local conditions is verified by field trial.</li> <li>Trainings for extension workers on improved technologies are conducted in Kurdistan to transfer technology to the farmers.</li> </ol>  | <ol style="list-style-type: none"> <li>Completion of the baseline report.</li> <li>Selection of suitable varieties and their characteristics. Establishment of seed multiplication technology. Completion of the technical guidelines.</li> <li>Number of improved cultivation techniques. Completion of the technical guidelines.</li> <li>Number of developed water management technologies. Completion of the technical guidelines.</li> <li>Number of extension workers with a certain level (to be discussed for specification) of knowledge and techniques through trainings. Number of extension materials.</li> </ol>   | <ul style="list-style-type: none"> <li>Project progress report</li> <li>End-line report</li> </ul>   | <p>The implementation arrangement of the project is sustained (MOAWR / KRG, D.G. of Research &amp; Extension, Research Centers in Kurdistan, ICARDA and other relevant organizations)</p>   |  |
| <p><b>Activities</b></p> <p><b>Activity 1:</b></p> <ol style="list-style-type: none"> <li>1-1. Conduct a basic data collection and baseline survey on wheat cultivation in Kurdistan and prepare a baseline survey report.</li> <li>1-2. Conduct land suitability classification and prepare land suitability maps of wheat cultivation under rain-fed and irrigated conditions</li> <li>1-3. Conduct end-line survey and prepare end-line report</li> </ol> <p><b>Activity 2:</b></p> <ol style="list-style-type: none"> <li>2-1. Conduct training at ICARDA on wheat variety selection and seed production technology for selection and multiplication of improved varieties (high-yielding, drought resistant, pest resistant etc.).</li> <li>2-2. Conduct field trials on the adaptability of improved varieties to the locations as well as research centers in Kurdistan.</li> <li>2-3. Prepare technical guidelines on wheat varieties selection and seed production technology.</li> </ol> <p><b>Activity 3:</b></p> <ol style="list-style-type: none"> <li>3-1. Conduct training at ICARDA on wheat cultivation technology including pest control, fertilization, crop rotation, non-tillage and harvesting etc.</li> <li>3-2. Conduct field trials on new wheat cultivation techniques to verify their applicability to Kurdish conditions.</li> <li>3-3. Prepare technical guidelines on wheat cultivation in Kurdistan.</li> </ol> <p><b>Activity 4:</b></p> <ol style="list-style-type: none"> <li>4-1. Conduct training at ICARDA on water management including supplemental irrigation and water harvesting.</li> <li>4-2. Conduct field trials on supplemental irrigation and water harvesting to introduce suitable irrigation technology in Kurdistan.</li> <li>4-3. Prepare technical guideline on supplemental irrigation in Kurdistan</li> </ol> <p><b>Activity 5:</b></p> <ol style="list-style-type: none"> <li>5-1. Review current extension activity and extension materials.</li> <li>5-2. Establish demonstration plots for improved technologies at field trial sites.</li> <li>5-3. Prepare technical materials for extension workers in accordance with the progress of activity 2~4.</li> <li>5-4. Conduct local training for extension workers and MOAWR staff in Kurdistan.</li> <li>5-5. Transfer applicable technology to other areas in Iraq</li> </ol> | <p style="text-align: center;"><u>Inputs</u></p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><b>Japan side</b></p> <ol style="list-style-type: none"> <li>Dispatch of Experts                             <ol style="list-style-type: none"> <li>Long-term Expert Project Coordination</li> <li>Short-term Experts                                     <ol style="list-style-type: none"> <li>Japan   <ul style="list-style-type: none"> <li>Land suitability classification ( MM)</li> </ul> </li> <li>Third country(ICARDA)   <ul style="list-style-type: none"> <li>Variety selection/seed technology ( MM/year)</li> <li>Wheat cultivation (pest control, fertilization etc. ( MM/year)</li> <li>Water management ( MM/year)</li> <li>Socio-economy ( MM)</li> </ul> </li> </ol> </li> </ol> </li> <li>Provision of Machinery, Equipment and Materials                             <ul style="list-style-type: none"> <li>Equipment for administration such as PC and printer</li> <li>Equipment needed for field trials, demonstration plot and laboratory works</li> </ul> </li> <li>Counterpart Training                             <ul style="list-style-type: none"> <li>Third country (ICARDA)</li> </ul> </li> <li>Local Costs                             <ul style="list-style-type: none"> <li>Costs for preparation of technical guidelines, extension materials, holding local training and farmer's day</li> </ul> </li> </ol> </td> <td style="width: 50%; vertical-align: top;"> <p><b>Iraq side</b></p> <ol style="list-style-type: none"> <li>Assignment of Counterpart Personnel and support staff                             <ul style="list-style-type: none"> <li>Project Director</li> <li>Project Manager (Director of Agricultural Research Centre)</li> <li>Support staff</li> </ul> </li> <li>Facilities                             <p>Office and working place for experts (such as desk, chair and internet connection.)</p> </li> <li>Running expenses for project management and implementation                             <ul style="list-style-type: none"> <li>Domestic travel allowance for Iraqi officials</li> <li>Basic materials necessary for project activities such as field experiments and laboratory works.</li> </ul> </li> </ol> </td> </tr> </table> | <p><b>Japan side</b></p> <ol style="list-style-type: none"> <li>Dispatch of Experts                             <ol style="list-style-type: none"> <li>Long-term Expert Project Coordination</li> <li>Short-term Experts                                     <ol style="list-style-type: none"> <li>Japan   <ul style="list-style-type: none"> <li>Land suitability classification ( MM)</li> </ul> </li> <li>Third country(ICARDA)   <ul style="list-style-type: none"> <li>Variety selection/seed technology ( MM/year)</li> <li>Wheat cultivation (pest control, fertilization etc. ( MM/year)</li> <li>Water management ( MM/year)</li> <li>Socio-economy ( MM)</li> </ul> </li> </ol> </li> </ol> </li> <li>Provision of Machinery, Equipment and Materials                             <ul style="list-style-type: none"> <li>Equipment for administration such as PC and printer</li> <li>Equipment needed for field trials, demonstration plot and laboratory works</li> </ul> </li> <li>Counterpart Training                             <ul style="list-style-type: none"> <li>Third country (ICARDA)</li> </ul> </li> <li>Local Costs                             <ul style="list-style-type: none"> <li>Costs for preparation of technical guidelines, extension materials, holding local training and farmer's day</li> </ul> </li> </ol> | <p><b>Iraq side</b></p> <ol style="list-style-type: none"> <li>Assignment of Counterpart Personnel and support staff                             <ul style="list-style-type: none"> <li>Project Director</li> <li>Project Manager (Director of Agricultural Research Centre)</li> <li>Support staff</li> </ul> </li> <li>Facilities                             <p>Office and working place for experts (such as desk, chair and internet connection.)</p> </li> <li>Running expenses for project management and implementation                             <ul style="list-style-type: none"> <li>Domestic travel allowance for Iraqi officials</li> <li>Basic materials necessary for project activities such as field experiments and laboratory works.</li> </ul> </li> </ol> | <p>Natural condition is normal without extreme weather such as drought.</p> <p>The collaboration with ICARDA is sustained.</p> <p>Research Centers in Kurdistan does not go through big changes in staffing and budget.</p> <p><b>Pre-conditions</b></p> <p>Policies to promote wheat production are sustained by MOAWR / KRG</p> <p>The federal government approves and supports the project.</p> |
| <p><b>Japan side</b></p> <ol style="list-style-type: none"> <li>Dispatch of Experts                             <ol style="list-style-type: none"> <li>Long-term Expert Project Coordination</li> <li>Short-term Experts                                     <ol style="list-style-type: none"> <li>Japan   <ul style="list-style-type: none"> <li>Land suitability classification ( MM)</li> </ul> </li> <li>Third country(ICARDA)   <ul style="list-style-type: none"> <li>Variety selection/seed technology ( MM/year)</li> <li>Wheat cultivation (pest control, fertilization etc. ( MM/year)</li> <li>Water management ( MM/year)</li> <li>Socio-economy ( MM)</li> </ul> </li> </ol> </li> </ol> </li> <li>Provision of Machinery, Equipment and Materials                             <ul style="list-style-type: none"> <li>Equipment for administration such as PC and printer</li> <li>Equipment needed for field trials, demonstration plot and laboratory works</li> </ul> </li> <li>Counterpart Training                             <ul style="list-style-type: none"> <li>Third country (ICARDA)</li> </ul> </li> <li>Local Costs                             <ul style="list-style-type: none"> <li>Costs for preparation of technical guidelines, extension materials, holding local training and farmer's day</li> </ul> </li> </ol>  | <p><b>Iraq side</b></p> <ol style="list-style-type: none"> <li>Assignment of Counterpart Personnel and support staff                             <ul style="list-style-type: none"> <li>Project Director</li> <li>Project Manager (Director of Agricultural Research Centre)</li> <li>Support staff</li> </ul> </li> <li>Facilities                             <p>Office and working place for experts (such as desk, chair and internet connection.)</p> </li> <li>Running expenses for project management and implementation                             <ul style="list-style-type: none"> <li>Domestic travel allowance for Iraqi officials</li> <li>Basic materials necessary for project activities such as field experiments and laboratory works.</li> </ul> </li> </ol>   |  |   |  |



