フィリピン国
高生産性稲作技術の地域展開計画
終了時評価調査報告書

平成 21 年 9 月
（2009年）

独立行政法人国際協力機構
農村開発部

農 村
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序　　文

独立行政法人国際協力機構はフィリピン共和国政府からの要請を受けて、同国政府機関と技術協力プロジェクト「フィリピン国高生産性稲作技術の地域展開計画」に関する協議議事録（Record of Discussion）等の署名・交換を行い、本プロジェクトを2004年11月15日より5年間の計画で実施してきました。

このたび、プロジェクトの協力期間の終了を2009年11月に控え、国際協力機構は2009年6月28日から7月25日まで、国際協力専門員、時田邦浩を団長とする終了時評価調査団を現地に派遣しました。同調査団は、フィリピン共和国側評価団と合同で、プロジェクト開始後の活動実績等について総合的評価を行いました。これらの評価結果は、日本国・フィリピン共和国双方の評価団による討議を経て合同評価報告書として取りまとめられ、署名・交換のうえ、両国の関係機関に提出されました。

本報告書は、同調査団による協議及び調査結果等を取りまとめたものであり、今後、広く活用され、日本国・フィリピン共和国両国の親善、及び国際協力の推進に寄与することを願うものです。

終わりに、この調査の実施にあたり、ご協力とご支援を頂いたフィリピン共和国関係者並びにわが国関係者に対し、厚く御礼を申し上げるとともに、当機構の業務に対して今後とも一層のご支援をお願いする次第です。

平成21年9月

独立行政法人国際協力機構
農村開発部長　小原　基文

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JCC/ミニッツ署名

略　語　表

ATI	Agricultural Training Institute	農業研修所
ATs	Agricultural Technologists または Agricultural Technicians	農業普及員
CES	Central Experimental Station	フィルライス本所
CLSU	Central Luzon State University	中部ルソン大学
C/P	Counterpart	カウンターパート
DA	Department of Agriculture	農業省
DAR	Department of Agrarian Reform	農地改革省
DA-RFU	Department of Agriculture-Regional Field Unit	農業省地域事務所
DF	Demonstration Farm	展示圃場（地方自治体が設置）
FLC	Farmers' Learning Center	農民学習センター
FP	Farmer-Partner	協力農家〔技術展示圃場（TDF）を提供する農家〕
GMA	Ginintuang Masaganang Ani（タガログ語の略）	基幹作物生産振興計画
IPM	Integrated Pest Management	総合防除
LGU	Local Government Unit	市町村、地方自治体
LST	Location-Specific Technology	地域適合型技術
LSTP	Location-Specific Technology Package	地域適合型技術体系
NGO	Non-Government Organization	非政府組織
NIA	National Irrigation Administration	国家灌漑公社
PF	Participating Farmer	参加農家（TDF研修に参加する農家）
PhilRice	Philippine Rice Research Institute	フィリピン稲研究所（フィルライス）
R/D	Record of Discussion	討議議事録
SED	Socio-Economic Division	フィルライスの社会経済研究部
TCP	Technical Cooperation Project	技術協力プロジェクト
TDF	Technology Demonstration Farm	技術実証展示圃場（プロジェクトが設置）
TDF Committee	Technology Demonstration Farm Committee	TDF委員会
WSB	White Stem Borer	イネシロオオメイガ

終了時評価調査結果要約表

１．案件の概要		
国名：フィリピン共和国		案件名：高生産性稲作技術の地域展開計画
分野：農業開発		援助形態：技術協力プロジェクト
所轄部署：農村開発部水田地帯グループ		協力金額（終了時見込み）：4億5,300万円
協力期間	2004年11月15日～ 2009年11月14日	先方関係機関：農業省　フィリピン稲研究所 （Philippine Rice Research Institute：通称フィルライス/PhilRice）
		日本側協力機関：農林水産省、独立行政法人農業・食品産業技術総合研究機構

１－１　協力の背景と概要

フィリピン共和国（以下、「フィリピン」と記す）の農業においてコメは最重要作物であり国民の80%以上が主食としており、国民1人当たりの年間消費量は日本を上回る。しかしながら単収は全国平均では低く、品種改良、機械化、栽培体系の確立が強く求められてきた。これらの状況を改善すべくわが国はフィルライスに対し無償資金協力を実施し、1991年に研究施設を完成させ、1992年から1997年まで5年間にわたりプロジェクト方式技術協力「フィリピン稲研究計画」を実施し、その後小規模農家向け技術の研究開発を目的として1997年から5年間のプロジェクト方式技術協力「高生産性稲作技術研究計画」を実施した。これらの協力の結果、フィルライスの研究開発能力は飛躍的に向上した。

しかしながら依然として農家圃場レベルでの収量は低く、中央の研究機関で開発された技術が各地域の特性に即した形で改良されておらず、地方レベルで十分に利用されていないことが問題となっていた。こうした状況の下、フィリピン政府はわが国に対し、地域に適合した技術の研究開発及びその普及を目的とした新たな技術協力プロジェクトを要請した。JICAは2003年10月と2004年3月に事前調査を行い、2004年10月に5年間にわたる本技術協力の枠組みを取り極めたR/D（Record of Discussion）をフィリピン政府との間で署名した。

JICAは署名したR/Dに基づき2004年11月15日以降、北西ルソンと中部ルソン、加えて北部ミンダナオの一部の3カ所をプロジェクト対象地区として、各地域の地域適合型技術（Location-Specific Technology：LST）の実証を行う計7カ所の技術実証展示圃場（Technology Demonstration Farm：TDF）での活動、及びTDFでの成果を踏まえ、地方自治体（Local Government Unit：LGU）が主体となり展開する展示圃場（Demonstration Farm：DF）におけるモニタリング活動を行う当プロジェクトを展開してきた。

１－２　協力内容

（1）上位目標

1）対象地域において稲の生産性が向上する。

2）対象地域において農家の農業所得が向上する。

（2）プロジェクト目標

参加農家での稲の生産性が向上する。

（3）成　果

1）本所（中部ルソン：ムニョス）及び各支所（北西ルソン：バタック、北部ミンダナオ：アグサン）において、地域適合型技術体系が開発される。

2）稲作技術を中心とした技術支援体制が対象3地域で構築される。

（4）投入（終了時評価時点）

日本側：

長期専門家派遣：6 名

短期専門家派遣：10名

研修員受入れ：16名

機材供与：約7,600万円

ローカルコスト負担：約5,300万円

フィリピン側：

カウンターパート配置：30名

ローカルコスト負担：約2,700万円

土地・施設提供：本所及び各支所における執務室等

２．評価調査団の概要

（1）日本側調査者

団　長　　：時田　邦浩　JICA　国際協力専門員

栽培・普及：福嶌　陽　　（独）農業・食品産業技術総合研究機構　東北農業センター

評価分析　：今野　公博　（株）VSOC　第二事業部　主任

計画管理　：宮下　明子　JICA農村開発部　水田地帯グループ　水田地帯第一課　職員

（2）フィリピン側調査者

団　長　：Edmund J. Sana, Member, Secretary’s Technical Advisory Group, Department of Agriculture

普　及　：Soledad Mina-Roguel, Dean, Institute of Graduate Studies, Central Luzon State University

評価分析：Josue S. Falla, Chief Technology and Product Promotion Division, Philippines-Sino Center for Agricultural technology, Director II, Bureau of Postharvest Research and Extension

計画管理：Evelyn Valeriano, Project Development Officer, Special Project Coordination and Management, Assistance Division, Department of Agriculture

（3）調査期間：2009年6月28日から2009年7月25日まで

（4）評価種類：終了時評価

３．評価結果の概要

３－１　実績の確認

（1）成　果

1）指標1-1：TDFにおいてコメ生産性が1t/ha増加する。

実績：　7カ所のTDFのうちカバナツアン（中部ルソン）を除いて、雨期作または乾期作のいずれかまたは両方で達成できている。

2）指標1-2：少なくとも3つの技術要素をもつ地域適合型技術体系が各対象地域で開発される。

実績：　3地域すべてにおいて3つ以上の技術要素を含んだ地域適合型技術体系が開発されている。

3）指標1-3：低日照耐性の育種系統が3つ以上検討され、少なくとも1品種が普及される。

実績：　3系統以上の低日照耐性がフィルライス・アグサン支所で検討され、PJ7がNSIC Rc146として普及されている。

4）指標2-1：稲または稲を中心とした農業生産普及マニュアルが対象地域で開発される。
実績：　4種類（稲作技術マニュアル、野菜生産マニュアル、技術者普及マニュアル、地域別技術パッケージ）の農業生産普及マニュアルの開発が完了し、もう1種類（普及員マニュアル）は2009年10月までに完成する。

5）指標2-2：TDFで少なくとも105名の普及員と140名の農民が、LSTに関して研修を受ける。
実績：　269名の普及員、851名の農民が研修を受けた。

（2）プロジェクト目標

1）指標1：少なくとも70％の参加農家が、少なくとも3つの地域適合型技術を導入する。
実績：　中部ルソン及び北西ルソンでは100％、北部ミンダナオでは90％以上導入している。

2）指標2：少なくとも参加農家の70％はコメ生産性が1t/ha向上する。
実績：　7つの地区のうち、中部ルソンの3地区すべて、北西ルソンではクリマオで達成した。北部ミンダナオでは達成したところはない。よって7地区のうち4地区が達成した。

3）指標3：稲を中心とした農業生産により参加農家の農業収入が平均15％増加する。
実績：　7つの地区すべてにおいて目標の15％を超えている。

4）指標4：地方自治体（LGU）は、当該市町村に2カ所以上DFを設置する。
実績：　TDF活動がまだ終了していない北部ミンダナオのブツアンを除いた6地区では2カ所以上のDFが設置されている。

３－２　5項目評価

（1）妥当性：高い

プロジェクトは農民の生計向上に焦点を当てており、LST等の技術はこの課題に応えることができた。また、このプロジェクトはフィリピン政府のコメ増産プログラムであるGMA（基幹作物生産振興計画）に沿っている。また日本の技術の優越性、ODAの経験からみても妥当性は高い。対象地域は、地域適応型技術開発という本プロジェクトの目標に対応した適切な3地区が選定されている。

（2）有効性：高い

プロジェクト目標の指標の1、3、4については既に達成しており、プロジェクト目標2については、「70％のPF（Participating Farmer：TDF研修に参加する農家）が生産性を1t/ha増加させる」という目標に対し52％のPFが達成している。協力期間内のプロジェクト目標の達成が見込まれるところ、本協力実施の有効性は高いと判断される。また、各成果の達成によるプロジェクト目標達成の道筋は明確である。

（3）効率性：高い

本協力の事業運営において、日本側・フィリピン側双方の投入のタイミング、期間、専門家の分野は適切であり、活動は成果の達成に効率的に結びついている。プロジェクトで開発した技術普及方法により、農業技術者が農家の生産性と収入を増加させる技術普及を効率的に行えるようになった。地域適合型技術体系（Location-Specific Technology Package：LSTP）導入により、生産のための投入コストを減らすことができ、その結果収入を増加できた農家も多い。

(4) インパクト：正のインパクトをもつ

本協力においては、次のような正のインパクトが見られた。TDF参加農家の多くが、非参加農家に技術を伝え始めており、非参加農家がTDFで開発された技術を既に適用している例が多くあった。よって、上位目標である対象地区における稲の生産性向上、生産量増による農家の農業所得向上の達成が見込まれる。また、プロジェクト活動を通じて参加農家が組織化の必要性を認識し、協同組合を設立したところもあった。本調査において、負のインパクトは特定、報告されなかった。

(5) 自立発展性：ある程度高い

本協力の自立発展性は、地方自治体の財政面での制約等はあるが、政策・制度・財政面においてある程度高いと想定される。フィルライスは引き続き稲作農業の技術研究・開発を行う政府機関であり、今後もその役割は継続される。稲作振興のためのGMAコメプログラムは継続される見込みであり、そのなかで地域適応型技術の開発・普及アプローチが採用されることとなっている。またプログラムに係る予算はすべてフィリピン政府から支出されており、引き続き予算が確保される見込みである。DF運営に係るLGUの予算は限られている。普及員の交通費の確保は課題として残されているが、DF運営のために必要な予算は確保できると見込まれる。また、TDF協力農家及び参加農家のほとんどは、TDFで自分たちが必要とする技術を十分学び、独力で継続することができる見込みである。

３－３　結　論

プロジェクトは計画どおりに進んでいて、プロジェクト終了までにすべての必要な活動は終了する見込みである。成果の達成、プロジェクトと目標の達成の可能性も高い。よってプロジェクトは計画どおりに終了する。

３－４　提　言

(1) 協力期間中に実施すべきこと（主にフィルライスにより実施）

1) LGUがDFを実施するうえで、予算や人員面等スムーズな実施を行うために、LGUの首長のコミットメントを引き出すべきである。

2) 実証圃場を造る前のアセスメントは各種の専門家チームにより地域の農業条件、農村社会経済など総合的観点からの実施を徹底すべきである。普及員の活動報告では、農家のニーズに応えられるよう問題点と原因を含めるようにするとともに、フィードバックをする体制を構築し、技術の更新などに努めるべきである。

3) 収量目標を達成できなかった農家についてはその原因究明にあたり、関係機関との連携によって対応策を講じるべきである。

4) Agricultural Technologists（AT）ガイドの配布にあたり、TDF-DFによるLST開発・普及手法の全容が分かるようなフローチャート、普及員の規範を加え、囲み記事を設けるなどの改善を加えるべきである。

5) TDFで269名の普及員が研修を受け農家への普及を行っているが、そのなかでDFを実践したのは32名である。DF活動の拡大に伴い、研修修了者の活用を図るべきである。

6) 計画されているセミナーは関係者を招いて各サイトの今後の取り組みを5カ年計画にするなど、今後の活動の継続を見据えた議論を行うことが重要である。

(2) プロジェクト終了後に実施すべきこと（主にフィルライスにより実施）

1) LSTを検討する際に自然条件については技術的検討がなされているが、農家の資本投資能力、リスク回避の考え方、稲作への重みづけといった社会経済的な検討・対応を強化すべきである。

2）野菜栽培については市場が飽和して価格の下落が起きないように生産の多様化を図るなど市場を見据えた取り組みに注意を払うべきである。
3）稲作に関しては比較的安価なインブレッドをLSTで使用できるように継続的に育成すべきである。
4）非灌漑地に利用できるパライチェックを開発すべきである。

(3) フィリピン農業省に対して
1）TCP3のアプローチと農業省の他のプログラムとの競合
農業省により国家プログラムとしてQuick Turn Around（QTA）という三期作奨励プログラムが導入されているが、本プロジェクト（Technical Cooperation Project3：TCP3）では、病害虫被害の低減を目的として二期作を奨励している。参加農家はQTAを受け入れていないが、周辺農家が実施するとその影響を受けることがある。LSTが確立しているところでは国家プログラムよりLSTを優先すべきである。

３－５　教　訓

(1) プロジェクト開始時、プロジェクト実施機関及び関連機関は各機関の役割や積極的な参加のあり方について、できるだけ明確に関係者で共有すべきである。

(2) プロジェクトサイト選定において、ベースラインデータ、その他情報の分析が重要である。

(3) プロジェクト・デザイン・マトリックス（PDM）における指標としての目標値は、自立発展性を考えた際には数値目標の達成上にプロセスが重視されるということについて、関係者間での認識の共有が重要である。

(4) 農民学習センターの設置は、農家の情報交換の場として有益である。

終了時評価調査結果要約表

1. Outline of the Project	
Country：Philippines	Project title：The Project on the Development and Promotion of Location‐Specific Integrated High‐Yielding Rice and Rice-Based Technologies
Field：Rural Development	ODA mode：Technical Cooperation Project
Handling Dept.: Rural Development Department of JICA	Cooperation Amount：453 million Yen
Period of Cooperation : 15 Nov. 2004 -14 Nov. 2009	Philippines related Agency : Philippine Rice Research Institute (PhilRice)
	Japanese Cooperation Agency ： Ministry of Agriculture, Forestry and Fisheries, National Agriculture and Food Research Organization

1-1. Background of the Project

Rice is the main staple food in the Philippines. However, there is continued shortage of local production thus, it is necessary that productivity be significantly increased to attain sustainable rice self sufficiency. This can be achieved partly by developing and promoting appropriate productivity -enhancing technologies.

In response to the request by the Government of the Philippines, JICA has assisted the Philippine Rice Research Institute (PhilRice) to enhance it capability in rice technology development and promotion. This started with the implementation of the Grant Aid from 1989 to 1991 and accelerated with the first Technical Cooperation Project (TCP1) from 1992 to 1997 and the second Technical Cooperation Project (TCP2) from 1997 to 2002. The research capabilities of PhilRice were improved through TCP1, and farming technologies, mainly for small scale rice farmers, were developed through TCP2.

However, farm productivity of rice remains low in many rice farms at various locations in the country. Thus, PhilRice as the main source of new and improved rice technologies is expected to utilize its highly upgraded research capabilities to develop location-specific technology packages considering and analyzing various conditions such as climate, soil and social status of the farmers and farming systems. The third Technical Cooperation Project (TCP3) was proposed to the Government of Japan in 2002 to address this.

Preparatory Study Missions were dispatched in 2003 and the framework of TCP3 was officially agreed between JICA and Philippine authorities with the signing of the Record of Discussions on 18 October 2004. The Project started on 15 November 2004.

1-2 Summary of the Project

(1) Overall Goal

1) Productivity in the target areas of rice is increased.

2) Agricultural income of farmers in the target areas is increased.

(2) Project Purpose

Rice productivity of participating farmers is improved.

(3) Output

1) Suitable input and location-specific technology packages are developed in each target area.

2) Technology promotion systems focused on rice technology are established in the target areas.

(4) Input (as of July 2009)

1) Japanese Side

a) Dispatch of experts: 6 long-term experts, 10 short-term experts
b) Counterpart training in Japan: 16 CPs
c) Equipment: About 76 million yen
d) Local cost: About 53 million yen

2) Philippines Side
a) Counterpart to the experts: 30 CPs
b) Local Cost: About 27 million yen

2. Outline of the Mission

(1) Japanese members

Mr. Kunihiro Tokida	Team Leader, Senior Advisor, JICA
Mr. Akira Fukushima	Agronomy/Extension, Senior Researcher, Research Center for Tohoku Region, National Agricultural Research Organization
Mr. Kimihiro Konno	Evaluation Analysis, Chief, Second Business Department, VSOC Co., Ltd
Ms. Akiko Miyashita	Cooperation Administration, Assistant Director, Paddy Field Based Farming Area Division 1, Rural Development Department, JICA

(2) Philippines members

Mr. Edmund J. Sana	Team Leader, Member, Secretary's Advisory Group, Department of Agriculture
Mr. Soledad Mina-Roguel	Extension, Dean, Institute of Graduate Studies, Central Luzon State University
Mr. Josue S. Falla	Evaluation Analysis, Chief, Technology and Product Promotion Division, Philippine-Sino Center for Agricultural Technology Director II, Bureau of Postharvest Research and Extension
Ms. Evelyn Valeriano	Cooperation Administration, Project Development Officer, Special Projects Coordination and Management, Assistance Division, Department of Agriculture

Duration： 28 June 2009 - 25 July 2009
Evaluation Mode: Final Evaluation

3. Outline of the Evaluation Result

3-1 Confirmation of the result

(1) Output

1) (Indicator (1-1)) Productivity of rice is increased by 1 t/ha in Technology Demonstration Farms.
Result: 6 TDFs except Cabanatuan (Central Luzon) attained the indicator in the rainy season or dry season or both seasons.

2) (Indicator(1-2)) One (1) location-specific technology package with at least 3 component technologies is developed for each target area.
Result: One LSTP with more than 3 component technologies has been developed at each target area.

3) (Indicator (1-3)) At least 3 advanced lines for tolerance to low solar radiation are tested and at least one variety is promoted.
Result: More than 3 lines have been tested at PhilRice Agusan, PJ7 (NSIC 146) has promoted.

4) (Indicator (2-1)) Extension manuals on rice or rice-based farming systems are developed for each target area.

Result: Four (4) kinds of manuals have been developed, one (1) kind manual will be developed before October 2009.

5) (Indicator (2-2)) At least 105 agricultural technicians and concerned government personnel as well as 140 farmers are trained at the Technology Demonstration Farm on promotion of location specific technologies.

Result: 269 ATs and 851 farmers have been trained at TDF.

(2) Project Purpose

1) (Indicator 1) At least 70% of participating farmers adopt at least 3 components of location-specific technologies.

Result: 100% of PFs adopted at Central Luzon and Northwest Luzon, more than 90% of PFs adopted at Northern Mindanao.

2) (Indicator 2) At least 70% of participating farmers increase productivity of rice by 1 t/ha.

Result: All Central Luzon TDFs and Currimao in Northwest Luzon attained the indicator. Thus four (4) TDFs out of seven (7) TDFs attained the indicator.

3) (Indicator 3) Income of participating farmers in TDFs from rice-based farming increased by average of 15%.

Result: All TDFs attained the indicators.

4) (indicator 4) Municipal LGUs establish at least 2 demonstration farms in their respective municipalities.

Result: Six (6) TDFs except Butuan City whose TDF would be finished on the November 2009 established more than 2 DFs.

3-2 Results of the Evaluation with the Five Criteria

(1) Relevance

The project has high relevance based on the following points:

The Project focuses on the improvement of livelihood of Filipino farmers. Integration of component technologies including LST can respond to the needs of farmers.

The Project is consistent with the national policy on agriculture and the GMA Rice program.

It is high from the aspects of Cooperation Priority of Japan and Japans Advantage.

The targets include areas with adverse agro-climatic conditions, rain-fed, and irrigated areas with low productivity.

(2) Effectiveness

The Project's effectiveness is high based on the following points:

The Objectively Verifiable Indicators (OVIs) Items 1, 3 and 4 of the Project Purpose have been achieved. However, the OVI Item 2 which states, "At least 70% of participating farmers increase productivity of rice by 1t/ha", has not yet been achieved because only 52% of the participating farmers have been able to attain this indicator as of July 2009.

The logic between Output and Project Purpose is appropriate.

(3) Efficiency

Most of the Outputs have been achieved. Thus, the Project has high efficiency, based on the following points:

A technology promotion system has been established to enable agricultural technicians to be more efficient in helping farmers attain their productivity and profitability.

By adopting the Location-Specific Technology Package (LSTP), some farmers were able to reduce production cost thereby increasing their net income.

While some farmers' income showed significant increase, others were unable to purchase the recommended quantity of fertilizer because of its drastic price increase.

The inputs, both from Japanese and Philippine sides were found to be generally appropriate in terms of timing, duration, and fields of expertise.

(4) Impact

The project has positive impact based on the following points:

It has been observed that many non-participating farmers have adopted technologies developed in TDFs. A number of PFs initiated the promotion of technologies they have learned to non-PFs.

Both ATs and FPs/PFs of TDFs have shown willingness to teach farmers what they have learned.

Most of the stakeholders such as the LGUs, ATI, DA-RFU and NIA in the Project sites, have expressed support to DF activities, specifically in the expansion and technology dissemination to farmers.

PhilRice has adopted LST as its main strategy for increasing rice productivity of farmers.

PFs have established cooperatives to empower themselves.

Although the increase of productivity of 1 t/ha is partially achieved, the income has increased substantially due to the reduction of necessary inputs by farmers and increase of commodity price.

(5) Sustainability

Based on the forecasting of the insect population and utilization of appropriate pest-tolerant rice varieties, the farmers have reduced pesticide use.

Functionality of TDF Committees varies across sites. It is necessary to define the role of each member in the implementation of the TDF.

The methodology and approach of the Project was adopted for the rice self-sufficiency master plan of the Philippine government from 2009 to 2013.

All components of the GMA Rice Program of the DA are provided funds by the national government. LGU funding for DF operations is limited compared to TDF but it is enough, except for the travelling expenses of ATs.

TDF participants stated that they have acquired enough technology through the Project which they can do by themselves. However, if there are new technologies developed, they would like to learn it through the ATs and PhilRice. TDF participants have shared the technologies learned to non-participating farmers who practice these technologies in their areas.

(6) Conclusion

The planned activities are on schedule, and it is expected that all necessary activities will be completed by the end of the Project. Thus, the target outputs are expected to be attained. The possibility of achieving the project purpose of improving the rice productivity of participating farmers within the cooperation period is high. Thus, the Project will be terminated as scheduled.

The Project technology promotion model in establishing TDF and DF involving the LGUs and other concerned agencies is very effective. Adoption of this location specific technology promotion system in the national program can help in attaining the ultimate goal of rice self sufficiency in the Philippines.

3-3 Recommendations

(1) Before the end of the Project

Implementation Process

When expanding DFs, the commitment of LGU leaders should be ensured, particularly in providing adequate funds for activities and transportation allowance to ATs as well as fulfilling the obligations stipulated in the MOA.

Assessment and Monitoring

The initial assessment should be done by a multi-disciplinary team for a holistic perspective of the

situation. The reporting of DF activities from ATs should include problems and its causes in order to address the farmers' needs and establish a feedback mechanism to provide, among others, updating of new technologies.

Follow-up of PFs

PhilRice should follow-up PFs who have not attained the targeted increase of 1 t/ha of rice production by identifying its causes and taking the necessary countermeasures in close collaboration with LGUs and other concerned agencies.

Improvement of Agricultural Technologists' Guide

The ATs Guide's publication is timely for the utilization in DF activities. For mass dissemination of the module employed in the Project it should be improved.

Efficient utilization of trained ATs

The number of ATs at TDF is 269. However, only 32 worked at DFs. It is necessary to utilize all the trained ATs to expand DF activities.

Seminar and workshop

The planned seminars and workshops per area and the overall national workshop shall be pursued, inviting LGUs (selected provinces, cities and municipalities) and other cooperating agencies such as GMA Rice Program Directorate, DA-RFU and ATI. The outputs should include a 5-year plan on the expansion of TDF and DF approach, among others.

(2) After the end of the Project

In developing an LST, it is necessary to pay considerable attention not only to agro-climatic but also to the socio-economic conditions of the farmers. Thus, PhilRice has to come up with different options for LST adoption in consideration of the different capabilities of the farmers.

Market-oriented production

Encourage farmers to be more market-oriented in their off-season vegetable production by, for example, diversifying their vegetable crops to avoid market saturation.

Continue development of in-bred rice varieties

Considering the high price of hybrid varieties and unstable production in areas with adverse conditions, it is recommended to continuously develop and promote in-bred varieties to be incorporated in the LST packages.

PalayCheck for non-irrigated areas

PalayCheck being used for irrigated areas might not be suitable for non-irrigated areas. Thus, *PalayCheck* for non-irrigated areas should also be developed.

(3) On the DA

When an LGU and a national government agency are implementing similar programs in the same area, the program promoting LST should be prioritized to more accurately address the needs of the community.

3-4 Lesson and Learned

From the experience of the Project, the following lessons were drawn for consideration in future program and projects.

(1) Implementing agencies should exert more effort in defining the roles and in engaging the active participation of other concerned agencies at onset of project implementation.

(2) Project implementers should not only focus on the numerical targets but also on the implementation process.

(3) In selecting the project sites, baseline data and initial analysis should be considered.

(4) It is essential to establish physical structure which serves as venue for learning, socialization and other activities by the farmers.

第１章　終了時評価調査の概要

１－１　調査団派遣の経緯と目的

フィリピン共和国（以下、「フィリピン」と記す）の農業においてコメは最重要作物であり、国民の80%以上が主食としており、国民1人当たりの年間消費量は日本を上回る。しかしながら、単収は全国平均では低く、品種改良、機械化、栽培体系の確立が強く求められてきた。これらの状況を改善すべくわが国はフィリピン稲研究所（フィルライス/PhilRice）に対し無償資金協力を実施して1991年に研究施設を完成させ、1992年から5年間にわたりプロジェクト方式技術協力「フィリピン稲研究所計画」を実施した。その後小規模農家向け技術の研究開発を目的として、1997年8月から5年間のプロジェクト方式技術協力「高生産稲作技術研究計画」を実施した。これらの協力の結果、フィルライスの研究開発能力は飛躍的に向上した。

しかしながら、依然として農業現場の収量は低く、中央の研究機関で開発された技術が各地域の特性に即した形で改良されておらず、地方レベルで十分に利用されていないことが問題となっている。こうした状況の下、フィリピン政府はわが国に対し、地域に適合した技術の研究開発及びその普及を目的とした新たな技術協力プロジェクトを要請した。この要請に基づきわが国はJICAを通じ、2003年10月と2004年3月に事前評価調査を行い、2004年10月に、本技術協力プロジェクトの枠組みを取り極めたRecord of Discussion（R/D）をフィリピン政府との間で署名・交換した。

JICAは署名したR/Dに基づき2004年11月15日以降、北西ルソンと中部ルソン、加えて北部ミンダナオの一部の3カ所をプロジェクト対象地域として、各地域の地域適合型技術（LST）の開発と実証を行う計7カ所の技術実証展示圃場（TDF）での活動、及びTDFでの成果を踏まえ、地方自治体（LGU）が主体となり展開する展示圃場（DF）におけるモニタリング活動を展開してきた。

2009年11月のプロジェクト協力期間終了を控え、フィリピン側評価団と合同でプロジェクトの実績を確認するとともに、評価5項目（妥当性、有効性、効率性、インパクト、自立発展性）の観点から評価を行うこと、及び評価結果を踏まえて、プロジェクト期間内、期間後に行う活動に係る提言及び教訓を含む合同評価報告書を取りまとめることを目的とし、終了時評価調査を行うこととした。

１－２　調査団の構成と調査期間

１－２－１　調査団の構成

【日本側調査団】

	氏　名	所　　属	期　間
1	時田　邦浩 （総括）	JICA　国際協力専門員	2009.7.12 ～2009.7.25
2	福嶌　陽 （栽培/普及）	独立行政法人　農業・食品産業技術総合研究機構　東北農業研究センター　上席研究員	2009.7.12 ～2009.7.25
3	今野　公博 （評価分析）	株式会社VSOC、第二事業部　主任	2009.6.28 ～2009.7.25
4	宮下　明子 （計画管理）	JICA　農村開発部　水田地帯グループ　水田地帯第一課職員	2009.7.12 ～2009.7.25

【フィリピン側調査団】

	氏　名	所　　属
1	Mr. Edmund J. Sana （Team Leader）	Member, Secretary's Technical Advisory Group, Department of Agriculture
2	Dr. Soledad Mina–Roguel （Extension）	Dean, Institute of Graduate Studies, Central Luzon State University
3	Dr. Josue S. Falla （Evaluation Analysis）	Chief, Technology and Product Promotion Division, Philippines-Sino Center for Agricultural Technology, Director II, Bureau of Postharvest Research and Extension
4	Ms. Evelyn Valeriano （Cooperation Administration）	Project Development Officer, Special Project Coordination and Management, Assistance Division, Department of Agriculture

１－２－２　調査日程

調査期間：2009年6月28日～7月25日

日順	月日	曜	調査団本体		評価分析団員
1	6/28	日	総　括	移動　東京9：30→マニラ13:05（飛行機）	移動　東京9：30→マニラ13：05（飛行機）
2	6/29	月			農業省訪問、JICAフィリピン事務所訪問・専門家打合せ
3	6/30	火			移動　マニラ11：00→ブツアン12：20（飛行機） フィルライス・アグサン支所視察
4	7/1	水			チャリト TDF作期末報告会参加及び普及員・農民（TDF/DF）インタビュー、フィルライス・アグサン支所にてカウンターパート（C/P）インタビュー
5	7/2	木			タガバカTDF作期末報告会参加及び普及員・農民（DF）インタビュー
6	7/3	金			フィルライス・アグサン支所で打合せ 移動　ブツアン13：00→マニラ14：20（飛行機） 移動　マニラ→フィルライス本所（車）
7	7/4	土			資料整理
8	7/5	日			資料整理
9	7/6	月			ラガレTDF視察、普及員・農民（TDF/DF）インタビュー
10	7/7	火			サン・マリアノ TDF視察、普及員・農民（TDF/DF）インタビュー
11	7/8	水			移動　本所→アリンガイ　NGO/農家視察→パオアイ（車）

12	7/9	木			ピアスノルテTDF視察、普及員・農民インタビュー フィルライス・バタック支所、サイバー・コム視察
13	7/10	金			リサール TDF視察、カブガオ市長表敬、農民（TDF）インタビュー、イロコススール州農業事務所視察、移動　本所へ（車）
14	7/11	土			資料整理
15	7/12	日	栽培/普及・計画管理	移動　東京9：30 →マニラ13:05（飛行機）	移動　本所→マニラ（車）
			日本側調査団内打合せ		
16	7/13	月	JICA事務所・農業省表敬、合同評価調査団内打合せ、専門家打合せ		
17	7/14	火	移動　マニラ11：00→ラオアグ12：00（飛行機） フィルライス・バタック支所視察・インタビュー		
18	7/15	水	ピアスノルテTDF視察及びインタビュー クリマオ市長、農業普及員、農民（DF）インタビュー、DFサイト視察（3カ所）		
19	7/16	木	フィルライス・バタック支所長・職員と打合せ 移動　ラオアグ12：00→マニラ13：00（飛行機） 日本側調査団内打合せ		
20	7/17	金	移動　マニラ11：00→ブツアン12：20（飛行機） ブツアン市農業事務所インタビュー 農業研修所アグサン支所訪問・インタビュー		
21	7/18	土	チャリト/タガバカ TDF視察、農民（TDF/DF）インタビュー フィルライス・アグサン支所視察、インタビュー		
22	7/19	日	移動　ブツアン13：00→マニラ14：20（飛行機） 移動　マニラ→フィルライス本所（車）		
23	7/20	月	ラガレ/サン・マリアノTDF視察及びインタビュー、DF視察		
24	7/21	火	評価結果取りまとめ、合同評価調査団内打合せ		
25	7/22	水	評価結果取りまとめ報告、ミニッツ案協議		
26	7/23	木	ミニッツ案協議、フィルライス本所視察 移動　フィルライス本所→マニラ（車）、JICA事務所へ報告		
27	7/24	金	合同調整委員会（JCC）開催、ミニッツ署名		
28	7/25	土	移動　マニラ 9：00→成田14：20（飛行機）		

１－３　対象プロジェクトの概要

対象プロジェクトの概要は、次のとおりである。

（1）協力期間：2004年11月15日～2009年11月14日

（2）ターゲット・グループ：C/P、対象地域における稲作農家、農業普及員

（3）プロジェクト対象地域：中部ルソン、北西ルソン、北部ミンダナオ
（4）実施機関：農業省　フィリピン稲研究所（フィルライス）
（5）上位目標：
1）対象地域において稲の生産性が向上する。
2）対象地域において農家の農業所得が向上する。
（6）プロジェクト目標：参加農家での稲の生産性が向上する。
（7）プロジェクト成果：
1）本所（中部ルソン：ムニョス）及び各支所（北西ルソン：バタック、北部ミンダナオ：アグサン）において地域適合型技術体系が開発される。
2）稲作技術を中心とした技術支援体制が対象3地域で構築される。

１－４　主要面談者

＜フィリピン側＞

（1）農業省（Department of Agriculture：DA）

Hon. Jesus Emmanuel M. Paras	Undersecretary
Engr. Roy M. Abya	Director, Field Operations Service
Ms. Evelyn Esquejo	Agricultural Training Institute

（2）フィリピン稲研究所（フィルライス）本所（Central Experimental Station, Philippine Rice Research Institute：CES）

Atty. Ronilo A. Beronio	Executive Director
Dr. Eulito U. Bautista	Deputy Executive Director
Mr. Ruben B. Miranda	Deputy Executive Director
Mrs. Teodora L. Briones	Head, Planning and Collaborative Program Office （PCPO）
Mrs. Fidela P. Bongat	Development Management Officer III, PCPO

（3）フィリピン稲研究所・バタック支所（Batac）

Dr. Reynaldo C. Castro	Branch Manager
Ms. Alma C. Aguinaldo	Senior Science Research Specialist
Ms. Nida Q. Abrogena	Senior Science Research Specialist

（4）フィリピン稲研究所・アグサン支所（Agusan）

Engr. Artemio B. Vasallo	Acting Branch Manager
Dr. Alejandra Estoy	Supervising Science Research Specialist
Ms. Marilyn B. Amoin	Science Research Assistant
Ms. Elgie M. Iman	Science Research Assistant
Ms. Alona M. Maceda	Science Aide

（5）フィリピン稲研究所　JICA専門家

椛木　信幸	チーフアドバイザー/実証/普及（長期）

小林　俊孝	業務調整（長期）
末光　健志	農業普及教材開発（短期）

＜日本側＞

（1）在フィリピン日本大使館

坂田　剛彦	一等書記官

（2）JICAフィリピン事務所

松田　教男	所　長
岩上　憲三	次　長
内田　久美子	所　員
小林　龍太郎	所　員
Mr. Pablo Lucero	スタッフ

第２章　評価の方法

２－１　評価項目

プロジェクト開始から4年半が経過したことから、これまでの実績と実施プロセスを確認し、その情報等に基づいて、評価5項目（妥当性、有効性、効率性、インパクト、自立発展性）の観点から日本側・フィリピン側双方で総合的に検証した。

調査したサイトの地域名、州名、市名、サイト名（TDF、DF）は表２－１のとおりである。

表２－１　調査したサイト

地域名	州名（Province）	市名（City）	TDFサイト名	DFサイト*名
Central Luzon 中部ルソン	Nueva Ecija ヌエバ・エシハ	Rizal リサール	Agba n awag アグバナワグ	Aglipay, Sta Monica, Paco Roman, Cabucbucan, Bicos, Del Pilar I, Del Pilar II, Maligaya, Estrella
		Cabanatuan カバナツアン	Lagare ラガレ	Bakero, Bagong Sikat, Bakod Bayan, Cabu, Caalibangbangan, Polilio, Balite, Cinco-cinco
		San Antonio サン・アントニオ	San Marino サン・マリアノ	Camajuan, Lawang Kupang, San Francisco Santa Barbara, Santo Cristo
Northwest Luzon 北西ルソン	Ilocos Norte イロコス・ノルテ	Currimao クリマオ	Pias Norte ピアス・ノルテ	Lang-ayan, Tapao-Tigue, Anggapang Norte
	Ilocos Sur イロコス・スール	Cabugao カブガオ	Rizal リサール	Salapasap, Lipit
Northern Mindanao 北部ミンダナオ	Agusan del Sur アグサン・デル スール	Bayugan バユガン	Charito チャリト	Marcelina, Gamao
	Agusan del Norte アグサン・デル ノルテ	Butuan City ブツアン市	Tagabaca タガバカ	

*DFサイト：TDF（技術実証展示圃場）の活動成果を活用し、TDFのExpansion SiteとしてLGUsが設置・主導する展示圃場。

以下、各地区比較の際は、市（City）名を使う。終了時評価時における対象TDFサイトの活動状況は表２－２のとおりである。

表２－２　終了時評価時における対象TDFサイトの活動状況

市　　名	終了時評価時のTDFサイトの活動状況
リサール	2年間・水稲4作期のTDF活動が終了し、モニタリング・DF活動が行われている。
カバナツアン	2年間・水稲4作期のTDF活動が終了し、モニタリング・DF活動が行われている。
サン・アントニオ	2年間・水稲4作期のTDF活動が終了し、モニタリング・DF活動が行われている。
クリマオ	2年間・水稲2作期、野菜4作期のTDF活動が終了し、モニタリング・DF活動が行われている。
カブガオ	2年間・水稲2作期、野菜4作期のTDF活動が終了し、モニタリング・DF活動が行われている。
バユガン	2年間・水稲4作期のTDF活動が終了し、モニタリング・DF活動が行われている。
ブツアン市	1.5年間・水稲3作期のTDF活動が終了した。今後半年間・コンサルテーションのTDF活動が推進され、モニタリング活動・DF活動の準備が行われている。

２－２　データ収集・分析手法

２－２－１　データ収集

(1) 投入実績に関する情報収集

事前に提供された資料を基に、これまでのプロジェクト期間における投入・活動の整理、活動の進捗状況を把握した。

(2) 活動実績・成果の確認

事前に提供された資料を整理し、確認が必要な事項について質問票〔農業省、市長、MAO（普及員を監督する職員）/普及員、協力農家、参加農家DF〕を作成し、それに基づいて、関係者に対するインタビュー及び現場視察を通じて活動実績と達成状況を確認した。

表２－３　インタビュー・現場視察実施日

市名・サイト名	インタビュー等実施日
リサール	な　し
カバナツアン	7月6日、20日
サン・アントニオ	7月7日、21日
クリマオ	7月9日、15日
Tapao-Tigue（タパオ・ティグエ）	7月9日、15日
Anggapang Norte（アンガパン・ノルテ） Lang-ayan（ランガヤン）	7月15日
カブガオ	7月10日
バユガン	7月1日、18日
Marcelina（マルセリーナ）	7月18日
ブツアン市	7月2日、18日

２－２－２　分析手法

分析は下記の手法に基づき行った。

①　実績の検証：現状・実績に基づいて検証作業を行った。

②　実施プロセスの検証：現状・実績に基づいて検証作業を行った。

③　評価5項目

妥当性　　：現状・中間評価時との変更箇所に基づいて検証作業を行った。

有効性　　：現状・実績に基づいて検証作業を行った。

効率性　　：現状・実績に基づいて検証作業を行った。

インパクト：現状・実績に基づいて検証作業を行った。

自立発展性：予測、見込みに基づいて検証作業を行った。

第３章　プロジェクトの実績

３－１　投入実績

３－１－１　日本側投入

(1) 専門家派遣

長期専門家6名と、短期専門家11名が、分野、人数ともほぼ計画どおり派遣されている。

表３－１　長期専門家一覧表

専門家氏名	指導科目	派遣期間	派遣前の所属
執行　盛之	CA*/実証/普及	2004.11.15～2007.11.14	中央農業総合研究センター
伊藤　良輔	業務調整	2004.11.15～2007.11.14	（有）ライフワーク国際協力
滝田　　正	評価/選抜	2004.11.15～2007.03.31	中央農業総合研究センター
井上　邦夫	実証/普及	2004.11.15～2007.11.14	（社）海外農業開発協会
椛木　信幸	実証/普及	2007.06.04～2008.01.06	中央農業総合研究センター
	CA/実証/普及	2008.01.07～2009.11.14	中央農業総合研究センター
小林　俊孝	業務調整	2007.11.08～2009.11.14	無所属

*CA：チーフアドバイザー

表３－２　短期専門家一覧表

専門家氏名	指導科目	派遣期間	派遣前の所属
渡邊　朋也	害虫防除	2005.11.16～2005.12.10	中央農業総合研究センター
渡邊　朋也	害虫防除	2006.09.03～2006.10.27	中央農業総合研究センター
中野　朋正	節水栽培技術	2006.11.19～2006.12.22	野菜茶業研究所
宮武　恭一	農業経済	2007.07.02～2007.08.30	中央農業総合研究センター
渡邊　朋也	害虫防除	2007.10.14～2007.10.27	中央農業総合研究センター
末光　健志	実証/技術普及	2008.03.11～2008.08.07	（有）アールディーアイ
森田　弘彦	雑草防除	2008.08.08～2008.08.31	秋田県立大学
末光　健志	実証/技術普及	2008.09.27～2009.03.10	（有）アールディーアイ
宮武　恭一	農業経済	2008.09.22～2008.10.31	中央農業総合研究センター
井上　邦夫	野菜生産	2009.01.29－2009.04.06	無所属
末光　健志	農業普及教材開発	2009.06.15～2009.10.02	（有）アールディーアイ

(2) 機材供与

表３－３のとおりJICA側から約3,700万ペソ相当の機材が供与されている。供与機材一覧表は巻末の付属資料３のANNEX 3に添付した。

表３－３機材供与額一覧

（単位：千ペソ）

年　度	2004	2005	2006	2007	2008	2009（6月まで）	合計
機材供与額	5,929	14,092	12,596	1,374	2,434	1,504	37,929

注：1ペソ＝約2円（2009年7月）

（3）研修員受入れ

これまで実証/普及分野関係とプロジェクト運営分野のカウンターパート16人が、日本での研修に参加した。農業普及や企画に関係する研修の結果は、カウンターパートによりTDF運営や普及活動に役立てられている。

表３－４　研修員受入実績一覧表

研修員氏名	受入期間	協力分野名	研修内容（受入機関）	当時の役職
Mrs. Corsennie A. MABAYAG	2005.05.09 ～ 2005.08.12	実証・普及（Agricultural Extension Planning & Management）	農業普及企画管理者（筑波国際センター：TBIC）	研究専門職 Science Research Specialist（SRS）
Mr. Ruben B. MIRANDA	2005.05.15 ～ 2005.08.18	実証・普及	農業普及企画管理者（TBIC）	技術普及部長
Mrs. Alma C. AGUINALDO	2005.05.15 ～ 2005.08.18	実証・普及	農業普及企画管理者（TBIC）	上級研究専門職 Senior SRS
Dr. Reynaldo C. CASTRO	2005.07.12 ～ 2005.07.29	プロジェクト運営	日本における稲作技術の開発と普及事業（中央農業総研、青森農試）	バタック支所長
Dr. Caesar Joventino M. TADO	2006.09.04 ～ 2006.09.16	プロジェクト運営	稲作技術の開発と普及事業（中央農業総研、宮城農試）	アグサン支所長
Engr. Aurora M. CORALES	2006.09.24 ～ 2006.11.30	実証・普及	地域振興行政（九州国際センター、九州沖縄農業センター）	上級研究専門職
Mr. Joel V. PASCUAL	2007.05.09 ～ 2007.07.13	実証・普及	農村経済活性化に果たす農協の役割（TBIC、アジア農業協同組合振興機関）	研究専門職補 Science Research Analyst
Mrs. Celia G. ABADILLA	2007.05.22 ～ 2007.08.13	実証・普及	農業普及企画管理者（TBIC）	研究専門職
Mrs. Evangeline P. AGRES	2007.05.22 ～ 2007.08.13	実証・普及	農業普及企画管理者（TBIC）	上級科学調査専門家

Mr. Erik-Ray Matthew S. PALOMAR	2007.08.14 ～ 2007.12.01	実証・普及	教育・普及を目的としたデジタル・ビデオ技術（沖縄国際センター）	研究専門職
Mr. Ronell B. MALASA	2008.06.23 ～ 2008.07.22	実証・普及	農業技術のインパクトアセスメント（農業・食品産業技術総合研究機構：NARO）	研究専門職
Mrs. Oferia C. MALONZO	2008.07.08 ～ 2008.09.12	実証・普及	農業普及企画管理者（NARO）	研究専門職
Engr. Artemio B. VASALLO	2008.07.14 ～ 2008.08.01	実証・普及	日本における稲生産技術の開発と普及（NARO）	アグサン支所長代行
Mr. Dexter B. BASTASA	2008.07.14 ～ 2008.08.23	実証・普及	高収量高品質稲育種技術（NARO）	研究専門職、アグサン支所
Dr. Alejandra B. ESTOY	2008.09.01 ～ 2008.10.31	実証・普及	害虫の発生予察と防除法（NARO）	研究専門職、アグサン支所
Mrs. Bethzaida M. CATUDAN	2009.06.30 ～ 2009.09.04	実証・普及	（NARO）	上級研究専門職、バタック支所

（4）プロジェクト活動費

これまでに約2,600万ペソ相当が投入されている。うち約1,200万ペソは、北部ミンダナオのフィルライス・アグサン支所における研修センターの建設費に充てられている。

表３－５　日本側ローカルコスト負担実績一覧表

（単位：ペソ）

	2004年	2005年	2006年	2007年	2008年	2009年（計画）	合　計
日常的経費	690,140	2,407,150	2,876,421	3,067,529	2,276,419	1,394,600	12,712,259
研修センター建設費*		688,000	12,082,690				12,770,690
セミナー開催費			279,139			577,500	856,639
育苗室建設費					263,305		263,305
合　　計	690,140	3,095,150	15,238,250	3,067,529	2,539,724	1,972,100	26,602,893

