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1. 主要面談者リスト

主要面談者リスト（カンボジア、ドナー関係者）

#	Name	Position	Organization
1	Mr. Teak Seng	Director	WWF
2	Mr. Paul Dodds	Regulatory Advisor	DAI
3	Ms Privan Limpanboon	Director CSPPM Prog.	The Asia Foundation
4	Mr. Ron Jones	Technical Advisor	FACT
5	Mr. Cheap Sam An	Sr. Prog. Officer	DANIDA
6	Mr. Sea Chanvibol	Project Officer	AIDA
7	Ms. Amagoia Labarga	Project Coordinator	AIDA (AECID)
8	Ms S. allebone-Webb	Technical Advisor	WCS
9	Mr. Keo Thay	Chief	Kampong Chhnang Fisheries Cantonment
10	Mr. Prak Leang Haer	Deputy Chief	Kampong Chhnang Fisheries Cantonment
11	Mr. Ly Hong Sreng	Staff	Kampong Chhnang Fisheries Cantonment
12	Mr. Dol Chang Dy	Staff	Kampong Chhnang Fisheries Cantonment
13	Mr. Lak Sam At	Staff	Kampong Chhnang Fisheries Cantonment
14	Mr. Kong Chang Daring	Staff	Kampong Chhnang Fisheries Cantonment
15	Mr. Mot Sear Heng	Staff	Kampong Chhnang Fisheries Cantonment
16	Mr. Seng Sun Huot	Chief	Pursat Fisheries Cantonment
17	Mr. Seng SunLy	Staff	Purst Fisheries Cantonment
18	Mr. Ban San	Staff	Pursat Fisheries Cantonment
19	Mr Nou Savy	staff	Pursat Fisheries Cantonment
20	Mr. Kong Sokha	Deputy Chief	Battambang Fisheries Cantonment
21	Mr. Kheng makhen	Deputy Chief	Thmar Kol Division
22	Mr. Sorn Maradi	Chief	Thmar Kol Sangkat
23	Mr. Heng Seng	Deputy Chief	Otdar Meanchey Fisheries Cantonment
24	Mr. Mom Sayon	staff	Otdar Meanchey Fisheries Cantonment

25	Mr. Lonh Vuthy	Deputy Chief	Banteay Meanchey Fisheries Cantonment
26	Mr. Hing Phoeut	Vice chief	Ochrov Division, Banteay Meanchey Fisheries Cantonment
27	Mr. Chhit Sothieng	Vice chief	Preah Net Preah Division, Banteay Meanchey Fisheries Cantonment
28	Mr. Prom Chi	Vice Chief	Preah Net Preah Division, Banteay Meanchey Fisheries Cantonment
29	Mr. Nao Thouk	Director General	Fisheries Administration
30	Mr. Srun Limsong	Deputy Director General	Fisheries Administration
31	Mr. Thourk Vuthy	Koh Krolor ADP Manager	World Vision, Cambodia
32	Ms. Rosaleen Martin	Coorination and Communication officer	World Food Program
33	Mr. Meng Chanthoeun	Program officer	World Food Program
34	Mr. Chea Phalarin	General Manager	Amret micro financing institution
35	Mr. Masafumi Kuroki	Ambassador	Embassy of Japan
36	Mr. Yasuhide Sugiyama	Second Secretary	Embassy of Japan

2. 団長・団員所感

別添：第1次現地調査：団長／JICA 国際協力専門員（千頭 聡）所感

今次調査においては、2005年2月～2010年2月までの5年間、南部4州を対象に実施されたフェーズ1プロジェクトの成果と教訓を踏まえ、自然環境及び社会的条件がより厳しい北部諸州を対象としたフェーズ2プロジェクトの実施のための情報を収集したうえで、プロジェクトの骨格とコンポーネントについて先方政府と協議した。その詳細は別紙英文 Aide Memoire に詳しいので、本稿ではフェーズ1を含めた本プロジェクトの意義について議論するとともに、それに基づいた今後の取り組み方についても若干の所感を記す。

本プロジェクトの類似案件は、近隣諸国であるラオス並びにミャンマー、アフリカのベナンで実施されてきており、マダガスカルでも実施準備が行われている。そのような状況のなかで、カンボジアの本案件がモデル的な先行事例となっており、とりわけ「農民から農民への普及」手法が他案件に取り入れられていることが特筆できる。これらの案件に共通にみられることは、小農の生計多角化戦略において、小規模淡水養殖の普及が先進的種苗生産農家を中心に進められていることである。すなわち、農民サイドでは自立発展的な養殖普及の仕組みが、また行政側では効率的な農民支援体制が構築されることである。

カンボジアの本案件による「農民から農民への普及」の今日的意義は次の3点に集約できる。

- (1) インドシナ半島諸国において地域的に共通した取り組み
- (2) アジアの経験のアフリカへの適用
- (3) 淡水養殖分野のみならず農業等他分野への応用

(1)と(2)については既に進行中ということがいえるが、今後は各案件の結果と成果を取りまとめて分析する必要がある。(3)については農業案件における「農民から農民への普及」の事例との比較研究が望まれる。

世界的視野で今後の食料生産を考えると、近い将来、人口増加に見合う動物蛋白源の供給が不足することが危惧されている。畜産や漁業による増産は土地や天然資源が制約要因となるため、魚類養殖による動物蛋白源増産が期待されているところである。本案件は小農による小規模養殖振興が主眼になっており、世界的な食料増産という観点からは量的貢献度が極めて限られていることは否めないが、多くの人口を抱える途上国農村部において、食糧安全保障と農家経済への貢献という点で大きな意味合いをもっていることを過小評価すべきでない。かかる観点から、本案件に対する一部の二国間援助機関やFAO等の国際機関、NGOの認知度が高まっていると考えられる。

フェーズ2においては、より貧困度が高いカンボジア北西部においてフェーズ1で培っ

た「農民から農民への普及」を実証し、そのノウハウの蓄積を更に高めるとともに、上述の視点を意識した取り組みを期待したい。具体例を挙げると次のとおり。

- (1) プロジェクト成果の情報発信
- (2) 情報交換と分析を通じた技術・手法の普遍化

特に(2)に関しては、まずインドシナ半島で実施中のほか JICA 案件との情報交換、タイや国際機関を含めた地域シンポジウムの開催が望まれる。アフリカにおける案件との交流も促進するべきと考える。

以上、大きな視点から本案件を眺めたが、フェーズ 2 に込められた期待感を共有させて頂くために記したしだいである。

2010年10月3日

カンボジア王国淡水養殖改善・普及計画（フェーズ2）
詳細計画策定調査

所 感

農漁村社会開発調査 担当 山尾政博

I はじめに

第2次調査団への参加

カンボジア王国（以下、「カンボジア」と記す）「淡水養殖改善・普及計画（FAIEX フェーズ2）」の実施にあたり、第2次調査が派遣されることになった。本報告者（山尾政博）は農漁村社会開発調査を分担し、2010年9月26日より10月3日の日程で調査団に加わった（調査団の正式日程は9月26日より10月6日）。

2005年2月より5年間にわたって実施された「淡水養殖改善・普及計画」（FAIEX フェーズ1）の成果を踏まえ、淡水養殖についてカンボジアが自立発展できる仕組みづくりに協力し、その能力強化を図っていく課題を整理して具体的なプロジェクトとして提案することが第2次調査の役割である。報告者は、対処方針に基づき、主に農漁村社会開発の視点からプロジェクトがめざす課題と活動を整理した。

所感の作成と提出

本報告者は、本調査団に参加して要請側と協議を行い、プロジェクト対象予定地を視察した。それらを踏まえて、PDM案等の作成に際して、必要と思われる事項について提案し、関係者との意見交換を図りながら論点等を提示してきた。それらの点は、最終的には、PDM等の関係書類のなかに反映されている。帰国にあたり、フェーズ2を実施することの社会的意義をはじめ、プロジェクトの目標、成果、活動の内容について留意すべき点を記して、所感として提出するものである。

本所感は、提出者である山尾政博の責任において記述したものであり、団内の統一見解ではない。また、本所感の内容は10月3日の時点のものであり、これ以降も調査団とカンボジア関係機関との協議が続くために、途中経過に基づくものであることをお断りしておく。

II カンボジア淡水養殖業の発展と「淡水養殖改善・普及計画」(FAIEX)

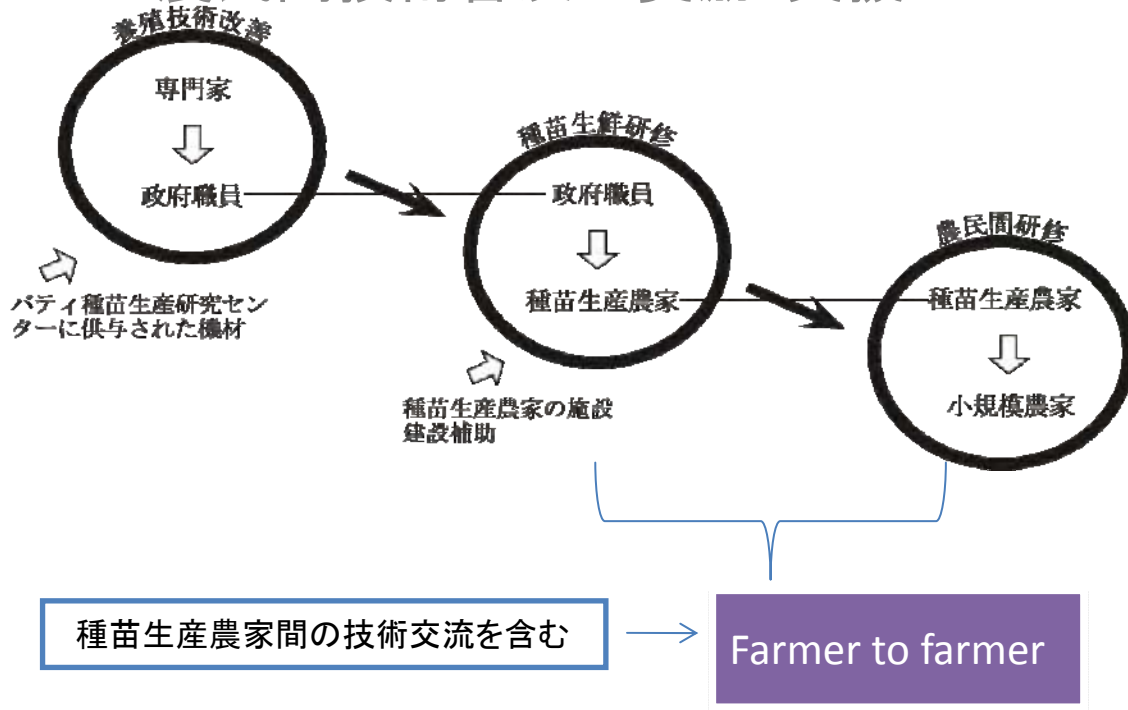
フェーズ1の成果

JICAでは、2005年2月より5年間にわたり、南部4州のカンポット、コンポンスプー、プレイベン、タケオにおいて、水産局との協力の下、FAIEXフェーズ1を実施した。このプロジェクトは、農村において種苗生産農家の育成を図り、これらの中核農家が核になって、小規模養殖農家に淡水魚養殖を広めるというものであった。このプロジェクトは、動物性蛋白質の摂取が十分でない農村住民に、淡水魚類養殖に取り組む機会を賦与し、その栄養状況の改善を図るとともに、淡水養殖の潜在的可能性をもちながら、資源や環境を十分に生かしきれていないモンスーン水田地帯の農家の生計活動を改善しようというものであった。PDMでは、種苗生産農家の育成、小規模養殖技術とその普及方法の改善が図られ、養殖普及ネットワークが構築される、などの成果が設定されていた。

