

運営等、包括的な技術的支援を行うことが求められる。しかし、こうした支援体制は整っておらず、効率的な支援は行われていない。

#### (5) 地方政府の不明確な農業開発政策

各県では、2003/04年から2005/06年の3年間を期限とするRolling Planが全セクターを対象として策定されているが、具体的に「どの作物をどこでどの様に推進する」といった目標の設定が明確になっていない。現在、農業生産は、多種に亘る作物の導入で農産物の生産が多様化している。しかし、これら多様化計画の大半は、更なる進展や本来期待した開発目標を達成することなく初期段階のまま停滞・中断している。地方行政機関は、この点に十分視点を当て、今後の改善方策や重点開発の方針を再度練り直す必要がある。

政府は、現在、水利権にかかる法令を定め、湿地の利用・開発について水利権の取得を指導している。しかしながら、水利権取得に掛かる費用、また、取得後の水利費は、農業生産、特に小農グループの小規模開発では到底賄い得ない異常に高額なものとなっている。この件は、国家計画のPMAの間で大きく矛盾するものであり、早急に善処・見直しが必要である。

## 5. 開発計画 (D/P) (英文報告書 CHAPTER 5)

### 5.1 はじめに (英文報告書 5.1)

D/Pについて述べる前に、第4章で行った調査対象地域農業セクター全体の分析・評価の結果に基づいて持続型灌漑開発にかかる開発ポテンシャル及び開発阻害要因を以下に整理する。

まず、4.1節で分析したとおり、調査対象地域の土地及び水資源に限って言えば、調査対象地域の灌漑水田開発ポテンシャルは非常に大きい。調査対象地域の既存水田面積は、約69,000 ha (Kibimba灌漑地区を除いた面積) あり、これに新規水田開発ポテンシャルとして推計された約104,000haを加えると、持続型灌漑開発の対象となる面積は173,000 haとなる (現状の約2.5倍)。新規水田開発ポテンシャルは、湿地環境保全のために示されているガイドライン、即ち、「湿地の農用地への転用は各湿地セクションで25%まで」を適用するとともに、利用可能な水資源を推測して概算した。

また、4.2節に述べた農業開発阻害要因のうち、持続型灌漑開発における阻害要因を整理すれば次のとおりである。

- 1) 伝統的な土地所有慣行：農村の伝統的土地所有慣行と政府土地法の間大きな乖離がある。農村の土地所有慣行の下では、水田用地の多くは大地主によって所有されている。
- 2) 湿地の乱開発：上記した慣行下で、湿地の農地への転用は盛んに行われており (毎年3,000~5,000ha)、政府の規制やガイドラインは有効に機能していない。
- 3) 弱い農業支援制度：PMAのもとで、NAADSによる農業支援の民営化が行われているが、水稻生産に対する支援は殆ど行われていない。NAROにおいても水稻栽培技術の蓄積が十分でない。水稻栽培技術を有する普及員は、P/Pで訓練した13名を除き、中央にも地方にも存在せず、農民の小規模灌漑開発を適切に支援できる技術者もいない。
- 4) 生産技術の不足：上記した制度的な弱さにより、小農の水稻栽培及び灌漑開発は伝

統的慣行法で行われており、コメの単位収量は当然低く、また、年生産量も不安定である。

- 5) 弱体な農民組織：農民の組織化率は低く、農民組織の運営にかかる技術レベルも低い。

## 5.2 開発基本構想（英文報告書 5.2）

東部ウガンダ持続型灌漑開発計画の開発基本方針は、ウ国政府の政策並びに調査対象地域が有する開発ポテンシャル及び阻害要因の分析結果に基づいて次のとおり設定した。

- 1) 上位計画であるPEAP及びPMAの枠組みと整合したものとして立案する。
- 2) 本開発調査の命題である持続型灌漑開発は、提案する計画が①環境面で持続可能であること、また、②参加する組織及び農民にとって長期に亘り管理可能であることとして捉え、これを推進する計画とする。
- 3) 灌漑稲作が調査対象地域内の農業の一部であることを踏まえ、提案するD/Pは域内の農業生産全体の向上に寄与するものとして策定する。

## 5.3 持続型灌漑開発アプローチ（英文報告書 5.3）

D/Pは以下のアプローチによって構想し、持続可能な灌漑開発を目指すこととする。

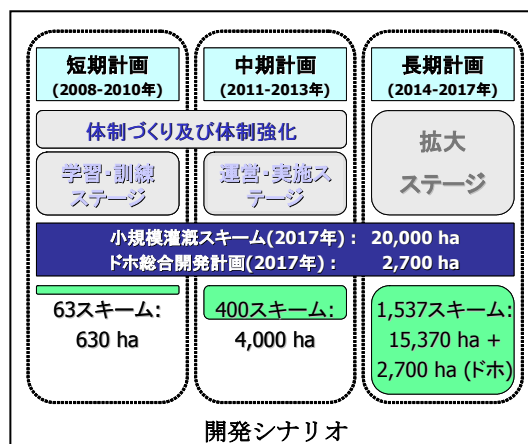
- 1) 共通課題へのアプローチと地域別課題へのアプローチ：前者は、調査対象地域内に共通する問題や課題への対応を主に組織・制度の面で図る構想である。後者は、地域特有の問題や課題への技術的対応を図るものである。
- 2) 段階的アプローチ：D/Pは、段階的開発を基本に、短期・中期・長期の3段階に区分して計画する。また、数カ所の小規模灌漑スキームを先行させ、モデル開発として実施し、技術的なデモンストレーションの機能を持たせ、その後の開発計画実施地区のモデルにする段階的アプローチも計画する。
- 3) 環境面で持続的なアプローチ：ウ国環境法規を十分に踏まえた計画とするとともに、自然環境保全を積極的に進める計画とする。
- 4) 参加型アプローチ：D/Pは、コミュニティをベースとした小規模開発を参加型手法の適用によって推進する計画とする。

## 5.4 持続型灌漑開発計画（英文報告書 5.4）

### 5.4.1 開発ターゲット（英文報告書 5.4.1）

D/Pの目標年は、PEAPで設定されている目標年と同じく2017年とする。開発ターゲット、即ち、2017年の灌漑開発面積及び水稻生産量は、次の開発シナリオに基づいて設定した。

短期計画（2008-2010年）は、持続型灌漑開発を行うための体制作りの期間として位置付け、各県で実施する小規模灌漑スキーム開発の中でパイロットスキームとしてそれを行う。パイロットスキームは、灌漑技術



者や普及員、農民を集中的に教育・訓練する場として設置する。短期計画期間中におけるパイロットスキームの数は、各県それぞれに3年間で3スキームを計画する。これに伴う21県全体の灌漑開発面積は各スキームの平均面積を10 haとして、3年間で630 haである。短期計画では、また、中・長期計画の中で行う小規模ため池開発のための調査及びドホ総合開発計画にかかるF/Sを実施する。

中期計画（2011-2013年）は、短期計画の中で訓練を受けた灌漑技術者や普及員が農民を支援して灌漑開発並びに水稲栽培技術の普及を推進する期間と位置付ける。この期間に開発する小規模灌漑スキームの数は、各県それぞれで毎年5～8スキームを計画する。これに伴う21県全体の灌漑開発面積は、3年間で4,000 haとなる。中期計画の中では、小規模ため池の建設を計10ヶ所で行う。調査対象地域では降雨パターンが不安定で、ため池無しで十分な灌漑用水を安定的に供給することは極めて困難であり、特に乾期における灌漑用水の保証についてはかなり限定的なものとなる。従って、二期作の可能な面積を拡大し、単位収量の安定的向上を図り、且つ、湿地への更なる侵入を抑える観点から流域上流部におけるため池の開発は重要となる。ドホ総合開発計画については、F/Sの結果を受け、開発対象地区水利権の確定作業を周辺部の水田地区を含めて行った後、中期計画の後半から建設事業に着手する。

長期計画（2014-2017年）では、灌漑技術者や普及員の指導のもとで、小規模灌漑スキームの数を増加させる期間と位置付ける。小規模ため池開発も併せて推進し、12ヶ所の建設を行う。小規模スキームの建設は、各県毎に毎年約18スキームを計画する。これにより、21県全体の灌漑開発面積は4年間で15,370 haとなる。また、ドホ総合開発計画の建設事業は、長期計画の中で完成させる。

以上計画の実施を通じ2017年までに達成する小規模灌漑スキームの開発目標は、約20,000 haである。このうち、既存灌漑施設の改修・改良が10,000 ha、関連法規やガイドラインに則った新規開発が10,000 haである。また、ドホ総合開発計画により2,700 haが改修・整備される。一方、小規模農家による無秩序な新規開田は以上のD/P実施期間中にも継続することが予想されるので、この面積を暫定的に40,000 haと見込んだ（毎年の開田4,000 ha相当）。このうち、D/Pに取り込み、湿地Wise Useに配慮した開発において農民指導を行うことができるのは前述のとおり四分の一の面積、10,000 haである。

以上のシナリオ及び開発予測に基づく2017年におけるコメの期待生産量は、ドホ総合開発計画地区の生産を含め次のとおりである。

**D/P を実施した場合の調査対象地域の水稲生産量**

	小規模灌漑スキーム開発	ドホ総合開発計画	D/P外の水田(将来開田分を含む)	合計
水田面積 (ha)	20,000	2,700	86,300	109,000
籾単位収量 (ト/ha)	5.0	6.0	1.83	-
作付け率	1.8	2.0	1.4	-
籾生産量 (ト)	180,000	32,400	220,320	432,720
コメ生産量 (ト)	122,400	22,030	149,820	294,250
各開発の生産割合 (%)	41.6	7.5	50.9	100.0

一方、D/Pを実施しない場合の生産量は以下のとおり推計される。

### D/P を実施しない場合の調査対象地域の水稲生産量

	既存水田	ドホ（含周辺地区）	将来開田分	合計
水田面積（ha）	66,780	2,220	40,000	109,000
籾単位収量（t/ha）	1.83	2.85	1.83	-
作付け率	1.4	1.7	1.4	-
籾生産量（t）	170,490	10,760	102,120	283,370
コメ生産量（t）	115,930	7,310	69,440	192,680
各開発の生産割合（%）	60.2	3.8	36.0	100.0

D/Pを実施した場合と実施しない場合の比較におけるコメの増収効果は約101,600トンと見込まれる。これは2017年のウ国コメ消費量（概算で約429,100トン）の約24%に相当する。

#### 5.4.2 D/Pの計画期間（英文報告書 5.4.2）

D/Pの実施期間については、開発計画目標年の2017年までを大きく次の三期に分けて計画した。即ち、本調査終了後の2008～2010年までを短期、2011～2013年までを中期、また、2014～2017年までを長期として計画した。

#### 5.4.3 D/Pの概要（英文報告書 5.4.3）

持続可能な開発を確実なものにするためには、以下の4つの対策事項の達成が不可欠である。即ち、①灌漑用水の安定的な供給を基本とした土地・水資源開発、②水稲栽培技術水準の向上、③農民組織の組織化・活性化及び協同組合化に向けた組織的能力の向上、④湿地環境保全とバランスした開発である。また、これら4点を実現するための、事業実施機関の制度的機能の向上・強化も併せて必要である。

D/Pの重要なコンポーネントは以下のとおりである。

- (1) 土地・水資源開発コンポーネント
  - ・ 既存水田の改修（Rehabilitation）
  - ・ 既存水田の改良（Improvement）
  - ・ 季節的湿地内における他作物から水田稲作への転換・多様化（Diversification）
  - ・ 新規水田開発
  - ・ 水田背後地開発
  - ・ 小規模ため池計画の策定（F/S）及びため池の建設
  - ・ 灌漑技術者の育成
- (2) 生産技術開発コンポーネント
  - ・ 栽培技術を対象とする試験研究改善（栽培試験及び種子増殖）
  - ・ 農機具及び資源循環型農法の導入による耕種法改善
  - ・ 展示圃の運営や普及員の技術訓練を通じた普及システムの改善
- (3) 組織・制度開発コンポーネント
  - ・ 協同組合の組織化及び活性化
  - ・ 稲作支援諸制度の改善
- (4) 環境保全コンポーネント
  - ・ 農村コミュニティによる湿地管理システム強化
  - ・ 湿地環境モニタリングシステムの設置

各コンポーネントの要点は以下のとおりである。

(1) 土地・水資源開発コンポーネント

1) 既存水田の改修 (Rehabilitation) プログラム

改修プログラムでは、既存のタイプIIとIIIの水田について湿地の持続的利用を念頭におき畦畔の補強や水路の補修を行って水稲の反収増を図る。

2) 既存水田の改良 (Improvement) プログラム

改良プログラムでは、現状のタイプを一步進んだタイプにレベルアップするための改良を行うとともに灌漑技術の高度化を図る。以下に、改修・改良プログラム策定にあたっての留意事項をまとめる。

- a) タイプ-Iの内、50%内外の水田は洪水の影響が強く継続的な利用が難しい。こうした水田は、そのまま手を付けず、湿地帯のバッファゾーンとして元の湿地に自然に戻ることを期待する。改良効果がある残りの50%については、タイプ-IIへのレベルアップを手当てする。
- b) タイプ-II及びタイプ-IIIの50%の面積については改修 (Rehabilitation) を計画する。残りの50%は、それぞれ上位のタイプへの改良 (Improvement) を計画する。
- c) 既に民営化されているKibimba大規模灌漑スキームについては、計画に含めない。
- d) ドホ灌漑スキームは、リハビリ後に農民組合にその運営が移される予定であることから、改修及び改良をD/Pに含めることとした。

3) 転換・多様化 (Diversification) プログラム

季節的湿地内における畑作物 (ソルガムやヒエ) から水田稲作への転換・多様化プログラムは、灌漑用水源が確保できる範囲で計画する。コメの単位収量並びに収益性が他の作物に比較して高いことから、農民の所得向上及び地域の食糧増産に寄与することが期待できる。このプログラム対象地区では、タイプ-II、タイプ-III或いは更に高度化を図ったタイプ-IV (含、農道整備) の開発を行い、適切な灌漑稲作技術の普及を目指すこととする。

4) 新規水田開発プログラム

今後も繰り返されるであろう無計画な湿地開発を抑制する観点から、適切な水田開発計画の策定は短期的な課題として重要である。従って、新規水田開発ポテンシャル地域では、湿地環境に配慮した持続的灌漑開発にかかる農民訓練を行う場として短期計画の中で位置付け計画する。実施にあたっては、タイプ-II、タイプ-III或いはタイプ-IVの開発を計画することとする。

5) 湿地背後地の開発プログラム

このプログラムでは、湿地周辺部の傾斜地に集水溝を建設し、無効に流下する表流水 (天水) を受け止めて集水し、地下浸透を促進させて土壌水分の涵養を図り、陸稲や野菜等収益性の高い作物の導入を可能とする。集水溝は湿地背後地の土壌浸食を軽減させる効果も大きく、また、下流部水田への水供給効果も期待できる。

## 6) 小規模ため池開発プログラム

小規模ため池の必要な流域としては、低平地の丘陵に位置している流域が比較的水資源の有効性が低く、開発の対象となる。流域単位の開発として概ね500haを1単位として小規模灌漑スキームのグループ化を図る。この計画では、流域上流部に小規模のため池を建設し、水稻二期作の導入による土地利用の高度化・効率化と生産の安定化と増産を図り農民の湿地内への更なる侵入を抑制するとともに流域内の湿地保全のための安定的水供給を可能にする。ため池の建設は、D/P対象の20,000haについて、全40流域単位に対し22ヶ所を計画している。短期計画においては、ため池計画の測量、地質、社会経済的影響等の基礎調査及びEIAを含む実施計画調査（F/S）を実施する。ため池の建設は、以上の調査結果に基づき中・長期計画の中で行うこととなる。

建設予定の小規模ため池には以下の多目的利用の機能が期待できる。

- a. ため池の洪水調節能力、特に洪水のピークカット効果。
- b. 乾期の流量確保により周辺村落への生活雑用水の供給や灌漑用水の保証で水稻二期作が可能となる。なお、水田に対する灌漑は、その30%から40%が還元水として下流に反復するので湿地の環境保全に役立つ。
- c. ため池のヘッドを利用した小水力発電の導入。
- d. ため池養魚は、農家の副業振興と地域の蛋白源の供給に寄与できる。

小規模ため池の建設にかかるF/SやEIA、地元農民との合意形成等は、短期計画の中で行う。小規模ため池の建設は中・長期計画の段階で実施する計画である。なお、建設工事は、県の訓練された灌漑担当職員の監督の基に国内建設業者に委託して実施することとなる。

## 7) 灌漑開発のための人材育成

### a. 県の灌漑担当職員の養成

現在、灌漑技術者は極めて少なく、A/P期間中に県の職員初めNAADS、NGO等の灌漑技術者を早急に養成する必要がある。灌漑技術者の所要人数は、一人当たり約200haの地区分担、即ち、個別の20スキームについて農民の合意形成、参加型による工事の監督等を行うものとし、目標の2万haに対して約100名を予定する。但し、各県の開発ポテンシャルはそれぞれ異なるので、必要な灌漑技術者の養成数は県別の開発可能面積により調整することとする。

### b. MAAIFにおける灌漑技術職員

MAAIFの中央省庁としての役割に鑑み、省の灌漑技術職員には高度な教育と技術を習得させることが必要である。従って、これら職員は、灌漑先進国であるフィリピン、タンザニア、ケニア、必要に応じて日本に派遣して教育・訓練することとする。訓練計画では、灌漑技術職員を毎年2名宛て1年間のコースを受講させ、A/P期間の3年間で都合6名を養成する。これらの職員は教育・訓練の後、現場並びに中央政府において灌漑開発にかかる職務に携わり、更に、県の灌漑技術職員を指導・監理して計画事業の実施を推進する。

## (2) 生産技術開発コンポーネント

### 1) 稲作試験研究の改良プログラム

稲作試験研究の改良プログラムには、以下のサブ・プログラムが含まれる。

- a. 栽培試験サブ・プログラム：品種適応試験、栽培適期試験、施肥量試験、適正栽植密度試験、等
- b. 種子増殖サブ・プログラム：奨励品種の原種保存並びに普及種子の増殖・生産

### 2) 耕種法改善プログラム

このプログラムには、以下のサブ・プログラムが含まれる。

- a. 栽培技術の展示サブ・プログラムにおいて、健苗の育成を目的とした苗代技術、正条植えを基本とした栽植技術、適切な除草、病害虫対策、収穫、脱穀等にかかる技術の展示・指導を行う。
- b. 農具並びに農機具改善サブ・プログラムでは、ウ国で調達可能な資材を利用した農具・農機具の製作技術の普及と製作者の養成を図る。この一環として、Nakawa職業訓練所を利用した大工、鍛冶屋、溶接工等、地方の技能者を対象として農機具製作・普及のための訓練を行う。
- c. 資源循環型農業（有機農業）導入サブ・プログラム：稲作副産物である稲藁やモミ、ヌカ・碎米等の利用は現状では全く行われていない。しかし、これらは域内の重要な資源であり、稲藁やモミの畑地への還元（有機肥料、マルチ材料等）、ヌカ・碎米の家畜飼料としての利用等により畑地農業や畜産の振興に寄与することが期待できる。また、稲藁堆肥を利用したキノコ栽培の導入等による新しい収入源の創出も大きな可能性として期待できる。

### 3) 稲作改良普及員の育成プログラム

伝統的稲作から反収及び収益性の高い改良稲作への転換を指導する要員として稲作改良普及員を養成する。この要員養成は、県の農業技術者、郡の普及員、更にはNGOの農業技術スタッフを対象として行う。対象要員の技術訓練や能力開発は、計画初期の段階に設置を予定しているドホ灌漑スキーム内稲作試験区並びに各県の小規模灌漑スキームの運営において実地に実務を通じて行う。

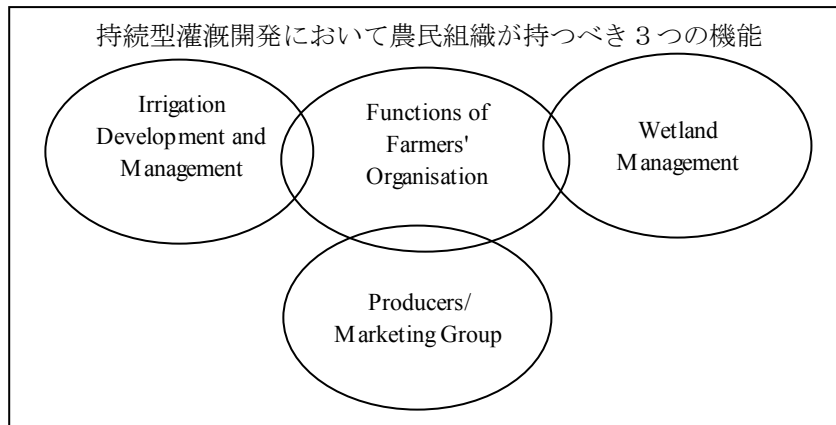
### 4) 稲作支援諸制度の改善プログラム

このプログラムでは、上述した稲作改良普及員養成プログラムで教育・訓練する稲作改良普及員を中心に地域的な技術普及の体制を組織化し、NAADSのサービスプロバイダーとして機能できるよう図る。また、農業普及サービスの改善に加え制度金融（In-kind based Micro Credit）、種子銀行(Seed Bank Scheme)等の稲作支援機能の設立を推進し、灌漑稲作のより確実な普及の進捗を支援する。これら対策的活動は、開発初期段階で行う小規模灌漑スキームの実地運用の中で、実務を通じて実現してゆく方式とする。

## (3) 組織・制度開発コンポーネント

持続型灌漑開発のための農民組織は、三つの機能を持つ必要がある。即ち、灌漑施設維持・管理のためのWUAとしての機能、湿地を持続的に利用するための湿地利用組合(WA)としての機能、また、将来的にはコメの生産及び市場流通を目的とした協同組合(Cooperative)としての機能である（下図参照）。





こうした多機能を有する農民組織開発においては、農業生産と自然資源管理の二つのセクターにまたがる課題に対応する必要があり、異なる専門分野からの技術支援が必要となる。

下表は、上記した3つの異なる組織の登録を担当する政府機関をまとめたものである。また、これらの3つの組織の基盤として、CBOとしての登録が必要であることから、これも下表に含めた。

**農民組織の機能及び登録先**

農民組織の機能	登録先
CBO	県コミュニティーサービス事務所
湿地利用組合 (WA)	水・環境省 (CWMP作成後に申請する)
水利組合 (WUA)	WUAは制度そのものがない。しかし、CBOとして県コミュニティー開発担当事務所に登録することを推奨する。(法律に基づく要件ではないが、WUAや協同組合としての活動を展開するために必要)
協同組合	県組合担当者を経由して観光・貿易・工業省の組合局へ登録する。

現在、一般的に進められている農民組織の形成は、組織の目的を限定したものであり、長期的な開発を視野に入れた複数の専門分野からの総合的支援はあまり行われていない。また、そうした指導を可能にする技術職員間の協力体制も整っていない。さらに、組織運営に必要な知識や技能の強化に対する指導も十分ではない。従って、こうした点を克服するため、D/Pの期間中に行う農民組織育成は以下の要領で実施する。