*内訳は、建設費：11,175,220ペソ、コンサルタント代：1,595,770ペソ

３－１－２　フィリピン側投入

（1）カウンターパートの配置

フィルライス本所（ムニョス）、バタック支所、アグサン支所において、長期専門家及び短期専門家のカウンターパートが2009年7月現在32名配置されている。バタック支所で

は、当初、野菜栽培分野のカウンターパートが配置されていなかったが、フィルライスは2005年5月に契約職員を雇用し、カウンターパートとして配置している。カウンターパート配置実績一覧表は巻末の付属資料４に添付した。

(2) 施設の提供

プロジェクト実施に必要な土地､施設､機材は､フィルライスによって提供されている。また、専門家の執務室が提供されている。

(3) プロジェクト活動費

フィルライスは総額で約1,310万ペソ支出している。TDF活動及びヌエバ・エシハ、イロコス・ノルテ・スール、アグサン・デル・スール、ブツアン市における地域適合型技術パッケージの研修費用（現地実証試験/普及関連経費）に480万ペソ、品種改良に180万ペソと病害虫防除に120万ペソ、2006～2007年のフィルライス・アグサン支所の研修施設建設のため150万ペソ、管理費（資機材維持管理、旅費等）として380万ペソ支出した。

表３－６　フィリピン側投入実績

（単位：ペソ）

	2004～2005乾期	2005雨期～2006乾期	2006雨期～2007乾期	2007雨期～2008乾期	2008雨期～2009乾期	合　計
現地実証試験/普及関連経費		1,380,000	1,009,500	1,170,000	1,260,000	4,819,500
品種改良経費		745,000	385,500	350,000	350,000	1,830,500
病害虫防除関連経費		300,000	300,000	300,000	300,000	1,200,000
研修センター建設費			1,500,000			1,500,000
プロジェクト管理費	500,000	750,000	500,000	850,000	1,200,000	3,800,000
合　計	500,000	3,175,000	3,695,000	2,670,000	3,110,000	13,150,000

雨期：6～11月ごろ、乾期：12～5月ごろ（ルソン島中部基準）

３－２　各活動の実施状況

活動（PDM）
1-1　ベースライン調査とモニタリングの実施 1-2　地域適合型技術体系の開発 2　　技術普及体制の確立

活動1-1　ベースライン調査とモニタリングの実施

ベースライン調査、モニタリングとインパクトアセスメントの実施状況は表３－７のとおりである。

ベースライン調査は7地区すべてで終了し、TDFのモニタリングはあと半年TDF活動を継続するタガバカを除いて終了している。インパクトアセスメントは、TDF活動終了後1年をめどに行っているため、これまでに終了したところは2カ所、実施中が1カ所、2009年中に開始するとこ

ろが2カ所である。

表３－７　ベースライン調査、モニタリング、インパクトアセスメントの実施状況

市　名	ベースライン調査	モニタリング	インパクトアセスメント
中部ルソン			
リサール	終　了	終　了	終　了
カバナツアン	終　了	終　了	2009年7月開始
サン・アントニオ	終　了	終　了	終　了
北西ルソン			
クリマオ	終　了	終　了	実施中
カブガオ	終　了	終　了	2009年11月開始
北部ミンダナオ			
バユガン	終　了	終　了	2010年7月開始
ブツアン	終　了	実施中	2010年7月開始

活動1-2　地域適合型技術体系の開発

TDF参加農家の農業生産性を向上するための技術的基盤を確立することを目的としており、プロジェクトではその基幹としてフィルライスがコメ生産性向上のために作成した技術指針（パライチェックシステム：PalayCheck System）を農家が励行するように指導した。パライチェックシステムは稲の栽培経過に応じた8項目（種子準備、圃場準備、作付けの斉一化、初期生育確保、施肥管理、水管理、防除、収穫調整）について順守すべき心構えと技術を記述したものであり、農家自らが各項目についてチェックを行いながら改善を図るものである。パライチェックはフィリピン全土を対象とした全国版であるが、プロジェクトでは更にパライチェックの項目に各地域の状況に合わせて開発した地域適合型技術（Location-Specific Technology : LST）を地域版として付け加え、両者を併せたものを地域適合型技術体系（Location-Specific Technology Package：LSTP）と規定した。

（1）フィルライス本所

1）安定した高生産性水稲二期作技術の開発

TDFは、実証展示圃場として農民が直接新しい情報を学習・交換できる場として機能した。TDFの構成は以下の8つである。

① インブレッド、ハイブリッドの品種の実証
② 農業機械の実証
③ パライチェックシステムの適用
④ 育苗法、施肥法、灌漑方式、病虫害・有害動物防除（特にネズミ）等の地域適合型技術開発の試行
⑤ 農民学習農場（FLF）の設立

⑥　フィールドデイ（周辺農家も参加できる公開セミナー）の実施
⑦　クロス・ビジット（先進地域の視察等）の実施
⑧　農民の組織化と組織力強化

研究者、普及員と協力農家（Farmer-Partners：FPs）によって運営されるTDFでは、ヌエバ・エシハの灌漑地域に適合する技術を実証試験を通じて開発し、参加農家（PFs）は、TDFでの研修や他の参加農家から学んだ技術を、それぞれ農家自身の圃場（FLF）において適用した。地域適合型技術は、TDFでの実証結果だけでなく、参加農家がそれぞれの圃場で実践して得られた経験・知識からのフィードバックも含めて検討され、ハイブリッド・多収品種、乗用型レベラー、ドラムシーダ利用直播、改良ダポッグ苗、節水栽培技術等を開発・認定した。時として大きな被害をもたらすネズミについてはバランガイ（村落）で一斉に防除を行う仕組みを考案し、有効な結果を得た。

以上の結果を地域適合型技術としてパライチェックのなかに組み込み、中部ルソン灌漑地域における、安定高生産水稲二期作技術体系の確立を図った。

（2）フィルライス・バタック支所

1）野菜生産技術の検証

天水田地帯で稲作が雨期一期作の零細な農業生産が行われている北西ルソンにおいて、農家の収益性を向上させるため、稲作とともに野菜作の生産技術の検証を行った。野菜作について、①セルトレイと簡易育苗ハウスによる野菜苗育苗技術、②尿素を活性剤とした稲ワラを用いた簡易堆肥作成法、③作目別高品質・多収野菜栽培指針、④旱魃に強い野菜品種とマルチによる乾期野菜栽培技術、⑤耐湿性作目・品種と雨除け・畝立てに基づくオフシーズン（雨期）野菜栽培技術、⑥収益性確保のための年間作付け計画表を地域適合型技術として開発・実証した。

上記の技術を実証するなかでの課題としては、制限された水供給、有機物が少ない砂地、雨期・乾期の野菜生産に関して農民の知識が限られていたことが挙げられた。

2）天水田における稲作技術（野菜作、その他畑作含む）のTDFでの検証

稲作を中心とした営農システムの確立のため、TDFでは雨期に、①天水田向けインディカージャポニカ品種（PJ17、PJ18、PJ23、PJ24、PJ26）、②雨期始めの不安定な降雨条件に対応した乾田直播、③灌漑水有効利用のための節水栽培技術を地域適合型技術として開発・検証した。

以上の結果を地域適合型技術としてパライチェックのなかに組み込み、北西部ルソン地域の天水田における稲－野菜生産技術体系の確立を図った。

（3）フィルライス・アグサン支所

1）低日照耐性品種の選抜

多雨低日照の北部ミンダナオに適した品種の選抜・評価を実施し、PJ7（NSIC Rc146）、PJ31、PJ32が低日照耐性を有することが確認され、そのうちPJ7の品種が普及されることとなった。PJ7は現地農家推奨品種PSB Rc82よりもイネシロオオメイガ（White Stem Borer：WSB）に耐性があるという結果を示し、TDF期間を通して安定した収量が得られ

た。

2）イネシロオオメイガ（WSB）の発生予察と防除

ミンダナオ地域に特有に発生し収量の大きな低減要因となるイネシロオオメイガのライトトラップによる発生予察が行われ、その結果と被害程度が密接な関連にあることが明らかになった。TDFにおいて発生予察に基づいた防除が実施され、収量の安定化に寄与することが実証された。

3）多雨低日照条件に適合した栽培管理技術

裁植密度について、一般推奨（20×20cm）よりやや疎植（25×25cm）の方が群落光利用効率の向上と病虫害防除に有効であり多収であること、施肥については、移植前に基肥を行う基肥重点施用により有効茎（穂を付ける茎）が早期に確保され、低日照条件下における収量の安定化に効果的であることがTDFで実証された。

以上の結果を地域適合型技術としてパライチェックのなかに組み込み、北部ミンダナオの低日照病虫害多発地域における健全稲作技術体系の確立を図った。

活動2　技術普及体制の確立

活動1-2地域適合型技術体系の開発をTDFで効率的に達成するための仕組み、得られた成果を効果的に伝達するための方策、さらに活動を周辺に拡大するための枠組みについての検討が行われた。

（1）技術実証展示圃場委員会（TDF Committee）の組織化と運営

技術実証展示圃場委員会はTDFの活動母体となるものであり、地域の農業関係団体の代表者から構成されており、その組成はTDFサイトにより異なるが、フィルライス、JICA、LGU、国家灌漑公社（National Irrigation Administration : NIA）、農業研修所（Agricultural Training Institute : ATI）、農業省地域事務所（Department of Agriculture-Regional Field Unit : DA-RFU）、SU（大学）、NGO、民間企業（肥料会社等）等がメンバーとなっている。委員会の組織化についてはTDFサイト選定時点から熟慮され、活動の成否を左右する要件とされている。TDFの準備段階で実施する地域関係者ワークショップ（Stakeholders Workshop）で活動の枠組みと内容についての話し合いがもたれ、TDF開始時に関係機関で覚書（Memorandum of Agreement : MOA）が取り交わされる。TDF活動中は各作期始めの計画会議（Planning Workshop）、週1回の農民学校（Farmers' Learning School : FLS）、公開圃場見学・セミナー（Field Day）、作期終わりの成績検討会議（End Season Review）を実施するとともに、必要に応じて協議を行う。現在までにすべてのサイトで上記委員会が運営されている。

技術実証展示圃場委員会の組織化と運営は各サイトの状況に応じて試行錯誤的に行われてきたが、2007年9月に実施された中間評価において「実施手順をデザインして文書化しておく必要がある」という提言がなされたことを受けて、フィリピン大学のコミュニケーション分野専門家をコンサルタントとしてプロジェクト内に編集委員会を設け、その社会科学的分析結果を農家への技術普及のプロセス・内容と併せて記述した文書「Agricultural Technologist's Guide」が作成された。

（2）技術研修で用いる普及マニュアルの作成

以下の普及マニュアルが作成された（表３－８）。これらのマニュアルは普及員用であるが、DFにおいて参加農家から配布を希望する声が出ている。これらマニュアル以外にも多くの技術資料、ポスター、リーフレット等が作成・利用されている。

表３－８　作成されたマニュアル一覧表

地　区	マニュアル
中部ルソン	（1）Philippine Rice Production Training Manual（英語/タガログ語）* フィリピン稲作研修マニュアル （2）Agricultural Technologist Guide* 農業技術者ガイド （3）Location-specific technology guide for intensive irrigated rice areas for extension workers and farmers 集約灌漑稲作地域の普及員と農家のための地域適合型技術ガイド （4）Cultivation Calendar 栽培暦 （5）Modified Dapog 改良ダポッグ （6）TCP3 newsletter* プロジェクトニュースレター （7）Location-specific technology guide for intensive irrigated rice areas in Nueva Ecija（for final editing and production） ヌエバ・エシハの集約灌漑地域のための地域適合型技術ガイド （8）Hydroponic seedling nursery 水耕育苗技術 （9）Technology Promotion Guide for Extension Workers* 普及員のための技術普及ガイド
北西ルソン	（1）Philippine Rice Production Training Manual（イロカノ語） （2）Philippine Vegetable Production Training Manual フィリピン野菜生産研修マニュアル （3）TCP3 Bulletins on Vegetables Nos. 1-7（イロカノ語） プロジェクト紀要（野菜） （4）Location-specific Technology Package for NW Luzon 北西ルソン地区用地域適合型技術パッケージ （5）TCP3 Newsletter（イロカノ語）
北部ミンダナオ	（1）Philippine Rice Production Training Manual（セブアノ語） （2）Cultivation Calendar（セブアノ語） （3）Modified Dapog（セブアノ語） （4）Location-specific Technology Package for Northern Mindanao 北部ミンダナオ地区用地域適合型技術パッケージ

*フィルライス本所で開発されたマニュアルは、北西ルソン/北部ミンダナオのTDFでも使われている。

（3）地方自治体（LGUs）が独自で企画・設置する展示圃場（DFs）と関係機関の技術支援

29のDFがLGUによって設立され、関係機関（農業研修所、灌漑公社、フィルライス）の

支援もある程度得られている。

農民からは、DF設置の希望は寄せられているが、LGUからの反応は鈍い場合も多い。理由としては、LGUの限られた予算のなかで、LGUのトップの意見によって農業の開発の優先順位が低く置かれる場合もあるためとのことである。

３－３　成果の達成状況

成果1	地域適合型技術体系が対象地域で開発される。
指　標	1-1）TDFsにおいて稲の収量が1t/ha増加する。 1-2）少なくとも3つの技術要素をもつ地域適合型技術体系が各地域で開発される。 1-3）低日照条件に耐性を示す稲品種が3系統選抜され、1品種普及される。

成果2	稲作技術を中心とした技術支援体制が対象3地域で構築される。
指　標	2-1）対象地域において普及マニュアルが開発される。 2-2）少なくとも105人の農業普及員や関係者及び140人の農民がTDFにおいてLST開発の技術研修を受講する。

指標1-1）TDFsにおいて稲の収量が1t/ha増加する

表３－９に各地区のTDFのベースラインデータの収量（t/ha）及びその2年後（4期）までの収量（t/ha）を示す。地区別に見るとカバナツアン以外は達成できている。カバナツアン及びフィルライス本所へのインタビューによると、2007年のS-2の時期の減少は、灌漑施設の補修により灌漑水が圃場に来るのが大幅に遅れたためとのことである。また、中部ルソン地域は米作地帯のため、他の地域と比べもともと農民の技術力がある程度高い状態でのベースラインデータであり、そこから1t/haの増収という目標はハードルが高かったとのコメントであった。中部ルソンの他の2地区は乾期に大きく増収しているところから、カバナツアンについても灌漑水が安定的に供給されれば目標値は上回ると推測できる。

表３－９　TDFのベースラインデータの収量及びその2年後までの収量（t/ha）

市　名	ベースライン		2005		2006		2007		2008		2009	増収最大値S-1	増収最大値S-2
	S-1	S-2	S-1	S-2	S-1	S-2	S-1	S-2	S-1	S-2	S-1		
中部ルソン													
リサール	4.84	7.90	5.23	9.29	5.36	8.94						0.52	1.39
カバナツアン	4.80	6.64			5.10	6.84	5.37	6.41				0.57	0.18
サン・アントニオ	4.95	5.77					6.34	7.26	5.66	6.47		1.39	1.49
北西ルソン													
クリマオ	1.64		2.56		5.25							3.61	
カブガオ	6.22				7.35		7.24					1.12	

北部ミンダナオ													
バユガン	3.28	4.18					4.00	4.84	4.60	4.61		1.32	0.66
ブツアン	2.90	3.59							4.60	4.43	4.83	1.70	0.84

S-1：6月から10月期（雨期：中部/北西ルソン）、12月から4月（大雨期：北ミンダナオ）
S-2：12月から4月期（乾期：中部/北西ルソン）、6月から10月（雨期：北ミンダナオ）

指標1-2）少なくとも3つの技術要素をもつ地域適合型技術体系が各地域で開発される

各地域で開発された地域適合型技術を表３－10に示す。

表３－10　開発された地域適合型技術体系

パライチェック システム		地域適合型技術		
		中部ルソン	北西ルソン	北部ミンダナオ
1	種子品質	ハイブリッド・多収品種	天水田向け品種	寡照耐性品種（PJ7）
2	圃場準備作業	乗用型レベラー		
3	作付けの斉一化			
4	初期成育確保	ドラムシーダ 改良ダポッグ	乾田直播 野菜栽培技術*	疎植栽培（25×25cm）
5	施肥管理			基肥重点管理
6	水管理	節水栽培技術	節水栽培技術	
7	防　除			イネシロオオメイガ発生予察と防除
8	収穫調整			

* 野菜栽培技術に係る地域適応型技術としては、①苗床利用、②簡易堆肥作成法、③高品質・多収野菜品種、④乾期野菜栽培技術、⑤雨期（オフシーズン）野菜栽培技術、⑥野菜作付け計画表が挙げられる。

指標1-3）低日照条件に耐性を示す稲品種が3系統選抜され、1品種普及される

品種選抜はフィルライス本所とアグサン支所との共同研究として実施され、品種選抜全国共同試験（NCT）においてNSIC Rc146が低日照体制系統として選抜された。NSIC Rc146はその後の現地実証試験で効果が確認され、2006年に品種PJ7として採用されて普及に移された。

PJ7の兄弟系統あるいは後代から有望系統の選抜が継続され、PJ25、PJ27、PJ32、PJ33等が選抜された。このうちPJ33は高品質性が評価され、2009年に品種として採用される見通しにある。

指標2-1）対象地域において普及マニュアルが開発される

表３－11の5種類のマニュアルが開発された。

表３－11　開発された普及マニュアル

	マニュアル名	内　　容
1	稲作技術マニュアル Techno-guide on Rice Production	“フィリピン稲作研修マニュアル2003”を2度改訂して作成された。タガログ、セブアノ、イロカノ語に訳されている。
2	野菜生産マニュアル Techno-guide on Vegetable Production	フィルライス・バタック支所で開発された。
3	技術普及マニュアル Agricultural Technologist’s Guide	普及員向けのTDF実施のためのプロセスと戦略である。
4	地域別技術パッケージ Location-Specific Technology Package	地域別に3種類作成され、編集中である。
5	普及員マニュアル Training manual for Agriculture Extension Workers	普及員が具備すべき項目と研修カリキュラム。改訂作業中である。2009年10月までにできあがる。

指標2-2）少なくとも105人の農業普及員や関係者及び140人の農民がTDFのLST開発の技術研修を受講する

表３－12、３－13のとおり、普及員及び関係者の受講者は269人、TDFにおける参加農家数は851人であり、いずれの場合も目標数を超えている。またTDFの参加農民について、中部ルソンでは家族の中心的な人物（必ずしも男性とは限らない）が継続して参加しているが、北部ミンダナオの地域では、忙しい場合には夫や妻等が代わりに参加することもあったと回答している農家が少なからずあった。

表３－12　普及員や関係者のTDFサイトにおける研修数

市　名	2005		2006		2007		2008		2009		合　計
	S-1	S-2	S-1	S-2	S-1	S-2	S-1	S-2	S-1	S-2	
中部ルソン											
リサール	29			2	3			1			35
カバナツアン			34				21				55
サン・アントニオ					13		26				39
北西ルソン											
クリマオ	6	4	4	4				20			38
カブガオ			10	11	5	5	32	11			74
北部ミンダナオ											
バユガン					10						10
ブツアン							18				18
合　計	35	4	48	17	31	5	97	32			269

うちDFで講師になった普及員数*	32

*DFで講師になった普及員数は、主な講師としてDFを運営した場合の人数である。インタビュー等からは、DFを運営する際に近隣の普及員に応援を求めたり、複数で担当する場合などがあることが明らかになっており、詳細に調査すればDFで講師になった普及員数は増えるものと思われる。

表３－13　TDFで研修を受けた農民数

市　名	2005		2006		2007		2008		2009		合　計
	S-1	S-2	S-1	S-2	S-1	S-2	S-1	S-2	S-1	S-2	
中部ルソン											
リサール	39			50	66			20			175
カバナツアン			41			136	40	31			248
サン・アントニオ					54		38	170			262
北西ルソン											
クリマオ	14	14						7			35
カブガオ			23	23	19	19	3	10			97
北部ミンダナオ											
バユガン				16							16
ブツアン						18					18
合　計	53	14	64	89	139	173	81	238			851

S-1：6月から10月期（雨期：中部/北西ルソン）、12月から4月（大雨期：北ミンダナオ）
S-2：12月から4月期（乾期：中部/北西ルソン）、6月から10月（雨期：北ミンダナオ）
* クリマオ、カブガオではS-1では稲作、S-2では野菜作りについて教えたため二重に数えている。

３－４　プロジェクト目標達成の予測

プロジェクト目標	参加農家での稲の生産性が向上する。
指　標	1）少なくとも70%の参加農家が、少なくとも3つの地域適合型技術を導入する。 2）少なくともTDF参加農家の70%はコメ生産性が1t/ha増収する。 3）コメを基本とした農業生産により参加農家の農業所得が平均15%増加する。 4）LGUsが2カ所以上の独自のDF（実証試験展示圃場）を設置する。

指標1）少なくとも70%の参加農家が、少なくとも3つの地域適合型技術を導入する

表３－14は3つ以上の地域適合型技術を導入した参加農家の割合を示しており、いずれの場合も90%以上を示していて、採用率は指標以上を示している。どの地域適合型技術を採用したのか、どれが導入できていないのかについての情報は、インタビューである程度把握することができたが、データは担当それぞれが持っており調査時にはまとまった形での入手はできなかった。

表３－14　3つ以上のLSTを導入した参加農家の割合（%）

中部ルソン	
リサール	100
カバナツアン	100
サン・アントニオ	100
北西ルソン	
クリマオ	100
カブガオ	100
北部ルソン	
バユガン	95.6
ブツアン	90.9

指標2）少なくともTDF参加農家の70%はコメ生産性が1t/ha増収する

表３－15は1t/ha以上増収したPFの割合を示している。1年目または2年目のどちらかに目標を達成した地区は7地区中4地区である。達成できなかった部分のうち、2年目のカバナツアンと2年目のバユガンは注記のとおりその理由がはっきりしているが、他のケースにおいて理由は複数ある。リサール地区では、もともと高い技術が導入されていたため1t/haという数字は難しいのではないかという意見があった。

カブガオ地区は、天水で稲作を行っており、灌漑地区を念頭に置いて作成されているパライチェック、LSTのなかには、水深を保つなど実践が難しい項目が含まれているという指摘があった。

表３－15　1t/ha以上増収した参加農家の割合

	参加農家数	1年目		2年目		2年間の平均割合（%）
		1t/ha以上増加した参加農家数	割合（%）	1t/ha以上増加した参加農家数	割合（%）	
中部ルソン						
リサール	20	9	45	14	70	58
カバナツアン	39	29	74	18	46*	60
サン・アントニオ	42	25	59	31	74	67
北西ルソン						
クリマオ	8	7	87	6	75	81
カブガオ	18	5	27	10	56	42
北部ミンダナオ						
バユガン	16	7	43	4	25**	34

ブツアン	12	6	50			
合　計	155	88	57	83	54	57

*　灌漑水の到着が大幅に遅れたため。
**　農家が同時期に田植えができなかったため害虫の被害が拡大した。

指標3）コメを基本とした農業生産により参加農家の農業所得が平均15%増加する

表３－16は参加農家の農業収入の増加割合を示している。結果はすべての地域で目標値の15%を超えている。北西ルソンのクリマオの2004年の雨期（S1）は旱魃に襲われたため、ベースラインを2005年としている。また北西ルソンのカブガオの2007年の乾期（S2：2007年12月～2008年4月）の収入が前年乾期と比べて減少しているのは台風による洪水のためである。

表３－16　PFの農業収入の増加額（年間）

中部ルソン

リサール	収入（ベースライン）			1年目収入			2年目収入			平均上昇
	04-S1	04-S2	合計	05-S1	05-S2	合計	06-S1	06-S2	合計	割合（%）
収入（ペソ）	17,511	40,193	57,704	20,408	55,929	76,337	32,235	61,815	94,050	
増加割合			100			132			163	148

カバナツアン	収入（ベースライン）			1年目収入			2年目収入			平均上昇
	05-S1	05-S2	合計	06-S1	06-S2	合計	07-S1	07-S2	合計	割合（%）
収入（ペソ）	17,806	21,404	39,210	19,738	36,380	56,118	26,353	66,296	92,649	
増加割合			100			143			236	190

サン・アントニオ	収入（ベースライン）			1年目収入			2年目収入			平均上昇
	06-S1	06-S2	合計	07-S1	07-S2	合計	08-S1	08-S2	合計	割合（%）
収入（ペソ）	16,811	21,805	38,616	26,457	47,373	73,830	18,526	40,949	59,475	
増加割合			100			191			154	173

北西ルソン

クリマオ	収入（ベースライン）			1年目収入（前年度のマイナスが入っているために当年をベースラインとした）			2年目収入			平均上昇割合（%）
	04-S1	04-S2	合計	05-S1	05-S2	合計	06-S1	06-S2	合計	
収入（ペソ）	(2,109)*	3,380	1,271	1,760	4,950	6,710	3,540	15,280	18,820	
増加割合						100			280	

*オフシーズン（雨期）の野菜栽培はプロジェクト開始以前は行われていない。

カブガオ	収入（ベースライン）			1年目収入			2年目収入			平均上昇
	05-S1	05-S2	合計	06-S1	06-S2	合計	07-S1	07-S2	合計	割合（%）
収入（ペソ）	4,979	1,432	6,411	2,462	15,307	17,769	3,402	8,012	11,414	
増加割合			100			277			178	228

北部ミンダナオ

バユガン	収入（ベースライン）			1年目収入			2年目収入			平均上昇
	06-S1	06-S2	合計	07-S1	07-S2	合計	08-S1	08-S2	合計	割合（%）
収入（ペソ）	13,654	10,548	24,202	20,194	24,978	45,172	23,961	23,125	47,086	
増加割合			100			187			195	191

ブツアン	収入（ベースライン）			1年目収入			2年目収入			平均上昇
	07-S1	07-S2	合計	08-S1	08-S2	合計	09-S1	09-S2	合計	割合（%）
収入（ペソ）	5,322	5,295	10,617	28,139	15,295	43,434				
増加割合			100			409				

・S1：6月から10月期（雨期：中部/北西ルソン）、12月から4月（大雨期：北ミンダナオ）
・S2：12月から4月期（乾期：中部/北西ルソン）、6月から10月（雨期：北ミンダナオ）
・中部ルソンと北部ミンダナオは1ha当たりのコメによる収入を記載している。単位：ペソ/ha
・北西ルソン地区ではS1は1ha当たりのコメと1,000㎡当たりの野菜栽培、S2は1,000㎡当たりの野菜栽培による収入が記載されている。

指標4）LGUsが2カ所以上の独自のDF（実証試験展示圃場）を設置する

表３－17のとおりブツアン市が次期に開始する計画であるのを除いてDFは行われている。特に中部ルソンでは指標にある数値を大きく超えている。これ以外にもDF開催を希望するバランガイからフィルライスに相談が寄せられている。

表３－17　DF数とDFを行ったサイト名

地　区	サイト数	サイト名
中部ルソン		
リサール	9	Aglipay, Sta Monica, Paco Roman, Cabucbucan, Bicos, Del Pilar Ⅰ,Del Pilar Ⅱ, Maligaya, Estrella
カバナツアン	8	Bakero, Bagong Sikat, Bakod Bayan, Cabu, Caalibangbangan, Polilio, Balite, Cinco-cinco
サン・アントニオ	5	Camajuan, Lawang Kupang, San Francisco, Santa Barbara, Santo Cristo
北西ルソン		
クリマオ	3	Lang-ayan, Tapao-Tigue, Anggapang Norte
カブガオ	2	Salapasap, Lipit

北部ミンダナオ		
バユガン	2	Marcelina, Gamao
ブツアン	0	Baan, Mahay（次期開始予定）
合　計	29	

３－５　上位目標の達成予測

上位目標	1）ターゲット地域のコメの生産性が向上する。 2）ターゲット地域の農業収入が増加する。
指　標	1）対象地方自治体（LGU）の生産性が平均1t/haまで向上する。 2）農家がコメもしくはコメを基本とした農業生産により平均15%までの収益が増加する。

指標1）対象LGUの生産性が平均1t/haまで向上する

協力農家で1t/haの生産性を達成できたのは57%である（プロジェクト目標の指標2）。インタビューを通じて、DF、またはTDFから近隣農家へLSTが広がっていることが確認でき、DFに参加した農家のなかには1t/ha以上生産性が増加したという農家も現れていた。しかしながら地方自治体全体のバランガイ（サイト）数からすると（例えば、クリマオには23、ブツアンには86のバランガイが存在する）、現在の技術の普及規模は小さい。今後の広がりは、フィルライスだけでの力ではなく、地方自治体（DF活動の推進を担う）、その他、農業研修所、灌漑公社、農業省の地方事務所（DA-RFU）等の支援の内容、規模により、上記指標の達成が可能となる。

指標2）農家がコメもしくはコメを基本とした農業生産により平均15%までの収益が増加する

プロジェクト目標の指標3において、平均値ではすべての地区の協力農家が上記の目標を達成していること、DFのなかにも既に達成している農家があることを考慮すると、今後達成が可能であると想定される。達成要因としては、北西ルソンの野菜栽培による収入増加及びこれまで支出していた種子、肥料、労働力（田植え）、殺虫剤の費用の減少がある。

他の達成要因としてコメの買い上げ価格が多少なりとも上昇していることが挙げられる。ただし価格に比べ質の良いベトナム産の国家食糧庁（NFA）米が販売され始めたので（kg当たり17ペソ、購入者に所得制限あり）、買い上げ価格が下落する可能性もある（一部の農家から指摘があった）。

懸念事項（阻害要因）は、灌漑水や天水が得られない場合に水を汲み揚げるポンプや農業機械に使用するガソリン価格の再上昇、それに伴う肥料等の価格の上昇、種子にかかる50%の補助金が2010年以降継続されるかどうかの見通しがたたないことである。

また、野菜についての懸念事項は、特定の野菜（ニガウリ、カボチャ、パトラ、ナスなど）を多くの農家が同時期に収穫すると価格が暴落する可能性があり、将来に向けて生産調整が必要となることに注意を払う必要がある。

第４章　5項目評価結果

5項目評価の概要は下記のとおりである。

４－１　妥当性

プロジェクトは、以下の理由から妥当性が高いと判断される。

４－１－１　必要性

(1) プロジェクトはフィリピンの農家の生計向上に焦点を当ててきた。稲作を中心とした地域適合型技術の改善は、農家の生計向上というニーズに応えることができる。

(2) プロジェクトはフィリピンの農業政策（中期政策等）とGMA（基幹作物生産振興計画）稲プログラムに一致している。農業省のGMA稲プログラムは、ハイブリッド/インブレッドライス、認証された種子、生産性を高める地域適合型技術の促進等の高収量技術が含まれている。

４－１－２　日本の協力方針

(1) プロジェクトの内容は貧困削減に資するものであり、日本のフィリピンに対する援助方針に沿っている。

(2) フィリピンの農業開発分野への協力において、農業生産性の向上は緊急の課題とみなされている。農業の生産性向上において、技術の研究、開発、普及は非常に重要な分野であり、プロジェクトはその課題への協力を行っている。

４－１－３　日本の技術の優位性

日本は、フィリピンと同様にアジアモンスーン気候区に位置し、主食がコメであるといった共通点をもっている。日本では生産性の高い稲作をめざし、試験研究活動が推進されてきた。日本のこれまでの試験・研究実績と農家の経験が、この技術協力プロジェクトを通じて、フィリピンの農業技術開発と普及を支援したといえる。

４－１－４　ターゲット・グループの選定

プロジェクトは、ターゲット地域として、中部ルソン、北西ルソン、北部ミンダナオの3地区を設定している。ターゲット地区は天水依存型の二毛作地域（北西ルソン）や低日照で生産性の低い灌漑地域（北部ミンダナオ）など農業に最適ではない条件の地区も含んでおり、フィリピンにおける地域適合型技術開発という本プロジェクトの目的に対応した対象地域が選定されている。

４－２　有効性

次の観点からプロジェクトの有効性は高いといえる。

(1) 協力農家でのコメの生産性の向上というプロジェクト目標は、プロジェクト終了までに達成される。

(2) プロジェクト目標の指標4つのうち3項目（1、3、4番目）は達成されている。指標の2番目“少なくとも70%の協力農家がコメの生産性を1t/ha増収させる”は2009年7月現在57%の協力農家が達成している。

(3) 成果1-1）“TDFのコメの生産性が1t/ha増収する”は7カ所のTDFのうち6カ所で達成されている。

(4) 他の成果の指標は既に達成されている。

(5) 成果とプロジェクト目標の論理は適切である。

４－３　効率性

大部分の成果が達成されている。よって効率性は高いと判断できる。

４－３－１　因果関係

(1) プロジェクトで実践した技術普及方法は、普及員等の農業技術者が、農家に対して高い生産性と収益性を達成するための技術普及を効率的に行えるようにした。

(2) LSTPを採用することによって、生産のための投入コストを減じることができ、その結果収入を増やすことができた農家も多い。

(3) 大幅な収入増加を実現できた農家もいる一方、肥料価格の高騰のためにTDFで推奨された必要量の肥料を買うことができない農家もいた。

４－３－２　コスト

日本側及びフィリピン側双方の投入は時期、期間、専門性の分野においておおむね適切である。

４－４　インパクト

プロジェクトは下記の観点のとおり正のインパクトをもつ。

４－４－１　技術面

TDF参加農家の多くが非参加農家へ技術を伝え始めており、非参加農家が、TDFで開発された地域適合型技術を既に採用していた。

４－４－２　制度面

(1) 普及員と参加農家/協力農家の双方とも、TDFで学習したことを他の農家に教えることに

積極的な姿勢を示している。

(2) プロジェクトを実施した地域の地方自治体、農業研修所、農業省地方事務所（DA-RFU）、灌漑公社等の多くの関連機関が、農業技術の普及を拡大するためのDF活動実施を支援したい旨を表明した。

(3) フィルライスは農家のコメの生産性増加のための主な戦略として、プロジェクトで実施した地域適合型技術開発という方法を採用することとした。

(4) プロジェクト活動を通じて、参加農家が組織化の必要性を認識し、協同組合を設立したところもある。

４－４－３　社会面

生産性1t/ha増加を達成できなかった協力農家もあったが、農家の収入は増加した。その理由は、TDFで学んだ技術を実践し、水田への肥料等の資材の投入量が減少したこととコメの価格の値上がりがあったためである。

４－４－４　環境面

害虫密度の予測と害虫の被害が少ない品種の導入により、殺虫剤の水田への使用量が少なくなった。

４－４－５　経済面

プロジェクトは農家の所得向上に貢献した。特に北西ルソンでは、野菜の流通量が減少する雨期に野菜作を行うことで収入増を図り、農家の借金体質を改善すると同時に、コメの収穫時期以外にも収入を得る手段を提供した。

４－５　自立発展性

プロジェクトの自立発展性は、地方自治体の財政面での制約等はあるが、ある程度高いと想定される。

４－５－１　組織的要因

(1) フィルライスは稲作と稲作を中心とした農業の技術研究・開発という使命をもつ、主要な政府組織であり続ける。

(2) TDF委員会の機能はサイトによって異なっている。TDF委員会の自立発展性を確保するためには、TDF実施の際にその構成員の役割を定義することが必要であった。

４－５－２　政治的要因

プロジェクトのアプローチの手法はフィリピン政府の「コメ自給マスタープラン2009－2013」で採用されている。

４－５－３　財政的要因

（1）農業省のGMAコメプログラムの予算のすべては、フィリピン政府から拠出されており、引き続き予算が確保される見込みである。

（2）地方自治体が主体で運営するDFへの予算は、プロジェクト（フィルライス・JICAが予算を支出）が運営したTDFと比較すると限られているが、DFの運営においては十分であるといえる。ただし、DFを担当する普及員の交通費の確保は課題として残されている。現在普及員の巡回のための手当は、市によってバイクを貸し出すことで対応しているところもあるが、例えば300ペソなどの固定額が交通費として支給されていることが多い。その額は、どの普及員も不足していると回答している。

４－５－４　技術面

（1）TDF協力農家及び参加農家のほとんどは、TDFで自分たちが必要とする技術を十分学ぶことができ、また学んだ技術を独力で継続できるまで身につけたと述べている。ただし、新たな技術が研究・開発された際には、フィルライスや農業研修所からの情報提供を望んでいる。

（2）TDF協力農家及び参加農家は、周辺のTDFに参加しなかった農家へも、学んだ技術を伝えており、周辺農家は自分の圃場で既に技術を実践している。

４－６　結　論

計画された活動はスケジュールどおり行われており、すべての活動はプロジェクト終了までに完了すると見込まれる。よって、協力期間内にプロジェクト成果、及び「参加農家での稲の生産性が向上する」というプロジェクト目標の達成可能性は高く、プロジェクトは2009年11月14日をもって計画どおり終了する。

地方自治体（LGU）や関連機関との連携を図りながらTDF-DFの設置・運営を行い、地域適合型技術を開発・普及するという、本プロジェクトで実施したアプローチは非常に効果的であった。今後、国家プログラムでこのアプローチが採用されることで、本プロジェクトの長期的なゴールとするフィリピンにおけるコメ自給の達成への貢献が期待できる。

第５章　提言と教訓

５－１　提　言

５－１－１　プロジェクト終了時までに達成すべき成果、活動

（1）TDF-DF実施のプロセス

LGUがDFを実施するうえでLGUの首長のコミットメントを引き出すべきである。MOAにある義務を履行してもらうとともに、特に普及員の交通費支給など予算の割り当てが重要である。

（2）アセスメントとモニタリング

実証圃場を造る前のアセスメントは各種の専門分野の担当者によるチームにより、地域の農業条件、農村社会経済など、より総合的観点からの実施を徹底すべきである。普及員の活動報告には、農家のニーズに応えられる問題点と原因を含めるようにするとともに、フィードバックする体制を構築し技術の更新などに努めるべきである。

（3）参加農家のフォロー

TDFにおいて収量目標を達成できなかった参加農家についてはその原因究明にあたり、地方自治体、その他関係機関との連携によって対応策を講じるべきである。

（4）普及員向けAgricultural Technologists（AT）ガイドの改訂と増刷

ATガイドの改訂、増刷にあたり、LST開発・TDF-DFによる普及手法の全容が分かるようなフローチャートや普及員の規範を加え、囲み記事を設けるなどの改善を加えるべきである。なお、参考資料の同時配布と、地域で使用される言語でのATガイドを用意することが望ましい。

（5）研修を受講した普及員の活用

TDFで269名の普及員が研修を受けており、普及員は日々の普及活動で技術普及を行っているが、これまでにDFを運営したのは32名である。LGUや他機関の協力によるDF活動の拡大に伴い、研修修了者の活用を推進すべきである。

（6）セミナーとワークショップの開催

2009年に開催が計画されているセミナーは活動報告にとどまるのではなく、地方自治体、GMAコメプログラム担当、農業省地方事務所、農業研修所等の関係者を招いて各サイトでの今後の取り組みを5カ年計画にまとめるなど、今後の活動の継続を見据えた議論を行うことが重要である。

５－１－２　プロジェクト終了後に達成すべき成果、活動

（1）LSTの選択肢の提示

LSTを検討する際に自然条件については技術的検討が十分なされている一方、農家の資本投下能力、リスク回避の考え方、あるいは稲作への重みづけといった社会経済的な検

討・対応を強化する必要がある。例えば、肥料価格の高騰があったためTDF参加農民が肥料投入量を減らさざるを得なかったことが起こったが、初期調査の段階で農業経営や意識調査などFocus Group Discussionで得られないようなこういった状況についても情報収集と分析を行い、対策を提示していく必要性を示唆している。農民の資金へのアクセスに応じて、可能な投入量に見合う技術選択肢の提示や、農家の状況に応じてLSTのなかでも何が一番重要なポイントであるかを明示して、技術適用率を上げる必要がある。

(2) 市場志向の生産

市場が飽和して価格下落が起きないように、生産の多様化を図るなど市場を見据えた取り組みとなるように更に注意を払うべきである。

(3) 品種開発

高価なハイブリッド種子を不安定な生産環境下で農家が使用することは困難であるため、比較的安価なインブレッドをLSTで利用できるように継続的な品種開発及び普及を進めるべきである。

(4) 非灌漑地向けのパライチェック

パライチェックは灌漑が前提となっているため、非灌漑地には適さない。非灌漑地に利用できるパライチェックも開発すべきである。

５－１－３　農業省に対して、

(1) TCP3のアプローチと農業省の他のプログラムとの競合

農業省により国家プログラムとして、Quick Turn Around （QTA）という三期作奨励のプログラムが導入されているが、TCP3では病害虫被害の低減を目的として二期作を推奨している。参加農家はQTAを受け入れていないが、周辺農家が実施するとその影響を受けることがある。LSTが確立しているところでは国家プログラムよりLSTを優先すべきである。

５－２　教　訓

本プロジェクトの経験から、以下のような教訓が導きだされる。

(1) 各機関の役割

プロジェクト実施機関及び関連機関は、プロジェクト運営にあたっての各機関の役割の明確化及び積極的な参加のあり方について、プロジェクト開始時においてできるだけ明確に関係者で共有すべきである。

(2) プロジェクトサイトの選定

プロジェクトサイトを選ぶにあたり、ベースラインデータ、その他情報の分析は重要である。他地域での活用や波及効果を高めるためにも、実験圃場選定にあたっては、極端な悪条件の地域は避ける必要がある。

（3）PDMにおける指標としての目標値

本プロジェクトの中間評価で、それまでのPDMにあった指標の1t/ha増加という目標を平均ではなく対象農家の7割以上が達成するという内容に切り替えた。これは突出した農家が平均を押し上げるよりも、多くの農家に裨益すべきであるという考え方からである。一方で、指標の数値達成のために収量増を目的としたLST開発が優先されてしまい、農家の使える技術ではなくなってしまう危険性もあった。自立発展性を考えた際、数値目標の達成以上にプロセスが重視されるということについて、関係者間での認識の共有が重要である。

（4）農民学習センターの設置

農民学習センターの設置は、農家の情報交換の場として有益であった。農民学習センターという物理的に集う場ができたことで、農民による学習、社会活動、その他の活動が促進される。

第６章　団員所感

６－１　栽培/普及団員所感（技術的特記事項）

（1）野菜作の導入

北西ルソン地域においては、雨期に野菜を栽培することによって高収入が得られるようになってきている。しかし、今後、野菜の栽培面積が増加すると、連作障害が懸念されるので、同一の水田に同じ野菜を連続して作らないよう指導していく必要がある。また、今回の調査では、雨期にもかかわらず、湿害症状は認められなかったが、今後、降雨が続くと、湿害を受ける可能性がある。現在は、小畝を作って、ビニールマルチによって水を弾くという対策がとられているが、湿害を受けやすい地域においては、畝を高くする、明きょを作るなどの対策が必要であろう。

（2）新品種の育成

北西ミンダナオ島では、PJ7などのインブレッドの新品種の導入が進められている。PJ系統は日本の品種とフィリピンの品種を交雑して育成されたものである。PJ7におけるイネシロオオメイガ（WSB）に強い形質や、低日射量での収量が高い形質は、日本の優良遺伝子が導入されたことによる可能性が高い。すなわち、ジャポニカ（日本の品種）は、インディカ（フィリピンの品種）に比べて、茎が細く（WSBの生活スペースが少ない)、また、高温高日射条件での光合成能力は低いが、低温低日射条件での光合成能力は高いとする報告が多い。今後は、日本を含めたフィリピン国外の遺伝資源を用いて、WSB抵抗性、低日射量耐性、いもち病耐性、白葉枯病耐性などの遺伝子の導入を更に進めていく必要がある。

（3）インブレッド品種育成の強化

聞き取り調査においては、ハイブリッド品種の利用がいずれの地域においても最も評価が高かった。しかし、ハイブリッド品種は、種子代が高価であること、雨期の収量性は高くないなどの問題点がある。日本においては、ハイブリッド品種と同等の高収量が得られるインブレッド品種がいくつも育成されている。フィリピンにおいても、インブレッドの多収性品種の育成に重点を置く必要がある。また、PJ7のような、不良環境において多収でなくても、安定した収量を得られるインブレッド品種の育成も必要である。

（4）施肥管理

MOET（Minus One Element Technique）やLCC（Leaf Color Chart）の普及が進み、適切な施肥の時期・量・種類が農家に分かるようになったことはTCP3（Technical Cooperation Project 3 : 本プロジェクト）の大きな成果である。しかし、農家は施肥の必要性を認識していても、乾燥や洪水を恐れて高価な肥料を使わないことが多い。乾燥や洪水による肥料成分の損失の定量化を行い、効率的な施肥の時期や量を明らかにする必要がある。

（5）栽植様式

フィリピンにおいては、田植えの際の1株苗数や株の間隔はランダムであることが多く、現地調査においては、1株10本近くが、密植されているような場所も散見された。TCP3以降、

正確な田植えが普及して、使用苗数の削減や田植え時間の短縮の効果を上げているように考えられる。現在、20cm、25cm、30cmなどの株間が試みられている。株間を広げることは、苗数の削減や田植え時間の短縮となるが、広げ過ぎると、雑草の増加や減収を招く。今後は、地域や作期ごとに最適な栽植密度を明らかにしていく必要がある。

(6) パライチェック（Palaycheck）

パライチェックは、稲作に必要な技術を簡潔にまとめた総合パッケージである。聞き取り調査においては、役立ったとの意見が多かったが、分かりにくいという意見もあった。総合パッケージは理想であるが、実際には、すべてを教えるのではなく、最も重要な個別技術から普及を進める方が有効なこともあろう。パライチェックが農家に受け入れられるかについては、継続的に検討していく必要がある。なお、現在のパライチェックは灌漑水田用であり、天水田用のパライチェックを作成する必要がある。

(7) 直播栽培

田植え機が普及していないフィリピンにおいては、手植えから直播への移行によって、労働力を大幅に削減することが可能である。しかし、本プロジェクトにおいては、直播栽培はあまり普及しなかった。普及を妨げている最も大きな要因は水管理の難しさにある。灌漑設備の整った地域は、最も普及の可能性が高いが、降雨量が多く、たん水状態が続くと、出芽・苗立ちが不良となる。適切な播種時期の選択や出芽・苗立ち性の優れた品種の利用が有効と考えられる。一方、北西ルソンなどの乾燥が問題となる天水田地域においては、土壌水分状態が安定する不耕起の乾田直播栽培を試みることも考えられる。その他、スクミリンゴガイ、鳥、ネズミ、雑草など直播栽培の抱える問題は地域によってさまざまである。わが国においては、たん水状態での安定した苗立ちのためのカルパーコーティング、鳥害の防止のための鉄コーティングなどの技術が開発されている。地域によっては、これらのコーティング技術が有効となるかもしれない。

(8) 作期回数

フィリピンにおいては、コメの自給率100％達成が大きな目標である。このため、年3作を行うことを推奨している地域もある（本プロジェクトでは推奨していない）。しかしながら、年3作は、病虫害の増加や作期当たりの収量の低下をもたらす。3tを3回よりも、10tを1回の方が年間収量は高い。乾期に施肥や農薬を多投入して、ハイブリッドなどの多収品種を栽培することによって、確実に高収量を得るという方策も考えられる。

(9) まとめ

本協力において水稲の収量増加が実証されたことは、フィルライスの高い研究・普及能力によるところが大きい。また、PJ系統の育成、WSBの発生予察、雨期の野菜栽培などに関しては日本研究者の果たした役割も大きいと判断される。

今後は、各地域での水稲生産の阻害要因を明確にして、目的指向型の研究を行う必要がある。そのためには、各専門分野の研究者が共同して作業を行うような体制づくりが求められよう。

６－２　団長所感

（1）長期的協力の有効性

これまでフィリピンの農業研究協力の多くは、研究拠点を無償で整備して技術協力を実施した。フィルライスへの技術協力は1992年に開始され、以降、多くの稲研究者を育成し、フィリピンの農業研究機関としては常にリードする立場を維持してきている。日本の協力をベースに国内で不動の地位と名声を築き上げられたことが良い事業循環を生み出してきたといえよう。フィリピンの国際協力を担う機関として、今後南南協力の一翼を担うことが期待される。