フェーズ1のコア部分

フェーズ1のPDMに従って実施されたプロジェクト活動は多岐にわたる。PDM上に掲げられた成果を構成する活動内容からだけでは、プロジェクトの全体像を把握するのは容易ではない。ただ、プロジェクトの中核に位置づくのは、種苗生産技術及び小規模養殖技術の改善を踏まえた普及にあり、**Famer-to-farmer**と形容される特徴ある普及方法である。図に示したように、3段階にわたる技術移転プログラムに大きな特徴がある。

3段階技術移転のシステム作りと実践、 農民間技術普及の奨励・支援



次のような3つの過程に区分できる。

- 1) プロジェクト専門家による水産局職員，対象4州の普及員に対する技術移転
- 2) 種苗生産農家の育成と技術移転
- 3) 種苗生産農家のイニシアティブによる一般農家への技術普及

JICA 専門家が担当するのは主に1)と2)の過程であった。一方，Farmer-to-farmerによる普及は，第2の一部と第3の過程であると考えられる。第3の過程は，種苗生産農家が一般養殖農家に対して種苗生産を販売する際に，技術指導や助言活動を伴わせることによって，養殖生産の持続性と安定性を実現しようというものである。技術普及と関係性マーケティングを結合させたものと理解できる。第2の過程は，プロジェクトから種苗生産農家への技術移転である。フェーズ1では，この過程で，種苗生産農家同士の自主的な交流が幅広く行われた。各州で設立されたネットワークが効果的に働き，プロジェクトに

参加する種苗生産農家の技術の向上と生産の安定性を実現するのに貢献した。したがって、第2の過程の一部も、Farmer-to-farmerによる普及過程であると考えられる。

農民的種苗生産の拡大

カンボジアでは、政府が運営する養殖センター及び種苗生産施設の稼働が効果的に行われている訳ではない。これまでは、近隣諸国から飼料とともに大量に種苗が輸入されてきたため、自国での養殖業の発展は大きな制約を受けてきた。基本的には今もこの状況は変わっていない。淡水魚はカンボジア国民の食生活にとって欠かせないものであり、雨期の増水期には、池や水田を中心に豊富な天然魚が漁獲されている。しかし、それも近年は水揚げが減少し、魚体の小型化が著しいと指摘する声をよく聞く。内水面水産資源の維持と増殖を図ることは、農村の食料確保にとって必要な課題である。加えて、農村に適した淡水養殖業を奨励することは、農民の生業の多角化を図って家計を安定させることにつながる。農村の栄養状況の改善にも役にたつ。

政府は、農村における種苗生産農家の育成を図って国産種苗の割合を高め、安定した淡水魚の供給を図ろうと努力を続けている。その際に、政府の種苗生産施設がその役割を果たすのではなく、各地に中核的な種苗生産農家を育成していく、いわゆる“one commune, one hatchery”を実現して養殖普及を図る振興策を推し進めている。この政策が実現可能なものか、あるいは経済的に効率的かどうかについては議論があろう。いずれにしても、稲作を主業とする農家から中核的な役割を果たす種苗生産農家を育成し、彼らを軸に地域の種苗生産供給力を高めて、一般農家による小規模養殖を拡大しようというのが狙いである。

技術普及とマーケティング戦略の結合

フェーズ1では、種苗生産農家が、種苗を購入する小規模農家に必要な生産技術の情報を伝え、安定した養殖生産ができるようなシステムを普及してきた。これは、顧客ターゲットを絞り、濃密な信頼関係を築きながら継続して商品の販売ができるような関係を維持しようというマーケティング戦略の1つと考えることができる。種苗生産農家にとっては、周辺にある小規模農家がまずは重要な顧客であり、彼らが安定した養殖生産ができるようにすることによって、種苗生産を安定させることができる。フェーズ1の対象地では、こうした普及手法が成功し、種苗生産農家の経営基盤が安定し、小規模生産農家に零細養殖が広まっていった。

フェーズ1の手法は、農業普及においては広く採用されているもので、決して目新しいものではない。ただ、淡水養殖の普及という分野ではこうした試みはほとんどないことから、フェーズ1の活動は画期的なものであった。また、カンボジアの水田地帯において、農村種苗生産を商業的に成り立たせるための手法として採用したこと、小規模農家もっていた種苗に対する潜在的需要を掘り起したという点で、意義のあるものであった。

III フェーズ2の背景

プロジェクトの目標

FAIEX フェーズ2は、基本的にはフェーズ1で開発された普及手法、種苗生産技術、養殖改善技術をパッケージ化して、対象州であるシェムリアップ、バタンバン、プルサットの3州でプロジェクト活動を実施する計画である。対象州において種苗生産活動の普及と定着が図られ、種苗生産量が増大する。それを基に、小規模農家が淡水養殖に取り組むなかで養殖生産量を増やしていくという目標が設定される。

淡水養殖業の多面的発展

カンボジアの淡水養殖は、トンレサップ湖及びメコン河流域で展開される商業的な養殖が主流になっている。天水に依存した水田地帯の在来的養殖は、その生産性が極端に低く、生産量もわずかである。しかし、農村住民にとって淡水魚は日常の食生活にとって欠かすことのできない貴重な動物性タンパク源である。カンボジア全体では淡水養殖生産量が伸びているが、その生産構造には次のような特徴がある。

第1に、モンスーンの影響を強く受ける水田地帯では、在来的な手法で水田（稲田）養殖が一般的に行われ、農家のバックヤードにある池を利用した養殖が盛んになっている。人々の稲作生産のリズムと合った養殖と淡水漁業は、モンスーンに影響を受ける季節リズムをもっている。しかし、最近では、在来的な手法で行われている養殖といえども、その目的が家庭内消費か、商業的販売かは別にして、人工種苗を買い入れて生産を増やす方向が強く志向されている。

第2に、種苗生産と安定的な供給が契機になって、農村の零細な淡水養殖に対する需要が伸びていることである。フェーズ1が対象とした南部4州では明らかにその傾向がみられた。フェーズ2に向けた第1次調査、及び今回の第2次調査でも同様であった。政府の振興策、国内外の援助機関、NGOなどの奨励もあって、農家による種苗生産業が活発化している。特に、プルサット、バタンバンではこの2～3年の間に種苗生産農家が増えている。

第3に、農村に企業的な規模で池養殖を行う経営体の成長がみられ、カンボジアの淡水養殖の産業化が進んでいることである。だが、これは次のような条件に支えられている。対象となる魚種（特に Hybrid Clarias, Pangasid）の種苗が大量にベトナムから輸入されている。プノンペンを経由して持ち込まれるものの人工種苗のうち、かなりのものがベトナムからの輸入であるといわれる。また、用いられる飼料もベトナム産が多く、一部ではタイ産も使われている。こうした事態は、東南アジア大陸部で養殖産業の分業化が進みつつあることを意味する。カンボジア国内だけで完結的に養殖業が営まれるのではなく、先発のベトナム、タイとの分業関係に縛られながら、カンボジアの商業的な養殖業がいびつな形で発展していくという構図を理解しておかねばならない。

第4に、カンボジアの内水面養殖が、農村の在来的手法に基づく農家養殖と、企業的な

池養殖というように、それぞれが関係をもちながらも、別々の発展方向をめざしはじめていくことである。いずれの方向にとっても種苗生産業が持続的に発展することが重要である。なお、企業的な養殖業では、必ずしも国内生産にこだわらず、むしろ種苗と餌の貿易拡大を全体にした発展がめざされる可能性が強い。

フェーズ2の位置づけ

急速に分化していくカンボジアの農村淡水養殖のなかで、フェーズ2をどのように位置づけるか、さしあたり次のように理解しておかねばならない。

ひとつは、農村にあって小規模ながら種苗生産を持続的に行い、周辺の一般養殖農家、共有池等に種苗を安定的に供給する役割を担う種苗生産農家を育成、支援することである。彼らを核にして、フェーズ1がめざした **Farmer-to-farmer** の普及手法を効果的に用いることである。

今ひとつは、フェーズ1の時代には想定できなかった規模とテンポで、農村の農家種苗生産が進展していることを前提に、活動を組み立てることである。対象州となる3州すべてではないが、この間に農家種苗生産を振興しようというプロジェクトが各地で実施されている。特にこの2~3年は、種苗生産農家の育成が一種のブームになっている。FAIEXのフェーズ1に触発されたのであろう。いずれにせよ、農家種苗生産業が新たな発展段階を迎えている地域がある。

しかし、生産技術や販売に関する情報や訓練が十分ではなく、種苗生産がまだ安定していない農家は多い。フェーズ2では、新規の種苗生産農家の育成を図りながら、既存の種苗生産農家の基盤を強化するための諸活動を、フェーズ1以上に計画・実施することになると思われる。

IV プロジェクト活動の特徴—フェーズ1からの発展—

成果の構成

現在検討中のPDMでは、5つの成果を想定している。下の表に大まかな内容を示しておいた。フェーズ1からの発展系としてみると、次のような成果及び活動にフェーズ2の特徴がある。