Attachment II

Plan of Operation (PO) The Project for Wheat Productivity Improvement Towards Food Self-Sufficiency

| Output 1<br>Basic data are collected and land suitability maps of wheat cultivation in Kurdistan are prepared   | 2011 |   |   |   | 2012 |    |    |   | 2013 |   |   |   | 2014 |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
|---|------|---|---|---|------|----|----|---|------|---|---|---|------|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|--|
|   | 6    | 7 | 8 | 9 | 10   | 11 | 12 | 1 | 2    | 3 | 4 | 5 | 6    | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |  |
| 1-1 Conduct a basic data collection and baseline survey on wheat cultivation in Kurdistan and prepare a baseline survey report  |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 1-2 Conduct land suitability classification and prepare land suitability maps of wheat cultivation under rain-fed and irrigated conditions  |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 1-3 Conduct end-line survey and prepare end-line report   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| Output 2<br>Suitable wheat varieties are selected for Kurdistan and seed production technology is adopted.  | 2011 |   |   |   | 2012 |    |    |   | 2013 |   |   |   | 2014 |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 2-1 Conduct training at ICARDA on wheat variety selection and seed production technology for selection and multiplication of improved varieties (high-yielding, drought resistant, pest resistant etc.).  |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 2-2 Conduct field trials on the adaptability of improved varieties to the locations as well as research centers in Kurdistan.   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 2-3 Prepare technical guidelines on wheat varieties selection and seed production technology.   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| Output 3<br>New wheat cultivation techniques including pest control and fertilizer application etc. are presented by ICARDA and their applicability to the local conditions are verified by field trials. | 2011 |   |   |   | 2012 |    |    |   | 2013 |   |   |   | 2014 |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 3-1 Conduct training at ICARDA on wheat cultivation technology including pest control, fertilization, crop rotation, non-tilage and harvesting etc.   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 3-2 Conduct field trials on new wheat cultivation techniques to verify their applicability to Kurdish conditions.   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 3-3 Prepare technical guidelines on wheat cultivation in Kurdistan.   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| Output 4<br>New water management technology including supplemental irrigation is presented by ICARDA and its adaptability to the local conditions is verified by field trial                              | 2011 |   |   |   | 2012 |    |    |   | 2013 |   |   |   | 2014 |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 4-1 Conduct training at ICARDA on water management including supplemental irrigation and water harvesting.  |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 4-2 Conduct field trials on supplemental irrigation and water harvesting to introduce suitable irrigation technology in Kurdistan.  |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 4-3 Prepare technical guideline on supplemental irrigation in Kurdistan   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| Output 5<br>Trainings for extension workers on improved technologies are conducted in Kurdistan to transfer technology to the farmers   | 2011 |   |   |   | 2012 |    |    |   | 2013 |   |   |   | 2014 |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 5-1 Review current extension activity and extension materials   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 5-2 Establish demonstration plots for improved technologies at field trial sites  |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 5-3 Prepare technical materials for extension workers in accordance with the progress of activity 2-4.  |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 5-4 Conduct local training for extension workers and MOAWR staff in Kurdistan.  |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |
| 5-5 Transfer applicable technology to other areas in Iraq   |      |   |   |   |      |    |    |   |      |   |   |   |      |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |    |  |

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Attachment III

TOT at ICARDA

Researchers (MOAWR staff) are sent to ICARDA for taking Training of Trainers and conduct local training for extension workers (advanced farmers) as lectures after coming back to Kurdistan with support of ICARDA experts when necessary.

- 1) Variety selection & Seed production  
(Variety selection trial, Field inspection\*, Seed testing)  
July 2011, June 2012, June 2013 (Seed health)  
6 persons x 3 weeks  
Faida/Zaho, Ainkawa, Qoshtapa, Bakrajo, Kalar, (Federal gov.)
- 2) Wheat cultivation  
A: Pest control (IPM)  
B: Fertilizer application, Crop rotation, Zero-tillage  
A: March 2012, March 2013, March 2014  
5 persons x 2 weeks  
Malta, Ainkawa, Bakrajo, Kalar, (Federal gov.)  
B: September 2011, September 2012, September 2013  
5 persons x 2 weeks  
Malta, Ainkawa, Bakrajo, Kalar, (Federal gov.)
- 3) Supplemental irrigation  
(Water requirement, Irrigation and water harvesting practices)  
March 2012, March 2013, March 2014  
5 persons x 3 weeks  
Malta, Ainkawa, Bakrajo, Kalar, (Federal gov.)
- 4) Socio-economy  
(Baseline survey, End-line survey)  
December 2011, June 2014  
One person for 2 weeks  
Statistics/Planning



Attachment IV

ICARDA Experts

ICARDA experts are dispatched to Kurdistan for follow-up the TOT training, that is,

- support of local training for extension workers in Dohuk, Erbil, Sulaymaniya provinces
- supervise the field trials / demonstration plots as well as the experiments at the Research Centers in Dohuk, Erbil, Sulaymaniya provinces.
- Supervise for preparing the annual achievement report and planning of the following year's activities

ICARDA experts also supervise the baseline and end-line surveys at Kurdistan and ICARDA.

1) Variety selection & Seed production

Seed: July 2011, June 2012, June 2013 for 2 weeks

Variety: October 2011, October 2012, October 2013, October 2014 for 2 weeks

2) Wheat cultivation

Pest control: April 2012, April 2013, April 2014 for 2 weeks

Fertilizer: October 2011, October 2012, October 2013, for 2 weeks

3) Water Management

March 2012, March 2013, March 2014 for 2 weeks

4) Socio-economy

July 2011 for 2 weeks

September 2014 for 2 weeks

5) Monitoring

September 2012, September 2013, September 2014 for 2 weeks

6) Final workshop

December 2014 for 2 weeks



Attachment V

Project Implementation Team

|                      |  |
|----------------------|--|
| Project Director     | General Director of Research and Extension     |
| Project Manager      | Director of Erbil Agricultural Research Center |
| Seed Group           | Director of Seed Production                    |
| Cultivation Group    | Director of Research, MOAWR                    |
| Irrigation Group     | Senior Researcher                              |
| Extension Group      | Director of Agricultural Extension             |
| Socio-Economic Group | Director of Statistics                         |

Erbil (Ainkawa) 10

Seed (2)  
Cultivation (2)  
Irrigation (2)  
Extension (4)

Sulaymaniyah (Bakrajo) 10

Seed (2)  
Cultivation (2)  
Irrigation (2)  
Extension (4)

Sulaymaniyah (Kalar) 5

Seed (1)  
Cultivation (1)  
Irrigation (1)  
Extension (2)

Dohuk (Malta) 7

Seed (1)  
Cultivation (1)  
Irrigation (1)  
Extension (4)



Attachment VI

Joint Coordinating Committee & Technical Committee Members

1) Joint Coordinating Committee Member

JICA

Project Coordinator

Chief Representative of JICA Iraq Office

ICARDA

Project Coordinator

KRG

Project Director\*

Project Manager

Director of Seed Production

General Director of Planning and Follow up

General Director of Erbil

General Director of Sulaymaniyah

General Director of Garmian

General Director of Duhok

\* Chairperson

Each side can invite proper person(s) in case of the necessity.

It will be held at least once a year.

A handwritten signature, possibly 'P. S.', is written in black ink. To its left is a large, stylized flourish consisting of a curved line that starts from the left, goes up and over, and then curves back down to the left.

2) Technical Committee Member

JICA

Project Coordinator  
Representative of JICA Iraq Office

ICARDA

Project Coordinator  
Variety Improvement / Seed Expert  
Wheat Cultivation Expert  
Water Management Expert

KRG

Project Director  
Project Manager  
Director of Seed Production  
Director of Extension & Training  
Director of Sulaymania Research Center  
Director of Kalar Research Center  
Director of Duhok Research Center

Each side can invite proper person(s) in case of necessity.

It will be held at least once a year.

September 2012, September 2013, September 2014.

Suggested format 2 days for Technical Committee meeting followed by one day Joint Coordinating Committee meeting.



Attachment VII

List of Attendance

MOAWR/KRG

|                                  |  |
|----------------------------------|--|
| H.E. Eng. Jameel Sleiman Haider, | Minister                                 |
| Eng. Sardar Sami,                | Director General of Extension & Research |
| Eng. Maqsood Kh. Abdulrahman,    | Director of Research / Erbil             |
| Eng. Farouq Ali Othman,          | Director of Seed Production /MOAWR       |
| Eng. Sardar Khattab,             | Director of Research / MOAWR             |
| Eng. Zana M. Majeed,             | Director of Research / Sulaimaniya       |
| Eng. Abdulkarim M. Ali,          | Director of Research / Germian           |
| Eng. Darsim M. Ibrahim,          | Director of Research / Dohuk             |

ICARDA

|                   |  |
|-------------------|--|
| Dr. Nasr Haddad,  | Regional Coordinator for West Asia Regional Program              |
| Dr. Michael Baum, | Director of Biodiversity & Integrated Gene<br>Management Program |

JICA

|                         |   |
|-------------------------|---|
| Mr. Masaaki Matsushima, | Chief Representative of Iraq Office     |
| Mr. Masayuki Takahashi, | Leader of Detailed Planning Survey Team |
| Dr. Kazuo Nakabayashi,  | Senior Advisor                          |
| Mr. Takashi Hibino,     | Representative of Syria Office          |
| Mr. Hiroyuki Okuda,     | Member of Detailed Planning Survey Team |
| Ms. Mariko Senda,       | Staff of Iraq Office                    |





ANNEX V

[DRAFT]  
RECORD OF DISCUSSIONS  
BETWEEN  
THE JAPANESE DETAILED PLANNING SURVEY TEAM  
AND  
AUTHORITIES CONCERNED OF  
KURDISTAN REGIONAL GOVERNMENT OF THE REPUBLIC OF IRAQ  
ON  
JAPANESE TECHNICAL COOPERATION FOR  
THE PROJECT FOR WHEAT PRODUCTIVITY IMPROVEMENT  
TOWARDS FOOD SELF-SUFFICIENCY

The Japan International Cooperation Agency (hereinafter referred to as "JICA") through its Chief Representative to Iraq, exchanged views and had a series of discussions with concerned authorities of Kurdistan Regional Government of the Republic of Iraq with respect to desirable measures to be taken by JICA and Kurdistan Regional Government of the Republic of Iraq for the successful implementation of the Project for Wheat Productivity Improvement towards Food Self-Sufficiency.