（2）フィリピンの食糧政策

フィリピン政府はコメの自給率達成を2013年に置いているが、国家食糧庁（NFA）による価格政策が懸念される。ベトナムから35ペソ/kg以上の輸入米を17ペソ/kgにまで割引して貧困層に配布しているが、コメ価格の低下につながりかねない。200万tを輸入するだけで量的緩和がなされて、価格低下の可能性があるにもかかわらず、補助金政策をとることで、価格崩壊と政府資金の不足の心配がある。さらに、貿易自由化が進み関税が低く抑えられることから一層の価格低下を引き起こしかねない。自給率達成に向けて、生産技術というよりも、肥料価格や人件費の高騰とコメ価格の低迷といった経済要素が大きな足かせとなるであろう。政府として生産から流通まで一貫した政策をとることが不可欠である。

（3）今後の農業協力

本プロジェクトの経験は研究開発と普及との連携の重要性を改めて示している。専門機関を集めて束にしたところで、業務所掌範囲内での活動にとどまる限り、農家ニーズに的確に応えることはできない。つまり、インターディシプリナリーなアプローチは各機関において関連機関と協調する姿勢を持ち合わせることであり、その意識を醸成させることをしないで統合させることは無理である。そしてセクショナリズムの強い組織の多いフィリピンでは、どの機関が指揮者としてまとめ上げるかということがカギとなろう。このように組織と制度面に正面から向かい合う取り組みをしない限り、これまでと同様に技術の切り売りをする協力に終わる可能性が高い。

付　属　資　料

１．プロジェクト・デザイン・マトリックス（PDM）

２－１　評価グリッド（和文）

２－２　評価グリッド（英文）

３．ミニッツ（合同評価報告書を含む）

４．カウンターパートリスト

５．コメ自給プログラム資料

６．パラヤマナンについて

PROJECT DESIGN MATRIX (PDM) for the Development and Promotion of Location-Specific Integrated High-Yielding Rice and Rice-Based Technologies (JICA TCP3)

Cooperation term: Nov. 15, 2004 - Nov. 14, 2009 Implementing organization: PhilRice, Department of Agriculture *Verision 3.0: As of Sept. 2007*

Target areas: 7 municipalities in three target zones (Northwestern and Central Luzon, and Northern Mindanao)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Long-term Goal / Super Goal Self-sufficiency in rice is achieved in the Philippines	The volume of rice production corresponding to population increase is secured	Official statistics	
Overall Goal 1) Productivity in the target areas of rice is increased 2) Agricultural income of farmers in the target areas is increased	1) Productivity in the target municipalities increased by average of 1 t/ha 2) Income of participating farmers in TDFs and DFs increased by average of 15%	1) Agricultural statstics of the province(s) 2) Baseline survey and monitoring	1) No unusual climate condition occurs 2) No unusual pest and disease occurs 3) Priority of the Philippine government on rice self-sufficiency is unchanged 4) Governmental budget for rice self-sufficiency remains secured 5) International price of rice (imported price) does not drop significantly
Project Purpose Rice productivity of participating farmers is improved	1) At least 70% of participating famers adopt at least 3 components of location-specific technologies 2) At least 70% of participating farmers increase productivity of rice by 1 t/ha 3) Income of participating farmers in TDFs from rice-based farming increased by average of 15% 4) Municipal LGUs establish at least 2 Demonstration Farms in their respective municipalities	1) Baseline survey and monitoring reports 2) Baseline survey and monitoring reports 3) Baseline survey and monitoring reports 4) LGU's records on extension activities	1) No unusual climate condition occurs 2) No unusual pest and disease occurs 3) Priority of the Philippine government on rice self-sufficiency is unchanged
Outputs 1) Suitable input and location-specific technology packages are developed in each target area 2) Technology promotion systems focused on rice technology are established in the target areas	1-1) Productivity of rice is increased by 1 t/ha in Technology Demonstration Farms 1-2) One (1) location-specific technology package with at least 3 component technologies is developed for each target area 1-3) At least 3 advanced lines for tolerance to low solar radiation are tested and at least one variety is promoted 2-1) Extension manuals on the rice or rice-based farming systems are developed for each target area 2-2) At least 105 agricultural technicians and concerned government personnel as well as 140 farmers are trained at the Technology Demonstration Farm on promotion of location specific technologies	1-1) Baseline survey and monitoring repors 1-2) Techno-guides 1-3) Report 2-1) Extension manuals (demo farm management, materials for extension activities) 2-2) Seminar and workshop record (contents, participants and level of understanding)	1) No unusual climate condition occurs 2) No unusual pest and disease occurs 3) Social and economic conditions do not change drastically
Activities 1-1) Conduct of baseline survey and monitoring 1-2) Development of suitable and location-specific technology packages a) PhiRice CES: (1) TDF implementation to establish stable and high yielding rice double cropping technology b) PhilRice Batac: (1) Evaluation of vegetable cultivation tecnologies (2) TDF implementation to establish rice-based farming system including including vegetable and upland crops c) PhilRice Agusan: (1) Development and evaluation of new variety and establishment of a pest forecasting sysytem for WSB (2) TDF implementation to establish a stable yielding rice double cropping technology 2) Establishment of technology promotion systems a) Organization and coordination of Technology Demonstration Farm committees b) Production of extension materials for technical training c)Establishment of Demonstration Farms(DFs) by LGUs with technical support from the concerned institutions		**INPUTS** ***Japan Side*** 1) Experts a) Long-term b) Short-term 2) Trainings a) Trainings in Japan 3) Equipment/materials for research, trainings and extension services 4) Cost shared by Japan Side ***Philippine Side*** 1) Counterpart personnel a) Project Director c) Counterpart Personnel b) Project Managers d) Admin/Support staff 2) Facilities and equipment (existing facilities shall be mostly utilized a) Buildings d) Water, power & communication b) Farms e) Other necessary lots & buildings c) Motorpool/storage 3) Cost shared by Philippine Side	1) Budget for this Project is continuously secured by PhilRice 2) Peace and order situations in the target areas are secured 3) Number of LGU's agricultural technician is maintained and continuously assigned 4) Participating farmers continue rice production ***Pre-conditions*** 1) Present policy of the Philippine government on rice production remains 2) Philippine government allocates budget for PhilRice properly without any major delay 3) Related institutions continue to participate and support the Project

ANNEX 1

評価グリッド（フィリピン国高生産性稲作技術の地域展開計画終了時評価）

No.	5 項目	評価設問		必要なデータ	結　　果
		大項目	小項目		
1	妥当性	1.フィリピンの国家計画との整合性	中期国家計画（2004-2010）、GMA（基幹作物生産振興計画）に変更はないか	左記の変更（あれば）	GMA のプログラムが増え、TDF（技術実証展示圃場）を使って農民の技術力向上ひいてはコメの自給を図る National Rice Self-Sufficiency 2009-2013 が 2009 年 5 月から開始されている。QTA（Quick Turn Around）、FIELD プログラムも開始されている。Palayamanan プログラムは引き続いて行われている。
2			PhilRice の上記に対する位置づけに変更はないか	左記の変更（あれば）	変更はない。PhilRice の vision と mandate においても変更はない。
3		2.日本の援助事業としての妥当性	対フィリピン国援助計画との整合性	貧困削減の課題開発「生計向上」の変更（あれば）	引き続き一致しており、日本政府はフィリピン国支援にあたり農業開発分野を重点課題に位置づけている。
4			JICA 国別事業実施計画	開発課題 : 農林水産業の振興が格差の是正（貧困緩和と地域間格差の是正）に資する記述の変更（あれば）	引き続き、格差の是正が課題である。プロジェクトは、そこに資することが期待されている。
5			日本の同様の技術支援の実績、日本の経験の有用性	日本の技術協力実績	日本はフィリピンと同様にアジアモンスーン気候区に位置し、主食もコメである。日本は生産性の高い稲作をめざし積極的に試験研究活動を推進している。日本の試験・研究実績と農家の経験が、この技術協力プロジェクトを通じて、フィリピン国の農業技術開発と普及を支援できることが期待されている。
6		3.ターゲットグループの妥当性	ターゲットグループのニーズに合致していたか	PhilRice 本部/2 支所、7 自治体、農業普及員、FP（協力農家）と PF（参加農家）の選定は正しかったか（技術レベル、男女比等）	農家のニーズは生産性と収入の増加でありプロジェクト目標と一致している。関連公的機関のニーズは、農家の支援であり、これもプロジェクトの活動に一致している。
7		4.他ドナーとのデマケ	他ドナーの類似事業との連携・デマケは明確に実施されているか	IRRI、中国などとのデマケ、その他の類似事業の情報	IRRI（国際稲研究所）と PhilRice はコメに関する諸問題に連携して対応している。 中国は灌漑、ハイブリッドで事業を行っているが当プロジェクトと重複はしていない。
8	有効性	1.アウトプットの達成度	アウトプット（1）地域特有技術（LST）パッケージ（LSTP）の投入と対象地区での開発はどの程度達成されているか	指標 1（TDF における 1t/ha の増収）	base line data（TDF 開始の前年）と TDF の 1 年目（雨期、乾期）と 2 年目（雨期、乾期）の ha 当たりの増減をを比べて（FP）みると、中部ルソンでは Rizal が 0.39, 1.39, 0.52, 1.04、Cabanatuan が 0.3, 0.24, 0.57, -0.23、San Antonio が 1.39, 1.49, 0.71, 0.70 である。北西ルソンでは Currimao が 0.92, 3.61、Cabugao が 1.12, 1.02 である。北部ミンダナオ（大雨期、雨期の順）では Bayugan が 0.72, 0.66, 1.32, 0.44、Butuan が 1.70, 0.84, 1.94（2 年目雨期は 2009 年 11 月ごろ収穫）である。得られた数値のうち目標を達しているのは 23 データ中 10 である。
9				指標 2（少なくとも 3 componet tech. がある LSTP の開発）	LST 開発状況は、中部ルソンがハイブリッドと多収品種、乗用型レベラー、ドラムシーダ、改良ダポッグ、節水栽培技術の 5 種、北西ルソンが天水田向け品種、乾田直播、野菜栽培（苗床利用、簡易堆肥作成法、高品質・多収野菜品種、乾期野菜栽培技術、雨期野菜栽培技術、野菜作付け計画表）、節水栽培技術の 4 種、北ミンダナオでは寡照耐性品種（PJ7）、疎植栽培（25×25）、基肥重点管理、イネシロオオメイガ（WSB）予察・防除の 4 種である。
10				指標 3（少なくとも低日照条件に耐性を示す 3 系統の試験、1 品種の促進）	品種選抜は日比交雑系統のなかから NSIC Rc146 が低日照耐性系統として選抜された。その後現地実証試験で効果が確認され、2006 年に品種 PJ7 として採用された。PJ7 の兄弟系統あるいは後代から有望系統の選抜が継続され、PJ25、PJ27、PJ32、PJ33 等が選抜された。

11	有効性	1.アウトプットの達成度	アウトプット（2）対象地区における技術促進制度の確立はどの程度達成されているか	指標 1（稲作と稲作を基本にしたファーミングシステムの普及マニュアル）	以下の 5 種類のマニュアルが開発された。①稲作技術マニュアル－2003 年に PhilRice から発行された“フィリピン稲作生産研修マニュアル”を基本にし、これに技術普及手法を付け加えた稲作ガイドを英語、タガログ、イロカノ、セブアノ語版で作成し TDF で活用した。②野菜生産マニュアル－北西ルソン地域で開発した野菜生産技術を解説したマニュアルである。③技術普及マニュアル－TDF/DF により技術普及を図る本プロジェクトの手法を解説したもの。「AT-Guide:農業技術者ガイドブック」④地域別技術パッケージ－3 地域の地域適合型技術の開発と実証経過について記したもの。⑤普及員マニュアル－農業普及活動の高度化のために、普及員が具備すべき項目と研修カリキュラムを記述するもの。
12				指標 2（少なくとも 140 農家と 105 の AT/関係者が TDF サイトにおいて LST 研修を受ける）	受講農家数は 851 名（Rizal:175, Cabanatuan:248, San Antonio:262,Currimao:35, Cabugao:97, Bayugan:16, Butuan:18）。受講した AT 及び農業省関係者は 269 名（Rizal:35, Cabanatuan:55, San Antonio:39,Currimao:38, Cabugao:74, Bayugan:10, Butuan:18）、うち DF の講師となった者は 32 名である。
13		2.プロジェクトが質の高い LSTP を提供しているか	各地域への投入状況	TDF 活動/フィールドデイの記録、普及員の活動実績	TDF は対象 7 地区のうち Butuan を除いて終了した。Butuan では 1 年半分が終了し、残りの半年は主にコンサルテーションが行われる。フィールドデイは各地で 2～4 回、合計 23 回行われた。インタビューによると周辺地区への啓発の意味合いはあまり濃くなかった模様。AT は TDF 終了後も週 1 回はサイトを訪れ、新技術の紹介、フォローアップ等を行っている。PhilRice の活動は基本的に半年に 1 回のモニタリングのみであるが、LGU（地方自治体）の要請により技術指導を行う場合もある。PhilRice Batac がこの点で一番活発である。
14			LSTP の機能状況（地方の各レベルにおける理解/普及、メリット/デメリット、改善案等）	普及実績、地方各レベルにおけるコメント	AT、LGU、TDF/DF 参加者から高い評価（自信がもてるようになった等）を得ている。LST のうち品種の選定が収量増加に最も影響を与えたという回答が多かった。普及できていない LST も少ないながら存在するが、その理由は DF、北西ルソン、北ミンダナオでは経済的理由が多い。その他の理由は文化的理由（20×20 の間隔を変えられない、種を少なくまくと不安であるなど）、それ以外では結果が直接収量に現れない LST は評価が低いという感触である。
15		3.プロジェクトが技術促進システムを確立したか	各地域への投入状況	TDF 活動/フィールドデイの記録、普及員の活動実績	29 カ所で DF が終了し、2 カ所で計画中である。参加農家数は 667 である。AT が TDF に参加し、LGU の長の了解を得て、AT が DF のほとんどの講義・実習をもつという形で TDF-DF は普及している。DF の予算は、LGU 負担となる〔一部 ATI（農業研修所）、PhilRice、JICA 負担あり〕ので、実習圃場の費用、AT の交通費、DF 期間等で不満が聞かれた。しかしながら収量、収入が大幅に増加したという例は数多く聞かれた。
16			技術促進システムの機能状況（地方の各レベルにおける理解/普及、メリット/デメリット、改善案等）	普及実績、地方各レベルにおけるコメント	・DF の拡大に関しては AT の上司である LGU の長の了解が必須であるが、そこがネックになっている。経済的理由、農業の優先順位等が理由に挙げられている。 ・また、PDM（プロジェクト・デザイン・マトリックス）上の各 TDF 当たり 2DF の開設という指標はクリアしているが、農業を主としているバランガイ数から比較するとその数字は小さい。 ・TDF または DF から周辺の個人農家への技術の伝播は確実に起こっており、特に北西ルソンでは野菜畑の設立であるため目に付きやすい。

17	有効性	4.プロジェクト目標の達成度	プロジェクト目標（PF の稲作生産性が向上する）はどの程度達成されているか	指標 1（少なくとも 70%の PF が少なくとも LST の 3 つの要素を採用する）	PhilRice から入手できたデータでは、中部ルソン 3 地区、北西ルソン 2 地区では 100%、北ミンダナオの Bayugan では 95.6%、Butuan では 90.9%である。どの 3 項目またはそれ以上が採用されたのかは今後の LST 開発にあたっての重要な資料となるが詳細なデータは入手できなかった。
18				指標 2（少なくとも 70%の PF が生産量を 1t/ha 増収する）	基準年（TDF の前年と推測される）とその 1 年後、2 年後の 1t/ha を上回った農家数のみのデータが得られた（ミニッツに添付の資料）。これは中間評価の平均収量から変更された指標であるが、収量が極端に高い農家が平均を押し上げて全体の分布が見えなくなるのを避けるための措置である。これによると目標の 70%を上回った地区・年は Rizal の 2 年目、Cabanatuan の 1 年目、San Antonio の 2 年目、Currimao の 1、2 年目であり、13 項目のうち 5 つのみである。平均では 57%となっている。
19				指標 3（TDF を基本とした PF の収入が平均 15%増加する） 野菜の収入のデータも収集する	基準年（TDF の前年と推測される）とその 1 年後、2 年後の農業による収入額データが得られた（ミニッツに添付の資料）。それによると 2 年間の平均比は Rizal:148%、Cabanatuan:190%、San Antonio:173%、Currimao:280%（1 年のみ）、Cabugao:1,228%、Bayugan:191%、Butuan:409%（1 年のみ）である。
20				指標 4（地方自治体が少なくともその自治体で 2 つの DF を設立する）	7 対象地区のうち Butuan を除いた 6 地区では、それぞれ 2 地区以上の DF が設定され、合計 29 地区で DF が実施された（ミニッツ参照）。Butuan ではあと半年で TDF が終わるところにあり、DF を行う 2 地区が決定したばかりである。
21		5.プロジェクトのアウトプットはプロジェクト目標の達成に貢献しているか	PhilRice のスタッフの能力向上はプロジェクト目標に貢献しているか	技術移転を受けた C/P の人数、強化された能力の内容	PhilRice のスタッフの能力向上は特に LST 開発に生かされたとのコメントがあった。
22			アウトプットとプロジェクト目標に最も貢献した機材は何か	技術移転や TDF 活動、フィールドデイで最も重要な機材	C/P からはどれも重要という回答しか得られなかったが、FP/PF は品種が最もよかったと回答していることから、品種改良用に係る機材と推測した。
23			新規習得技術を活用しているか（本邦研修＋専門家から）	TDF 活動への反映	日本側から受けた技術は、LST 開発や TDF で使用したと C/P からコメントがあった。
24			プロジェクト以外に貢献した要因はあるか	既存のシステム/機材、財政的援助、人的貢献、情報、メディアによる広報等	AT から、LGU の長の支援が一番大きな要因であるとの回答があった。
25		6.目標達成を阻害した要因	プロジェクト目標の達成を阻害した要因はあるか	外部条件：1）天候不順、2）病害、3）参加農家に社会・経済的変化が起こったか	これまでのところ起こっていない。また、1）2）3）とも起こらないであろう。
26	効率性	1.投入の量・質・タイミングの適切さ	専門家の派遣人数、専門分野、派遣時期は適切か	派遣実績、プロジェクトのコメント	長期専門家は、6 名（182 人月）。チーフアドバイザー、実証/普及、業務調整の分野で派遣された。短期専門家は 11 名（22 人月）。害虫防除、節水栽培技術、農業経済、実証/技術普及、野菜生産、農業普及教材作成の分野で派遣された。
27			供与機材の種類、量、設置時期は適切か	機材配置状況、機材利用状況、プロジェクトのコメント	適切である。合計で 3,792 万 9,000 ペソの機材が供与され、技術移転に使用された。
28			研修員受入人数、分野、研修内容、研修機関、受入時期は適切か	研修のデータ、プロジェクトのコメント	適切である。合計 16 名が、プロジェクト運営管理、実証/普及分野で、2 週間から 3 カ月半の間送られた。
29			カウンターパートの人数、配置状況、能力は適切か	配置状況（PhilRice、支部）、出張状況	適切である。これまで 50 名配置された〔うち CES（PhilRice 本所）35 名、Batac 8 名、Agusan 7 名〕。
30			建物・施設の質、規模、利便性に問題はないか（CES、支部）	建物・施設の現状、活用状況、関係者のコメント	適切である。3 地区の施設のうち Agusan には宿泊施設がないが、現在のところ緊急な研修ニーズはなく、CES 等で代行している。
31			プロジェクトの運営費予算は適正規模か	比側負担実績、プロジェクトのコメント	適正である。日本側は 2,660 万 2,000 ペソ、フィリピン側は 1,315 万ペソ支出している。

32	効率性	2.コストの適切さ	1 回の TDF 実施に係るコストは妥当か	TDF の費用、TDF の参加人数、TDF の目的	一収穫期（約 4 カ月）当たり 9 万から 30 万ペソの支出があった。
33		3. 効率性を阻害した要因	効率性を阻害した要因があるか	外部条件：1）Philrice 予算不足、2）対象地区の治安状況悪化、3）LGU の農業技術者減少、4）PF の離農が起こったか。それ以外の阻害要因が起こったか？	1） 3） 4）は起こっていない。2）は Agusan 地区の治安状況が改善しないため、日本人専門家の長期滞在が見送られた。しかしながらこのことが、技術移転の遅れ等にはつながっていない。
34	インパクト	1.長期（スーパー）ゴール達成の見込み	長期（スーパー）ゴール（フィリピンのコメの自給自足が達成される）は達成されるか	指標：人口増加を賄うコメの自給が達成される	コメ自給プログラム“National Rice Self-Sufficiency 2009-2013”では 2013 年に自給できる見込みである。DA インタビューでは、計画が順調に進めば自給の達成は可能であるとのコメントであった。
35			長期ゴールに至るまでの外部条件が起こる可能性は	1）天候不順、2）病害、3）コメ自給政策の変更、4）3）の国家予算の不足、5）国際価格の暴落、6）稲作農家の減少の可能性	DA によると 1）、2）に関しての予測は難しい。しかしながらコメプログラムは阻害要因もある程度は予測して作成しているとのこと。今年は乾期（4～5 月）に雨が降ったので天候不順の可能性はあり得る。4）5）6）の可能性は低いとみている。
36		2.上位目標の達成の見込み	上位目標（1）対象地域の生産性が増加する）は達成されるか	指標 1（対象自治体の生産が 1t/ha 増収する）	PF レベルで 1t/ha の増収を達成した農家数は 57%という数字が出ている。これを LGU 全体にまで引き上げるには、LGU や関連機関（ATI、灌漑公社、PhilRice 等）の支援が必要である。
37			上位目標（2）対象地区の農家の収入が増加する）は達成されるか	指標 2（稲作と稲作を基本とした TDF と DF からの PF の収入が平均 15%増加する）	PF レベルでは既に達成できている。その原因は、コメの増産よりも、必要経費（種、肥料、殺虫剤等）の節約によるところが大きい。また、北西ルソンでは野菜栽培によるところも大きい。よってこの指標の達成は可能と判断できる。
38			上位目標に至るまでの外部条件が起こる可能性はあるか	1）天候不順、2）病害、3）政府のコメ自給策の変更、の可能性	1）、2）の予測は難しい。しかし 3）に関しては、フィリピン政府は、30 年以上もコメや農家の支援を引き続き行っているところから縮小することはないとみるのが妥当である。（フィリピン側評価委員）
39		3.その他の波及効果はあるか	正または負の影響があるか	他 region/他の PhilRice 支所/参加していない周辺農家等への影響	負の影響は見当たらない。州を越えた広がりは、“National Rice Self-Sufficiency 2009-2013”及び Palayamanan の拡大によって見られる。周辺農家への拡大は、北西地域の視察（野菜）、TDF 参加者から近隣農家へのノウハウの伝授の事実からつかむことができた。
40	自立発展性	1.事業を継続するだけの能力が組織に備わっているか	PhilRice の運営管理能力は備わっているか	各部門の機能、スタッフの配置、スタッフの定着状況、モニタリング体制	PhilRice の運営管理能力は備わっていて以下のプログラムで引き継がれる。①コメ自給プログラム“National Rice Self-Sufficiency 2009-2013”、②Palayamanan、③DF 拡大。①②では臨時職員を雇用したり関係機関との連携を図ることで質を保ったまま引き継がれている。③については LGU との交渉が最も大きいが、PhilRice によるとこれまでにノウハウが蓄積されているとのことである。
41			プロジェクトを継続できる予算が確保されているか	予算請求書類、予算承認書類	PhilRice レベルではコメ自給プログラム“National Rice Self-Sufficiency 2009-2013”及び Palayamanan の予算があるため、実質的にプロジェクトは拡大する。しかしながら他の面における予算の制限（事務関係費など）が厳しくなってきており、定期的にモニタリングする必要がある。
42		2. 移転された技術（LST）は定着・拡大していくか（アウトプット 1）	C/P の研修実施能力は向上したか	自己研修実績、PhilRice の支援状況	C/P の研修能力は TDF の実践を通して向上した。PhilRice レベルではコメ自給プログラム“National Rice Self-Sufficiency 2009-2013”及び Palayamanan で拡大する。
43			移転された技術（LST）は対象地域内で定着・拡大していくか	関係者のコメント	LGU レベルでは、TDF に参加した AT レベルまでは LST の開発ができるが、それ以外の地区への拡大は AT の研修等が必要である。

44	自立発展性	3.移転させた制度（technology promotion system）は定着されるか（アウトプット 2）	PhilRice の計画	PhilRice のコメント	LSTP を LSTD（D は Development）とし、PhilRice の戦略として承認を待っている。これは既にコメ自給プログラム“National Rice Self-Sufficiency 2009-2013”や Palayamanan で使われている。また、DF 拡大に係る技術的支援、モニタリングを行っている。
45			LGUs の計画	市長のコメント	・中部ルソンでは既に目標の 1TDF 当たり 2DF を超えて拡大している。これはこの地域がコメ 2 期作の灌漑地域というほぼ水田単作地域であることも影響している。北西ルソンでは、FP/PF から近隣農家へ野菜作のノウハウが広まっている。北部ミンダナオでは TDF のよさは周辺農家にも広まっているが、洪水・病虫害の影響も大きく結果として結びついていないところもあるので、大きな広がりには至っていない。 ・農業を重視する市長は本プロジェクトの拡大、支援に前向きである。
46			移転された制度は普及していくか	制度に係る評価、制度普及に係る資料	・2009 年 5 月に開始されたコメ自給プログラム“National Rice Self-Sufficiency 2009-2013”では TDF-DF の手法を取り入れている。 ・同様に Palayamanan プログラムおいても取り入れられている。 ・プロジェクト化における DF の拡大については、LGU の長の判断によるところが大きい。しかしそれに付随する関連機関の支援（ATI、PhilRice、灌漑公社、農業省地域事務所など）、PhilRice による LGU への説明・説得も大きな要素である。

Evaluation Grid, Final Evaluation Study for the Development and Promotion of Location-Specific Integrated High Yield Rice and Rice-Based Technologies

No.	evaluation Criteria	Evaluation Items		Data Source	Result
		Main Items	Sub-Items		
1	Relevance (to examine the justifiability or necessity for project implementation)	1.Consistence with the development policy of the Philippines	Are there any change in the Medium-Term Philippine Development Plan (2004-2010) and GMA Rice Program?	Medium-Term Philippine Development Plan (2004-2010) and GMA Rice Program	The Project strategy is consistent with the Medium-Term Philippine Development Plan (2004-2010) and GMA Rice Program
2			Are there any change in the position of PhilRice on the above policy?	Vision and mandate of PhilRice	No change in vision and mandate of PhilRice
3		2.Consisitency with Japan's foreign aid policy and JICA's plan for country-specific program implementation	Are there any change in the Japan's foreign aid policy?	Japanese aid policy	No change
4			Are there any change in the JICA's plan for country-specific program implementation	Development topics of the JICA's plan	No change
5			Japanese similar project in other countries, the superiority of Japanese technology	Result of the JICA project on rice	Japan has superiority in transfer of technology, Japan also lies in the Asia-monsoon climate zone and Japanese staple food is also rice. Japanese government has promoting research to realize higher yields in rice production. It can be expected that the research achievements and farmers' experiences in Japan will be available to support the technology development and technology promotions in the Philippines through technical cooperation projects.
6		3.Slection of the target group	Was Project activities matched to the "target group"'s needs?	Counterparts (CPs), LGUs, CP, AT (EW), FP, PF	Yes, Farmers' needs to increase productivity and income are the same, needs of concerned organization to support the farmers are also the same.
7		4.Demarcation with the other donor	Is the demarcation/linkage drawn and implemented with the similar project of other donors?	Data of IRRI and China, comment of PhilRice	No overlapping in the target area although China and IRRI have a project on hybrid rice. PhilRice collaborates with them.
8	Effectiveness (to examine project effects)	1.Achievement level of "Output"	Is the achievement level（Output 1)Suitable input and location-specific technology packages are developed in each target area）adequate?	(Indicator 1: Productivity of rice is increased by 1 t/ha in TDFs)	Out of 7 sites, 5 sites attained the increase of 1t/ha. (Rizal in C. Luzon, Currimao and Cabugao in NW Luzon, Tagabaca and Charito in N. Mindanao.
9				(Indicator 2: One(1) LSTP with at least 3 component tech. is developed for each target area)	Achieved as follows: C. Luzon (Hybrid & HYV, Use of riding-type leveler, Wet drum-seeding, Modified dapog and water-saving technology), NW Luzon (Rainfed varieties, Dry direct-seeding, Vegetable techs and Water-saving tech.), N. Mindanao (LSR tolerant Variety, Spacing (25x25cm), Basal application and WSB forecast & control)
10				(Indicator 3: At least 3 advanced lines for tolerance to low solar radiation are tested and at least one variety is promoted.)	Achieved, The advanced lines were PJ7, PJ32 and PJ33.
11			Is the achievement level （Output 2)Technology promotion systems focused on rice technology are established in the target area）adequate?	(Indicator 1: Extension manuals on the rice or rice-based farming systems are developed for each target area)	Achieved, Five manuals (Techno-guide on Rice Production, Techno-guide on Vegetable Production, Technology Transfer Manual, Location-specific Technology Package and Training manual for Agricultural Extension Workers) were developed.
12				(Indicator 2: At least 105 agricultural technicians and concerned government personnel as well as 140 farmers are trained at the TDF on promotion of LST.)	269 agricultural technicians(ATs) and concerned government personnel as well as 851 farmers are trained at the TDF
13		2. Does PhilRice provide higher quality LSTP? (Output 1)	How was the result of LSTP development?	Record of Activities of TDF, Field Day and ATs	Targeted No. of LSTs was developed and taught to the farmers through hands-on.
14			Was LSTP functioned (understanding/spread by LGU personnel/farmers, ideas of improvement by them etc.) well?	Project Data, comment of concerned personnel/farmers at target areas	All TDF farmers mentioned that the TDF was excellent and they were confident with improving their productivity, and ATs mentioned that they were confident in giving lectures with hands-on/application. Then, 29 DF has finished.
15		3. Does PhilRice establish "technology promotion systems"? (Output 2)	How is the establishment to each target area?	Record of Activities of TDF, Field Day and ATs	All sites established TDFs by the assistance of LGU ATI and NIA and conducted Field Days, Cross Visits, End-season reviews and planning workshop., followed DF by LGUs.
16			How is the function of "technology promotion systems" (understanding/spread of government personnel/farmers, merit/demerit of guidebooks etc., ideas of improvement by them etc.)?	Project Data, comment of concerned personnel/farmers at target areas	The TDF-DF system has functioned well. Most of the operation and the financial requirements of DF are supported by LGU.

17		4. Achievement level of "Project Purpose"	How is the level of attainment of "Project Purpose" (Rice productivity of participating farmer is improved)?	(Indicator 1: At least 70% of PF adopt at least 3 components of LST)	Achieved in all sites, C and NW Luzon are 100% , Charito 95.6%, Tagabaca 90.6% in N. Mindanao.
18				(Indicator 2: At least 70% of PF increase productivity of rice by 1 t/ha)	Average rate of increase productivity is 57%. 4 sites out of 7 passed 70%.
19				(Indicator 3: Income of PFs in TDFs from rice-based farming increase by average of 15%) Income from Vegetable also needed to be investigated.	All sites got more than 15% increase of income. The highest was 409% due to off season vegetable production and price increase, the lowest is 132%.
20				(Indicator 4: Municipal LGUs establish at least 2 demonstration farms in their respective municipalities)	29 DFs were established. 2 will be established at Butuan City.
21		5. Is the "Output" of the Project contributed the achievement of the "Project Purpose"?	Does the improvement of the capabilities of CPs contribute effectiveness?	Level of the improved capabilities of CPs. Sample of direct contributions to "output" and "Project Purpose"	Improvement of capabilities of CP enabled to develop LST at TDF level.
22			What are the equipment that contribute best to the attainment of "output" and "Project Purpose"?	The list of the equipment which are most important at technology transfer, TDF activities, Field Day etc.	The equipment for the Variety research at PhilRice, because most of the farmers answered that most contributed item for increased productivity is variety.
23			Do CPs use newly-learned technology gained from experts or training in Japan to Project activities?	Technical transfer by CP at TDF activities, Training Curriculum in Japan, and from experts)	CPs used the technology in their research or in implementing TDF activities.
24			Are there any other contributing factors to Project besides Project activities?	Existing systems/equipment, financial support, human contribution, information, media report etc.	In DF activities, some of ATs answered that the support from the mayor is the best.
25		6.Factors blocked to attain "Project Purpose"	Was "Important Assumptions" occurred?	1) unusual climate, 2)unusual pest and diseases, 3) Change of social and economic conditions of participating farmers	It was not occurred.
26	Efficiency (To examine project efficiency)	1. Appropriateness of the quantity/quality/timing of the input by both sides	Were the number of experts dispatched, their field of expertise and the timing of the dispatch appropriate?	List of fields of experts, comment by Project	Appropriate, 6 long-term experts on Chief advisor, Demonstration/Technology Promotion, Rice Evaluation and Selection, Coordinator were dispatched. 6 short-term experts on White Stemborer Forecasting and Management, Water saving Technology in vegetable Production, Agriculture Economics, Demonstration/Technology Promotion, Weeds Management were dispatched.
27			Were the types, quantity and the timing of the instillation of provided equipment appropriate?	List of equipment (Distribution, utilization), comment by Project	Appropriate, total amount of 37,929,000 peso of equipment was provided.
28			Were the number of accepted trainees, the fields, the training	List of training in Japan, TDF other trainings, comment by Project	Appropriate, 16 CPs are/were sent to Japan for training.
29			Were the number of CP, distribution, ability appropriate?	Organization Chart (including branches), Status of the participation of TDF activity	Appropriate, 50 CPs are assigned from the beginning to present. 29 CPs are assigned as of July 2009.
30			Are there any problems of the quality/ size/ accessibility of the building (3 sites)?	Status of the building (problems, utilization)、Comment of Project	No accommodation facilities in PhilRice Agusan. But training is being conducted continuously. No problems in other items.
31		2. Appropriateness of the cost	Is the expense of total amount appropriate?	Budget of Philippine side by sites, comment of Project	Appropriate, Japan provides 26,602,000peso and Philippines provides 13,150,000 peso.
32			Appropriateness of the expense per TDF activity	Expense (per month), No. of participated farmers of TDF	Appropriate, input for TDF per season (4 months) are from 90,000 to 300,000 peso.
33		3. Factors that blocked the efficiency	Are there any blocking factors for efficiency?	Occurrence of "Important Assumptions" 1) lack of budget of PhilRice, 2) Worse peace and order situations in the target areas, 3) Decrease of the agricultural technicians in LGUs, 4) stop of rice production by cooperation farmers	Technical transfer to CP of PhilRice Agusan was implemented by short trip from PhilRice CES. However, the negative factors could not be seen. Other negative factors can not be seen.
34	Impact (To examine the outside	1. Forecast for attaining "Long-term Goal / Super Goal"	Will the "Long-term Goal / Super Goal" (Self-sufficiency in rice is achieved in the Philippines) be attained?	(Indicator : The volume of rice production corresponding to population increased is secured.)	In the "National Rice Self-Sufficiency 2009-2013",target year of self-sufficient of rice is 2013. According DA, it will be attained if the condition meets.
35			How is the possibility to occur "Important Assumptions"?	Possibility of 1) unusual climate, 2) unusual pest, 3) change of the priority of rice sufficiency, 4) decrease of the Governmental budget of rice self-efficiency 5) drop of international rice price, and 6) decrease of rice-growing farmers.	According DA, it is difficult to predict the climate and insects etc, However, DA formulates the plan with considering the hindering factors. The possibility is not low, as there is rain in dry season over Luzon Island. 4)-6) will be low possibility.
36			Will "Overall Goal" (1) Productivity in the target area of rice is increased) be attained?	(Indicator 1: Productivity of the target municipalities increased by average of 1 t/ha)	Although some DF farmers got 1t/ha, average increase of 1t/ha depends on the follow-up and expansion of DF. The role of LGU gives big influence.

37	effects of the Project)	2. Forecast for attaining "Overall Goal"	Will "Overall Goal" (2) Agricultural income of farmers in the target areas is increased) be attained?	(Indicator 2: Income of PFs from rice or rice-based farming in TDFs and DFs increased by average of 15%) The data will be calculated only from the collected data for 7 municipalities by questionnaire and interview.	As all TDF got 15% increase, and many DF mentioned the much increase of income, to attain 15% increase of rice will be not difficult.
38			How is the possibility to occur "Important Assumptions"?	Possibility of 1) unusual climate, 2) unusual pest, 3) change of the priority of Philippine Government on rice self-sufficiency	1) and 2) are difficult to predict. But Occurrence possibility of 3) is low due to the continuous policy to assist rice production for more than 30 years
39		3. Are there other effects to outside the Project?	Are there any positive or negative effects?	The effect to other countries, PhilRice branches, surrounding farmers near TDF/DF who have not joined TDF/DF	The production by non-participated farmers after technical transfer of TDF participating farmers is the positive effect.
40	Sustainability (to examine the sustainability after the end of the cooperation of JICA)	1. Have PhilRice already been equipped with the capabilities to continue Project by itself?	Has PhilRice already equipped with the implementing capabilities to continue and expand the Project ?	Function of each department/branches, system of improving capabilities of staff/ system of monitoring activities and feedback	PhilRice has started "National Rice Self-Sufficiency 2009-2013" which aim self - sufficiency of rice using LSTP. So PhilRice has equipped the capability.
41			Will PhilRice secure the enough budget to continue Project?	Requesting/Accepting budget papers (2010 and future)	PhilRice got the budget for "National Rice Self-Sufficiency 2009-2013" and Palayamanan and operation expense in 2009 as the same amount of 2008.
42		2. Will LSTD be continued in the target area? (Output 1)	Do CPs have enough capability? Does PhilRice has system to improve capabilities of the staff?	Comment by CP, Training system for the staff of PhilRice	PhilRice has linkages with universities for the research, and sending staff for degree and non-degree courses locally and internationally.
43			Will LSTP be continued and expanded in the target area and how?	Comment by Project/LGU/MAO/ AT, planning paper (2010 and future)	By "National Rice Self-Sufficiency 2009-2013" and PhilRice negotiates on expanding DF activities with mayors.
44		3. Is "Technology promotion systems" accepted and continued? (Output 2)	Will PhilRice have a plan to continue Project after Nov. 2009?	Comment by Project, planning paper (2010 and future)	PhilRice improved the LSTP and extend through "National Rice Self-Sufficiency 2009-2013" and assists DFs through technology transfer.
45			Will LGUs have a plan to extend DF?	Comment by mayors, planning paper (2010 and future)	In Central Luzon, DF sites are expanding. In other areas, 2 DF per TDF site have started or finished or planned.
46			Will the "technology promotion systems" be accepted to other areas? And Why?	Evaluation/comment for the system	In the "National Rice Self-Sufficiency 2009-2013", technology promotion system has been accepted in some municipality in other areas. It has started in May 2009.

MINUTES OF MEETING
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
THE AUTHORITIES CONCERNED OF THE PHILIPPINES
ON
JAPANESE TECHNICAL COOPERATION
FOR
THE PROJECT ON THE DEVELOPMENT AND PROMOTION OF LOCATION-SPECIFIC INTEGRATED HIGH-YIELDING RICE AND RICE-BASED TECHNOLOGIES

Japan International Cooperation Agency dispatched a Japanese Terminal Evaluation Team (hereinafter referred to as "the Japanese Team"), headed by Dr. Kunihiro Tokida, to the Republic of the Philippines (hereinafter referred to as "the Philippines") from June 28 to July 25, 2009 in order to evaluate the achievement of the technical cooperation project on the development and promotion of location-specific integrated high-yielding rice and rice-based technologies (hereinafter referred to as "the Project").

This evaluation was conducted jointly with the authorities concerned of the Government of the Philippines, by formulating a joint team of evaluation (hereinafter referred to as "the Team"). The team has carried out field visits and interviews, collected necessary data and information on the achievement, and held discussions with different stakeholders of the Project, then prepared the Joint Evaluation Report. (hereinafter referred to as "the Report").

The Team presented the Report to the Joint Coordination Committee (hereinafter referred to as "JCC"), in the JCC meeting that was held on July 24, 2009. JCC has accepted the contents of the Report and taken note of the recommendations made in the Report for successful implementation of the Project during the remaining project period.

The Leader of the Japanese Team and representative of JCC agreed to report to their respective governments the matters referred to in the Report attached here to.

Quezon City, July 24, 2009

Mr. Norio Matsuda
Chief Representative
JICA Philippine Office

Hon. Jesus Emmanuel M. Paras
Undersecretary
Department of Agriculture
Republic of the Philippines

Witnessed by

Dr. Kunihiro Tokida
Team Leader
Japanese Terminal Evaluation Team
Senior Advisor
Japan International Cooperation Agency
Japan

Witnessed by

Atty. Ronilo A. Beronio
Executive Director
Philippine Rice Research Institute
Republic of the Philippines

JOINT TERMINAL EVALUATION REPORT

THE PROJECT ON THE DEVELOPMENT AND PROMOTION OF LOCATION-SPECIFIC INTEGRATED HIGH-YIELDING RICE AND RICE-BASED TECHNOLOGIES

Quezon City, 24 July 2009

Dr. Kunihiro Tokida
Team Leader
Japanese Terminal Evaluation Team
Senior Advisor
Japan International Cooperation Agency
Japan

Mr. Edmund J. Sana
Team Leader
Philippine Terminal Evaluation Team
Member of Secretary's Technical Advisory Group
Department of Agriculture
Republic of the Philippines

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1. Evaluation of the Project

The Project on the Development and Promotion of Location Specific Integrated High-Yielding Rice and Rice-Based Technologies (hereinafter referred to as "the Project") was launched on November 15, 2004 and the mid-term evaluation was conducted in September 2007. The Project will be completed on November 14, 2009 and the terminal evaluation is conducted in July 2009.

1-1 Objectives of Evaluation

The objectives of the terminal evaluation are:

(1) To examine whether the Project is attaining the purpose and outputs at the end of the Project period based on the Project Design Matrix (hereinafter referred to as "the PDM");

(2) To make recommendations regarding measures to be taken, if necessary, by the Japanese and the Philippine sides during the remaining cooperation period and after the end of the Project; and,

(3) To draw the lessons learned for possible adoption or consideration for future similar types of projects.

1-2 Methodology of Evaluation

The evaluation was conducted by the Japanese and the Philippine Joint Evaluation Team:

(1) By collecting data and information through:

- examination of documents prepared by the Project
- interview of experts, counterparts, government officials ((Mayors, Municipal Agriculturists (MAs), Agricultural Technologists (ATs), Department of Agriculture-Regional Field Units (DA-RFUs), Agricultural Training Institute (ATI), National Irrigation Administration (NIA)), Non-Government Organizations (NGOs) and beneficiary farmers ((Farmer Partners (FPs) and Participating Farmers (PFs)), and
- observation of Technology Demonstration Farms (TDFs) and Demonstration Farms (DFs),

(2) By assessing the implementation process of the Project, and

(3) By analyzing overall achievement using the five evaluation criteria as follows:

- Relevance

  This is to determine whether the overall goal, project purpose and outputs are still in keeping with the priority needs and concerns at the time of evaluation.

- Effectiveness

  This is to find out the extent to which the Project purpose has been achieved in relation to the outputs produced by the Project.

- Efficiency

  This covers assessment of productivity of implementation, meaning how efficiently various inputs were converted into outputs.

- Impact

  This covers the results and outcomes, either intended or unintended, direct or

indirect, positive or negative, of the Project.

- Sustainability

  This assesses if Project benefits are likely to continue after the external aid is ended.

1-3 Members of the Joint Evaluation Team

Table 1-1 Japanese Team.

Dr. Kunihiro Tokida Team Leader	Senior Advisor Japan International Cooperation Agency
Dr. Akira Fukushima Agronomy/Extension	Senior Researcher Research Center for Tohoku Region National Agricultural Research Organization
Mr. Kimihiro Konno Evaluation Analysis	Chief, Second Business Department, VSOC Co., Ltd
Ms. Akiko Miyashita Cooperation Administration	Assistant Director, Paddy Field Based Farming Area Division 1, Rural Development Department Japan International Cooperation Agency

Table 1-2 Philippine Team.

Mr. Edmund J. Sana Team Leader	Member, Secretary's Technical Advisory Group Department of Agriculture
Dr. Soledad Mina-Roguel Extension	Dean, Institute of Graduate Studies, Central Luzon State University
Dr. Josue S. Falla Evaluation Analysis	Chief, Technology and Product Promotion Division, Philippine-Sino Center for Agricultural Technology Director II, Bureau of Postharvest Research and Extension
Ms. Evelyn L. Valeriano Cooperation Administration	Project Development Officer, Special Projects Coordination and Management Assistance Division Department of Agriculture

1-4 Schedule of the Evaluation

The schedule is attached as ANNEX 2

2. Outline of the Project

2-1 Background of the Project

Rice is the main staple food in the Philippines. However, there is continued shortage of local production thus, it is necessary that productivity be significantly increased to attain sustainable rice

self sufficiency. This can be achieved partly by developing and promoting appropriate productivity -enhancing technologies.

In response to the request by the Government of the Philippines, JICA has assisted the Philippine Rice Research Institute (PhilRice) to enhance it capability in rice technology development and promotion. This started with the implementation of the Grant Aid from 1989 to 1991 and accelerated with the first Technical Cooperation Project (TCP1) from 1992 to 1997 and the second Technical Cooperation Project (TCP2) from 1997 to 2002. The research capabilities of PhilRice were improved through TCP1, and farming technologies, mainly for small scale rice farmers, were developed through TCP2.

However, farm productivity of rice remains low in many rice farms at various locations in the country. Thus, PhilRice as the main source of new and improved rice technologies is expected to utilize its highly upgraded research capabilities to develop location-specific technology packages considering and analyzing various conditions such as climate, soil and social status of the farmers and farming systems. The third Technical Cooperation Project (TCP3) was proposed to the Government of Japan in 2002 to address this.

Preparatory Study Missions were dispatched in 2003 and the framework of TCP3 was officially agreed between JICA and Philippine authorities with the signing of the Record of Discussions on October 18, 2004. The Project started on November 15, 2004.

2-2 Summary of the Project (Referring to the 3rd version of the PDM approved by the JCC as recommended during the Mid-Term Evaluation)

Long-term Goal/Super Goal

Self-sufficiency in rice is achieved in the Philippines

Overall Goal

(1) Productivity in the target areas of rice is increased

(2) Agricultural income of farmers in the target areas is increased

Project Purpose

Rice productivity of participating farmers is improved

Outputs

(1) Suitable input and location-specific technology packages are developed in each target area

(2) Technology promotion systems focused on rice technology are established in the target areas

Activities

1-1 Conduct of baseline survey and monitoring

1-2 Development of suitable and location-specific technology packages

a) PhilRice CES

1) TDF implementation to establish stable and high yielding rice double cropping technology

b) PhilRice Batac

1) Evaluation of vegetable cultivation technologies
2) TDF implementation to establish rice-based farming system including vegetable and upland crops

c) PhilRice Agusan

1) Development and evaluation of new variety and establishment of pest forecasting system for WSB
2) TDF implementation to establish a stable yielding rice double cropping technology

2 Establishment of technology promotion systems

a) Organization and coordination of Technology Demonstration Farm Committee
b) Production of extension materials for technical training
c) Establishment of Demonstration Farms (DFs) by LGUs with technical support from the concerned institutions

3. Achievement of the Project

3-1 Provision of the Inputs

3-1-1 Japanese Side

(1) Experts

As of July 2009, six (6) long-term experts (182 person-month) and eleven (11) short-term experts (22 person-month) have been assigned as shown in the table below:

Table 3-1 Dispatch of Japanese Long-term and Short-term Experts.