第1に、成果2において、養殖普及を担う水産行政の地方分権化の流れを考慮した普及能力の強化を図ることである。

第2に、成果3の種苗生産農家の育成に関する活動がその対象を広げていることである。

第3に、成果3の活動と関連させて、成果5のネットワーク化の一層の発展を展望し、種苗生産農家の発展を支える機能の充実を図ることである。

以下では、成果3，成果5，成果2という順序で特徴的な点を述べておきたい。

表 フェーズ2のアウトプット(案)と特徴

	アウトプット	概要と特徴
1	種苗生産技術および小規模養殖技術が改善される	フェーズ1で開発された技術を活用して、対象州に適応できる技術を改善。市場需要に対応した魚種を導入。
2	淡水養殖普及に関わる地方水産行政の普及能力が強化される	養殖普及を担う水産行政 (FiD, Cantonment, Division, Sangkat) とコミュニティの連携、役割分担などが対象州において検証。地方分権化の流れを考慮した普及体制の充実。
3	種苗生産農家が育成される	フェーズ1で開発された技術普及パッケージの活用。既存の生産農家への技術的支援、新規生産農家の育成。種苗生産の産地化への動きを支援。
4	小規模養殖農家による増養殖活動が推進される	フェーズ1の養殖普及マニュアルの活用、種苗生産農家による技術指導の実現。共有池活動の支援と実施マニュアルの作成 (good practices) にもとづく。
5	種苗生産農家のネットワーク化が推進され、種苗販売活動が活発化する	州レベル、対象3州レベルでのネットワーク化、さらにフェーズ1のネットワークとの交流と連携。国内種苗生産の集積を高める効果を期待

注) PDM案の内容を示したもので、文章表現等は加筆してある。

成果3の活動内容の多面化

成果3の「種苗生産農家が育成させる」では、既存の種苗生産農家への技術支援が相当な重きをもつ州がでてくる。この2～3年の間に FAIEX 農家と同じような種苗生産施設に投資をした農家が対象州にはある。それらの農家の生産基盤を安定させることで、カンボジアの淡水養殖がもつ種苗生産能力は大きく向上するだろう。フェーズ1でも既存農家は対象になったが、今回は新規生産農家の育成に先だって、既存農家への技術支援を実施するという工程をとることが効果的だと考えられる。

留意すべき点は、既存の種苗生産農家の多くが JICA 以外の援助機関との関係をもっていることから、何らかの調整作業は必要になる。ただ、ほかでは JICA プロジェクトほど技術指導に重きをおいておらず、投資支援だけに終わっている事例が散見される。したがって、既存農家への技術支援に対する要望は強く、かつ、有効であろう。FiA も既存農家を訓練等の対象として含めることを強く要望している。

産地形成に向けた取り組み

種苗生産農家の育成は、Farmer-to-farmer という一般農家への種苗販売と技術指導を伴ったものになるが、同時にその州内に有力な種苗生産農家を育てて、新しい産地として発展していくことを展望しておいてよい。フェーズ1の対象州であったタケオは、カンボジアでも有数の種苗生産の産地として発展しており、生産された種苗は遠隔地へと移送され

ている。

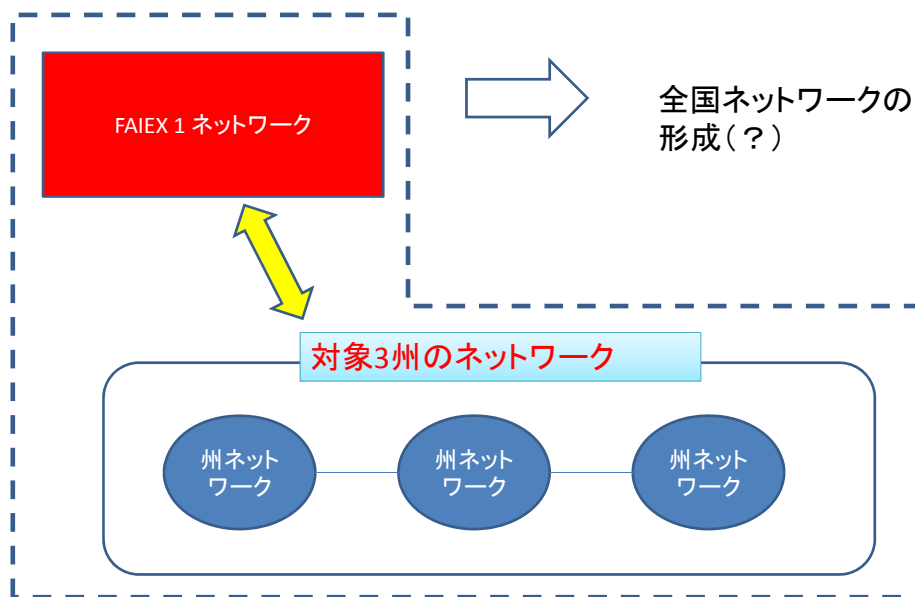
フェーズ2が対象とする3州のなかには、タケオ以上に有力な種苗産地になる可能性のある州が含まれている。水が比較的豊富に得られる地帯があり、道路の整備状況が極めて良く、物流環境はタケオより勝っている。成果5の州内及び州間の種苗生産農家のネットワーク化に取り組むことによって、将来的に種苗生産の産地化が進展していく可能性は十分にある。

成果5のネットワーク化の発展

対象州において育成した新規の種苗生産農家、それに既存の農家を含むネットワークづくりが、重要な成果と考えられている。フェーズ1の経験を踏まえ、3つの過程によるより広範囲で強固なネットワークとすることを展望している。

州レベルのネットワークづくり、対象3州レベルのネットワークづくり、それに FAIEX-1のネットワークとの交流活動を具体的な活動にしている。ただし、ネットワークづくりは、グループ化や共同組合づくりと異なった内容をもつものである。種苗生産農家の組織化と事業活動の共同化が目的なのではなく、種苗生産農家の緩い結合関係に基づく、技術交流、情報交換、政府や州への要請活動といった活動が主な内容になる。

図 ネットワーク化への取り組み



水平的な Farmer-to-farmer の普及機能

活動内容については、ネットワークに参加する種苗生産農家自らが必要と判断するものであるが、既に述べた種苗生産農家間での技術交流が特に重視される。フェーズ1では、

プロジェクトに参加した種苗生産農家は、プロジェクト参加以前に種苗生産に取り組んだ経験がない者が多く、技術的な課題を抱えていた。また、遅くに参加した農家のなかには、十分に技術を習得しないままにプロジェクト後半を迎えたものもあった。それを補ったのが、ネットワーク内での情報交換と技術交流であった。いわば、**水平的な Farmer-to-farmer の普及機能が、ネットワークのなかで働いたのである。**

マーケティング情報の交換から緩い分業関係へ

新規に参入した種苗生産農家が直面する大きな問題はマーケティングに関係したものである。フェーズ1のネットワークでは、種苗生産農家の多くが販売情報の交換が役にたったと評価している。また、市場開拓を共同で行う必要性が高く、販売先の相互紹介などは極めて有効であった。

特徴的だったのは、メンバー間で不足する魚種の売買が頻繁に繰り返されていたことである。ネットワークに参加する個別の農家同士のやりとりであり、ネットワークがもつ機能ではない。そこに参加することによって形成された信頼関係に基づく商行為である。こうした魚種のやりとりが深化すると、一種の分業関係が発生することになる。種苗生産技術に関する能力差、労働力、池面積等のさまざまな条件が働いて、半ば自然発生的に生産に関する役割分担ができてくる。

成果2が支える淡水養殖普及

種苗生産技術及び養殖生産技術の普及、種苗生産者のネットワーク化の支援を担うのは、水産局とその出先機関である。カンボジアでも地方分権化が進み、地方自治体への権限の移譲が進んでいる。その一方、水産分野では地方分権化に逆行するように、中央にある水産局の権限及び指導性が強化されている。

しかし、全体的な動向から判断する限り、今後は、水産分野においても地方分権化の流れが強まると予想される。コミューンが、限られた範囲ではあるが、自らの判断において予算執行ができるようになってきている。例えば、共有池に親魚や稚魚を放流する予算を執行するかどうかは、コミューン住民の選択による場合が多い。

未分化な状態にある地方水産行政

内務省によって規定される地方行政機構は、州—郡—コミューンという3つの層によって機能している。コミューンが基本的な行政単位 (Local government unit : LGU) である。

一方、水産行政は、中央政府の水産局の地方出先機関としての役割を果たす州レベルに設置される Cantonment にその機能がほぼ集約されているとあってよい。Cantonment の下には Division, Sangkat という更に2つの地域事務所がある。Sangkat は複数のコミューンに対応する末端の地域事務所であるが、そこには1人もしくは2人程度の水産局職員が配置されているだけである。州レベルの水産行政がどの程度自立化して運営されている

かは詳しく検討しなければならないが、全体の地方分権の流れから判断する限り、州レベルの水産行政の機能が強化される一方、Sangkat の機能は Division に吸収されるか、コミューンに移譲されていくということになるのではないかと予想される。

図 カンボジアの水産行政と地方分権

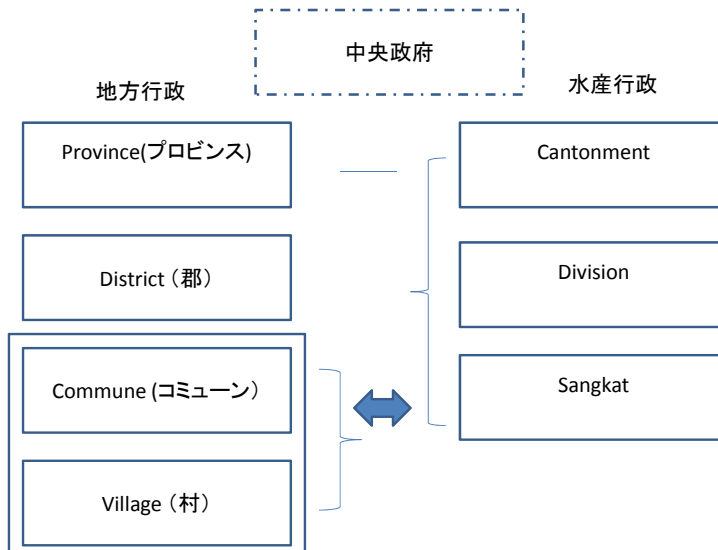
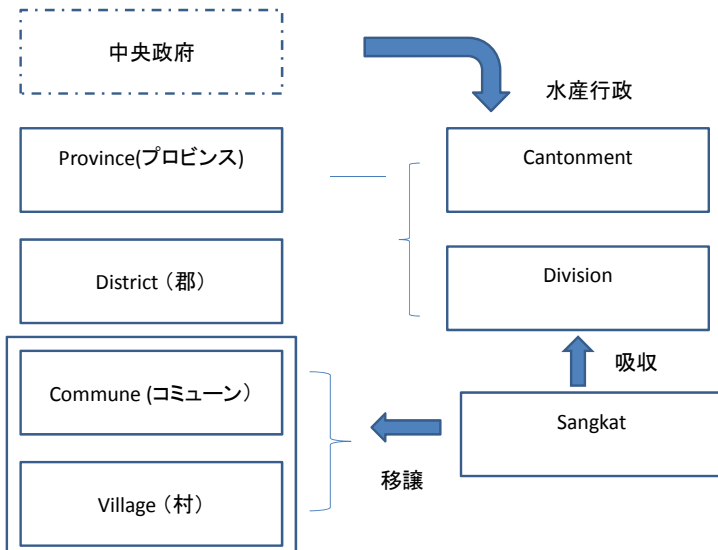