1) 持続型灌漑開発のための農民組織育成プログラム

農民組織育成のための訓練プログラムは、県職員を対象としたガイダンス2日間と農家及び郡職員を対象とした7セッション20日間で構成される。後者の訓練は、灌漑開発対象地区で実施され、訓練項目は、持続型湿地利用、各組織設立・登録手続き、組織運営、資金管理及び持続型灌漑開発である。訓練で使用される手法は、参加型で成人がもっとも効率的に学ぶことができる環境を作るように留意する。(プログラム実施プロセスの詳細は、Pilot Project Reportの2.3節を参照。)



### 農民組織育成のための訓練プログラム

	研修項目	日数	セッション概要
1.	湿地での稲作のための農民組織の育成（県職員）	2	湿地での稲作のための農民組織、参加型灌漑開発、土地収用に必要な許認可についての紹介
2.	湿地管理と農家生計	2	持続的な湿地利用の紹介、農家生計と湿地管理の関連分析について
3.	湿地での水稻生産組合	3	異なるタイプの農民組織について 水稻生産、湿地利用、灌漑利用組合
4.	CBOの登録	2	CBO設立の流れと登録手続き
5.	組織力向上	3	問題分析手法、行動計画、記録管理
6.	農民組織のための資金形成・運用	3	資金管理、異なるタイプの資金源
7.	農業支援サービスへのアクセス	3	各種農業支援サービスへのアクセス方法
8.	参加型灌漑開発	4	参加型灌漑開発、合意形成、O&Mの記録管理、湿地利用組合として登録するための手続き
	合計	22	

#### 2) 制度開発

持続型灌漑開発を推進するには、制度の整備が重要である。第一に、灌漑技術者の育成、第二にはMAAIF内に灌漑担当部門の設立が必要となろう。さらに、稲作の適正技術普及のための効果的普及制度の構築も不可欠である。これらの点は、すでに土地・水資源開発及び生産技術開発プログラムの中で記載されたとおりである。ここで強調したいのは、総合的な視点から持続型灌漑開発を推進するための国・県レベルにおける担当機関・職員の調整機能を構築することである。国レベルの調整主体（Coordination Committee）は、MAAIFの主導で、関係機関の参加のもと、政策対話を促進する場として機能する。ここでは、持続型灌漑開発のための政策協議を行うとともに、県レベルで同様の機能を持つ組織として設立を推奨する県タスクフォースのTOR作成、計画実施モニタリング、技術支援等も行うこととする。県タスクフォースは農民組織に対する総合的な支援を行うことを目指し、湿地環境、農業、灌漑、組合育成等の県担当職員の参加により、計画遂行のための役割分担、モニタリングを実施することとしたい。

#### (4) 環境保全コンポーネント

##### 1) 農村コミュニティによる湿地管理システム強化プログラム

このプログラムも小規模灌漑スキームの中で実施する。村落ベースで行う灌漑開発を含む湿地の開発及び利用をどのような体制や手続きで湿地環境にやさしい形で推進するかについて小規模灌漑スキームの中で中央及び地方政府の関係者が農民とともに検証する。

##### 2) 湿地環境モニタリングシステム設置プログラム

灌漑開発が湿地環境に与えるインパクトについて継続的にモニタリングするシステムを構築する。このシステムには、灌漑開発を管轄するMAAIF及び湿地環境保全を管轄するNEMA及びWID、これらを県レベルで担当する地方政府、さらにはモニタリングを技術的に支援するDWD（水開発局、水・環境省）、マケレレ大学、保健省が含まれる。

#### 5.4.4 D/Pの実施計画（英文報告書 5.4.4）

##### (1) 土地・水資源開発コンポーネント

###### 1) 小規模灌漑スキーム開発

東部地域の地理的、気象的な条件から考えると洪積台地はあまり広くなく沖積層としての湿地の広がりはありません。湿地の周辺は、即、丘陵傾斜地となっている。このような地形的条件のため殆どの湿地はあまり大規模の開発には適していないと考えられる。もし、流域内の湿地全体を一つの灌漑地区として取り扱い計画・設計した場合には、灌漑地区は流路に沿った細長い地形のため灌漑面積の広がりが少ないまま灌漑水路の延長だけが長くなり、従って、灌漑損失が大きくなり技術的にも経済的にも効率の悪い灌漑スキームとなってしまう。また、スキームが大規模となった場合、関係農民の数も多くなり合意形成や農民組合、水利組合等の組織編成も難しく、調整に余計な時間がかかることとなる。

以上の難点を回避して効率の良い灌漑スキームの建設を進めるには、湿地に沿って小規模の灌漑地区をいくつも設置するのが良い。この方式では、水路の規模も小さく、関係する農民の数も少ないため合意形成や農民組合の編成が容易で円滑な灌漑地区の建設が期待できる。小規模灌漑のメリットとしては、更に、上流地区からの排水（還元水）が下流域の灌漑用水源として取水が期待でき、且つまた、湿地保全の水源として有効利用も可能となり、持続的な灌漑事業と湿地環境の保全双方を同時に支持できる賢い利用を実現する。

###### 2) 小規模ため池開発

湿地の流域については、頂上標高EL.4,321mのElgon山に源を発する水源が豊かなElgon山系の流域を持つものと、比較的低平地の丘陵を源流とする小規模の流域しかない湿地の2種類がある。低平地丘陵の流域は、流出率も低く、水源はあまり豊富とは云えず、不規則な降雨の影響を直接受ける不安定な要素をもつ。この低平地流域に属する県は全体21県の内15県が該当する。小規模ため池計画は、従って、この低平地の丘陵に流域を持つ湿地において実施することとなる。各県の開発可能面積に対応し、22ヶ所の小規模ため池を計画する。ため池のF/SやEIAは短期計画期間中に完了することとする。

低平地の丘陵流域における湿地では、水源が十分になく、特に乾期の水が乏しいため水稲の二期作が難しい状況にある。このため小規模農家の生計を維持するために必要なコメの生産量を確保するためには、小規模ため池を建設して水稲の二期作を可能にし、よって、作付け率の向上により農民の湿地への更なる不法侵入を少しでも軽減する効果を期待する。なお、小規模ため池は、水田灌漑のみならず、内水面漁業や湿地環境保全機能等多目的な利用が可能であり、建設の大きい効果が期待できる。加えて、小規模ため池による灌漑には、新たな灌漑用導水路の建設の必要がなく、湿地の上流部分に建設する小規模ため池から用水を下流湿地へ放流すれば、途中、小規模灌漑スキームでの取水が可能となり、小規模ため池の高い経済効果が期待できる。

###### 3) 調査対象地域の類型化

土地・水資源開発では、調査対象地域、旧13県の類型結果に基づき、地域別に次の整備を行う。

- 1) グループ1：既存水田の改修（Rehabilitation）と水源開発による灌漑保証率の改善と安定化
- 2) グループ2：既存水田の改良（Improvement）と水源開発による灌漑保証率の改善と安定化
- 3) グループ3：生産基盤整備を行い季節的湿地内における畑作物から水田稲作への転換または田畑輪換を含む耕種の多様化（Diversification）
- 4) グループ4：新規灌漑水田の開発

上記した内容を踏まえた土地・水資源開発コンポーネントのD/P実施計画は、以下のとおりである。

#### 短期計画

グループ1及び2に区分された県では、既存灌漑水田の改修・改良に優先順位を与える。これらの県では、湿地の農地への転換が既にNEMAの基準を超えている。従って、灌漑施設と圃場整備に併せ、耕種法の改善を行い、耕地の高度利用と単位面積当たりの生産性を高める必要がある。これにより、農民の更なる湿地への侵入を抑えられることが期待できる。また、既存水田の改修・改良は、新規開発に比較して経済的にも有利であると判断できる。一方、グループ3及び4に区分された県では、近年、政府のコントロールがないまま水田開発が急速に進んでいる。「湿地は国民のもの」という理解に基づいた関連法規やガイドラインと、「湿地に伝統的所有権を主張し既に湿地内で水田を開発・利用している」農民の湿地に対する理解との間には大きな落差と隔たりがある。従って、これらのグループに区分された県では、政府が推進する「湿地のWise Use」を農民参加の下で如何に行うかが鍵となる。短期的には、中央及び地方の政府関係者並びに湿地を利用する農民（漁民や畜産農家を含む）の参加を得て幾つかのパイロットスキームの建設を行い、その過程で湿地のWise Useにかかる適切な開発手法を確立することとする。

灌漑開発は流域単位で計画し、長期計画の中で段階的開発を基本に水源の確保を確実なものとする。なお、水源開発を含む総合的開発は、長期的展望の中で自然、社会・経済的環境の因子を十分に検討し齟齬の生じないよう図る。短期的に行う灌漑開発は、全スキームを村落ベースの小規模開発として農民参加の下で行い、農民組織が灌漑施設の維持管理を実地に学べる計画とする。

ドホ灌漑スキームについては、周辺部の灌漑水田を含め、大規模灌漑改修事業としてF/S調査を企画し、この期間に実施する。

#### 中・長期計画

中・長期計画では、既存の灌漑水田の改修・改良スキーム及び新規の開発スキームとも、短期計画の中で実施するパイロットスキームからの教訓を活かしつつ実施地区数を増加させ、灌漑稲作開発面積の拡大を図る。

中期計画及び長期計画の中で建設する小規模ため池は、それぞれ10ヶ所と12ヶ所を予定する。

中期計画の早い段階では、短期計画で行うF/S調査の結果を踏まえてドホ総合開発計画の資金手当てに見通しを立てる必要がある。中期計画の後半から実施するドホ総合開発計画の建設では、灌漑・排水訓練センターの建設も併せて行う。

土地・水資源開発にかかる実施計画は、以下の表に要約したとおりである。また、ドホ総合開発計画の実施計画についても以下の表に示したとおりである。

### 土地・水資源開発プログラムの実施計画

Items of Development Plan	Present Year	Short-term			Mid-term			Long-term			
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>Implementation of Pilot Schemes</b>											
1) Number of Implementations in a Year		21	21	21	100	150	150	300	350	400	487
Accumulated Number of Schemes in each Term		21	42	63	100	250	400	300	650	1050	1537
Accumulated Number of Schemes		21	42	63	163	313	463	763	1113	1513	2000
2) Planning and OJT Period											
Overall implementation Plan in districts											
Selection of Potential Site											
OJT Training in the P/P area											
Irrigation & Drainage Plan for Short-term dev.											
<b>Human Resources Dev. for Irrigation Engineering</b>											
1) District Irrigation Officers Training at Doho	1	2	2	1							
Accumulated numbers per district	1	3	5	6							
2) Overall Irrigation Officers (DIOs) Training	13	42	42	21							
Accumulated numbers in 21 districts	13	55	97	118							
3) MAAIF Irrigation Engineers Training in Abroad	1	2	2	2							
Accumulated Number		2	4	6							
<b>Small Impounding</b>											
1. Short-term Period											
1) Inventory of Potential Dam sites and Find 2 Sites											
2) F/S and Implementation Plan by Local Consultants for 22 Dam Sites		5	7	10							
Agreement of Land Compensation for Reservoir area											
3) EIA and Approval From NEMA											
4) Selection of Contractor for Dam Construction											
2. Mid- and Long-term Period											
Dam Construction					3	3	4	3	3	3	3
Accumulated Number of Schemes					3	6	10	13	16	19	22
<b>Operation and Maintenance of Pilot Schemes</b>											
1) Training of WUA Farmers at Doho											
2) OJT Training at each Pilot Scheme Area											
3) Establishment of Regulation for WUA											
4) Registration of WUA											

### ドホ総合開発計画の実施計画

Items of Development Plan	Present Year	Short-Term			Mid-term			Long-Term			
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
1. Short-Term Period											
1) Feasibility Study											
2) Re-organization and Unification of WUA											
3) Establishment of CWMP and WA											
4) EIA and Obtain Approval of Construction from NEMA											
5) Water Right Registration											
2. Preparation of Implementation Fund											
3. Implementation of Construction works											
1) Irrigation and Drainage Training Center (with demonstration farm and reserch facilities)											
2) Re-construction of Doho and Surrounding Area											

#### (2) 生産技術開発コンポーネント

##### 短期計画

調査対象地域には水稲生産の大きなポテンシャルがあるにもかかわらず、水稲栽培技術の改善や推奨品種選定等のための試験研究は、これまでの所あまり行われていない。従って、短期的には、まず、不足している技術的情報を充足する目的で試験・研究を行う必要がある。この試験・研究では、ドホ灌漑スキームの一部を利用して試験圃場を設置し、先ず、NAROが進める「受益者参加型アプローチによる水稲栽培技術の試験・研究」

を実施できる人材並びに稲作技術の普及要員を養成する。人材育成の対象には、各県の普及員、NAADSのサービスプロバイダー並びにNGOの農業スタッフを予定している。

以上と併せ、種子増殖・生産システムの確立をめざし、種子生産農家の養成を行う。また、NARO、NAADS、種子会社及び種子生産農家の適切な連携体制（種子銀行スキーム）を確立し、優良種子の適正管理と奨励品種の円滑な普及を図ることとする。即ち、開発スキームそれぞれに所属する種子農家が増殖・生産した種子は、稲作農民組合の種子集・出荷場に集められ、品種別に区分の上で夾雑物や未熟籾（青籾）等の最終選別・分離、乾燥調整等、品質の調整・管理を行う。地域内の種子需要については、直接組合から販売する。地域外の需要については、組合間の横の連携や種子会社の販売ルートに乗せ、商品として出荷する。本体制の中、NAROには種子生産技術と種子の品質管理についての制度的支援、また、NAADSには、種子増殖・生産の農民組合による商業化について技術的、財政的支援を期待する。

### 種子農家の養成と種子生産計画

実施計画時期	稲作開発スキーム数	種子需要 (kg)	種子圃場 (ha)	種子農家数
短期計画	63	6,300	0.5	5
中期計画	4,000	40,000	3 to 5	45
長期計画	15,370	152,700	15 ha around	75

注：開発計画20,000 haに対応する種子生産計画の最終到達目標は、種子農家75戸の養成、種子圃場15 ha、年間生産種子量52,500 kg（年一作、3年間で157,500 kgを目標）

耕種法の改善プログラムでは、水稻栽培技術の普及を担当できる普及員が各県に殆ど配置されていない現状に鑑み、水稻栽培技術普及員やNAADSサービスプロバイダーの養成が必要である。基本的には、普及員やNGOの農業スタッフに対する水稻栽培技術と普及能力向上のための訓練をドホ灌漑スキームの一部に設置を計画している「稲作試験・研究」の機能と課題を利用して実地に行く。なお、この技術訓練では、稲作技術に加えて有機農業技術（特に稲作副産物の高度利用法）についても実習する計画である。ここで訓練を受けた普及員等は、村単位で実施する開発スキームにおいて農民を指導して展示圃を設置し、この運営の中で実地に稲作栽培技術の普及を図る。このシステムの確立は、以降に述べる組織・制度開発コンポーネントの展開と併せて行うこととする。

### 短期計画における稲作改良普及員の養成計画

稲作開発スキーム数	稲作改良普及員養成対象者			稲作改良普及員養成予定総数	稲作改良普及員一人当たり担当スキーム数
	NAADSプロバイダー	県農業改良普及員	NGO農業要員		
63	-	21	10	31	2

現在、農民の殆どは鋤と山刀以外、農具らしき農具をもたず（一部で旧式ではあるが稲刈り鎌も使用されている）、耕種法は極めて粗放なものとなっている。この地域において、稲作を推進し、技術的に生産の安定を確立するには、適正農具・農機具を普及しつつ耕種法の改善を図ることが必須・不可欠である。しかしながら、稲作先進国では、既に耕種法の機械化が進んでおり、本計画で推奨したい農具・農機具類の入手は困難な状況となっている。従って、この計画では、必要となる農具・農機具を開発地域内で製作して普及することとしたい。農具・農機具の製作は、地域の雇用機会を創造する意味においても評価できるものと思料する。

以上のプログラムの実施については、幸い、JICAが既に無償資金協力事業の一環として建設した「Nakawa職業訓練所」の施設が機能しており、また、他方、開発対象地域には、指物師（家具大工）、溶接工、鍛冶師等、基礎的技術に習熟した技能者がおるので、農具・農機具製作に必要な技術の教育・訓練を行えば、十分短期間に目的を達成できる要素が整っている。

以上を背景として、本計画では、可能な限り早い時期にNakawa職業訓練所を利用した技術移転計画を展開し、中期計画当初段階から地域内での農具・農機具製作・販売の体制を確立することとしたい。なお、この技術訓練は、2008年度内に「要員募集」にかかる事務的手続きを行い、年後半には約3ヶ月コースで実施する計画である。訓練要員は、それぞれ、指物師（家具大工）15名、溶接工15名、鍛冶師15名を予定している。

### 中・長期計画

生産技術開発コンポーネントの中・長期計画では、短期計画の中で作りあげた体制を自立させ、技術的な習熟を図りながら開発規模を拡大する。従って、この段階における試験研究改善、種子増殖・生産及び耕種法改善のプログラムは、自立した体制下で継続することになる。

水稻栽培に対するNAADSの支援は、現在までのところ、ドホ灌漑スキームを除き他には殆ど適用されていない。これは、ウガンダ国政府側に、水稻栽培を支援できる機能が無く、また、民間の関連機関においても同様技術的体制が整っていないことに原因している。従って、本計画においては、先の短期計画に引き続き稲作技術要員の養成を行うこととした。ここで養成された普及員は、NAADS計画の認定基準に基づき、①NAADS Service Provider（稲作専門技術員）または②Extension Service Staff（稲作技術改良普及員）となる。

### 中・長期計画における稲作改良普及員の養成計画

実施計画の 時期	稲作開発 スキーム数	稲作改良普及員養成対象者			稲作改良普及 員養成予定総 数	稲作改良普及員一 人当たり担当スキ ーム数
		NAADS プロバイダー	県農業改良 普及員	NGO 農業要員		
中期計画	400	21	21	20	62	7
長期計画	1,537	21	21	65	107	12
合計	2,000	42	63	95	200	10

注： 合計は、先に述べた短期計画の員数を加えたスキーム全体の数値を示す。

全般に必要な技術要員の訓練は、計画の実施進捗に合わせ概ね長期計画期間の早い時期に完了する。この段階で、訓練し、且つ、小規模灌漑スキームを中心に配置した技術要員を稲作技術普及連絡網の中で組織し、稲作専門技術員、稲作技術改良普及員並びに稲作農家三者の緊密な連絡が維持できるよう図る。また、この技術連絡網の機能をベースとしてNAADSの本計画事業に対する支援を勝ち取り、稲作生産並びに生産米の商業化の促進を図る。

耕種法の改善計画では、訓練を受けた稲作改良普及員の指導下で各スキーム毎に展示圃を設置し、スキーム内農家の技術訓練と改良耕種法の普及を行う。以上の技術展示と農民に対する技術訓練には、先の短期計画で実施する農具・農機具製作技者訓練で製作が可能となる農具・農機具を使い改良耕種法の効率的習熟を図る。主たる農具・農機具は、馬鋤（代掻き機）、田植え定規、除草機、足踏み脱穀機、唐箕、リヤカー、牛車等である。



農具・農機具の製作と普及には、すでに述べたMicro-Creditを適用し製作者側と農民双方の財政的負担の軽減を図ることとする。

稲作スキームから排出される副産物（収穫残差並びに加工残差）を有効利用する、所謂、資源循環型農業（有機農業）の推進は、①水田のみならず畑地の地力保全対策としても極めて効果的である。また、②畜産、水産振興を支援する資材としても有効であり、更に、稲藁堆肥を利用したマッシュルーム栽培の導入等、新しい収入源の創造にも大きな可能性として期待できる。従って、稲作スキームの規模が拡大する中・長期の計画では、漸次、これら副産物の利用にかかる技術の移転を図り、地域産業の振興を支援することとしたい。

### (3) 組織・制度開発コンポーネント

本コンポーネントで構想した持続型灌漑開発のための農民組織育成プログラムは、灌漑施設の建設計画の進捗に併せる形で以下のとおり実施する。

#### 短期計画

短期計画では、6.3.2節に示すA/Pのとおり県職員、郡職員及び農民代表を対象とした訓練を実施する。また、県職員対象の2日間のガイダンスでは、各県におけるタスクフォースの設立を指導する。参加者は、対象21県各県からの農業、湿地、環境、組合、コミュニティー開発担当の各職員及びNAADSコーディネーターのうち2名とする。また、ガイダンスを受講した職員は、郡職員・農家対象訓練を灌漑施設建設の進捗に併せて適宜、対象地区において実施する。訓練参加者数は下表の通りである。

農民組織育成訓練プログラム参加者数（短期計画）

	短期計画		
	2008年	2009年	2010年
各県のパイロットスキーム開発の数	1	1	1
県職員/NAADS コーディネーター	42	42	42
	2人 x 21 県	2人 x 21 県	2人 x 21 県
郡職員	21	21	21
	1人 x 21 県	1人 x 21 県	1人 x 21 県
農民代表	42	42	42
	2人/スキーム x 21県	2人/スキーム x 21県	2人/スキーム x 21県

#### 中・長期計画

中期計画では、短期計画と同様に県職員の訓練を実施する。しかし、訓練対象は、Kumi、Bukedea、Soroti、Iganga、Namutumba、Butaleja、Toro、Pallisa、Budaka各県の県職員、郡職員及びNAADSサービスプロバイダーとする。これらの県では、長期計画の中で多数の小規模灌漑スキーム建設が計画されており、農民訓練も頻繁に実施されるため、そのための人材育成が必要となる。

中・長期計画では、農民組織の育成を訓練された県・郡の職員あるいはNAADSサービスプロバイダーが行う。中期計画では、10灌漑地区を1つの訓練対象グループとし、また、長期計画では15灌漑地区を1つの訓練対象グループとして実施する。



また、短期計画実施中に育成された組織については、コメの生産及び組合活動のための資金基盤ともに安定することが予想される。従って、更なる組織の自立と発展性を高めるため、組合への登録あるいは市場に目を向けた活動が可能になるような組織形態へのアップグレードを進める。これには、県組合担当職員や、Uganda Cooperative Alliances及びSouth Eastern private Sector Promotion Enterprise Ltd.からの支援が必要になる。下表に示すのは、中・長期計画それぞれの訓練予定者数である。

農民組織育成訓練プログラム参加者数（中・長期計画）

	中期計画	長期計画
各県の小規模灌漑スキーム開発の数	400	1,537
職員による訓練実施回数	3	0
職員の訓練参加者数 (各県から2人として計画*)	54	0
	2人x9県 x3年	0
農民訓練の回数	40	103
	(各訓練は10スキームを対象に実施)	(各訓練は15スキームを対象に実施)
郡職員参加者数	40	103
	1職員 x 40スキーム	1職員 x 103スキーム
農民代表参加者数	800	3,074
	2人/スキーム x 400スキーム	2人/スキーム x 1537スキーム