NAME	FIELD	PERIOD	Affiliation in Japan
Long-Term Experts (6)			
Mr. Moriyuki SHIGYO	Chief Adviser and Demonstration/ Technology Promotion	2004.11.14 – 2007.11.13	National Agricultural Research Center (NARC)
Dr. Tadashi TAKITA	Rice Evaluation and Selection	2004.11.14 - 2007.03.31	National Institute of Crop Science (NICS)
Mr. Kunio INOUE	Demonstration/ Technology Promotion	2004.11.14 – 2007.11.13	Overseas Agricultural Development Association
Dr. Nobuyuki KABAKI	Demonstration/ Technology Promotion	2007.06.04 - 2007.11.13	NARC
Mr. Ryosuke ITO	Coordinator	2004.11.14 – 2007.11.13	Lifework International Cooperation, Ltd.
Dr. Nobuyuki KABAKI	Chief Adviser and Demonstration/ Technology Promotion	2007.11.14– 2009.11.13	NARC
Mr. Toshitaka KOBAYASHI	Coordinator	2007.11.08 - 2009.11.13	JICA

NAME	FIELD	PERIOD	Affiliation in Japan
Short-Term Experts (11)			
Dr. Tomonari WATANABE	White Stemborer Forecasting and Management	2005.11.16 - 2005.12.10/ 2006.09.03 - 2006.10.27/ 2007.10.14 - 2007.10.27	NARC
Mr. Akimasa NAKANO	Water Saving Technology in Vegetable Production	2006.11.19 - 2006.12.22	National Institute of Vegetables and Tea Science
Dr. Kyoichi MIYATAKE	Agricultural Economics	2007.07.02 - 2007.08.30 2008.09.22 - 2008.10.31	NARC
Mr. Kenji SUEMITSU	Demonstration/ Technology Promotion	2008.03.11 - 2008.08.07/ 2008.09.27 - 2009.03.31/ 2009.06.15 - 2009.10.02	RDI Co., Ltd
Dr. Hirohiko MORITA	Weeds Management	2008.08.08 - 2008.08.31	Akita Prefectural University
Mr. Kunio INOUE	Demonstration/ Technology Promotion	2009.01.29 – 2009.04.06	Individual Consultant

(2) Training in Japan

Sixteen counterparts have training in Japan as follows:

Table 3-2 Counterpart Training in Japan.

FIELD	NAME (Position)	PERIOD	TRAINING VENUE
FY 2005			
1)Agricultural Extension Planning & Management	Mrs. Corsennie A. MABAYAG (Sci. Res. Specialist)	2005.05.09 – 2005.08.12	Tsukuba International Center (TBIC)
2)Agricultural Extension Planning & Management	Mr. Ruben B. MIRANDA (Supervising Sci. Res. Specialist)	2005.05.15 – 2005.08.18	TBIC
3)Agricultural Extension Planning & Management	Mrs. Alma C. AGUINALDO (Sr. Sci. Res. Specialist)	2005.05.15 – 2005.08.18	TBIC
4) Development and Extension of Rice Production Techniques	Dr. Reynaldo C. CASTRO (Chief Sci. Res. Specialist)	2005.07.12 – 2005.07.29	TBIC

FIELD	NAME (Position)	PERIOD	TRAINING VENUE
FY 2006			
5) Development and Extension of Rice Production Technique	Dr. Caesar Joventino M. TADO (Chief Sci. Res. Specialist)	2006.09.04 – 2006.09.16	TBIC
6) Administration for Rural Development	Engr. Aurora M. CORALES (Sr. Sci. Res. Specialist)	2006.09.24 – 2006.11.30	Kyushu International Center
FY 2007			
7) Role of Agricultural Cooperatives to be Played in Activation of the Rural Economy	Mr. Joel V. PASCUAL (Science Research Analyst)	2007.05.09 – 2007.07.13	TBIC
8) Agricultural Extension Planning & Management	Mrs. Celia G. ABADILLA (Science Res. Specialist)	2007.05.22 – 2007.08.04	Tokyo International Center
9) Agricultural Extension Planning & Management	Mrs. Evangeline P. AGRES (Sr. Sci. Res. Specialist)	2007.05.22 – 2007.08.04	Tokyo International Center
10)Digital Video Production for Education and Dissemination	Mr. Erik-Ray Matthew S. PALOMAR (Science Res. Specialist)	2007.08.14 – 2007.12.1	Okinawa International Center
FY 2008			
11) Impact Assessment of Agriculture Techniques	Mr. Ronell B. MALASA (Science Research Specialist I)	2008.06.23 - 2008.07.22	National Agriculture Research Organization (NARO)
12) Agricultural Extension Planning & Management	Mrs. Ofelia C. MALONZO (Science Research Specialist, TMS)	2008.07.08 - 2008.09.12	NARO
13) Development and Extension	Engr. Artemio B. VASALLO (Officer-in-Charge Branch Manager, PhilRice Agusan)	2008.07.14 - 2008.08.01	NARO
14) Breeding Technologies	Mr. Dexter B. Bastsa (Science Res Specialist, PhilRice Agusan)	2008.07.14 - 2008.08.23	NARO
15) Forecasting and Control	Dr. Alejandra B. Estoy (Senior SRS, PhilRice Agusan)	2008.09.01 - 2008.10.31	NARO
FY 2009			
16)Agricultural Extension Planning & Management	Mrs. Bethzaida M. CATUDAN (Senior SRS, PhilRice Batac)	2009.06.30 - 2009.09.04	NARO

(3) Equipment

JICA provided equipment in the amount of about ₱ 38M as shown in the table below. The items cost more than 1 million yen (=500,000 peso) are:

3 vehicles (2004), Accessories of Weather Station, Atomic Absorption Spectrophotometer, 4 vehicles, SAS System, 2 4-wheel Tractor (2005), Rice Planting Machine, 2 Incubators, Nitrogen Analyzer, Vehicle, Generator, Video Editing Card (2006).

Table 3-3 Provision of Equipment by JICA.

JFY	2004	2005	2006	2007	2008	2009 Until June	Total
Philippine Peso (in thousand)	5,929	14,092	12,596	1,374	2,434	1,504	37,929

JFY (Japanese fiscal year) starts on 1 Apr. and ends 31 Mar.

(4) Local costs

JICA provided the project operation costs as follows;

Table 3-4 Operating cost incurred by JICA, 2004-2009.

	Budget (₱)						
	2004	2005	2006	2007	2008	2009 (Planned)	TOTAL
General cost	690,140	2,407,150	2,876,421	3,067,529	2,276,419	1,394,600	12,712,259
Construction of Training Center	0	688,000	12,082,690	0	0	0	12,770,690
Construction of Hydroponics Nursery	0	0	0	0	263,305	0	263,305
Seminar cost	0	0	279,139	0	0	577,500	856,639
TOTAL	690,140	3,095,150	15,238,250	3,067,529	2,539,724	1,972,100	26,602,893

3-1-2 Philippine Side

(1) Project counterparts

As of July 2009, the project engaged a total of 36 personnel at PhilRice CES, Batac, and Agusan as counterpart to the Japanese long- and short-term experts.

(2) Project operating costs

From 2004 to 2008, PhilRice allocated an annual average budget of ₱1.05 M for the TDFs and trainings as part of technology packaging and promotion in Rizal, Cabanatuan City and San Antonio in Nueva Ecija; Currimao in Ilocos Norte; Cabugao in Ilocos Sur; Butuan City in Agusan del Norte; and Bayugan in Agusan del Sur. For varietal improvement and pest management, an annual budget of ₱400,000 and ₱300,000, respectively, were allocated. Aside from this, PhilRice also allocated an average annual budget of ₱350,000 to cover expenditures on maintenance of equipment, travel, administration, and other incidental expenses for the counterparts and for project management.

PhilRice also allocated ₱1.5 M in 2006-2007 for pre- and construction expenses of training facilities at PhilRice Agusan.

Table 3-5 Budget allocated to Project activities per site, 2004-2009.

ACTIVITIES		BUDGET (In Pesos)					
		2004-2005 DS	2005 WS -2006 DS	2006 WS -2007 DS	2007WS -2008DS	2008WS-2009 DS	TOTAL
A. Technology Packaging and Promotion							
CL	Site 1: Agbannawag, Rizal, Nueva Ecija		270,000	180,000	180,000	180,000	810,000
CL	Site 2: Lagare, Cabanatuan City		270,000	180,000	180,000	180,000	810,000
NWL	Site 3: Pias Norte, Currimao, Ilocos Norte		270,000	180,000	180,000	180,000	810,000
NWL	Site 4: Rizal, Cabugao, Ilocos Sur		270,000	180,000	180,000	180,000	810,000
NM	Site5:Charito, Bayugan, Agusan del Sur		300,000	199,500	180,000	180,000	859,500
CL	Site 6: San Mariano, San Antonio, N. Ecija			90,000	180,000	180,000	450,000
NM	Site 7. Tagabaca, Butuan City				90,000	180,000	270,000
B. Varietal Improvement							
PhilRice CES			180,000	120,000	150,000	150,000	600,000
PhilRice Agusan			565,000	265,500	200,000	200,000	1,230,500
C. Pest Management							
PhilRice Agusan			300,000	300,000	300,000	300,000	1,200,000
D. Construction of Training Facilities at PhilRice Agusan				1,500,000			
E. Project Management		500,000	750,000	500,000	850,000	1,200,000	3,800,000
TOTAL		500,000	3,175,000	3,695,000	2,670,000	3,110,000	13,150,000

3-2 Accomplishment of the Planned Activities

The project activities in three stations (PhilRice CES, PhilRice Batac and PhilRice Agusan) were assessed, correspondingly. It is recorded that activities in the three stations have been completed as summarized below.

1-1 Conduct of baseline survey and monitoring

Baseline and monitoring surveys were conducted in the TDF sites. Results of these surveys were compared to determine whether the objectives of the project are being met. The progress of each site is as follows:

Table 3-6 Monitoring progress of each site.

Area	Sites	Baseline survey	Monitoring survey/ reports	Impact Assessment (after one (1) year of TDF)
CL	Site 1: Agbannawag, Rizal, Nueva Ecija	conducted	finished	finished
CL	Site 2: Lagare, Cabanatuan City	conducted	finished	To start in July 2009
NWL	Site 3: Pias Norte, Currimao, Ilocos Norte	conducted	finished	finished
NWL	Site 4: Rizal, Cabugao, Ilocos Sur	conducted	finished	On-going (To end in Nov. 2009)
NM	Site 5: Charito, Bayugan, Agusan del Sur	conducted	finished	To start in Nov. 2009
CL	Site 6: San Mariano, San Antonio, N. Ecija	conducted	finished	To start in July 2010
NM	Site 7. Tagabaca, Butuan City	conducted	On-going	To start in Nov. 2010

1-2. Development of suitable and location-specific technology packages.

Each site has developed a Location-specific Technology Package.

a) PhilRice CES: TDF implementation to establish stable and high yielding rice double cropping Technology

The TDFs were implemented as learning fields and sources of first-hand information to establish stable and high-yielding rice double cropping technology specific to the irrigated ecosystem of Nueva Ecija. Components of these TDFs were the following: 1) inbred/hybrid variety demonstration; 2) demonstration and use of farm machinery; 3) adoption of the *PalayCheck* system; 4) location-specific development trials on fertilizer management and plant spacing, controlled irrigation, and pest management specifically on rats; 5) establishment of farmers' learning fields (FLFs); 6) conduct of field days; 7) conduct of cross visits; and 8) organizing and strengthening TCP3-initiated farmers' organization.

TDFs managed by researchers and FPs tried identified technologies for adaptation in specific areas in Nueva Ecija. With the on-going TDFs, farmers (PFs) managed their FLFs to apply technologies acquired from the TDFs, trainings, and fellow PFs. Integrating the farmers' best practices, experiences, and modifications of the technologies with the results from the TDFs, generated the location-specific technology package for the area.

b) PhilRice Batac:

(1) Evaluation of vegetable cultivation technologies

The project introduced technologies such as early nursery establishment using cell trays and appropriate seedling media, rice straw composting using urea as activator, vegetable varieties tolerant to drought, off-season and dry season vegetable production, and seed production of some open-pollinated varieties. These interventions addressed problems in Northwest Luzon such as limited water supply, sandy soil with low organic matter content, and farmers' limited knowledge

on off-season and dry season vegetable production. These technologies increased the income of TDF and DF farmers.

(2) TDF implementation to establish rice-based farming system including vegetable and upland crop

TDFs on rice during wet seasons were implemented to showcase: 1) *Indica-japonica* inbred lines/varieties such as PJ7, PJ18, PJ23, PJ24, and PJ26; 2) modified dry direct-seeding technology (MDDST); and 3) alternate wetting and drying (water-saving) technology.

Likewise, TDFs were implemented during dry seasons for vegetables and upland crops. For vegetables, the use of cell trays for growing seedlings and in nursery gave higher recovery rates when transplanted in the field and plants are healthier than those seedlings raised in seed beds. The project also introduced growing selected vegetables during the off-season (wet season) and dry season. Planting open-pollinated vegetables was also promoted for seeds purposes. The technologies for vegetables were compiled and published as extension materials.

For upland crops, glutinous corn was planted on zero-tilled paddy fields with appropriate technologies such as use of pre-germinated seeds, rice straw mulch, and right amount and timing of fertilizer application. Hybrid yellow corn with the recommended technology was also introduced in upland areas.

c) PhilRice Agusan:

(1) Development and evaluation of new variety and establishment of a pest forecasting system for White Stem Borer (WSB)

The project developed, selected, and evaluated several lines of rice that can thrive and adapt to the Caraga condition. The PJ7 (now NSIC Rc146) variety has been identified as appropriate in the area. Several lines are still being tested either in the National Cooperative Test (NCT) or Multi-Adaptation Trial. Another line (PJ33) is awaiting NSIC approval as a variety for national recommendation. Continuous selection and testing in the target site also generated four (4) additional promising breeding lines.

The forecasting method and appropriate control measures for WSB has been developed and validated in RTRomualdez, Agusan del Norte and in Midsayap, North Cotabato for eventual promotion. A technical bulletin on this subject is being packaged for publication.

(2) TDF implementation to establish a stable yielding rice double cropping technology

TDFs for Agusan were implemented with components such as variety demonstration, nutrient management, plant spacing, and WSB forecasting. PJ7 performed better than PSB Rc82 (the popular variety in the area) under low solar radiation and exhibited resistance to WSB. Basal fertilizer application produced effective tillers in early stage of growth resulting into stable yield even under unfavorable water regime (excessive/shortage). The 25 x 25 cm plant spacing consistently exhibited higher yield and superiority of other agronomic traits. The forecasting

method effectively predicted the population dynamics of WSB so occurrence can be matched with appropriate control measures.

2. Establishment of technology promotion systems

a) Organization and coordination of Technology Demonstration Farm Committee

All sites were/are operated by the Technology Demonstration Farm Committees.

b) Production of extension materials for technical training

All sites produced materials for TDF as follows:

Table 3-7 Produced materials for TDFs.

Areas	Materials
C. Luzon	(1) Philippine Rice Production Training Manual (Tagalog & English versions)* (2) Agricultural Technologist Guide* (3) Location-specific technology guide for intensive irrigated rice areas for extension workers and farmers (4) Cultivation Calendar (5) Modified Dapog (6) TCP3 newsletter* (7) Location-specific technology guide for intensive irrigated rice areas in Nueva Ecija (for final editing and production) (8) Hydroponic seedling nursery (9) Technology Promotion Guide for Extension Workers*
NW Luzon	(1) Philippine Rice Production Training Manual (Iluko version) (2) Philippine Vegetable Production Training Manual (3) TCP3 Bulletins on Vegetables Nos. 1-7 (Iluko version) (4) Location-specific Technology Package for NW Luzon (5) TCP3 Newsletter (Iluko version)
N. Mindanao	(1) Philippine Rice Production Training Manual (Cebuano version) (2) Cultivation Calendar (Cebuano version) (3) Modified Dapog (Cebuano version)

*The materials developed in CES were also used in TDF at NW Luzon and N. Mindanao respectively.

c) Establishment of Demonstration Farms (DFs) by LGUs with technical support from the concerned institutions

- Twenty-nine (29) DFs are established by LGUs in project sites with technical support from the concerned institutions (e.g. PhilRice, NIA, ATI). Refer to the PDM, item 4 (Objectively Verifiable Indicators) of Project Purpose.

In addition to a) - c), all sites established Farmers' Learning Center (FLC). All sites except Site 7 finished 2-year TDF. Site 7 is at its last season of TDF implementation. Other specific activities per site are as follows:

Table 3-8 Specific activities in TDF sites.

Areas	Sites	Field Day (times)	Other LST	Cross Visit (times)	Other Visit (times)	workshop/ training course etc. (times)
CL	Site 1: Agbannawag, Rizal, Nueva Ecija	4	Rat Mgmt	1	2	3
CL	Site 2: Lagare, Cabanatuan City	4	Rat Mgmt	1	2	3
NWL	Site 3: Pias Norte, Currimao, Ilocos Norte	4	Gulay Check	2	6	8
NWL	Site 4: Rizal, Cabugao, Ilocos Sur	3	Gulay Check	2	4	6
NM	Site 5: Charito, Bayugan, Agusan del Sur	2	Tillage right after harvesting	-	4	5
CL	Site 6: San Mariano, San Antonio, N. Ecija	4	Use of CRH	1	2	3
NM	Site 7: Tagabaca, Butuan City	2	Modified dapog	-	3	4

3-3 Accomplishment on the Target Outputs

Output 1	Suitable input and location-specific technology packages are developed in each target area.
Indicator (PDM Ver.3 as of September, 2007)	1-1) Productivity of rice is increased by 1 t/ha in Technology Demonstration Farms. 1-2) One (1) location-specific technology package with at least 3 component technologies is developed for each target area 1-3) At least 3 advanced lines for tolerance to low solar radiation are tested and at least one variety is promoted.

Based on the Indicator (PDM Ver.3), achievement of output is as follows:

1-1) Productivity of Rice in TDF

Table 3-9 Changes in yield (ton/ha) of FPs during TDF activities.

	Baseline yield		2005		2006		2007		2008		2009	
	S-1	S-2	S-1	S-2	S-1	S-2	S-1	S-2	S-1	S-2	S-1	S-2
Central Luzon												
Rizal	4.84	7.90	5.23	9.29	5.36	8.94						
Cabanatuan	4.80	6.64			5.10	6.84	5.37	6.41				
San Antonio	4.95	5.77					6.34	7.26	5.66	6.47		
Northwest Luzon												
Currimao	1.64		2.56		5.25							
Cabugao	6.22				7.35		7.24					
Northern Mindanao												
Bayugan	3.28	4.18					4.00	4.84	4.60	4.61		
Butuan	2.90	3.59							4.60	4.43	4.83	

S-1: 1st season is June-October for Central and North Luzon; for Agusan S-1 is December –April

S-2: 2nd season is December – April for Central and North Luzon; for Agusan S-2 June - October

In the TDFs, the rice productivity was increased by:

- 0.52 t/ha and 1.39 t/ha for S-1 and S-2 respectively in Rizal, 0.57 t/ha and 0.18 t/ha for S-1 and S-2 respectively in Cabanatuan, and 1.39 t/ha and 1.49 t/ha for S-1 and S-2 respectively in San Antonio, Nueva Ecija.
- 3.61 t/ha for S-1 in Currimao and 1.12 t/ha for S-1 in Cabugao Northwestern Luzon area.
- 1.32 t/ha and 0.66 t/ha for S-1 and S-2 respectively in Bayugan, and 1.70 t/ha and 0.84 t/ha for S-1 and S-2 respectively in Butuan, Northern Mindanao

1-2) One (1) location-specific technology package with at least 3 component technologies developed for each target area

The developed location-specific technologies (LSTs) along TDF implementation categorized along *PalayCheck* by area are as follows:

Table 3-10 Developed Location Specific Technologies.

PalayCheck system		Location-Specific Technologies		
		Central Luzon	Northwest Luzon	Northern Mindanao
1	Seed quality	Hybrid & HYV	Rainfed varieties	LSR tolerant variety
2	Land preparation	Use of riding-type leveler		
3	Synchronous planting			
4	Crop establishment	Wet drum-seeding Modified *dapog*	Dry direct-seeding Vegetable technologies	Spacing (25x25cm)
5	Nutrient management			Basal application
6	Water management	Water-saving technology	Water-saving technology	
7	Pest management			WSB forecast & control
8	Harvest management			

Table 3-11 Location-Specific Technology Package for vegetables.

1	Early seedling establishment in nursery
2	Composting
3	High-yielding varieties
4	Dry season vegetable cultivation (for selected crops)
5	Off-season vegetable cultivation
6	Cropping pattern and vegetable planting calendar

1-3) At least 3 advanced lines for tolerance to low solar radiation are tested and at least one variety is promoted.

Yield trials using many varieties and lines were conducted at CES and Agusan Branch, in which PJ7 was selected and submitted as a national recommended variety approved in November 2005 (NSIC Rc146) and released as a locally-adaptive variety in 2006.

To improve the shattering and tolerance to rice blast of PJ7, pedigree lines derived from PJ7 were screened and several lines (PJ32, PJ33 etc.) were selected. Tested in National Cooperative Test

(NCT), PJ33 (with suggested name as NSIC Rc216 or Tubigan 17) is awaiting National Seed Industry Council (NSIC) approval. There are four (4) other promising lines in the project sites.

Output 2	Technology promotion systems focused on rice technology are established in the target areas.
Indicator (PDM Ver.3 as of September, 2007)	2-1) Extension manuals on rice or rice-based farming systems are developed for each target area 2-2) At least 105 agricultural technicians and concerned government personnel as well as 140 farmers are trained at the Technology Demonstration Farm on promotion of location specific technologies

2-1) Extension manuals on rice or rice-based farming systems are developed for each target area

Five manuals were developed by the project as follows:

a) Techno-guide on Rice Production

A rice techno-guide for farmers (in English) was edited based on "Philippine Rice Production Training Manual 2003" as the source book. It was translated into Tagalog "*Gabay sa Pagsasanay sa Produksyon ng Palay sa Pilipinas*" and Cebuano "*Giya sa Pagbansay sa Produksyon sa Humay sa Pilipinas*" and distributed in local areas. The techno-guide was further revised with the re-composition following the context of "PalayCheck System" into "Rice-Management Techno-guide for Technology Demonstration Farm" in English, "*Gabay sa Teknolohiya sa Pamamahala ng Palayan sa* Technology Demonstration Farm" in Tagalog and "*Tarabay iti Panagsanay iti Panagpatanor ti Pagay iti Pilipinas*" in Iluko.

b) Techno-guide on Vegetable Production

A vegetable techno-guide was developed at PhilRice Batac, which was revised with colored photos, printed and distributed by PhilRice.

c) Technology Transfer Manual

The document "Agricultural Technologist's Guide" (AT's Guide Promoting Location-Specific Rice and Integrated Rice-Based Technologies), which describes the process and strategies of technology transfer with Technology Demonstration Farm implementation is being finalized.

d) Location-Specific Technology Package

Three techno-guides entitled "Location-Specific Technology Package of Rice Production for Central Luzon", "Location-Specific Technology for Northwest Luzon" and "Location-Specific Technology Package for Northern Mindanao" were already drafted and undergoing review for further improvements.

e) Training Manual for Agricultural Extension Workers

A short-term expert was dispatched in June–October 2009 to devise the curriculum and teaching materials for the training of agricultural extension workers in collaboration with the

counterparts and JICA long-term experts.

2-2) At least 105 Agricultural Technicians and concerned government personnel as well as 140 farmers are trained at the Technology Demonstration Farm on promotion of location specific technologies.

The project intensified the activities on training of ATs and farmers of the target areas resulting into the training of 269 ATs and 242 TDF farmers with additional 609 farmers trained at the DF sites as shown in the tables below.

Table 3-12 Number of ATs and other DA personnel trained at TDF sites.

Site	2005		2006		2007		2008		2009		Total
	S-1	S-2	S-1	S-2	S-1	S-2	S-1	S-2	S-1	S-2	
Central Luzon											
Rizal	29			2	3						34
Cabanatuan			34								34
San Antonio					13		26				39
Northwest Luzon											
Currimao	6	4	4	4							18
Cabugao			10	11	5	5					31
Northern Mindanao											
Bayugan					10						10
Butuan							18				18
Total	35	4	48	17	31	5	44				269
No. of ATs who served DF											32

Table 3-13 Number of farmers trained at TDFs.

	2005		2006		2007		2008		2009		Total
	S-1	S-2	S-1	S-2	S-1	S-2	S-1	S-2	S-1	S-2	
Central Luzon											
Rizal	39	--	--			--	--		--	--	50
Cabanatuan	--	--	41	--	--				--	--	41
San Antonio					54						54
Northwest Luzon											
Currimao	14	14									28
Cabugao*			23	23							46
Northern Mindanao											
Bayugan				16							16
Butuan						18					18
Total	53	14	64	39	54	18					242

S-1 : 1st season (December-April), S-2 : 2nd season (June-October)

Note: *For Currimao and Cabugao, the farmers that attended the training on rice production were the same farmers that attended the vegetable production training, hence same number.

Table 3-14 Number of farmers trained at DFs.

	2005		2006		2007		2008		2009		Total
	S-1	S-2	S-1	S-2	S-1	S-2	S-1	S-2	S-1	S-2	
Central Luzon											
Rizal				50	66			20			136
Cabanatuan						136	40	31			207
San Antonio							38	170			208
Northwest Luzon											
Currimao									7		7
Cabugao*					19	19		3	10		51
Northern Mindanao											
Bayugan											
Butuan											
Total				50	85	155	78	224	17		609

S-1: 1st season is June-October for Central and North Luzon; for Agusan S-1 is December –April

S-2: 2nd season is December – April for Central and North Luzon; for Agusan S-2 June - October

Note: *For Cabugao, the farmers that attended the training on rice production were the same farmers that attended the vegetable production training, hence same number.

3-4 Achievement of the Project Purpose

The project purpose is "Rice productivity of participating farmers is improved".

Indicator 1: (PDM Ver.3, as of September, 2007)
At least 70% of participating farmers adopt at least 3 components of location-specific technologies

Table below shows the adoption rate of each site. All sites showed more than 70% adoption rate. Central and Northwest Luzon showed 100% adoption rate.

Table 3-15 Adoption Rate (%) of 3 components of LST.

Central Luzon	
Rizal	100
Cabanatuan	100
San Antonio	100
Northwestern Luzon	
Currimao	100
Cabugao	100
Northern Mindanao	
Bayugan	95.6
Butuan	90.9

Indicator 2: (PDM Ver.3, as of September, 2007)
At least 70% of participating farmers increase productivity of rice by 1 t/ha

Table below shows 52% of PFs achieved 1 t/ha increased yield. In Central Luzon, each site attained more than 70% in a single year. The annual yield of Northwest Luzon is based on one cropping, more than 80% of PFs in Currimao attained the target. Northern Mindanao exhibited low percentage of the attainment due to unusually adverse conditions.

Table 3-16 Rate of PFs that increased annual yield by 1 t/ha.

	No. of PFs	1st year		2nd year		Average Rate(%) of 2 years
		No. of PFs Increased > 1 t/ha	Rate (%)	No. of PFs Increased > 1 t/ha	Rate (%)	
Central Luzon						
Rizal	20	9	45	14	70	58
Cabanatuan	39	29	74	18	46*	60
San Antonio	42	25	59	31	74	67
Northwest Luzon						
Currimao	8	7	87	6	75	81
Cabugao	18	5	27	9	50	39
Northern Mindanao						
Bayugan	16	7	43	4	25**	34
Butuan	12	6	50			
Total of First year	155	77	50	82	53	52

*Due to late delivery of water brought by the repair of main irrigation canal in the site by NIA.
** High pest incidence as residual effect of the non-synchronous planting in the site.

However, the average annual increase of 1t/ha was achieved by the participating farmers as shown in table below:

Table 3-17 Increase in yield of PFs during TDF activities.

	Baseline Yield			1st Year				2nd Year				Average Increase
	S-1	S-2	Total	S-1	S-2	Total	Inc.	S-1	S-2	Total	Inc.	
Central Luzon												
Rizal	4.98	6.92	11.90	4.67	8.30	12.97	1.07	5.33	8.80	14.13	2.23	1.65
Cabanatuan	4.54	4.56	9.10	4.61	6.37	10.98	1.88	4.16	5.86	10.02	0.92	1.40
San Antonio	4.67	5.19	9.86	5.15	5.89	11.04	1.18	5.11	5.90	11.01	1.15	1.17
Northwestern Luzon												
Currimao	2.19		2.19	3.64		3.64	1.45	5.68		5.68	3.49	2.47
Cabugao	5.96		5.96	6.39		6.39	0.43	6.89		6.89	0.93	0.68
Northern Mindanao												
Bayugan	3.60	3.14	6.74	4.26	3.33	7.59	0.85	3.93	3.81	7.74	1.00	0.93
Butuan	3.00	2.10	5.10	4.43	4.17	8.60	3.50		3.81			
Average							**1.48**				**1.62**	**1.38**

Indicator 3: (PDM Ver.3, as of September, 2007)
Income of participating farmers in TDFs from rice-based farming increased by average of 15%

Table shows the income of PFs. In Central Luzon, Rizal and Cabanatuan achieved an average annual income increase of 148%, 190% and 173%. Since Currimao in Northwest Luzon suffered drought in 2004 (without significant income), the comparison was made between 1st (baseline) and 2nd year. The increase of the income was remarkable at 280% owing to the introduction of vegetable production. Cabugao achieved the average annual income increase of 228%. The decrease in yield from S1 2007 and S1 2008 is due to the flood caused by typhoon that damaged the vegetable crops. In Northern Mindanao, Bayugan achieved 91% annual income increase and Butuan exhibited 309% increase in the 1st year owing to the abrupt take-off from low baseline yield. In general, the increase of the income of the PFs had surpassed 15%.

Table 3-18 Increase in annual income of participating farmers

Rizal	Baseline Income			1st Year			2nd Year			Average Increase Rate
	04-S2	05-S1	Total	05-S2	06-S1	Total	06-S2	07-S1	Total	
Income (peso)	17,511	40,193	57,704	20,408	55,929	76,337	32,235	61,815	94,050	
Increase Rate			**100**			**132**			**163**	**148**

Cabanatuan	Baseline Income			1st Year			2nd Year			Average Increase Rate
	05-S2	06-S1	Total	06-S2	07-S1	Total	07-S2	08-S1	Total	
Income (peso)	17,806	21,404	39,210	19,738	36,380	56,118	26,353	66,296	92,649	
Increase Rate			**100**			**143**			**236**	**190**

San Antonio	Baseline Income			1st Year			2nd Year			Average Increase Rate
	06-S2	07-S1	Total	07-S2	08-S1	Total	08-S2	09-S1	Total	
Income (peso)	16,811	21,805	38,616	26,457	47,373	73,830	18,526	40,949	59,475	
Increase Rate			**100**			**191**			**154**	**173**

Currimao	Baseline Income			1st Year (Baseline)			2nd Year			Average Increase Rate
	04-S2	05-S1	Total	05-S2	06-S1	Total	06-S2	07-S1	Total	
Income (peso)	(2,109)*	3,380	1,271	1,760	4,950	6,710	3,540	15,280	18,820	
Increase Rate						**100**			**280**	

* Off-season vegetable production before the project was non-existent

Cabugao	Baseline Income			1st Year			2nd Year			Average Increase Rate
	05-S2	06-S1	Total	06-S2	07-S1	Total	07-S2	08-S1	Total	
Income (peso)	4,979	1,432	6,411	2,462	15,307	17,769	3,402	8,012	11,414	
Increase Rate			**100**			**277**			**178**	**228**

Bayugan	Baseline Income			1st Year			2nd Year			Average Increase Rate
	06-S1	06-S2	Total	07-S1	07-S2	Total	08-S1	08-S2	Total	
Income (peso)	13,654	10,548	24,202	20,194	24,978	45,172	23,961	23,125	47,086	
Increase Rate			**100**			**187**			**195**	**191**

Butuan	Baseline yield			1st Year			2nd Year			Average Increase Rate
	07-S1	07-S2	Total	08-S1	08-S2	Total	09-S1	09-S2	Total	
Income (peso)	5,322	5,295	10,617	28,139	15,295	43,434				
Increase Rate			**100**			**409**				

Notes: Figures in Central Luzon and Northern Mindanao indicate the net income from rice (peso/ha)
Figures in Northwest Luzon indicate income from vegetables (peso/1000m2) in the 1st season (S1) and rice (peso/ha) + vegetables (peso/1000m2) in the 2nd season (S2)

Indicator 4: (PDM Ver.3, as of September, 2007)
Municipal LGUs establish at least 2 demonstration farms in their respective municipalities

Expansion sites (DFs) administrated by LGUs were established in 9 barangays of Rizal, 8 in Cabanatuan, and 5 in San Antonio in Central Luzon; 3 in Currimao and 2 in Cabugao in Northwest Luzon; and 2 in Bayugan in Northern Mindanao. Butuan in Northern Mindanao has just selected DFs.

Table 3-19 A total of 29 DFs were established by the LGUs.

	No. of DFs	Names of barangay
Central Luzon		
Rizal	9	Aglipay, Sta Monica, Paco Roman, Cabucbucan, Bicos, Del Pilar I, Del Pilar II, Maligaya, Estrella
Cabanatuan	8	Bakero, Bagong Sikat, Bakod Bayan, Cabu, Caalibangbangan, Polilio, Balite, Cinco-cinco
San Antonio	5	Camajuan, Lawang Kupang, San Francisco, Santa Barbara, Santo Cristo
Northwest Luzon		
Currimao	3	Lang-ayan, Tapao-Tigue, Anggapang Norte,
Cabugao	2	Salapasap, Lipit
Northern Mindanao		
Bayugan	2	Marcelina, Gamao
Butuan	(2)	Baan, Mahay (to be established next season)
Total	29	

3-5 Achievement of the Overall goal

3-5-1 The Overall Goal is 1)"Productivity in the target areas of rice is increased".

Indicator 1: (PDM Ver.3, as of September, 2007) Productivity in the target municipalities increased by average of 1t/ha"

- Considering with the result of 45% of PF of TDF attained of the increase of 1t/ha shown at the indicator 2 of Project Purpose, and that the shorter training terms for DF, it might take several years to attain the above value. More input by LGU, other concerned agency such as ATI and NIA will surely contribute the attainment of the Overall goal.

3-5-2 The Overall Goal is 2)"Agricultural income of farmers in the target areas is increased".

Indicator 2: (PDM Ver.3, as of September, 2007) Income of participating farmers from rice or rice-based farming in TDFs and DFs increased by average of 15%.

- Considering with the result that all PF of TDF attained of the increase of 15% income shown at the indicator 3 of Project Purpose, and that the fact b the interview that some DF farmers has already increased their income more than 15%, it will surely attain the Overall goal in the near future. However, we have to be careful with that the excess supply of one kind of vegetable may cause the continuous lower price of the vegetable in the market.

4. Results of the Evaluation with the Five Criteria

The summary of the evaluation with the five criteria is shown below.

4-1 Relevance

The project has high relevance based on the following points:

4-1-1 Necessity

The Project focuses on the improvement of livelihood of Filipino farmers. Integration of component technologies including location-specific technologies for rice and rice-based farming systems can respond to the needs of farmers.

The Project is consistent with the national policy on agriculture and the GMA Rice program. The GMA Rice Program under the Department of Agriculture includes high-yielding technologies such as hybrid and inbred rice, certified seed, and promotion of location-specific technology to enhance productivity. The program is also promoting the integrated rice-based farming system (e.g., *Palayamanan and PalayCheck*).

4-1-2 Cooperation Priority

The approach of the Project shows high relevance with the Official Development Assistance (ODA) policy of Japan. The improvement of production system is regarded as an urgent issue in agriculture development sector under Japan's assistance to the Philippines. Research, development and promotion for the purpose of improving agricultural productivity also remain very important. The

Project is assisting poverty alleviation which is in consonance with JICA's thrust.

4-1-3 Japan's Advantage

Japan also lies in the Asia-monsoon climate zone and its staple food is also rice. Japanese government has been actively promoting research and development activities to materialize higher yield in rice production. It can be expected that the research achievements and farmers' experiences in Japan would be able to support the technology development and technology promotion in the Philippines through this technical cooperation project.

4-1-4 Target areas

The Project has three target areas: Northwest Luzon, Central Luzon, and Northern Mindanao. The targets include areas with adverse agro-climatic conditions, rain-fed, and irrigated areas with low productivity. Thus, the target areas of the Project are relevant.

4-2 Effectiveness

The Project's effectiveness is high based on the following points:

The Project purpose of improving rice productivity of participating farmers can be achieved by the end of the Project.

The Objectively Verifiable Indicators (OVIs) Items 1, 3 and 4 of the Project Purpose have been achieved. However, the OVI Item 2 which states, "At least 70% of participating farmers increase productivity of rice by 1t/ha", has not yet been achieved because only 52% of the participating farmers have been able to attain this indicator as of July 2009.

Regarding Output "1-1) Productivity of rice is increased by 1t/ha in TDF", it is achieved in most sites.

The logic between Output and Project Purpose is appropriate.

4-3 Efficiency

Most of the Outputs have been achieved. Thus, the Project has high efficiency, based on the following points:

4-3-1 Causal Relationship

(1) A technology promotion system has been established to enable agricultural technicians to be more efficient in helping farmers attain their productivity and profitability.
(2) By adopting the Location-Specific Technology Package (LSTP), some farmers were able to reduce production cost thereby increasing their net income.
(3) While some farmers' income showed significant increase, others were unable to purchase the recommended quantity of fertilizer because of its drastic price increase.

4-3-2 Cost

The inputs, both from Japanese and Philippine sides were found to be generally appropriate in terms of timing, duration, and fields of expertise.

4-4 Impact

The project has positive impact based on the following points:

4-4-1 Technology

It has been observed that many non-participating farmers have adopted technologies developed in TDFs. A number of PFs initiated the promotion of technologies they have learned to non-PFs.

4-4-2 Institutional Aspect

(1) Both ATs and FPs/PFs of TDFs have shown willingness to teach farmers what they have learned.
(2) Most of the stakeholders such as the LGUs, ATI, DA-RFU and NIA in the Project sites, have expressed support to DF activities, specifically in the expansion and technology dissemination to farmers.
(3) PhilRice has adopted LST as its main strategy for increasing rice productivity of farmers.
(4) PFs have established cooperatives to empower themselves.

4-4-3 Social Aspect

Although the increase of productivity of 1 t/ha is partially achieved, the income has increased substantially due to the reduction of necessary inputs by farmers and increase of commodity price.

4-4-4 Environmental Aspect

Based on the forecasting of the insect population and utilization of appropriate pest-tolerant rice varieties, the farmers have reduced pesticide use.

4-4-5 Economic Aspect

The Project achieved not only increased income but also contributed to the reduction of cash flow problem particularly in Northwest Luzon due to supplemental income from off-season vegetable production.

4-5 Sustainability

The Project is moderately sustainable, as described below:

4-5-1 Organizational Aspect

PhilRice remains to be the primary government agency mandated to develop and promote rice and rice-based technologies in the country.

Functionality of TDF Committees varies across sites. It is necessary to define the role of each

member in the implementation of the TDF.

4-5-2 Policy Aspect

The methodology and approach of the Project was adopted for the rice self-sufficiency master plan of the Philippine government from 2009 to 2013.

4-5-3 Financial Aspect

(1) All components of the GMA Rice Program of the DA are provided funds by the national government.

(2) LGU funding for DF operations is limited compared to TDF but it is enough, except for the travelling expenses of ATs.

4-5-4 Technical Aspect

(1) TDF participants stated that they have acquired enough technology through the Project which they can do by themselves. However, if there are new technologies developed, they would like to learn it through the ATs and PhilRice.

(2) TDF participants have shared the technologies learned to non-participating farmers who practice these technologies in their areas.

5. Conclusion

The planned activities are on schedule, and it is expected that all necessary activities will be completed by the end of the Project. Thus, the target outputs are expected to be attained. The possibility of achieving the project purpose of improving the rice productivity of participating farmers within the cooperation period is high. Thus, the Project will be terminated as scheduled.

The Project technology promotion model in establishing TDF and DF involving the LGUs and other concerned agencies is very effective. Adoption of this location specific technology promotion system in the national program can help in attaining the ultimate goal of rice self sufficiency in the Philippines.

6. Recommendations

The joint terminal evaluation team recommends the following:

6-1 Before the end of the Project

6-1-1 Implementation Process

When expanding DFs, the commitment of LGU leaders should be ensured, particularly in providing adequate funds for activities and transportation allowance to ATs as well as fulfilling the obligations stipulated in the MOA.

6-1-2 Assessment and Monitoring

The initial assessment should be done by a multi-disciplinary team for a holistic perspective

of the situation. The reporting of DF activities from ATs should include problems and its causes in order to address the farmers' needs and establish a feedback mechanism to provide, among others, updating of new technologies.

6-1-3 Follow-up of PFs

PhilRice should follow-up PFs who have not attained the targeted increase of 1 t/ha of rice production by identifying its causes and taking the necessary countermeasures in close collaboration with LGUs and other concerned agencies.

6-1-4 Improvement of Agricultural Technologists' Guide

The ATs Guide's publication is timely for the utilization in DF activities. For mass dissemination of the module employed in the Project it should be improved on the following areas:

1) Edit and update some "boxed" texts and photographs for a more general application.
2) Inclusion of a portion which prescribes the code of ethics for ATs.
3) Inclusion of a flowchart to illustrate and summarize the whole implementation process.
4) Cross-referenced materials mentioned in the body of the Guide should also be made available to the ATs. For a more effective information delivery, reference materials for ATs and farmers should be translated in the local vernacular.

6-1-5 Efficient utilization of trained ATs

The number of ATs at TDF is 269. However, only 32 worked at DFs. It is necessary to utilize all the trained ATs to expand DF activities.

6-1-6 Seminar and workshop

The planned seminars and workshops per area and the overall national workshop shall be pursued, inviting LGUs (selected provinces, cities and municipalities) and other cooperating agencies such as GMA Rice Program Directorate, DA-RFU and ATI. The outputs should include a 5-year plan on the expansion of TDF and DF approach, among others.

6-2 After the end of the Project

6-2-1 LST Options

In developing an LST, it is necessary to pay considerable attention not only to agro-climatic but also to the socio-economic conditions of the farmers. Thus, PhilRice has to come up with different options for LST adoption in consideration of the different capabilities of the farmers.

6-2-2 Market-oriented production

Encourage farmers to be more market-oriented in their off-season vegetable production by, for example, diversifying their vegetable crops to avoid market saturation.

6-2-3 Continue development of in-bred rice varieties

Considering the high price of hybrid varieties and unstable production in areas with adverse conditions, it is recommended to continuously develop and promote in-bred varieties to be incorporated in the LST packages.

6-2-4 *PalayCheck* for non-irrigated areas

PalayCheck being used for irrigated areas might not be suitable for non-irrigated areas. Thus, *PalayCheck* for non-irrigated areas should also be developed.

6-3 On the DA

6-3-1 Prioritizing LST

When an LGU and a national government agency are implementing similar programs in the same area, the program promoting LST should be prioritized to more accurately address the needs of the community.

7. Lessons Learned

From the experience of the Project, the following lessons were drawn for consideration in future programs and projects:

(1) Implementing agencies should exert more effort in defining the roles and in engaging the active participation of other concerned agencies at the onset of project implementation. In the experience of the Project, other concerned agencies did not fulfill their obligations as stipulated in the MOA.

(2) Project implementers should not only focus on the numerical targets but also on the implementation process. In the Project, there was an oversight in the consideration of socio-economic conditions of the farmers in reaching the 1 t/ha target.

(3) In selecting the project sites, baseline data and initial analysis should be considered. To ensure replicability and high multiplier effect, areas which have extreme and adverse conditions should be avoided in the selection of TDFs.

(4) It has been observed that putting up Farmers Learning Centers are effective in providing farmers venues for interaction. It is essential to establish physical structures which serve as venue for learning, socialization and other activities by the farmers.

PROJECT DESIGN MATRIX (PDM) for the Development and Promotion of Location-Specific Integrated High-Yielding Rice and Rice-Based Technologies (JICA TCP3)
Cooperation term: Nov. 15, 2004 - Nov. 14, 2009 Implementing organization: PhilRice, Department of Agriculture *Version 3.0: As of Sept. 2007*

Target areas: 7 municipalities in three target zones (Northwestern and Central Luzon, and Northern Mindanao)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Long-term Goal / Super Goal Self-sufficiency in rice is achieved in the Philippines	The volume of rice production corresponding to population increase is secured	Official statistics	
Overall Goal 1) Productivity in the target areas of rice is increased 2) Agricultural income of farmers in the target areas is increased	1) Productivity in the target municipalities increased by average of 1 t/ha 2) Income of participating farmers in TDFs and DFs increased by average of 15%	1) Agricultural statstics of the province(s) 2) Baseline survey and monitoring	1) No unusual climate condition occurs 2) No unusual pest and disease occurs 3) Priority of the Philippine government on rice self-sufficiency is unchanged 4) Governmental budget for rice self-sufficiency remains secured 5) International price of rice (imported price) does not drop significantly
Project Purpose Rice productivity of participating farmers is improved	1) At least 70% of participating famers adopt at least 3 components of location-specific technologies 2) At least 70% of participating farmers increase productivity of rice by 1 t/ha 3) Income of participating farmers in TDFs from rice-based farming increased by average of 15% 4) Municipal LGUs establish at least 2 Demonstration Farms in their respective municipalities	1) Baseline survey and monitoring reports 2) Baseline survey and monitoring reports 3) Baseline survey and monitoring reports 4) LGU's records on extension activities	1) No unusual climate condition occurs 2) No unusual pest and disease occurs 3) Priority of the Philippine government on rice self-sufficiency is unchanged
Outputs 1) Suitable input and location-specific technology packages are developed in each target area 2) Technology promotion systems focused on rice technology are established in the target areas	1-1) Productivity of rice is increased by 1 t/ha in Technology Demonstration Farms 1-2) One (1) location-specific technology package with at least 3 component technologies is developed for each target area 1-3) At least 3 advanced lines for tolerance to low solar radiation are tested and at least one variety is promoted 2-1) Extension manuals on the rice or rice-based farming systems are developed for each target area 2-2) At least 105 agricultural technicians and concerned government personnel as well as 140 farmers are trained at the Technology Demonstration Farm on promotion of location specific technologies	1-1) Baseline survey and monitoring repors 1-2) Techno-guides 1-3) Report 2-1) Extension manuals (demo farm management, materials for extension activities) 2-2) Seminar and workshop record (contents, participants and level of understanding)	1) No unusual climate condition occurs 2) No unusual pest and disease occurs 3) Social and economic conditions do not change drastically
Activities 1-1) Conduct of baseline survey and monitoring 1-2) Development of suitable and location-specific technology packages a) PhilRice CES: (1) TDF implementation to establish stable and high yielding rice double cropping technology b) PhilRice Batac: (1) Evaluation of vegetable cultivation tecnologies (2) TDF implementation to establish rice-based farming system including including vegetable and upland crops c) PhilRice Agusan: (1) Development and evaluation of new variety and establishment of a pest forecasting sysytem for WSB (2) TDF implementation to establish a stable yielding rice double cropping technology 2) Establishment of technology promotion systems a) Organization and coordination of Technology Demonstration Farm committees b) Production of extension materials for technical training c)Establishment of Demonstration Farms(DFs) by LGUs with technical support from the concerned institutions		**INPUTS** ***Japan Side*** 1) Experts a) Long-term b) Short-term 2) Trainings a) Trainings in Japan 3) Equipment/materials for research, trainings and extension services 4) Cost shared by Japan Side ***Philippine Side*** 1) Counterpart personnel a) Project Director c) Counterpart Personnel b) Project Managers d) Admin/Support staff 2) Facilities and equipment (existing facilities shall be mostly utilized a) Buildings d) Water, power & communication b) Farms e) Other necessary lots & buildings c) Motorpool/storage 3) Cost shared by Philippine Side	1) Budget for this Project is continuously secured by PhilRice 2) Peace and order situations in the target areas are secured 3) Number of LGU's agricultural technician is maintained and continuously assigned 4) Participating farmers continue rice production ***Pre-conditions*** 1) Present policy of the Philippine government on rice production remains 2) Philippine government allocates budget for PhilRice properly without any major delay 3) Related institutions continue to participate and support the Project

ANNEX 2

Schedule of the Joint Terminal Evaluation (PhilRice TCP3)
(28 June- 25 July 2009)

No.	Date		Activities	Accomodation
1	28,June	Sun	Arrival at Manila (Consultant only)	Manila
2	29,June	Mon	Courtesy call and discussion with DA and JICA experts	Manila
3	30,June	Tue	Move from Manila to Butuan City Courtesy call/ observation (PhilRice Agusan)□Meeting with C/P	Agusan
4	1, July	Wed	Visit TDF (Charito) and Interview to FP/PF, 2DF, ATs, etc.	Agusan
5	2, July	Thu	Visit TDF (Tagabaca) and Interview FPs/PFs, NIA, ATI	Agusan
6	3, July	Fri	Meeting with CPs (PhilRice Agusan), Move from Butuan City to Manila, Move to CES	Munoz
7	4, July	Sat	Documentation	Munoz
8	5, July	Sun	Documentation	Munoz
9	6, July	Mon	Courtesy call (PhilRice CES), Meeting with C/Ps, Visit TDF/DF(Cabanatuan)	Munoz
10	7, July	Tue	Visit TDF(San Mariano), Interview to FPs/PFs	Munoz
11	8, July	Wed	Move from PhilRice CES to PhilRice Batac, Visit Greenhouse (NGO) in Aringay, Courtesy call (PhilRice Batac)	Paoay
12	9, July	Thu	Visit TDF/DF(Currimao), Currimao City Hall, PhilRice Batac, ICT CyberCom	Paoay
13	10, July	Fri	Visit TDF(Cabugao), meet mayor, meet AT at Provincial Office at Vigan City in Ilocos Sur, move to PhilRice CES	Munoz
14	11, July	Sat	Documentation	Munoz
15	12, July	Sun	Move to Manila(consultant only), Arrival at Manila (other members), Internal meeting (Japanese team only)	Manila
16	13, July	Mon	Courtesy call and discussion with DA and JICA Philippine office Internal meeting	Manila
17	14, July	Tue	Move from Manila to Laoag Interview to LGU, Curimao (Mayor, MAOs, ATs) Courtesy call (PhilRice Batac), Meeting with C/P	Paoay
18	15, July	Wed	Visit LGU Currimao Greenhouse, Visit TDF FP/PF farms Visit DFs and interview at Anggapang Norte, Tapao-Tigue and Lang-ayan	Paoay
19	16, July	Thu	Meeting with C/Ps Move from Laoag to Manila	Manila
20	17, July	Fri	Move to Manila to Butuan, Courtesy call and interview at LGU, Butuan City (Mayor, ATs) Interview at Agricultural Training Institute	Agusan
21	18, July	Sat	Team 1: Visit TDF(Tagabaca□ Team 2: Visit TDF (Charito) and DF (Marcelina) Meeting with C/P	Agusan
22	19, July	Sun	Move from Butuan to Manila, Move to CES	Munoz
23	20, July	Mon	Visit TDFs/DFs and interview FPs/PFs and ATs at Cabanatuan (Lagare (TDF), Bagong Sikat (DF)) and San Antonio (San Mariano (TDF), Camajuan (DF))	Munoz
24	21, July	Tue	Internal meeting, Meeting with experts and C/Ps	Munoz
25	22, July	Wed	Documentation, internal meeting and meeting with experts and C/Ps	Munoz
26	23, July	Thu	Internal Meeting, Move to Manila Reporting to JICA Philippine office	Manila
27	24, July	Fri	JCC at DA and signing M/M Reporting to EoJ	Manila
28	25, July	Sat	Depart to Narita	

Annex 3. List of Equipment Provided by Japan.