図 予想される地方水産行政の吸収と権限委譲



養殖普及振興を担う地方行政

フェーズ2が強く意識しなければならないのは、中央政府の水産局からその州レベルを中心にした地方水産行政、特に養殖普及を担う人材の育成と技術移転であろう。フェーズ1においては、Farmer-to-farmerを実現する1つの過程として、CantonmentやDivision

に所属する職員への技術移転が行われた。フェーズ2では、より組織的かつ効果的に中央・地方行政を用いた技術移転ができるシステムづくりが実行される。それが、プロジェクト終了後に対象州以外の地域にパッケージ化されて普及されることになる。

留意しなければならないのは、コミューンに対する普及情報の提供や技術移転をどうするかであろう。現在までのところ、コミューンが水産行政を実質的に担っている訳ではないが、地域開発計画の実施主体であり、水産行政のなかで一定の役割分担を担っていくという予測に立てば、プロジェクト活動の対象となるコミューンに対しても、働きかけが求められる。種苗生産農家の育成については、“One commune, one hatchery”という目標もあり、共有池活動に対する支援でも、コミューンの役割が期待されている。

ただ、コミューンの役割については不明な点も多く、プロジェクト活動を進めていくなかで、プロジェクトの専門家と州レベルのカウンターパートとが、コミューンとの連携関係を模索していくことになるだろう。

V フェーズ2が留意すべき点

フェーズ1で開発された要素のパッケージ化

フェーズ2詳細計画策定調査の対処方針では、プロジェクト関連予算の削減等の必要性もあり、プロジェクトの対象地域を絞り込み、共有池活動の見直しが提起された（開始時期については除く）。フェーズ1は種苗生産農家の育成で顕著な成功をおさめ、彼らを起点にした一般農家への養殖普及を図った。貧困なアジアモンスーン水田地帯における淡水養殖普及の1つのモデルを提供した。一連の活動を標準的な内容をもつものとしてパッケージ化を図り、モデルとして他地域に普及していけるかどうか、それがフェーズ2で実証されることになる。

フェーズ2は、フェーズ1の成功要因を分析してつくられたパッケージを効率よく利用していくことが前提条件となる。もちろん、対象地域の自然条件が違い、種苗生産、養殖生産の発展に以前に比べて遙かに勢いがある現在、フェーズ1のパッケージをそのまま適用できるかどうかは慎重に検討しておかねばならない。

養殖業の発展に焦点をあてるか、地域社会開発に焦点をあてるか

フェーズ1は、淡水養殖業の振興に焦点をあてながらも、主に稲作農家の貧困削減、栄養改善といった社会開発的な活動も組み入れた、統合的なアプローチを特徴とするプロジェクトであった。地域社会のなかでは、本来なら両者はバランスよく活動がなされるべきであろう。しかし、技術移転を伴うプロジェクト活動としてみた場合、投入金額、専門家の配置、カウンターパート機関の性格などがあって、総合的なアプローチができる訳ではない。

フェーズ1は前半では淡水養殖業の発展に焦点をあてながら、後半になるとその活動を

社会開発的な視点に活動をシフトさせた。それが結果的にプロジェクト投入の分散を招いた。プロジェクトの枠組みのなかに入りきれない成果と活動が組み込まれていた。対象地域が4州と地理的に広い範囲にわたったことも関係していた。

こうした教訓を踏まえ、フェーズ2ではできるだけ淡水養殖業の農村種苗生産と養殖普及に焦点を絞るよう、PDMを組んだ方が良いと思われた。今回対象となる3州では農家による種苗生産への投資意欲はかなり高く、それをプロジェクトがうまく引き出すことによって、フェーズ1よりも早いテンポで淡水養殖の普及が進む可能性がある。近い将来、ブルサット、バタンバンが種苗生産の産地になる可能性は十分にある。

共有池（共同池）活動の扱い

カンボジア側との協議が今後もたれるが、基本的には投入を最低限にして共有池活動を実施するというのでよいのではないか。カンボジア側の強い要請があり、また、フェーズ1で相当の投入をしたために、その整理をする必要がある。対象州において既に運営されている共有池を1つないしは2つ程度を選定し、活動を支援する。モニタリングを行いながら、共有池の運営マニュアルを作るということなら可能であろう。新たに委員会を立ち上げて、利害調整を図りながら共有池活動を始めるということはしないほうがよい。共有池の活動が、資源管理活動や委員会活動に関するモニタリング、複雑なステークホルダー間の利害調整などにかかわるものが含まれると、このプロジェクトの枠組みではおさまりにくくなる。この点は十分に注意しなければならない。

ネットワーク化がめざすもの

フェーズ2の成果5で掲げたネットワーク化に関する課題は、組織化やグループ化を推進するところまでを対象にはしない。種苗生産農家間の緩い連携をめざすというのが趣旨である。もちろん、中央の養殖部局、地方水産行政はネットワークが形成されるように、さまざまな形でインセンティブを与える必要がある。

淡水魚種苗供給をめぐる産地間・経営間競争について

トンレサップ湖で Fishing lots を経営する業者に対して、政府は種苗生産を行うか、あるいは種苗を供給することを義務づける政策を打ち出した。これが国内種苗産業の成長にどの程度のインセンティブになるのか、現時点では予測が付きにくい。ただ、一部ではあるが、この政策に呼応して種苗生産に大規模に取り組む経営者が現れている。この動きが直ちに広がるかどうかは分からないが、小規模な種苗生産農家に何らかの影響を与える可能性がないとはいえない。

今回の現地調査では、農村において種苗生産が予想以上に広がっていることが分かった。また、経営間の競争関係も今後強くなっていくかもしれない。フェーズ2では、そうした市場動向を見ながら、種苗生産を奨励していくことが求められている。

おわりに

本所感は、カンボジア側との協議が始まる前に記述したものである。議論を経てまとめたものではなく、報告者の認識不足や間違いが含まれている可能性が高い。帰国に際して、カンボジア側との協議の参考にさせていただくために、第2次調査の所感を提出するものである。

本調査の目的は、先方政府関係者との協議及びプロジェクト対象候補地の現地視察を通じて、プロジェクトの目的、成果、活動、協力対象地域、協力期間等、プロジェクト骨格についてカンボジア関係機関と合意することであった。その意味で調査団の目的は達成している。また5項目に沿った事前評価についても、別途評価分析団員がその作業を行っているところである。

報告すべき内容は、プロジェクトで取り扱われる養殖技術と普及手法についての考察であるが、対象候補地域であるカンボジア北西部諸州の養殖環境に関して2010年5月25日～6月17日の第1次現地調査が詳しく調査していることにかんがみ、要点のみを記すことにする。

1. プロジェクトの位置づけと特徴

フェーズ1とフェーズ2の比較を試みた(下表参照)。フェーズ1が養殖改善普及の基礎編としたら、今回のフェーズ2は応用編と位置づけることができる。それは、フェーズ1に比しフェーズ2対象地域の方が養殖を普及させるための初期条件がより厳しいことによる。養殖技術・普及手法に関しては、フェーズ1ではその開発、フェーズ2ではその実証に主眼を置いているということもできる。また養殖普及のめざす方向性については、フェーズ1は普及の面的展開であったが、フェーズ2では普及の自立的発展性であり、地方行政を含む政府及び農民のそれぞれのレベルにおいて継続可能な普及の仕組みづくりに重点が置かれることになる。

表 カンボジア淡水養殖普及プロジェクト フェーズ1とフェーズ2の比較

	フェーズ1	フェーズ2
特徴	基礎編	応用編
普及のための初期条件	ある程度存在していた	あまり存在していない
養殖技術・普及手法	開発に重点	実証に重点
養殖普及の目指す方向性	面的展開の試行	自立的発展性の確保
中央と地方との関係	中央と州の2階層	国・州・コミュニティの3階層

2. 養殖技術

フェーズ1で技術改善・普及の対象となったのは、平均230㎡の泥池で複数魚種を対象とした粗放的養殖であった。フェーズ2地域ではフェーズ1方式の養殖に加え、地域の条件を考慮した稲田養殖やプラスチックシートによる単養も視野に入れる必要がある。実際、現地視察を通じて先進的農家によるそのような取り組みを観察することができた(下図参照)。魚種についてもフェーズ1の対象種が基本になるが、パンガシウスを導入するか否

か、プロジェクト開始後に検討することが求められている。同種はフェーズ 1 方式の混合養殖に適しているばかりか、種苗需要が高いため種苗生産農家の経営安定化に寄与する可能性が高い。パンガシウス種苗生産の成功の鍵を握っているのが、バティセンターにおいて原シニア海外ボランティアが確立したミジンコ培養技術である。この技術は、他魚種の初期幼生飼育の改善にも大きく貢献することが期待されており、現在普及員や主要種苗農家へ徐々に広がっている段階である。タクビルステーションにおいてもこの技術に取り組み、北西部地域に適合する種苗生産技術の開発に資することが期待されている。

図 フェーズ 1 では見られなかった養殖池

その 1 小型池 (2mx5m) 深さ 1.5m その 2 小型簡易タンク (3mx4m) 深さ 0.8m
(底にビニールを敷設し漏水防止) (周辺をビニールシートで囲む方法)



3. 普及プロセスと達成目標

小規模養殖の普及に対する取り組みについては、フェーズ 1 の人的及び技術的リソースを最大限活用することが望まれている。そしてフェーズ 1 に比しより効率的な普及プロセスを踏む必要がある。具体的な改善案は次のとおり。

- (1) 初年度の支援対象として既存の種苗生産農家をあらかじめ定めた選考基準に沿って選ぶ。

(フェーズ1の経験) 既存種苗農家はわずかしかなかった存在せず、プロジェクトの直接的な支援の対象とはしなかった。したがって、初年度から時間をかけて新規種苗農家を育成した。