As a result of the discussions, JICA and the concerned authorities of Kurdistan Regional Government of the Republic of Iraq agreed on the matters referred to in the document attached hereto.

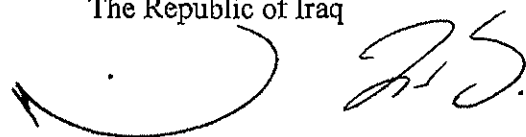
Erbil, XXX XX, 2011

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Mr. Masaaki Matsushima  
Chief Representative  
JICA IRAQ Office  
Japan International Cooperation  
Agency (JICA)

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Mr. Jameel Sleiman Haider  
Minister of Agriculture and  
Water Resources  
Kurdistan Regional Government  
The Republic of Iraq



19

THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN JICA AND KURDISTAN REGIONAL GOVERNMENT OF THE REPUBLIC OF IRAQ

1. Kurdistan Regional Government of the Republic of Iraq will implement the Project for Wheat Productivity Improvement towards Food Self-Sufficiency (hereinafter referred to as “the Project”) in cooperation with JICA.
2. The Project will be implemented in accordance with the Master Plan which is given in Annex I.

II. MEASURES TO BE TAKEN BY JICA

In accordance with the laws and regulations in force in Japan, JICA will take, at its own expense, the following measures according to the normal procedures under the Technical Cooperation Scheme of Japan.

1. DISPATCH OF JAPANESE EXPERTS

JICA will provide the services of the Japanese experts as listed in Annex II.

2. PROVISION OF MACHINERY AND EQUIPMENT

JICA will provide such machinery, equipment and other materials (hereinafter referred to as “the Equipment”) necessary for the implementation of the Project as listed in Annex III. The Equipment will become the property of Kurdistan Regional Government of the Republic of Iraq upon being delivered C.I.F. (cost, insurance and freight) to the authorities concerned at the ports and/or airports of disembarkation.

3. TRAINING OF IRAQI PERSONNEL IN JAPAN

JICA will receive the Iraqi personnel connected with the Project for technical training in Japan.

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### III. MEASURES TO BE TAKEN BY KURDISTAN REGIONAL GOVERNMENT OF THE REPUBLIC OF IRAQ

1. Kurdistan Regional Government of the Republic of Iraq will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period of Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.
2. Kurdistan Regional Government of the Republic of Iraq will ensure that the technologies and knowledge acquired by the Iraqi nationals as a result of Japanese technical cooperation will contribute to the economic and social development of the Republic of Iraq.
3. Kurdistan Regional Government of the Republic of Iraq will grant in Kurdistan Region of the Republic of Iraq privileges, exemptions and benefits as listed in Annex IV and will grant privileges, exemptions and benefits no less favorable than those granted to experts of third countries or international organizations performing similar missions to the Japanese experts referred to in II-1 above and their families.
4. Kurdistan Regional Government of the Republic of Iraq will ensure that the Equipment referred to in II-2 above will be utilized effectively for the implementation of the Project in consultation with the Japanese experts referred to in Annex II.
5. Kurdistan Regional Government of the Republic of Iraq will take necessary measures to ensure that the knowledge and experience acquired by the Iraqi personnel from technical training in Japan will be utilized effectively in the implementation of the Project.
6. In accordance with the laws and regulations in force in Kurdistan Region of the Republic of Iraq, Kurdistan Regional Government of the Republic of Iraq will take necessary measures to provide at its own expense:

- (1) Services of the Iraqi counterpart personnel and administrative personnel as listed in Annex V;
  - (2) Land, buildings and facilities as listed in Annex VI;
  - (3) Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the Equipment provided by JICA under II-2 above;
  - (4) Means of transport and travel allowances for the Japanese experts for official travel within Kurdistan Region of the Republic of Iraq; and
  - (5) Suitably furnished accommodation for the Japanese experts and their families.
7. In accordance with the laws and regulations in force in the Republic of Iraq, Kurdistan Regional Government of the Republic of Iraq will take necessary measures to meet:
- (1) Expenses necessary for transportation within Kurdistan Region of the Republic of Iraq of the Equipment referred to in II-2 above as well as for the installation, operation and maintenance thereof;
  - (2) Customs duties, internal taxes and any other charges, imposed in Kurdistan Region of the Republic of Iraq on the Equipment referred to in II-2 above ; and
  - (3) Running expenses necessary for the implementation of the Project.

#### IV. ADMINISTRATION OF THE PROJECT

1. Director General of Research and Agricultural Extension, Ministry of



Agriculture and Water Resources of Kurdistan Regional Government of the Republic of Iraq, as the Project Director, will bear overall responsibility for the administration and implementation of the Project.

2. Director of Erbil Agricultural Research Station, Ministry of Agriculture and Water Resources of Kurdistan Regional Government of the Republic of Iraq, as the Project Manager, will be responsible for the managerial and technical matters of the Project.
3. The Japanese Project Coordinator will provide necessary recommendations and advice to the Project Director and the Project Manager on any matters pertaining to the implementation of the Project.
4. The Japanese experts and third country experts will give necessary technical guidance and advice to the Iraqi counterpart personnel on technical matters pertaining to the implementation of the Project.
5. For the effective and successful implementation of technical cooperation for the Project, a Joint Coordinating Committee will be established whose functions and composition are described in Annex VII.

#### V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by JICA and the concerned authorities of Kurdistan Region of the Republic of Iraq, during the last six months of the cooperation term in order to examine the level of achievement.

#### VI. CLAIMS AGAINST JAPANESE EXPERTS

Kurdistan Regional Government of the Republic of Iraq undertakes to bear claims, if any arises, against the Japanese experts and the third country experts engaged in technical cooperation for the Project resulting from, occurring in the course of, or otherwise connected with

A handwritten signature in black ink is written over a circular stamp. The signature appears to be 'R. S.'. The stamp is mostly obscured by the signature.

the discharge of their official functions in Kurdistan Region of the Republic of Iraq except for those arising from the willful misconduct or gross negligence of the experts.

#### VII. MUTUAL CONSULTATION

There will be mutual consultation between JICA and Kurdistan Regional Government of the Republic of Iraq on any major issues arising from, or in connection with this Attached Document.

#### VIII. MEASURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE PROJECT

For the purpose of promoting support for the Project among the people of the Republic of Iraq, Kurdistan Regional Government of the Republic of Iraq will take appropriate measures to make the Project widely known to the people of the Republic of Iraq.

#### IX. TERM OF COOPERATION

The duration of the technical cooperation for the Project under this Attached Document will be XXXXX years from XXXXXX, 2011.

|           |  |
|-----------|--|
| ANNEX I   | MASTER PLAN  |
| ANNEX II  | LIST OF JAPANESE EXPERTS                                 |
| ANNEX III | LIST OF MACHINERY AND EQUIPMENT                          |
| ANNEX IV  | PRIVILEGES, EXEMPTIONS AND BENEFITS FOR JAPANESE EXPERTS |
| ANNEX V   | LIST OF IRAQI COUNTERPART AND ADMINISTRATIVE PERSONNEL   |
| ANNEX VI  | LIST OF LAND, BUILDINGS AND FACILITIES                   |
| ANNEX VII | JOINT COORDINATING COMMITTEE                             |



## ANNEX I      MASTER PLAN

### 1. Overall goal

Productivity of wheat cultivation in Kurdistan is improved for stable food supply in Iraq.

### 2. Project purpose

Extension workers acquire through the researchers the wheat production technology adaptable to the local conditions in Kurdistan and demonstrate the technology for the farmers through on-farm trials.

### 3. Outputs and Activities

#### **Output 1: Basic data are collected and land suitability maps of wheat cultivation in Kurdistan are prepared**

##### Activities

- 1-1. Conduct a basic data collection and baseline survey on wheat cultivation in Kurdistan and prepare a baseline survey report.
- 1-2. Conduct land suitability classification and prepare land suitability maps of wheat cultivation under rain-fed and irrigated conditions
- 1-3. Conduct end-line survey and prepare end-line report

#### **Output 2: Suitable wheat varieties are selected for Kurdistan and seed production technology is adopted.**

##### Activities:

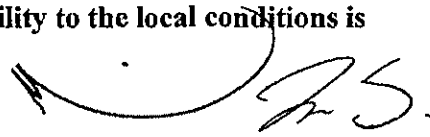
- 2-1. Conduct training at ICARDA on wheat variety selection and seed production technology for selection and multiplication of improved varieties (high-yielding, drought resistant, pest resistant etc.).
- 2-2. Conduct field trials on the adaptability of improved varieties to the locations as well as research centers in Kurdistan.
- 2-3. Prepare technical guidelines on wheat varieties selection and seed production technology.