The JICA Project-Type Technical Cooperation
"DEVELOPMENT AND PROMOTION OF LOCATION-SPECIFIC INTEGRATED HIGH-YIELDING RICE AND RICE-BASED TECHNOLOGIES" (TCP3)
November 2004-November 2009
LIST OF EQUIPMENT AND MATERIALS, FY 2004-2008

ITEM NO.	DATE DELIVERED	ITEM/DESCRIPTION/ MODEL/MAKER	UNIT COST (in Pesos)	TOTAL COST (in Pesos)	PERSON RESPONSIBLE	LOCATION	PURCHASED FROM	PURPOSE	CONDITION/FREQUENCY OF USE*	REMARKS
FY 2004 (Nov 2004 - Mar 2005)										
A. Locally-Purchased										
A04-01	21-Mar-05	Nissan Patrol III 2005 Model, 4x2 Manual Transmission, full size wagon with ZD30 neo di turbo diesel engine, 4 cylinders, 10 seater with one set standard tools, 5 pcs. 265/70 R16 tires, complete with spare tire jack with handle tools and owner's manual,	2,080,000.00	2,080,000.00	LA Hidalgo	PhilRice Batac	Broadway Motor Sales Corp., Manila	To ferry staff during official travels of JICA experts and counterparts to conduct field surveys, consultation meetings with farmers/LGUs, establish and monitor technology demonstration sites, conduct training and other promotion activities related to the implementation of the project.	B/C	At CES
A04-02	21-Mar-05	Nissan Patrol III 2005 Model, 4x2 Manual Transmission, full size wagon with ZD30 neo di turbo diesel engine, 4 cylinders, 10 seater with one set standard tools, 5 pcs. 265/70 R16 tires, complete with spare tire jack with handle tools and owner's manual,	2,080,000.00	2,080,000.00	RB Bajit/ M Shigyo	PhilRice CES/ Physical Plant Division (PPD)	Broadway Motor Sales Corp., Manila		A	Assigned to JICA experts
A04-03	21-Mar-05	Nissan Frontier III 2005 Model, 4x4 Manual Transmission pick-up, with QD32 diesel engine, 4 cylinders in-line OHV, 1 set standard tools, 5 pcs. 245/70 R16 tires, complete with spare tire jack with handle tools and owner's manual, S/N CVRULFFD22-E15369, En	1,070,000.00	1,070,000.00	LA Hidalgo	PhilRice CES/ PPD	Broadway Motor Sales Corp., Manila	To ferry staff during official travels of JICA experts and counterparts to conduct field surveys, consultation meetings with farmers/LGUs, establish and monitor technology demonstration sites, conduct training and other promotion activities related to the implementation of the project.	A	For dispatch to TMS and released activities
		Canopy with rear defogger	31,500.00	31,500.00						
		Subtotal (Locally-purchased)		5,261,500.00						
B. Brought by Experts										
B04-01	23-Nov-04	Notebook Computer, Toshiba Satellite A50, S/N54117429P, S/N64093911P, and S/N64093913P, with mouse S/N4490000173SB, S/N45E0002709SB, and S/N45E0002731SB, with software installation & manual (Japanese)	115,338.78	346,016.34	M Shigyo, T Takita, R Ito now with Dr. Kabaki and Mr. Kobayashi	JICA Office/ PhilRice CES		Used by JICA expert in encoding data, progress reports, and other documents related to the project.	A	
B04-02	23-Nov-04	Software Access2003	13,234.18	39,702.53		JICA Office/ PhilRice CES			A	
B04-03	23-Nov-04	Software PowerPoint2003 Windows	11,116.93	33,350.78		JICA Office/ PhilRice CES			A	

ITEM NO.	DATE DELIVERED	ITEM/DESCRIPTION/ MODEL/MAKER	UNIT COST (in Pesos)	TOTAL COST (in Pesos)	PERSON RESPONSIBLE	LOCATION	PURCHASED FROM	PURPOSE	CONDITION/FREQUENCY OF USE*	REMARKS
B04-04	23-Nov-04	MO Drive MOP2-U640P	10,006.86	30,020.57		JICA Office/ PhilRice CES			A	
B04-05	23-Nov-04	Digital Camera, Canon Powershot A310, S/N8616002298, with USB cable, Compact Flash Card, and CD installation & manual (Japanese)	11,046.53	11,046.53		JICA Office/ PhilRice CES		Used in gathering photo documentation of the project.	A	
B04-06	23-Nov-04	UPS, APC S/NAB0414346314, S/NAB0414346278, S/NAB0414346342, with software installation & manual (Japanese)	9,974.37	29,923.10	M Shigyo, TTakita, Rito now with Dr. Kabaki and Mr. Kobayashi	JICA Office and PhilRice CES/PBBD		Attached to the computer/camera for uninterrupatible supply of power during data encoding, generation, and management.	A	
B04-07	23-Nov-04	Churi Stepdown Transformer, CCW-300W	8,414.86	25,244.57		JICA Office and PhilRice		To regulate the power supply for stability of data management.	A	
B04-08	23-Nov-04	I/O USB Memory EDP-128M, Easy Disk S/NCJC0077572V7, S/NCJC0039321F3, S/NCJC0077145V3, with software installation	3,368.11	10,104.33		JICA Office and PhilRice CES/PBBD		Used in data storage.	A	
B04-09	23-Nov-04	Laptop computer, Toshiba TX/3516LDSW	95,132.49	95,132.49	T. Kobayashi	Balac		Used by the expert in generating and managing data and in the preparation of training materials.	A	
B04-10	23-Nov-04	Software, Access 2003	13,267.13	13,267.13	RC Castro	Balac			A/C	
B04-11	23-Nov-04	Software, Power Point 2003	11,518.74	11,518.74	RC Castro	Balac			A/C	
B04-12	23-Nov-04	UPS, APC, CS350 BK350JP	5,656.53	5,656.53	RC Castro	Balac			A/A	
B04-13	23-Nov-04	Transformer, CCW-300W	6,684.99	6,684.99	RC Castro	Balac			A/A	
B04-14	23-Nov-04	USB Memory, I-O Data, 128 MB	2,159.76	2,159.76	RC Castro	Balac			B/A	
B04-15	23-Nov-04	MO drive, I-O Data	8,227.67	8,227.67	RC Castro	Balac			A/C	
		Subtotal (Brought by Experts)		668,056.07						
		TOTAL (FY 2004)		5,929,556.07						
FY 2005 (April 2005 - March 2006)										
A. Locally-Purchased										
A05-01	2-Dec-05	Digital Duplicator, Duplo DP23S, with pedestal off-white, operating manual, SN-000861624	117,000.00	117,000.00	RC Castro	PhilRice Batac	GAKKEN (Philippines), INC.San Juan,Metro Manila	Used in the reproduction of training/learning materials, and other documents related to the implementation of the project.	A/C	
A05-02	6-Dec-05	LCD Projector Epson EMP-S3 Multimedia Projector, with standard accessories, carrying case, audio video and power cable remote control, with SN-GMCQ5XOO78F	53,900.00	53,900.00	RB Miranda	PhilRice CES	SIM COMPUTER SALES, INC, MAKATI CITY	Used in on-site technology promotion and capacity enhancement activities such as training, seminars, briefings, field days. For clear presentation and delivery of rice production technologies in powerpoint and video production	A/B	
	6-Dec-05	Drop down Screen 70x70	3,300.00	3,300.00	RB Miranda	PhilRice CES			A/B	

ITEM NO.	DATE DELIVERED	ITEM/DESCRIPTION/ MODEL/MAKER	UNIT COST (in Pesos)	TOTAL COST (in Pesos)	PERSON RESPONSIBLE	LOCATION	PURCHASED FROM	PURPOSE	CONDITION/FREQUENCY OF USE*	REMARKS
A05-03	6-Dec-05	LCD Projector Epson EMP-S3 Multimedia Projector, with standard accessories, carrying case, audio video and power cable remote control, with SN-GMCQ5XOO55F	53,900.00	53,900.00	RC Castro	PhilRice Batac	SIM COMPUTER SALES, INC, MAKATI CITY		C/C	
	6-Dec-05	Drop down Screen 70x70	3,300.00	3,300.00	RC Castro	PhilRice Batac			A/C	
A05-04	6-Dec-05	Notebook computer, HP Compaq NX6 120 business notebook Intel Centrino mobile technology, Intel Pentium M Processor 740.1.7GHz with 533MHz Intel 915 Express Chipset, 256MB upgradable to 2GB, 60GB HDD, DVDROM/CDRW Combo 5-1-media card reader, Li-ion battery	79,000.00	79,000.00	AB Vasallo	PhilRice CES	SIM COMPUTER SALES, INC, MAKATI CITY	To complement the LCD projector in on-site technology promotion and capacity enhancement activities as training, seminars, briefings, field days. For clear presentation and delivery of rice production technologies in powerpoint and video production format	A	
A05-05	6-Dec-05	Notebook computer, HP Compaq NX6 120 business notebook Intel Centrino mobile technology, Intel Pentium M Processor 740.1.7GHz with 533MHz Intel 915 Express Chipset, 256MB upgradable to 2GB, 60GB HDD, DVDROM/CDRW Combo 5-1-media card reader, Li-ion battery	79,000.00	79,000.00	RC Castro	PhilRice Batac	SIM COMPUTER SALES, INC, MAKATI CITY		B/A	
A05-06	6-Dec-05	Notebook Computer, HP Compaq NX6 120 business notebook Intel Centrino mobile technology, Intel Pentium M Processor 740.1.7GHz with 533MHz Intel 915 Express Chipset, 512MB upgradable to 2GB, 80GB HDD, DVDROM/CDRW combo 5-1-Media card reader, Li-ion batter	83,000.00	83,000.00	AB Vasallo	PhilRice CES	SIM COMPUTER SALES, INC, MAKATI CITY	To complement the LCD projector in on-site technology promotion and capacity enhancement activities as training, seminars, briefings, field days. For clear presentation and delivery of rice production technologies in powerpoint and video production format	A/A	
A05-07	6-Dec-05	Notebook Computer, HP Compaq NX6 120 business notebook Intel Centrino mobile technology, Intel Pentium M Processor 740.1.7GHz with 533MHz Intel 915 Express Chipset, 512MB upgradable to 2GB, 80GB HDD, DVDROM/CDRW combo 5-1-Media card reader, Li-ion batter	83,000.00	83,000.00	RC Castro	PhilRice Batac	SIM COMPUTER SALES, INC, MAKATI CITY		B/A	
A05-08	15-Dec-05	Generator set, portable Robin RGV 2800, gasoline, 2.8KVA max output, 2.3 KW rated output, single phase revolving field type 60Hz 12.7 Amp. 220volts. Insulation class B direct coupled to gasoline engine with minimum 12L tank capacity, 1.3 liters per hour	45,000.00	45,000.00	RB Miranda	PhilRice CES	Eikoh Trading Co, Inc	Used as power supply during trainings of farmers, extension workers, etc.	A/C	for mobile training van
	15-Dec-05	Cable, Royal, 125 m for generator set	45.00	5,625.00	RB Miranda	PhilRice CES			A/C	
		Delivery charge		4,000.00						

ITEM NO.	DATE RECEIVED	ITEM/DESCRIPTION/ MODEL/MAKER	UNIT COST (in Pesos)	TOTAL COST (in Pesos)	PERSON RESPONSIBLE	LOCATION	PURCHASED FROM	PURPOSE	CONDITION/FREQUENCY OF USE*	REMARKS
A05-09	15-Dec-05	Generator set, portable Robin RGV 2800, gasoline, 2.8KVA max output, 2.3 KW rated output, single phase revolving field type 60Hz 12.7 Amp. 220volts. Insulation class B direct coupled to gasoline engine with minimum 12L tank capacity, 1.3 liters per hour f	45,000.00	45,000.00	RC Castro	PhilRice Batac	Eikoh Trading Co, Inc	Used as power supply during trainings of farmers, extension workers, etc.	A/C	
	15-Dec-05	Cable, Royal, 75 m for generator set	45.00	3,375.00	RC Castro	PhilRice Batac			A/C	
		Delivery charge		4,000.00						
A05-10	19-Dec-05	TV monitor, Sanyo Control TV Model ST29KX3, 29" monitor, semi-flat screen, stereo-sound with remote control and operation manual, SN-14806173	17,500.00	17,500.00	RB Miranda	PhilRice CES	Sun East Asia Corporation	For on-site technology promotion and capacity enhancement activities such as training, seminars, briefings, and field days for clear presentation and delivery of rice production technologies in CD, powerpoint, and video.	A/B	
A05-11	19-Dec-05	TV monitor, Sanyo Control TV Model ST29KX3, 29" monitor, semi-flat screen, stereo-sound with remote control and operation manual, SN-14806181	17,500.00	17,500.00	RC Castro	PhilRice Batac	Sun East Asia Corporation		A/C	
A05-12	19-Dec-05	Portable sound system, Senrun EP-2001D with 75w power amplifier, tripod, built-in 12V-4.5A x 2 rechargeable batteries and auto rechargeable systems (charger) and 2 wireless microphones with protective cover and operation manual, SN-E406933	60,000.00	60,000.00	RB Miranda	PhilRice CES	Sun East Asia Corporation	Installed in the training van for on-site technology promotion and capacity enhancement activities as training, seminars, briefings, and field days for clear presentation and delivery of rice production technologies in CD, powerpoint, and video productio	A/B	
A05-13	19-Dec-05	Portable sound system, Senrun EP-2001D with 75w power amplifier, tripod, built-in 12V-4.5A x 2 rechargeable batteries and auto rechargeable systems (charger) and 2 wireless microphones with protective cover and operation manual, SN-E406939	60,000.00	60,000.00	RC Castro	PhilRice Batac	Sun East Asia Corporation		A/C	
A05-14	29-Dec-05	Infratec ISW 1242ISW cpl (color module for Infratec 1241 grain analyzer Model Cat No. 1241-060 in 5 diskettes with 2-page instruction manual)	437,356.00	437,356.00	EH Bandonill	RCFS	Philab Industries, Inc.	To maximize the JICA-provided whole grain anlyzer, Infratec 1241 in measuring the micronutrients particularly Vit. A content of rice, in addition to moisture, amylose, and protein contents.	A	This should be bought with STM sampler to function.
A05-15		Accessories for the existing Vaisala portable weather station								
A05-15-1	14-Feb-06	Removable compact Flash Memory card 32MB, Industrial temperature range (TYPE: 26588)	8,279.00	8,279.00	JL de Dios	ASD/Weather station	Domestic Trading, Inc.	These are accessories of the portable weather station used in generating climatic data.	A/C	
A05-15-2	14-Feb-06	QMH101 Humidity and Temperature Probe w/DTR 502 radiation, radiation shield, cable connector & Vaisala Sensor arm QM3019193 (TYPE: QMA102TRH)	102,690.00	102,690.00	JL de Dios	ASD/Weather station	Domestic Trading, Inc.		A/C	

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Annex 3

ITEM NO.	DATE DELIVERED	ITEM/DESCRIPTION/ MODEL/MAKER	UNIT COST (in Pesos)	TOTAL COST (in Pesos)	PERSON RESPONSIBLE	LOCATION	PURCHASED FROM	PURPOSE	CONDITION/FREQUENCY OF USE	REMARKS
A05-15-3	14-Feb-06	Atmospheric pressure sensor, plug-in module on QML201 (Range: 600-1100 hPa, measured using Pressure port) (TYPE: PMT16A)	83,000.00	83,000.00	JL de Dios	ASD/Weather station	Domestic Trading, Inc.		A/C	
A05-15-4	14-Feb-06	Soil moisture sensor with 10m cable and connector (TYPE: ECI 120-M3)	18,000.00	36,000.00	JL de Dios	ASD/Weather station	Domestic Trading, Inc.		A/C	
A05-15-5	14-Feb-06	Silicon Photodiode Pyranometer for global radiation measurement with cable connector and sensor arm QM30194 (TYPE: QMS101-M2)	54,768.00	54,768.00	JL de Dios	ASD/Weather station	Domestic Trading, Inc.		A/C	
A05-15-6	14-Feb-06	Soil water temperature sensor with 10m cable and connector (TYPE: QMI 110)	21,679.00	21,679.00	JL de Dios	ASD/Weather station	Domestic Trading, Inc.		A/C	
A05-15-7	14-Feb-06	Submersible water level sensor (absolute pressure) accuracy: 0.1% FS for fresh water application requires PMT16A-SWD in the MWS (cable not included) (TYPE: PAA-36W)	122,000.00	244,000.00	JL de Dios	ASD/Weather station	Domestic Trading, Inc.		A/C	
A05-15-8	14-Feb-06	Waterproof polyethylene cable, 10m cable (TYPE: PAA CABLE)	1,200.00	12,000.00	JL de Dios	ASD/Weather station	Domestic Trading, Inc.		A/C	
A05-15-9	14-Feb-06	Solar/Main power supply unit with 12W solar panel, regulator, mains power supply and 7Ah back-up battery, tripod mounting (TYPE: QMP201C)	235,000.00	470,000.00	JL de Dios	ASD/Weather station	Domestic Trading, Inc.		A/C	
A05-15-10	14-Feb-06	Isolated RS-485 module single 2/4 wire connection installed in QMI201 AWS Logger (TYPE: DS1485A)	27,000.00	27,000.00	JL de Dios	ASD/Weather station	Domestic Trading, Inc.		A/C	
A05-15-11	14-Feb-06	OMR101 Rain gauge with cable connector and Vaisala sensor arm QM30193 (TYPE: QMA102PR)	47,922.00	47,922.00	JL de Dios	ASD/Weather station	Domestic Trading, Inc.		A/C	
A05-15-12	14-Feb-06	AC Adapter, Universal Mains Power supply 220V (TYPE: 27069)	21,000.00	21,000.00	JL de Dios	ASD/Weather station	Domestic Trading, Inc.		A/C	
A05-15-13	14-Feb-06	MAWS YourView Basic (TYPE: MAWS YV) MAWS Yourview desplay software (Basic Version) A real-time and logged data graphical presentation software for a standard PC or Laptop computer capable of displaying the following data of MAWS 301 unit (air temp., humid	257,540.00	257,540.00	JL de Dios	ASD/Weather station	Domestic Trading, Inc.	These are accessories of the portable weather station used in generating climatic data.	A/C	
A05-15-14	14-Feb-06	DELL LatitudeD505, Intel Pentium M Centrino 725,1.6Ghz 14.1"XGA display, 512MB 33Mhz DDR SDRAM, 40GB Ultra-ATA hard drive, MS WIN XP PRO SP2, 8x DVD-ROM24xCD-RW Combo drive (24x24x24) D-familyFDD via USB, Integrated sound blaster, compatible audio control	140,000.00	140,000.00	JL de Dios	ASD/Weather station	Domestic Trading, Inc.	This is being attached to the portable weather station for easier processing of climatic data.	A/A	

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A05-16-1	14-Mar-06	Atomic Absorption Spectrophotometer, Varian Spectra 240FS 00-100841-00 fast sequential operation system; type: for flame; wavelength range: 185-900nm; burner type: air/acetylene burner and nitrous oxide burner; control: automatic gas flow control and gas	2,556,940.00	2,556,940.00	CA Asis	PhilRice CES	Molave Trading	This instrument is being used in the agronomic/fertility (soil and plant) evaluation of target sites selection of TDF sites, and development of site-specific technology packages.	A/C	
A05-16-2	14-Mar-06	Computer set, Pentium @ 4 SN-5BMOX2043066, 2.66GHz, 448MB RAM with CD ROM, LG710E monitor SN 509D1CROR523, 52xA4 tech mouse, PS/2 keyborad, speaker ACR-DTS, and original windows software XP Pro 2002 CNC2Y57974, and with printer HP 1020	60,000.00	60,000.00	CA Asis	PhilRice CES	Molave Trading	This is connected to AAS to process the result of agronomic/fertility evaluation.	A/A	
A05-16-3	14-Mar-06	Automatic voltage regulator, 2000 KVA, Brand Sassin (C45N) , SVC-2000VA	7,500.00	7,500.00	CA Asis	PhilRice CES	Molave Trading	This is to regulate the voltage of the equipment.	A/A	
A05-16-4	14-Mar-06	Exhaust system kit and duct	60,000.00	60,000.00	CA Asis	PhilRice CES	Molave Trading	Accessories of the equipment for proper functioning.	A/C	
A05-16-5	14-Mar-06	Air compressor with air filter unit, Vespa (green) motor #310966	10,000.00	10,000.00	CA Asis	PhilRice CES	Molave Trading		A/C	
A05-16-6	14-Mar-06	Acetylene regulator, SN-05802MMM	7,500.00	7,500.00	CA Asis	PhilRice CES	Molave Trading		A/C	
A05-16-7	14-Mar-06	Nitrous oxide regulator, SN-05602BWWW	45,000.00	45,000.00	CA Asis	PhilRice CES	Molave Trading		A/C	
A05-16-8	14-Mar-06	AAS standard solution corresponding to Hollow cathode lamps	2,600.00	41,600.00	CA Asis	PhilRice CES	Molave Trading	Reagents used for fertility analysis and evaluation.	A/C	
	14-Mar-06	Delivery charge	6,000.00	6,000.00		PhilRice CES				
A05-17	21-Mar-06	Digital Duplicator, Duplo DP23S, 60-120 copies/minute, 300x600dpi resolution, paper supply 1000 sheets (feed and receiving trays) with pedestal off-white, operating manual, SN-011265988	117,000.00	117,000.00	CA Mabayag	PhilRice Agusan	GAKKEN (Philippines), INC.San Juan,Metro Manila	Used in the reproduction of training/learning materials, and other documents related to the implementation of the project.	A/B	Serviceable, unclear printing w/ black lines
A05-18	28-Mar-06	SAS Software 9.1.3 version (TS1M30 for windows (24 pieces media) SE18 which includes Base SAS, SAS/STAT, SAS/GRAPH, SAS Enterprise Guide	712,800.00	712,800.00	PCPO/SED	PhilRice CES	SAS Institute, Phil	Used in statistical analysis of gathered data from baseline and monitoring surveys of the TDF sites.	A/D	Registration is already expired.
A05-19-1	31-Mar-06	Desktop computer, ATX casing with 300W PS, Intel P4 processor 3.0GHz 128 KB level 2 cache, 512MB memory, 64MB video card Inno3D Mx4000 Intel Chipset, D-link 530 10/1000 NIC 120 GB hard disk drive, 1.44 MB FDD, PS/2 scroll mouse and keyboard, 17" color mon	58,200.00	58,200.00	RB Miranda	PhilRice CES	FirmLinx Incorporated, Mandaluyong	Used in the preparation of training materials and reports (encoding results of survey, monitoring, and impact assessment) for the implmentation of the JICA TCP3 site in Rizal.	D	Unserviceable and condemned

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A05-19-2	31-Mar-06	Desktop computer, ATX casing with 300W PS, Intel P4 processor 3.0GHz 128 KB level 2 cache, 512MB memory, 64MB video card Inno3D Mx4000 Intel Chipset, D-link 530 10/1000 NIC 120 GB hard disk drive, 1.44 MB FDD, PS/2 scroll mouse and keyboard, 17" color mon	58,200.00	58,200.00	CA Mabayag	PhilRice Agusan	FirmLinx Incorporated, Mandaluyong	Used in the preparation of training materials and reports (encoding results of survey, monitoring, and impact assessment) for the implementation of the JICA TCP3 site in Bayugan, Agusan del Norte	A	Serviceable, CPU-for repair
A05-19-3	31-Mar-06	Desktop computer, ATX casing with 300W PS, Intel P4 processor 3.0GHz 128 KB level 2 cache, 512MB memory, 64MB video card Inno3D Mx4000 Intel Chipset, D-link 530 10/1000 NIC 120 GB hard disk drive, 1.44 MB FDD, PS/2 scroll mouse and keyboard, 17" color mon	58,200.00	58,200.00	AC Aguinaldo	PhilRice Batac	FirmLinx Incorporated, Mandaluyong	Used in the preparation of training materials and reports (encoding results of survey, monitoring, and impact assessment) for the implmentation of the JICA TCP3 site in Currimao, Ilocos Norte.	B/A	
A05-20	31-Mar-06	UPS, APC BR500VA with built-in AVR, Serial No. BB0537015966	6,900.00	6,900.00	RB Miranda	PhilRice CES	FirmLinx Incorporated, Mandaluyong	To complement the desktop computer to avoid sudden loss of data owing to brownout/block out.	A/A	
A05-21	31-Mar-06	UPS, APC BR500VA with built-in AVR, Serial No. BB0537019592	6,900.00	6,900.00	AC Aguinaldo	PhilRice Batac			C	
A05-22	31-Mar-06	UPS, APC BR500VA with built-in AVR, Serial No. BB0537018561	6,900.00	6,900.00	CA Mabayag	PhilRice Agusan			A/A	Serviceable, no defect
A05-23	31-Mar-06	Laser printer, HP Laserjet 1320, 21 pp per minute, 8.5 seconds first page, 16 MB RAM up to 144 MB, Serial No. CNMKR33465	26,780.00	26,780.00	RB Miranda	PhilRice CES	FirmLinx Incorporated, Mandaluyong	Used in generating reports and other data needed.	A/A	
A05-24	31-Mar-06	Laser printer, HP Laserjet 1320, 21 pp per minute, 8.5 seconds first page, 16 MB RAM up to 144 MB, Serial No. CNMKR33307	26,780.00	26,780.00	AC Aguinaldo	PhilRice Batac			A/A	
A05-25	31-Mar-06	Laser printer, HP Laserjet 1320, 21 pp per minute, 8.5 seconds first page, 16 MB RAM up to 144 MB, Serial No. CNMKR33462	26,780.00	26,780.00	CA Mabayag	PhilRice Agusan			A/A	Serviceable, no defect
A05-26	31-Mar-06	Computer plotter, HP Designjet 800PS 42" C7780C, Serial No. CNHJ62H01Q	345,360.00	345,360.00	AC Aguinaldo	PhilRice Batac	FirmLinx Incorporated, Mandaluyong	Used in printing posters, flip charts, and other training materials used by the JICA TCP3.	A/C	
A05-27	31-Mar-06	Computer plotter, HP Designjet 800PS 42" C7780C, Serial No. CNHJ62H01V	345,360.00	345,360.00	CA Mabayag	PhilRice Agusan			A/C	Serviceable, no defect
A05-28	31-Mar-06	LCD Projector, Panasonic PTLM2E, one touch set-up, Serial No. TB5432095, with manual and carrying case	50,470.00	50,470.00	RB Miranda	PhilRice CES	FirmLinx Incorporated, Mandaluyong	Used in on-site technology promotion and capacity enhancement activities such as training, seminars, briefings, field days. For clear presentation and delivery of rice production technologies in powerpoint and video production formats.	A/B	
A05-29	31-Mar-06	LCD Projector, Panasonic PTLM2E, one touch set-up, 1400 ANSI, Serial No. TB5432107, with manual and carrying case	50,470.00	50,470.00	AC Aguinaldo	PhilRice Batac			A/B	
A05-30	31-Mar-06	LCD Projector, Panasonic PTLM2E, one touch set-up, 1400 ANSI, Serial No. TB5432069, with manual and carrying case	50,470.00	50,470.00	CA Mabayag	PhilRice Agusan			A/B	Serviceable, no defect

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A05-31	24-Mar-06	Van, Nissan Urvan Shuttle (15-seater), 2006 model, TD27 diesel engine, 5-speed manual transmission, CD player, 1 set standard tools, 5 pieces 195 R14 tires, Serial No. TVP4LEFE24-A31023, Engine No. TD27-772477, color white	1,019,000.00	1,019,000.00	RB Bajit	PhilRice CES	Nissan UN Avenue	To ferry staff, trainees, supplies, and equipment during the conduct of training, establishment of Techno Demo farms (TDF), and monitoring activities in the site. A 4x4 unit of vehicle is need for better transportation in rugged roads, particularly in the	A/A	
A05-32	24-Mar-06	Van, Nissan Urvan Shuttle (15-seater), 2006 model, TD27 diesel engine, 5-speed manual transmission, CD player, 1 set standard tools, 5 pieces 195 R14 tires, Serial No. TVP4LEFE24-A31341, Engine No. TD27-774947, color white	1,019,000.00	1,019,000.00	RC Castro	PhilRice Batac	Nissan UN Avenue	To ferry staff, trainees, supplies, and equipment during the conduct of training, establishment of Techno Demo farms (TDF), and monitoring activities in the site. A 4x4 unit of vehicle is need for better transportation in rugged roads, particularly in the	A/A	no DR, SI
A05-33	31-Mar-06	Pick-up, Nissan Frontier III, 2006 model, 4x4S M/T, with QD32 diesel engine, 4 cylinders in-line OHV, CD player, 1 set standard tools, 5 pieces 235 R15 tires, Serial No. CVRULFFD22-F17184, Engine No. QD32-215286, color white	1,182,000.00	1,182,000.00	RC Castro	PhilRice Batac	Nissan UN Avenue		A/A	
A05-34	31-Mar-06	Pick-up, Isuzu D-MAX, 2006 model, 4x4 (turbo intercooler) crew cab, double cab, diesel engine, 4 cylinders in-line OHV, CD player, 1 set standard tools, 5 pieces 245/70 R16 alloy tires, Serial No. CVRULFFD22-F17184, Engine No. QD32-215286, color white	1,371,800.00	1,371,800.00	CJM Tado	PhilRice Agusan		To ferry staff, supplies, and equipment during the conduct of training, establishment of Techno Demo farms (TDF), and monitoring activities in the site. A 4x4 unit of vehicle is needed for better transportation in rugged roads, particularly in the farms.	A/A	Serviceable, no defect
A05-35	3-May-06	Tractor, New Holland TT55, 4-wheel drive with rollover protective structure (ROPS), grease gun, hydraulic jack, T-handle, impact socket 24 mm, Engine: Model Iveco 8000 series; Type: direct injection, rotary injection pump, liquid cooled, 4 cycle, diesel,	950,000.00	1,900,000.00	CJM Tado/ RC Castro	PhilRice Batac/ PhilRice Agusan (SN#250867; E#715-004468N)	Sime Darby Phil	Used in land preparation and farm maintenance of technology demonstration sites and experimental farms.	A/B for Batac A/C for Agusan	
A05-35-1	29-May-06	Accessories: drawbar with devis, standard tool set, canopy for 2-post ROPs, 1 set of weights-2280 kg (30 kg x 5 front, 55 kg x 2 rear); Rotary Tiller: HR 39/180 model with 180 cm working width, 4-speed or more, and for 540 rpm PTO gear box, 42 blades; dis	39,000.00	78,000.00	CJM Tado/ RC Castro	PhilRice Batac/ PhilRice Agusan			A/B for Batac A/C for Agusan	
		Sub-Total (Locally Purchased)		14,092,544.00						
		Total (FY 2005)		14,092,544.00						

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FY 2006 (APRIL 2006-MARCH 2007)										
A. Locally-Purchased										
A06-01	19-Dec-06	Kern, Precision Balance, Model: 572-49 w/ DC adaptor, calibration block 5 kg, manual, SN: W063389/W062342	56,250.00	112,500.00	A. Estoy	PhilRice Agusan	BP Integrated Technologies	Used in weighing samples.	A/B	Serviceable, no defect
A06-02	19-Dec-06	Nitrogen Analyzer, Gerhardt, Model: KB 20 S package includes: (1 unit) KD20 S Gerhardt Kjedatherm Digestion System, w/ 20 pcs. digestion tubes, SN 4062366; (1 unit) TR Gerhardt Electric Controller, SN 4061828; (40 pcs.)digestion tubes 250 ml.; (1 unit)	1,951,225.00	1,951,225.00	EF Javier	PhilRice CES	BP Integrated Technologies	This instrument is needed in agronomic/fertility (soil and plant) evaluation of target sites, selection of TDF sites and development of site-specific technologies technology packages. It can rapidly analyze the common soil micronutrients, particularly	A	
A06-03		Titrator, Mettler Toledo: Mettler Toledo Graphix Autotitrator, model:: DL50, printer cable, RS cable, software (CD) (LAbXlight) key# 443020FC-933-305091, compact stirer w/ 1 pc spare, 10 pcs. 250 ml Pyrex titration vessel, SN 5127402699; pH Glass electro							A	
A06-04	11-Dec-06	Stereomicroscope w/ olympus digital camera NVT Zoom stereomicroscope SN 520024, adapter stand for digital camera; stage plate; transmitted flourescence illumination; 10X eyepiece; and Olympus digital camera E-500, SN A80509362; YES IGB Compact Flash Card	87,833.00	87,833.00	CM Tado	PhilRice Agusan	BP Integrated Technologies	For documentation of insect specimens in insect pest forecasting.	A/B	Serviceable, no defect
A06-05	11-Dec-06	Stereomicroscope w/ olympus digital camera NVT Zoom stereomicroscope SN 520030, adapter stand for digital camera; stage plate; transmitted flourescence illumination; 10X eyepiece; and Olympus digital camera E-500, SN A80509360; YES IGB Compact Flash Card	87,833.00	87,833.00	CM Tado	PhilRice Agusan	BP Integrated Technologies	For documentation of insect specimens in insect pest forecasting.	A/B	Serviceable, no defect
A06-06	11-Dec-06	SHLWS LW500T, Microscope w/ Olympus Digital Camera: LW 500T SN 304263; 1 trinocular tube; 1 quintuple revolving nosepiece; 1 ceramic mechanical stage; 1 specimen holder/clip; 1 swing-out condenser NA 0.9-0.16; 1 lamp socket; 1 PLN4x Plan Achromat Objectiv	108,992.00	108,992.00	CM Tado	PhilRice Agusan	BP Integrated Technologies	For examination of pollens and microorganisms.	A/B	Serviceable, no defect
A06-07	11-Dec-06	Vision Scientific Incubator, model: VS 1203P4 SN E12151FJ0001/E12151FJ0002, operations manual, hydrolog NT2-D datalogger w/ extension cable 7 sensors SN: 47433-003/SN: 47433-002	562,752.00	1,125,504.00	CM Tado	PhilRice Agusan	BP Integrated Technologies	For drying and storage of seed samples and insect specimens.	A/A and A/B for the other unit	Serviceable, no defect

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A06-08	11-Dec-06	Grain Moisture Tester, Kett grain moisture tester Model: PM600 SN AF00415, w/ sample tray, tester, brush, small brush, spoon & operation manual	36,000.00	36,000.00	CM Tado	PhilRice Agusan	BP Integrated Technologies	For testing moisture of grain.	A/C	Serviceable, no defect
A06-09	11-Dec-06	Oakton WD-37250-10 two speed Hygrothermograph, SN 567410/SN 567406, chart paper degC 1-day & 7-day rotation (100/pack); felt-tip pens, blue (6/pack), felt-tip pens, red (6/pack)	88,742.00	177,484.00	CM Tado	PhilRice Agusan	BP Integrated Technologies	For monitoring temperature and relative humidity in relation to pest forecasting.	A/A	Serviceable, no defect
A06-10	11-Dec-06	Horiba Instrument pH Meter: pH electrode model: 9621-10D SN: 6030962; DO Electrode Model: 9551-10D SN 308006; ORP Electrode Model: 9300-10D SN 609001, English manual, Horiba pH meter model: D-55E SN S602011	110,939.00	110,939.00	CM Tado	PhilRice Agusan	BP Integrated Technologies	For measuring the pH of the soil in the techno demo sites.	A/C	Serviceable, no defect
A06-11	11-Dec-06	Vision scientific laminar flow cabinet: Vision laminar flow cabinet, Model: VS 1400LHN, SN E26314FK0003, base stand, operation manual	276,621.00	276,621.00	CM Tado	PhilRice Agusan	BP Integrated Technologies	For clean/aseptic place to work on.	B/B	Serviceable, no defect
A06-12	11-Dec-06	Vision Scientific Autoclave: Vision Autoclave, Model: VS-1321-60, SN E23361FK0001, drainage hose, drain tank, wire basket & operation manual	346,736.00	346,736.00	CM Tado	PhilRice Agusan	BP Integrated Technologies	To sterilize glasswares and culture media.	A/C	Serviceable, no defect
A06-13	30-Nov-06	Weather station, Davis instrument, model: 6163; 1 unit wireless Vantage Pro2 plus w/ UV & solar radiation sensor SN - A60809D31D; 1 unit weatherlink for Vantage Pro2, Window, USB, SN B6028J38, 1 unit soil moisture/temperature station; 1 unit leaf wetness	328,112.50	328,112.50	RS Castro/ND Ganotisi/EP Agres	PhilRice Batac	BP Integrated Technologies	Portable Weather Station is needed in climatic characterization of target sites; in developing site-specific technologies. Climatic data generated by this instrument provide very important local climatic data for our Technology Demonstration Farms (TDF)	A/A	
A06-14	30-Nov-06	Weather station, Davis instrument, model: 6163; 1 unit wireless Vantage Pro2 plus w/ UV & solar radiation sensor SN - A60926D91D; 1 unit weatherlink for Vantage Pro2, Window, USB, SN B60628P32, 1 unit soil moisture/temperature station; 1 unit leaf wetness	328,112.50	328,112.50	RS Castro/ND Ganotisi/EP Agres	PhilRice Batac	BP Integrated Technologies		A/A	
A06-15	26-Mar-07	Cooler, Copeland, hermetically sealed compressor w/ a coooling capacity of 5300 watts when operating at +2 deg. C suction 55 deg. C condensing aircooled using R22 or R34, w/ matching blower type evaporator w/ reheat bank for proper humidity control off cy	315,000.00	315,000.00	GO Romero	PhilRice CES (Genebank)	Eikoh Trading Co., Inc.	To be installed at drying room to maintain the temperature at 8-10°C with a humidifier to hold the humidity at 10-15%RH that will allow high-throughput initial drying of panicles to 10-15%MC.	A/A	

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A06-16	26-Mar-07	Airconditioner, Panasonic CS/U-C24E, Split/wall-mounted type, 2.5hp capacity, 1ph ACU, 220VAC, 60Hz, Auto refresh deodorizer, super alleru buster filter(ionizer), super sonic air purifying system SN 7180900723, SN 718900648	57,000.00	114,000.00	GO Romero	PhilRice CES (Genebank)	Eikoh Trading Co., Inc.	To be installed at seed laboratories to keep the temperature at 20-22°C and to provide normal working conditions for the laboratory staff involved in seed registration, preparation of seed files and panicle files, and seed preparation for planting.	A/A	
A06-17	26-Mar-07	Airconditioner, IDEC, Split type, capacity: 2.5 hp, 1 ph ACU, power reqt: 220 VAC, 60 hz on/off timer, blue fines condenser, random auto start, SN CIW6167523-indoor,SN CIW6167580-outdoor and SN CIG6373719-indoor, SN CIG6700191-outdoor	47,000.00	94,000.00	GO Romero	PhilRice CES (Genebank)	Eikoh Trading Co., Inc.	to be installed at packaging room to keep the temperature at 16-18°C; to have an effective seed preservation system.	A/A	
A06-18		Generator, Perkins Diesel Electric Genset w/ enclosyre, silent type, soundproof, sound level 60-65 db@ 7-10 m, 220v, 3 phase, 3 wire	824,000.00	824,000.00	CM Tado	PhilRice Agusan	Eikoh Trading Co., Inc.	To have a reliable source of electrical power for continuity of activities, and protect sensitive equipment from power fluctuations.	A/C	Serviceable, no defect
A06-19	15-Feb-07	Stereo Microscope w/ digital camera type-binocular; data-formats-bmp, jpg, avi, mig (for recording); lamp-halogen bulb; digital camera-compatible, 6.1 mega pixel w/ 3x optical zoom, 512 MB memory card, w/ 1x magnification lens, w/ adaptor and manual, CD	87,833.00	87,833.00	RC Castro/E Agnes	PhilRice Batac	BP Integrated Technologies, Inc.	Used in examining and documenting microscopic specimens/samples of pests and diseases from techno demo farms of TCP 3 project.	A/C	
A06-20	15-Feb-07	Portable Soil Temperature, Genea, moisture content salinity:range of readings- soil moisture 0 to 100%, repeatability-+/-2cS/m, soil temperature-+/-1.5°, soil accuracy-+/-10cS/m, displays-w/ 30 satinless steel probe, clay, loam, & sand scales printed on m	141,371.00	141,371.00	RC Castro/N. Ganotisi	PhilRice Batac	BP Integrated Technologies, Inc.	Used in field measurements of soil moisture, temperature and salinity to support R&D activities to make adverse environment productive, for generation of location-specific soil, water and nutrient management technologies.	A/B	
A06-21	21-Feb-07	Portable Weather Station, Davis Instruments, Wireless Vantage Pro Plus, model: 6163, Serial No. A61024A701, w/ fan aspirated shield, outdoor sensor suite, indoor console, mounting tripod and weather link software	300,000.00	300,000.00	FL Varquez	PhilRice Agusan	BP Integrated Technologies, Inc.	This is used to characterize climatic conditions of target sites that will help PhilRice develope technologies that are site-specific under the activity. Climatic data generated by this instrument will provide very important local climatic data	A/A	Serviceable, no defect
A06-22	21-Feb-07	Hand Held Multi-Parameter, dissolved oxygen (DO) electrode, model: 9551-20D, Serial No. 308005, standard pH electrode, model: 9621-10D, Serial No. 6030961, Platinum Combination Type Electrode, model: 9300-10D, Serial No. 613002, Horiba pH/ ORP/ temperature.	111,100.00	111,100.00	FL Varquez	PhilRice Agusan	BP Integrated Technologies, Inc.	Used in characterizing soil pH, reduction condition and conductivity of different demo sites to be established.	A/A	Serviceable, no defect

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A06-23	21-Feb-07	Moisture meter, Dickey John, portable multi-grain moisture tester, model: MGT, Serial No. 1238-13608, operation principal; capacitance method; measuring range: 3%-47% accuracy; +/- 0.5%, resolution 0.10%; power source: 4AA batteries; dimension: 120Hx80mm s	36,000.00	36,000.00	RL Berganio	PhilRice Agusan	BP Integrated Technologies, Inc.	Used in determining moisture content of paddy samples as important parameter in storing and milling.	A/C	Serviceable, no defect
A06-24	21-Feb-07	Compact load cell type weigher, Shimadzu, Toploading balnce, model: ELB3000, Serial No. D516201861, 3L or 3kg; minimum increment: 0.1g; power source: Ac/Dc operation; reference model: Shimadzu ELB3000	49,000.00	49,000.00	DB Bastasa	PhilRice Agusan	BP Integrated Technologies, Inc.	Used in weighing small samples like rice grains from screening/evaluation of promising lines.	A/B	Serviceable, no defect
A06-25	14-Mar-07	Digital camera, Nikon D200, SLR, SN 6019962, includes EN-EL3e rechargable Li-Ion battery (with thermal cover), EG-D100 video cable, UC-E4 USB cable, BM-61 CD monitor cover, MH-18a Quick Charger (with power cord), AN-D200 strap, DK-5 eyepiece cap and manual	98,000.00	98,000.00	Carlito N. Bibal/Erik Ray Matthew S. Palomar	PhilRice CES	Eurocom Enterprises		A/B	Additional
A06-26	29-Mar-07	Moisture meter, Model: MGT Brand: Seedboro, SN 46233124751, measure by microcomputer, automatic calibration, auto-temperature compensation switch off (3 min later after no use), large LCD display, average data available, measuring range 8.0%-30.0%, accuracy	36,000.00	36,000.00	GO Romero	PhilRice CES	BP Integrated Technologies, Inc.	For testing dry seed before putting in the genebank.	A/B	Additional
A06-27	29-Mar-07	Oven, Model: VS-1202D3 Brand; Vision Scientific SN E25326GB000, Microprocessor control featuring fixed settings programmable thru dedicated operation menu key or up & down keyboard function, 30 step 3-pattern program controller w/ repeat function included	125,000.00	125,000.00	GO Romero	PhilRice CES	BP Integrated Technologies, Inc.	For drying of seed samples that can be kept for future use.	A/C	Additional
A06-28	28-Mar-07	Electric Steam Sterilizer, Part No. 1078535, model: 25X-2, Serial No. 0008845, aprox. 8 1/2"H x 11 1/8" diameter, max temp. 259'F, Power 220V; dimensions: aaprox 16 3/4"H x 12 1/2" diameter	111,884.00	111,884.00	RS Castro/EP Agres	PhilRice Batac	BP Integrated Technologies, Inc.		A/B	
A06-29	29-Mar-07	Temperature/humidity data logger, Part No. A-37003-03, measures RH, temperature, and dew point & displays all three parameters simultaneously on the easy-to-read LCD	80,100.00	80,100.00	FL Varquez	PhilRice Agusan	BP Integrated Technologies, Inc.	Used in measuring relative humidity, temperature, dew points for easy access and retrieval.	A/B	Serviceable, no defect
A06-30		"Lakas Kuliglig Rotary Reaper", discs & blades: rotary cutting device, 3 discs, w/ 3 blades; cutting width: 1.2 meter; capacity: 3 hectares/day; engine: 6 HP gasoline engine Model: LK1200RR	100,000.00	100,000.00	FL Varquez	PhilRice Agusan	PI Farm Products, Inc.	To facilitate harvesting and threshing in the techno demo sites.	A/C	Serviceable, no defect (IGO responsible)
		Delivery charge		13,300.00						Charge to Agusan