注\*：各県2人の訓練参加者は、県、郡及びNAADSサービスプロバイダーから選定される。また、ここで対象とする県は、小規模灌漑スキーム開発ポテンシャルが大きいKumi、Bukedea、Soroti、Iganga、Namutumba、Butaleja、Toro、Pallisa、Budakaの9県である。

#### (4) 湿地環境保全コンポーネント

灌漑開発地区は、概ね500ha規模の流域を1つの開発単位として捉え、この中に含まれる小規模灌漑スキームをグループとして編成する構想である。従って、D/Pで計画対象とされている2,000の小規模灌漑スキームは、各県毎の流域単位のグループ化により50流域の灌漑開発地区に集・統合される。本来、環境ガイドラインによれば、D/Pで計画されている2,000の小規模灌漑スキームそれぞれについて「計画概要書（Project Brief）」、「湿地管理計画」及び「流域モニタリングシステム」の作成が義務付けられているが、この計画では、流域単位での灌漑スキームのグループ化による50流域について組織的に対応することとし、労力と経費を軽減する。学習段階（Learning Stage）とされている短期計画では、各県について1冊の計画概要書を作成する。計画概要書は、プロジェクトで雇用された現地環境専門家が県農業担当者と協力して作成することとする。なお、EIAはダム計画のある流域の全てで実施する。

湿地管理計画は、湿地利用に対する環境保全計画の強化を目的に策定する。また、この計画書は、湿地を利用している他の利用者、例えば内水面漁業者や畜産農家等、ステークホルダー間の軋轢を緩和・回避するガイドラインとしても位置付ける。短期計画の中では各県毎に一つの湿地管理計画書を作り、湿地利用ステークホルダー間の調整並びに適切な水利・湿地保全の対策に資する。湿地環境モニタリング体制も短期計画のなかで設立することとする。灌漑稲作による水質及び土壌への影響は、このモニタリングの体制をもって継続的に監視される。

## 5.5 D/P 事業費（英文報告書 5.5）

D/P実施にかかる事業費は、概算で次のとおりである。

### D/P 事業費

(単位：Ush. 000)

開発コンポーネント	概算事業費
小規模灌漑スキーム開発	
土地・水資源開発	113,071,080
生産技術開発	7,985,825
組織・制度開発	806,296
環境保全	2,049,136
マネジメントコンサルタント	12,391,234
小 計	136,303,571
ドホ総合開発計画	
F/S調査	2,865,650
建設事業	27,750,000
小 計	30,615,650
合 計	166,919,221

## 5.6 D/P 実施スケジュール（英文報告書 5.6）

D/P実施スケジュールは、5.4.4節に述べた実施計画に従い、2008年から2017年までのD/P実施期間中について作成した。

## 5.7 プロジェクト評価（英文報告書 5.7）

### 5.7.1 概要（英文報告書 5.7.1）

策定したD/Pの妥当性については、経済及び財務の両面から検討・評価した。D/Pの経済的妥当性は、事業全体の経済内部収益率（EIRR）、便益費用比（B/C）並びに純便益の現在価値（NPV）を算定して評価した。また、財務分析は、灌漑スキーム内の標準的農家について農家経済の収支の中で「水利費に対する支払い能力」を要点として分析した。

### 5.7.2 経済評価（英文報告書 5.7.2）

D/P事業費の内訳は、取水施設建設費、小規模ため池建設費、維持管理費、生産技術開発費、組織・制度開発費及び環境保全費等である。また、D/Pの経済便益は、D/Pを実施した場合と実施しなかった場合それぞれの作物生産純収益の差額を「開発による増加便益」として次のとおり算定した。

### D/P 実施による便益

(単位：Ush. ' 000/ha)

		便 益
小規模灌漑スキーム開発	既存施設改修	2,276
	既存施設改良	2,276
	水田への転換	2,540
	新規開発	2,713
ドホ総合開発計画	収量 4 ton/ha (整備途上)	877
	収量 5 ton/ha (整備途上)	1,741
	収量 6 ton/ha (最終目標)	2,599

以上の費用及び便益に基づき分析したEIRR、B/C及びNPVは次のとおりである。

#### D/Pの経済評価

	EIRR	B/C (12%)	NPV (12%)
小規模灌漑スキーム開発	22.3%	1.61	610億シリング*
ドホ総合開発計画	29.7%	1.87	190億シリング*

以上の評価結果に示されるとおり、小規模灌漑スキームとドホ総合開発双方の計画は経済的に妥当であると評価できる。また、小規模灌漑スキーム開発計画の「費用と便益の変動」に対するEIRRの感度分析を以下のとおり行なった。分析結果は、両計画とも費用の増加と便益の減少がそれぞれ10%の範囲までであるが変動に対しても「妥当」と評価できることを示している。

#### EIRR感度分析

(単位:%)

建設費の増加	小規模灌漑スキーム開発		ドホ総合開発計画	
	収量の減少		収量の減少	
	0%	-10%	0%	-10%
0%	22.3	18.3	29.7	25.2
+10%	20.3	16.4	26.2	21.9

#### 5.7.3 財務分析 (英文報告書 5.7.3)

灌漑スキームには、既に述べたとおり「小規模ため池が建設されるもの」と「建設されないもの」の二つのケースがあり、また、灌漑開発については、4つの類型に区分できる。従って、D/Pの財務分析は、それぞれのケースについて分析を行い、妥当性を評価した。

#### 小規模ため池を建設しない灌漑区での農家収支分析

(単位: Ush. '000/農家/年)

	小規模灌漑スキーム開発							
	既存施設改修		既存施設改良		水田への転換		新規開発	
	Without project	With project	Without project	With project	Without project	With project	Without project	With project
農業純所得	429	747	665	983	944	1,447	671	1,173
農業外所得	133	141	132	142	151	197	446	531
純所得合計	562	889	797	1,125	1,095	1,644	1,117	1,704
生計費	476	714	545	818	734	1,101	973	1,459
純保留分	86	174	252	307	361	543	144	245
水利費		19		21		47		53
純保留に占める割合		11%		7%		9%		22%

### 小規模ため池を建設する灌漑区での農家収支分析

(単位：Ush. ' 000/農家/年)

	小規模灌漑スキーム開発							
	既存施設改修		既存施設改良		水田への転換		新規開発	
	Without project	With project	Without project	With project	Without project	With project	Without project	With project
農業純所得	429	963	665	1,199	944	1,662	671	1,389
農業外所得	133	141	132	142	151	197	446	531
純所得合計	562	1,104	797	1,340	1,095	1,860	1,117	1,919
生計費	476	714	545	818	734	1,101	973	1,459
純保留分	86	390	252	522	361	759	144	461
水利費 (%)		45		47		72		79
純保留に占める割合		12%		9%		9%		17%

以上の分析の結果、いずれのケースとも、生計費が事業実施前の1.5倍に増えると想定した上で、なお、相当額の留保金（貯蓄）が期待でき、この中からの水利費（留保金の9%から最大17%）の支払いは十分に可能であり、従って、計画した開発事業は財政的にも妥当であると評価できる。

## 6. アクションプラン（英文報告書 CHAPTER 6）

### 6.1 はじめに（英文報告書 6.1）

インテリムレポートに提示したA/P案は、代表地域として選定した4つのA/P実施地域を対象に「土地・水資源開発プログラム」及び「環境保全プログラム」の適用を限定的に計画したものである。また、このA/P案は、P/Pの実施計画策定の基礎となったものである。しかし、P/P事業の実績として以下に要約したとおり（Pilot Project Reportの4.7.2節参照）、対象地域各県のこの計画事業の推進に対する対応は極めて積極的であり、A/Pの実施は、代表地域に特定せず、計画地域全域の21県を対象に県単位の実施体制を作って取り組むことが地域のニーズに最も則したものと見える。

- 1) 土地・水資源開発の主要部分は灌漑開発であるが、このプログラムに対するニーズは全調査対象地域において非常に高く、A/P案で対象とした地区外の一部では、P/Pで導入した技術適用による灌漑開発が既に開始されている。
- 2) 灌漑施設整備を実施していない9 P/P地区の組織開発及び水稲生産技術開発の成果はかなり満足できるもので、これら9地区は既に各県の稲作開発センターとしての機能・役割を果たし始めている。こうした地区をA/Pに含め灌漑施設整備を行うことにより、D/Pの中・長期計画の基地として十分に機能することが期待される。

従って、本章に記載するA/Pは、P/P事業の教訓を踏まえて最終的に変更したものである。この変更に伴い、A/Pは、D/P短期計画の全プログラムをカバーするものとなっている。但し、A/P策定の基本は、県類型化のコンセプトに準じており、土地・水資源開発及び環境保全プログラムは、グループ1から4に分類された各県の地域特有課題に対応するものとして編成されている。

## 6.2 地域特有課題に対応するA/P（英文報告書 6.2）

### 6.2.1 土地・水資源開発（英文報告書 6.2.1）

A/Pの実施計画については次の2つのアプローチが考えられる。一つは、小規模灌漑（パイロットスキーム）の開発に対する種々の阻害要因があり、D/P実施をスムーズに進めるためには、これらの問題を先ず解決する必要がある。もう一つは、湿地の環境保全を行いながら、持続可能な賢い方法で灌漑事業をどのように進め、実施していくかを既に実施したP/Pの経験を基に20,000haの地区を順次且つ段階的に開発することである。

#### (1) D/P実施の準備段階としての対策

地域特有課題に対する土地・水資源開発のA/P段階における基本的な対策とは次の事項を実施・完結することである。

- 灌漑技術者の人材育成計画
- パイロットスキームの計画作成及び灌漑技術者のOJT
- 小規模灌漑の事業実施計画
- 小規模ため池開発のF/S調査
- 水利組合の管理と施設維持管理

#### (2) 持続可能な湿地開発手法の確立

- 限られた水資源を有効に利用するために、水田開発における流域（集水域）はElegon山流域の地区において水田面積の20倍以上、低平丘陵地の流域においては40倍以上を確保する。
- 灌漑用水路を整備し、現在の田越し灌漑に比べて水資源をより有効且つ均等に配分でき、また、持続的に施設利用のできる仕組みを構築する。
- 以上の灌漑システムは、また、水田内における水位を制御し、水稻の生育環境に応じた水管理と収穫期の迅速な排水を可能にする。
- 適切な水管理の適用は、統一・調整された作付け体系の運用を可能にし、水稻二期作を導入しても概ね2ヶ月の作付け休閑期の余裕が確保でき、適切な施設維持管理の運営が可能となる。
- 2ヶ月間の作付け休閑期は、水田土壌の風化（酸化）を助け、土壌の理化学性の改善と湿地環境の保全に対する効果が期待できる。
- 作付け休閑期の田干しは、伝染病の媒介体といわれる巻貝や蚊の繁殖環を断ち切る効果が大きく水媒介の伝染病の軽減に寄与する。

#### (3) A/P対象地区における実施計画

土地・水資源開発の実施に当っては、次に示す旧13県の類型化の結果をそのまま21県に適用して行う。

- 1) グループ1： 既存水田の改修（Rehabilitation）と水源開発による灌漑保証率の改善と安定化
- 2) グループ2： 既存水田の改良（Improvement）と水源開発による灌漑保証率の改善と安定化
- 3) グループ3： 生産基盤整備を行い季節的湿地内における畑作物から水田稲作への転換または田畑輪換を含む耕種の多様化（Diversification）
- 4) グループ4： 新規灌漑水田開発

各グループ別及び県別の10 haを開発単位とするパイロットスキームのA/P期間中の計画実施数は以下のとおりである。

A/P 期間中の県別タイプ別及び県別のパイロットスキーム開発数

Category	Original District (13 Districts)	New District (21 Districts)	A/P Construction
Group-1 (Rehabilitation)	Iganga	Namutumba	3
		Iganga	3
	Tororo	Butaleja	3
		Tororo	3
	Pallisa	Budaka	3
		Pallisa	3
Group-2 (Improvement)	Mayuge	Mayuge	3
	Bugiri	Bugiri	3
	Busia	Busia	3
		Manafa	3
	Mbale	Mbale	3
		Bududa	3
	Kamuli	Kaliro	3
		Kamuli	3
Group-3 (Diversification)	Sironko	Sironko	3
	Kumi	Kumi	3
		Bukedea	3
Group-4 (New Development)	Soroti	Soroti	3
	Katakwi	Amuria	3
		Katakwi	3
Kaberamaido	Kaberamaido	3	

(4) 活動内容

a. 灌漑技術者の人材育成計画

- i) 灌漑技術者の人材育成を先行する。特に県灌漑担当官（DIO）の養成は急務である。これまでP/Pの実施の中でPIEを養成してきたが、A/Pの実施期間にこれらの人材を更に教育・訓練しDIOにまで技術的なレベルアップを図り、各県5名宛て配属できる体制とする。この訓練はドホ灌漑スキームもしくはP/P事業の中で建設を行った4ヶ所の代表的P/P地区で行う。
- ii) MAAIFの灌漑技術職員及び将来の灌漑技術者幹部を養成するため、灌漑先進国への留学や研修制度を立ち上げ、毎年2名、3年間で都合6名を養成する。
- iii) 東部ウガンダの中心的位置に在って通信並びに交通の便の良いMbaleに本事業実施のための「東部ウガンダ地方事務所（Project Office）」を開設し現場責任者を常駐させる。Project Manager はMAAIFより派遣し、県と中央関係官庁及びドナーとの連絡・調整や事業の予算措置、実施事業の監理等を行う。

b. 計画作成及びOJTの時期

- i) MAAIFの東部ウガンダ地方事務所は、各県のDIOと協力し、各県における湿地の利用に関して調査団が作成したインベントリーを基に湿地及びそれらを利用している農家等の調査を行い、湿地開発のポテンシャルティから開発候補地を選定し、短期・中期・長期の開発計画を立案しておく。

- ii) 一方、短期計画におけるパイロットスキームの開発予定は、各県1年1ヶ所であるから、調査団がP/P事業の中で養成したPIEを中心として、このA/P並びにP/P事業で建設したP/P地区をベースに県の職員のOJT訓練を行う。
- iii) 短期計画期間中に、県職員の教育・訓練を実施P/P地区の現場並びにドホ灌漑スキームの施設を利用して集中的に行う。また、これら県職員は、毎年2名宛て養成されるMAAIFの灌漑技術職員と連携を図り、開発候補地の灌漑・排水計画書を作成する。
- iv) 各県の開発候補地からA/P実施地区3ヶ所を選定し、現地農家の開発実施にかかる合意形成と農民組織の編成を進めWUAを設立する。
- v) 開発スキームの実施に先がけ、DIOは計画概要書を作成してNEMAから工事着工許可を取得する。
- vi) CWMPを作成し、WAの設立、登録をNEMAに対して行う。

c. 小規模灌漑事業実施計画

A/Pでは、対象地域全体で63スキーム（21県 x 1スキーム/年 x 3年）を建設する。このA/P実施における主目的は、各県単位で小規模灌漑スキームを建設し、灌漑と稲作並びに開発スキームの農民による組織的運営技術にかかる普及拠点を構築することにある。こうした実地の実施経験を踏まえて育成された灌漑技術者は、次の中期・長期計画を実施できる能力を培うことになる。

d. 小規模ため池開発のためのF/S調査

更に、開発候補地の中から小規模ため池建設の候補地についても検討を行ない、各県で優先順位の高い2つのスキームを選定する。小規模ため池計画の推進にはローカルコンサルタントの徴用を図り、A/P実施の3年の期間内に小規模ため池の設計、工事費、施工計画を策定し、NEMAとの交渉とEIAを行う。この小規模ため池計画は、多くて各県2ヶ所、全体で22ヶ所を想定し最有力候補地を優先して実施計画を策定する。なお、F/S調査が完了した地区からため池内の敷地の収容について現地住民と交渉を開始する。用地の収容は、無償での提供を基本とする。なお、用地の収容に代償が必要な場合には、ため池内での養魚権の提供を提案することも考えられる。

e. 維持管理

工事が完了した地区から、農民による組織的な維持管理を開始し、DIO、MAAIFによる訓練指導を展開する。

## 6.2.2 環境保全（英文報告書 6.2.2）

環境保全に関する活動は以下の通りである。

- 1) NEMAへの小規模灌漑スキーム実施の認可申請のための計画概要書の作成
- 2) 農民グループの湿地保全の組織機能的役割を強化し、地域湿地の管理計画を策定する。
- 3) 季節的湿地における灌漑稲作のための利用権の付与
- 4) 年に3回行う水質検査並びに2年毎に年2回行う土壌分析を通じて湿地保全のモニタリングを行う。水質検査の試料採取は流域の上流部と下流部で行う。土壌モニタリングのためのサンプリングは、流域の上・中・下流それぞれの河川の両岸において行う。サンプリングは県農業事務所、並びに3年間のA/P実施期間の初年に教育・訓練する郡農務官及び現地農家により継続的に実施される。



なお、上記2)の湿地保全の組織機能的役割の強化に関しては、組織・制度開発プログラムの中で実施することとする。

## 6.3 地域共通課題に対応する A/P (英文報告書 6.3)

### 6.3.1 生産技術開発 (英文報告書 6.3.1)

稲作生産技術開発に必要な行動計画は次のとおりである。

#### (1) 稲作試験圃の設置と品種適応試験、作付け適期試験、施肥試験及び栽植密度試験の実施

稲作試験は、稲作耕種法の改善を適性に推進するための手段として捉え、現在、NARO が提唱している「受益者参加型作物試験」の趣旨に沿ってその実施計画を策定した。実施計画の概要は次のとおりである。

- 試験圃場の規模： 0.4 ha
- 試験圃場の設置場所：ドホ灌漑スキームの一面
- 試験項目と目的：
  - a. 品種適応試験： 地域に適応する品種（特に、高い収量性、耐病性及び耐脱粒性に留意）の選定と水稻の作物特性を理解するための品種展示
  - b. 作付け適期試験： 作付け適期の特定（適正作付け体系の設定）と作物の生育状況から作付け適期を理解するための各種作期の展示
  - c. 施肥試験： 堆・厩肥と化学肥料の施肥の適量を定めることと施肥技術と施肥効果の展示
  - d. 栽植密度試験： 苗の本場における最適栽植密度の特定と栽植密度が水稻の生育並びに管理作業に及ぼす影響を理解するための展示
- 圃場試験実施要員： 各年の稲作技術訓練課程履行者が実務の实地訓練の一環として行う
- 指導機関： 国家作物資源機関 (NCRI)
- 試験用品種： 世界のコメ生産先進国で奨励されている優良品種の中から適応品種を選定する。選定品種の種子はWARDA, IRRI 並びに東南アジア諸国の支援ルートを経て入手できる。

#### (2) 以上の試験圃の機能を利用した稲作技術改良普及員の指導・訓練の実施

稲作技術改良普及員の指導並びに実地の技術訓練は、ドホ灌漑スキームの一面に設置する上記試験圃場での活動をベースに年一回、主雨期の水稻作期に実施する計画である。訓練課程は以下に要約するとおりである。

- 訓練教程： 毎年一回、主雨期の3月から7月の作期を利用
- 訓練対象者： 農業改良普及員、農業担当技官、NAADS 専門技術員並びにNGO農業技術要員、また、種子農家候補も含む。
- 一教程規模： 一教程当たり35 人内外

訓練教程の概要は以下のとおりである。

### ドホ灌漑スキームにおける普及技術要員訓練教程

	教程 日数	水稻の生育 過程	主たる移転技術項目
第1教程	4	苗代期	播種前種子処理技術、播種密度及び苗代管理と苗の健康診断技術等
第2教程	6	苗移植期	代掻きと均平技術、苗取り、正条植法、幼苗期の灌漑管理等
第3教程	5	分芡最盛期	若苗期（分芡期）の灌漑と有効分芡促進技術、除草・肥培管理技術、病虫害防除技術等
第4教程	6	幼穂形成期	最高分芡・幼穂形成期の灌漑と無効分芡抑制技術、除草・肥培管理、病虫害防除技術等
第5教程	5	えい花分化期	えい花分化期の灌漑と中干し（灌漑中断）管理技術、除草・肥培管理技術等
第6教程	4	出穂最盛期	出穂-登熟初期の肥培管理、夾雑品種の選抜除外、病虫害防・駆除技術、鳥・鼠害対策等
第7教程	5	黄熟期	登熟後半期の肥培管理技術、収穫適期診断技術、収量予測調査技術、収穫・脱穀・乾燥調整技術等

#### (3) 技術展示圃場の設置と適正耕種法並びに必要な関連技術の展示

この計画では、代表的A/P地域をもつ4県以外の17県についても技術展示圃場（0.4 ha）を各実施パイロットスキームに設置し、適宜、稲作志向の農民に対する技術展示と実地における技術訓練を通じて耕種法の改善と技術の向上を図る。

#### (4) 定期的技術指導と稲作実地の農民訓練の実施

各県毎に上記の技術展示圃場を使い、稲作農民に対する技術指導と耕種法の実地訓練を行う。

なお、以上の教育並びに実地訓練計画と平行し、各パイロットスキームから農民の代表者（2名）を選出してA/P地域のパイロットスキームに派遣し、更に密度の高い教育・訓練を受ける外部計画も企画している。派遣される2名の代表農民は、受講後、直ちに地元へ帰り、他のグループメンバーに技術移転または展示圃での技術展示を行う義務をもつ。

#### (5) 種子生産農家の訓練と優良種子の一般農家への配布・普及

A/P実施期間中、先ず、ドホ灌漑スキーム内で水稻種子生産農家の養成を図り、A/P期間内に開発される全スキーム（約630 ha）の稲作に優良種子を配布できるよう対処する。種子増殖・生産計画の概要は次のとおりである。

- 種子農家の訓練： 先に述べた稲作技術普及要員の訓練計画の一部としてドホ灌漑地区内で実施
- 訓練対象者： ドホ灌漑スキーム内で選ばれた候補農家5名。
- 種子生産圃場規模： 当初段階として0.5 ha（または0.1 ha/種子農家として5ヶ所）設置・運営
- 期待生産種子量： 年産1,500 – 1,750 kg

生産された優良種子を円滑且つ適期の配布を保証できる手段として、各関連県農業局事務所、種子生産農家（将来は組合化）、種子会社並びにNCRI/NARO各間で緊密な連絡の取れるように「技術・運営上の連絡体制」をこのA/P実施期間内に設定する。また、この「連絡体制」を将来設置を予定している「種子銀行スキーム」の基礎的機能として育てあげる構想である。

(6) 耕種法の改善をより効果的に推進するための適正農具・農機具の配布・普及

既存の水稲栽培法を改善し、コメの生産性向上を図るには、適正な農具・農機具の導入・普及が必要・不可欠である。従って、必要な農具・農機具を開発スキーム全体に広く普及させる手段として、目的の農具・農機具をウガンダ国内で製作し、販売する計画とする。農具・農機具製造技術の訓練には、以下の教程を企画している。