#### **Output 3: New wheat cultivation techniques including pest control and fertilizer application etc. are presented by ICARDA and their applicability to the local conditions are verified by field trials.**

##### Activities:

- 3-1 Conduct training at ICARDA on wheat cultivation technology including pest control, fertilization, crop rotation, non-tillage and harvesting etc.
- 3-2 Conduct field trials on new wheat cultivation techniques to verify their applicability to Kurdish conditions.
- 3-3 Prepare technical guidelines on wheat cultivation in Kurdistan.

#### **Output 4: New water management technology including supplemental irrigation is presented by ICARDA and its adaptability to the local conditions is verified by field trial.**



**Activities:**

- 4-1 Conduct training at ICARDA on water management including supplemental irrigation and water harvesting.
- 4-2 Conduct field trials on supplemental irrigation and water harvesting to introduce suitable irrigation technology in Kurdistan.
- 4-3 Prepare technical guideline on supplemental irrigation in Kurdistan

**Output 5: Trainings for extension workers on improved technologies are conducted in Kurdistan to transfer technology to the farmers**

**Activities:**

- 5-1. Review current extension activity and extension materials.
- 5-2. Establish demonstration plots for improved technologies at field trial sites.
- 5-3. Prepare technical materials for extension workers in accordance with the progress of activity 2 - 4.
- 5-4. Conduct local training for extension workers and MOAWR staff in Kurdistan.
- 5-5. Transfer applicable technology to other areas in Iraq.

**4. Target Area**

Target area is research centers in Erbil, Sulaymaniya and Duhok and extension offices as well as farmers who are involved in the Project.

**5. Project Beneficiaries**

Project beneficiaries are extension workers and researchers and staff of MOAWR/KRG as well as farmers involved in the Project.

**6. Plan of Operation**

Tentative Plan of Operation is shown in ANNEX 3.

**Notes:**

**(1) Training of Trainers at ICARDA**

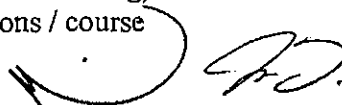
Courses and Curriculum

Duration of each training course is about 2 -3 weeks. Each training course contains as below;

Variety selection & Seed production

(Variety selection trial, Field inspection\*, Seed testing)

Three weeks in June/July and about 6 persons / course





Wheat cultivation

A: Pest control (IPM)

Two weeks in March and about 5 persons / course

B: Fertilizer application, Crop rotation, Zero-tillage

Two weeks in September and about 5 persons / course

Supplemental irrigation

(Water requirement, Irrigation and water harvesting practices)

Two weeks in March and about 5 persons / course

Socio-economy

(Baseline survey, End-line survey)

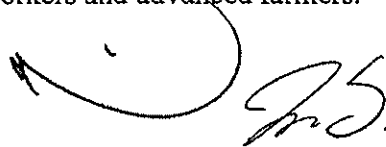
One person for 2 weeks

(Additional courses will be considered in the Joint Coordinating Committee).

**(2) On-Site Training for Extension Workers in Kurdistan**

The curriculum of the training will be similar to those in ICARDA.

Participants of the training are extension workers and advanced farmers.

A handwritten signature, possibly 'J.S.', is written in black ink. To the left of the signature is a large, hand-drawn circle with an arrow pointing from the circle towards the signature.

## ANNEX II LIST OF EXPERTS DISPATCHED BY JICA

The experts will be dispatched to Kurdistan. The fields of experts from Japan and from ICARDA are as shown below:

- (1) Experts from Japan:
  - Project Coordination
  - Land suitability classification
  - Others if needs arise
  
- (2) Experts from ICARDA:
  - Variety improvement/seed technology
  - Wheat cultivation (pest control / fertilization)
  - Water management (Supplemental irrigation / water harvesting)
  - Socio-economy (Baseline and end-line surveys)

### Notes:

- (1) Field, number and term of assignment of experts will be decided in consideration of the progress of the Project through mutual consultation at the Joint Coordinating Committee meeting for the following year.
  
- (2) ICARDA experts are dispatched to Kurdistan for follow-up the TOT training, that is,
  - (a) support of local training for extension workers in Dohuk, Erbil, Sulaymaniya Provinces
  - (b) supervise the field trials / demonstration plots as well as the experiments at the Research Centers in Dohuk, Erbil, Sulaymaniya provinces.
  - (c) supervise for preparing the annual achievement report and planning of the following year's activities
  - (d) ICARDA experts also supervise the baseline and end-line surveys at Kurdistan and ICARDA.



## ANNEX III LIST OF MACHINERY AND EQUIPMENT

Machinery, Equipment and Materials are provided by JICA to Kurdistan as shown below:

1. Equipment for administration such as PC and printer  
Equipment needed for field trials, demonstration plot and laboratory works
2. Local Costs  
Costs for preparation of technical guidelines, extension materials as well as holding local training and field day

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ANNEX IV PRIVILEGES, EXEMPTIONS AND BENEFITS FOR JAPANESE EXPERTS

In case JICA dispatches the Experts and the Missions, Kurdistan Regional Government of the Republic of Iraq shall:

1. (1)(a) exempt the Experts and members of the Missions from taxes including income tax, and fiscal charges imposed on or in connection with salaries and any allowances remitted to them from abroad;

(b) exempt the Experts, members of the Missions and their families from consular fees, taxes including customs duties and fiscal charges, as well as from the requirements of obtaining import license and certificate of foreign exchange coverage, in respect of the importation of:

(i) luggage;

(ii) personal effects, household effects and consumer goods; and

(iii) one motor vehicle per Expert, per family of the Expert assigned to stay in Kurdistan Region of the Republic of Iraq;

(c) exempt the Experts, the Senior Volunteers and their families who do not import any motor vehicle into Kurdistan Region of the Republic of Iraq from taxes including value added tax and fiscal charges in respect of the local purchase of one motor vehicle per Expert, per family of the Expert; and

(d) exempt the Experts and their families from the registration fee of the motor vehicles mentioned in (b)(iii) and (c).

(2)(a) provide at its own expense suitable office and other facilities including telephone and facsimile services necessary for the performance of the duties of the Experts and the Missions as well as bear the expenses for their operation and maintenance;

(b) provide at its own expense the local staff (including adequate interpreters, if necessary) as well as Iraqi counterparts to the Experts and the Missions necessary for the performance of their duties;

(c) bear expenses of the Experts, for:

(i) daily transportation to and from their place of work;

(ii) their official travels within Kurdistan Region of the Republic of Iraq; and

(iii) their official correspondence;

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(d) provide the convenience for acquisition of appropriate housing accommodation for the Experts and their families; and

(e) provide the convenience for receiving medical care and facilities for the Experts, members of the Missions and their families.

(3)(a) permit the Experts, members of the Missions and their families to enter, leave and sojourn in Kurdistan Region of the Republic of Iraq for the duration of their assignment therein, offer them the convenience for procedures of alien registration requirements, and exempt them from consular fees;

(b) issue identification cards to the Experts and members of the Missions to secure the cooperation of all governmental organizations necessary for the performance of their duties;

(c) offer the Experts and their families the convenience for acquisition of car driving license; and

(d) carry out other measures necessary for the performance of the duties of the Experts and the Missions.

2. The motor vehicles mentioned in paragraph 1. shall be subject to payment of taxes including customs duties if they are subsequently sold or transferred within Kurdistan Region of the Republic of Iraq to individuals or organizations not entitled to exemption from such taxes or similar privileges.

3. Kurdistan Regional Government of the Republic of Iraq shall accord the Experts, members of the Missions and their families such privileges, exemptions and benefits as are no less favorable than those accorded to experts, members of missions and their families of any third country or of any international organization performing a similar mission in Kurdistan Region of the Republic of Iraq.


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## ANNEX VI LIST OF LAND, BUILDINGS AND FACILITIES

Land, building and facilities are prepared by MOAWR/KRG for the implementation of the Project.as shown below;

1. Office space and necessary facilities for the experts and related staff members
2. Water and electricity charges necessary for operation and maintenance of facilities
3. Other facilities mutually agreed upon as necessary
4. Land and basic materials necessary for project activities such as field trials, demonstration plots and laboratory works.

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## ANNEX VII JOINT COORDINATING COMMITTEE

The Joint Coordinating Committee is established

### 1. Functions

The Joint Coordinating Committee will be held at least once a year and whenever necessity arises in order to fulfill the following functions;

- (1) To formulate Annual Plans of Operations within the framework of the Record of Discussions, and to design the activities for the following year.
- (2) To coordinate necessary actions to be taken by each party;
- (3) To monitor the progress of the Project;
- (4) To review the overall progress as well as the achievement of the Project; and
- (5) To exchange opinions on major issues arising or in connection with the implementation of the Project.

### 2. Composition

The General Director of Research and Extension is the chairperson and would invite appropriate persons from the following authorities concerned in accordance with agenda to be discussed at a committee meeting. All the members of the Joint Coordinating Committee shall nominate alternate representatives if they would not be able to attend the meeting.

Each party is allowed to invite participant(s) not listed below to the Joint Coordinating Committee as observer(s) with the prior consent of other parties

#### JICA

Project Coordinator  
Chief Representative of JICA Iraq Office

#### ICARDA

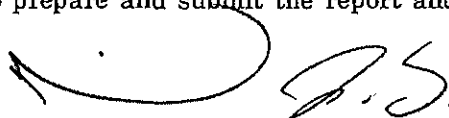
Project Coordinator

#### MOAWR/KRG

Project Director: General Director of Research and Extension  
Project Manager: Director of Erbil Agricultural Research Center  
Director of Seed Production  
General Director of Planning and Follow up  
General Director of Erbil  
General Director of Sulaymaniyah  
General Director of Garmian  
General Director of Duhok

### 3. Technical Committee

The Technical Committee will be organized and held prior to the Joint Coordinating Committee meeting in order to prepare and submit the report and proposal.