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A06-31	13-Mar-07	Desktop computer, processor: intel pentium D dual core(3.44 GHz); memory: 1 GB DDR-400 memory, HDD; 250 GB; optical DRIVE: DVD R/RW; floopy drive: 1.44 MB, 3.5 inch; video card: 256 MB ATI Radeon; network controller: 10/100/1000 mbps ethernet; monitor: 17	68,500.00	68,500.00	AT Montecalvo	PhilRice Agusan	MicroPacific Technologies & Systems Corp.	To improve storage and retrieval of germplasm characteristics in selecting materials for breeding	A/A	Serviceable, no defect
A06-32	13-Mar-07	Statistical Analysis Software: SAS JMP ver. 6; software: run on thw Windows XP, graphical windows for data entry, analysis procedure and results display	80,380.00	80,380.00	AT Montecalvo	PhilRice Agusan	MicroPacific Technologies & Systems Corp.	Used in statistical analysis of gathered data from baseline and monitoring surveys of the TDF sites.	A/C	Serviceable, no defect
		Delivery charge								Charge to Agusan
A06-33	3/8/2007	Interactive Learning System (software), Type: Computer-based training tool, computerized classrooom teachig using remote control technology, E-learning classroom w/ 1 teacher & 30 students or more + class server, one teacher to many student configuratio	144,000.00	144,000.00	Ronan Zagado	PhilRice CES	SIM Computer Sales, Inc.	for easier mode of training of extension workers, project planners and implementers of LGUs and other workers as part of the enhancing capability activity of the project.	A/C	
A06-01	1-Mar-07	TV Monitor, required, 29", color monitor, 220V, w/ remote control	19,587.00	19,587.00	AT Montecalvo	PhilRice Agusan	Eurocom Enterprises		A/C	Serviceable, no defect
A06-34	1-Mar-07	Sound system, required 150w power amplifier or more w/ tripod 9v rechargable battery w/ conector for car battery & 2 wireless microphones	139,000.00	139,000.00	AT Montecalvo	PhilRice Agusan	Eurocom Enterprises		A/C	Serviceable, no defect
A06-35	1-Mar-07	Generator set, gasoline, aprox. 2.5 KVA maximum output, 2.2 KW rated output, single phase, revolving field type, 60 Hz, 20/10 amp, 10/220V, insulation class B, direct coupled to gasoline engine w/ approx. 14 liters tank capacity, appprox. 1.5 liters per h	57,000.00	57,000.00	AT Montecalvo	PhilRice Agusan	Eurocom Enterprises		A/C	Serviceable, no defect
A06-36		LCD, Panasonic PT-LB50SE LCD Projector, 220V, at least 800x600 SVGA resolutio 2000 ANSI Lumens, 2 kg. weight w/ standard accessories: carrying case, audio/video cables, power cable & remote control	68,000.00	68,000.00	RP Bondad	PhilRice Agusan	MicroPacific Technologies & Systems Corp.		A/B	Serviceable, no defect
A06-37		Drop down Screen 70"x70"	5,100.00	5,100.00	AT Montecalvo	PhilRice Agusan			A/C	Serviceable, no defect
A06-38		Laptop computer, Acer Travelmate 3262 WXMI Intel Core Duo Mobile Technology (1.66Ghz 667FSB) 220V, 60GB IDE HDD, Windows XP Home, built-in super multi-double layer drive (52x CD winter) built-in 56 K modem, built-in 10/100 mbps LAN, built-in audio & video	71,200.00	71,200.00	CM Tado	PhilRice CES	MicroPacific Technologies & Systems Corp.		A/C	Serviceable, no defect

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A06-39		Testing Mill, Satake TM-05C(Brand New); built-in motor capacity: 1/3HP or 0.4 KW, 4P; capcity (brown rice): 200 grams; speed: minimum of 800 rpm for short grain brown rice	216,546.00	216,546.00	DB Bastasa	PhilRice Agusan	BP Integrated Technologies, Inc.			cancelled; NOT DELIVERED
A06-40	29-Mar-07	Seed Blower; Seedburo 757/A (Brand New), type: columnar blower; accessory: small tube, 1 1/2 & 3" column 1 pc., large tube, 4" column, 1 pc..; motor: 1/3HP, 3450 rpm	230,906.00	230,906.00	DB Bastasa	PhilRice Agusan	BP Integrated Technologies, Inc.		A/C	Serviceable, no defect
		Delivery charge		210,000.00						Charge to Agusan
A06-41	29-Mar-07	Testing Rice Husker, (Laboratory Huller), KH Series "KETT", Serial Number 005; rubber roll type husker, capacity: (paddy)/hr-50kg/hr, 400w, 1phase, 1900rpm, follow power 1000pm, size 700x700x240cm, 55kg	247,000.00	247,000.00	TF Padolina	PhilRice CES	Aspen Multi-System Corp.	for dehulling rice small samples	A/C	Additional
A06-42	29-Mar-07	Sony Digital HD Video Camera Recorder, Model: HVR-Z1N	406,300.00	406,300.00	Carlito N. Bibal/Erik Ray Matthew S. Palomar	PhilRice CES	Solid Video Corporation	for production of learning materials to be used in training and other related extension activities of the TCP3 project.	A/B	
A06-43	29-Mar-07	Sony Digital HD Video Cassette Recorder, Model: HVR-M25N	279,500.00	279,500.00		PhilRice CES	Solid Video Corporation		A/B	
A06-44	29-Mar-07	Vinten Professional Camera Tripod, Model: Pro-10DC, Features: Professional Quality Camera Control, Continuously Variable Fluid Drag, Illuminable Levelling Bubble, Exceptional Rigidity	82,350.00	82,350.00		PhilRice CES	Solid Video Corporation	Accessories of the equipment for proper functioning.	A/B	
A06-45	29-Mar-07	Vinten Tripod Dolly, Model: U005-103 PD114,	20,700.00	20,700.00		PhilRice CES			A/B	
A06-46	29-Mar-07	Sony Hard Carrying Case, Model: LCH-FXA	21,000.00	21,000.00		PhilRice CES			A/B	
A06-47	29-Mar-07	Sony Wide Conversion Lens, Model: VCL-HG0872	34,500.00	34,500.00		PhilRice CES			A/B	
A06-48	29-Mar-07	Sony Battery Charger for NP-F960, Model: AC-V700A	8,000.00	8,000.00		PhilRice CES			A/B	
A06-49	29-Mar-07	Infolithium Rechargable Battery Pack, Model: NP-F970	9,000.00	9,000.00		PhilRice CES			A/B	
A06-50	29-Mar-07	Max Compact Corner Professional Video Editing Table, Model: CR-81	66,500.00	66,500.00		PhilRice CES			A/B	
A06-51	29-Mar-07	MATROX RT.X2 HDV/DV Video Editing Card	518,800.00	518,800.00		PhilRice CES			A/B	
		Delivery Charge		21,000.00						
A06-52	23-Mar-07	Mobile Training Van, 2007 Nissan Urvan (Shuttle), type: commuter van 2.7 diesel MT, engine type: diesel, TD27 4-cylinder, in-line, OHV (overhead valve), water cooled, VE type injection with all speed control type governor, fuel: diesel, seating capacity:	992,000.00	992,000.00	LA Hidalgo	PhilRice CES	0		A/C	
		Sub-Total (locally purchased)		11,731,349.00						

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B. Shipped from Japan/Brought by Experts										
B06-01	28-Nov-06	Rice planting machine, 4-row, Minuro Model RX410 with 8 pcs tray holder, plastic cover, 3-pcs operator's manual	865,063.48	865,063.48	TF Padolina/V Alata/E Arocena	PhilRice CES		For faster and easier transplanting activity of rice lines in screening/ evaluation and in techno demo trials of the project.	A/C	
B06-01-01		Rice seeding box, plastic, 32 x 14 holes, black, 30 pieces/box			TF Padolina/V Alata/E Arocena	PhilRice CES			A/C	
		Sub-Total (Brought by Experts)		865,063.48						
		TOTAL (FY 2006)		12,596,412.48						
FY 2007 (APRIL 2007-MARCH 2008)										
A. Locally-Purchased										
A07-01	28-Aug-07	Desktop Computer, Intel Core 2 Duo E6600 2.4 GHz 1066 MHz, Asus P5B-A A/L OS motherboard, Windows Vista Ultimate OEM, 2 x 1 GB DDR2 800, 2 x 250 GB HDD SATA 7200 rpm, 18 x DVDRW-RW double layer with lightscribe technology, Inno3D 8800 GTS 320 MB DDR3 320bit, 56K v.92 internal modem, A4 Tech keyboard KBS-720, USB optical mouse, Altec Lansing speaker-Serial #71050FDEU0318257, MS Office 2007 Pro OEM, Serial # KX622-TP3W3-FGFRT-XKWWD-MX9V3, 22" Viewsonic widescreen TFT active matrix LCD Serial 3 QK7071300045	104,000.00	104,000.00	Gabriel O. Romero	PhilRice CES-Genebank	e-County Enterprises, Caloocan City	For processing and database management of genebank accessions.	A/A	
A07-02	28-Aug-07	Laser printer, HP Laserjet 1022, 1200x1200dpi, 19ppm 8MB RAM, 250 sheet input capacity, Serial# VNRJ6D7020	19,900.00	19,900.00	Gabriel O. Romero	PhilRice CES-Genebank	e-County Enterprises, Caloocan City	For printing of data of genebank accessions.	A/A	
A07-03	28-Aug-07	Desktop Computer, CPD Processor AMD Athlon 64x2 3800 Amz, Motherboard MSI K9n Neo-F Audio and LAN, 512 MB 2 module Kingston PC533 w/ 1 parallel printer port and 1 serial communication port, 160GB HDD Stata 7200rpm, Inno 3D GE Force 7300 GT 256MD DDR3 ATX Casing with lightscribe technology, A4 Tech mouse and keyboard, windows Vista Ultimate Software Microsoft Office 2007 Pro, Monitor Samsung 17"LCD 740N Serial# HA17HMDP600313	62,350.00	62,350.00	Ruben Mirenda	PhilRice CES-TMS	e-County Enterprises, Caloocan City	To be used for data inputting, materials preparation, and report preparation for the JICA TCP3 and other related projects.	A/A	
A07-04	28-Aug-07	Desktop Computer, CPD Processor AMD Athlon 64x2 3800 Amz, Motherboard MSI K9n Neo-F Audio and LAN, 512 MB 2 module Kingston PC533 w/ 1 parallel printer port and 1 serial communication port, 160GB HDD Stata 7200rpm, Inno 3D GE Force 7300 GT 256MD DDR3 ATX Casing with lightscribe technology, A4 Tech mouse and keyboard, windows Vista Ultimate Software Microsoft Office 2007 Pro, Monitor Samsung 17"LCD 740N Serial# HA17HMDP600313	62,350.00	62,350.00	Leo Javier/Anita V. Antonio	PhilRice CES-TMS	e-County Enterprises, Caloocan City	To be used for data inputting, materials preparation, and report preparation for the JICA TCP3 and other related projects.	A/A	

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A07-05	5-Sep-07	Laptop Computer, IBM Lanova Thinkpad X60 Part No. 1709PGA Processor, Intel Core 2 Duo T5600 (1.83GHz) 2MB Cache Memory, 2MB L2, FSB 557 MHz Memory min/max: 512MB PC2-5300 667 MHz DDR2/4GB Hard disk 80 GB 5400rpm, SATA; Chipset: Intel 945GM Pointing Device: IBM Trackpoint; Audio Intel HD Audio Optical drive: Lanovo USB 2.0 Super Multi-Burner drive Video memory: INtel Graphics media accelerator 950 modem/Network; Intel 802 11a/b/g, modem (CDC) 56kv.92 modem, 1GB ethernet (LOM); Bluetooth, wireless switch Monitor, 12.1 1024x768 TFT LCD, weight: 1.65 kg; Thinkvintage Rescue&Recovery, active protection sys. Client security SOft: Software: MS Office 2007 Pro OEM OS: Windows Vista Business 32; expansion slots: A7C adapter, external mic, RJ-11, 3USB, SD slot; Battery: 8 cell LI-ion.	105,500.00	105,500.00	Artemio B. Vasallo	PhilRice Agusan	e-County Enterprises, Caloocan City	To be used in the presentation/lectures/seminars; To be used for data inputting, materials preparation, and report preparation for the JICA TCP3 and other related projects.	A/A	Seviceable, no defect
A07-06	5-Sep-07	Desktop Computer, CPD Processor AMD Athlon 64x2 3800 Amz, Motherboard MSI K9n Neo-F Audio and LAN, 512 MB 2 module Kingston PC533 w/ 1 parallel printer port and 1 serial communication port, 160GB HDD Stata 7200rpm, Inno 3D GE Force 7300 GT 256MD DDR3 ATX Casing with lightscribe technology, A4 Tech mouse and keyboard, windows Vista Ultimate Software Microsoft Office 2007 Pro, Monitor Samsung 17"LCD 740N Serial# HA17HMDP600313	60,850.00	60,850.00	Artemio B. Vasallo	PhilRice Agusan	e-County Enterprises, Caloocan City	To be used for data inputting, materials preparation, and report preparation for the JICA TCP3 and other related projects.	A/A	Seviceable, no defect
A07-07	09/27/07	Analytical balance, Sartorius TE14S, Features: with 7 segment display, stability indicator and 4 selectable filter levels, plus oprimized display update rate; Built-in application programs: net total formulation weighing in percent, averaging, counting, mass unit conversion by toggling, dynamic weighing; Glass draft shield; Robust durable housing; Lug for attaching an antitheft locking device; Overload protection; dust cover; Bidirectional RS-232 data interface port for PC connection supplied with 1 pice Class F1 100 g weight; Readability: 0.1mg (0.0001 g); Linearity (Accuracy): <+/-0.2 g; Repeatability (SD): <+/-0.1mg; Pan size: approximately 90 mm stainless steel; Calibration weight: 100 g included; Power supply: 220V with autovolt AC adapter; Capacity:210 g; Tare range (subtractive) 210 g	75,000.00	75,000.00	GO Romero	PhilRice CES-Genebank		For weighing samples before and after drying, and before storing	A/C	

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A07-08	10-Oct-07	Moisture Meter, Seedburo, Model MGT; Instant accurate readings for 12 different grains; Auto-temperature compensation; Measuring range: 8.0% - 30%; Large LCD Display; Net weight: 3 lbs; Ship wt: 5 lbs; Accuracy: +/-0.5%; Reaction time: approximately 5 sec; Power source: battery or adpater; Sample weight: 250 cc; Dimension: 8"L x 4.5"W x .8"H; Ship dimensions: 12"L x 8" W x 11"H	32,215.00	32,215.00	RCCastro/	PhilRice Batac		To gather moisture content of grains during the harvestime of the 38 TDFs and FPs of the JICA TCP3 project in Currimao and Cabugao, I.N. for better estimation of yield.	A/C	
A07-09	10-Oct-07	Weighing Balance, Sartorius, Model: TE 2101; Type: electronic top loading, digital weighing gbalance; Capacity: 0-1500 g or more; Readability: 0.1 g; Repeatability (STD): 0.1 g; Linearity (Accuracy): +/-0.1 g; weighing units: g, kg; Application modes: net total formulation, weighing in percent, counting, mass unit conversion by toggling, dynamic weighing; Calibration: External, digital calibration from keypad; Power: batteries or AC; Targe range: (subtraction) 2100 g; Stabilization time: less than 3 seconds; Dimensions (WxHxD) approximately 7.8" x 10.6" x 2.7" (19.2 x 5.4 x 21 cm); Pan size: approximately 6.8" x 5.6" (174 x 143mm); Operating Temp: 10°-40°C with 7-segment display, stability indicator and 4 selectable filter levels plus optimized display updale rate.	21,000.00	21,000.00	RCCastro/	PhilRice Batac		Very useful in gathering accurate data on rice and vegetables harvest of he 38 TCP3 TDFs and FPs of the JICA TCP3 project in Cabugao and Currimao.	A/C	
A07-10	25-Oct-07	Pipettor, Brand, Model: Transfer Pett; Volume: 0.5-5 ml; Increments: 0.5ml; Accuracy: +/-0.8%; Reroducibility: 0.20%; Others: Tip ejector with blow-out step; Autoclavable tipe cone and lower section assembly with tips (bulk) for 1-5ml; Type: Adjustable volume pipettors.	18,769.00	56,307.00	AB Estoy	PhilRice Agusan		for dispensing chemicals, culture media for production of insect or pathogen	A/A	Serviceable, no defect

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A07-11	8-Jan-08	Single Grain Moisture Meter, Kett, Model: PQ-510; Portable such that the unit can be brought to the field and operated using automobile/car DC; Types of grain: paddy, 11-35%; Measuremnt principle: electrical resistance; Measurement precision: +/-0.5; Measurement Display: 100 grains/50 sec (polished or unpolished rice); Digital (LED numeric &histogram display); Date displayed: Ave. mositure content, number of grains, time histogram, moisture distribution; Operating environment: 0-40°C or more; Temp correction: Autotemp correction by themistor; external output: Standard RS-232C; Printer: VZ-300 with date & time printed, moisture content data, standard deviation, histogram; Accessories: printer cable, AC adapter for printer paper and large kernels: Other features: capable of measuring pre-determined number of kernels from 20-800 kernels per batch of sample; Capable of interfacing with a PC for auto data logging in computer; Power source: AC 220V/60Hz and also can be powered by a DC source such as a battery of dry cells or a portable car battery; Approximately 197mm (W) x 204mm (D) x 305mm (H); 6.0 kg.	430,000.00	430,000.00	GO Romero	PhilRice CES		To be used in rice varietal improvement for fissure resistance, and pre-harvest and post-harvest evaluation of grain quality parameters or factors, such as uniformity of grain maturity at harvest (index will be relative distribution of MC of individual grains in whole panicle samples) critical MC values at harvest for prevention of fissure occurrence, effect of MC distribution on uniformity and efficiency of drying, which eventually will affect the variety's or line's milling qualities, such as head rice yield, total milling recovery, chalkiness and whiteness index.		
A07-11	8-Jan-08	GPS, Garmin, Model: 76CSx; Waypoints/icons: 500 with name and graphic symbol, 10 nearest (automatic), 10 proximity; routes: Automatic turn-by-turn routes; 20 manual point-to-point routes with up to 50 points each; Tracks/point: Automatic track log; 10 saved tracks let you retrace tour path in both directions; Trip computer: Resettable odometer, timers, average and maximu speeds; Alarms: Anchor drag, approach and arrival, off course and proximity waypoint; Map datums; More than 100, plus user datum; Position format: Lat/Lon, UTM/UPS.	48,215.00	144,645.00		PhilRice CES, Agusan, and Batac		To gather coordinates of Palayamanan sites (exact location), on-farm trial sites and other project sites in Central Luzon, Agusan, and Batac		Serviceable, no defect
A07-12	02/15/08	Oven, LMS vision, Model: VS 1202D4N; Capacity: approximately 250 liters; Circulating Method: Mechanical convection; Temp range: approximately 5-220°C; Control type: PID; No. of shelves: includes 4 shelves; Chamber size: approximately 23-1/2" W x 20 MH x 39-1/2"D; Temp accuracy: +/-1°C at 150°C; Construction: stainless steel; Power:220 VAC 50/60 Hz, approximately 9.5 Amps	200,000.00	200,000.00	RCCastro/	PhilRice Batac		For drying soil and plant samples needed in our experiments.	A/C	
		Sub-Total (locally purchased)		1,374,117.00						
		TOTAL(FY 2007)		1,374,117.00						

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FY 2008 (APRIL 2008-MARCH 2009)										
A01-01	4-Jun-08	HONDA MOTORCYCLE XRM 125, 124 cc	62,450.0	62,450.0	AB Vasallo	PhilRice Agusan		For increased mobility of project staff to project sites.	A/A	
A08-02	12-Aug-08	Digital Duplicator with Consumables: DUPLO DPS 850; Print Quality: D600x600dpi; print speed: 45-159ppm five steps variable from control panel 45, 60, 90, 135, 150ppm; print area: 290x423mm (maximum); paper size: Dual color print 182-257mm; User interface: LCD tocu panel with progress arrow indicators; image processing mode: Line, Photo, text/photo (2 types), pencil, screen (2 types); print ratio: preset enlargements 115% preset reductions 86%, 81%, 70%, 61%, 57%, 50% variables, zoom 50-200%; Individual adjustment of lenght and width 50-500%; Ink supply: automatic (1000ml) per cartridge; master setting/cap: automatic/100 sheets per roll; features: color separation, auto process, screen printing, zoom, margin shift, registration adjustment, contrast control, image mode, memory codes, confidential master rolls: compatible with duplicator, 12 units black ink compatible with duplicator, 12 units with one pedestal.	385,000.00	385,000.00	Fernando Copruz	PhilRice CES-Printing	GAKKEN Phils.	For reproduction of training materials, brocuhres, reports, survey instruments, and other related materials that are needed by JICA TCP3.	A/B	
A08-03	12-Aug-08	Perfect System Binder: TACHO Plus GS5310; max binding width: 420mm (17"); binding thickness: 1mm (0.04") to 45mm (1.84") cycle speed: perfect binding: 300sets or cycle/hour, padding:150 sets or cycle/hr; max cover dimensions: 450mm (18.4") x 650; min cover dimensions: 3.5mm x 6mm; cover stock thickness: 0.48mm(0.019"); gluing tank temperature: automatic adjustable; adhesive: hot melt glue; power required: 220-240V 50Hz 5 amps; power consumption: 1.1kW; dimensions: 1280W x 410D x 455H; machine weight: 130 kg; unit is capable for clamping of legal and A4 size of paper	345,000.00	345,000.00	Fernando Copruz	PhilRice CES-Printing	GAKKEN Phils.	For binding reproduced training materials, reports, survey instruments, and other related materials that are needed by JICA TCP3.	A/B	

ITEM NO.	DATE DELIVERED	ITEM/DESCRIPTION/ MODEL/MAKER	UNIT COST (In Pesos)	TOTAL COST (In Pesos)	PERSON RESPONSIBLE	LOCATION	PURCHASED FROM	PURPOSE	CONDITION/FREQUENCY OF USE*	REMARKS
A08-04	12-Aug-08	Combined System Paper Binder: IBIMASTER 500; Punching/binding style: manual; max paper no. of punch holes: 21 punches of which 7 are 34 round holes; 3:1 pitch; punch capacity: 20 sheets or 6 sheets PVC covers; binding capacity: (plastic 450 sheets (51mm combs 21 holes); (wire elements) 120 sheets (14mmcombs 21 or 34 holes); (ibiclick combs) 95 sheets (12mm Ibiclicks 34 holes); machine dimensions: W450 x D 450 x H150mm; features and benefits: Multi-function system combines comb and 21 loop wire binding, 34 (3:1) loop wire; punches A5 and A4 size documents up to a maximum 315mm; simultaneous punch and bind facility for faster document finishing; punching capacity: 20x80gsm punch; binding capacity: 500 sheets 80gsm with combs, and 125 sheets 80gsm paper with wire; portable	40,990.00	40,990.00	Fernando Copruz	PhilRice CES-Printing	GAKKEN Phils.	For binding (either in plastic or wire) training materials, reports, and data needed by TCP3.	A/C	
A08-05	12-Aug-08	Power-Operated Paper Cutter: SB-433 Electric Cutter; maximum cutting width: 433; max cutting depth: 433mm; min cutting depth: 10 mm; max.lift (pile per job) 52mm; cutting speed: 2.4 seconds; power source: 110V - 220V 50/60 Hz; power consumption: 0.2kW machine dimensions: 580mmW x 620mm D x distance from floor up to the table top 931mm (38") machine weight: 117 kg; other features: adjustable back gauge dial; automatic return to home position; automatic adjustable control of cutter knife, minimum return stroke, illuminated cutting 2-4 sides, with free one unit cutter blade and cutting stick	206,250.00	206,250.00	Fernando Copruz	PhilRice CES-Printing	GAKKEN Phils.	For cutting edges of bound reproduced training materials, reports, survey instruments, programs, and other related materials that are needed by JICA TCP3.	A/B	
A08-06	19-Sep-08	Water Quality Analyzer with Reagents, instrument type: direct reading with automatic setup and reading; Display: large backlit graphic LCD screen; wavelength: 450mm, 500mm, 550mm, 575mm, 600mm, 650mm; accuracy: +/-0.5 at 4%; tranmittance: +/-0.005g at 0.3au; resolution: 0.001au user-selectable options; display language, test units test cells; automatic adjustment for round test tubes from 12-20mm diameter; power: battery power; size and weight: 150mmWx300mmDx80mmH, 950 g; BRAND: PALINTEST PT 742 with kits and reagents:	101,904.00	101,904.00	N Garcilsl	PhilRice Batac	Eurocom Enterprises, Sampaloc, Manila	To measure numerous water quality parameters to address experimental and laboratory analysis requirements.	A/C	
		Ammonia	7,000.00	7,000.00						
		Copper	7,000.00	7,000.00						

ITEM NO.	DATE DELIVERED	ITEM/DESCRIPTION/ MODEL/MAKER	UNIT COST (In Pesos)	TOTAL COST (In Pesos)	PERSON RESPONSIBLE	LOCATION	PURCHASED FROM	PURPOSE	CONDITION/FREQUENCY OF USE*	REMARKS
		Dissolved Oxygen	7,900.00	7,900.00						
		Flouride	6,900.00	6,900.00						
		Iron HR	3,500.00	3,500.00						
		Nitrate (Nitratest)	7,500.00	7,500.00						
		Phosphate LR	6,900.00	6,900.00						
		Phosphate HR	9,000.00	9,000.00						
		Potassium HR	8,900.00	8,900.00						
		Silica HR	7,500.00	7,500.00						
		Cyanuric Acid	6,000.00	6,000.00						
A08-01	8-Oct-08	Vacuum Sealer, FUJI Impulse V300-R35 Dimension (mm); 360Wx680Lx950H Power consumption: 1150/660 W; Sealing length:300 mm (11.8"); pumping speed: 20L/min; Ultimate pressure: -58.6kpa; features: vacuum pump capacity designed for filling operations (1-5 kg) with table, pouched attached for easy move; nozzle type	125,000.00	125,000.00	Gabriel O. Romero/Roel Rabara	PhilRice CES-Genebank	Eurocom Enterprises, Sampaloc, Manila	For sealing pouches of samples for the accessions kept in the Genebank.	A/C	
A08-07	10/15/2008	Rotary Shaker, CLOE PARMER KH 51706-00; Type: analog shaker, speed range 40-400rpm; timer:continuous mode, 1 to 60 mins; max load:36lb at 400rpm or more; ambient condition: 40-104°F (4-40°C). 80%RH, noncondensing, orbit size: 3/4"dia; platform: 13"x11" platform with clamps for 9x250ml; Power 120V, 50/60Hz with transformer	125,000.00	125,000.00	AB Estoy	PhilRice Agusan	Eurocom Enterprises, Sampaloc, Manila	To be used for the culture of microorganisms under study on control and forecasting.	A/C	
		Delivery charge to Philrice Batac and Agusan	20,000.00	20,000.00						
		Sub-Total (locally purchased)		1,489,694.00						
B. Shipped from Japan/Brought by Experts										
	30-Jul-08	Hydroponics Nursery System Nursery Bed, Water circulation system, AC100v	877,980.87	877,980.87	Dr.Kabaki	PhilRice CES	Kaneko Agricultural Machinery Co Ltd, Japan	To be used in rasing rice seedlings and to demonstrate the modified dapog.	A/C	
	8-Aug-08	SCANNER, brought by Morita ES-10000G, A3(310mmX437mm), AutoFocus, 9600dpi, USB2, IEEE1394, AC100v	66,690.00	66,690.00	Dr.Kabaki	PhilRice CES	EPSON, Japan	Used in scanning live specimen such as rice panicles/seedlings, grasses, etc. to identify specific characteristics.	A/C	
		Sub-Total (Brought by Experts)		944,670.87						
		TOTAL(FY 2008)		2,434,364.87						
		GRAND TOTAL (FY 2004-2008)		36,426,994.42						

* CONDITION OF EQUIPMENT: A: Good condition B. In Moderate condition C. For Repair D. Unable to use

* FREQUENCY OF USE : A. Daily B. Weekly, Monthly C. Used in specific period D. Idle

カウンターパートリスト

as of July 2009

Name of PhilRice Counterpart/Position	Specialization	Title and Period of Training in Japan	Name of Japanese Experts/Position	Component Activity	Working Period at PhilRice	Remarks
PhilRice CES						
Atty. Ronilo A. BERONIO *Executive Director*	Administration/ IPR Protection	Administration of the Institute 1995.05.24 - 1995.06.13	Mr. Moriyuki SHIGYO *Chief Adviser* (2004.11.15-2007.11.14) Dr. Nobuyuki KABAKI *Chief Adviser* (2007.11.14-present)	Project management	2008.07.01 - present	1
Dr. Leocadio S. SEBASTIAN *Executive Director*	Administration/ Plant Genetics	Administration of the Institute 1999.08.23 - 1999.09.10			2004.11.14 – 2008.07.11	Retired from government service effective 2008.07.11
Dr. Edilberto D. REDOÑA *Deputy Executive Director for R&D*	Administration/ Plant Breeding				2004.11.14 – 2006.08.31	Retired from government service effective 2006.08.31
Dr. Madonna C. CASIMERO *Officer-in-Charge (OIC)* *Deputy Executive Director for R&D*	Administration/ Weed Science and Management				2006.09.01 – 2008.7.31.	Retired from government service effective 2008.08.01
Dr. Eulito U. BAUTISTA *Officer-in-Charge (OIC)* *Deputy Executive Director*	Administration/ Agricultural Engineering	PhD in Agricultural Engineering through JSPS			2008.09.01 - present	2
Mrs. Teodora L. BRIONES *Head, Planning and Collaborative Programs Office (PCPO)*	Project Planning, Coordination, Monitoring, and Statistics	Information Processing 1998.03.31 - 1998.05.31	Mr. Ryosuke ITO *Coordinator* (2004.11.15 - 2007.11.14) Mr. Toshitaka KOBAYASHI *Coordinator* (2007.11.08-present)	Project management and Coordination	2004.11.14 - present	3
Mrs. Fidela P. BONGAT *Development Management Officer III, PCPO*	Project Planning, Coordination, Agribusiness, and Environmental Economics	Master Program in Global Agriculture (Environmental Economics) 2002.09.11–2005.03.26			2005.04.01 - present	4

Name of PhilRice Counterpart/Position	Specialization	Title and Period of Training in Japan	Name of Japanese Experts/Position	Component Activity	Working Period at PhilRice	Remarks
Mrs. Karen Eloisa T. BARROGA *Program Leader, Technology Promotion*	Development Communication	Audio-visual Education 1995.08.22 - 1995.09.23	Mr. Moriyuki SHIGYO (As mentioned)	Demonstration/ Technology Promotion	2004.11.14 – 2006.05.01	On study leave effective 2006.05.01
Engr. Leo C. JAVIER *Program Leader, Technology Promotion*	Agricultural Engineering/ Extension	Agriculture Extension Service 1998.03.16 - 1998.04.25	Mr. Moriyuki SHIGYO (As mentioned above)	Demonstration/ Technology Promotion	2006.06.01 – 2008.09.01	Assigned to another program
Mrs. Kathleen D. SOLIS *Senior SRS, Development Communication (DevComm)*	Development Communication				2004.11.14 – 2007.02.15	Resigned from PhilRice effective 2007.02.16
Ms. Diadem B. GONZALES *Sr. SRS, DevComm*	Development Communication/ Social Science	JICA Friendship Program 2006.06.21 – 2006.07.13			2007.02.16 - present	On study leave effective 2008.01.01
Dr. Manuel Jose C. REGALADO *Program Leader, Technology Promotion*	Agricultural Engineering	PhD in Agricultural Engineering through JSPS	Dr. Nobuyuki KABAKI (as mentioned above)	Demonstration/ Technology Promotion	2008.09-01 - present	5
Mr. Erik-Ray Matthew S. PALOMAR *Science Research Specialist, DevComm*	Development Communication	Digital Video Production for Education and Dissemination 2007.08.14 – 2007.12.01	Mr. Moriyuki SHIGYO (As mentioned above)		2006.01.02 - present	6
Engr. Artemio B. VASALLO *Supvg. Science Research Specialist, TMS*	Agricultural Engineering/ Extension	Agricultural Machinery Testing & Evaluation 1995.02.27 -1995.06.23	Dr. Nobuyuki KABAKI (as mentioned		2004.11.14 – 2007.06.30	7(Designated OIC Agusan Branch Manager effective July 2007)
Mr. Ruben B. MIRANDA *Chief SRS, Technology Mgt & Services (TMS)*	Agricultural Extension	Agricultural Extension Planning & Management 2005.05.15 –2005.08.18	above)		2004.11.14 - present	8(designated as OIC Deputy Executive Director for Development effective May 1, 2009

Name of PhilRice Counterpart/Position	Specialization	Title and Period of Training in Japan	Name of Japanese Experts/Position	Component Activity	Working Period at PhilRice	Remarks
Engr. Aurora M. CORALES *Senior SRS, TMS*	Agricultural Extension	Administration for Rural Development 2006.09.24 –2006.11.30	Mr. Moriyuki SHIGYO (as mentioned above) Dr. Nobuyuki KABAKI	Demonstration/ Technology Promotion	2004.11.14 – 2007.05.31	On study leave effective 2007.06.01
Mrs. Celia G. ABADILLA *Science Research Specialist, TMS*	Agricultural Extension	Agricultural Extension Planning & Management 2007.05.22 –2007.08.13			2004.11.14 - present	9
Mr. Joel V. PASCUAL *Science Research Analyst, TMS*	Agricultural Extension	Role of Agricultural Cooperatives to be Played in Activation of the Rural Economy 2007.05.09 – 2007.07.13			2004.11.14 - present	10
Mrs. Ofelia C. MALONZO *Science Research Specialist, TMS*	Agricultural Extension and Communication	Agricultural Extension Planning & Management 2008.07.08 – 2008.09.12			2007.04.01 - present	11
Dr. Sergio R. FRANCISCO Program Leader, Impact and Policy Research Program	Agricultural Economics		Mr. Moriyuki SHIGYO (as mentioned above), Dr. Kyoichi MIYATAKE (Short Term) and Dr. Kenji Suemitsu (Short Term)		2007.03.01- present	12
Mrs. Flordeliza H. BORDEY Head, *Socio-Economics Division (SED)*	Agricultural Economics	JICA Friendship Program 2003.05. – 2003.06			2004.11.14 – 2006.07.31	On study leave effective 2006.08.01
Dr. Irene R. TANZO *Head, SED*	Social Science				2006.08.01 - present	13
Mr. Ronell B. MALASA *Science Research Specialist II, SED*	Social Science	Impact Assessment of Agricultural Technologies 2008.06.09-2008.07.11			2004.11.14 – present	14
Mr. Marco Antonio M. BALTAZAR *Science Research Specialist, SED*	Social Science				2004.11.14 – present	15

Name of PhilRice Counterpart/Position	Specialization	Title and Period of Training in Japan	Name of Japanese Experts/Position	Component Activity	Working Period at PhilRice	Remarks
Mrs. Thelma F. PADOLINA *Chief SRS, Plant Breeding and Biotechnology Division (PBBD)*	Plant Breeding	Plant Breeding 1997.06.02 - 1997.11.01	Dr. Tadashi TAKITA	Rice Evaluation and Selection	2004.11.14 - present	16
Mrs. Emily R. CORPUZ *Senior SRS, PBBD*	Plant Breeding	Plant Breeding 1993.05.06 - 1993.11.13				17
Mr. Jose A. ORCINO *Science Aide, PBBD*	Plant Breeding					18
Mr. Edwin C. MARTIN *Senior SRS, CPD*	Crop Protection		Dr. Hirohiko MORITA	Weed Management	2008.08.08-2008.08.31	19
PhilRice Batac						
Dr. Reynaldo C. CASTRO *Station Manager, PhilRice Batac*	Agricultural Engineering/ Extension	Development and Extension of Rice Production Technique 2005.07.12 – 2005.07.29	Mr. Kunio INOUE (2004.11.15-2007.11.14) Dr. Nobuyuki KABAKI (as mentioned above)	Project management	2004.11.14 - present	20
Mrs. Evangeline P. AGRES *Senior SRS, PhilRice Batac*	Agricultural Extension/Pest Management	Agricultural Extension Planning & Management 2007.05.22 – 2007.08.13	Mr. Kunio INOUE (as mentioned above), Mr. Akimasa NAKANO (Short Term), and Dr. Kenji Suemitsu (Short Term)	Demonstration/ Technology Promotion		21
Mrs. Alma C. AGUINALDO *Senior SRS, PhilRice Batac*	Agricultural Extension	Agricultural Extension Planning & Management 2005.05.15 –2005.08.18				22
Engr. Noel D. GANOTISI *Senior SRS, PhilRice Batac*	Agricultural Engineering					23
Mrs. Presentacion C. ALQUIZA *Senior SRS, PhilRice Batac*	Agricultural Extension					Resigned effective 2007. 08.01

Name of PhilRice Counterpart/Position	Specialization	Title and Period of Training in Japan	Name of Japanese Experts/Position	Component Activity	Working Period at PhilRice	Remarks
Engr. Mary Ann U. BARADI *Senior SRS, PhilRice Batac*	Agricultural Engineering				2004.11.14 – 2007.05.31	On study leave effective 2007.06.01
Mrs. Nida Q. ABROGENA *Senior SRS, PhilRice Batac*	Agricultural Economics		Mr. Kunio INOUE, Dr. Kyo-ichi MIYATAKE (short-term), and Dr. Kenji Suemitsu (Short- Term)	Demonstration/ Technology Promotion and Agricultural Economics	2004.11.14 - present	24,25 Worked with Dr. MIYATAKE was from 2007.07.02-2007.08.30 and and Dr. Suemitsu, 2008.03.-2008.08. and 2008.09.28-2009.03.08
Mrs. Bethzaida M. CATUDAN *Senior SRS, PhilRice Batac*	Agricultural Economics					
Mrs. Anielyn Y. ALIBUYOG *Senior SRS, PhilRice Batac*						26
Mr. Leo INOCENCIO *Science Res Assistant*						27
Mr. Meljoy GAPPI *Science Res Assistant*						28
PhilRice Agusan						
Dr. Caesar Joventino M. TADO *Station Manager, PhilRice Agusan*	Agricultural Engineering	Development and Extension of Rice Production Technique 2006.09.04 –2006.09.16	Mr. Moriyuki SHIGYO (as mentioned above)			Assigned to other station effective 2007.07.01
Engr. Artemio B. VASALLO *Officer-in-Charge Branch Manager, PhilRice Agusan*	Agricultural Engineering/ Extension	Agricultural Machinery Testing & Evaluation 2008.07.14 – 2008.08.01	Dr. Nobuyuki KABAKI (2007. 06.04 -present)	Rice Selection and Evaluation and	2004.11-14 - present	As OIC Branch Manager of PhilRice Agusan effective 2007.07.01
Mr. Dexter B. BASTASA *Science Res Specialist*	Plant Breeding	Breeding Technologies 2008.07.14 - 2008.08.23	Dr. Tadashi TAKITA (2004.11.15-2007.3.31)	Demonstration/ Technology Promotion	2004.11.14 – 2007.06.30	29

Name of PhilRice Counterpart/Position	Specialization	Title and Period of Training in Japan	Name of Japanese Experts/Position	Component Activity	Working Period at PhilRice	Remarks
Mrs. Corsennie A. MABAYAG *Science Res Specialist, PhilRice Agusan*	Agricultural Extension	Agricultural Extension Planning & Management 2005.05.09 –2005.08.12			2004.11.14 – 2007.05.31	On study leave effective 2007.06.01
Mr. Abner T. MONTECALVO *Supvg. SRS, PhilRice Agusan*	Agricultural Extension		Dr. Nobuyuki KABAKI		2007-07.01 - present	30(starting 2007.07.01)
Dr. Alejandra B. ESTOY *Supvg. Sci. Research Specialist, PhilRice Agusan*	Pest Management/ Crop Protection	Pest Forecasting and Control 2008.09.01 – 2008.10.31	Dr. Tomonari WATANABE (Short Term)	White Stemborer Forecasting and Management	2004.11.14 - present	31
Dr. Gerardo F. ESTOY *Supvg. Sci. Research Specialist, PhilRice Agusan*	Pest Management/ Crop Protection					32

Program Phasing and Targets

Phase 1 (May - Dec 2009). Focused on 17 provinces covering a total of 56 municipalities (3 municipalities/ province) and 112 sites (2 sites/municipality). Each of the DA PhilRice's six branch stations and the Central Experiment Station will implement the program in two to three provinces.

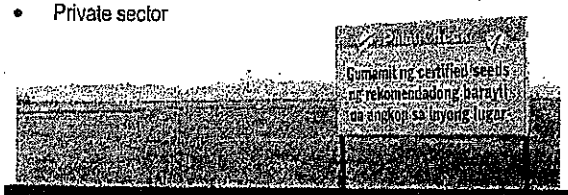
Phase 2 (January 2010 – 2013). The program will be expanded to cover a total of 42 provinces.

Implementing agencies/group

- Farmer groups
- Local Government Units (LGUs)
- DA-PhilRice
- Department of Agriculture Regional Field Units (DA-RFUs)

Collaborating agencies/sector

- DA bureaus and attached agencies
- State Universities and Colleges (SUCs)
- Civil society organizations (CSOs/NGOs/POs)
- Media and information organizations
- Other government agencies (DAR, DOST, DTI)
- International agencies (IRRI, ICRISAT, JICA, others)
- Private sector



Program area

Irrigated areas with rice yields of less than 4 t/ha: The program targets irrigated rice farms with present average yield of less than 4 t/ha but with rice area of more than 15,000 ha.

CAR:	Abra, Apayao, Ifugao
Region II:	Nueva Vizcaya
Region III:	Aurora
Region IV-A:	Quezon
Region IV-B:	Mindoro Occidental, Mindoro Oriental, Palawan
Region V:	Albay, Camarines Sur, Sorsogon
Region VI:	Iloilo, Negros Occidental, Antique, Capiz, Aklan
Region VII:	Bohol, Negros Oriental
Region IX:	Zamboanga Sibugay
Region X:	Bukidnon, Lanao Norte, Misamis Occidental
Region XI:	Compostela Valley, Davao del Norte
Region XII:	Sultan Kudarat, North Cotabato, South Cotabato
CARAGA:	Agusan Norte, Agusan Sur, Surigao Norte, Surigao Sur
ARMM:	Lanao Sur

Rainfed areas with average yield of less than 2.5 t/ha: The program is targeting rainfed areas with average yield of less than 2.5 t/ha and with rice area of more than 15,000 ha.

Region II:	Cagayan, Isabela
Region III:	Bulacan, Nueva Ecija
Region IV-A:	Quezon
Region IV-B:	Palawan
Region V:	Masbate
Region VI:	Antique, Aklan, Capiz, Iloilo
Region VII:	Bohol
Region VIII:	Northern Samar, Western Samar
Region IX:	Zamboanga Norte
Region XII:	North Cotabato, Sultan Kudarat
CARAGA:	Agusan del Sur
ARMM:	Lanao del Sur, Maguindanao

For more details, contact:

PHILRICE

PhilRice Central Experment Station
Maligaya, Science City of Muñoz, 3119 Nueva Ecija
Tel: (44)456-0258; -0277, -0285
Email: prri@philrice.gov.ph • Web: www.philrice.gov.ph

Ruben B. Miranda
Deputy Director for Development
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Leo C. Javier
Program Leader, Development Support Program
Tel: (44) 456-0394, -0426, -0652 loc. 710 • lcjavier@philrice.gov.ph

GINTUANG MASAGANANG ANI
Go Modern Agriculture

LABANAN ANG KAHIRAPAN

PHILRICE®
PHILIPPINE RICE RESEARCH INSTITUTE

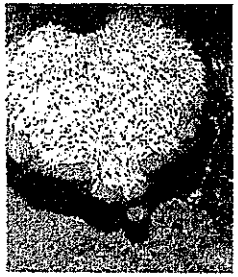
Location-Specific Technology Development, Training and Information Support Service Program

for

National Rice Self-Sufficiency

2009 - 2013

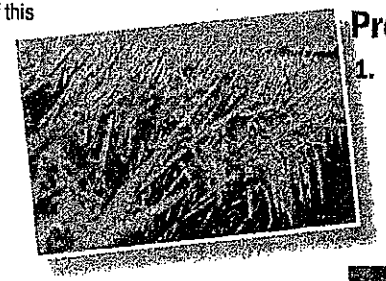
The Philippine Rice Self-Sufficiency Plan aims to increase palay production from 16.2 million metric tons (MMT) in 2007 to 21.6 MMT in 2013 to ensure the 100% availability of rice for 100 million Filipinos. Moreover, it aims to raise income from rice farming.



The Ginintuang Masaganang Ani (GMA) rice program has increased rice production to more than 4 t/ha in some provinces but there are still more than 1 million ha that need to be transformed into more productive and profitable rice farms. Identifying yield constraints and developing location-specific technologies that mitigate these constraints will help increase rice production to sufficiency levels.

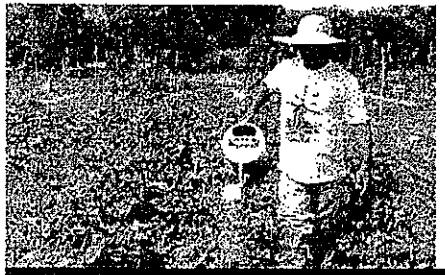
Meanwhile, DA-PhilRice has been implementing on-farm research and demonstration programs in accordance to its mandate and under the Technical Cooperation Project 3 (TCP3), a special program funded by the Japan International Cooperation Agency (JICA). The approach developed under this project were found to be highly effective in developing location-specific technologies.

Taking off from the success of this project, DA-PhilRice is now ready to upscale this into a program to support the rice self-sufficiency plan. The output of this program will provide fresh technical inputs into the rice extension system.



Goal

Increased productivity and income of farmers through the availability and access of location-specific technology anchored on the PalayCheck® and Palayamanan® principles.



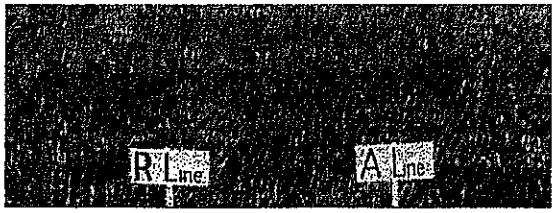
Objectives

- To identify and understand the yield constraints in irrigated farms producing less than 4 t/ha and in rainfed farms producing less than 2.5 t/ha;
- To conduct on-farm research to develop location-specific crop management technologies that can respond to yield constraints in the area;
- To develop sustainable institutional collaboration and support in the planning and implementation of community-driven, on-farm technology development and demonstrations;
- To develop a critical mass of rice subject matter specialists who will train the local extension workers and lead in the development and implementation of location-specific technologies;
- To increase awareness and enhance access of AEWs and farmers to rice information and decision support tools with the use of tri-media; and
- To accelerate the adaptation and integration of new technologies into the farming systems of participating farming communities.

Program Components

1. Conduct of location-specific technology development

Agro-climatic and socio-economic conditions vary widely from place to place, resulting in great variability in rice yields. A localized and partnership-driven on-farm rice technology development will work to identify field problems and to plan and implement ways to solve them.