- 訓練教程の期間： 全体3ヶ月とし、2008年後半から 2009年の前半内で実施する。
- 訓練施設・機能： 日本の無償資金協力で設置され、現在、JICAやNGO等の技術・資金協力で運営されている「Nakawa職業訓練所」が便宜である。
- 訓練対象者： 鍛冶職、大工、溶接工等地方部の技能者を対象とし、各15名、都合45名を予定する。

なお、本格的な農具・農機具の製作は、中・長期計画の中で技術協力並びに資金協力を具体化し実施に移す計画である。

6.3.2 組織・制度開発（英文報告書 6.3.2）

持続型灌漑開発、湿地を利用した稲作を推進するための農民組織は、水利組合（WUA）、コメの生産及び市場流通を推進するための組合（Cooperative）、湿地利用者組合（WA）以下の組織的な機能を持つことが必要である。従い、PRGA代表者には、組織の運営・管理能力強化と持続的な発展のための能力強化を実施する。このための主要活動項目は以下のとおりである。

- 1) PRGAの機能と登録のための手続き
- 2) PRGAの組織運営・管理・会計に関する能力強化
- 3) 農業、環境、湿地等の各専門分野担当職員の協力・知識の共有を促進するためのガイダンスの実施
- 4) 農業、環境、湿地等の各専門分野の県担当職員間の協力・調整システムの構築

訓練プログラムの内容

農民組織の運営にあたり、組織運営・管理、資金管理の知識・技術を中心とし、持続的な湿地利用及び参加が灌漑開発に関し、農民代表に対して20日間7セッションの訓練計画を策定した。また、農家の訓練に先駆けて、灌漑、農業、湿地、環境、組合、コミュニティー開発の各担当職員を対象にした、ガイダンスを2日間にわたり実施する。ここでは、ファシリテーションの技術、湿地管理、組織運営、参加型灌漑開発等に関する知識を共有し、セクター間協力の重要性の認識を高める。また、県レベルでの調整システムとして、県レベルでのタスクフォースの設立も指導する。このガイダンスを受けた県職員が、上述の農民対象訓練を実施する。訓練プログラムの中で計画した8セッションの内容は5.4.3節に述べたとおりである。

本訓練プログラムは、セッション1は県職員を対象に滞在型で実施し、ウガンダ人ファシリテーター（コンサルタント）がファシリテートする。セッション2から8は各灌漑開発地区から農家代表2名と1名の郡職員を対象として郡事務所等の開発対象地区内で実施する。

A/Pの期間中の訓練教程の受講者数は以下のとおりである。

### A/P 期間中の訓練受講者数

	A/P期間		
	2008年	2009年	2010年
各県のパイロットスキーム開発の数	1	1	1
県職員/NAADS コーディネーター	42	42	42
	2人 x 21 県	2人 x 21 県	2人 x 21 県
郡職員	21	21	21
	1人 x 21 県	1人 x 21 県	1人 x 21 県
農民代表	42	42	42
	2人/スキーム x 21県	2人/スキーム x 21県	2人/スキーム x 21県

#### 6.3.3 ドホ総合開発計画のF/S調査（英文報告書 6.3.3）

ドホ総合開発計画のF/S調査をA/P期間中に行う。このF/S調査は、本来のドホ灌漑スキームに周辺地区も含めた調査として実施する。これは、Manafa川がドホ灌漑スキームの水源のみならず、Lwoba地区等の周辺農家にも利用されているからである。

ドホ灌漑スキームにおける最大の問題は、水利組合の組織的機能が弱く、施設の維持管理が十分に行われていないばかりか、水利費の金額も少なく、且つ、徴収率も50%以下と低い状況である。近年、水利組合は水利費をUsh. 4万/年に値上げし維持管理資金の確保に努めているが、依然、徴収率が低く、組合活動も低迷している。

ドホ灌漑スキーム並びに周辺地区を含むドホ総合開発計画の策定において考慮すべき重要なポイントは以下の通りである。

- 1) 周辺部の地区外農家も含めた農民組合、水利組合の統廃合計画を進め、新たな水利組合組織並びに強制力を持った新たな水利組合規約を制定する。
- 2) 将来の水争いを避けるためにドホ灌漑スキームばかりでなく周辺のLwoba地区等も含め統合した地区として計画する。
- 3) 現況の頭首工地点から約500m上流に新たに頭首工を建設する。現在のLwoba 地区の幹線水路を改修し両地区全体の新たな導水路とする。取水工の直下流部分に沈砂池を建設する。導水路及び幹線水路は砂質土壌の水路基盤構造に対する維持管理の手間並びに費用を軽減するためライニングを行う。
- 4) F/S調査の期間中に、航空測量、地積図作成とともにEIAを行い、NEMAの事業実施許可を得る。また、CWMPを作成しWAを設立し、NEMAに登録する。
- 5) 1997年から2003年のManafa川の流量観測データを使った概略の水収支計算の結果によると、月最小流量は2002年7月の3.337cu.m/secである。この値から考えると、この地点では約2,000haの水稻二期作が十分可能である。また、水路のライニングによる灌漑効率の向上や作付け時期の検討等を加えるとドホ灌漑スキーム並びに周辺地区を含めた2,700haの灌漑が十分可能となろう。
- 6) 現在の水利権は曖昧である。従って、全体計画ではドホ灌漑スキーム並びに周辺地区を統一した灌漑排水システムとして水利権の登録する構想である。
- 7) ドホ総合開発計画には、施設整備だけでなく、灌漑排水技術訓練センターの建設と灌漑排水技術者及び農民の技術訓練計画も含めて構想する。加えて、水稻栽培技術

にかかる普及関係者や農民の訓練も水稻栽培試験の実施や展示圃設置の中で行う企画もこのF/S調査の中で検討する。

#### 6.4 A/P 事業費（英文報告書 6.4）

A/Pの事業費は以下のとおりである。

##### A/P 事業費

(単位: Ush. '000)

コンポーネント	土地・水資源開発	生産技術開発	組織・制度開発	環境保全	総事業費
地域特有課題に対応するA/P		-	-	-	-
Group-1 districts	2,239,720	-	-	257,854	2,497,574
Group-2 districts	1,676,740	-	-	201,511	1,878,251
Group-3 districts	1,444,400	-	-	107,583	1,551,983
Group-4 districts	1,959,460	-	-	143,444	2,102,904
地域共通課題に対応するA/P		966,951	166,743		1,133,694
マネージメントコンサルタント	-	-	-	-	916,441
合計	7,320,320	966,951	166,743	710,392	10,080,846

以上に加えてドホ総合開発計画の調査費Ush. 28.6億をA/P事業費に計上する。この結果A/Pの総事業費はUsh. 129.4億となる。

#### 6.5 A/P 実施計画（英文報告書 6.5）

A/P実施計画は、各プログラムの実施優先順位や水稻の作期等を考慮し、3年間にわたって作成した。

### 7. 結論と提言（英文報告書 CHAPTER 7）

#### 7.1 結論（英文報告書 7.1）

農民参加型による持続型灌漑開発計画の実施は、P/Pの運営を通じて技術的・経済的に妥当であることが実証された。また、ここに提案したA/P及びD/Pについても、ウ国の国家目標である貧困削減対策に寄与できるとともに、零細な農家を湿地のWise Useに導く上でも効果が高いことが確認された。

#### 7.2 提言（英文報告書 7.2）

##### 7.2.1 MAAIF への提言（英文報告書 7.2.1）

MAAIFは、本プロジェクトの主管機関として主導権を握り、関係各省庁との連絡を密にして以下の5点を早急に措置すべきことを提言する。

- 1) NARO、NAADS、NEMA、MW&E、WID、DWD及び関係各県地方政府代表者を招聘し、計画事業の進捗並びに運営をモニタリング・監理できる機能をもつ「運営委員会 (Coordinating Committee)」を設置する。
- 2) 湿地を対象とした農業開発を進めるための政策と規制を設定し、同時に実施のための具体的な行動計画を策定する。このためには、NEMA とWID に協力を呼びかけ湿地内の開発可能地（可耕地の範囲）を特定する必要がある。

- 3) 灌漑技術のみならず水資源利用のモニタリングと監理機能を含め持つ灌漑部局を新設する。新設される灌漑部局は、灌漑開発にかかる法整備、灌漑開発スキームの企画・設計、県政府に対する技術支援、灌漑施設整備事業の監督等を主たる責務とする。
- 4) 関係各県政府を支援し、県レベルで湿地の開発と保全にかかるタスクフォースを組織する。さらに、このタスクフォースの制度化、加えて、DIOの制度化を支援する。
- 5) 現在推進されているNAADS事業のサービスを本計画事業の実施の中で円滑且つ効果的に利用できるようにするためにも、既存PMAにおけるコメ（または水稻）の位置付けを明確にする。

#### 7.2.2 NAROへの提言（英文報告書 7.2.2）

NAROには、灌漑稲作技術の改善に向けて以下の事項について対策措置することを提言する。

- 1) ドホ灌漑スキームに設置した稲作試験の圃場施設及び機能を強化し、より集約的な試験・研究を軌道に乗せ公式な活動として認定する。
- 2) 優良水稻品種の原種の保存と普及品種の種子増殖が試験圃場の機能として確立する。
- 3) 水稻種子の行政管理を担当し、種子生産と種子普及を監理する。
- 4) NAROの持つ適正肥料と農薬を選定する制度的支援機能のもと、稲作に必要且つ最も適正な肥料と農薬を輸入できる指導体制を整える。
- 5) 稲作試験・研究の圃場活動を直接的に利用し、稲作改良普及員や稲作地域の代表農家、更には、水稻生産資材の販売に従事する業者（Stockist）等の教育・訓練を行い、それぞれの稲作にかかる技術・知識の向上を図る。

#### 7.2.3 NEMAへの提言（英文報告書 7.2.3）

NEMAには、早急な行動として次の対策措置を講じることを提言する。

- 1) WIDや対象地域各地方政府等と協力し、現在、調査対象地域において一部の地方指導者や技術者等が流言している湿地利用に関する矛盾したメッセージを早急に是正し、湿地の適正利用に対する農民の危惧を払拭する。
- 2) WID及びMAAIF等と協力して、絶対湿地保護地域と湿地自然環境保全地域を可及的速やかに特定するとともに、農業生産活動を許容する可耕地を指定する。これら特定地域の指定は、今後の湿地における自然環境保全と湿地の経済的適正利用を同時並行的に進める上で重要且つ必須課題である。

#### 7.2.4 NAADSへの提言（英文報告書 7.2.4）

NAADSには、次の2点について対策を講じることを提言する。

- 1) 現行プログラムの中で水稻を支援サービス適用対象の有望な作物として取り上げる。最初の支援サービスは、稲作近代化を加速する意味から各県に設置・運営を開始しているP/P地区に適用する。
- 2) 既存のNAADS・種子会社の販売や倉庫管理の機能等のサービスと合わせ、水稻種子生

産の商業化推進を支援する。

#### 7.2.5 地方政府への提言（英文報告書 7.2.5）

各県政府には、本調査後の事業実施機関として「建設」及びその後の「運営・維持管理」を行う義務と責任が生ずる。これら責務を円滑且つ効率よく遂行するには、各県政府とも、本格的な建設工事の開始前に、技術要員の増強と教育・訓練による行政管理と技術的指導能力の向上を図る等、計画事業の実施にかかるサービス機能を強化する対策が必要である。これら準備への対応として県政府には、まず、地方行政府開発基金（LGDF）の一部を使って必要経費の予算化を図る必要がある。開発対象地区（湿地の水田可耕地）の選定（特定）もまた必須の課題である。また、各県政府は、MAAIF、NEMA、WID等との緊密な連絡のもと、現在、一部地方の指導者や技術者等が流言している湿地利用に関する矛盾したメッセージを早急に是正し、湿地利用に対する農民の不安感を払拭し、安心して湿地のWise Useと取り組めるよう指導する。



## 付属資料

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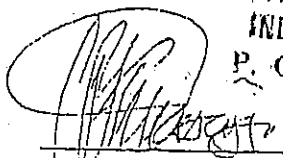
- Scope of Work
- Minutes of the Meeting on Scope of Work
- Minutes of the Meeting on Inception Report
- Minutes of the Meeting on Progress Report (1)
- Minutes of the Meeting on Interim Report
- Minutes of the Meeting on Progress Report (2)
- Minutes of the Meeting on Progress Report (3)
- Minutes of the Meeting on Progress Report (4)
- Minutes of the Meeting on Progress Report (5)
- Minutes of the Meeting on First Draft Final Report
- Minutes of the Meeting on Draft Final Report

SCOPE OF WORK  
FOR  
THE STUDY  
ON  
POVERTY ERADICATION THROUGH SUSTAINABLE IRRIGATION PROJECT  
IN  
EASTERN UGANDA

AGREED UPON  
BETWEEN  
THE MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES  
AND  
THE JAPAN INTERNATIONAL COOPERATION AGENCY

Kampala, 24<sup>th</sup> April, 2003

For Permanent Secretary  
MINISTRY OF AGRICULTURE, ANIMAL  
INDUSTRY AND FISHERIES  
P. O. Box 102, E. TLUBE



Mr. G. P. Kasajja  
For Permanent Secretary  
Ministry of Agriculture, Animal Industry  
and Fisheries  
The Republic of Uganda



Mr. Ryuzo NISHIMAKI  
Leader of Preparatory Study Team  
Japan International Cooperation Agency  
Japan

## I INTRODUCTION

In response to the request from the Government of the Republic of Uganda (hereinafter referred to as "GOU"), the Government of Japan (hereinafter referred to as "GOJ") has decided, in accordance with the relevant laws and regulations in force in Japan, to conduct a study on Poverty Eradication through Sustainable Irrigation Project in Eastern Uganda (hereinafter referred to as "the Study").

Based on the decision of GOJ, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programmes, will undertake the Study in close cooperation with the concerned authorities of the GOU.

The present document sets forth the Scope of Work with regard to the Study.

## II OBJECTIVES OF THE STUDY

The objectives of the Study are:

1. To formulate a detailed Development Plan (hereinafter referred to as the "D/P") for Eastern Uganda in accordance with the Plan for Modernisation of Agriculture, to promote sustainable irrigation development; Action Plan(s) on paddy rice irrigation project(s) in the D/P to be formulated;
2. To implement pilot project(s) in the course of the Study; and
3. To carry out capacity building of Ugandan counterpart personnel as well as of the communities concerned in the course of the Study; implementation of the technical guidelines for paddy rice cultivation should be part of capacity building.

Achievement of the objectives mentioned above will contribute to poverty eradication in the Study area.

## III STUDY AREA

The Study area for the D/P covers thirteen (13) districts; Kamuli, Iganga, Mayuge, Bugiri, Busia; Tororo, Mbale, Sironko, Pallisa, Kumi, Soroti, Katakwi and Kaberamaido. Some areas among the thirteen districts will be selected in terms of undertaking pilot project(s).

(See location map attached as ANNEX I)

#### IV SCOPE OF THE STUDY

The Study will consist of the items detailed below:

##### 1. Phase 1: Formulation of a draft D/P

- 1-1. To collect and analyse relevant data and information from all the districts in the Study area and at the national level;
- 1-2. To review the existing development programme(s) and project(s) relevant to the Study;
- 1-3. To conduct field surveys in the Study area;
- 1-4. To identify major constraints, development needs and development potential in the Study area;
- 1-5. To identify priority areas for sustainable irrigation development;
- 1-6. To formulate a draft D/P for promoting sustainable irrigation development;
- 1-7. To select priority area(s) for Action Plan(s) on paddy rice irrigation project(s) after conducting a preliminary Environmental Impact Assessment (EIA);
- 1-8. To formulate Action Plan(s) on paddy rice irrigation project(s); and
- 1-9. To conduct in-depth EIA on selected pilot project sites and prepare the implementation plan accordingly.

##### 2. Phase 2: Implementation of the pilot project(s) and finalisation of the D/P

- 2-1. To implement the pilot project(s);
- 2-2. To monitor and evaluate the pilot project(s);
- 2-3. To formulate technical guidelines for paddy rice cultivation; and
- 2-4. To finalise the D/P focusing on sustainable paddy rice production.

#### V STUDY SCHEDULE

The Study will be carried out in accordance with the attached tentative schedule. (See ANNEX II)

#### VI REPORTS

JICA shall prepare and submit the following reports in English to GOU.

Inception Report: Twenty (20) copies

Interim Report:	Twenty (20) copies
Progress Reports:	Twenty (20) copies of each
Draft Final Report:	Twenty (20) copies at the end of fieldwork; GOU should provide JICA with its comments on the Draft Final Report within two (2) months after the receipt of the Draft Final Report
Final Report:	Forty (40) copies within two (2) months after the receipt of GOU's comments on the Draft Final Report

## VII UNDERTAKING OF THE GOVERNMENT OF UGANDA

1. To facilitate the smooth implementation of the Study, GOU shall take necessary measures:
  - (1) To permit the members of the Study Team to enter, leave and sojourn in Uganda for the duration of their assignments therein and exempt them from foreign registration requirements and consular fees;
  - (2) To exempt the members of the Study Team from taxes, duties and any other charges on equipment, machinery and other material brought into the country for the implementation of the Study;
  - (3) To exempt the members of the Study Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Study Team for their services in connection with the implementation of the Study; and
  - (4) To provide necessary facilities to the Study Team for the remittance as well as utilisation of the funds introduced into Uganda from Japan in connection with the implementation of the Study.
  
2. GOU shall bear claims, if any arise, against the members of the Study Team resulting from, occurring in the course of, or otherwise connected with, the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the Study Team.
  
3. The Ministry of Agriculture, Animal Industry and Fisheries shall, in cooperation with other organizations concerned, at its own expense, where necessary, provide the Study Team with the following:
  - (1) Security and safety of the Study Team and the relevant information;
  - (2) Information as well as assistance in obtaining medical service;
  - (3) Available data (including maps and photographs) and information related to the Study;

- (4) Counterpart personnel;
- (5) Suitable office space with furniture and telephone facilities; and
- (6) Credentials or identification cards.

## VIII UNDERTAKING OF JICA

For the implementation of the Study, JICA shall take the following measures:

1. To dispatch, at its own expense, a study team to the Republic of Uganda; and
2. To pursue technology and skills transfer to the Ugandan counterpart personnel as well as the communities in the course of the Study.

## IX CONSULTATION

JICA and the Ministry of Agriculture, Animal Industry and Fisheries shall consult with each other in respect of any matter that may arise from or in connection with the Study.





TENTATIVE STUDY SCHEDULE

MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42																			
PHASE	Phase 1											Phase 2																																																	
WORK IN UGANDA	[Wavy pattern]											[Wavy pattern]											[Wavy pattern]											[Wavy pattern]																											
WORK IN JAPAN	[Empty]											[Empty]											[Empty]											[Empty]																											
REPORT	①	②	③	④	⑤	[Empty]											⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	⑳	㉑	㉒	㉓	㉔	㉕	㉖	㉗	㉘	㉙	㉚	㉛	㉜	㉝	㉞	㉟	㊱	㊲	㊳	㊴	㊵	㊶	㊷	㊸	㊹	㊺	㊻	㊼	㊽	㊾	㊿

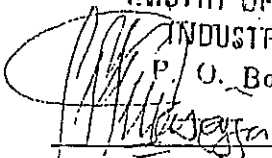
- ① Inception Report
- ② Progress Report 1
- ③ Interim Report
- ④ Progress Report 2
- ⑤ Progress Report 3
- ⑥ Progress Report 4
- ⑦ Progress Report 5
- ⑧ Draft Final Report
- ⑨ Final Report

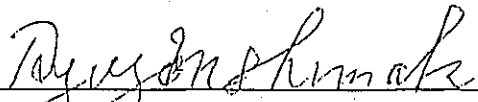
MINUTES OF MEETING  
ON  
SCOPE OF WORK  
FOR  
THE STUDY  
ON  
POVERTY ERADICATION THROUGH SUSTAINABLE IRRIGATION PROJECT  
IN  
EASTERN UGANDA

AGREED UPON  
BETWEEN  
THE MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES  
AND  
THE JAPAN INTERNATIONAL COOPERATION AGENCY

Kampala, 24<sup>th</sup> April, 2003

For Permanent Secretary  
MINISTRY OF AGRICULTURE, ANIMAL  
INDUSTRY AND FISHERIES  
P. O. Box 102, ENTebbe

  
Mr. G. P. Kasajja  
For Permanent Secretary  
Ministry of Agriculture, Animal Industry  
and Fisheries  
The Republic of Uganda

  
Mr. Ryuzo NISHIMAKI  
Leader of Preparatory Study Team  
Japan International Cooperation Agency  
Japan

## I INTRODUCTION

In response to the request from the Government of the Republic of Uganda (hereinafter referred to as "GOU"), the Japanese preparatory study team (hereinafter referred to as "the Team") headed by Ryuzo Nishimaki was sent to the Republic of Uganda by the Japan International Cooperation Agency (hereinafter referred to as "JICA") from 16<sup>th</sup> to 25<sup>th</sup> April, 2003 for the purpose of discussing and confirming the Scope of Work for the Study on Poverty Eradication through Sustainable Irrigation Project in Eastern Uganda (hereinafter referred to as "the Study").

The Team held a series of discussions with representatives of the Ministry of Agriculture, Animal Industry and Fisheries (hereinafter referred to as "MAAIF").

The following are the main issues discussed and agreed upon by both sides in relation to the Scope of Work. A list of participants in the series of meetings is attached as Annex I.

## II RESULTS OF DISCUSSION

### 1. Objective of the Study

MAAIF requested that the study in the first stage for formulating the Development Plan should be conducted in a comprehensive manner.

Both sides agreed that the Development Plan should be formulated to include other viable crops.

### 2. Study Area

MAAIF requested to include the districts of Iganga, Mayuge and Bugiri in the Study area where paddy rice cultivation was popular. Consequently the survey in these districts is essential to fulfill the objective of the Study.

Taking into consideration the request from MAAIF, the Team agreed to include the districts of Iganga, Mayuge and Bugiri. As a result, the total number of the districts in the Study area was revised from ten (10) to thirteen (13).

### 3. Target Year of the Study

Both sides agreed that in the course of the Study the Development Plan should be in line with 2017 which is stated in the Poverty Eradication Action Plan (PEAP).

### 4. Scope of the Study

MAAIF requested that the term 'Initial Environmental Examination (IEE)' included in the draft Scope of Work should be changed to 'Environmental Impact Assessment (EIA)' so that the study would be conducted in compliance with the regulations in force in Uganda.

The Study Team explained that the IEE would be implemented just to check the expected environmental effect in the area covered by Action Plan(s) and the use of the word 'EIA' might not be appropriate for the activities leading to formulation of Action Plan(s).

In this regard, both sides agreed that the 'preliminary Environmental Impact Assessment (EIA)' for the formulation of Action Plan(s) and the 'in-depth EIA' prior to pilot project(s) would be implemented in the course of the study.

#### **5. Study Schedule**

Both sides agreed that the whole period of the Study would be forty-two (42) months composed of Phase I, approximately twelve (12) months and Phase II, approximately thirty (30) months. The actual period of Phase I and Phase II should be discussed and finalised by the JICA Study Team and MAAIF at the inception of the Study.