(2) 2年目以降の新規種苗農家候補の選考プロセスを簡略化するとともに、初年度から前倒しで進める。

(フェーズ1の経験) 年度ごとに、1つのコミュニティから農家40軒を選定のうえ、養殖基礎技術研修を実施し、その後の養殖活動のパフォーマンスをじっくり観察した。同時に、候補者の社会的・経済的状況を見極めたうえで、種苗生産農家候補1軒を選考した。そのプロセスに半年以上の時間を要した。

(3) 養殖農民への研修は初年度から種苗生産農家(中核農家)により実施する。なお、プロジェクトは養殖農民に対して直接研修を実施することはない。

(フェーズ1の経験) プロジェクト期間の当初3年間においては、新規種苗農家育成の目的もあり、プロジェクトが直接農家に対して養殖基礎技術の研修を実施した。種苗農家から一般養殖農家への研修は2年目から進められた。

以上を勘案し、プロジェクトの養成する種苗農家と、種苗農家の研修実施対象の養殖農家の数を予測すると次表のとおり。プロジェクト裨益農家軒数は、種苗農家で39軒、養殖農家で3,000軒を想定することができる。

表 FAIEX-2 種苗農家育成計画と裨益養殖農家軒数予測（案）

州名	既存種苗農家軒数	既存種苗農家支援軒数 ¹	新規種苗農家育成軒数 ²			裨益種苗農家軒数合計
			1年次	2年次	3年次	
シエムリアップ	10	5	4	4	0	13
バットアンパン	17	5	4	4	0	13
プルサット	9	5	4	4	0	13
種苗農家育成軒数		15	12	12	0	39

		1年次	2年次	3年次	4年次	裨益養殖農家軒数
種苗農家養成軒数累計		15	27	39	39	
農民間研修受講農家軒数 ³		375	675	975	975	3000

注：

1. 第1年次は既存種苗農家に対して支援を行う。支援対象の既存種苗農家は各州5軒程度に絞り込む。
2. 各州で、第2年次及び第3年次にそれぞれ4軒の新規種苗農家を育成する。第4年次はなし。
3. 第1年次から、育成した種苗農家による農民間研修実施を支援する。研修受講者数は1回につき25軒を想定。



For a better tomorrow for all.

Japan International Cooperation Agency ជីកា អង្គការសហប្រតិបត្តិការអន្តរជាតិស្រុកសេដ្ឋកិច្ច

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JC22-261

21 June 2010

H.E. Nao Thuok
Director General
Fisheries Administration (FiA)
Ministry of Agriculture, Forestry and Fisheries

Subject: Aide Memoire for the result of Detailed Planning Survey (Part I) for the Freshwater Aquaculture Improvement and Extension Project Phase II (FAIEX 2)

Your Excellency:

We would like to express our sincere gratitude and appreciation for your kind cooperation for the Detailed Planning Survey (Part I) for the FAIEX 2 project which was conducted from 26 May to 16 June 2010. With our joint efforts, the Survey was successfully conducted.

As the result of a series of discussion with relevant stakeholders, particularly Department of Aquaculture Development and interviews at the fields, the Survey Team has made an Aide Memoire, as attached herewith, for the result of the Survey and project framework and it was agreed upon by Fisheries Administration.

We wish to dispatch Part II survey mission in September/ October to have discussion based on the Aide Memoire and finalize the Project design to be agreed between relevant authorities.

Cordially,



for **Yasujiro SUZUKI**
Chief Representative
JICA Cambodia Office

Copy to:

- Mr. Chin Da, Acting Director, Department of Aquaculture Development, FiA, MAFF
- Mr. Sugiyama Yasuhide, Second Secretary, Embassy of Japan

**FIA-JICA Freshwater Aquaculture Improvement and Extension Project
(Phase II, FAIEX 2)
Detailed Planning Survey (Part I)**

Aide Memoire for the Result of the Survey and Project Framework

A JICA Mission (hereafter called the Mission) was dispatched to conduct a detailed planning survey to formulate FIA-JICA Freshwater Aquaculture Improvement and Extension Project Phase II (FAIEX2) from 25 May to 16 June, 2010. The mission visited candidate project target areas, conducted survey to identify the environment and other conditions surrounding freshwater aquaculture in the areas, and had a series of discussions on project framework with the Fisheries Administration (FIA), Ministry of Agriculture, Forestry and Fisheries of the Royal Government of Cambodia.

This Aide Memoire is made to record the findings of the survey and results of discussions, and will be used as a basis for the project design including the Project Design Matrix and Plan of Operations which will be discussed and finalized for the agreement between FIA and JICA at the next survey planned in August/ September.

1. Background of the FAIEX2 Project

Given the importance of freshwater aquaculture in the country, the Fisheries Administration, MAFF, submitted to the Government of Japan, to extend its support program on Freshwater Aquaculture Improvement and Extension Project (FAIEX1) which successfully introduced basic freshwater aquaculture activities more than 9,000 small-scale farmers (2005-2010) in Takeo, Kampot, Prey Veng, and Kampong Speu.

2. Basic Direction of FAIEX 2 Project

<p>Robust alignment to the NSDP and the SPF is the most important principle to follow when formulating FAIEX 2. While paying due attention to the request from FIA to base on the success achieved by FAIEX 1 and to expand the aquaculture methods</p>

to other areas with higher poverty incidents, FAIEX 2 Project will be designed also in line with JICA's official stance on its support to the fishery sector expressed in its Country Assistance Strategy, and with the Project's status as Phase II, which is usually the last support project in the same sub-sector. In more concrete terms;

- A. Clearly defined target and outputs, as Phase II Project (i.e. focus on capacity development and establishing system so that the Cambodian side can sustain activities on its own. Try to minimize expanding to new activities.)
- B. Maximum use of technologies, methods and resources, developed through FAIEX I
- C. Cautious decisions on the scope of the Project with strong attention to its sustainability, while paying also sufficient considerations to the Project role to address the needs expressed by FIA (i.e. contribution to areas with higher poverty incidents)
- D. Enhanced synergies with other JICA programs especially in agriculture sector and collaborations and demarcation with other development partners.

3. Main Findings and Result of Discussion Concerning the Project Framework

(1) Overall Goal and Project Purpose

- The main objective of the Project is to ensure sustainable access to fisheries resources for rural small-scale farmers, as their source of food, nutrition, income and livelihoods, through expansion of freshwater aquaculture methods, which is aligned to and will support the fulfillment of the strategies of the Royal Government of Cambodia.
- The actual Overall Goal and Project Purpose will be in line with the proposal by FIA (as described in the table below). Indicators will be agreed at the next survey and finalized at the baseline survey to be conducted shortly after the commencement of the Project.
- As defined in the basic direction of FAIEX 2 above, due attentions will be paid to rural small-scale farmers who are poor in general, however addressing extreme poverty is not necessarily the main focus of the JICA assistance in fisheries sector and the focus has to be on establishment of sustainable mechanisms to ensure the access to fisheries resources by rural small-scale farmers.

	FAIEX (2005-2010)	FAIEX2 (Proposal by FiA, RGC, with some changes in expression)
Overall Goal	Aquaculture production in target provinces is increased by 1.5. times	Economic and nutritional conditions of rural farmers are improved through extension of small-scale aquaculture
Project Purpose	Small-scale aquaculture technologies are extended largely in target provinces	Small-scale aquaculture suitable for local natural and socio-economic conditions is extended among rural farmers in target provinces

(2) Target Areas and Farmers

(i) In principle, target areas for the Project will be those areas with rain-fed paddy fields along side National Road 5 and 6 in Banteay Meanchey, Siem Reap, Battambang and Pursat (areas indicated with yellow in the attached map). The main rationale for targeting these areas are as follows;

- The North-West region was requested by FiA as the Project target for FAIEX 2 considering that the areas suffer from severer poverty and other regions in the country are being supported by other development partners.
- There are good potentials for freshwater aquaculture in these areas and opportunities for FAIEX 1 technologies. Lack of technical knowledge and skills as well as seed production are identified as the biggest bottlenecks for introduction of aquaculture, which can be reasonably addressed by the method developed through FAIEX1.
- The aquaculture methods developed through FAIEX1 can be applicable in a relatively easier manner with improvement and modification. The natural environment in these selected rain-fed paddy areas is relatively similar to that in the FAIEX1 area in terms of rainfall and soil conditions which fundamentally determine the applicability of the FAIEX1 type fish farming technology. The principal livelihood pattern of the farmers (thus the socio-economic environment) which bases on rain-fed rice farming is also similar between the FAIEX1 and FAIEX2 areas, although the latter suffers from somewhat severer poverty than the former.
- Certain areas have other favorable factors which would facilitate

smoother introduction of freshwater aquaculture in the regions such as existence of free ponds in farmer houses and fish farmers, availability of rice bran and animal manure as the principal feed and fertilizers respectively, emergence of seed producers though not fully operational yet, and a new wave of construction of commercial-scale hatcheries by fishing lot owners around the Tonle Sap Great Lake.

- The three-tiered FiA Cantonment structure with divisions and sangkats having 23 - 52 total staffs in each province (except in Oddar Meanchey Province which has only 8 staffs) is structurally sufficient to reach the farmers at the village levels as it was in the FAIEX1 area. The communication linkage between these Cantonments and the FiA headquarters in Phnom Penh seems to be efficient enough to implement and monitor the project activities in the wide geographic area.

- There will be a good synergy expected between FAIEX2 and other JICA cooperation projects especially in Battambang and Pursat.

- (ii) Project activities can be extended to parts of Pailin and Oddar Meanchey, 2 other areas requested by FiA. While Battambang Cantonment directly in charge of Pailin as its satellite, areas in Oddar Meanchey will be taken care by Oddar Meanchey Cantonment with capacity development activities by FiA and Japanese Experts. As a rough estimation, in Pailin, it is expected that at least 1 new seed producer is trained, supplying seed to 100 farmers at the end of FAIEX2. In Oddar Meanchey, 2 new seed producers in addition to the existing 2 are trained, supplying seed to 300 farmers. Areas to be covered in these provinces should be limited to where FAIEX 1 methods can be applicable easily. Especially, areas with severe environmental and geographical conditions such as the Northern parts of Oddar Meanchey will be excluded. The approach may be subject to change based on the security conditions and policy by JICA Cambodia.
- (iii) Approximately 3,000 farmers are deemed to be appropriate as the target number, as suggested by FiA. The exact target farmers/ communes will be decided during baseline survey to be conducted after the commencement of the Project.