#### 4. Composition of Technical Committee

The person who is appointed by the General Director of Research and Extension is the chairperson and would invite appropriate persons from the authorities concerned in accordance with agenda to be discussed at a committee meeting. All the members of the Technical Committee shall nominate alternate representatives if they would not be able to attend the meeting.

Each party is allowed to invite participant(s) not listed below to the Technical Committee as observer(s) with the prior consent of other parties

#### JICA

Project Coordinator  
Representative of JICA Iraq Office

#### ICARDA

Project Coordinator  
Variety Improvement / Seed Expert  
Wheat Cultivation Expert  
Water Management Expert

#### MOAWR /KRG

Project Director  
Project Manager  
Director of Seed Production  
Director of Extension & Training  
Director of Sulaymania Research Center  
Director of Kalar Research Center  
Director of Duhok Research Center

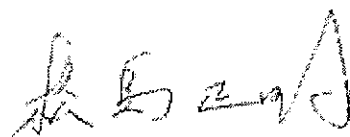


RECORD OF DISCUSSIONS  
BETWEEN  
JAPAN INTERNATIONAL COOPERATION AGENCY  
AND  
AUTHORITIES CONCERNED OF  
THE KURDISTAN REGIONAL GOVERNMENT OF THE REPUBLIC OF IRAQ  
ON  
JAPANESE TECHNICAL COOPERATION FOR  
THE PROJECT FOR WHEAT PRODUCTIVITY IMPROVEMENT  
TOWARDS FOOD SELF-SUFFICIENCY

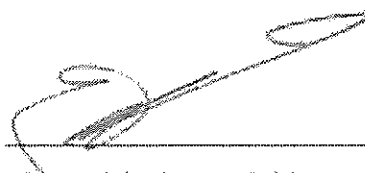
The Japan International Cooperation Agency (hereinafter referred to as "JICA") through its Chief Representative to the Republic of Iraq (hereinafter referred to as "the Iraq"), exchanged views and had a series of discussions with concerned authorities of the Kurdistan Regional Government of the Iraq (hereinafter referred to as "the KRG") with respect to desirable measures to be taken by JICA and the KRG for the successful implementation of the Project on Wheat Productivity Improvement towards Food Self-Sufficiency.

As a result of the discussions, JICA and the concerned authorities of the KRG agreed to recommend to their respective Governments the matters referred to in the document attached hereto.

Erbil, July 13, 2011



Masaaki Matsushima  
Chief Representative  
Iraq Office  
Japan International Cooperation  
Agency (JICA)  
Japan



Jameel Sleiman Haider  
Minister  
Ministry of Agriculture and  
Water Resources  
Kurdistan Regional Government  
Republic of Iraq

## THE ATTACHED DOCUMENT

### I. COOPERATION BETWEEN JICA AND THE KRG

1. The KRG will implement the Project on Wheat Productivity Improvement towards Food Self-Sufficiency (hereinafter referred to as "the Project") in cooperation with JICA.
2. The Project will be implemented in accordance with the Master Plan which is given in Annex I.

### II. MEASURES TO BE TAKEN BY JICA

In accordance with the laws and regulations in force in Japan, JICA will take, at its own expense, the following measures according to the normal procedures under the Technical Cooperation Scheme of Japan.

#### 1. DISPATCH OF EXPERTS

JICA will provide the services of the Japanese experts and experts from third countries as listed in Annex II.

#### 2. PROVISION OF MACHINERY AND EQUIPMENT

JICA will provide such machinery, equipment and other materials (hereinafter referred to as "the Equipment") necessary for the implementation of the Project as listed in Annex III. The Equipment will become the property of the KRG upon being delivered C.I.F. (cost, insurance and freight) to the concerned authorities of the KRG at the ports and/or airports of disembarkation.

#### 3. TRAINING OF IRAQI PERSONNEL

JICA will receive the Iraqi personnel connected with the Project for technical training in Japan and/or third country.

### III. MEASURES TO BE TAKEN BY THE KRG

1. The KRG will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period of Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.
2. The KRG will ensure that the technologies and knowledge acquired by the Iraqi nationals as a result of Japanese technical cooperation will contribute to the economic and social development of the Iraq.
3. The KRG will grant in the Kurdistan region of the Iraq privileges, exemptions and benefits as listed in Annex IV and will grant privileges, exemptions and benefits no less favorable than those granted to experts of third countries or international organizations performing similar missions to the Japanese experts referred to in II-1 above and their families.
4. The KRG will ensure that the Equipment referred to in II-2 above will be utilized effectively for the implementation of the Project in consultation with the experts referred to in Annex II.
5. The KRG will take necessary measures to ensure that the knowledge and experience acquired by the Iraqi personnel from technical training will be utilized effectively in the implementation of the Project.
6. In accordance with the laws and regulations in force in the KRG, the KRG will take necessary measures to provide at its own expense:
  - (1) Services of the Iraqi counterpart personnel and administrative personnel as listed in Annex V;
  - (2) Land, buildings and facilities as listed in Annex VI;
  - (3) Supply or replacement of machinery, equipment, instruments, vehicles, tools,

spare parts and any other materials necessary for the implementation of the Project other than the Equipment provided by JICA under II-2 above;

- (4) Means of transport and travel allowances for the Japanese experts for official travel within the Kurdistan region; and
  - (5) Suitably furnished accommodation for the Japanese experts and their families.
7. In accordance with the laws and regulations in force in the Kurdistan region of the Iraq, the KRG will take necessary measures to meet:
- (1) Expenses necessary for transportation within the Iraq of the Equipment referred to in II-2 above as well as for the installation, operation and maintenance thereof;
  - (2) Customs duties, internal taxes and any other charges, imposed in the Iraq on the Equipment referred to in II-2 above ; and
  - (3) Running expenses necessary for the implementation of the Project.

#### IV. ADMINISTRATION OF THE PROJECT

1. Director General of Research and Agricultural Extension, the Ministry of Agriculture and Water Resources (hereinafter referred to as "the MoAWR") of the KRG, as the Project Director, will bear overall responsibility for the administration and implementation of the Project.
2. Director of Erbil Agricultural Research Center, the MoAWR of the KRG, as the Project Manager, will be responsible for the managerial and technical matters of the Project.
3. The Japanese Project Coordinator will provide necessary recommendations and

advice to the Project Director and the Project Manager on any matters pertaining to the implementation of the Project.

4. The Japanese experts and the third country experts will give necessary technical guidance and advice to the Iraqi counterpart personnel on technical matters pertaining to the implementation of the Project.
5. For the effective and successful implementation of technical cooperation for the Project, a Joint Coordinating Committee will be established whose functions and composition are described in Annex VII.

#### V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by the concerned authorities of the Iraq and JICA during the last six months of the cooperation term in order to examine the level of achievement.

#### VI. CLAIMS AGAINST EXPERTS

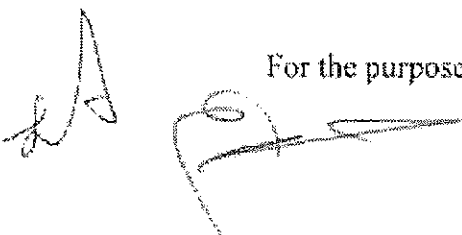
The KRG undertakes to bear claims, if any arises, against the Japanese experts and experts from the third countries engaged in technical cooperation for the Project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in the Iraq except for those arising from the willful misconduct or gross negligence of the experts.

#### VII. MUTUAL CONSULTATION

There will be mutual consultation between JICA and the KRG on any major issues arising from, or in connection with this Attached Document.

#### VIII. MEASURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE PROJECT

For the purpose of promoting support for the Project among the people of the Iraq,



the KRG will take appropriate measures to make the Project widely known to the people of the Iraq.

#### IX. TERM OF COOPERATION

The duration of the technical cooperation for the Project under this Attached Document will be three (3) years and six (6) months from the arrival date of the first JICA Expert at the Iraq for the Project:

- ANNEX I      MASTER PLAN
- ANNEX II     LIST OF EXPERTS DISPATCHED BY JICA
- ANNEX III    LIST OF MACHINERY AND EQUIPMENT
- ANNEX IV    PRIVILEGES, EXEMPTIONS AND BENEFITS FOR JAPANESE EXPERTS
- ANNEX V     LIST OF IRAQI COUNTERPART AND ADMINISTRATIVE PERSONNEL
- ANNEX VI    LIST OF LAND, BUILDINGS AND FACILITIES
- ANNEX VII   JOINT COORDINATING COMMITTEE

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## ANNEX I      MASTER PLAN

### 1. Overall goal

Productivity of wheat cultivation in the Kurdistan region is improved for stable food supply in the Iraq.

### 2. Project purpose

Extension workers acquire the wheat production technology adaptable to the local conditions in the Kurdistan region.

### 3. Outputs and Activities

#### **Output 1: Basic data are collected and land suitability maps of wheat cultivation in the Kurdistan region are prepared.**

##### Activities

- 1-1. Conduct a basic data collection and baseline survey on wheat cultivation in the Kurdistan region and prepare a baseline survey report.
- 1-2. Conduct land suitability classification and prepare land suitability maps of wheat cultivation under rain-fed and irrigated conditions.
- 1-3. Conduct end-line survey and prepare end-line survey report.