#### **6. Counterpart Personnel**

Both sides agreed that MAAIF should take responsibility for assigning appropriate number of qualified counterpart personnel prior to the arrival of the JICA Study Team in Uganda.

MAAIF will include proposals in the current Medium Term Expenditure Framework (MTEF) to fund the travel expenses of the counterpart personnel.

#### **7. Coordination Mechanism**

Both sides agreed to establish a Technical Working Group consisting of the Study Team and the Ugandan counterparts, and personnel from related Ugandan institutions where necessary, in order to share technical information and to support the Study. MAAIF agreed to make necessary arrangements to avail and organise members of the Technical Working Group.

#### **8. Necessary Equipment and Facilities for the Study**

MAAIF agreed to provide the Study Team with suitable office space and furniture in Entebbe and exclusive use of telephone lines.

Both sides agreed that MAAIF would provide the telephone facilities and that the bills for the use of the telephone would be paid by the Study Team.

MAAIF requested that GOJ provides some equipment needed for the Study. These include:

- 1) Copy machine and supplies;
- 2) Fax machine;
- 3) Personal computer(s) and accessories;
- 4) Printer(s);
- 5) 3 vehicles;

6) Other equipment necessary for smooth implementation of the Study and for ensuring the outputs of the Study.

The Team explained that the Study Team would arrange and maintain, at their expense, to maintain and operate the vehicle(s) for their use.

The Team promised to convey the request to GOJ.

#### **9. Training of Counterpart Personnel and Others**

Considering the importance of capacity building in the Study, both sides agreed that the training activities of those concerned with the Study should be fully initiated in Uganda as well as in other countries (i.e. Tanzania, Kenya, Japan).

#### **10. Reports.**

Both sides agreed that all the reports of the Study would be made available to stakeholders and open to the public.



## LIST OF ATTENDANCE

**Ministry of Agriculture, Animal Industry and Fisheries**

Mr. David O. O. Obong	Permanent Secretary
Mr. G. P. Kasajja	Undersecretary
Mr. Maurice Okello Ocaya	Acting Commissioner (Farm Development)
Mr. J. M. Ogwang	Acting Principal Irrigation Agronomist, Dept. of Farm Development
Mr. Benon Byamugisha	Senior Economist, Dept. of Agri. Planning & Development

**Preparatory Study Team**

Mr. NISHIMAKI Ryuzo	Team Leader
Mr. MORITA Akihiro	Irrigation
Mr. OKUAKI Mitsuru	Farming Systems
Mr. TAGI Koji	Rural Society/Wetland Conservation
Mr. KOBAYASHI Nobuyuki	Project Planning/Preparatory Evaluation

**Embassy of Japan at Uganda**

Mr. MORIHARA Katsuki	Second Secretary
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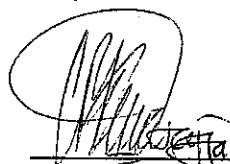
**JICA Kenya Office**

Mr. MATSUSHITA Yuichi	Assistant Resident Representative
Mr. Choke Jiddah	Agricultural Sector Specialist

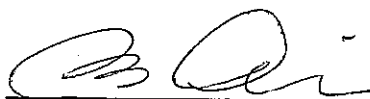
MINUTES OF MEETING ON INCEPTION REPORT  
FOR  
THE STUDY ON POVERTY ERADICATION THROUGH SUSTAINABLE IRRIGATION  
PROJECT IN EASTERN UGANDA

AGREED UPON  
BETWEEN  
MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES  
AND  
JAPAN INTERNATIONAL COOPERATION AGENCY

Entebbe, 10th November, 2003

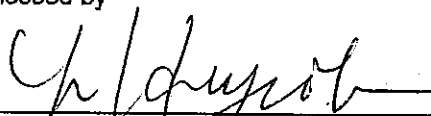


Mr. G. P. Kasajja  
For Permanent Secretary  
Ministry of Agriculture, Animal industry  
and Fisheries  
The Republic of Uganda



Mr. Makoto Ishizuka  
Leader of the Study Team,  
Japan International Cooperation Agency  
Japan

Witnessed by



Dr. Yukihiko Hayashi  
Leader of the Advisory Team  
Japan International Cooperation Agency  
Japan


1. Venue: Conference Room at Ministry of Agriculture, Animal Industry and Fisheries
2. Date: 10th November, 2003
3. Time: 9:30 AM - 1:30 PM
4. Attendants: refer to the attached list
5. Subjects of Discussion

In accordance with the Scope of Work for the Study on Poverty Eradication through Sustainable Irrigation Project in Eastern Uganda (hereinafter referred to as "the Study"), which was agreed upon between the Ministry of Agriculture, Animal Industry and Fisheries (hereinafter referred to as "MAAIF") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on 24th April, 2003, JICA dispatched the Study Team (hereinafter referred to as "the Study Team") for conducting the 1st Field Work in Uganda on 4th November, 2003. Besides the JICA Study Team, JICA also dispatched the Advisory Team for 3rd-11th November, 2003 period for an appropriate implementation of the Study.

Upon commencement of the 1st Field Work, the Technical Working Group on the Inception Report (Draft) was held among MAAIF, the Advisory Team and the JICA Study Team on 10th November, 2003. Prior to the Meeting, the JICA Study Team submitted 20 copies of the Inception Report (Draft) to MAAIF on 6th November, 2003.

The Meeting was chaired by Mr. J. M. Ogwang, Acting Principal Irrigation Agronomist, Department of Farm Development, MAAIF. This was followed by the introduction of participants, where Mr. M. Ishizuka, the Team Leader of the JICA Study Team, briefly presented the outline of the Inception Report (Draft) including the basic approaches to and plan of operation of the Study. After the presentation of Mr. M. Ishizuka, various discussions were made between the Technical Working Group and the JICA Study Team, and the Inception Report was finalised based on the discussions and accepted by the Technical Working Group with the mutual confirmation on the following points:

- (1) The Ugandan side emphasised that the Development Plan to be formulated must comply with the Plan for Modernisation of Agriculture (PMA) and Poverty Eradication Action Plan (PEAP). In other words, this Study shall contribute to eradication of poverty in the Study area.
- (2) The Ugandan side expressed a concern that the irrigable area may be limited by the cost of development. Thus, the Ugandan side requested that the Study Team





should include the cost of irrigation development per hectare in the Study area.

- (3) The Ugandan side raised a concern of three districts in the Study area where the security risk might hinder the implementation of the Study. The Japanese side requested the understanding of the Ugandan side that the JICA Study Team shall have to follow the security guidelines in conducting the Study although those areas will also be included in the scope of the D/P and A/P. There is a possibility that the JICA Study Team may not be permitted to operate in the districts where the security is not assured. However, the situation in the Study area shall closely be monitored by both the Ugandan side and the Study Team in order to determine the alternatives.
- (4) The Study Team shall employ the Ugandan consultants to carry out the data collection to formulate the Draft D/P. They shall mainly work under the supervision of the Study Team.
- (5) The Ugandan side expressed concern on the development of permanent wetlands since there are some restrictions imposed upon such action. The Study Team stated that the Study will focus on the seasonal wetland and confirmed that the respective laws and regulations will be referred to and followed in the course of the Study.
- (6) The definitions of the seasonal and permanent wetland were confirmed by the Ugandan and Japanese sides. The upland is perceived as the area where the land is dry and mostly rain-fed. Where Doho Irrigation Scheme is currently located is seasonal and not permanent wetland. Based on the confirmed definition of the upland and lowland, the Study Team will focus on lowland other than upland areas, which have already been dealt with by FAO.
- (7) The Ugandan and Japanese sides confirmed the undertakings of the Government of Uganda. It was also confirmed that the main office of the Study Team will be provided by the MAAIF and will be located in Entebbe. However, during the course of the Study, the Study Team may arrange the field office where appropriate.
- (8) The Ugandan side enquired about the role of counterparts. The Ugandan and Japanese sides confirmed that the counterparts are to be appointed by the relevant organisations and will work in partnership with the Study Team. They will also receive transfer of skills through their participation in the workshops and meetings, where the experiences and lessons would be shared among the stakeholders. Both sides also confirmed that the role of the local consultant is to carry out the field activities according to the specification defined by the Study Team.
- (9) The Ugandan side agreed with the Study Team that the capacity building of the relevant personnel is important in the course of the Study. The Japanese side indicated that participation of such individuals to the training courses may be considered in the course of the Study.
- (10) The Ugandan side requested that the workshop at the national level inviting donors and private sector stakeholders should be held in order to share experiences and lessons learned from the Study. Since the Government of Uganda is promoting the

private sector involvement in agriculture, this will contribute to development of the private sector.

- (11) The Ugandan side enquired on how the Study Team will cope with areas where the water resources are scarce. The Study Team indicated that the water harvesting skills and other appropriate technologies will be introduced.



## LIST OF ATTENDANTS

### I. Ministry of Agriculture, Animal Industry and Fisheries

- Mr. G.P. Kasajja : Undersecretary  
Mr. Omoding J.O.Y : Director / Crop Resources  
Mr. J. M. Ogwang : Acting Principal Irrigation Agronomist/  
Watershed Management  
Department of Farm Development  
Mr. C. Rusoke : Principal Agriculture Officer /  
Soil & Water Conservation  
Mr. Frank A : Irrigation & Wetland Management  
Officer  
Mr. Ben Torach : Principal Agriculture Engineer/ Water  
Harvesting  
Mr. Mafumbo Julius : Regional Wetland Coordinator Eastern  
Uganda, Wetland Inspection Division  
Mr. Benon Byamugisha : Senior Economist, Department of  
Agriculture Planning & Development  
Mr. Motonori Tomitaka : JICA Expert

### II. Makerere University

- Mr. Iwadra Michael : Lecturer/ Irrigation and Drainage  
Engineer  
Agriculture Engineering Department,  
Makerere University

### III. JICA Advisory Team

- Mr. Hitoshi Fujie : JICA Headquarter  
Dr. Yukihiro Hayashi : Environmentalist

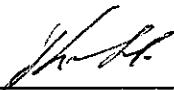
### IV. JICA Study Team

- Mr. Makoto Ishizuka : Team Leader, Agriculture Development  
Planner  
Mr. Toshimasa Kobayashi : Irrigation and Rural Infrastructure  
Engineer  
Mr. Susumu Honma : Agronomist/Agricultural Extension  
Planner  
Ms. Michiko Ebato : Rural Sociologist / Organisation and  
Capacity Building  
Mr. Ippei Itakura : Coordinator

**MINUTES OF THE MEETING ON PROGRESS REPORT (I)  
FOR  
THE STUDY ON POVERTY ERADICATION THROUGH SUSTAINABLE IRRIGATION  
PROJECT IN EASTERN UGANDA**

**AGREED UPON  
BETWEEN  
MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES (MAAIF)  
AND  
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

Entebbe, 27<sup>th</sup> January, 2004



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Mr. J. B. Kalule Sewali  
For Permanent Secretary  
Ministry of Agriculture, Animal Industry  
and Fisheries  
The Republic of Uganda



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Mr. Makoto Ishizuka  
Leader of the Study Team,  
Japan International Cooperation Agency  
Japan

1. Venue: Conference Room at Ministry of Agriculture, Animal Industry and Fisheries
2. Date: 27<sup>th</sup> January, 2004
3. Time: 10:00AM – 12:00
4. Attendants: refer to the attached list
5. Subjects of Discussion

In accordance with the Scope of Work for the Study on Poverty Eradication through Sustainable Irrigation Project in Eastern Uganda (hereinafter referred to as "the Study") agreed upon between the Ministry of Agriculture, Animal Industry and Fisheries (hereinafter referred to as "MAAIF") and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on 24th April, 2003. JICA dispatched the Study Team (hereinafter referred to as "the JICA Study Team") to conduct the 1st Field Work in Uganda, which was launched on 4th November, 2003.

At the end of the 1st Field Work, the Technical Working Group meeting on the Progress Report (1) was held between MAAIF and the JICA Study Team on 27th January, 2004. Prior to the meeting, the JICA Study Team had submitted 20 copies of the Progress Report (1).

The Meeting was chaired by Mr. J. B. Kalule Sewali, Commissioner for Department of Farm Development, MAAIF. Who welcomed the participants and introduced members from each group before requesting for the presentation from the JICA Study Team. Mr. Makoto Ishizuka, the Team Leader of the JICA Study Team, presented the outline of the Progress Report (1), including the basic concepts, methodologies, and approaches to sustainable irrigation development in Eastern Uganda. After the presentation of M. Ishizuka, various discussions between the Technical Working Group and the JICA Study Team followed and the Progress Report (1) was finally accepted by the Technical Working Group with mutual understanding on the following:

- (1) The Ugandan side enquired the rationale for the targets of development, which were set by the JICA Study Team to make production to meet the domestic demand for rice projected in 2017. The JICA Study Team responded that the targets were determined with consideration to farmers' capacity to have sufficient labour forces for rice production and to the time frame in which the Development Plan (hereinafter referred to as "D/P") was to be conducted.
- (2) The Ugandan side questioned the compatibility of paddy rice cultivation with those of other staple crops, taking into consideration the fact that farmers were generally mindful of food security. The JICA Study Team, in response observed that farmers require cash to improve on their livelihood thus combining rice as a cash crop in addition to other food crops. Furthermore, the Study was to develop paddy rice production through a participatory approach, i.e., on condition that the farmers are willing to adopt the technology.

- (3) The Uganda side asked whether the JICA Study Team was putting NAADS process in perspective in designing the improvement of extension services or otherwise. The JICA Study Team answered that the extension services will be provided through farmer groups, some of which were already formed under NAADS at village level. Consequently technical advice will be coordinated with the NAADS experience based on existing farmer groups. The JICA Study Team also clarified that NAADS provides extension only on upland crops and therefore will be coordinated with the Study which focuses mainly on lowland areas. Both sides agreed that to make extension service more effective, the extension staff need to be trained on the methods of paddy production/irrigation technologies in addition to facilitation.
- (4) Both Uganda and Japanese sides agreed that although the district coordinators of NAADS were available, they have not been fully involved in Study activities. The Technical Working Group should therefore invite NAADS for the way forward on coordination areas where they are active and in areas where they have weaknesses.
- (5) The definition of wetlands in the Study was confirmed by both Ugandan and Japanese sides: it was in accordance with that of the National Biomass Study. Types of wetlands, i.e., seasonal and permanent ones, were clarified as the permanent ones include open water areas such as rivers and lakes, while the seasonal ones refer to areas where the water levels vary according to situation/season.
- (6) Both Uganda and Japanese sides confirmed that the D/P has to be formulated within the framework of PEAP and PMA that have the ultimate goal of poverty reduction in the country.
- (7) Both Uganda and Japanese sides agree that further studies (data) are required on the economic profitability of rice per labour unit and cropping intensity in target districts
- (8) The JICA Study Team expressed the perspective that the future works of the Study will be able to involve counterparts and relevant agencies and individuals in Kaberamaido to a greater extent than the case of this first field work, which was waiting for improvement on the security situation.
- (9) Both Ugandan and Japanese sides confirmed that participation of the members of Technical Working Group in the Study activities must be enhanced not only in field works and workshops but also in office work in Entebbe.
- (10) Ugandan side noted that to-date; the D/P (draft) was on track with appropriate approaches and concepts, and encouraged all the members in the meeting on further deliberations on the Study through collaborative effort between Ugandan and Japanese side.

## LIST OF ATTENDANTS

### I. Ministry of Agriculture, Animal Industry and Fisheries

- Mr. J.B. Kalule Sewali : Commissioner Farm Development  
Mr. J.M. Ogwang : Acting Principal Irrigation Agronomist/  
Watershed Management  
Department of Farm Development  
Mr. Charles Rusoke : Principal Agricultural Officer/ Soil & Water  
Conservation  
Mr. Frank Akena : Irrigation and wetland management officer  
Eng. Ben H. Torach : Principal Agricultural Engineer/ Water  
Harvesting  
Mr. Benon Byamugisha : Senior Economist, Department of Agriculture  
Planning & Development  
Mr. Martin Fowler : Senior Policy and Program Advisor  
Mr. Motonori Tomitaka : JICA Expert

### II. Makerere University

- Eng. Michael Iwadra : Lecturer/ Irrigation and Drainage Engineer,  
Agriculture Engineering Department, Makerere  
University

### III. National Agricultural Research Organization

- Mr. Jimmy Lamo : Research Officer, Namulonge Agricultural and  
Animal Research Institute


### IV. JICA Study Team

- Mr. Makoto Ishizuka : Team Leader/ Agricultural Development  
Planner  
Mr. Toshimasa Kobayashi : Irrigation and Rural Infrastructure Engineer  
Mr. Susumu Homma : Agronomist/ Agricultural Extension Planner  
Dr. Massamba Gueye : Environmental Specialist  
Mr. Masato Sako : Agro-economist  
Mr. Ippei Itakura : Coordinator

**MINUTES OF THE MEETING FOR INTERIM REPORT (DRAFT)  
OF  
THE STUDY ON POVERTY ERADICATION THROUGH SUSTAINABLE IRRIGATION  
PROJECT IN EASTERN UGANDA**

**AGREED UPON  
BETWEEN  
MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES (MAAIF)  
AND  
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

Entebbe, 7<sup>th</sup> September 2004



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Mr. J. B. Kalule Sewali  
For Permanent Secretary  
Ministry of Agriculture, Animal Industry  
and Fisheries  
The Republic of Uganda



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Mr. Makoto Ishizuka  
Leader of the Study Team,  
Japan International Cooperation Agency  
Japan



1. Venue: Conference Room at Ministry of Agriculture, Animal Industry and Fisheries
2. Date: 3<sup>rd</sup> September 2004
3. Time: 2:30PM – 4:30PM
4. Attendants: refer to the attached list
5. Agenda:
  - 1) Presentation of Interim Report (Draft)
  - 2) Request to MAAIF
  - 3) Matters Clarified

In accordance with the Scope of Work for the Study on Poverty Eradication through Sustainable Irrigation Project in Eastern Uganda (the Study) agreed upon between the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) and the Japan International Cooperation Agency (JICA) on 24<sup>th</sup> April 2003. JICA dispatched the JICA Study Team (the Study Team) to conduct the 1st Field Work in Uganda, which was launched on 4<sup>th</sup> November 2003. The Study Team completed the 1st Field Work on 1<sup>st</sup> February 2004 with submission of Progress Report (1).

On 16<sup>th</sup> May 2004, the Study Team commenced its 2nd Field Work, which lasted till 9<sup>th</sup> September 2004. At the end of the 2nd Field Work, the Technical Working Group meeting was held to discuss the Interim Report (Draft) between the technical working group (TWG) members and the Study Team on 3<sup>rd</sup> September 2004. Prior to the meeting, the Study Team had submitted 20 copies of the Interim Report (Draft) to MAAIF and TWG members.

The meeting was chaired by Mr. J. B. Kalule Sewali, Commissioner for Farm Development Department, MAAIF. The Chairman welcomed the Study Team and the members of the TWG. Mr. Makoto Ishizuka, the Team Leader of the Study Team, presented the content of the Interim Report (Draft), including the review of D/P (draft), formulation of Action Plan (A/P), verification items in the Pilot Projects (P/Ps) and proposed components of P/Ps.

After the presentation, various discussions between the TWG and the Study Team followed and the Interim Report (Draft) was finally accepted by the TWG with mutual understanding on the followings:

#### **Presentation of the Interim Report (Draft)**

The Study Team explained the main points of findings contained in the Interim Report (Draft) with the handout and presentation. Some specific points noted in the course of explanation by the Team Leader are as follows:

- (1) Review of Draft D/P
  - Thirteen districts in the Study area are divided into four groups: namely, Pallisa, Iganda and Tororo for Group-1; Bugiri, Mayuge, Busia, Mbale and Kamuli for Group-2; Kumi and Sironko for Group-3; and Soroti, Katakwi and Kaberamaido for Group-4.
  - As one of the key areas for sustainable development; the environmental conservation component was proposed in D/P in addition to the three components, i.e., land and water resources development, production technology development

and organizational and institutional development, presented in the Progress Report (1).

- The development scenario was established in the Interim Report (Draft) dividing the period 2008-2017 into three terms; short-, mid-, and long-terms, to enhance sustainability of irrigation development. The short- and mid-terms are periods for institutional strengthening; of which short-term is classified as learning phase and mid-term, operational stage. The long-term is categorized as system expansion stage/phase.
- After the review of paddy rice production target, the total paddy field area by 2017 is estimated at 119,000 ha with the total rice production of 251,000 metric tones. The calculated production is reduced from 466,000 tones which was presented in the Progress Report (1); realizing the additional constraints for irrigation development such as in-availability of irrigation engineers and agronomists for lowland paddy sub-sector development and controlled wetland development by NEMA.

(2) Formulation of A/P

- The Study will formulate six A/Ps for urgent and essential activities to be undertaken during 2008-2010 period. Four A/Ps are envisaged to cope with area-specific constraints, and two A/Ps are formulated to cope with overall constraints in which Doho Integrated Development Project is included.

(3) Verification Items and Components of P/P

- P/P is implemented to verify a) increase of unit yield of lowland paddy, b) development of management capacity of Primary Rice Growers' Association, and c) capacity building for government staff and farmers on wise use of wetland.
- The major components of P/P were explained, but with the emphasis that they would be subjected to review by JICA.
- Due to the insecurity of the northern three districts, the location of P/P for Group-4 was selected from the potential site in Sironko district as Muyembe P/P, which has a similar agro-ecological condition with high potential for new development. The Muyembe P/P is expected to provide guidelines for sustainable irrigation development for the northern three districts.

**Request from the JICA Study Team to MAAIF**

(4) Project Brief Screening

- MAAIF submitted project briefs for four P/Ps to NEMA with the assistance of the Study Team on 16<sup>th</sup> August 2004. Although, the screening on the project briefs was planned to be completed within three weeks, MAAIF and the Study Team have not received any response from NEMA by the end of August. Since the decision on the necessity of EIA is important for the planning the implementation schedule of P/P, MAAIF was requested to remind NEMA to accelerate the screening process based on the project briefs.

(5) Water Rights Fees

- The Study Team found that when farmers form themselves into groups and establish the Primary Rice Growers' Association (PRGA), they have to acquire the water rights permit and pay for the water charges fee annually as stipulated by the Water Act. The application fee for the water rights and its annual charge are extremely expensive for the PRGA; a group of farmers at subsistence level. Based

on such findings, the Study Team requested MAAIF to start discussions with the agencies concerned in order to review water charges which could impact negatively on the formation of PRGAs. Alternatively, the government could undertake to meet the charges.

### **Comments and Matters Clarified**

#### **(6) NAADS Activities and Service Providers**

- The MAAIF Adviser suggested that the Study Team should involve and emphasize on training of the NAADS service providers for rice production in P/P. The Study Team responded that it also understood the important role of the service providers which they would play in the future extension services. The Study Team additionally explained that, in some districts, the extension staff is still expected to carry out the services besides the NAADS service providers. Thus, the P/P will give training to both the extension staff and service providers.