(3) Scope of the Project

The following outputs, which will be incorporated in the Project Design Matrix to be drafted and agreed at the next survey, are expected through Project activities;

- (i) Improvement of aquaculture technologies developed through FAIEX1
- Main focus of aquaculture technical improvement activities in FAIEX2 will be on modification and application of FAIEX1 technologies into FAIEX2 target areas.

- There will be some technology development in the areas of seed production especially for improving survival rate in after-hatching nursery using live feeds such as moina and other zooplankton organisms, brood stock development and grow-out techniques with improved fertilization and feeding methods.
- The Tak VII station is expected to enhance its capacity especially for seed and brood stock production, training, and basic research functions. Based on the findings from the Survey, the role and functions of the Tak VII station will be re-visited and defined by FIA in the context of overall FIA's planning on their freshwater aquaculture research centers and stations across the nation such as the Freshwater Aquaculture Research and Development Center (former Bati Seed Production and Research Station) and put out for discussion at the next survey. If required, it is recommended that full-time counterpart(s) with sound academic background and experience be allocated to the station. Based on the discussion results and FIA arrangements for required conditions, there will be minimum investment and technical support to the Tak VII station. Although the exact amount of budget needs to await a detailed survey after the commencement of the Project, based on a rough estimate by the Mission and discussion with FIA, the facility development for the technical improvement at Tak VII station will be limited to a total construction cost of around US\$50,000 excluding equipment which will be procured locally or imported from Japan and other countries. Design and estimation for the renovation will be discussed at the next survey.
- Technical problems identified by FIA extension staffs at farmers' ponds will be relayed to Tak VII station which in association with the Freshwater Aquaculture Research and Development Center will try to solve them through experiments and other means. Thus, Tak VII and Freshwater Aquaculture Research and Development Center will function as technical backstops for the Project. The problems and their solutions will be shared with the other farmers through the extension system and through the farmers' network. The reciprocal flows of technical information through the farmers network extension system technical backstops would be aimed to be established in the Project to ensure higher level of technical sustainability.
- As for application of FAIEX1 technologies to the FAIEX2 areas, on-site verifications using farmers' ponds will be employed along with training of the participating farmers and demonstration of the technologies to the areas.
- Target species in FAIEX 2 will remain the same as FAIEX1, namely, silver barb, common carp, silver carp and tilapia with one additional species, Mrigal, the de-facto target of FAIEX1. Regarding other species for which local demands for culturing seem to be higher especially in those areas where severer poverty is prevailing, due attention to biodiversity conservation and

environmental impacts as well as to economic viability for these species in rural setting will be made before these species are to be considered as targets. Should new species be included in the Project activities, requirement for technical development and other additional activities must be at the minimum level.

(ii) Capacity development of FIA and Cantonments officers and development of training package

- FIA and Cantonments officers will be trained by Japanese or Third Country experts on the aquaculture technologies and extension methodology so that they can transfer the skills and monitor activities of core farmers. The training will be packaged so that it can be replicable to other cantonments and areas across the nation by FIA.
- For the training of FIA and Cantonment extension officers, Tak Vil station will be used as one of the training venues. There will be no new building to be constructed by the Project as the training room and accommodation facilities of the Provincial Agricultural Experiment Station adjacent to the Tak Vil fish farming station can be used for the training. The existing hatchery facility will be repaired for the training purpose.

(iii) Extension of the technologies: (a) core farmer training and (b) small-scale farmer training

- The three-step technology transfer (1. Japanese or Third Country experts to FIA counterparts, 2. FIA counterparts to core farmers, 3. core farmers to small-scale farmers) which were identified to be effective in the Terminal Evaluation of FAIEX1 will be replicated in FAIEX2 with modifications/improvements, especially in the first step in which the capacitated FAIEX1 counterparts will assume the functions of the Japanese experts as much as possible so that the whole technology transfer mechanism to be "nationalized" at the end of Project.
- Support to farmers in digging ponds seems to hold a higher significance for successful extension of fish farming in the target areas as the number of available ponds was observed to be fewer than FAIEX 1 areas and relatively higher financial constraints for the farmers exist as a reflection of higher poverty condition in the FAIEX2 area. Since JICA does not foresee any possibility for providing financial support to pond-digging at the moment, the Project is encouraged to seek associations with other donors and NGOs working in the related fields such as the Food for Work Program of WFP which cooperated with the FAIEX1 Project, to use efficiently local governments' funds such as district and commune funds, and to take opportunities of road constructions where free/low-cost digging of fish ponds is possible in

exchange of donating the excavated soil to the contractor. As for technical support, the Project will actively provide to those in need through FIA/ Cantonment officials in collaboration with Japanese experts.

- Farmers Network will be enhanced through the support of the Project by utilizing the Networks enhanced by FAIEX1. Obliging participating farmers, depending on their capacity, to make financial and other necessary contributions to the Network activities would ensure their ownership. However, since the need for start-up investments would still remain high for new seed farmers, assistance from JICA in their initial operations of seed farmers may be considered. If in-kind support through provision of hatchery materials and so on from JICA result in repayment in cash back to the Network, rigorous measures to ensure sound management and accountability of the funding shall be determined based on JICA regulations. In addition, capacity of farmers and Networks to increase their access to private funding such as micro finance institutions, as a key for sustainability of their activities should be enhanced through, for example, capacity development of FIA and Cantonment officers, compiling and documenting previous successful cases and support to loan proposal writing. As for support to farmers or financial institutions to hedge risks involved in loans, feasibility of such activity under FAIEX2 and detailed measures will be discussed at the next survey.

(iv) Community Fish Refuge activities targeting maximum 20 small/ medium sized ponds and standardization of the activities

- Skills and know-how for the sound management of Community Fish Refuge (CFR) activities in up to maximum 20 small/ medium sized ponds as proposed by FIA and in line with the policy of the Royal Government will be transferred. The main rationale for the activity inclusion into FAIEX2 is to serve the needs of poorer farmers with no or limited access to lands, which constitutes up to 30% of the population in some visited villages by the Mission. Also this CFR activity would play a very important role in ensuring sustainable management of natural resources in communities, especially in light of the general perceptions prevailing among interviewed stakeholders that their fish catches are in declining trend in recent years. The activity includes standardization and documentation of the skills and know-how transferred through FAIEX2 for wider distribution and application across the nation, and quality assurance.
- It should be noted that School Pond activities which were part of FAIEX 1 activities will not be included in FAIEX2 in order to keep the focus of FAIEX2 Project activities.

(4) Operational and institutional arrangements

- Counterpart Allocation Plan is as follows:

FIA at central		
Project Director	Director General, FIA	1
Project Manager	Director, DAD	1
Deputy Manager	Deputy Director, DAD	1
Supervisor	Staff of DAD	7
(5 in charge of each Project area and 2 technical staff in charge of CFR and seed production)		
Cantonment		
Field extension officer	Staff of cantonments	18
(4 x 4 provinces + 2 in Oddar Meanchey)		
<u>Technical trainer</u>	<u>Staff of Tak Vil station</u>	<u>4</u>
Total		32

- Human resources developed during FAIEX1, such as Cantonment officials and farmers will be utilized to technical transfer activities in FAIEX2.
- Following the decisions by the Royal Government of Cambodia as well as JICA internal guideline, JICA does not provide any salary or incentives to the counterparts from FIA except for necessary expenses occurred by the Project activities, such as overtime, per diem and accommodations, whose rate will also be in line with any regulations set by the Royal Government and by JICA policy.

(5) Schedule and the Project Duration

- Based on the experiences through FAIEX1 where the timing of the Project commencement (February) could not leave enough time in the first year to prepare and conduct technical transfer activities for seed production which should be active about two months prior to the rainy season, the Mission and FIA recommend that JICA start FAIEX2 in January 2011 at latest.
- Considering the survey results and required time for capacity development and training to reach out around 3,000 farmers, it is recommended that the Project duration be 5 years.

15 June 2010
Fisheries Administration, MAFF, Royal Government of Cambodia
Detailed Planning Survey Mission for FAIEX2, JICA

**MINUTES OF MEETINGS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
FISHERIES ADMINISTRATION
MINISTRY OF AGRICULTURE, FORESTRY AND FISHERIES
OF THE ROYAL GOVERNMENT OF CAMBODIA
ON
JAPANESE TECHNICAL COOPERATION
FOR
THE FRESHWATER AQUACULTURE IMPROVEMENT
AND EXTENSION PROJECT II (FAIEX-2)**

The Joint Preparatory Survey by Japan International Cooperation Agency (hereinafter referred to as "JICA"), headed by Mr. Yukiharu Kobayashi, Senior Representative of JICA Cambodia Office, and Fisheries Administration (hereinafter referred to as "FiA"), headed by H.E. Dr. Nao Thuok, Director General, was conducted from 26 September to 6 October 2010 for the purpose of formulating the framework of the Technical Cooperation Project namely the Freshwater Aquaculture Improvement and Extension Project II (FAIEX-2) in the Kingdom of Cambodia (hereinafter referred to as "the Project") in response to the request made by the Royal Government of Cambodia toward the Government of Japan.

The Joint Preparatory Survey Team (hereinafter referred to as "the Team") had a series of discussions and exchanged views on matters concerning the Project, as well as field surveys.

As a result of the discussions, the Team agreed upon the issues of the Project as attached hereto.



小林 洋一

 Mr. Yukiharu Kobayashi
 Japanese Team Leader
 Cambodia Office
 Japan International Cooperation Agency
 Japan



Phnom Penh, November 26, 2010

 H.E. Dr. Nao Thuok
 Cambodian Team Leader
 Fisheries Administration
 Ministry of Agriculture, Forestry and Fisheries
 The Kingdom of Cambodia

ATTACHED DOCUMENT

I. Background of the Project

Small-scale aquaculture plays an important role for securing animal protein and generating cash income in rural areas in Cambodia. From this viewpoint, FiA carried out the FAIEX Project Phase I (hereinafter referred to as "FAIEX-1") in four southern provinces for five years from February 2005 to February 2010, and it achieved the expected outputs successfully.

The current national development plan, namely National Strategic Development Plan Update 2009-2013 continuously emphasizes poverty alleviation and food security particularly for rural farmers. In addition, the Royal Government Cambodia is preparing 'A Strategic Planning Framework for Fisheries (2010-2019)'. It regards small-scale aquaculture development as one of the most effective approaches to sustainable fisheries resource management and development.