#### **Output 2: Suitable wheat varieties are selected for the Kurdistan region and their seed production techniques are adopted.**

##### Activities:

- 2-1. Conduct trainings on wheat variety selection and seed production technology for selection and multiplication of improved varieties (high-yielding, drought resistant, pest resistant, etc.).
- 2-2. Conduct field trials on the adaptability of improved varieties at research centers in the Kurdistan region.
- 2-3. Provide supports for extension workers to demonstrate the adaptability of improved varieties and to promote their introduction by farmers.
- 2-4. Prepare technical guidelines on wheat varieties selection and seed production techniques.

#### **Output 3: New wheat cultivation techniques including pest control and fertilizer application, etc. are introduced and their applicability to the local conditions is verified by field trials.**

##### Activities:

- 3-1. Conduct trainings on wheat cultivation techniques including pest control, fertilization, crop rotation, non-tillage and harvesting, etc.
- 3-2. Conduct field trials on new wheat cultivation techniques to verify their applicability to the Kurdish conditions.
- 3-3. Prepare technical guidelines on wheat cultivation in the Kurdistan region.

#### **Output 4: New water management techniques for wheat cultivation are introduced and their adaptability to the local conditions is verified by field trial.**



Activities:

- 4-1 Conduct trainings on supplemental irrigation and water harvesting.
- 4-2 Conduct field trials on supplemental irrigation and water harvesting to introduce suitable irrigation techniques in the Kurdistan region.
- 4-3 Prepare technical guideline on supplemental irrigation in the Kurdistan region.

**Output 5: Trainings for extension workers on improved technologies are conducted in the Kurdistan region to transfer technology to the farmers**

Activities:

- 5-1. Review current extension activities and extension materials.
- 5-2. Establish demonstration plots for improved technologies at field trial sites.
- 5-3. Prepare technical materials for extension workers in accordance with the progress of the Output 2, 3 and 4.
- 5-4. Conduct local trainings for extension workers and MoAWR staffs in the Kurdistan region.
- 5-5. Transfer applicable techniques to other areas in Iraq.

**4. Target Area**

Service area of Agriculture Research and target Extension in 3 Governorates of Erbil, Sulaymaniyah and Duhok of MoAWR, the KRG

**5. Project Beneficiaries**

- Concerned officials of MoAWR/KRG as well as researchers, extension workers and farmers involved in the Project.
- Officials selected by the federal government of the Iraq.

Notes:

This Project will be implemented by utilizing the expertise and the experience of International Center for Agricultural Research in the Dry Areas (hereinafter referred to as "ICARDA").



ANNEX II LIST OF EXPERTS DISPATCHED BY JICA

(1) Experts from Japan:

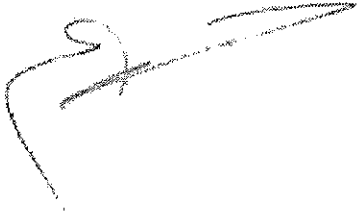
- Project Coordinator
- Land suitability classification
- Others if needs arise

(2) Experts from third countries in coordination with ICARDA

- Variety improvement/seed technology
- Wheat cultivation (pest control / fertilization)
- Water management (Supplemental irrigation / water harvesting)
- Socio-economy (Baseline and end-line surveys)

Notes:

- (1) The field, numbers and terms of assignments of experts will be decided in consideration of the progress of the Project through mutual consultation at the Joint Coordinating Committee meeting for the following year.
- (2) Experts from the third country are dispatched to the Kurdistan region for follow-up the TOT training by:
  - (a) supporting local training for extension workers in Dohuk, Erbil, Sulaymaniyah Provinces.
  - (b) supervising the field trials / demonstration plots as well as the experiments at the Research Centers in the Governorates of Dohuk, Erbil and Sulaymaniyah.
  - (c) supervising preparation of the annual achievement report and planning of the activities of the following year.
  - (d) supervising the baseline and end-line surveys at the Kurdistan region.



ANNEX III LIST OF MACHINERY AND EQUIPMENT

The following machinery, equipment and materials are provided by JICA to the KRG;

1. Equipment for administration such as personal computers and printers
2. Equipment needed for field trials, demonstration plots and laboratory works
3. Local Costs  
Costs for preparation of technical guidelines, extension materials as well as holding local trainings and field days

#### ANNEX IV PRIVILEGES, EXEMPTIONS AND BENEFITS FOR JAPANESE EXPERTS

In case JICA dispatches the experts and Japanese missions (hereinafter referred to as "the Missions"), the KRG shall:

1. (1)(a) exempt the Experts and members of the Missions from taxes including income tax, and fiscal charges imposed on or in connection with salaries and any allowances remitted to them from abroad;

(b) exempt the Experts, members of the Missions and their families from consular fees, taxes including customs duties, and fiscal charges, as well as from the requirements of obtaining import license and certificate of foreign exchange coverage, in respect of the importation of:

(i) luggage;

(ii) personal effects, household effects and consumer goods; and

(iii) one motor vehicle per Expert, per family of the Expert assigned to stay in the Kurdistan region of the Iraq;

(c) exempt the Experts, the senior volunteers and their families who do not import any motor vehicle into the Kurdistan Region of the Iraq from taxes including value added tax, and fiscal charges in respect of the local purchase of one motor vehicle per Expert, per family of the Expert; and

(d) exempt the Experts and their families from the registration fee of the motor vehicles mentioned in (b)(iii) and (c).

(2)(a) provide at its own expense suitable office and other facilities including telephone and facsimile services necessary for the performance of the duties of the Experts and the Missions as well as bear the expenses for their operation and maintenance;

(b) provide at its own expense the local staff (including adequate interpreters, if necessary) as well as Iraqi counterparts to the Experts and the Missions necessary for the performance of their duties;

(c) bear expenses of the Experts, for:

(i) daily transportation to and from their place of work;

(ii) their official travels within the Kurdistan Region of the Iraq; and

(iii) their official correspondence;

(d) provide the convenience for acquisition of appropriate housing accommodation for the Experts and their families; and

(e) provide the convenience for receiving medical care and facilities for the Experts, members of the Missions and their families.

(3)(a) permit the Experts, members of the Missions and their families to enter, leave and sojourn in the Kurdistan Region of the Iraq for the duration of their assignment therein, offer them the convenience for procedures of alien registration requirements, and exempt them from consular fees;

(b) issue identification cards to the Experts and members of the Missions to secure the cooperation of all governmental organizations necessary for the performance of their duties;

(c) offer the Experts and their families the convenience for acquisition of car driving license; and

(d) carry out other measures necessary for the performance of the duties of the Experts and the Missions.

2. The motor vehicles mentioned in paragraph 1. shall be subject to payment of taxes including customs duties if they are subsequently sold or transferred within the Kurdistan Region of the Iraq to individuals or organizations not entitled to exemption from such taxes or similar privileges.

3. The KRG shall accord the Experts, members of the Missions and their families such privileges, exemptions and benefits as are no less favorable than those accorded to experts, members of missions and their families of any third country or of any international organization performing a similar mission in the Kurdistan Region of the Iraq.

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ANNEX V LIST OF IRAQI COUNTERPART AND ADMINISTRATIVE  
PERSONNEL

The MoAWR/KRG establishes the Project Implementation Team as shown below;

|                                |  |
|--------------------------------|--|
| Project Director               | Director General of Research and Extension     |
| Project Manager                | Director of Erbil Agricultural Research Center |
| Seed Group Leader              | Director of Seed Production                    |
| Wheat Cultivation Group Leader | Director of Research, MoAWR                    |
| Water Management Group Leader  | Senior Researcher                              |
| Extension Group Leader         | Director of Agricultural Extension             |
| Socio-Economic Group Leader    | Director of Statistics                         |

Erbil (Ainkawa) 10 persons  
Seed Group (2)  
Wheat Cultivation Group (2)  
Water Management Group (2)  
Extension Group (4)

Sulaymaniyah (Bakrajo) 10 persons  
Seed Group (2)  
Wheat Cultivation Group (2)  
Water Management Group (2)  
Extension Group (4)

Sulaymaniyah (Kalar) 5 persons  
Seed Group (1)  
Wheat Cultivation Group (1)  
Water Management Group (1)  
Extension Group (2)

Dohuk (Malta) 7 persons  
Seed Group (1)  
Wheat Cultivation Group (1)  
Water Management Group (1)  
Extension Group (4)

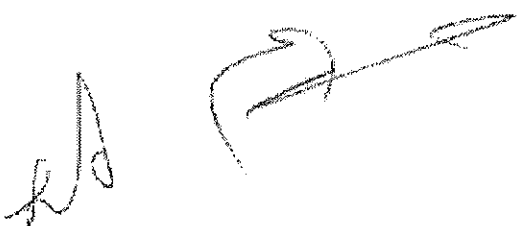
\* Any other necessary personnel for the smooth implementation of the Project



## ANNEX VI LIST OF LAND, BUILDINGS AND FACILITIES

The followings will be provided by MoAWR of the KRG for the implementation of the Project;

1. Office space and necessary facilities for the experts and related staff members
2. Water and electricity charges necessary for operation and maintenance of facilities
3. Other facilities mutually agreed upon as necessary
4. Land and basic materials necessary for project activities such as field trials, demonstration plots and laboratory works.

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## ANNEX VII JOINT COORDINATING COMMITTEE

### 1. Functions

The Joint Coordinating Committee (hereinafter referred to as "JCC") will be held at least once a year and whenever necessity arises in order to fulfill the following functions:

- (1) To approve Annual Plans of Operations within the framework of the Record of Discussions, and to design the activities for the following year.
- (2) To coordinate necessary actions to be taken by each party;
- (3) To monitor the progress of the Project;
- (4) To review the overall progress as well as the achievement of the Project; and
- (5) To exchange opinions on major issues arising from or in connection with the implementation of the Project.