#### **(7) Insecurity in Northern Three Districts**

- The MAAIF Adviser wanted to know the position of the Study Team in case the insecurity problem in the northern districts was solved by 2008. This is because the government recommends that a big portion of the agricultural budget, planning and donors' fund should be channelled to the northern districts to cater for the post-war era. He suggested that the Study Team should be prepared for such eventualities; otherwise, it would be performing activities against government policy.
- The Study Team clarified that although the demonstration plot is not included in P/P for the northern districts, other components are provided for in those areas. The Study Team also explained that the Ugandan government has to arrange for the budget for the implementation of A/P. If the security situation in the northern districts is improved, MAAIF is expected to come up with new plans for implementation.
- The JICA Expert additionally responded that, as the Study Team explained, Sironko district is representing Group-4 in P/P; therefore, A/P for Group-4 will be formulated based on the lessons learned from the P/P in Sironko district.

#### **(8) Pilot Project**

- NARO commented that the number of days allocated for the training of irrigation engineer is too short; although, everyone in the meeting understood that a lack of engineers is one of major constraints. The Study Team responded that the on-the-job training will be more effective and efficient for the capable irrigation engineers; therefore, the team allocated more days for the in-field training. In addition, although it will not be funded by the Study, the Study Team will assist MAAIF to train potential irrigation engineers utilizing opportunities available at AICAD.
- The JICA Expert suggested that some of the proposed plans may require a lot of trials and trainings such as use of animals for farming practices. Accordingly, the Study Team is requested to examine the possibility of applying such techniques in the limited period of the P/P.
- NARO shared the experience of using oxen ploughing in the swamp which the Study Team explained was very difficult.

(9) **Utilization of Fertilizers**

- The Study Team explained that it was not profitable to use chemical fertilizers since they are too expensive.
- MAAIF staff suggested that since NARO is currently running tests on the same area, their findings would be benefit and could be presented in the next meeting or so.

(10) **Economic Analysis and Financial Evaluation**

- The Study Team explained that, as a preliminary result of the financial evaluation, the O&M and renewal costs of irrigation facilities can be borne by the farmers, but they cannot repay the initial investment cost. Consequently, the initial investment cost has to be supported by the government, NGOs or donors. Although the results of the above analysis are not included in the draft report, the Study Team will include them in the final version of Interim Report.
- The MAAIF Adviser suggested that the cost of labour which could be diverted from doing other activities has to be considered by applying opportunity cost for the financial evaluation.
- The Study Team responded that it has completed crop budget analysis, although the farm budget analysis has not been carried out. This will be reviewed in Japan and will be presented in the final version of the Interim Report.

(11) **Water Rights and Water Charge**

- The JICA Expert wanted to know how and which agency manages annual water cost as the issue on water rights would affect new development as well as the existing schemes like Doho Rice Scheme.
- The MAAIF clarified that the purpose of water rights was to protect the downstream water users and improve in the efficiency of water management by the beneficiaries.
- MAAIF pointed out that the necessary fee indicated for water rights was suggested for commercial users and not subsistence farmers who abstract up to 400 m<sup>3</sup>/day. Hence, they would try to work on this issue so that the groups formed by farmers are not discouraged by the high fees.

(12) **Wetland Utilization and Ownership**

- The JICA Expert wanted to know about the law reinforcement on wetland ownership and the direction of the wetland management in this country. This was important because the implementation of A/P and D/P will be followed after the completion of the Study.
- WID pointed out that wetland ownership is a process which had just begun. When the guideline was established, there were already existing wetland users. However, the initial objective was to get people out of these wetlands. The guidelines were prepared to reduce the negative impact to the wetland since there was no way of evicting them.

There being no other business, the Chairman closed the meeting at 4:30 pm.

**LIST OF ATTENDANTS AT TWG MEETING  
(September 3rd, 2004)**

**I. Ministry of Agriculture, Animal Industry and Fisheries**

- Mr. J.B. Kalule Sewali : Commissioner Farm Development  
Mr. J.M. Ogwang : Acting Principal Irrigation Agronomist/  
Watershed Management Div. of Farm Development  
Mr. Charles Rusoke : Acting Principal Agricultural Officer/  
Soil and Water Conservation  
Mr. Frank Akena : SAO/Wetlands Management  
Mr. Ben H. Torach : Principal Agricultural Engineer/ Water Harvesting  
Mr. Byaruhanga G.K. : Farm Development  
Mr. Martin Fowler : Senior Policy and Program Advisor  
Mr. Motonori Tomitaka : JICA Expert

**II. National Agricultural Research Organization (NARO)**

- Mr. Jimmy Lamo : Research Officer, NAARI  
Mr. Charles Mutumba : Irrigation Research Officer, AEATRI  
Mr. Kisekka Baya : Irrigation Engineer  
Mr. Tatsushi Tsuboi : JICA Expert

**III. Ministry of Water, Land and Environment (MWLE)**

- Mr. Julius Mafumbo : Regional Wetland Coordinator Eastern Uganda,  
Wetland Inspection Division (WID)

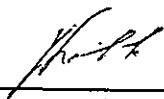
**IV. JICA Study Team**

- Mr. Makoto Ishizuka : Team Leader/ Agricultural Development Planner  
Dr. Gueye Massamba : Environmentalist  
Mr. Masato Sako : Agro-Economist  
Mr. Masahito Miyagawa : Coordinator

**MINUTES OF THE MEETING FOR PROGRESS REPORT (2)  
OF  
THE STUDY ON POVERTY ERADICATION THROUGH SUSTAINABLE  
IRRIGATION PROJECT IN EASTERN UGANDA**

**AGREED UPON  
BETWEEN  
MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES (MAAIF)  
AND  
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

Entebbe, 25<sup>th</sup> April 2005



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Mr. J. B. Kalule Sewali  
For Permanent Secretary  
Ministry of Agriculture, Animal Industry  
and Fisheries  
The Republic of Uganda



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Mr. Makoto Ishizuka  
Leader of the Study Team,  
Japan International Cooperation Agency  
Japan

1. Venue: Conference Room; Ministry of Agriculture, Animal Industry and Fisheries
2. Date: 18<sup>th</sup> April 2005
3. Time: 10:00AM – 12:00PM
4. Attendants: refer to the attached list
5. Agenda:
  - 1) Briefing from the Chairman
  - 2) Comments on the minutes of previous meeting held on 16<sup>th</sup> Dec, 2004
  - 3) Presentation of the Progress Report (2) by Mr. Makoto Ishizuka and Mr. Toshimasa Kobayashi
  - 4) Arising matters from the presentation

The JICA Study Team commenced the 3<sup>rd</sup> field work on 7<sup>th</sup> December 2004. At the end of the 3<sup>rd</sup> field work, a Technical Working Group (TWG) meeting was held between MAAIF, WID, NARO, Makerere University and JICA Study Team on 18<sup>th</sup> April 2005.

The meeting was chaired by Mr. J. B. Kalule Sewali, Commissioner for Farm Development Department. At the opening of the meeting, he thanked JICA for giving him an opportunity to travel to Japan to get acquainted with aspects of water catchment techniques, which are of vital contribution to national development. He also thanked NEMA for a no objection towards the previous meeting held between MAAIF, NEMA, WID, DWD and JICA Study Team on the 22<sup>nd</sup> December 2004.

He added that the JICA Study Team had come up with a lot of imperative information which was very vital for all stakeholders, and accordingly it was important that at this stage the TWG members should give an input to the JICA Study Team efforts.

#### **Reviewing of the Record of the previous TWG meeting held on 16<sup>th</sup> December 2004**

##### **(1) Insecurity in Northern three Districts**

MAAIF commented that there was proper security to safe guard against the Lords Resistance Army rebel group in the area. The districts are therefore accessible for the JICA Study Team.

##### **(2) Water rights regulations**

MAAIF commented that the water use in the selected pilot project areas is too little as compared to the amount required for the acquisition of abstraction permit.

##### **(3) Upland Rice Production**

The JICA Study Team commented that in some areas such as Sironko district where the soil had been over eroded, the JICA Study Team would advocate for farmers to adapt to rice or general cultivation of other crops in the upland since the area is less productive due to nutrient deficiency caused by the erosion and leaching.

##### **(4) Differentiation of Wetlands**

WID commented that differentiation of wetlands should be conducted by WID, but not NEMA. WID added that these wetlands should be categorized by the functions they perform in and based on community levels (management purposes).

## Presentation of the Progress Report (2) by Mr. Makoto Ishizuka and Mr. Toshimasa Kobayashi

Prior to the report presentation, the Team Leader of the JICA Study Team, Mr. Makoto Ishizuka submitted 20 copies of the Progress Report (2) to MAAIF. He then explained the overall schedule of the Study which has been changed due to much time spent in MAAIF-NEMA communication, mainly for the implementation of the 4 pilot projects. After this remark, he explained the contents of the Progress Report (2). Later, Mr. Kobayashi explained the progress on the Potential Irrigation Engineers training programme and the plan for future training programmes.

### Arising matters from presentations

The chairman thanked the JICA Study Team for tremendous works done during the period and added that the findings were very important to all stakeholders and the nation as a whole. He understood and accepted the change of the implementation schedule of the pilot projects. He later opened the floor for discussion.

#### 1) More Training for the Irrigation Engineers

Makerere University, Mr Iwadra observed that the Potential Irrigation Engineers required more training so as to be qualified Irrigation Engineers, although they had successfully completed the previous course. He also added that the MAAIF should employ several permanent qualified Irrigation Engineers for the implementation of both the present study and future developments.

The chairman responded that under decentralisation, MAAIF had advocated the need to have an agricultural engineer in each district all over the country. He added that on the issue of recruiting more Irrigation Engineers in MAAIF, it was the Ministry of Public Service and Public Service Commission to handle.

#### 2) Baseline of Water Quantity

WID asked whether the baseline of the water quantity had been tackled.

The JICA Study Team answered that this was not included in the Progress Report (2), but the Team had computed the total water balance in each Action Plan area as presented in the Interim Report.

#### 3) Discharge Amounts

NARO asked to NEMA and WID whether these agencies had established standards for minimum discharge of water for respective rivers.

WID answered that such standards had not been established yet.

#### 4) The Terminology of Potential Irrigation Engineer

The JICA Expert, Mr. Tomikata asked what would be the future name for Potential Irrigation Engineers otherwise there was need to modify it.

MAAIF suggested that the name should be maintained as Potential Irrigation Engineers. It was emphasized that when these engineers get vast experience like 10 years, the term "potential" will be dropped to make them full Irrigation Engineers.

#### 5) One Seedling per Hill

The JICA Expert, Mr. Tomitaka commented on the possibility of one seedling per hill and asked the Study Team to justify their statement by quoting any country in the world applying the technology.

The JICA Study Team responded that this was feasible for the demonstration plots, but this



may not be realistic on the ground although it created a lot of enthusiasm with farmers. The Team also responded that it had taught the trainees to transplant two to three seedlings per hill on the actual ground.

6) The Plant Spacing for Paddy Rice

The JICA Expert, Mr Tomitaka asked why the plot 25cm x15cm spacing was considered instead of the yield as a positive indicator to the farmers and stakeholders.

The JICA Study Team responded that the only present reliable positive indicator was based on the spacing technique since the yield was not yet available and weeding by the use of push weeder was simple.

7) Increasing Capacity Development

NARO claimed that MAAIF did not have enough capacity to promote irrigation and train irrigation and water management engineers whose functions could be transferred to another ministry.

MAAIF reacted that the issue of capacity development/building was a myth; the present situation is dictated upon by lack of funds otherwise there is sufficient capacity both in MAAIF and NARO.

8) On the issue of Permits

The chairman asked if NEMA/WID would have a simplified system of granting permits particularly for wetland users.

WID answered that NEMA was trying to work out a way in which the permits would be issued at district level (i.e. in some areas such as Kumi district).

9) The cost for water charges being Ush 1,000,000 for 400 cu.m-1000 cu.m per year

The JICA Expert, Mr Tomitaka called for the concerned stakeholders to revise the cost of water charges since it was too high. He also suggested that there was need to differentiate between domestic use and farming activities.

The chairman added that there was need to revise these regulations for the benefit of smallholder farmers.

**There being no other business, the chairman closed the meeting at 12 noon.**

## LIST OF ATTENDANTS AT TWG MEETING

(April 18<sup>th</sup> 2004)

### I. Ministry of Agriculture, Animal Industry and Fisheries

- Mr. J.B. Kalule Sewali : Commissioner Farm Development  
Mr. J.M. Ogwang : Acting Principal Irrigation Agronomist/  
Watershed Management, Dept. of Farm Development  
Mr. Benon Byamugisha : Senior Economist, Dept. of Agriculture Planning and  
Development  
Mr. Frank Akena : Senior Agricultural Officer/Wetlands Management  
Mr. Motonori Tomitaka : JICA Expert

### II. National Agricultural Research Organization

- Mr. Charles Mutumba : Research Officer/Irrigation

### III. Water Inspection Division

- Ms. Norah Namakambo : Senior Wetland Inspector/Wetlands  
Mr. Julius Mafumbo : Regional Wetland Coordinator-Eastern/Wetlands

### IV. Makerere University

- Mr. Michael Iwadra : Senior Lecturer, Irrigation and Drainage.

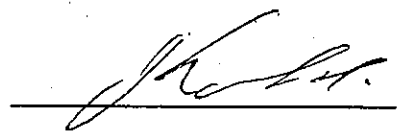
### V. JICA Study Team

- Mr. Makoto Ishizuka : Team Leader/ Agricultural Development Planner  
Mr. Toshimasa Kobayashi : Irrigation and Rural Infrastructure Engineer  
Mr. Mitsuru Nanakubo : Coordinator

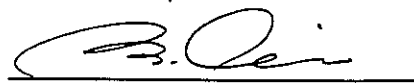
**MINUTES OF THE MEETING FOR PROGRESS REPORT (3)  
OF  
THE STUDY ON POVERTY ERADICATION THROUGH SUSTAINABLE  
IRRIGATION PROJECT IN EASTERN UGANDA**

**AGREED UPON  
BETWEEN  
MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES (MAAIF)  
AND  
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

Entebbe, 25<sup>th</sup> October 2005



Mr. J. B. Kalule Sewali  
For Permanent Secretary  
Ministry of Agriculture, Animal Industry  
and Fisheries  
The Republic of Uganda



Mr. Makoto Ishizuka  
Leader of the Study Team,  
Japan International Cooperation Agency  
Japan

1. Venue: Conference Room; Ministry of Agriculture, Animal Industry and Fisheries
2. Date: 25<sup>th</sup> October 2005
3. Time: 10:00AM – 12:30PM
4. Attendants: refer to the attached list
5. Agenda:
  - 1) Briefing from the Chairman
  - 2) Comments on the minutes of previous meeting held on 18<sup>th</sup> April, 2005
  - 3) Presentation of the Progress Report (3) by Mr. Makoto Ishizuka and Mr. Toshimasa Kobayashi
  - 4) Arising matters from the presentation

The JICA Study Team commenced the 4<sup>th</sup> Field Work on 21<sup>st</sup> August 2005 for the continuous implementation of pilot projects until the end of February 2006. At the end of October 2005, the Study Team prepared the Progress Report (3) indicating the progress of pilot projects after the 3<sup>rd</sup> Field Work which was completed by the end of April 2005. A Technical Working Group (TWG) meeting was thus held between MAAIF, NARO, and Study Team on 25<sup>th</sup> October 2005 in order to enhance discussions on the contents of the report.

The chairman, Mr. J. B. Kalule Sewali welcomed all members to the meeting and requested self introduction for all participants. He pointed out that the Study is very important because it will provide useful data and information through implementation of the pilot project and appropriate programmes for the development of paddy rice sub-sector.

#### **Reviewing of the Record of the previous TWG meeting held on 18<sup>th</sup> April 2005**

(1) Mr. Martin Fowler requested for clarification on statement “he also thanked NEMA for a no objection towards the previous meeting”. The chairman explained that the “no objection” was referring to the Study being cleared for development of paddy rice in the wetland at the pilot project stage.

(2) On the issue of insecurity in the Northern three districts (Soroti, Katakwi and Kaberamaido), Mr. Ishizuka explained that the Government of Japan has relaxed restrictions, and the Study Team will visit these districts during the period of 4th Field Work with JICA permission.

(3) Training of water resources development engineers has already started. The chairman requested that issues of hydrology be critically observed because there are declining water levels in the country. The chairman suggested that there should be standards for minimum water abstraction from rivers.

#### **Presentation of the Progress Report (3) by Mr. Makoto Ishizuka and Mr. Toshimasa Kobayashi**

Prior to the report presentation, Mr. Makoto Ishizuka, Team Leader of the Study Team, submitted 20 copies of Progress Report (3) to MAAIF pursuant to Clause VI of the Scope of Work (S/W) for the Study.

He presented the contents of Progress Report (3) highlighting the schedule of 4th Field Work and monitoring results of the pilot project implemented in the 3rd Field Work. As the important information, he noted that the irrigation command areas of two pilot projects (Kumi

and Sironko districts) were decreased from the planned ones in the Progress Report (2) because there was a budget shortfall from JICA. Although the attendants from MAAIF expressed deep concern about the farmers in pilot project areas, they understood the situation. Progress of the construction works for irrigation facilities was presented by Mr. Kobayasi. He gave a brief presentation on the excavation of irrigation canal and embankment construction for the maintenance road.

### **Arising matters from presentations**

The chairman thanked the two presenters for the wonderful presentations and called for questions and comments.

#### **1) CDO (Community Development Officers)**

Mr. Byamugisha opened the discussion by asking how the Study Team can assist the CDO to become active in helping farmers to organize themselves and register CBOs.

Mr. Ogwang explained that the major problem is lack of facilitation to the CDOs. He however said that this was because the pilot project started after the districts had already finalised the budgeting process and had not catered for this in their budget. The district administration has now realized the importance of the project and has promised to table it to the district council; sourcing allocation of funds to facilitate CDO's.

#### **2) Farmers' Fear of MAAIF and JICA**

On fear of MAAIF and JICA intentions on wetlands, Mr. Rusoke explained the history of paddy rice sub-sector in the country. He said that farmers around Kibimba rice scheme had lost their land when the scheme was started by the government under the assistance from the Chinese government, and this could be the reason for the fear. However, he suggested that we need to constantly talk to the farmers and reassure them that government will not chase them away from the wetlands. The chairman encouraged the Study Team to constantly talk and associate with NEMA, district Environment and Wetland Officers and invite them to participate in all the activities of the pilot projects.

#### **3) Linkage between NAADS and JICA**

Mr. Martin Fowler asked how the Study Team was linking with NAADS.

Mr. Ogwang explained that NAADS staff is very thin on ground and several attempts have been made to invite them, but only attended the meetings once. It seems they have been pre-occupied with other activities although this could be one of their priority areas. Mr. Ishizuka also explained that there were some improvements, in progress of the project in Tororo district which, probably could be the result of NAADS intervention. The chairman, on this note requested the Study Team to invite a NAADS representative in the next workshop in Mbale. Mr. Fowler also requested the team to talk to the NAADS technical director in Kampala and show them exactly what the Study Team is doing because there is a lot of information that could be shared between the 2 parties.

#### **4) Mid-term Evaluation**

Mr. Martin Fowler asked how the Study Team is going to carry out the mid-term evaluation and why in January.

Mr. Ishizuka explained that the next crop harvest will be in January and the Study Team will have to wait for the results from the harvest. Therefore, there will be 2nd monitoring report before the mid-term evaluation is conducted. He explained that the mid-term evaluation will

be held based on the monitoring results.

In addition, Mr. Ogwang explained that the time schedule of the mid-term evaluation workshop depends on the JICA programme (arrival of Environmental specialist), and also January will be a dry season and there will be fewer activities in the field and this would be appropriate time for the workshop. It was explained that attention is currently going to be focused on the construction of irrigation facilities.

#### **5) Water Quality Monitoring**

Mr. Martin Fowler asked why the water quality monitoring is not continuous. This was explained by Mr. Ishizuka that water quality monitoring once a year is technically good enough unless otherwise.

#### **6) Study Focus**

Mr. Fowler wanted the Study Team to assure the TWG whether the study focuses on poverty eradication or it is focusing on the technical aspects only.

Mr. Ishizuka explained that the income aspects of the pilot project were explained in the Progress Report (3). Mr. Ogwang explained that the yield increment explained transforms into income. Mr. Fowler requested the Study Team to closely monitor the costs involved and the yield obtained in relation to income.

#### **7) Processing capacity of paddy rice**

Mr. Fowler asked whether the Study Team took into consideration the processing and marketing of paddy rice for farmers, because farmers may produce what they may fail to sell and later blame government.

Mr. Ogwang answered that the private sector has acquired processing facilities and it will be useful for the farmers to come into groups and in order to bargain together, in the course of marketing, for better price.

#### **8) Agrochemicals recommended**

When and who will provide the list of agrochemicals recommended for use in Uganda

Mr. Ogwang explained that the Study would recommend resistant varieties other than the ones which require agrochemicals. He promised to contact the Plant Protection Department on the list of recommended agrochemicals. This would need recommendation from Namulonge Research Institute, yet research on paddy rice is at its initial stage in the country.

#### **9) Measuring the amount of water required**

The chairman asked about the availability of technique for measuring the amount of water required for irrigation.

Mr. Kobayashi answered that the farmers will have a measuring gauge at the intake for the water levels and will continue monitoring it in the course of irrigation.

#### **10) Embankment**

The chairman additionally asked how the farmers positively participate in the embankment activities.

Mr. Kobayashi responded that the farmers actively participated and even suggested that the height of the embankment be raised with the labour provided by themselves.

### **11) Energy for Rural Transformation Project**

Eng. Mutumba informed the meeting that, because the energy for rural transformation project is planning to set up a hydropower project on river Muyembe, up-stream, the intervention could affect the pilot project which is down stream.

The response was that the project initiators visited Mr. Ogwang in his office and discussed the issue exhaustively, but the work in Sironko is targeting River Sipi not Muyembe. Mr. Kobayashi also added that power generation does not affect water supply for irrigation purposes.

There being no other question, the chairman concluded by saying that TWG members should continue sensitising the farmers for increased and sustainable productivity of paddy rice and closed the meeting at 12:25.