The Project aims to promote and contribute to this strategy especially for improving economic and nutritional conditions of rural farmers through extension of small-scale aquaculture.

II. Outline of the Project

1. Project Strategy

Based on the experiences and outcomes of FAIEX-1, the Project will further strengthen the sustainability of small-scale aquaculture development with the following focal points:

- 1) Capacity development for aquaculture extension services which FiA can sustain on its own even after the Project ends.
- 2) Enhancing the Seed Farmers' Network which is considered as one of the most appropriate approaches to sustain mutual cooperation among seed farmers.

2. Framework of the Project

The framework and implementation plan of the Project is shown in tentative Project Design Matrix (PDM) (Annex I), tentative Plan of Operation (PO) (Annex II) and draft Record of Discussions (R/D) (Annex III). Indicators will be finalized based on the baseline survey after commencement of the Project.

Through the internal process to approve the Project in JICA, the final draft of R/D will be prepared. The framework of the Project will be finally determined when R/D is signed by the

Chief Representative of JICA Cambodia Office and the Director General of FiA of the Ministry of Agriculture, Forestry and Fisheries.

3. Project Title

The project title is “Freshwater Aquaculture Improvement and Extension Project II (FAIEX-2)”.

4. Term of the Cooperation

The duration of the Project is four years. JICA will inform the launching date of the Project later.

5. Target Areas

The target areas include three provinces namely Pursat, Battambang, and Siem Reap. The project activities will be conducted mainly in rain-fed rice paddy areas along National Road 5 and 6 for the following reasons:

5-1. There are found potentials for small-scale aquaculture development in target provinces.

The natural environment in those selected areas is relatively similar to those areas of the FAIEX-1 in terms of rainfall, soil conditions and principal livelihood pattern of the farmers. Therefore, the aquaculture technology package of FAIEX-1 can be applied to FAIEX-2 target areas in a relatively easier manner with minimum modifications.

5-2. The areas have other favorable factors which would facilitate smoother development of small-scale aquaculture in the regions such as existence of fish farmers and ponds, emergence of seed farmers, availability of rice bran as supplemental feed and animal manure as fertilizer.

5-3. There are sufficient number of FiA Cantonment staff (41 – 53) in the target provinces who can directly get involved in the project activities.

5-4. There are communes placing priority on small-scale aquaculture development, and it is easy for the Project to cooperate with those communes. In fact, it is found that some communes have already started to use their own resources such as Commune Investment Fund for small-scale aquaculture development.

5-5. It is possible to collaborate with other JICA-assisted programs/projects in agricultural and water sector in Pursat and Battambang provinces in order to generate synergy effects.

6. Implementing Agency of the Project

FiA shall be responsible for the project implementation.

7. Administration of the Project

7-1. Project Director

Director General of FiA is the Project Director who shall bear overall responsibility for the implementation of the Project.

7-2. Project Manager

Director of Department of Aquaculture Development (DAD) is the Project Manager who shall be responsible for the managerial and technical matters of the Project on a day-to-day basis.

7-3. Deputy Project Manager

Deputy Director of DAD is the Deputy Project Manager who shall support the Project Manager in the project activities on a day-to-day basis.

7-4. Other Counterpart Personnel

Sufficient number of extension staff shall be assigned from DAD, Cantonment, Division and Sangkat offices. For technical improvement activities, adequate number of counterpart personnel shall be assigned to the Toek Vil Fish Seed Production Station in Siem Reap (hereinafter referred to as "the Station").

7-5. Joint Coordinating Committee

For effective implementation of the Project, both sides agreed to establish a Joint Coordinating Committee (JCC). The JCC will meet at least once a year and whenever necessity arises. The expected responsibilities and the membership of the JCC are described in the attached draft R/D (Annex III).

III. Special Remarks

1. FAIEX-1 successfully developed the technology and extension methodology/system associated with small-scale aquaculture development for the four target southern provinces of Prey Veng, Takeo, Kampong Speu and Kampot. And, FAIEX-2 will verify their adaptability and applicability to those newly selected target provinces of Pursat, Batambang and Siem Reap. Based on the above, it has been agreed by the both sides and assured by the Cambodian side that after FAIEX-2 ends, it is FiA and other concerned government agencies that will expand the verified technology, methodology and system to other parts of Cambodia without seeking assistance from JICA.
2. It has been agreed by the both sides that the inputs from Japanese side will be at minimum level. The Project shall make full use of resources developed and used by FAIEX-1 such as capacitated personnel, technology, methodology, equipment/machinery and system.

IV. Other Relevant Issues for Implementation of the Project

1. Synergy Effects with Other JICA-Assisted Programs and Projects

The Project shall promote as much as possible synergy effects with other JICA-assisted programs/projects especially in agricultural and water sector.

2. Assignment of Counterpart Personnel

FiA shall assign adequate qualified counterpart personnel to the Project even before the Project gets started in preparation for its smooth implementation from the beginning.

3. Coordination with Relevant Offices and Organizations

FiA shall make necessary coordination with its local offices, local authorities, other relevant organizations and stakeholders at all levels for smooth implementation of the Project.

4. Target Fish Species

4-1. In principle, target fish species for FAIEX-2 will be the same as those for FAIEX-1 namely Silver Barb, Common Carp, Silver Carp, Indian Carp and Tilapia.

4-2. Any new species such as hybrid Clarias should be excluded from the Project considering biodiversity conservation and environmental impact.

4-3. Any new species such as Pangasius could be included in the Project only if suitability of such species to the Project's concept is confirmed and agreed by the both sides.

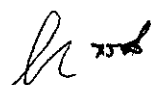
5. Community Fish Refuge (CFR)

The Project will undertake the CFR-related activities only for the purpose of making a CFR implementation manual. Therefore, the Project shall not establish new CFRs but select functioning ones to obtain necessary information for developing the manual. The following aspects shall be taken into consideration for the selection of target CFRs.

- 1) CFRs have been effectively managed by the management committees for at least one year.
- 2) Location and accessibility should be considered to minimize the Project's operation cost.
- 3) CFRs which give negative impact to its beneficiaries or those used for other purposes than fish stock enhancement should be avoided.

6. Toek Vil Fish Seed Production Station

6-1. The Station shall be upgraded as a national center and will be directly managed by FiA



as in the case of the Freshwater Aquaculture Research and Development Center at Bati in Prey Veng province.

6-2. FiA shall allocate adequate number of counterpart personnel to the Station with sound academic background and research and development experiences.

6-3. FiA shall be responsible for operational and maintenance cost for the Station (Refer to Annex IV). For improving the facilities that are considered necessary to implement the project activities, the Japanese side is prepared to shoulder the cost of 50,000 US dollar at the maximum.

7. Project Operation Cost

The project operation cost shall be shared by the both sides and its detail is given in Annex IV.

8. Project Office

FiA shall provide office to the Project. The project office will be set up initially in Phnom Penh, and if necessary, it will be moved to Siem Reap province at the later stage.

Annex I: Project Design Matrix (PDM)

Annex II: Plan of Operation (PO)

Annex III: Draft Record of Discussions (R/D)

Annex IV: Cost sharing chart



Annex 1: Project Design Matrix (PDM₀: Tentative Version)

Project Title : Freshwater Aquaculture Improvement and Extension Project II (FAIEX-2) in Cambodia

Target Areas : Pursat, Battambang, and Siem Reap Provinces

Target Group : Small-scale fish farmers and seed farmers in the target areas

Project Period : XXXX, 2011 – XXXX, 201X (Four Years)

Version No. 0

Date : October 6, 2010

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>Overall Goal Household economy of small-scale fish farmers are improved in the target provinces.</p>	<p>1. The number of small-scale fish farmers with increased profits*¹ and savings*² from fish farming is increased from XX households to XX households in each target province by 2018.</p>	<p>1-1. Sampling survey/ Data from the FA cantonment offices 1-2. Baseline/ Impact survey report</p>	<p>The policy and direction on the aquaculture programs are not drastically changed by the government of Cambodia.</p>
<p>Project Purpose Small-scale aquaculture production is increased in the target provinces.</p>	<p>1. Aquaculture production in each target province is increased by XX% on annual average.</p>	<p>1. Baseline/ Impact survey report</p>	<p>Prices of cultured fishes are not largely declined.</p>
<p>Outputs 1. Small-scale seed production and grow-out technology is improved.</p>	<p>1-1. The number of the technical improvements through experiments is increased. 1-2. The degree of the technical improvement, such as growth rate and survival rate, is improved.</p>	<p>1-1. Technical manuals 1-2. Results of verification trials</p>	<p>1. Natural disasters, such as droughts, floods, etc., do not give a profound effect to the project activities.</p>
<p>2. Capacity of local aquaculture extension services is enhanced.</p>	<p>2-1. The percentage of the local extension staff who properly conducts extension activities on grow-out and seed production technology attains to more than XX% on average. 2-2. Satisfaction ratings of the seed farmers attain to more than XX% on average regarding the teaching capability of local extension staff.</p>	<p>2-1. Questionnaire survey to local extension staff 2-2. Questionnaire survey to seed farmers</p>	<p>2. Outbreaks of serious fish diseases do not occur.</p>
<p>3. Seed farmers are capacitated.</p>	<p>3-1. The number of seed farmers enable to produce fingerlings is increased from XX farmers to XX farmers in each target province. 3-2. The number of seed farmers who can produce seed of at least three species is increased by XX % in each target province. 3-3. Seed production in each target province is increased by XX% 3-4. Sales income of seed farmers is increased by XX% in each target province.</p>	<p>3-1. Baseline/ Impact survey report 3-2. Baseline/ Impact survey report 3-3. Baseline/ Impact survey report 3-4. Baseline/ Impact survey report</p>	<p>3. The imports of fingerlings from neighboring countries do not give an enormous influence to the supply balance of fingerlings produced in Cambodia.</p>
<p>4. Small-scale aquaculture is expanded in the target provinces.</p>	<p>4-1. The number of small-scale fish farmers benefited from farmer-to-farmer training attains to more than XX households in the target provinces.</p>	<p>4-1. Baseline/ Impact survey report</p>	
<p>5. Networks of seed farmers are enhanced and broadened.</p>	<p>4-2. The number of small-scale fish farmers working for community fish refuges (CFRs) is increased from XX households to XX households in each target province. 5-1. The meetings for information exchange on seed production technology, seed marketing, etc. are convened XX times per year. 5-2. The number of advices and recommendations regarding seed production technology, seed marketing, procurement of farm inputs, etc. is increased in the target provinces.</p>	<p>4-2. Baseline/ Impact survey report 5-1. Records of the meetings for information exchange 5-2. Monitoring results by the Project and impact survey report</p>	

*¹ "Profit" is given by subtracting "production cost" from "fish sales income of cultured fish."