### 2. Composition

Project Director is the chairperson and would invite appropriate persons from the following authorities concerned in accordance with agenda to be discussed at a committee meeting. All the members of the JCC shall nominate alternate representatives if they would not be able to attend the meeting.

Each party is allowed to invite participant(s) not listed below to the JCC as observer(s) with the prior consent of the chairperson.

#### (1) Iraqi side (MoAWR/KRG)

Project Director: Director General of Research and Extension  
Project Manager: Director of Erbil Agricultural Research Center  
Director of Seed Production  
Director General of Planning and Follow up  
Director of Agriculture Research, Erbil  
Director of Agriculture Research, Sulaymaniyah  
Director of Agriculture Research, Garmyan  
Director of Agriculture Research, Duhok

#### (2) Japanese side

JICA Experts (including experts from third countries)  
Representative of JICA Iraq Office

Official(s) of the Embassy of Japan may attend the JCC as observer(s).

### 3. Technical Committee

The Technical Committee will be organized and held prior to the JCC meeting in order to prepare and submit reports and/or proposals.



#### 4. Composition of Technical Committee

The person appointed by Project Director is the chairperson and would invite appropriate persons from the authorities concerned in accordance with agenda to be discussed at a committee meeting. All members of the Technical Committee shall nominate alternate representatives if they would not be able to attend the meeting.

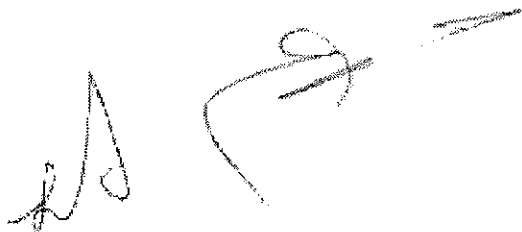
Each party is allowed to invite participant(s) not listed below to the Technical Committee as observer(s) with the prior consent of the chairperson.

##### JICA

JICA Experts (including experts from third countries)  
Representative of JICA Iraq Office

##### MoAWR /KRG

Project Director  
Project Manager  
Director of Seed Production  
Director of Extension & Training  
Director of Sulaymaniyah Research Center  
Director of Kalar Research Center  
Director of Duhok Research Center



MINUTES OF MEETINGS  
BETWEEN  
JAPAN INTERNATIONAL COOPERATION AGENCY AND  
AUTHORITIES CONCERNED OF  
THE KURDISTAN REGIONAL GOVERNMENT OF THE REPUBLIC OF IRAQ  
ON JAPANESE TECHNICAL COOPERATION FOR  
THE PROJECT FOR WHEAT PRODUCTIVITY IMPROVEMENT  
TOWARDS FOOD SELF-SUFFICIENCY

The Japan International Cooperation Agency (hereinafter referred to as "JICA") through its Chief Representative to the Republic of Iraq (hereinafter referred to as "the Iraq"), exchanged views and had a series of discussions with the concerned authorities of the Kurdistan Regional Government of the Iraq (hereinafter referred to as "the KRG") for the purpose of working out the details of the technical cooperation for the Project for Wheat Productivity Improvement towards Food Self-Sufficiency (hereinafter referred to as "the Project").

As a result of discussions, JICA and the concerned authorities of the KRG agreed upon the matters in the document attached hereto. This document is related to the Record of Discussions (hereinafter referred to as "the R/D") for the Project.

Erbil, July 13, 2011



Masaaki Matsushima  
Chief Representative  
Iraq Office  
Japan International Cooperation  
Agency (JICA)  
Japan



Jameel Sleiman Haider  
Minister  
Ministry of Agriculture and Water  
Resources  
Kurdistan Regional Government  
Republic of Iraq

## THE ATTACHED DOCUMENT

### 1. PROJECT DESIGN MATRIX

The Project Design Matrix version 1 (hereinafter referred to as "PDM<sub>1</sub>") was elaborated through the discussion by the JICA and the authorities concerned of the KRG. Both sides agreed to recognize PDM<sub>1</sub> as the implementation tool for project management, and the basis of monitoring and evaluation of the Project. The PDM<sub>1</sub> will be utilized by both sides throughout the implementation of the Project. The PDM<sub>1</sub> is showed in ANNEX I.

The PDM<sub>1</sub> will be subject to change within the scope of the R/D, when necessity arises in the course of implementation of the Project, by mutual consent.

### 2. PLAN OF OPERATION

Both sides had jointly prepared and agreed the Plan of Operation version 1 (hereinafter referred to as "PO<sub>1</sub>"), which shows the basic schedule of activities for the whole project period, based on the PDM<sub>1</sub>. The schedule is regularly reviewed and revised within the scope of the R/D when necessity arises in the course of implementation of the Project. The PO<sub>1</sub> is shown in ANNEX II.

### 3. IMPORTANT ISSUES DISCUSSED

- (1) Both sides confirmed that the PO<sub>1</sub> would have to be modified since some parts of the Project have been planned to be conducted in Syrian Arab Republic (hereinafter referred to as "the Syria") but the social and political situation of the Syria has been unstable.

ANNEX I      PROJECT DESIGN MATRIX version 1 (PDM<sub>1</sub>)

ANNEX II     PLAN OF OPERATION version 1 (PO<sub>1</sub>)



ANNEX I

PROJECT DESIGN MATRIX (PDM) Draft

Project Title: The Project for Wheat Productivity Improvement towards Food Self-Sufficiency

Project Period: 3.5 years (July 2011 ~ December 2014)

Drafted July 13th, 2011

Target Area: Service area of Agriculture Research and target Extension in 3 Governorates of Erbil, Sulaymaniyah and Duhok of the Ministry of Agriculture and Water Resources (MoAWR), the Kurdistan Regional Government (KRG)

Project Beneficiaries: Concerned officials of MoAWR/KRG as well as researchers extension workers and farmers involved in the Project.