2. Capacity building of rice specialists

Train rice production specialists who will eventually train local extension workers and farmers on rice production and lead the development and implementation of location-specific technologies.

Since 2008, DA-PhilRice has trained 116 rice specialists on the PalayCheck® system, a dynamic rice crop management system for improved yield, and on Palayamanan®, a diversified rice-based farming system.

3. Rice information and communication services

DA-PhilRice will develop intensive rice information and communication services to ensure easy and timely access by extension workers and farmers to the latest information on rice production using print, radio, TV, and information and communication technology.

LOCATION-SPECIFIC TECHNOLOGY DEVELOPMENT (LSTD) ON PALAYCHECK® FOR IRRIGATED RICE AREAS

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Introduction

Adoption of location-specific technologies is essential in maximizing the yields and benefits in rice production. The Philippines, as an archipelago, has diverse rice-growing environments, with some areas more favorable than others. Similarly, technologies developed to address rice problems provide varying degrees of suitability when applied at different rice ecosystems.

As the Philippines seek to achieve rice self-sufficiency, developing location-specific technologies help create effective solutions for rice farmers across the country. This requires a closer look at the farm level to see what challenges are faced by rice farmers in their locality, what they think, what they do about it, what works and what doesn't.

For many years, these farmers have accumulated knowledge and practices that shaped their community and it's very important to keep the good old traditions that help define Philippine culture. Here, farmer traditions, farming practices, local varieties and local resources are all taken into consideration.

The Location-Specific Technology Development program was initiated with the goal of increasing the rice productivity and increase farmers' income in the irrigated, double rice cropping areas. To do this, farmers' needs and constraints in increasing yield in these areas will be identified and project interventions will be formulated.

To develop location-specific technology for irrigated rice areas, it necessitates the establishment of technology demonstration farms (TDFs) and farmers' learning fields where recommended technology and farmers' best practices will be showcased and evaluated. For the capacity enhancement of Agricultural Extension Workers (AEWs) and participating farmers, a strategic season-long training in rice Science and Technology was implemented in 4 cropping seasons per site. Learning of participants was enhanced through the provision of developed extension and training materials. These materials were also used by the trained AEWs in training other farmers in the LGU-led expansion barangays.

To motivate participating LGUs to reach more farmers, implementing agencies still need to support them in terms of technical assistance and basic training materials e.g. basic seeds and training materials. The developed LSTs in the core sites were adopted by the participating LGUs in expanding the project gains in other rice producing barangays.

Meanwhile DA-PhilRice has been implementing on-farm research and demonstration programs in accordance to its mandate and under the Technical Cooperation Project 3 (TCP3), a special program funded by the Japan International Cooperation Agency (JICA). The approaches developed under this project were found to be highly effective in developing location-specific technologies.

Taking off from the success of this project, DA-Philrice is now ready to upscale this into a program to support the rice self-sufficiency plan. The output of this program will provide fresh technical input into the rice extension system.

Location-Specific Technology Development Program

The Philippine Rice Self-Sufficiency Plan aims to increase rice production from 16.2 million metric tons (MMT) in 2007 to 21.6 MMT in 2013 to ensure the 100% availability of rice for 100 million Filipinos. Moreover, it aims to raise income from rice farming.

The Ginintuang Masaganang Ani (GMA) rice program has increased rice production to more than 4t.ha in some provinces but there are still more than 1 million ha that need to be transformed into more productive and profitable rice farms. Identifying yield constraints and developing location-specific technologies that mitigate these constraints will help increase rice production to sufficiency levels.

Focusing on major rice producing areas, the Location-specific Technology Development (LSTD) program will be implemented in two phases. Phase I will be implemented from May-December 2009 in 64 pilot municipalities, in 16 provinces. The program will identify 2-3 barangays as project sites in each participating municipality.

After Phase I, the program will be expanded to cover 42 provinces starting 2010. Each province will have 5 participating municipalities, and 3 barangays will be chosen from each municipality. Phase II targets a total of 630 barangays from the 210 municipalities that will be participating in the program.

Table 1. LSTD Program Targets for 2009 Wet Season.

Region	Province	No. of Municipality/ Province	No. of Barangay/ Municipality	Total No. of Sites
CAR	Abra	3	2	6
	Apayao	3	2	6
II	Cagayan	4	2	8
	Isabela	4	2	8
III	Aurora	3	2	6
	Bulacan	3	2	6
IV-B	Romblon	3	2	6
	Palawan	4	2	8
V	Camarines Sur	4	2	8
VII	Bohol	4	2	8
VI	Iloilo	6	2	12
	Negros Occ	1	2	2
XI	Compostela Valley	3	2	6
XIII	Agusan del Sur	3	2	6
XII	Cotabato	3	2	6
	Sultan Kudarat	3	2	6
	South Cotabato	2	2	4
	TOTAL	56		112

Table 1 summarizes the target for the first phase of the program. A total of 56 municipalities in 17 provinces are expected to have LSTD sites. These provinces were selected based on the 2007 data from BAS.

Table 2. Physical Area and Average Yield of Selected Provinces, 2007.

Region	Province	2007 BAS DATA			
		Irrigated		Rainfed	
		Physical Area	Average Yield	Physical Area	Average Yield
CAR	Abra	9,836	3.43	9,895	2.62
	Apayao	9,173	4.28	12,668	2.76
II	Cagayan	79,816	4.22	52,539	2.71
	Isabela	123,178	4.33	15,192	2.70
III	Aurora	11,600	3.84	2,180	3.41
	Bulacan	27,285	4.25	20,664	3.84
IV-B	Romblon	3,098	3.54	4,040	2.37
	Palawan	20,214	3.44	48,103	2.76
V	Camarines Sur	62,135	3.99	32,145	3.14

Region	Province	2007 BAS DATA			
		Irrigated		Rainfed	
		Physical Area	Average Yield	Physical Area	Average Yield
VII	Bohol	14,585	3.05	41,809	1.81
VI	Iloilo	77,106	3.76	120,918	3.43
	Negros Occ				
XI	Compostela Valley	9,958	4.19	3,446	3.76
XIII	Agusan del Sur	16,695	3.83	20,278	2.89
XII	Cotabato	47,127	4.02	35,085	2.74
	Sultan Kudarat	61,651	3.68	17,312	2.83
	South Cotabato	36,789	3.81	11,653	3.05
	TOTAL				

Implementing Agencies

The program will be implemented by the Philippine Rice Research Institute (PhilRice), Department of Agriculture Regional Field Units (DA-RFU), and participating provincial, municipal and barangay governments, as well as collaborating DA bureaus and attached agencies, state colleges and universities (SCU), civil society organizations (SCOs/NGOs/POs), media and information organizations, international agencies (IRRI, ICRISAT, JICA, others) and private sector.

Pre-Implementation Stage

Before going out in the field and providing interventions, a series of activities are carried out first to pave the way for development. These activities will define the kind of relationship that will be forged with the stakeholders and provide you a clear starting point for the program through the baseline information. The pre-implementation stage requires a lot of interpersonal communication, careful planning and a great attention to detail.

Courtesy call and rapport building

A courtesy call is a diplomatic gesture wherein you pay a visit to the head of the local government unit such as the governor, mayor or barangay captain as a sign of courtesy and respect. This activity is the appropriate time to generate their support and commitment to help and actively participate in the program.

For this program, you will pay a courtesy call to the following:

1. Executive Director, Department of Agriculture-Regional Field (DA-RFU)
2. Governor and Provincial Agriculture Officer
3. Mayor and Municipal/City Agriculture Officer
4. Barangay Captain and lead agricultural technologist(s) for the barangay.

During the courtesy call, make sure to establish rapport and build positive relationships. In the dialogue with DA-RFU, request them to recommend prospective pilot provinces based on a set of criteria. At the provincial level, we will ask them to suggest municipalities for the project while at the municipal level; we will identify 2 or 3 barangays. All the sites identified shall be validated based on the selection criteria. Once site selection criteria are satisfied and the project sites are finalized, schedule the stakeholders' workshop which will be conducted simultaneously on PhilRice branch stations.

Courtesy call at the barangay level and area validation

Paying a courtesy call at the barangay level involves more activities. But rather than just asking for information, here, you can actually do an initial visit to farms and talk to farmers.

Together with the municipal agricultural officer (MAO) or city agricultural officer (CAO) and supervising agricultural technologists of the identified barangay, introduce yourselves and discuss the project intentions. Here, you can initially identify the farmers' needs and local problems through an informal interview. With some barangay officials and farmers, do ocular inspections at farmers' fields and transect walk. This will enable you to determine if the farms are appropriate for use as LSTD farms. Determine also if the set criteria for area selection are fully met. Set a schedule for the general project briefing and focused group discussion (FGD) with all interested farmers and local leaders in the barangay.

Project briefing at the project sites/barangays

Once the project sites have been identified and have been validated following the criteria set for the project, schedule a project briefing at each project site or barangay. Present the project objectives and potential benefits farmers can get from LSTD. Clearly state the mechanics of implementation and ensure that the farmers clearly understand their roles and responsibilities. Avoid committing any form of financial support from the project at this stage to avoid too much expectation from the farmers and also to ensure that only those who are genuinely interested to support the project will enlist and join the project. Emphasize on what the project can do to help them identify better performing rice varieties and production technologies that will help them improve their yields and profits.

Baseline data gathering

Baseline data is basic information gathered before a program or an intervention is done on a specific area and will later serve as point of comparison during the evaluation.

So, after discussing the general project guidelines, the next step is to gather baseline information in your identified barangays. The information you gather will help you better understand the current situation and farming problems encountered by the farmers in that area.

Baseline information can be gathered in three ways:

1. **Focus Group Discussion** - an interview with agricultural extension workers, farmers and key informants done to get qualitative information. Here, questions are asked in an interactive group setting where the farmers are free to talk to each other.

   Activity Guide: Focus Group Discussion

   Preparing for the FGD

   a. Plan and prepare the FDG questions. Be guided by the 5Ws and 1H (what, why, who, when, where, and how) in framing the questions. You may use the following questions for the FGD:

      - What is our average rice harvest per cropping season?
      - How can we increase our harvest level?
      - Who may assist us in our desire to increase our rice yield?
      - When do we start increasing our rice harvest level?

   b. Write the questions on a sheet of Manila paper if you don't have laptop computer and LCD projector. Prepare an attendance sheet for the FGD participants for documentation purposes.

   c. Request one or two of your fellow ATs to help you conduct the FGD. One shall help you take the attendance and document or write the FGD proceedings. The other shall take photographs and extend you other help as you facilitate the FGD.

   d. Prepare all the things that you will use in conducting the FGD. These may be Manila paper where the FGD questions are written (or laptop and LCD projector), attendance sheet, audio-recording or cassette tape recorder, and camera for your photo documentation, among other things.

   e. Invite a media person in your locality to observe or join the FGD. Also request that she/he release the FGD results to the public in broadcast or print media to create public awareness and support from other stakeholders.

   Conducting the FGD

   a. Arrive early at the FGD venue so that you have time to set up. Check if needed equipment or materials are all in place.
   b. Arrange the chairs in a semi-circle or U-setting so that the participants are facing each other as they discuss. Prompt your fellow AT to ready the tape recorder and camera.
   c. As the participants arrive, request them to register on the attendance sheet.
   d. At the beginning of the FGD, introduce yourself and your team, and then ask the participants to do the same. Make sure that you thank them for their time and their participation. Set a calm and relaxed atmosphere, encourage everyone to be open-minded.
   e. Following your FGD guide, begin asking questions and solicit answers through discussion.

f. Ensure that the answers are a result of consensus, and not just the opinion or answer of the most vocal participants. Involve less vocal participants by directly asking them a question.
g. Focus on the discussion. Redirect the discussion back to the topic in case it goes off-track.
h. When done, again thank the participants for their idea and their time. Impress on them that you are looking forward to a partnership with them in the near future.
i. Secure all the materials that you have used and collected. This will be helpful during the multi-stakeholders workshop.
j. In your office, summarize the answers. This will form part of your baseline data of your project site.

2. Baseline survey - a structured questionnaire designed to establish the current socio-economic and technological status of the rice farmers a well as their knowledge, attitudes and practices in the field before doing technological intervention. See **Appendix 2** for the baseline survey form designed for this project.

   First, interview farmer partners (FPs), those whose farms are offered for use as TDFs. Then, interview participating farmers (PFs), those who have learned and adopted the technologies on their individual farms.

   Before you give out questionnaires, make sure to:
   - Visit each farmer in their farms and request a convenient time for an individual interview. Your interview should not be in conflict with farm work, house work or personal plans of the farmers.
   - Prepare the baseline survey forms and pencils enough for your participating farmers and farmer partners.
   - If time is limited, ask assistance from agricultural technologists or trusted friends to help out in case of too many farmers for interview. Make sure to set time to brief them about the project and how they will help you.

   Activity Guide: Baseline Survey

   a. Set a wholesome, calm, and relaxed atmosphere by exchanging pleasantries with the farmer and his household members (if present) before you begin the interview.
   b. Relate the importance of the interview and the information that you want to generate, and relate its value to succeeding activities such as project assessment and evaluation. Explain to the farmer that the interview is done to get information about his/her situation before his involvement with the project.
   c. Explain to the farmer that you need to take or write down notes during the interview because you want accurate data and information – your memory might fail you. Choose a place with the least possible noise and disruptions. Sit beside the farmer when interviewing.
   d. Show interest and listen intently to what the farmer is saying. Never show disapproval, either orally or through facial expression and body language, to his/her answers. If he/she misunderstood the question and his/her answer is affected, tactfully rephrase the question using simple language or the dialect. Never pose leading questions.
   e. Thank the respondent and assure him/her of the confidentiality of the interview results.

3. **Provincial/Municipal profiling** – secure the provincial and municipal profile of the participating LGUs as references in order to plan location-specific interventions for their rice program.

Stakeholders' workshop

The stakeholders workshop is intended to generate a concerted intervention or action on the farming problems identified during the FGD and as expressed by farmers in your individual interview with them. In this workshop, each stakeholder is expected to commit assistance to the project from his/her agency. After expressing their commitment, clearly reiterate their roles and responsibilities. Workshop

participants must be assured that they are part of the project and that they are accountable for its success. Document workshop results because they will be used as stipulations in the memorandum of agreement (MOA) that will be forged by the various stakeholders.

Activity Guide: Stakeholders' Workshop

Preparation

1. Identify key stakeholders based on their capacity to implement appropriate interventions on identified farming problems and needs. They may be experts from SCUs, PhilRice, the National Irrigation Administration, provincial agriculturists, LGU officials, and representatives from NGOs/Pos.
2. Plan the workshop program with the MAO/CAO and LGU officials. Be sure to set the date, time, venue, snacks and committees for the program (secretariat, food, documentation, invitation, etc.).
3. Send invitations to the heads of resource- capable agencies or stakeholders by sending them a formal letter of invitation. The invitation should include the objectives of the workshop, details of the program and the role of the invitee.
4. Follow-up your invitations by visiting them in their respective offices and explain to them the needs of farmers and the assistance that they can extend to their needs.
5. Summarize the baseline information that you have collected focusing on farming data, rice production needs, problems and constraints and prepare to present it during the stakeholders' workshop.

The workshop

1. Arrive early at the workshop venue and arrange the seats so that workshop participants face each other as they discuss workshop points.
2. Present summarized farming data and rice production needs, problems, and constraints generated and gathered during the FGD and enriched by the farmer's interview results.
3. Ask agency representative participants what they can contribute and how they can help in solving farmers' problems and needs, and raise their farm production. Conduct a visioning exercise by asking participants what they envision to happen and realize after the farming problems, needs, and constraints, have been presented. Then have the workshop secretariat present the "vision list" to the body.
4. Attaining the common vision as the springboard, present the project's rationale, goals, objectives, purpose, and design. Present the different committees to be organized such as, the technical committee to help you establish the TDF, monitoring & evaluation, process documentation and report, extension and training materials development, and others as deemed necessary.
5. Ask each participant to which committee would they like to be particularly involved in, and their agency's contribution and role.
6. Together, draft a MOA where each stakeholder is duty-bound to fulfill the stipulations based on their commitment, roles, responsibilities, and their resource contribution for the success of the Project (see Appendix 3 for a sample MOA).
7. Before parting ways, agree on a date, time, and venue for the formal MOA signing and Project launching.

After the workshop

1. Ask a legal person to finalize the MOA stipulation according to accepted legal format.
2. Write a report or proceedings of the workshop.
3. Plan for the MOA signing and project launching.

MOA signing

To ensure the success of the program, a memorandum of agreement is drafted, detailing the roles, responsibilities, and resource contribution of the various stakeholders (Appendix 3). Schedule a program for the MOA signing. This formalizes the commitment of each stakeholder and also gives them the opportunity to express this commitment in public.

1. Decide with your farmer partners and the Project stakeholders the schedule of MOA signing and Project launching. Conduct a planning meeting with them.
2. In the planning meeting, involve every stakeholder, and ask them suggestions, or solicit logistical contribution for the success of the MOA signing and Project launching activity or program.
3. Request assistance from the stakeholder who can best provide the needed resources/facilities for the Project launching and MOA signing.
4. Formally invite farmers groups and nonaffiliated farmers in adjacent communities to the MOA signing and Project launching. Also invite MAOs, ATs, LGU officials of adjacent municipalities, cities and provinces, if possible. Extension and research staff of agricultural universities or colleges, and fertilizer companies may also be invited. This is to widen awareness and advocacy of the Project.
5. Also invite media persons to cover and broadcast or write news/features about the Project and the MOA signing and Project launching.
6. Prepare the MOA document.
7. On the time and place agreed, convene the concerned heads of agencies or the key stakeholders and the invited sectors.
8. Conduct the prepared program and give the vital stakeholders a chance to publicly express or verbalize their commitment and contribution for the success of the Project
9. The MOA signing and Project launching mark the formal opening and start of the Project.

Organization of training/study groups

After the formal launch of the program, the farmers are ready to be organized. The farmers' group consists of 30-35 farmer innovators (FIs). From the farmers' group, 15 Farmer partners (FPs) will be selected. Farmer Partners are those whose farms are offered for use as Technology Demonstration Farms (TDFs). One FP will be called Lead Farmer Partner whose farm will be the core site. The core site or the lead TDF farm is the farm where all trials will be conducted. The farms of the other FPs will be the replicates of the trials set up in the core site. The rest of the FIs are called Participating Farmers (PFs), those who have learned and adopted the technologies on their individual farms. They may or may not follow the recommendations but still, monitoring will be done. Fields of the farmer innovators shall be analyzed using the Minus-One Element technique (MOET).

Selection criteria

Before a municipality or barangay is selected as an LSTD site, it will be validated based on a set of criteria. Table 2 lists the criteria for provincial, municipal and barangay site selection while Table 3 shows selection criteria for farmer partners and participating farmers.

Table 2. Criteria for Province, Municipality and Barangay Selection

Parameter	Criteria	
	Province/Municipality	Barangay
Major rice producer	Yes	Yes; rice-based farming community
Rice area	Province with at least 15,000 hectares Municipality with at least 1,500 hectares	Barangay with at least 100 hectares
LGU support	Strong; willingness to cost-share, full staff complement and co-implement the project	Strong; with strong barangay council support
Average yield (t/ha)	Below 4	Below 4
Project expansion	Willingness to expand the project strategy/model in more rice municipalities/barangays	
Farmers' organization		Existing and active; willingness to organize farmers organization
Other project intervention by GOs/NGOs		Limited

Table 3. Criteria for Participating Farmer and Farmer-Innovator Selection

Parameter	Criteria	
	Participating Farmer	Farmer Partner
Actual tiller	Yes	Yes
Farmers' organization	Member or willing to join a newly-organized FO for the purpose of the project	Member or willing to join a newly-organized FO for the purpose of the project
	Committed to participate and cooperate in all project activities; e.g participation in the "Season-long training on location-specific technology development on PalayCheck® system"	Committed to participate and cooperate in all project activities
	Willing to share his/her best farming practices/experience and try new farming technologies	Willing to try and share new farming technologies with their fellow farmers
Farm		Must own at least one ha, accessible, irrigated, flood and drought-free and not a problem soil
Data gathering		Willing to assist in data gathering and processing of yield
Farm a learning field		Willing to use his farm as participants' learning field
Resources		With resources or can fully finance his on-farm trials and production area

Project Implementation Stage

Strategic season-long training on specific technology development on PalayCheck® system

Be sure that you update your knowledge, and sharpen your skills in implementing farming technologies.

Activity Guide:

1. Identify and select an accessible venue in the barangay and secure a permit for its use from concerned barangay officials.
2. Prepare and have your training materials/modules handy (**Appendix 4**).
3. On your first session, conduct pre-test to your farmers to determine their level of knowledge on rice and rice-based technologies.
4. Examine and analyze the result of the pre-test so that you can identify the topics and the technologies that the farmers need to learn during the training.
5. Conduct the training on a regular basis (weekly, monthly, bi-monthly), depending on the schedule that you have arranged and agreed with your farmers.
6. Conduct a post-test at the end of the season-long training to determine the farmers' retention of the technologies.

Establishing the Technology Demonstration Farms (TDF)

The TDF is a venue for generating primary farming information or data, and as learning field for farmers. It is also a show-window of the rice technologies for farmers' adoption. At this stage, you must have finally selected your TDF farmer partners based on the criteria, and have gotten their consent to use their farms as TDFs.

A. Criteria for selection of the TDF

The sites must be accessible, preferably along the road, irrigated, drought and flood-free, not a problem soil and must be a representative of a larger farming community and other criteria for site selection. The sites must be validated by the project staff (RSOs) and LGU-ATs before the crop establishment to ensure compliance of the selection criteria.

B. Establishment and Management of the Core Site TDF and the other TDFs (replicates of the LSTD)

All LSTD trials must be established during the regular planting time in the area. Trials will be established in two cropping seasons, both in wet and dry seasons.

The core site should be at least 0.5 ha. The LSTD trials must address the identified and prioritized local problems as a result of FGD and baseline survey. Other FPs shall devote more or less 1000m^2 where replications of LSTD trials in the core site shall be set up. One FP will replicate only one LSTD trial. At least 4 replications of trials in the core site shall be divided among other FPs. Inputs needed in the trial like seeds, fertilizer and pesticides (if needed in IPM trial) shall be provided to all FPs. Farmers' field practice shall be included in the trials. All participating farmers shall be given 2 kg of registered seeds.

All TDF core sites shall set up PalayCheck® techno demo and varietal trials. In PalayCheck® demo, inputs like seeds and fertilizers will be provided by the project. Other inputs like pesticides (if any) and labor costs will be the farmers' equity. In vatietal trial, the varieties to be tested are based on the problems you want to address and the entries must be a newly-released varieties or those that have not yet been tested in the area. The seeds to be used in any trials will be provided, except for the Farmers' Practice. Other crop management practices in other LSTD trials shall follow the PalayCheck® system.

Activity Guide:

1. From the Farmer Innovators, identify the lead farmer partner. Group the other FPs into 3, 4, or 5 (depending on the number of farmers who have agreed) and agree with them to establish and manage TDF trials on:
   - variety
   - nutrient management
   - water management
   - other technology trials deemed fit or needed.

2. Request help from technical or technology experts to help you and your farmers in designing the TDFs based on the trials that you plan to conduct.
3. Agroecosystems analysis shall be done regularly (**Appendix 5**).
4. Instruct farmers to observe, generate, or gather data or information and guide them in the analysis.
5. Let them record the data and the farm inputs applied (if found needed) on an LSTD form (**Appendix 6**). Report or share the data with other farmers.
6. Include farmers' usual farming practices as control to be compared with the rice yield from the TDFs where the farming technologies had been used or applied.
7. Take note which TDF recorded the highest yield. That is the rice variety suited with the environmental conditions of the farmers' field. Also, take note of the technology intervention you implemented because that is the appropriate technology in growing such rice variety.

Figure 1 shows sample LSTD design and field layout with 6 plots while Figure 2 shows an LSTD design and layout with 2 plots. However, you need to take note that these designs may not applicable to all. Remember, LSTD design is based on the problems that need to be addressed in the area.

Plot 1	Plot2	Plot 3	Plot 4	Plot 5	Plot 6
Farmers' Practice	Demo on Palay Check System	Variety adaptation Trial 5 latest inbred varieties + Farmer's Check Variety	Nutrient management trial e.g -MOET + LCC -Nutrient Manager -½ organic + ½ in-organic -Farmers' Best Practices	Water management trials e.g -Alternate Wetting & Drying (AWD) or Controlled Irrigation (CI), -Continuous Flooding	Others: -Seeding Rates -Plant spacing -Crop estab -Rat Mgt -Weed mgt -Stemborer Mgt. -Disease mgt

Figure 1. Sample LSTD design and field layout (4-6 plots)

(≥ 0.1 ha) Plot 1 – Farmers' Best Practice	(≥ 0.1 ha) Plot 2 – Farmers' choice of any priority LSTD trials e.g. Variety adaptation trial

Figure 2. Sample LSTD design and field layout (1-2 plots)

Establishing Farmers' Learning Fields

Farmer's learning fields (FLF) are either portion or the whole field lot of participating farmers. Participating farmers (PFs) are non-TDF farmers who attend trainings, observe the TDFs of farmer partners, and adopt farming technologies that they have learned and observed.

Activity Guide:

1. Identify the participating farmers and know where their farms are.
2. Observe and take note of the technologies and data that they are generating or gathering from their fields.
3. Take note of the "adapted or modified technologies" that they have implemented.
4. At harvest season, assist them in computing their farm yields and compare these with the yields in the TDFs.
5. Encourage participating farmers to join the farmers' organization.

Farmers appreciate ATs who work with them in the field. Be ready to soil your hands, and don't dread the mud in the paddies. Remember, soiled hands are those that work!

Farmers' field day and forum

Prior to the event, prepare the following items: invitation letters, program of activities, buntings, sound system, light snacks, etc. for the Farmers' Field Day. Invite farmer partners, participating farmers, farmers in adjacent communities, LGU officials, key stakeholders, ATs from other municipalities, and other guests.

Farmers' field day and forum shall be conducted two weeks before the crop harvest to showcase the agronomic and yield performance of technologies demonstrated. Field day participants ranging from 50-100 from different barangays shall be invited to participate in the evaluation of technologies e.g. participatory varietal selection (PVS). Focus technologies shall be presented and discussed followed by farmers' forum after the field visitation for clarifications of technologies observed, technology consultations, briefing on DA programs and some possible technical assistance.

Farmers' Field Day (FFD) is conducted to highlight the agronomic and yield performance of technologies demonstrated at the TDFs.

Activity Guide:

1. Plan and prepare program, an open forum, and farmers' graduation during the FFD.
2. Solicit assistance for streamers, sounds, snacks, and meals/snacks from resource-capable stakeholders.
3. Invite farmers, 4H Club, and other youth and adult civic organizations from neighboring farming communities to attend the FFD.
4. Invite technical and rice experts as resource persons for the farmers' forum.
5. Tour the guests and FFD participants to the TDF and encourage them to ask questions or interact with the participating farmers and farmer partners.
6. Let farmers report and share on:
   - The step-by-step procedures of the technology/ies.
   - Benefits and advantages of adopting the technology/technologies especially on farm expenses before and after adopting the technology/ies.
   - The insects/pests observed in their fields, and how they were prevented and controlled
   - Types of fertilizers applied and the frequency or schedule of their application
   - Farming problems, needs, and constraints in rice production as experienced in the TDF.
7. Conduct an open forum after the field tour and the TDF reports with your invited agriculture or rice experts, LGU officials, and other stakeholders as resource persons.

8. Hold a simple Farmers' Graduation Exercise as a culminating activity, if it is the last season of the TDF observation.

Cross-visit and educational tours

A cross visit or educational tour in successful farms and practitioners, research institutions and agri-business companies will be planned for participating AEWs and farmers purposely to widen their knowledge and exposures on crop technologies and agri-business ventures (Appendix 7).

Cross visits allow farmers working on the same project to observe and see the farms of fellow farmers in other places, and learn or share each others' experiences as they implement or adopt farming technologies.

Educational tours, on the other hand, enable farmers to interact and exchange ideas and technologies with fellow farmers, farm researchers, and experts, thereby widening their awareness on various farming technologies. Farmers, after the study tours, either adopt the technologies in their totality, or they modify or innovate the technologies which from part as outstanding farmers' practices.

Successful farms or rice research institutions are advised as venues for cross visits or study tours. These may be held during, or at the end of the cropping season.

Activity Guide:

1. Beforehand, encourage farmers to save and set aside some of their income as personal budget for study tours and cross visits.
2. Help your farmers solicit funds from generous private persons or public officials or resource-capable agencies or LGUs or raise funds for cross visits and study tours.
3. Communicate and arrange the schedule of visit with owners of successful farms, heads of agricultural research institutes, and even market terminals to expose farmers and raise their awareness not only on recent technologies, but the market situation as well.
4. Plan and prepare the itinerary of travel in a way that farmers have ample time for learning and discussions while visiting successful and productive farms and agricultural research institutes.
5. Allocate funds and go for the study tour.

Season-end review and planning

An end-season review and planning shall be conducted at the end of the cropping season to evaluate, analyze, and interpret results of technologies tested as compared to farmers' best practices. This will be done at the barangay, municipal and at the provincial level.

The review and planning shall be participated by EWs, farmers and researchers. Key technologies tried and demonstrated can be modified based on the results to develop a location-specific technology. This will be fine-tuned in the next cropping season. Final output shall be an LST for of the LSTD sites and possible extrapolation areas in adjoining barangays.

Farm record keeping and data collection

Farmer Innovators , together with the RSOs and AEWs are encouraged to do farm record keeping and data collection using the LSTD monitoring form to monitor technology adoption, other management practices, agronomic and yield data, yield and production expenses for economic analysis, problems met during the cropping season and to evaluate possible changes in practices for a more productive and profitable rice farming in the next cropping season.

Remember that this activity involves the evaluation and adaptation of technologies and not pure demonstration. Therefore, it is important that accurate data collection and recording is a must to ensure reliability of LST recommendation that will be coming out of this activity. Without accurate data collection, and recording, analysis of result will be difficult.

Savings mobilization

Savings mobilization for capitalization shall be encouraged in the farmers' organization to strengthen and sustain cohesion among the group. When resources of farmers are pooled together, they can plan and start developmental activities that will help ease their farming operations. They can be provided with minimum resource for their start-up capital and help them to be linked to other development partners e.g. financing institutions, fertilizer and chemical companies, traders and millers etc.

This is pooling of farmers' resources for additional production capital and for organizational and developmental purposes so that members can borrow at minimal interest.

Activity Guide:

1. Encourage farmers to organize and tap the organization's finance committee to draft a savings plan for the farmers.
2. Encourage the officers to call a special meeting to inform the farmers of the savings plan. Start-up capital may be generated from membership fees and other internal means/sources decided upon by the organization.
3. Assist them to forge partnerships with other development stakeholders for capital buildup.
4. To be effective in managing their organization's finances, help them plan and conduct a simple accounting and bookkeeping training.

Feedback mechanism

Field performance of technologies demonstrated shall be evaluated by end-users for its strengths and weaknesses. Researchers will be invited to personally observe the performance of technologies and to gather feedbacks. Feedback mechanism between the farmers, AEWs and researchers shall be developed and implemented for the improvement of the technology to become location-specific.

Project exit plans and scaling-up

The project activities shall be LGU-led and technically assisted by RSOs for two cropping seasons (1 wet and 1 dry). The outcomes of the project shall be evaluated with the participation of farmers, AEWs, researchers and other collaborators. Project exit plans and a LGU-led expansion in other barangays shall be designed for wider dissemination and promotion of location-specific technology.

Revitalizing/organizing and strengthening farmers' association

Farmers are advised to form an organization not later than the second cropping season of Project implementation. They must also work out registering their organization either with the Cooperative Development Authority, Securities and Exchange Commission, or the local accreditation board.

Activity Guide:

1. Identify farmer partners and participating farmers who possess leadership and management skills. Also, be discerning of those with leadership and management potential, and build or develop them by delegating organizational, project, and farm-related tasks. Coach them further to be effective leaders, while enhancing their self-confidence.
2. Select those with leadership potential, and organize them into a core group. Spend time explaining to them the benefits of the Project, not only for themselves or the village people, but for their municipality, their province and the country's development as a whole.
3. Encourage them to run for vital positions in the proposed or planned organization. Coach them as they take the leadership positions so that they may effectively take the

rein of the organizational functions and propose plans and implement activities for their empowerment.

4. Together with this core group, plan an organizational structure with identified set of officers and committees. Schedule a farmers' assembly where the Project is not only thoroughly explained, but farmers are also encouraged to join an organization aimed at empowering and improving their lives.
5. However, before the scheduled farmers' assembly date, find out if there is an existing organization, and validate your information by asking more reliable sources.
6. If the organization is found inactive and non-functional, contact the previous set of officers and personally ask them of their organizational status, their plans, the challenges and constraints, and their strengths and weaknesses. Ask them whether they want to activate their organization by electing new set of officers.
7. If they are amenable, invite them to join the scheduled farmers' assembly that your core farmers have thoroughly planned and prepared.
8. During the farmers' assembly, ask successful TDF farmer partners and participating farmers to share their Project experiences, emphasizing the benefits that they derived from their Project involvement and participation.
9. After the sharing of successful Project experiences and testimonies, open to the assembly that your core group and your participating farmers have planned to form a new farmers' organization.
10. Open the floor for nominations for the Chair or President. When elected, have him/her preside over the election or voting.
11. Let the newly elected president or chair proceed with filling up the complete set of officers, and the identified committees such as membership, training and development, technology development and promotion, information and public relations, finance committee, etc.
12. After the voting, let the newly organized farmers decide their officers' regular meeting, regular farmers' general assembly, organizational obligations and responsibilities, and other important organizational concerns. Also, schedule and plan for their association's induction.
13. Help farmers strengthen their organization by holding regular organizational planning, evaluation meetings, and team building activities.
14. Build farmers' leadership, values, management, entrepreneurship, and farm-based technology knowledge, skills, and practices by continuously conducting seminars and trainings.
15. Encourage and assist them in accomplishing major farm-related tasks, such as joint venture and acquisition of farm and postharvest machinery for the organization's use.
16. Involve them in promoting technologies to other farmers who may become members of the organization.
17. Assist farmers in registering their organization by scheduling a session to draft or prepare their constitution and by-laws and other registration requirement documents.
18. When ready, register with SEC, CDA, or the local accreditation board. Since a meeting is an effective monitoring tool, the following tips may prove helpful:
    - Notify or remind farmer-partners of the meeting at least a week before the schedule. This way they can apportion their work time in the field and on the project.
    - Help the farmer-president in preparing the agenda of the meeting, and ask the needs or issues that they want to include in the agenda.
    - Encourage farmers to arrive on time, but be sure that you as their AT also arrives on time.
    - During meetings, encourage the farmers to speak up and share their problems, difficulties, and project-related concerns so that solutions are decided among them or by them. Instill in the farmers that the organization is theirs: Always consult them and let them decide on every organizational matter.

- Encourage farmers to contribute resources before resorting to outside help, to develop self-reliance, and ensure project and organizational sustainability.
- Injecting developmental values, habits, and lifestyle may also be included not only as reminders but as part of the developmental process.

Linking with resource-capable stakeholders

Another strategy for sustainability is to link or tie up farmers' association with LGU and other resource-capable stakeholders.

Activity Guide:

1. With the farmers' organization legally registered, motivate the officers to approach the LGU head (barangay chairperson, mayor, or governor) on how the organization and the LGU can partner or fit in the development agenda and program of the LGU.
2. Invoke or cite the Local Government Code provision to justify and convince the LGU officials to specifically support the Project for the next cropping seasons.
3. Also, use your connection and rapport with the LGU officials in bridging the partnership with the farmers. Present farmers' data on increased production to the LGU officials to convince them of the partnership.
4. Seal the partnership with a MOA.
5. Follow the above steps or procedures for other partnership arrangement with NGOs, POs, international funding agencies (IFA), and resource-capable organizations like SUCs and PhilRice for technology updates, and the Open Academy for Philippine Agriculture (OpAPA) for quick and immediate information access.

Project replication and spreading out

To widen Project and technology dissemination sphere, the MAO and ATs are encouraged to share farming-related information and rice-based technologies to farmers of adjacent communities so that rice production is increased, food security is ensured, and farmers' lives are improved.

Activity Guide:

1. Encourage successful Project- participating farmers as resource persons and share their experiences and lessons with farmers in adjacent expansion areas assigned to your fellow ATs.
2. Take every opportunity to include and involve your farmers, together with your MAO and fellow ATs, in Farmers' Congress, Agri-fair technical briefings, field days, and other fora.
3. Nominate your outstanding and excellent farmers to provincial, regional, and national search for outstanding farmers, like the DA Gawad Saka.
4. Expose your successful farmers to mass media network (radio, TV, and print media) to share their successful stories.
5. Package a Project replication proposal for submission and funding assistance to congressmen, senators, governors, and other stakeholders.

Appendix 1 Guide questions for focus group discussions

LOCATION-SPECIFIC TECHNOLOGY DEVELOPMENT (LSTD)
Guide Questions for the Focus Group Discussions (FGD)

Basic Information
LSTD Site: Province _____ Municipality _____ Barangay _____

I. Rice Production

1. Varietal Selection and Seed Class
   a. What are the most commonly planted rice varieties in your barangay? _____ _____ Why ? _____
   b. What is the seed class of the varieties that you use? _____ Why? _____
   c. Where do you get/ buy seeds that you plant? Inbred varieties _____ Hybrid seeds _____ Why? _____
   d. How many times do you plant newly acquired seeds before you replace it? _____ Why? _____

2. Land Preparation
   a. When do you start preparing your field? _____
   b. How do you prepare the field (number of plowing, harrowing, leveling,)? _____ _____
   c. What do you use in preparing the field? (types of machine, draft animals . . .) Why _____ _____
   d. Describe a well-prepared field (degree of puddling, dikes, ditches, decomposition, levelness, drainage) _____

3. Time of Establishment
   a. What month is the regular planting season in your area?:
      Wet Season (WS) _____ Dry Season (DS)_____
   b. How many rice cropping seasons do you grow in a year? _____

4. Crop Establishment
   a. What is your sowing rate for *TPR*? Inbred _____ kg/ha Hybrid _____ kg/ha
      Why? _____
      For DSR? Inbred _____ kg/ha Hybrid _____ kg/ha
      Why? _____
      What do you do if there is a surplus/ shortage of seedlings? _____ _____ How much ?_____
   b. What is the average size of your seedbed for 1 ha? Inbred _____ m2; for Hybrid seeds?_____
   c. Do you apply organic and in-organic fertilizer on the seedbed? ☐ Yes ☐ No when _____ DAS
      Rate and kind _____
   d. Do you apply pesticides on the seedbed? ☐ Yes ☐ No when _____ DAS
      Rate and kind _____
   e. What is your common method of crop establishment during:
      Wet Season _____; % of rice area: _____Dry Season _____; % _____
      *(if transplanted = straight row, straight- kulong, random;) Why?*_____
      (if direct-seeded = drum seeder, broadcast) Why? _____ _____
   f. What is the age of your seedlings at transplanting? Inbred _____ days; Hybrid _____ days
      Why? _____
   g. How many seedlings per hill do you plant? Inbred _____ Hybrid _____
      Why? _____
   h. What is your average planting distance? Wet season _____ Dry Season _____

5. Nutrient Management
   a. What is the basis of your fertilizer application? lab. soil analysis: _____ MOET _____ LCC _____ production experience; _____ recommended by _____ others _____
   b. When do you apply fertilizer?
      Wet Season:
      1st application _____ DAT/DAS; Rate and kind _____
      2nd application _____ DAT/DAS; Rate and kind _____
      3rd application (if any) _____ DAT/DAS; Rate and kind _____
      Why? _____
      Dry Season:
      1st application? _____ DAT/DAS; Rate and kind _____
      2nd application _____ DAT/DAS; Rate and kind _____
      3rd application (if any) _____ DAT/DAS; Rate and kind _____
      Why? _____
   c. Do you use organic fertilizer? _____ What kind _____ Rate/ha _____ bags
      When do you apply ? _____ Why? _____

6. Water Management
   a. What is the main source of your irrigation?
      NIS _____ CIS _____ Pump (STW/deep-well) _____ Others _____
   b. How do you manage water in the seedbed? _____
   c. What is the water depth during transplanting/direct seeding? _____
   d. Do you maintain water in your field continuously? ☐Yes ☐No
      What is the water depth that you maintain at tillering _____cm; at PI _____cm;
      at flowering _____ cm; at ripening _____cm
   e. Do you practice alternate wetting and drying method of irrigation? ☐Yes ☐No
      Why? _____
   f. At what crop stage, do you stop irrigating? _____
      Why? _____
   g. Do you save irrigation water? ☐Yes ☐No How?_____

7. Pest Management
   a. What are the common pests observed in your rice fields?
      (Weeds, Golden Snail, Rodents, Insect pests, Diseases, and other pests)
      _____
   b. What are your practices in managing/ controlling these pests?
      _____
      _____
   c. What caused the highest damage to your crop last year? (e.g. insects, snails, rodents, diseases)
      _____
   d. What is the estimated % yield loss due to these pests? _____
      _____
   e. Do you apply pesticides in your crops? Yes ___; No ___
      What kind of pesticides? _____ For what pests _____
      Frequency _____ Dosage /ha_____

8. Harvest Management
   a. When is the proper time to harvest?_____
      Why?_____
      How do you know the proper time to harvest? _____
      _____
   b. Is labor a problem in your barangay during harvest time? ☐ Yes ☐ No
   c. If there is mechanical harvester/reaper available for rent, will you try it?
      ☐ Yes ☐ No Why? _____

9. Postharvest Management
   a. How many days is the interval between harvesting and threshing during dry/ wet season?
      _____Why? _____

b. Do you sell palay immediately after threshing?☐Yes ☐No why?_____
If no, how do you dry and store your palay? _____
c. What is your yield during the last wet season/ dry season? WS _____ DS _____

II. Diversification and Integration

1. Aside from rice, what other crops do you grow? _____
Why did you choose these crops? _____
When do you plant them? (second, third etc. crop) _____
Why?_____
What were the problems met? _____
_____
2. What farm animals do you raise? _____
What were the problems met? _____
_____
3. What do you do with your farm waste? (e.g. rice straw, crop residue, animal manure, etc.)
_____
4. Which among these crops/ or animals give you the highest income? _____
_____

III. Social and Extension Aspect

1. What do you think are the best ways for you to learn about crop/animal production? (e.g. training, technodemo, mix, radio etc.) _____
Why? _____
2. Where do you get farming advice? (e.g. ATs, DA, PhilRice, private companies, NGOs, etc.)
_____
3. What major farming related problems do you want to be addressed? _____
_____
4. How can we increase your present harvest level? _____
_____
5. Who may assist you in your desire to increase your rice yield? _____
_____

Appendix 2 Baseline survey form

PHILIPPINE RICE RESEARCH INSTITUTE
Maligaya, Science City of Muñoz, Nueva Ecija

LOCATION SPECIFIC TECHNOLOGY DEVELOPMENT PROGRAM
BASELINE DATA

1.0 PRELIMINARY INFORMATION

1.1 Province: _____
1.2 Municipality: _____
1.3 Barangay: _____

2.0 GENERAL INFORMATION

2.1 Name of farmer: _____
2.2 Age of farmer: _____
2.3 Sex of farmer: *01 Male 02 Female*
2.3 Household size: _____
2.3 Educational attainment: _____
2.4 Farming experience (yrs): _____

2.5 Membership in Organization
01 Farmers' Cooperative
02 Irrigators' Association
03 Others (specify) _____

2.6 Rice training attended for the last 3 years
01 FFS 03 Others (specify): _____
02 IPM

3.0 FARM PROFILE

3.1 Total land area (ha): _____
3.2 Total rice farm area (ha): _____
3.3 Farm type:
01 Irrigated lowland 03 Rainfed upland
02 Rainfed lowland
3.4 Tenure status
01 Owner 03 Tenant/ shareholder
02 Amortizing owner 04 Renter/ lessee
05 Others (specify) _____
3.3 Source of irrigation:
01 NIA 03 Pump irrigation system
02 Communal gravity 04 River/ stream gravity
05 Others (specify) _____

4.0 HOUSEHOLD SOURCES OF INCOME

Source	Net Earnings (P/ yr)
01 Palay farming	
02 Other crops farming	
03 Livestock/ poultry	
04 Fish production	
05 Off-farm employment	
06 Salaried employment	
07 Self employment/ business	
08 OCW remittances	
09 Others (specify) _____	

5.0 WATER AVAILABILITY

01 Poor 03 Excellent
02 Average

6.0 CHOOSING VARIETY

6.1 Varieties Planted/ Preferred Varieties

Variety		Seed class*
Wet Season	Dry Season	

*Seed class: 01= Farmers' seed
02= Good seed
03= Certified
04= Registered
05= Foundation
06= Others (specify)

6.2 Source of Seeds
01 Coop 04 Paddy/ Rice Traders
02 Seed Grower 05 PhilRice
03 Own/ exchange with co-farmers 06 Others (specify) _____

6.3 Location of the Seed Source
01 Within the barangay 03 Other municipalities
02 Within the municipality 04 Others (specify) _____

7.0 LAND PREPARATION

7.1 Size of seedbed area/ ha: _____
7.2 Quantity of organic material used in the seedbed:
(no. of bags): _____
7.3 Number of days allotted for land preparation before planting: _____

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8.0 Seeds and Seedling Management

8.1 Preferred Method of Crop Establishment *(encircle)*:

Wet Season	*Dry Season*
01 transplanted (TR)	01 transplanted
02 direct-seeding (DS)	02 direct-seeding
a) dry-seeded	a) dry-seeded
b) wet-seeded	b) wet-seeded

	TR	DS
8.2 Seed sowing practices:		
8.2.1 Quantity. of seeds used (kg/ha):		
8.2.2 No. of hrs. of seed soaking:		
8.2.3 No. of hours of incubation:		

8.3 If transplanted, specify the method used: _____
01 random/ "waray"
02 straight planting

8.4 Age of seedlings at transplanting:
(days after sowing) _____

8.5 Distance of planting: DS _____
WS _____

8.6 No. of seedlings per hill: _____

9.0 FERTILIZER MANAGEMENT:

9.1 Number of bags & kind of fertilizer applied per hectare:

Time of Application	Wet Season		Dry Season	
	Inorganic	*Organic*	*Inorganic*	*Organic*
Basal ("paupo")				
1-15 DAS/ DAT				
16-30 DAS/DAT				
31-45 DAS/DAT				
46-65 DAS/DAT				
65 DAS/DAT & above				

9.2 Knowledge on Integrated nutrient management:

	Awareness	*Adoption*
a. Leaf Color Chart: (LCC)	01 Yes 02 No	01 Yes 02 No
If not adopted, why? _____		
b. Minus-one element technique (MOET):	01 Yes 02 No	01 Yes 02 No
If not adopted, why? _____		
c. Laboratory soil analysis:	01 Yes 02 No	01 Yes 02 No
If not adopted, why? _____		

10. PEST MANAGEMENT

10.1 Pest Problems

Major Pest Problems	Control measures/ actions

10.2 Disease Problems

Major Diseases	Control measures/ actions

11. WEED MANAGEMENT

Common weeds problem	Control measures

12. WATER MANAGEMENT

12.1 Water depth maintain after transplanting:

Stage of crops	TR	DS
a) vegetative stage (cm):		
b) reproductive to maturity (cm):		

12.2 Frequency of irrigation:
01 once a week
02 twice a week
03 Others, specify: _____

12.3 Water problem: Flood month: _____
Drought month: _____

12.4 Other irrigation-related problems: _____

13. HARVEST AND POST-HARVEST ACTIVITIES:

13.1 Draining of field 7 to 14 days before harvest:
01 Yes 02 No

13.2 Perform harvesting at 80-85% maturity:
01 Yes 02 No

13.3 Time of threshing:
(No. of days after harvesting): _____

13.4 Place of storage:
01 House
02 Warehouse
03 Others, specify: _____

14. PROBLEMS ON RICE PRODUCTION

14.1 What are the common technology-related problems in your area?

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15. RICE PRODUCTION

ITEM	WS 2003 *Area planted:*	DS 2004 *Area planted:*
15.1 Total amount harvested *(previous cropping year as basis); dry-weight, in bags*		
15.2 Price per kg.:		
- Fresh weight:		
Dry weight:		

15.3 Disposal of farm produce:
01 Sold as paddy
02 Home consumption
03 For seed purposes
04 Loan payment
05 Irrigation fee
06 Others, _____

15.4 Market of the produced:
01 Paddy traders
02 Millers
03 Cooperatives
04 NFA outlets
05 Others, specify: _____

16. SOURCES OF INFORMATION

16.1 Usual source of information on rice production and other rice-related topics

16.1.1 Interpersonal channels:
01 Agricultural technicians
02 Co-farmers
03 Relatives/ friends
04 PhilRice staff
05 Political figures
06 Others (specify):_____

16.1.2 Mass media:
01 Radio broadcast
02 Newspapers
03 TV broadcast
04 Leaflets & print materials
05 Billboards & posters
06 Others (specify):_____

16.1.3 Events:
01 Training/ seminar
02 Technodemo
03 Farmers' field school (FFS)
04 Field day
05 Field tour/ cross visit
06 Others (specify):_____

16.1.4 Frequency read print materials:
_____
_____

16.1.5 Frequently listened to radio program (include time):
_____
_____

16.1.6 Frequently watched TV program:
_____
_____

16.2 What are your preferred types of information materials related to rice production technologies?
01 Books/ manual
02 Leaflets/ flyers
03 Poster
04 Videos
05 Others (specify):

16.3 What are your preferred language/ dialect in presenting the information on rice production?
01 Filipino
02 English
03 Local dialect (specify): _____

16.4 Are you engaged on the production/ processing of rice-based food products?
01 Yes
02 No
If yes, specify _____

16.5 Have you heard about hybrid rice production technology?
01 Yes
02 No
(If Yes, please proceed to succeeding questions; if No, end of interview).