**LIST OF ATTENDANTS AT TWG MEETING**  
**(October 25th, 2005)**

**I. Ministry of Agriculture, Animal Industry and Fisheries**

Mr. J.B. Kalule Sewali : Commissioner Farm Development  
Mr. J.M. Ogwang : Acting Principal Irrigation Agronomist/  
Watershed Management Div. of Farm Development  
Mr. Charles Rusoke : Acting Principal Agricultural Officer/  
Soil and Water Conservation  
Mr. Byaruhanga G.K. : Farm Development  
Mr. Benon Byamugisha : Senior Economist  
Mr. Martin Fowler : Senior Policy and Program Advisor  
Mr. Motonori Tomitaka : JICA Expert

**II. National Agricultural Research Organization (NARO)**

Mr. Charles Mutumba : Irrigation Research Officer, AEATRI

**III. JICA Uganda Office**

Mr. Takehiro Susaki : Resident Representative

**IV. JICA Study Team**

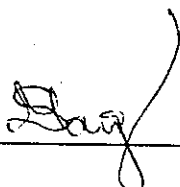
Mr. Makoto Ishizuka : Team Leader/ Agricultural Development Planner  
Mr. Toshimasa Kobayashi : Irrigation/Rural infrastructure Engineer  
Dr. Michiko Ebato : Rural Society/ Capacity Building Expert  
Mr. Natsuno Matsuura : Coordinator  
Mr. Katumba B.M. : Agrudas



MINUTES OF THE MEETING FOR PROGRESS REPORT (4)  
OF  
THE STUDY ON POVERTY ERADICATION THROUGH SUSTAINABLE  
IRRIGATION PROJECT IN EASTERN UGANDA

AGREED UPON  
BETWEEN  
MAAIF (MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES)  
AND  
JICA (JAPAN INTERNATIONAL COOPERATION AGENCY) STUDY TEAM

Entebbe, 22<sup>nd</sup> February 2006



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Mr. Maurice Okello Ocaya  
Acting Assistant Commissioner,  
Farm Development  
Ministry of Agriculture, Animal Industry  
and Fisheries  
The Republic of Uganda



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Mr. Makoto Ishizuka  
Leader of the Study Team,  
Japan International Cooperation Agency  
Japan

## Minutes of Technical Working Group Meeting (No. 11) for Progress Report (4)

1. Venue: Board room of the Ministry of Agriculture, Animal Industry and Fisheries
2. Date: 21 February, 2006
3. Time: 10:20 am – 12:40 pm
4. Attendants: As attached.
5. Agenda:
  - i. Brief communication from the Chairperson
  - ii. Comments on the minutes of previous meeting
  - iii. Presentation on the Progress Report (4) by the JICA Study Team
  - iv. Presentation by the JICA expert at MAAIF on the visit of JICA Advisory Team
  - v. Discussion on presentation by the JICA Study Team and JICA expert (MAAIF)
  - vi. Matters Arising from the presentations

The JICA Study Team has prepared Progress Report (4) indicating the progress of pilot projects' implementation between October 2005 and February 2006 and the results of mid-term evaluation of overall project' implementation at the end of 4th Field Work. A Technical Working Group (TWG) meeting was thus held between MAAIF and the Study Team on February 21, 2006 to enhance discussions on the contents of the report.

### **1) Brief communication from the Chairperson**

In this particular meeting, Mr. Kalule Sewali, the Commissioner Farm Development, had delegated his responsibility as a chairperson of the TWG to Mr. Okello Ocaya, the Acting Assistant Commissioner Watershed Management. Mr. M. Okello Ocaya conveyed the apology from Mr. Sewali and opened the meeting at 10:20 am.

### **2) Comments on the Minutes of previous meeting**

Mr. Ocaya invited Mr. Ogwang to lead the meeting in the review of the previous minutes. Each page of the minutes was revisited by the attendants. The comments were mostly on updates of the events which were indicated in the previous minutes.

#### Mid-term evaluation and linkage between NAADS and JICA

Mr. Fowler requested updates on the mid-term evaluation workshop. The Study Team responded that the day's presentation would include the details. He also enquired whether the NAADS chairperson or representative had participated in the workshop. Mr. Rusoke responded that a representative from NAADS was invited although his participation was limited due to his other commitments.

#### Farmers' fear of MAAIF and JICA

Mr. Ogwang commented on the farmers' fear on farming in wetlands in eastern region. In the said area, farmers have had assumed ownership of the wetlands. Under such a circumstance, farmers commonly

assume that the land extending from upland to the main stream to be under their ownership. Despite the evidences of cartographic survey to demarcate the wetlands and uplands, it is difficult to convince the farmers that the wetlands belong to the government as stipulated by law. In reality, the farmers have been cultivating wetlands since 1940s. In Soroti, Katakwi and Kaberamaido, on the other hand, farmers are more aware of the ownership of the wetlands.

#### Agrochemicals recommended

Mr. Fowler asked how the study team has been dealing with uses of agrochemicals. Mr. Ogwang commented that the study team has been depending on the pest-resistant varieties and application of compost manure and azolla rather than agrochemicals since it might have serious effects on the down stream farmers. Mr. Rusoke, then, added that a list of the accepted agrochemicals was distributed to the participants during the workshops on new development and wetland environmental conservation. Mr. Ocaya also commented that the use of the agrochemicals should be considered with caution.

#### Embankment construction in Sironko pilot site

Mr. Akena requested for the update on the construction of the embankment in Sironko pilot site. Mr. Kobayashi explained that due to the nature of Sipi River, one would expect the flood. Thus the embankment has been constructed to minimize flood damage. However, the continuous compaction and maintenance of the embankment will be required to ensure maximized function of the facility for the coming few years before it stabilizes. In the same issue of compaction, the members of the TWG had requested that the compactor should be made available for better compaction of the facilities. However, he also explained that manual compaction, is implemented properly, should be sufficient. He also clarified that the contractor is responsible for any defects that may occur during the one year liability period, until Feb 2007 which is specified in the contract document.

### **3) Presentation of Progress Report (4)**

Prior to the report presentation, Mr. Ishizuka , Team Leader of the JICA Study Team, submitted 20 copies of Progress Report (4) to MAAIF pursuant to Clause VI of the Scope of Work for the Study. Accordingly, Mr. Ishizuka and Mr. Kobayashi presented the progress and achievements of the activities, including construction of irrigation facilities and training, facilitation of agreement exchange, development of CWMPs, monitoring surveys, water quality monitoring, workshop on new development of irrigation systems and wetland conservation, and workshop on mid-term evaluation. During the presentation, the following clarification was made.

#### Problem identified by the central government officials in the workshop for mid-term evaluation

Mr. Fowler requested for the clarification on the problem identified by the central government officials during the mid-term evaluation workshop. Mr. Rusoke clarified that MAAIF and NARO are supposed to provide technical guidance and services to farmers, but it is not possible due to in-adequate funding.

#### Planting eucalyptus trees

Mr. Fowler wanted to know why farmers should not plant eucalyptus trees in the wetlands. Mr. Ogwang explained that eucalyptus exhausts ground water and thus not suitable where water

conservation is required. Mr. Ocaya added that it degrades the vegetation of the planted area thus further promoting soil degradation.

#### **4) Discussions**

After the presentation, Mr. Ocaya thanked presenters for the good presentation and was glad to see the high level of community participation which ensures sustainability and compliance of activities to the NEMA guidelines. On the other hand, Mr. Ocaya acknowledges that there are issues to be dealt with.

##### Irrigation facilities constructed in Sironko pilot site

Mr. Ocaya then conveyed the comments from Mr. Sewali for Sironko pilot site. Mr. Sewali raised the importance of continuous monitoring of on-farm development and actions to be taken by the contractor during the liability period. He had also observed some seepage in the drainage canal and suggested the lining or stone pitching of the facility. Mr. Kobayashi explained that, regarding the supervision of the contractor, both the Potential Irrigation Engineer (PIE) and farmers would be responsible for monitoring of the facilities and thus supervising the works to be carried out by the contractor. In particular, PIEs have been instructed by Mr. Kobayashi to visit the site at least 3 times a week. For the purpose of continuous monitoring, MAAIF also expressed its intention to request for budget so that the technical staff could visit the field more frequently. Mr. Kobayashi also explained that the seepage has been caused by the cracks on the surface caused by the low moisture content of the soil and should not cause the water leakage from the embankment. It will be minimized as the rain starts and with the farmers' continuous compaction and maintenance of the facilities which has already been instructed by him.

##### Land leveling in Sironko pilot site

Mr. Ocaya also posed an enquiry from Mr. Sewali as to how the land leveling would be carried out in Sironko pilot site. Mr. Kobayashi explained that the land leveling is to be carried out by the farmers, which have been agreed upon by the participating farmers prior to the commencement of the construction works. However, in Sironko, a tractor was used to plough since immediate manual leveling was not feasible due to thick vegetation.

##### Vagueness of enforced environmental laws and regulation

Mr. Ocaya posed a question to the Study Team on the implications of responses from various stakeholders regarding wetland user permit and water permit which are obtained during the workshop on new development of irrigation systems and wetland conservation. Mr. Ishizuka explained that the workshops provided an opportunity for various stakeholders to share their views on the issues of permits and environmental guidelines. During the workshops, it became clear that the interpretation of the laws and regulation and how they should be implemented are not consistent. Mr. Ishizuka urged MAAIF to take initiative to clarify such issues in order to create an enabling environment for promoting paddy rice production. Mr. Fowler supported Mr. Ishizuka's suggestion and advised that the irrigation policy, currently in draft form, should clearly spell out these controversies.

#### Suggestion for inviting the contractor to TWG meeting

Mr. Tomitaka suggested that the Study Team should share frank opinion of members on the construction of the embankment and other works. He also suggested that in future, the contractor could be invited to the TWG in order to share the technical queries raised by the members. Mr. Ocaya supported the idea. However, Mr. Rusoke raised a concern that the issues raised may not require the attention of the contractor since many of the members of TWG have not visited the site and thus the discussion would be effective if it were held in the field.

#### Funding for monitoring

Regarding insufficient funds allocated for carrying out field visits by the MAAIF technical staff, Mr. Tomitaka expressed concern as to why the problem has persisted for the last 3 years. Mr. Fowler reacted that the Ministry's budget allocation on M&E was increased and he therefore sees no reason for financial problems unless priorities have been mis-placed. He also suggested that the Planning Department should also be invited to attend the discussions on financial matters.

#### **5) Presentation by Mr. Tomitaka on JICA advisory team visit**

Mr. Tomitaka reported on the visit of the JICA advisory team between 14<sup>th</sup> and 21<sup>st</sup> December 2005. The team visited 4 sites and Doho rice scheme together with the Study Team members. The advisory team, in general, had a good impression on the study though there are a few points to be noted.

In the latter half of presentation, Mr. Tomitaka posed a question as to how JICA and GOU shall cooperate in future. He asked the members to consider how the outputs of the study and the other initiatives on paddy rice production such as KATC, AAKCP (Asia-Africa Knowledge Co-creation Programme), NERICA rice promotion could enhance cooperation. He also suggested that development of the appropriate technology and tools should also be encouraged. In formulating irrigation development plan, he requested MAAIF and the Study Team to do so in the context of river basin management.

#### Reaction to Mr. Tomitaka's presentation.

Mr. Ocaya commented that the Study Team had highlighted community participation at all levels which lessons are also shared by MAAIF. MAAIF should promote the same for increased sustainability of the intervention. MAAIF requested for further collaboration with JICA in capacity building of the local officials in other districts which the Study Team has already commenced. In the area of land use and water management and paddy rice cultivation, future collaboration between JICA and MAAIF is possible. In terms of development and promotion of appropriate technology, private sector collaboration can be an option. Mr. Fowler suggested the expansion of JICA's cooperation to other crops other than paddy and also in development assistance in Uganda in general. Mr. Tomitaka responded that JICA also started sericulture project and there is a proposal (in progress) on resettlement of IDPs (Internally Displaced Persons) in northern Uganda and Teso region.

In terms of Doho rehabilitation, Mr. Ocaya expressed that MAAIF has also been concerned. Currently, necessary action to start the construction works is in progress.

Mr. Ogwang reflects on the past 2 years of the study and noted that the time allocated for the irrigation engineer is in-adequate. Consequently, construction works in each site could not fully benefit from the engineer's technical support and guidance.

#### **6) Any other issues**

##### Work plan for coming fieldwork

Mr. Akena requested the Team Leader to give a briefing on the work plan for the next fieldwork. Mr. Ishizuka explained that the 5<sup>th</sup> Field Work is planned between May and November 2006. Each specialist will be dispatched at the appropriate time; considering the cropping season: Mr. Kobayashi and Mr. Homma will carry out their field work during the initial stage of production, while the others will carry out their follow up activities in August after the harvest. Towards the end of the 5<sup>th</sup> Field Work, the final report will be drafted where the Study Team would present modified development plan based on the findings from the pilot projects.

##### Necessity of visual training material

Mr. Tomitaka requested the Study Team to keep the audio visual record for future work. Mr. Kobayashi responded that the DVD would be distributed. Mr. Ogwang indicated that the hard copy form accompanied by the DVD or other visual material would be very helpful for future use to facilitate technology transfer.

Mr. Ocaya expressed appreciation to the Study Team for presentation of the progress report and the efforts made. He also thanked the participants for constructive discussions. The issues raised during the meeting were well shared. In conclusion Mr. Ocaya pledged MAAIF's further cooperation with JICA and the Study Team and declared the meeting closed at 12:40 pm..

## LIST OF ATTENDANTS AT TWG MEETING

(February 21st, 2006)

### I. Ministry of Agriculture, Animal Industry and Fisheries

- Mr. Maurice Okello Ocaya : Acting Assistant Commissioner/ Farm Development
- Mr. J.M. Ogwang : Acting Principal Irrigation Agronomist/  
Watershed Management Division of Farm Development
- Mr. Charles Rusoke : Acting Principal Agricultural Officer/  
Soil and Water Conservation
- Mr. Martin Fowler : Senior Policy and Program Advisor
- Mr. Frank Akena : Senior Agricultural Officer/ Wetlands Management
- Mr. Byaruhanga G.K. : Potential Irrigation Engineer/ Farm Development
- Mr. Motonori Tomitaka : JICA Expert/ Planning Department (MAAIF)

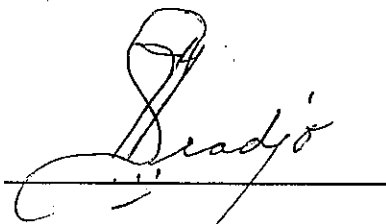
### II. JICA Study Team

- Mr. Makoto Ishizuka : Team Leader/ Agricultural Development Planner
- Mr. Toshimasa Kobayashi : Irrigation and Rural Infrastructure Engineer
- Dr. Michiko Ebato : Rural Society/ Capacity Building Expert
- Mr. Masato Sako : Agro-Economist
- Mr. Natsuno Matsuura : Coordinator

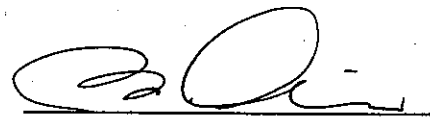
**MINUTES OF THE MEETING FOR PROGRESS REPORT (5)  
OF  
THE STUDY ON POVERTY ERADICATION THROUGH SUSTAINABLE  
IRRIGATION PROJECT IN EASTERN UGANDA**

**AGREED UPON  
BETWEEN  
MAAIF (MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES)  
AND  
JICA (JAPAN INTERNATIONAL COOPERATION AGENCY) STUDY TEAM**

Entebbe, 7<sup>th</sup> September 2006



Eng. Q.Y. A. Dradjo  
Acting Commissioner,  
Farm Development Department  
Ministry of Agriculture, Animal Industry  
and Fisheries  
The Republic of Uganda



Mr. Makoto Ishizuka  
Leader of the Study Team,  
Japan International Cooperation Agency  
Japan



## **Minutes of Technical Working Group Meeting (No. 12) for Progress Report (5)**

1. Venue: Board Room of the Ministry of Agriculture, Animal Industry and Fisheries
2. Date: 05 September, 2006
3. Time: 10:20 am – 13:10 pm
4. Attendants: As attached.
5. Agenda:
  - i. Briefing from the Chairperson
  - ii. Comments on the minutes of previous meeting
  - iii. Presentation on the Progress Report (5) by Mr. Makoto Ishizuka, Team Leader of the JICA study team
  - iv. Discussion on the presentation by the JICA study team
  - v. AOB

The 12<sup>th</sup> Technical Working Group (TWG) for the JICA study on poverty eradication through sustainable irrigation projects in eastern Uganda was held on 5<sup>th</sup> of September, 2006. The meeting was conducted in due attendance of the newly appointed Commissioner of Farm Development and respective staff members of MAAIF, NARO, WID of MWLE, Makerere University, JICA expert on NERICA rice and JICA Uganda Office for sharing the monitoring results as reported in Progress Report (5) and discussing further action for creating an enabling environment for small scale paddy rice growers in eastern Uganda.

### **1) Brief communication from the Chairperson**

Eng. Q. Y. A. Dradjo, the Commissioner Farm Development Department, MAAIF introduced Ugandan attendants and shared his observation from the field visits to the JICA study pilot sites of Budaka (Pallisa), Bugiri, Kumi and Sironko in early September 2006. He was impressed by the enthusiasm of the farmers and also referred to the need for water resource development in seasonal wetland areas like: in Bugiri and to the land tenure insecurity observed especially, in the south-eastern part of the study area. With this brief introduction, the meeting was declared open at 10:20 am.

### **2) Comments on the Minutes of the previous meeting**

Eng. Dradjio invited Mr. Ogwang to lead the review of the previous minutes.

### Linkage between NAADS and JICA study

The concern was raised as a result of weak collaboration between NAADS and JICA study team despite the efforts made by MAAIF and JICA to invite their member for meetings. After the 11<sup>th</sup> TWG meeting, JICA study team visited NAADS and explained the progress of the

report. MAAIF and JICA study team shall continue to invite them to the TWG and other relevant occasions. In the mean time, Mr. Ogwang suggested, considering the difficulties in communication, that the invitation should be followed up by phone calls.

#### Fear of farmers: Land tenure insecurity

Mr. Ogwang reminded the meeting of the importance of sensitization towards land tenure of wetlands. The issues are two fold. One is where the land ownership has been claimed for long. For instance, Budaka and Pallisa, wetlands have been used for paddy rice growing since 1940s; similarly in Bugiri. In these areas, the wetlands were developed up to 25% where the farmers claim ownership of wetlands adjacent to the uplands. On the other hand, in the northern districts, the wetlands have been less developed and recently began to receive the developers and foreigners. They have now begun to feel the insecurity of their communally owned wetlands. In both cases, sensitization is needed urgently.

#### Agro chemicals in wetlands

Wise use of wetlands has not been defined clearly yet. However, the JICA Study Team has created awareness among the paddy growers on issues involving use of agro-chemicals. The agro chemicals used in the wetlands shall be limited, but with emphasis on use of organic fertilizers and azolla.

#### Enforcement of environmental laws

The environmental laws do not seem to be conducive to small scale paddy rice growers. For instance, introduction of a buffer zone might lead to the loss of the entire paddy area in the existing paddy fields.

#### Review of the activities from regional planning program

Currently, a proposal is being finalized for regional technical cooperation to enhance building of training capacity for farmers and extension staff of Doho rice scheme. Fish culture in paddy field shall be introduced in Doho after execution of some strategic intervention on irrigation structures; however, it still requires further expertise.

#### Rehabilitation of Doho Rice Scheme

A number of issues were raised regarding rehabilitation of Doho rice scheme. Eng. Torach pointed out the financial constraints and sought possible support from JICA. Mr. Ishizuka responded that the JICA Study Team shall include recommendations for the rehabilitation of Doho as part of the final report.

Mr. Ogwang suggested that as the resources are it is limited, funds will be allocated according to the priority and to where the intervention can be most effective. Further more, since there is a large number of outgrowers, the rehabilitation shall take place in the wider context of water

resource management and in coordination with other interventions. Mr. Ogwang suggested consulting the JICA Study Team engineer for advice.

Mr. Iwadra of Makerere University raised the issue of identifying the causes of increased discharge from the upper stream before carrying out appropriate rehabilitation works. Mr. Ogwang responded that it was mostly to do with the structures of the canals, embankment, spillway, which require an emergency intervention.

Mr. Kiseka of NARO also suggested that the water discharge shall be measured with particular attention to the dry season as some outgrowers' facilities cannot control water due to lack of water control structures in their infrastructure. Eng. Torach mentioned that there has been some study conducted on water discharge, however, he requested the JICA Study Team to investigate the issues.

A few students will be conducting their research in Doho. One is an MSc student from the Netherlands. He intends to work for 6 months. A Japanese student has also visited the scheme and has requested for some documentation on Water for Production in the Country.

### **3) Presentation on the Progress Report (5) by the JICA Study Team**

Pursuant to Clause VI of the Scope of Work for the Study, Mr. Ishizuka, the Team leader of the JICA Study Team, submitted 20 copies of Progress Report (5) to MAAIF. The presentation on the report was given by Mr. Ishizuka, the JICA Study Team leader, after the introduction of the study team members and brief remarks by Mr. Fujiie of JICA Uganda office.

The presentation covered challenges faced by the JICA Study Team, results of the monitoring, field condition and work plan for the fourth coming study period. Key issues raised during the presentation included the transfer of the trained staff at the sub-county and district level due to the reorganization of the district administrative boundaries. He further, emphasized that the laws and regulations concerning environment and use of wetlands were not conducive to the small scale paddy rice growers.

### **4) Discussion on the presentation by the JICA study team**

#### Yield of NERICA rice in Kumi

Mr. Ogwang commented on the yield of NERICA rice in Kumi which appeared to be lower than expected. This was however, due to poor spacing (farmers followed spacing of lowland paddy). Mr. Ishizuka explained that the farmers lacked the appropriate technical guidance due to the absence of the sub-county technical officer who was trained by JICA. As for NERICA, the farmers still require technical guidance.

#### On-farm development

Mr. Iwadra raised concern of insufficient on-farm development and asked for clarification on whose responsibility. Mr. Ishizuka responded that it should be carried out by the beneficiary farmers themselves under technical guidance from the JICA Study Team. This has been

agreed upon between MAAIF, district, the beneficiary farmers and the JICA Study Team. Mr. Ogwang further added that such technical guidance should also be provided by the members of the TWG whenever opportunity alights.

#### Need for water resource development in Bugiri

Having reviewed the field condition in Bugiri, Eng. Torach suggested that it could have been a more feasible investment if the facilities were constructed where water was permanently available. Mr. Ishizuka responded that the study site was selected on the understanding of the improvement works in the existing paddy field in seasonal wetlands and that the scope of work did not include the water resources development. Mr. Ogwang indicated that there is potential for such development within the catchment area.

#### Towards enabling policy environment for promoting small scale paddy rice production

Other discussions were held over environment laws and regulations. Mr. Rusoke pointed out that the current legal framework concerning environment and uses of wetlands were developed without realizing the challenges of enforcement on the ground. The JICA Study Team had articulated such challenges through the pilot projects. These laws rather seem relevant to the large scale developers, but not for the small scale farmers. For instance, the MAAIF could negotiate with the DWD to waive the water charges of small scale paddy growers as the volume of water abstraction is not as high as it appears. Mr. Iwadra explained that nearly all the water used in the paddy field will be released to the original flow. The loss of water shall mainly be caused by evapotranspiration. Eng. Torach urged MAAIF and other attendants in the meeting to take immediate action towards creating enabling environment to assist small scale paddy rice growers.

#### Conducive policy environment as pre-condition of further interventions

Mr. Ishizuka requested that MAAIF should negotiate with NEMA, MWLAE to create an enabling policy environment for further paddy rice production development. An appropriate policy framework will support the long term development of paddy rice production.