PDM Ver. 1

| Narrative Summary   | Objectively Verifiable Indicators  | Means of Verification  | Important Assumptions   |   |
|---|--|--|---|---|
| <p><b>Overall Goal</b></p> <p>Productivity of wheat cultivation in the Kurdistan region is improved for stable food supply in the Iraq</p>  | <p>Increase in productivity of wheat irrigated (kg / donum, kg / cum / water used)</p> <p>Stabilize and increase productivity of wheat rain-fed (kg / donum, kg harvested / kg sown)</p>   | <ul style="list-style-type: none"> <li>Ex-post project evaluation report</li> <li>Baseline survey report</li> </ul>  |   |   |
| <p><b>Project Purpose</b></p> <p>Extension workers acquire the wheat production technology adaptable to the local conditions in the Kurdistan region</p>  | <ul style="list-style-type: none"> <li>Number of selected suitable varieties, improved cultivation techniques and proper supplemental irrigation practices</li> <li>Number of extension workers with a certain level (to be specified) of knowledge and techniques through trainings</li> </ul>  | <ul style="list-style-type: none"> <li>Project progress report</li> <li>End-line survey report</li> </ul>  | <p>Staff and budget are committed to advance agricultural extension</p> <p>The outputs of project are disseminated by extension workers and accepted by farmers</p>   |   |
| <p><b>Outputs</b></p> <ol style="list-style-type: none"> <li>Basic data are collected and land suitability maps of wheat cultivation in the Kurdistan region are prepared</li> <li>Suitable wheat varieties are selected for the Kurdistan region and their seed production techniques are adopted</li> <li>New wheat cultivation techniques including pest control and fertilizer application etc. are introduced and their applicability to the local conditions is verified by field trials</li> <li>New water management techniques for wheat cultivation are introduced and their adaptability to the local conditions is verified by field trial</li> <li>Trainings for extension workers on improved technologies are conducted in the Kurdistan region to transfer technology to the farmers</li> </ol>   | <ol style="list-style-type: none"> <li>Completion of the baseline survey report</li> <li>Selection of suitable varieties and their characteristics. Establishment of seed multiplication technology. Completion of the technical guidelines.</li> <li>Number of improved cultivation techniques. Completion of the technical guidelines</li> <li>Number of developed water management technologies. Completion of the technical guidelines</li> <li>Number of extension workers with a certain level (to be discussed for specification) of knowledge and techniques through trainings. Number of extension materials</li> </ol>   | <ul style="list-style-type: none"> <li>Project progress report</li> <li>End-line survey report</li> </ul>  | <p>The implementation arrangement of the project is sustained (MoAWR / KRG, D.G. of Research &amp; Extension, Research Centers in the Kurdistan region, ICARDA and other relevant organizations)</p>  |   |
| <p><b>Activities</b></p> <p><b>Activity 1:</b></p> <ol style="list-style-type: none"> <li>1-1 Conduct a basic data collection and baseline survey on wheat cultivation in the Kurdistan region and prepare a baseline survey report</li> <li>1-2 Conduct land suitability classification and prepare land suitability maps of wheat cultivation under rain-fed and irrigated conditions</li> <li>1-3 Conduct end-line survey and prepare end-line survey report</li> </ol> <p><b>Activity 2:</b></p> <ol style="list-style-type: none"> <li>2-1 Conduct trainings on wheat variety selection and seed production technology for selection and multiplication of improved varieties (high-yielding, drought resistant, pest resistant etc.)</li> <li>2-2 Conduct field trials on the adaptability of improved varieties at research centers in the Kurdistan region</li> <li>2-3 Provide supports for extension workers to demonstrate the adaptability of improved varieties and to promote their introduction by farmers.</li> <li>2-4 Prepare technical guidelines on wheat varieties selection and seed production techniques</li> </ol> <p><b>Activity 3:</b></p> <ol style="list-style-type: none"> <li>3-1 Conduct trainings on wheat cultivation techniques including pest control, fertilization, crop rotation, man-illage and harvesting etc</li> <li>3-2 Conduct field trials on new wheat cultivation techniques to verify their applicability to the Kurdistan conditions</li> <li>3-3 Prepare technical guidelines on wheat cultivation in the Kurdistan region</li> </ol> <p><b>Activity 4:</b></p> <ol style="list-style-type: none"> <li>4-1 Conduct trainings on supplemental irrigation and water harvesting</li> <li>4-2 Conduct field trials on supplemental irrigation and water harvesting to introduce suitable irrigation techniques in the Kurdistan region.</li> <li>4-3 Prepare technical guideline on supplemental irrigation in the Kurdistan region.</li> </ol> <p><b>Activity 5:</b></p> <ol style="list-style-type: none"> <li>5-1 Review current extension activities and extension materials</li> <li>5-2 Establish demonstration plots for improved technologies at field trial sites</li> <li>5-3 Prepare technical materials for extension workers in accordance with the progress of the Output 2, 3 and 4</li> <li>5-4 Conduct local trainings for extension workers and MoAWR staffs in the Kurdistan region</li> <li>5-5 Transfer applicable technologies to other areas in Iraq</li> </ol> | <p><b>Inputs</b></p> <table border="0"> <tr> <td style="vertical-align: top;"> <p><b>Japan side</b></p> <ol style="list-style-type: none"> <li>Dispatch of Experts                             <ol style="list-style-type: none"> <li>(1) Long-term Expert: Project Coordinator</li> <li>(2) Short-term Experts                                     <ol style="list-style-type: none"> <li>1) Japan   <ul style="list-style-type: none"> <li>Land suitability classification ( MM)</li> <li>Others if needs arise</li> </ul> </li> <li>2) Third country(ICARDA)   <ul style="list-style-type: none"> <li>Variety improvement/seed technology ( MM/year)</li> <li>Wheat cultivation (pest control, fertilization etc. ( MM/year)</li> <li>Water management ( MM/year)</li> <li>Socio-economy ( MM)</li> </ul> </li> </ol> </li> </ol> </li> <li>Provision of Machinery, Equipment and Materials                             <ul style="list-style-type: none"> <li>Equipment for administration such as PCs and printers</li> <li>Equipment needed for field trials, demonstration plots and laboratory works</li> </ul> </li> <li>Counterpart Training                             <ul style="list-style-type: none"> <li>Japan and/or Third country (ICARDA)</li> </ul> </li> <li>Local Costs                             <ul style="list-style-type: none"> <li>Costs for preparation of technical guidelines, extension materials, holding local trainings and field days</li> </ul> </li> </ol> </td> <td style="vertical-align: top;"> <p><b>Iraq side</b></p> <ol style="list-style-type: none"> <li>Assignment of Counterpart Personnel and support staff                             <ul style="list-style-type: none"> <li>Project Director</li> <li>Project Manager (Director of Erbil Agricultural Research Center)</li> <li>Selection of Qualified trainees for training at ICARDA</li> <li>Others if needs arise</li> </ul> </li> <li>Facilities                             <ul style="list-style-type: none"> <li>Office and working place for experts (such as desk, chair and internet connection)</li> </ul> </li> <li>Running expenses for project management and implementation                             <ul style="list-style-type: none"> <li>Domestic travel allowance for Iraq officials</li> <li>Basic materials necessary for project activities such as field experiments and laboratory works</li> </ul> </li> </ol> </td> </tr> </table> | <p><b>Japan side</b></p> <ol style="list-style-type: none"> <li>Dispatch of Experts                             <ol style="list-style-type: none"> <li>(1) Long-term 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activities such as field experiments and laboratory works</li> </ul> </li> </ol> | <p><b>Preconditions</b></p> <p>Natural condition is normal without extreme weather such as drought.</p> <p>The collaboration with ICARDA is sustained.</p> <p>Research Centers in the Kurdistan region does not go through big changes in staffing and budget</p> <p>Polices to promote wheat production are sustained by MoAWR / KRG</p> <p>The federal government approves and supports the project</p> |
| <p><b>Japan side</b></p> <ol style="list-style-type: none"> <li>Dispatch of Experts                             <ol style="list-style-type: none"> <li>(1) Long-term Expert: Project Coordinator</li> <li>(2) Short-term Experts                                     <ol style="list-style-type: none"> <li>1) Japan   <ul style="list-style-type: none"> <li>Land suitability classification ( MM)</li> <li>Others if needs arise</li> </ul> </li> <li>2) Third country(ICARDA)   <ul style="list-style-type: none"> <li>Variety improvement/seed technology ( MM/year)</li> <li>Wheat cultivation (pest control, fertilization etc. ( MM/year)</li> <li>Water management ( MM/year)</li> <li>Socio-economy ( MM)</li> </ul> </li> </ol> </li> </ol> </li> <li>Provision of Machinery, Equipment and Materials                             <ul style="list-style-type: none"> <li>Equipment for administration such as PCs and printers</li> <li>Equipment needed for field trials, demonstration plots and laboratory works</li> </ul> </li> <li>Counterpart Training                             <ul style="list-style-type: none"> <li>Japan and/or Third country (ICARDA)</li> </ul> </li> <li>Local Costs                             <ul style="list-style-type: none"> <li>Costs for preparation of technical guidelines, extension materials, holding local trainings and field days</li> </ul> </li> </ol>  | <p><b>Iraq side</b></p> <ol style="list-style-type: none"> <li>Assignment of Counterpart Personnel and support staff                             <ul style="list-style-type: none"> <li>Project Director</li> <li>Project Manager (Director of Erbil Agricultural Research Center)</li> <li>Selection of Qualified trainees for training at ICARDA</li> <li>Others if needs arise</li> </ul> </li> <li>Facilities                             <ul style="list-style-type: none"> <li>Office and working place for experts (such as desk, chair and internet connection)</li> </ul> </li> <li>Running expenses for project management and implementation                             <ul style="list-style-type: none"> <li>Domestic travel allowance for Iraq officials</li> <li>Basic materials necessary for project activities such as field experiments and laboratory works</li> </ul> </li> </ol>  |  |   |   |

| Activity  | 2011  |   |   |   |    |    |    |   |   |   |   |   | 2012  |   |   |   |    |    |    |   |   |   |   |   | 2013  |   |   |   |    |    |    |   |   |   |   |   | 2014  |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
|---|-------|---|---|---|----|----|----|---|---|---|---|---|-------|---|---|---|----|----|----|---|---|---|---|---|-------|---|---|---|----|----|----|---|---|---|---|---|-------|---|---|---|----|----|----|---|---|---|---|---|---|---|---|---|----|----|
|   | 9     | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6     | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6     | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6     | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| <b>Output 1</b><br>Basic data are collected and land suitability maps of wheat cultivation in the Kurdistan region are prepared.  |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 1-1 Conduct a basic data collection and baseline survey on wheat cultivation in the Kurdistan region and prepare a baseline survey report   | _____ |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 1-2 Conduct land suitability classification and prepare land suitability maps of wheat cultivation under rain-fed and irrigated conditions  | _____ |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 1-3 Conduct end-line survey and prepare end-line survey report  |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| <b>Output 2</b><br>Suitable wheat varieties are selected for the Kurdistan region and their seed production techniques are identified.  |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 2-1 Conduct trainings on wheat variety selection and seed production technology for selection and multiplication of improved varieties (high-yielding, drought resistant, pest resistant, etc.)         | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 2-2 Conduct field trials on the adaptability of improved varieties at research centers in the Kurdistan region.   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 2-3 Provide supports for extension workers to demonstrate the adaptability of improved varieties and to promote their introduction by farmers   |       |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 2-4 Prepare technical guidelines on wheat varieties selection and seed production techniques.   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| <b>Output 3</b><br>New wheat cultivation techniques including pest control and fertilizer application, etc. are introduced and their applicability to the local conditions is verified by field trials. |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 3-1 Conduct trainings on wheat cultivation techniques including pest control, fertilization, crop rotation, non-tilage and harvesting, etc.   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 3-2 Conduct field trials on new wheat cultivation techniques to verify their applicability to the Kurdish conditions.   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 3-3 Prepare technical guidelines on wheat cultivation in the Kurdistan region.  |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| <b>Output 4</b><br>New water management techniques for wheat cultivation are introduced and their adaptability to the local conditions is verified by field trial.                                      |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 4-1 Conduct trainings on supplemental irrigation and water harvesting.  | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 4-2 Conduct field trials on supplemental irrigation and water harvesting to introduce suitable irrigation techniques in the Kurdistan region.   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 4-3 Prepare technical guideline on supplemental irrigation in the Kurdistan region.   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| <b>Output 5</b><br>Trainings for extension workers on improved technologies are conducted in the Kurdistan region to transfer technology to the farmers.  |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 5-1 Review current extension activities and extension materials.  |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 5-2 Establish demonstration plots for improved technologies at field trial sites.   |       |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 5-3 Prepare technical materials for extension workers in accordance with the progress of the Output 2, 3 and 4.   |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 5-4 Conduct local trainings for extension workers and MoAWR staffs in the Kurdistan region.   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |
| 5-5 Transfer applicable techniques to other areas in Iraq.  |       |   |   |   |    |    |    |   |   |   |   |   |       |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   | _____ |   |   |   |    |    |    |   |   |   |   |   |   |   |   |   |    |    |