16.5.1 If yes, where did you hear about hybrid rice?
01 Radio broadcast
02 TV broadcast
03 Leaflets and print materials
04 Billboards and posters
05 Technodemo
06 LGU agricultural personnel
07 PhilRice staff
08 Co-farmers
09 Others (specify): _____

16.5.2 Have you already adapted/ practiced hybrid rice technologies?
01 Yes
02 No

16.5.3 Number of hectares planted to hybrid rice (F1): _____ ha
Yield/ ha: _____ kg/ ha
Hybrid varieties planted: (encircle)
01 - Mestizo
02 - Bigante
03 - SL-8
04 - Magilas
05- others *(specify)*

16.5.4 Based on your experience, please cite some advantages & disadvantages in using the HR technologies?

Advantages	*Disadvantages*
_____	_____
_____	_____
_____	_____
_____	_____

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MEMORANDUM OF AGREEMENT

on

Location-Specific Technology Development on PalayCheck® for Irrigated Rice Areas

KNOW ALL MEN BY THESE PRESENTS:

This Memorandum of Agreement (MOA) is made and entered into by and among:

The **Philippine Rice Research Institute**, a government-controlled corporation, with its Central Experiment Station at Maligaya, Science City of Muñoz, Nueva Ecija, hereinafter referred to as **PhilRice**, and represented in this MOA by its Executive Director, **Ronilo A. Beronio**;

The **Department of Agriculture-Regional Field Unit 3** with office address at Capitol Compound, City of San Fernando, Pampanga, hereinafter referred to as **DA-RFU 3**, and represented in this MOA by its Regional Executive Director, **Redentor S. Gatus**;

The **Provincial Government of Aurora**, with office address at Capitol Compound, Baler, Aurora, hereinafter referred to as **PG of Aurora** and represented in this MOA by its Governor, **Bellaflor J. Angara-Castillo**;

The **Local Government of Dingalan**, with office address at Dingalan, Aurora, hereinafter referred to as **LGU-Dingalan**, and represented in this MOA by its Mayor, **Zenaida Padiernos**;

The **Dingalan Farmers Cooperative**, with office address at Dingalan, Aurora, hereinafter referred to as **Dingalan FC**, and represented by its chairman, **Juan dela Cruz**;

WITNESSETH:

WHEREAS, PhilRice, as the national rice research and development agency aims to increase farm productivity, profitability, and sustainability, and to enhance the capacity of local partners;

WHEREAS, DA-RFU 3, a resemblance of the DA central office is tasked to spearhead the overall planning, coordination, and monitoring of program implementation in the region and assist in the evaluation of farmers' organizations and beneficiaries of projects and is willing to help in the implementation of the project;

WHEREAS, PG of Aurora, through the Office of the Provincial Agriculturist (OPA), will serve as a backstopping arm tasked to help in the implementation and monitoring of agricultural projects and activities in the province and in assuring high

agricultural productivity through supporting and adopting technologies and projects of national agencies;

WHEREAS, LGU-Dingalan, one of the major rice producing municipalities in the province of Aurora, has expressed willingness and commitment to share human and financial resources with PhilRice to improve farmer's yield and income and to enhance farmers' and agricultural technologists' capacities;

WHEREAS, the Dingalan Farmers Cooperative has signified great interest in actively participating in the development of location-specific technologies as farmer cooperators and farmer partners;

NOW THEREFORE, PhilRice, DA-RFU 3, PG of Aurora, LGU-Dingalan, and Dingalan Farmers Cooperative, inspired by their common objectives, hereby agree to become partners in ensuring the success of this project to help rice farmers, do hereby enter into this MOA under the terms and conditions set forth in the following articles:

Article I
AREAS OF PARTNERSHIP

The parties have agreed in principle to increase the productivity of Dingalan by one ton per hectare and have a 15% increase in income of farmers by identifying and understanding farmers' needs and constraints in rice production in irrigated areas;

The scale of partnership among the four agencies will be determined from time to time by a joint evaluation of LGU-Dingalan's needs and interests, agencies' capacity and effectiveness for such partnership, and the level of financial resources available for the implementation of the project;

It is understood that specific activities for implementation under this MOA will be defined in the work plan developed in two phases (Phase I, May-December 2009 and Phase II, 2010-2013) and approved in accordance with Article IV hereof.

Article II
RESPONSIBILITIES OF EACH PARTY

PhilRice:

1. Provide funds for establishing the LSTD, including field supplies, research and training supplies, and training fees of MAEWs ;
2. Deploy Rice Sufficiency Officers (RSO) that will provide technical inputs into the conduct of the LSTD and training of farmers;
3. The RSO, together with the municipal agricultural extension worker (MAEW) assigned to the site, shall prepare and submit required reports to PhilRice, OPAg, and DA-RFU;
4. Conduct collection of benchmark and agro-climatic characterization of the sites;
5. Facilitate the conduct of PRA in the site, provide assistance in impact evaluation;

DA-RFU 3:

1. Provide funds to reproduce training and communication materials;
2. Recommend provinces that will be considered for the project;
3. Designate DA-RFU personnel to coordinate LSTD activities in the region and consolidate reports at the regional level;
4. May provide additional funds for field days.

PG of Aurora:

1. Assign one staff, preferably a RSTC graduate, if there is, to coordinate the activity in the province. He will integrate the municipal reports and provide copy of such to the DA-RFU;
2. Utilize the results of the project to make productivity maps for the province;
3. Recommend municipalities or cities as possible project sites following the project's set criteria;

LGU-Dingalan:

1. Identify barangays as possible project sites;
2. The barangay captain or other officials shall lead in identifying participants to the project;
3. Assign at least one MAEW to help manage the LSTD set-up and the training of the farmer cooperators (FCs) and provide TEV of the particular MAEW to and from the training site during the duration of the LSTD (once a week for two seasons);
4. The MAO/MAEW shall provide field-level leadership and management of the project; the MAEW shall lead the conduct of the PalayCheck training;
5. Provide funds for snacks (2-3 meetings) and field day expenses of not more than Php 10,000.00 at the end of the season;
6. Allow other MAEWs, when possible, to participate in the season-long training program as participants so that they could be ready to lead the implementation of the expansion of the project in the municipality;
7. Willing to incorporate the LSTD in their municipal plan, when deemed important by the municipality officials, and provide funds for the setting-up of more LSTD sites and training of farmers in other barangays of the municipality;
8. The MAEW, together with the RSO assigned in the municipality, shall prepare the periodic reports of the project and submit such to the OPAg, DA-RFU, and PhilRice;
9. Utilize the results of the project to increase the productivity of the municipality through the agricultural extension service;

Farmer Cooperator (FC):

1. 30-35 farmers shall constitute one site. They must be willing to undergo season-long training on rice production and ho to undertake location-specific technology development;
2. One of these farmer-cooperators shall be the farmer-partner who shall put up at least 0.5 hectare PalayCheck demo farm and all the component technology set-up;

3. The FCs shall determine what component technology they would include in the LSTD through a farmers discussion group (FDG) to be led by the municipal agricultural extension worker (MAEW) and PhilRice's Rice Sufficiency Officer (RSO);
4. Provide labor and other farm inputs.

Article III
OWNERSHIP AND PUBLICATION OF RESULTS OF THE PROJECT

All parties agree that the outcome of the project, including all intellectual property rights (IPR), is jointly owned by all parties. It is also agreed that the results will be jointly published by PhilRice, DA-RFU 3, PG of Aurora and LGU-Dingalan.

Article IV
WORKPLAN

This MOA will be implemented following a specific work plan (*Attachment A*). The work plan specifically describes the joint activities to be carried out and is consistent with the goal of the Location-Specific Technology Development project.

Article V
AMENDMENTS

The parties may, by mutual consent in writing, modify any provisions of this MOA.

Article VI
EFFECTIVITY

This MOA shall take effect on the date all parties affix their signatures, and shall remain valid until five (5) years unless sooner terminated when one of the parties notifies the other in writing of its intention to terminate the MOA, in which case, the MOA will terminate six months from the date of such notification. This MOA may be further renewed or extended upon mutual agreement between the parties, which shall be made not later than six months prior to the termination date.

IN WITNESS WHEREOF, the parties hereunto have affixed their signatures on this ___th day of _____ 2009 at _____

PHILRICE **DA-RFU 3**

_____ _____

RONILO A. BERONIO
Executive Director

REDENTOR S. GATUS
Regional Executive Director

PG-AURORA

LGU-DINGALAN

BELLAFLOR J. ANGARA-CASTILLO
Governor

ZENAIDA PADIERNOS
Mayor

DINGALAN FARMERS COOPERATIVE

JUAN DELA CRUZ
Chairman

SIGNED IN THE PRESENCE OF:

ADRIANO NECESITO
Provincial Agriculturist

RUBEN B. MIRANDA
Deputy Executive Director for Development

ACKNOWLEDGMENT

Republic of the Philippines
Municipality/City)
Province) s.s.

BEFORE ME, a Notary Public for and in _____ Philippines personally appeared the following:

NAME	CTC Number	Date/Place of Issue
RONILO A. BERONIO		Science City of Muñoz, Nueva Ecija
REDENTOR S. GATUS		
BELLAFLOR J. ANGARA-CASTILLO		
ZENAIDA PADIERNOS		
JUAN DELA CRUZ		

known to me to be the same persons who executed the foregoing instrument consisting of five (5) pages including this page which the acknowledgment is written. Attachment A constitutes four (4) pages. The parties and their instrumental witnesses signed all the pages thereof and acknowledged to me that the same is their own free and voluntary act and deed and that of the entities, which they respectively represent.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this ___ day of _____, 2009 at Nueva Ecija, Philippines.

PTR No. _____
Until _____

Doc. No. _____
Page No. _____
Book No. _____
Series of _____

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Appendix 5 Agroecosystems Analaysis (AESA) *(Philrice, 2003)*

A detailed knowledge of the agroecosystem is necessary to harmonize the control practices for different pests to prevent unacceptable disruptive effects. AESA is an essential decision tool for every crop protection specialist and/or farmer. The dynamics and behavior of one agroecosystem varies from one place to place or even from farm to farm, within the same locality due to the variations in the management systems. With AESA, the participants and the facilitators of the training acquire knowledge and skills in identifying changes and interactions in rice and its surroundings and use this in decision making.

Procedures in the conduct of AESA

A. Divide the training participants into four learning teams with one facilitator for each team. These learning teams are permanent throughout the duration of the training. Each team is assigned to a specific field plot for the weekly AESA.
B. Conduct AESA 14 days after transplanting (DAT) and weekly thereafter up to two weeks before harvest.
C. Randomly pick a hill and record the observations and data gathered. Get a minimum of 5 sample hills.
D. The following will be observed and recorded in sequence:
    1. Cautiously observe, identify, count, and classify highly mobile insect first, according to pests and natural enemies without disturbing the sample plants at the canopy.
    2. Observe and count other insects at the middle part of the plants by looking closer between tillers.
    3. identify and count adult and nymphs of the brown planthoppers (BPH), whitebacked planthoppers (WBPH), and other insects at the base of the plant. Observe also the presence of the natural enemies of these pests such as mired bugs, dwarf spiders, and wolfspiders.
    4. Tap the plants after examining the hill. It will help dislodge other insects that are not counted or identified.
    5. Be aware that there are plenty of helpful aquatic predators such as water striders, Mesovelia and Microvelia, which are effective against hopper adults and nymphs. These too are to be counted or estimated and included as other observations.
    6. Observe the sample hill for plant health, diseases, nutrient deficiency, and leaf damages. Determine Nitrogen deficiency by using Leaf Color Chart (LCC).
    7. Measure water level using an improvised bamboo stick or meter stick.
    8. Determine weed status by rating weed density as abundant, frequent, and rare.
        a. Abundant – when field is almost covered by weeds;
        b. Frequent – when weed condition will be spotted in occurrence ; and
        c. Rare – when weeds are almost absent.

       Weed rating can be done while conducting field sampling and can generally observed while standing at the edge of the field.
    9. Take at least 10 LCC readings at random if PTD is LCC based. If 6 or more of the LCC readings are lower than 4, apply the recommended fertilizer.
E. Stake 5 representative hills per treatment for plant development data. Take the average number of tillers, plant height, and the number of leaves of the highest tiller.
F. Consolidate the data gathered such as the insect pests and their natural enemies and other field observations on a Manila paper. Include also the general observations such as the variety planted, date sown, date transplanted, fertilizer applied, average number of tillers, average plant height, number of leaves, age and stage of the plant. Other AESA data e.g., weather conditions, water depth, weed status, plant height, pest and other damages will be indicated as observations. Recommendations will be indicated opposite the observations.
G. Present/repot AESA results after the processing of the data. A representative of the team will present their output in the big group. Questions and clarifications will be raised and opinions/answers/recommendations and discussion will follow. The facilitators can clarify matters/issues with contrasting ideas and supply additional information when necessary. This activity will be undertaken once a week, up to 2 weeks, before harvesting.

Appendix 6

LSTD Crop Monitoring Form
_____Season 2009_____

PRE-SEEDING PLANNING

Farmer Innovator: _____
Location of farm: _____
Area of PalayCheck® Field (ha): _____

Agricultural Technologist In-Charge: _____
Rice Sufficiency Officer In-Charge: _____
_____

1. FARMER PROFILE

1.1 Household Address: _____
_____
_____

1.2 Sex: ☐ Male ☐ Female

1.3 Household Size: _____

1.4 Age of Farmer: _____

1.5 Educational Attainment: _____

1.6 Number of Years in Rice Farming: _____

1.7 Tenure Status:
- ☐ Owner
- ☐ Share Cropper
- ☐ Leaseholder (No. of Seasons: _____)
- ☐ Others *(Please specify below)*

_____
_____

1.8 Rice training in last 3 years *(check all that apply)*
- ☐ Farmers' Field School
- ☐ Integrated Pest Management
- ☐ Hybrid Rice Technical Briefing
- ☐ Others *(please specify)*

_____

1.9 Membership in farmers'/local organization *(check all that apply)*
- ☐ Irrigators association
- ☐ Cooperative
- ☐ Barangay Council
- ☐ None
- ☐ Others *(please specify)*

_____

1.10 Credible sources of information on rice

_____
_____

2. FARM PROFILE

2.1 Cropping pattern: _____

2.2 Total area planted to rice (ha): _____

2.3 Purpose of growing rice
- ☐ For commercial selling/ consumption
- ☐ For seed business

2.4 MOET result (if applicable, encircle): -N -P -K -S -Cu -Zn

2.5 Other method of soil analysis used: _____

2.5 Deficient nutrients/ fertilizer recommendation: _____
_____

2.6 Soil texture
- ☐ Fine-textured soil *(clay, clay loam, silty, sandy clay loam)*
- ☐ Medium-textured soil *(loam, silt loam, sandy loam))*

2.7 Type of irrigation system
- ☐ Gravity (NIA)
- ☐ Pump/ CIS

3. VARIETY AND SEED SELECTION

3.1 Variety: _____

3.2 Is this recommended in your area
- ☐ Yes ☐ No

3.2.1 If no, why: _____

3.3 Is this resistant to major pests in your area
- ☐ Yes ☐ No

3.3.1 If no, why: _____

3.4 Is this high yielding
- ☐ Yes ☐ No

3.4.1 If no, why: _____

3.5 Is this in demand in the market

3.5.1 If no, why: _____

3.3 Seed class
- ☐ Certified seeds
- ☐ Good seeds
- ☐ Farmers' seeds
- ☐ Hybrid (F1 seeds)
- ☐ Others *(Please specify)*

_____

3.4 Quantity of seed used for PalayCheck field (kg): _____

3.5 Seed source
- ☐ Seed grower/ Cooperative
- ☐ Input dealer
- ☐ Co-farmer
- ☐ Self
- ☐ Others *(Please specify)*

_____

3.6 Seed price (P/kg): _____

☐ **Key Check 1: Used certified seeds of a recommended variety.**

Assessment of Key Check: *The seed of the recommended variety is certified by the BPI NSQCS as evidenced by a tag attached to the sack. Foundation and registered seeds coming from a reliable source are also acceptable*

Remarks/ Other practices or related information:

_____
_____
_____
_____
_____

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LAND PREPARATION AND CROP ESTABLISHMENT

Farmer Innovator: _____
Location of farm: _____
Area of PalayCheck® Field (ha): _____

Agricultural Technologist In-Charge: _____
Rice Sufficiency Officer In-Charge: _____

4. LAND PREPARATION

4.1 Ditches repaired and cleaned ☐ Yes ☐ No
4.2 Dikes repaired and raised to 15 cm height ☐ Yes ☐ No
4.3 Stubbles and weeds well-decomposed ☐ Yes ☐ No
4.4 Soil soft and well-puddled ☐ Yes ☐ No
4.5 Good drainage ☐ Yes ☐ No

Activities	Date	Cost (P)	
		Hired Labor	Materials (specify)
Repair of dikes			
Plowing			
Rotavation			
1st Harrowing			
2nd Harrowing			
Leveling			
Construction of canalets			

☐ **Key Check 2: No high and low soil spots after final leveling.**

Assessment of Key Check: *During land leveling, the field should have 2-5 cm water depth. The field should have no visible mound of soil above the water surface after final leveling.*

Remarks/ Other practices or related information: _____

5A. CROP ESTABLISHMENT

5A.1 Method of crop establishment
☐ Direct seeding
☐ Transplanting

5A.2 No. of seedling per hill: _____

5A.3 Plant spacing
☐ 20 cm x 20 cm
☐ Random
☐ Others *(Please specify below)*
_____

5A. 4 Seedbed for PalayCheck field (m^2)

5A.5 Did you incorporate organic material in seedbed?
☐ Yes ☐ No

5A.6 If Yes,
5A.6.1 Type of organic material: _____
5A.6.2 Amount (bags & weight/bag): _____

5A.7 Was the seedbed properly located & protected from pests?
☐ Yes ☐ No

5A.8 Duration of fallow period (days): _____

Activities	Date	Cost (P)	
		Hired Labor	Materials (specify)
Seedbed preparation			
Sowing			
Pulling of seedlings			
Transplanting			
Broadcast/Drum seeding			
Replanting			

☐ **Key Check 3: Practiced synchronous planting after a fallow period.**

Assessment of Key Check: *The field should have a fallow period of at least 30 days after harvest. It should be planted within 14 days before and after the majority of the irrigation service area of the turnout has been planted.*

Remarks/ Other practices or related information:

6A. NUTRIENT MANAGEMENT

6A.1 Fertilizer applied

Fertilizer	*Date Applied*	*Quantity Applied (bag)*	*Price per Bag (P)*	*Cost of Hired Labor (P)*

7A. WATER MANAGEMENT

7A.1 Water depth at transplanting/direct seeding from 0-9 DAS/DAT? ☐ 0-2 cm ☐ 2-4 cm ☐ >4 cm

7A.2 Did a typhoon or heavy rainfall hit your farm during this period? ☐ Yes ☐ No

8A. PEST MANAGEMENT

8A.1 Did you have problem with snails in the seedbed?
☐ Yes ☐ No

8A.3 Did you observe bird damage?
☐ Yes ☐ No

8A.2 Chemicals used

Pesticide (Brand Name)	*Date Applied*	*Quantity (liter or kilogram)*	*Price/Unit (P/liter or P/kilogram)*	*Cost of Hired Labor (P)*

8A.4 Remarks/Other pest management practices used: _____

LSTD Crop Monitoring Form
_____Season 2009_____

EARLY TO MID-TILLERING STAGE

Farmer Innovator: _____ Agricultural Technologist In-Charge: _____
Location of farm: _____ Rice Sufficiency Officer In-Charge: _____
Area of PalayCheck® Field (ha): _____

5B. CROP ESTABLISHMENT

5B.1 Replanted within 7 DAT/10-DAS ☐Yes ☐No 5B.3 Replanting cost (hired): _____

5B.2 Average number of healthy hills or plants/m^2 at 10 DAT/15 DAS: _____

Transplanted (hills/m^2) Sample 1 _____ Sample 2 _____ Sample 3 _____

Direct seeded (plants/m^2) Sample 1 _____ Sample 2 _____ Sample 3 _____

☐ **Key Check 4: Sufficient number of healthy seedlings.**

Assessment of Key Check: After replanting missing hills within 7 DAT, assess the plant density and health status of the seedlings at 10 DAT. There should be at least25 hills/m^2 with at least 1 healthy seedling per hill. In direct wet-seeded rice, there should be at least 150 healthy plants/m^2 for a seed rate of 40 kg/ha and 300 plants/m^2 for a rate of 80 kg/ha at 10 DAS.

Remarks/ Other practices or related information:

6B. NUTRIENT MANAGEMENT

6B.1 Used LCC ☐Yes ☐No

6B.2 LCC reading: _____

6B.3 Fertilizer applied

Fertilizer	*Date Applied*	*Quantity Applied (bag)*	*Price per Bag (P)*	*Cost of Hired Labor (P)*

☐ **Key Check 5: Sufficient nutrients at tillering to early panicle initiation and flowering.**

Assessment of Key Check: From tillering up to early panicle initiation and flowering, the crop is fertilized with nitrogen (1.5 bags urea/ha in DS or 1.0 bag urea/ha in WS) whenever the LCC reading is below 4 for transplanted rice and below 3 for direct wet-seeded rice. At flowering, a transplanted crop should have at least 300 panicles/m^2.

Remarks/ Other practices or related information:

7B. WATER MANAGEMENT

7B.1 Water depth before 10 DAT/10-15 DAS (cm) _____

7B.2 Water depth at 10-30 DAT/10-40 DAS (cm) _____

7B.3 Achieved water depth of 3-5 cm every irrigation time	☐Yes	☐No
7B.4 Did you observe drought stress?	☐Yes	☐No
7B.5 Did you observe excessive water (greater than 5 cm for 7 days or more) in the field?	☐Yes	☐No
7B.6 Did a typhoon/heavy rainfall hit your farm during this period?	☐Yes	☐No

7B.7 Water pump (fuel cost): _____

☐ **Key Check 6: Avoided excessive water or drought stress that could affect the growth and yield of the crop.**

Assessment of Key Check: No symptoms of stress due to excessive water observed (e.g., reduced tillering and leaf area) at vegetative stage. Excessive water means water depth greater than 5 cm for 7 days or more. No symptoms of stress due to drought observed (e.g., leaf rolling, leaf tip drying, reduces leaf area, height, tiller number, and panicle exsertion, and many unfilled grains)

Remarks/ Other practices or related information:

8B. PEST MANAGEMENT

8B.1 Sprayed against leaf-feeding insects within 30 DAT/40 DAS	☐Yes	☐No
8B.2 10% or more of the area has missing or snail-damaged hills at 14 DAT/30 DAS	☐Yes	☐No
8B.3 10% or more of the area has weeds at 15 and/or 30 DAT/DAS	☐Yes	☐No
8B.4 30% or more of the area has stem borer deadheart	☐Yes	☐No
8B.5 The average number of RBB is ≥10 per hill and ≥20% deadheart	☐Yes	☐No
8B.6 The average number of BPH/WBPH is 25 or more/hill	☐Yes	☐No
8B.7 20% or more of the area has leaf blast	☐Yes	☐No
8B.8 20% or more of the area has RTV symptoms	☐Yes	☐No

8B.9 Chemicals used

Pesticide (Brand Name)	*Date Applied*	*Quantity (liter or kilogram)*	*Price/Unit (P/liter or P/kilogram)*	*Cost of Hired Labor (P)*

RBB = Rice black bug; BPH = Brown planthopper; WBPH = White-backed planthopper; RTV = Rice tungro virus

☐ **Key Check 7: No significant yield loss due to pests.**

Assessment of Key Check: No significant yield loss due to insect pests, diseases, weeds, rats, snails, and birds. Significant pest damage occurs when one or more pests cause damage as describe in the PalayCheck booklet.

Remarks/ Other practices or related information:

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6C. MAXIMUM TILLERING/PANICLE INITIATION TO BOOTING STAGE

Farmer Innovator: _____ Agricultural Technologist In-Charge: _____
Location of farm: _____ Rice Sufficiency Officer In-Charge: _____
Area of PalayCheck® Field (ha): _____ _____

6C. NUTRIENT MANAGEMENT

6C.1 Used LCC ☐ Yes ☐ No

6C.2 LCC reading: _____

6C.3 Fertilizer applied

Fertilizer	*Date Applied*	*Quantity Applied (bag)*	*Price per Bag (P)*	*Cost of Hired Labor (P)*

☐ **Key Check 5: Sufficient nutrients at tillering to early panicle initiation and flowering.**

Assessment of Key Check: From tillering up to early panicle initiation and flowering, the crop is fertilized with nitrogen (1.5 bags urea/ha in DS or 1.0 bag urea/h in WS) whenever the LCC reading is below 4 for transplanted rice and below 3 for direct wet-seeded rice. At flowering, a transplanted crop should have at least 300 panicles/m².

Remarks/ Other practices or related information:

_____

_____

7C. WATER MANAGEMENT

7C.1 Achieved water depth of 3-5 cm every irrigation time	☐ Yes	☐ No
7C.2 Did you observe drought stress?	☐ Yes	☐ No
7C.3 Did you observe water depth ≥25% of plant height for 7 days or more in the field?	☐ Yes	☐ No
7C.4 Did a typhoon/heavy rainfall hit your farm during this period?	☐ Yes	☐ No

7C.5 Water pump (fuel cost): _____

☐ **Key Check 6: Avoided excessive water or drought stress that could affect the growth and yield of the crop.**

Assessment of Key Check: No symptoms of stress due to excessive water observed (e.g., reduced tillering and leaf area) at vegetative stage. Excessive water means water depth greater than 5 cm for 7 days or more. No symptoms of stress due to drought observed (e.g., leaf rolling, leaf tip drying, reduces leaf area, height, tiller number, and panicle exsertion, and many unfilled grains)

Remarks/ Other practices or related information:

_____

_____

8C. PEST MANAGEMENT

8C.1 5% or more of the area has rat-damaged tillers	☐ Yes	☐ No
8C.2 1 or more SB egg mass per square meter	☐ Yes	☐ No
8C.3 The average number of RBB is ≥20 per hill and ≥30% deadheart	☐ Yes	☐ No
8C.4 The average number of BPH/WBPH is 50 or more hill	☐ Yes	☐ No
8C.5 40% or more of the area has RTV symptoms	☐ Yes	☐ No
8C.6 30% or more of the area has Leaf Blast	☐ Yes	☐ No
8C.7 40% or more of the area has ShB symptoms	☐ Yes	☐ No
8C.8 30% or more of the area has BLB symptoms	☐ Yes	☐ No

8C.9 Chemicals used

Pesticide (Brand Name)	*Date Applied*	*Quantity (liter or kilogram)*	*Price/Unit (P/liter or P/kilogram)*	*Cost of Hired Labor (P)*

RBB = Rice black bug; BPH = Brown planthopper; WBPH = White-backed planthopper; RTV = Rice tungro virus
BLB = Bacterial Leaf Blight; ShB = Sheath blight; SB=Stem borer

☐ **Key Check 7: No significant yield loss due to pests.**

Assessment of Key Check: No significant yield loss due to insect pests, diseases, weeds, rats, snails, and birds. Significant pest damage occurs when one or more pests cause damage as describe in the PalayCheck booklet.

Remarks/ Other practices or related information:

_____

_____

_____

LSTD Crop Monitoring Form
_____Season 2009_____

FLOWERING TO GRAIN FILLING STAGE

Farmer Innovator: _____ Agricultural Technologist In-Charge: _____
Location of farm: _____ Rice Sufficiency Officer In-Charge: _____
Area of PalayCheck® Field (ha): _____ _____

6D. NUTRIENT MANAGEMENT

6D.1 Obtained final LCC reading at early heading ☐Yes ☐No

6D.2 LCC reading: _____

6D.3 Fertilizer applied

Fertilizer	*Date Applied*	*Quantity Applied (bag)*	*Price per Bag (P)*	*Cost of Hired Labor (P)*

6D.4 Average number of panicles/m^2 _____
Transplanted Sample 1_____ Sample 2 _____ Sample 3 _____
Direct seeded Sample 1_____ Sample 2 _____ Sample 3 _____

☐ **Key Check 5: Sufficient nutrients at tillering to early panicle initiation and flowering.**

Assessment of Key Check: *From tillering up to early panicle initiation and flowering, the crop is fertilized with nitrogen (1.5 bags urea/ha in DS or 1.0 bag urea/ha in WS) whenever the LCC reading is below 4 for transplanted rice and below 3 for direct wet-seeded rice. At flowering, a transplanted crop should have at least 300 panicles/m^2.*

Remarks/ Other practices or related information:

_____
_____

7D. WATER MANAGEMENT

7D.1 Achieved water depth of 3-5 cm every irrigation time	☐Yes	☐No
7D.2 Did you observe drought stress?	☐Yes	☐No
7D.3 Did you observe water depth ≥25% of plant height for 7 days or more in the field?	☐Yes	☐No
7D.4 Did a typhoon/heavy rainfall hit your farm during this period?	☐Yes	☐No

7D.5 Water pump (fuel cost): _____

☐ **Key Check 6: Avoided excessive water or drought stress that could affect the growth and yield of the crop.**

Assessment of Key Check: *No symptoms of stress due to excessive water observed (e.g., reduced tillering and leaf area) at vegetative stage. Excessive water means water depth greater than 5 cm for 7 days or more. No symptoms of stress due to drought observed (e.g., leaf rolling, leaf tip drying, reduces leaf area, height, tiller number, and panicle exsertion, and many unfilled grains)*

Remarks/ Other practices or related information:

_____
_____

8D. PEST MANAGEMENT

8D.1 5% or more of the area has rat-damaged tillers	☐Yes	☐No
8D.2 20% or more of the area has SB whitehead	☐Yes	☐No
8D.3 The average number of RBB is ≥20 per hill and ≥20% whitehead	☐Yes	☐No
8D.4 The average number of BPH/WBPH is 50 or more hill	☐Yes	☐No
8D.5 The average number of RB is ≥5/m^2 at milk stage or ≥10/m^2 at grain filling	☐Yes	☐No
8D.6 10% or more of the area has neck or panicle blast	☐Yes	☐No
8D.7 30% or more of the area has BLB symptoms	☐Yes	☐No
8D.8 40% or more of the area has ShB symptoms	☐Yes	☐No

8D.9 Chemicals used

Pesticide (Brand Name)	*Date Applied*	*Quantity (liter or kilogram)*	*Price/Unit (P/liter or P/kilogram)*	*Cost of Hired Labor (P)*

RBB = Rice black bug; BPH = Brown planthopper; WBPH = White-backed planthopper; RB = Rice bug; RTV = Rice tungro virus BLB = Bacterial Leaf Blight; ShB = Sheath blight; SB=Stem Borer

☐ **Key Check 7: No significant yield loss due to pests.**

Assessment of Key Check: *No significant yield loss due to insect pests, diseases, weeds, rats, snails, and birds. Significant pest damage occurs when one or more pests cause damage as describe in the PalayCheck booklet.*

Remarks/ Other practices or related information: _____ 36
_____

MATURITY STAGE

Farmer Innovator: _____
Location of farm: _____
Area of PalayCheck® Field (ha): _____

Agricultural Technologist In-Charge: _____
Rice Sufficiency Officer In-Charge: _____

7E. WATER MANAGEMENT

7E.1 Drained water/stopped irrigation *(1 week before harvest for medium-textured soils; 2 weeks before harvest for fine-textured soils)*

☐ Yes ☐ No

7E.2 Did a typhoon hit your farm during this period? ☐ Yes ☐ No

7E.3 Irrigation fee (P/ha or number of bags/ha, kg/bag, and P/kg): _____

Remarks/ Other practices or related information: _____

8E. PEST MANAGEMENT

8E.1 5% or more of the area has rat-damaged tillers	☐ Yes	☐ No
8E.2 20% or more SB whiteheads	☐ Yes	☐ No
8E.3 20% or more RBB whiteheads	☐ Yes	☐ No
8E.4 5% or more of the area has panicles damaged by birds	☐ Yes	☐ No
8E.5 10% or more of the area infected with panicle blast	☐ Yes	☐ No
8E.6 30% or more of the area has BLB symptoms	☐ Yes	☐ No
8E.7 40% or more of the area has ShB symptoms	☐ Yes	☐ No

8E.8 Chemicals used

Pesticide (Brand Name)	*Date Applied*	*Quantity (liter or kilogram)*	*Price/Unit (P/liter or P/kilogram)*	*Cost of Hired Labor (P)*

RBB = Rice black bug; BLB = Bacterial Leaf Blight; ShB = Sheath blight

☐ **Key Check 7: No significant yield loss due to pests.**

Assessment of Key Check: *No significant yield loss due to insect pests, diseases, weeds, rats, snails, and birds. Significant pest damage occurs when one or more pests cause damage as describe in the PalayCheck booklet.*

Remarks/ Other practices or related information: _____

HARVEST STAGE

9. HARVEST MANAGEMENT

9.1 Actual grain produced (bags): _____
9.2 Average weight/bag when sold (kg): _____

Grain disposal:

State	Price (P/kg)
Fresh	
Dried	

9.4 Moisture content (%)
- At threshing: _____
- At grain disposal: _____

9.5 Did you cut the crop at the right time?
☐ Yes ☐ No

9.3 Activities and costs (in cash or in kind)

Item	*Date*	*Number of bags*	*Weight/Bag (kg)*	*Price (P/kg)*	*Total Cost (P)*
Cutting/Reaping					
Threshing					
Hauling					
Drying					
Permanent labor	—				

☐ **Key Check 8: Cut and threshed the crop at the right time.**

Assessment of Key Check: *The crop should be reaped when 1/5 or 20% of the grains at the base of the panicle are at hard dough stage and most of the grains in the panicle are golden yellow. The palay should also be threshed not later than one day after reaping during the WS and not later than two days during the DS.*

Remarks/ Other practices or related information: _____

TOTAL NUMBER OF KEY CHECKS ATTAINED: _____ CHECKS OUT OF 8

LSTD Crop Monitoring Form
_____Season 2009_____

SUMMARY OF KEY CHECK ASSESSMENT

Farmer-cooperator: _____ Agricultural Technologist In-Charge: _____
Location of farm: _____ Area of PalayCheck Field (ha): _____

Assessment of Key Check	✓ or X	Observations/ Remarks
1. Variety and Seed Selection		
☐ Recommended Variety		
☐ Certified Seed		
2. Land Preparation		
☐ No high and low spots		
3. Crop Establishment		
☐ Planted 14 days before or after majority of service area is planted		
☐ ≥ 30 days fallow period		
4. Crop Establishment		
☐ ≥25 healthy hills/m^2		
☐ ≥150/300 healthy plants/m^2		
5. Nutrient Management		
☐ Sufficient nutrients at tillering		
☐ Sufficient nutrients at early panicle initiation		
☐ ≥ 300/ 350 panicles/m^2 at flowering		
6. Water Management		
☐ Avoided excess water		
☐ Avoided drought stress		
7. Pest Management		
☐ Golden apple snail		
☐ Weeds		
☐ Insect pests		
☐ Diseases		
☐ Rats		
☐ Birds		
8. Harvest Management		
☐ Cut/reaped at the right time		
☐ Threshed at the right time		

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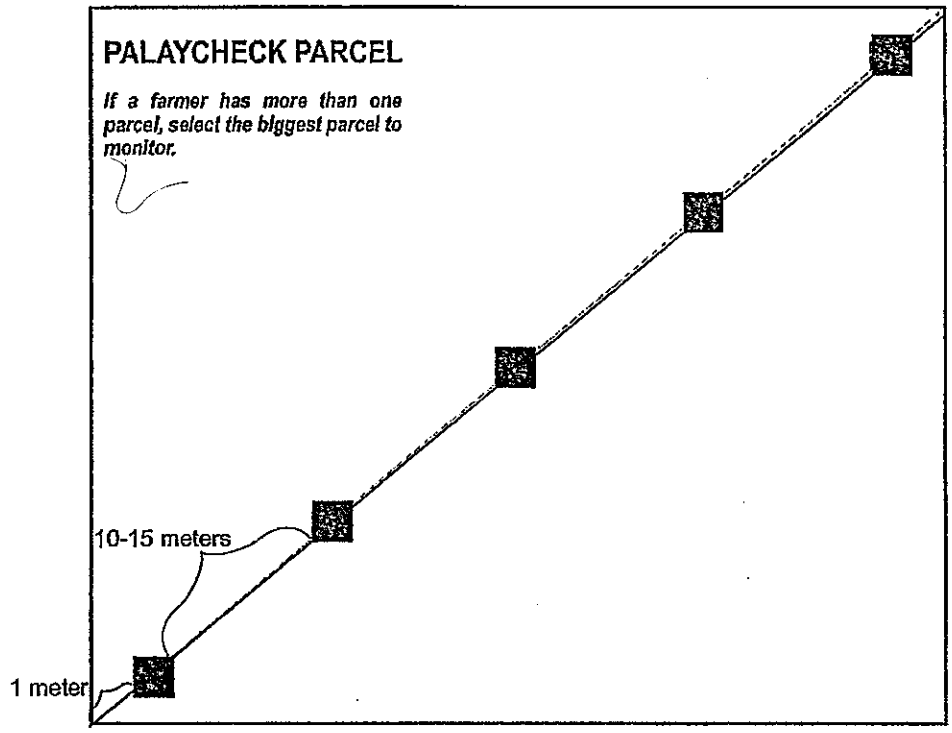
GUIDELINES IN MONITORING FOR INSECT PESTS, SNAILS, WEEDS, RATS, AND DISEASES

- **Monitoring time**
  - Insect pests (stem borer, RBB, BPH/WBPH) are monitored in the early morning (around 6 am) or late afternoon (around 5 pm).
  - Diseases (RTV, BLB, blast, ShB) and other pests (rats, snails, weeds) are usually monitored in the morning.

- **Assessment of RBB and BPH/WBPH incidence (see diagram below)**
  - About a meter from the corner of the parcel, randomly select five (5) hills diagonally. The distance between hills is 10-15 meters. Count the number of RBB from the five hills selected and get the average.
  - Follow the same procedure in determining the average number of BPH/WBPH.



- **Assessment of percent (%) damage in the area**
  - Assessment of damage in the area due to snails, weeds, stemborer, RTV, BLB, blast, ShB, and rats will be done through ocular inspection, i.e., visual estimation of the damage in terms of percent of the parcel area.

- Note: *For additional information, please refer to the PalayCheck System for Irrigated Lowland Rice booklet*

Appendix 7 Sample Cross Visit Itinerary

STUDY TOUR OF PARTICIPATING FARMERS
ITINERARY

DAY 1

5:00 AM	Travel to EastWest Seed Center San Rafael, Bulacan
	Interaction with LSTD Farmer Innovators (c/o RSO)
	Lunch Break
1:30 PM	Travel to Los Baños

DAY 2

8:00 AM	Visit to International Rice Research Institute • Rice World • Rice Germplasm Bank • Long-term Fertility Experiment • Phytotron
12:00 PM	Lunch Break
1:30 PM	Visit to Dr. Mamaril's Farm and Orchard
4:00 PM	Courtesy Call to PhilRice Los Baños
7:00 PM	Open Forum

DAY 3

8:00 AM	Visit to Lilw, Laguna or Rizal Shrine in Calamba
12:00 PM	Lunch Break
2:00 PM	Travel Back to PhilRice

Appendix 8 Budget

SEASON-LONG TRAINING ON LOCATION-SPECIFIC TECHNOLOGY DEVELOPMENT ON PALAYCHECK SYSTEM (LSTD-PCS)
WS 2009

BUDGETARY REQUIREMENT

Target Participants : 35 Farmer Innovators + 5 AEWs
Facilitators : 1-2 RSOs + 1-2 AEWs
Resource Person : Subject Matter Specialists(By requests)
Venue : LSTD site
Duration : one cropping season (16 weeks, 1/2 day per week)
Budget : P/ 50,000/LSTD site

1. Inputs for the ≥ 0.5 hectare LSTD-PCS (1 Farmer Innovator)		**P/ 7,550**
40 kg Certified Seeds (Preferred variety)	= 1,200	
5 kg Registered Seeds @ 40	= 200	
(I kg each of Newly Released Varieties for varietal trial)		
2 bags 14-14-14 @ 1,500	= 3,000	
1 bag 16-20-0 @ 1,500	= 1,500	
0.25 bag 0-0-60 @ 1,800	= 450	
1 bag Urea @ 1,200	= 1,200	
Need-based Pesticide, equity of Farmer Innovators		
2. Seeds for the 15 Farmer-Innovators with ≥ 0.15 m2		**P/2,400**
2 kg Registered Seeds x 2 newly released varieties x P/40/kg x 15 FIs	= 2,400	
3. Seeds for the 20 Participating Farmers and AEWs with ≥ 0.1 m2		**P/1,600**
2 kg Registered seeds/PF x 20 PFs x P/40/kg	= 1,600	
4. Training materials per Farmer Innovator		**P/ 14,275**
Palay Check techno bulletin @ 30 x 50	= 1,500	
MOET Kit 35 FIs and AEWs @ 175	= 6,125	
Leaf Color Chart @ 35 x 50	= 1,750	
Notebook @ 10 x 50	= 500	
Ballpen @ 10 x 50	= 500	
Field day T-shirt 40 pcs @ 100	= 4,000	
(includes other support staff and RPs)		

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3. Training Supplies P/5940

Manila paper @ 50 x 5	= 250
Masking tape @ 30 x 2 rolls	= 60
Whiteboard marker @ 35 x 10 pcs	= 350
Pentel pen @ 420 x 1 box	= 420
Pencil @ 10 x 50	= 500
Meter sticks 6 pcs @ 50	= 300
Record book 8 pcs @ 150	= 1,200
Yellow pad @ 30 x 2 pads	= 60
Bond paper @ 250 x 2 reams	= 500
Field day Streamers @ 450	= 450
Certificate with print @ 20 x 35	= 700
Miscellaneous	= 1,210

4. Training snack (to be shared by farmer's group, LGU and sponsors) **5,000**
Project share 4 snacks @ 1,250/snack = 5,000

5. Field Day Meal & Snack
Snack- 200 participants @ 25 = 5,000 **5,000**

Lunch – 200 participants @ 80 = (16,000)
(cost-shared by LGU, farmers' group, project and sponsors)

6. Communication **1,000**

7. Documentation **1,000**

8. Token for Resource Person **1,000**

9. Training incentive for 1 Supervising AEW @ 1,000/mo x 4 months **4,000**

10. Contingency **1235**

TOTAL = P/50,000

42

REFERENCES:

PhilRice. 2003. Philippine Rice Production Training Manual. Philippine Rice Research Institute, Maligaya, Science City of Muñoz, Nueva Ecija, Philippines.

パラヤマナンについて

パラヤマナン(Palayamanan、英語で There is wealth in the farm.という意味)は、GMA（基幹作物生産振興計画）プログラムの一環で、米作を中心としながらそれぞれの地区に合った野菜、家畜飼育、養殖、果実等を組み合わせて農家に対して技術指導を行い、農家の生活/生計向上に寄与するプログラムである。パラヤマナンは本プロジェクトの実証圃場を取り入れているので、本プロジェクトの成果の広がりを示す例として記述する。

対象地区は、米作に十分な水を得られない（天水に頼る、灌漑水が十分に得られない、海水が影響する、気温が低い高地）地域、先住民族が住む地域、治安が不安定な地域など米作に適しないまたは食糧の安全が脅かされている地域である。

パラヤマナンは、入手した資料によると、2004 年から既に開始されているが、PhilRice によると現在でも試行段階である。PhilRice Batac 支所は、パラヤマナンの実施の拠点となっており、LGU（地方自治体）や関連機関（大学など）との調整を図っている。

パラヤマナンの概要は以下のとおり。

目標（ゴール）:（農業が）不安定で食糧（供給）が不安定な耕作地域の食糧供給と繁栄を高める。

Enhance food security and prosperity in the fragile and food insecure farming communities.

目的:稲作中心の耕作システムを改良して（より）増産、利益を生み、競争力があり、継続的な地域にする。

特に現地の環境に合ったモデルの構築、意思決定者としての地元関係者と農民の能力向上、技術促進と商業化を高めるフィードバックを集め、計画と戦略を発展・実証する。

To transform rice-based farming systems domain into a productive, profitable, competitive and sustainable communities.

パラヤマナンの特徴は以下のとおり。

1. プロジェクトの期間（1LGU に対する支援期間）は約 3 年間である。最初の 2 年間は、PhilRice が運営、資金と技術を主導する。最後の 1 年、PhilRice は技術指導等は行うものの、運営等に関しては徐々に現地パートナーに移行する。
2. 受け入れた LGU（や NGO）に対し 3 年間財政支援(1 年当たり 10 万ペソ＝約 20 万円)を行う。その割合は、65%が動植物等の投入、25%が能力向上(Farmer’s Field School：FFS、Field Day)、10%が事務用品・通信費・交通費である。
3. 要請に応じて初めに相談会（Consultation Meeting）及び技術要約説明（Technical Briefing）を行う。

4. AT（農業普及員）や他のサポートスタッフの参加を LGU に要請する。AT に対し技術的支援を行う（PhilRice における 4 カ月研修など)。
5. DA-RFU（農業省地域事務所)、PAO（Philippine Accreditation Office)、MAO（Municipal Agricultural Office）から成る運営委員会（Steering Committee）を結成し、四半期ごとに開催する。
6. PAO、MAO、ATs、PhilRice Coordinator、Farmer Partners Organization の議長から成る州運営委員会（Provincial Committee）を運営委員会の下に結成する。
7. コアサイトを選定する。現地パートナーから推薦された地区を以下の基準で選定する。
   （1）所属 LGU が自治体開発計画など類似の計画をもっていること
   （2）水の供給にサポートを得られ、作物の多様性をもった地域を代表する米作地域であること
   （3）交通の便が良く治安上問題がないこと
   （4）農民の参加意欲が高いこと
8. Focus Group Discussion（FGD)を使って、データ収集のため PRA（Participatory Rural Appraisal）を行う。
9. FP（協力農家）を選定する。
10. Participatory Planning を行う。
11. 能力向上を図る。
12. FFS を実施する。FFS を行うセンターを建てる。
13. モデルファームを発展させ、シードバンクを設立し、Cross Visit、Field Day 等を行う。
14. パラヤマナン・モデル・ファームを作成し、モニタリング・評価を行い、報告する。


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