Mr. Fujie of JICA also raised the concern of existing policy environment towards use of wetlands and environment conservation. Although JICA recognizes the enthusiasm of farmers and MAAIF towards promoting paddy rice cultivation, these policies do not seem to provide favorable environment to promote further paddy rice production development. The proposal for the 2<sup>nd</sup> phase of this study, which has been submitted to JICA recently, shall only be accepted upon firm indication of the commitment towards promotion of paddy rice production by the Government of Uganda as a whole. This could be demonstrated by thorough harmonization of existing policies and legal framework. JICA strongly advised MAAIF to start such process as soon as possible.

### Sustainability of Environment Monitoring

Ms. Tukahirwa of WID enquired whether it was sustainable to leave the environment monitoring to the farmers. Mr. Ogwang and Dr. Massamba highlighted the training process and the responsibilities of farmers and district officers. Eng. Dradjo suggested that the DEO/DWO should follow it up and provide appropriate advice on sustainable wetland use to the paddy rice growers. Mr. Kiseka of NARO suggested that there may be a possibility to consolidate available resources to continue monitoring (i.e. NARO conducts water quality).

### Need for further technical assistance

Mr. Akena sought possibilities of further technical assistance for fish culture in paddy field. Mr. Ogwang responded that the idea has been introduced by the Thai government and sought understanding of the limitation of the scope of JICA study. However, he suggested that the efforts to seek various sources and opportunities for appropriate interventions should continue.

### 5) Any other business

Mr. Akena enquired whether NERICA could be grown throughout Uganda. Dr. Tsuboi, JICA expert on NERICA rice, responded that NERICA has two varieties; upland and lowland. The varieties shall be selected depending on the field conditions and rain fall pattern. Where the rice yellow mottle virus is rampant, NERICA 4 and 10 are recommended. Lowland NERICA can only be grown in lowland areas. He however, noted that NERICA does (yields) better adjacent or in a wetland.

There being no other business, the meeting was closed at 13:10.

**LIST OF ATTENDANTS AT TWG MEETING**  
**(September 5<sup>th</sup> 2006)**

**I. Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)**

- Eng. Q.Y. A. Dradjo : Acting Commissioner of Farm Development
- Mr. Maurice Okello Ocaya : Acting Assistant Commissioner of Farm  
Development
- Mr. J.M. Ogwang : Acting Principal Irrigation Agronomist/  
Watershed Management Div. of Farm Development
- Mr. Charles Rusoke : Acting Principal Agricultural Officer/  
Soil and Water Conservation
- Mr. Frank Akena : Senior Agricultural Officer/ Wetlands Management
- Mr. Byaruhanga G.K. : Potential Irrigation Engineer/ Farm Development
- Eng. Ben Torach : Irrigation Engineer

**II. National Agricultural Research Organization (NARO)**

- Mr. Isaya Kisseka : Irrigation Research Officer, AEATRI
- Dr. Tatsushi Tsuboi : JICA Expert

**III. Ministry of Water, Land and Environment (MWLE)**

- Ms. Tukahirwa Judiet : RA, Wetland Inspection Division (WID)

**IV. Makerere University**

- Mr. Michael Iwadra : Senior Lecturer, Irrigation and Drainage.

**V. JICA Uganda Office**

Mr. Hitoshi Fujiie : Assistant Resident Representative

**VI. JICA Study Team**

Mr. Makoto Ishizuka : Team Leader/ Agricultural Development Planner

Dr. Michiko Ebato : Rural Society/ Capacity Building Expert

Dr. Gueye Massamba : Environmentalist

Mr. Akio Yamashita : Coordinator/Participatory Survey

**MINUTES OF THE MEETING ON DRAFT FINAL REPORT  
OF  
THE STUDY ON POVERTY ERADICATION THROUGH SUSTAINABLE  
IRRIGATION PROJECT IN EASTERN UGANDA**

**AGREED UPON  
BETWEEN  
MAAIF (MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES)  
AND  
JICA (JAPAN INTERNATIONAL COOPERATION AGENCY) STUDY TEAM**

Entebbe, 6<sup>th</sup> November 2006



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Mr. F.I.M. Ssozi  
Acting Assistant Commissioner  
Agricultural Engineering (Mechanization)  
Ministry of Agriculture, Animal Industry  
and Fisheries  
The Republic of Uganda



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Mr. Makoto Ishizuka  
Leader of the Study Team,  
Japan International Cooperation Agency  
Japan



## Minutes of Technical Working Group Meeting (No. 13) on First Draft Final Report

1. Venue: Board Room of the Ministry of Agriculture, Animal Industry and Fisheries
2. Date: 2<sup>nd</sup> November, 2006
3. Time: 10:00 am – 12:10 pm
4. Attendants: Attached.
5. Agenda:
  - i. Presentation on the first Draft Final Report by Mr. Ishizuka, Team Leader of the JICA Study Team
  - ii. Discussion on the presentation by the JICA Study Team
  - iii. AOB

The 13<sup>th</sup> Technical Working Group (TWG) for the JICA Study on Poverty Eradication through Sustainable Irrigation Project in eastern Uganda was held on 2<sup>nd</sup> November, 2006 to exchange views on the first Draft Final Report. The meeting was chaired by Mr. F.I.M. Ssozi, the Acting Assistant Commissioner Agricultural Engineering (Mechanization), FDD/MAAIF. The attendants were staff members drawn from MAAIF, NARO, WID and JICA Expert to MAAIF.

Mr. Makoto Ishizuka, the Team Leader of the Study Team, presented the content of the first Draft Final Report, including the modification made on the Development Plan (D/P) and Action Plan (A/P) based on lessons learnt from the implementation of Pilot Project (P/P), conclusion of the Study and recommendations to the concerned authorities and agencies for the implementation of the Project.

After the presentation, various discussions between the TWG members and the Study Team followed and the first Draft Final Report was accepted by the TWG with mutual understanding on the followings:

### (1) Reasons of good performance achieved by beneficiary farmers in the P/P

Because many farmers in the P/Ps achieved very high yield of paddy immediately after training provided by the Study Team, the reasons for such good performance were clarified as follows:

- 1) Farmers' demand for production technology improvement was very high. In other words, they wanted to get higher yield by applying new technology (Mr. Rusoke, MAAIF),
- 2) Target farmers were those who had interest in technology improvement, while many other donors focus on the poorest of poor whose interest in technology improvement is generally low (Mr. Ogwang, MAAIF).
- 3) All technologies provided by the Study Team were completely lacking in both farmers and extension staff. Accordingly, their willingness to learn and adopt the

technologies was very high (Mr. Okello, MAAIF).

**(2) Reduction of unit area of Pilot Scheme in the D/P**

Mr. Mutumba, NARO, asked why unit area of Pilot Scheme for the future development should be reduced from 20 ha of original plan to 10 ha. The Study Team answered that it is practically difficult for farmers to construct 20 ha of irrigation facilities within six months which is the time available for the construction work considering rainfall pattern in the Study area. The Study Team pointed out that according to lessons learnt from the P/Ps the number of farmers/members of WUA (Water Users' Association) would become very large in 20 ha, and those in 10 ha would be more practical to handle for the development of new farmers' organization.

**(3) Technology improvement of PIEs after training provided in the P/P**

Mr. Mutumba, NARO, also asked about the level of technology improvement of PIEs (Potential Irrigation Engineers) after training provided in the P/P. The Study Team answered that PIEs considerably improved their level of technology in irrigation engineering, and some officers commenced planning and development of irrigation schemes in their districts. Mr. Ogwang, MAAIF, added that they are now at water management level. However, if they are trained further as DIOs (District Irrigation Officers), they will be able to start with civil engineering works and proceed to irrigation engineering.

**(4) A means of coordination and collaboration among many authorities and agencies for the project implementation**

Mr. Ssozi, the chairperson, pointed out his doubt as to whether JICA can coordinate and collaborate with other authorities and agencies for the project implementation. Mr. Tomitaka, JICA expert to MAAIF, answered that such coordination and collaboration should be undertaken by MAAIF particularly FDD, as the executing agency of the Project, and not by JICA.

**(5) Number of districts to be invited to the seminar in the 6th Field Work**

Mr. Tomitaka asked the JICA Study Team the reason why only 13 districts are invited to the seminar although there are currently 21 districts in the Study area. The Study Team answered that the Study covered 13 districts following the original plan even after their subdivision, and accordingly budget for the seminar has been arranged only for 13 districts.

**(6) Financial evaluation of the D/P**

Mr. Tomitaka requested the JICA Study Team to include the results of financial evaluation in the Main Report, as the Study concluded that the proposed Project will contribute to the National target of poverty eradication. The Study Team answered that the results of financial

evaluation will be presented in the Main Report, although part of it has been described in the Pilot Project Report.

**(7) Terminology of PIE**

Mr. Tomitaka commented that the terminology of PIE is not appropriate and DIO (District Irrigation Officer) is instead recommendable. The Study Team answered that the terminology of PIE has been applied only for the P/P implementation, and DIO is now recommended to enhance institutionalization at district level (see Section 6.2.5, Main Report).

**(8) Creation of the Department of Irrigation in MAAIF**

As part of the initiative to accelerate and promote irrigation development, Mr. Okello Ocaya expressed the need to support and follow up the recommendations of the Study. The Ministry is further move encouraged by the Study Team proposal of training more irrigation engineers (6 for headquarters and 5 per district) to build the capacity for the created Irrigation Department.

**(9) Any other issues**

Doho Rice Scheme rehabilitation

Mr. Tomitaka announced that the rehabilitation programme for Doho Rice Scheme may take some time because all the stakeholders are too reluctant at present. Consequently, the central government, local government and farmers should take initiative and be more serious on its rehabilitation programme.

Need of watershed management

Mr. Tomitaka proposed to the TWG members that the central government should enhance water resource development on watershed basis and needs to quantify the amount of water required and utilised for irrigation hence the irrigation efficiency.

Technical guidelines

The Team Leader announced that the technical guidelines, which cover the fields of irrigation engineering, paddy rice production technology and capacity building of farmers' organisation, will be soon submitted to MAAIF. He also presented his expectation that the guidelines are useful for the officers and farmers for further development of lowland paddy sub-sector, coupled with irrigation, in a sustainable manner.

There being no other business, the chairperson declared the meeting closed at 12:10 pm.

## LIST OF ATTENDANTS AT TWG MEETING

(2<sup>nd</sup> November 2006)

### I. Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)

- Eng. F.I.M Ssozi : Acting Assistant Commissioner of Agricultural Engineering Mechanization
- Mr. Maurice Okello Ocaya : Acting Assistant Commissioner of Farm Development
- Mr. J.M Ogwang : Acting Principal Irrigation Agronomist/Watershed Management Div. of Farm Development
- Mr. Charles Rusoke : Acting Principal Agricultural Officer/Soil and Water Conservation
- Mr. Frank Akena : Senior Agricultural Officer/Wetlands Management
- Mr. Byaruhanga K.G. : Potential Irrigation Engineer/ Farm Development
- Eng. Ben Torach : PAE / WsM & WfP
- Mr. Motonori Tomitaka : JICA Expert

### II. National Agricultural Research Organization (NARO)

- Mr. Charles Mutumba : Irrigation Research Officer, AEATRI
- Mr. Alibu Simon : Research Assistant Namulonge
- Mr. Wanyama Joshua : Research Officer AEATRI - NARO

### III. Ministry of Water, Land and Environment (MWLE)

- Ms. Tukahirwa Judith : RA, Wetland Inspection Division (WID)

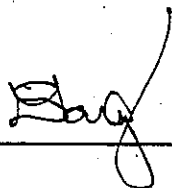
### IV. JICA Study Team

- Mr. Makoto Ishizuka : Team Leader/ Agricultural Development Planner
- Mr. Toshimasa Kobayashi : Irrigation Rural Infrastructure Engineer
- Mr. Akio Yamashita : Coordinator/Participatory Survey

**MINUTES OF THE MEETING ON THE DRAFT FINAL REPORT  
OF  
THE STUDY ON POVERTY ERADICATION THROUGH SUSTAINABLE  
IRRIGATION PROJECT IN EASTERN UGANDA**

**AGREED UPON  
BETWEEN  
MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES  
AND  
JAPAN INTERNATIONAL COOPERATION AGENCY**

Entebbe, 21<sup>st</sup> December 2006



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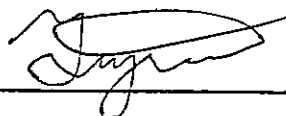
Mr. Maurice Okello Ocaya  
Acting Assistant Commissioner,  
Farm Development  
Ministry of Agriculture, Animal Industry  
and Fisheries  
The Republic of Uganda



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Mr. Makoto Ishizuka  
Leader of the Study Team,  
Japan International Cooperation Agency  
Japan

Witnessed by



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Mr. Hitoshi FUJIE  
Assistant Resident Representative,  
Uganda Office,  
Japan International Cooperation Agency  
Japan

## Minutes of Technical Working Group Meeting (No. 14) on the Draft Final Report

1. Venue: Board Room of the Ministry of Agriculture, Animal Industry and Fisheries
2. Date: 15<sup>th</sup> December, 2006
3. Time: 10:00 am – 12:10 pm
4. Attendants: Attached.
5. Agenda:
  - i. Communication from the Chairman
  - ii. Communication from the Leader of the Advisory Team, JICA
  - iii. Presentation on the Draft Final Report by the Team Leader of the Study Team
  - iv. Discussion on the presentation by the Study Team
  - v. AOB

The 14<sup>th</sup> Technical Working Group (TWG) Meeting for the Study on Poverty Eradication through Sustainable Irrigation Project in Eastern Uganda (the Study) was held on 15<sup>th</sup> December, 2006 to exchange views on the Draft Final Report (Df/R) which was submitted by the Study Team to MAAIF in accordance with the Scope of Work for the Study. The Meeting was chaired by Mr. Maurice Okello Ocaya, the Acting Assistant Commissioner, Farm Development, MAAIF. The participants included representatives from MAAIF, NARO, NAADS, Makerere University, Advisory Team from JICA Headquarters, JICA Uganda Office, and the Study Team. The Chairman welcomed every participant to the Meeting and particularly gave a special welcome to the Advisory Team to Uganda.

The Leader of the Advisory Team expressed his gratitude to the participants for attending the Meeting, and said that the Final Report (F/R) to be prepared and submitted in March 2007 would be useful to MAAIF when it makes request for support from other donors such as World Bank and African Development Bank. However, JICA may also support part of the proposed plans in the F/R. The Leader, accordingly encouraged all the participants to have frank and constructive discussions on the Df/R.

In response to the above communication from the Leader of the Advisory Team, the Chairman thanked JICA for its support to Uganda and pledged to use the F/R and Technical Guidelines for sustainable paddy production and irrigation development. The Chairman further said that JICA was supporting many activities in Uganda and government was particularly committed to increasing paddy production. He also said that the F/R would be useful for building the capacity of Uganda's technical staff. Thereafter, the Chairman invited the Team Leader of the Study Team to present the contents of Df/R.

The Team Leader's presentation was made using Power Point slides including: (i) outline of the Pilot Project (P/P); (ii) achievement of the P/P; (iii) lessons learnt from the P/P; (iv) feedback to the Development Plan (D/P) and the Action Plan (A/P); (v) conclusion of the P/P; (vi) final feature of the D/P and the A/P which have been modified based on lessons learnt from the P/P, and (vii) conclusion and recommendations. Lastly, the Team Leader requested the TWG members to send comments on the Df/R to JICA Uganda Office until 12<sup>th</sup> of February, 2007.



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After the presentation, discussions were conducted among the TWG members whose proceedings were as follows:

In the first place, the Chairman made the following observations from the Team Leader's presentation:

- 1) The issue of the buffer zone is not very clear with farmers. Therefore there is need for more sensitization among stakeholders;
- 2) Uganda's contractors are not skilled in construction of irrigation facilities, and therefore, JICA is expected to provide assistance in building the capacity of the contractors;
- 3) The lessons and experiences from the Study are going to be applied during the implementation of the African Development Bank's small scale irrigation development project;
- 4) The rehabilitation plan for Doho Rice Scheme including a training centre for farmers and local government staff has not come out clearly and requested for further clarification from the Study Team; and
- 5) There is need to build capacity in the field of irrigation in MAAIF including establishment of Irrigation Department.

He said that F/R would be a good report after involving some comments from Ugandan side, and requested the participants to join the discussions with keen interest.

#### **Utilization of function of Makerere University for paddy research activities**

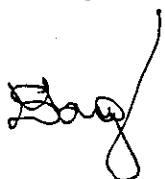
Mr. Iwadra commented that research activities for crop production are undertaken not only by NARO, but also by Makerere University. Because of this fact, he proposed to include the University in conducting paddy production research as part of the recommendation in the F/R. Mr. Iwadra further explained that Makerere University also teaches agricultural engineering and students in this field have basic knowledge in water management and would be therefore easily trained in irrigation engineering.

#### **Plans required for proper on-farm development and O&M**

Mr. Charles Rusoke observed that the Df/R talks about on-farm development being insufficient and more training on operation and maintenance (O&M) technologies are needed. He requested the Study Team to point out some short-term plans on what should be done to improve the situation. The Study Team responded that training in on-farm development and proper O&M are envisaged in the A/P.

#### **Reactions from NAADS representative on the recommendations in Df/R**

Ms. Florence Kabugo from NAADS pointed out that NAADS is already promoting both lowland rice and NERICA in the districts of Kumi and Bugiri and has funded national level partnerships in paddy rice promotion. NAADS has also started its work in Butaleja district and this can cater for the extension in Doho Rice Scheme. The recommendations made in the Df/R are therefore already being implemented.



### **Need more description on tables for farm budget analysis**

Mr. Mutumba from NARO noted that the tables for farm budget analysis in the Main Report do not clearly indicate the acreage in which upland and paddy crops are cultivated. He further requested the Study Team to clarify on "other income" and to show if they are related to paddy production.

### **Clarification of existing irrigation schemes in the Study area**

Mr. Ogwang observed that the table in Section 3.5.2 (Pg 3-14) of the Main Report should include Olwenyi and Mobuku but delete Kiige and Labori, because they are no longer functional and the table should show this as a list of irrigation schemes but not large irrigation schemes. Mr. Rusoke also clarified that Sibimba in the project document is just the dialect of the local people and the actual name is Kibimba. The Study Team also pointed out that the Kibimba Rice Scheme was sold to Tilda Uganda LTD and this should be indicated as a foot note in the F/R.

### **Terminology of paddy and rice**

Mr. Tsuboi noted that the term "paddy" is not very clear and proposed to use the term "lowland rice" in the F/R. The Meeting resolved that the Study Team should define the terms "paddy" and "rice" in footnotes in the F/R.

### **Issues on wetland development and conservation**

Mr. Charles Rusoke of MAAIF observed that the Df/R recommends to MAAIF to "formulate and issue practical policy for wetland development and conservation", and this statement insinuates that there are no policies in MAAIF. He noted that the policies are available but MAAIF and MW&E (especially NEMA) should coordinate and make practical policies. The Chairman also observed that the environmental laws need to be reviewed even in areas where the Study Team has been supportive.

### **Creation of Irrigation Department in MAAIF**

Ms. Florence Kabugo of NAADS wondered why the existing Irrigation Unit should become a Department as recommended in Section 7.2.1 of the Main Report of Df/R and pointed out that it is not strongly justified in the Report. The Meeting requested Mr. Ogwang, who is the Chief Counterpart to the Study, to draft a strong justification on the establishment of Irrigation Department, to be incorporated in the F/R.

### **Representation from other Ministries related to Water and Environment**

Mr. Tomitaka noted that there are no representatives from other Ministries related to water and environment in the TWG Meeting, yet these are now becoming an important issue for further development of lowland rice sub-sector. He consequently requested Mr. Ogwang to send copies of the Df/R to the concerned Ministries so that they can give their comments.

### **Doho rehabilitation**

Mr. Kobayashi clarified to the Meeting on the issue of Doho rehabilitation, which was requested by the Chairman, as follows:

- 1) The Df/R proposes to conduct a feasibility study (F/S) for Doho Integrated





Development Project in order to formulate the most suitable rehabilitation and improvement plans covering both the original Doho Rice Scheme and outgrowers' areas;

- 2) The F/S will cover not only irrigation engineering, but also social issues, e.g., strengthening of water users' association which is weak in O&M at present, and environmental conservation;
- 3) Establishment of additional facility as a training center will also be considered to provide functions to Doho for training both farmers and local government staff to enhance sustainable irrigation development.

Mr. Tomitaka pointed out that Doho Integrated Development Project can be supported partly by JICA, but there is need for both the central and local government to participate in the rehabilitation or else there is no donor who can fully support the rehabilitation of such a big scheme. When MAAIF becomes ready to rehabilitate the scheme, then JICA can partly support its efforts. At this juncture, the Chairman expressed government's willingness to inject more funds for the rehabilitation of Doho, but emphasized the fact that farmers still need more sensitization on O&M issues.

#### **Feedback comments for the Df/R**

Mr. Tomitaka wondered who would handle and harmonize the comments from the TWG members, because there could be conflicting comments from different members. The Meeting agreed that all comments be directed to Farm Development Department, MAAIF; attention of Mr. Ogwang (email: mbabazi47@yahoo.com). Mr. Ogwang suggested to organize a meeting among stakeholders to harmonize the comments before sending them to JICA Uganda Office.

There being no other business, the Chairman declared the Meeting closed at 12:10 pm.



**List of Attendants at TWG Meeting**  
**(15<sup>th</sup> December, 2006)**

**Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)**

- Mr. Maurice Okello Ocaya : Acting Assistant Commissioner of Farm Development Department
- Mr. J.M Ogwang : Acting Principal Irrigation Agronomist/ Watershed Management Div. of Farm Development Department
- Mr. Charles Rusoke : Acting Principal Agricultural Officer/ Soil and Water Conservation, Farm Development Department
- Mr. Frank Akena : Senior Agricultural Officer/ Wetlands Management, Farm Development Department
- Mr. Kinsambwe Tonny : Agriculture Officer, Farm Development Department
- Mr. Motonori Tomitaka : JICA Expert

**National Agricultural Research Organization (NARO)**

- Mr. Charles Mutumba : Irrigation Research Officer, AEATRI
- Mr. Tatsushi Tsuboi : JICA Expert

**National Agriculture Advisory Services (NAADS)**

- Ms. Kabugo Florence : Enterprise Development Officer

**Makerere University**

- Mr. Iwadra Michael : Lecturer, Irrigation and Drainage Engineer, Agriculture Engineering Department

**JICA Advisory Team**

- Mr. Makoto Kitanaka : JICA Headquarters

**JICA Uganda Office**

- Mr. Hitoshi Fujiie : Assistant Resident Representative

**JICA Study Team**

- Mr. Makoto Ishizuka : Team Leader/ Agricultural Development Planner
- Mr. Toshimasa Kobayashi : Irrigation and Rural Infrastructure Engineer
- Mr. Susumu Honma : Agronomist/ Agricultural Extension Planner