*² "Saving" is given by self-consumption of cultured fish, which would otherwise be expenses for purchase of fish in the market, i.e., by subtracting "present cost to purchase fish" from "previous cost to purchase fish."

Activities	Inputs	Pre-condition
<p>0 Conduct the baseline and impact surveys.</p> <p>1-1 Clarify issues and challenges on small-scale seed production and grow-out technology in the target provinces.</p> <p>1-2 Conduct technical improvement at the Toek VII Fish Seed Production Station.</p> <p>1-3 Conduct verification trials at seed farmers and small-scale fish farmers.</p> <p>1-4 Develop technical manuals adaptive to the target provinces by revising the FAJEX-1 manuals.</p> <p>2-1 Confirm and clarify roles and functions of local extension staff at each level of F/A (Cantonment, Division, and Sangkat) and local authorities.</p> <p>2-2 Conduct training on grow-out technology and extension methods for local extension staff.</p> <p>2-3 Conduct training on seed production technology and extension methods for selected local extension staff.</p> <p>2-4 Analyze extension activities undertaken, and draw up an extension guideline and good practices.</p> <p>3-1 Select target communes and seed farmers based on the criteria established.</p> <p>3-2 Conduct training on seed production aspects for the seed farmers.</p> <p>3-3 Assist the seed farmers in their seed production activities mainly at initial stage.</p> <p>4-1 Conduct training of trainers (TOT) on grow-out technology for the seed farmers.</p> <p>4-2 Assist seed farmers to conduct farmer-to-farmer training for small-scale fish farmers.</p> <p>4-3 Select Community Fish Refuges (CFRs) for resource enhancement based on the criteria established.</p> <p>4-4 Support CFR activities and prepare the CFR implementation manual.</p> <p>4-5 Disseminate information of small-scale aquaculture among farmers and local extension staff in the target provinces.</p> <p>5-1 Facilitate seed farmers to establish a provincial network to strengthen cooperation among seed farmers in each target province.</p> <p>5-2 Facilitate inter-networks in the target provinces.</p> <p>5-3 Promote cooperation among the networks of FAJEX-2 and FAJEX-1.</p>	<p>Japanese side</p> <p>1. Experts</p> <p>Chief Advisor / Aquaculture Extension Project Coordinator / Aquaculture Training Seed Production Technology Broodstock Development and Management Grow-out Technology Feed Development Fish Stock Enhancement (CFR) Aquaculture Facility Improvement Others as necessary</p> <p>2. Training of counterpart personnel in Japan and/or the Third Countries</p> <p>3. In-country training</p> <p>4. Facility improvement of the Toek VII Fish Seed Production Station</p> <p>5. Provision of machinery and equipment including transportation means if necessary necessary for the project activities, such as technical improvement at the Toek VII Fish Seed Production Station, hatchery development for seed farmers, training, extension activities, etc.</p> <p>6. Local expenses for the project activities</p> <ul style="list-style-type: none"> • Expenses for workshops, seminars, etc. • Teaching materials for training • Others 	<p>The local extension staff, seed farmers, and small-scale fish farmers trained by the Project continue working for their respective positions in the target provinces.</p> <p>Pre-condition Understanding and cooperation on the project activities are obtained from farmers in the target provinces.</p>

Annex II: Plan of Operations (PO: Tentative Version)
Schedule of the Implementation and Responsible Organizations

Date: 6th Oct., 2010

Total month	Medium term												Technical evaluation												Responsible organizations																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
0	Conduct the baseline and impact surveys.																																																Director of Department of Aquaculture Development (DAD) Deputy Director of DAD
OUTPUT 1. Small-scale seed production and grow-out technology is improved.																																																	
1-1	Clarify issues and challenges on small-scale seed production and grow-out technology in the target provinces.																																																Deputy Director of DAD Technical staff of the Toek VII Fish Seed Production Station
1-2	Conduct technical improvement at the Toek VII Fish Seed Production Station																																																Deputy Director of DAD Technical staff of the Toek VII Fish Seed Production Station
1-3	Conduct verification trials at seed farmers and small-scale fish farmers.																																																Deputy Director of DAD Technical staff of the Toek VII Fish Seed Production Station
1-4	Develop technical manuals adaptive to the target provinces by revising the FALEX-1 manuals.																																																Deputy Director of DAD Technical staff of the Toek VII Fish Seed Production Station
OUTPUT 2. Capacity of local aquaculture extension services is enhanced.																																																	
2-1	Confirm and clarify roles and functions of local extension staff at each level of FIA (Cantonment, Division, and Sangant) and local authorities.																																																Deputy Director of DAD Directors of Pursat, Battambang, and Siem Reap Fisheries Cantonnments
2-2	Conduct training on grow-out technology and extension methods for local extension staff.																																																Deputy Director of DAD
2-3	Conduct training on seed production technology and extension methods for selected local extension staff.																																																Deputy Director of DAD
2-4	Analyze extension activities undertaken, and draw up an extension guideline and good practices.																																																Director of DAD Deputy Director of DAD
OUTPUT 3. Seed farmers are capitalized.																																																	
3-1	Select target communes and seed farmers based on the criteria established.																																																Deputy Director of DAD Chiefs of local extension officers in Pursat, Battambang, and Siem Reap provinces
3-2	Conduct training on seed production aspects for the seed farmers.																																																Deputy Director of DAD Chiefs of local extension officers in Pursat, Battambang, and Siem Reap provinces
3-3	Assist the seed farmers in their seed production activities mainly at initial stage.																																																Director of DAD Deputy Director of DAD
OUTPUT 4. Small-scale aquaculture is expanded in the target provinces.																																																	
4-1	Conduct training of farmers (TOT) on grow-out technology for the seed farmers.																																																Deputy Director of DAD Chiefs of local extension officers in Pursat, Battambang, and Siem Reap provinces
4-2	Assist seed farmers to conduct farmer-to-farmer training for small-scale fish farmers.																																																Deputy Director of DAD Chiefs of local extension officers in Pursat, Battambang, and Siem Reap provinces
4-3	Select Community Fish Refuges (CFRs) for resource enhancement based on the criteria established.																																																Deputy Director of DAD Directors of Pursat, Battambang, and Siem Reap Fisheries Cantonnments
4-4	Support CFR activities and prepare the CFR implementation manual.																																																Director of DAD Deputy Director of DAD
4-5	Disseminate information of small-scale aquaculture among farmers and local extension staff in the target provinces.																																																Deputy Director of DAD Chiefs of local extension officers in Pursat, Battambang, and Siem Reap provinces
OUTPUT 5. Networks of seed farmers are enhanced and broadened.																																																	
5-1	Facilitate seed farmers to establish a provincial network to strengthen cooperation among seed farmers in each target province.																																																Deputy Director of DAD Directors of Pursat, Battambang, and Siem Reap Fisheries Cantonnments
5-2	Facilitate inter-networks in the target provinces.																																																Deputy Director of DAD Directors of Pursat, Battambang, and Siem Reap Fisheries Cantonnments
5-3	Promote cooperation among the networks of FALEX-2 and FALEX-1.																																																Deputy Director of DAD Deputy Director of DAD

Note: The start of the Project, schedules described in this chart, and so on are subject to modifications through further examinations and discussions in future.

■ : To continuously conduct project activities during the dotted line.
▲ : To conduct seminars, produce documents, etc.

(DRAFT)
RECORD OF DISCUSSIONS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
FISHERIES ADMINISTRATION
MINISTRY OF AGRICULTURE, FORESTRY AND FISHERIES
OF THE ROYAL GOVERNMENT OF CAMBODIA
ON
JAPANESE TECHNICAL COOPERATION
FOR
THE FRESHWATER AQUACULTURE IMPROVEMENT
AND EXTENSION PROJECT II (FAIEX-2)

In response to the request of the Royal Government of Cambodia, the Government of Japan has decided to extend her technical cooperation in the conduct of Freshwater Aquaculture Improvement and Extension Project II (FAIEX-2) (hereinafter referred to as "the Project").

Accordingly, Japan International Cooperation Agency (hereinafter referred to as "JICA") exchanged views and had a series of discussions with the Cambodian authorities concerned with respect to desirable measures to be taken by JICA and the Cambodian authorities concerned for the successful implementation of the Project.

As a result of the discussions, and in accordance with the provisions of the Agreement on Technical Cooperation between the Government of Japan and the Royal Government of Cambodia, signed in Phnom Penh on June 17, 2003, JICA and the Cambodian authorities concerned agreed on the matters referred to in the document attached hereto.

Phnom Penh, *****

Mr. Yasujiro SUZUKI
Chief Representative
Cambodia Office
Japan International Cooperation Agency
Japan

H.E. Dr. Nao Thuok
Director General
Fisheries Administration
Ministry of Agriculture, Forestry and Fisheries
The Kingdom of Cambodia



THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN JICA AND THE ROYAL GOVERNMENT OF CAMBODIA

1. The Royal Government of Cambodia will implement the Project in cooperation with JICA.
2. The Project will be implemented in accordance with the Framework of the Project which is given in ANNEX I.

II. MEASURES TO BE TAKEN BY JICA

1. DISPATCH OF JAPANESE EXPERTS

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

2. PROVISION OF MACHINERY AND EQUIPMENT

JICA will provide machinery, equipment and other materials (hereinafter referred to as "the Equipment") necessary for the implementation of the Project as listed in ANNEX III.

3. TRAINING OF CAMBODIAN PERSONNEL IN JAPAN AND/OR THE THIRD COUNTRIES

JICA will provide the Cambodian counterpart personnel with technical training in Japan and the third countries as necessary.

III. MEASURES TO BE TAKEN BY THE ROYAL GOVERNMENT OF CAMBODIA

1. The Royal Government of Cambodia will take necessary measures to ensure self-reliant and sustainable operation of the Project during and after the period of Japanese technical cooperation, through full and active involvement in the Project by the Fisheries Administration (hereinafter referred to as "FiA"), the Ministry of Agriculture, Forestry and Fisheries (hereinafter referred to as "MAFF") and other parties concerned such as local authorities and beneficiary groups.
2. The Royal Government of Cambodia will take necessary measures to ensure that the knowledge and experience acquired by the Cambodian counterpart personnel through technical training in Japan and/or the third countries will be utilized effectively in the implementation of the Project.



3. In accordance with the laws and regulations set in force in the Kingdom of Cambodia, the Royal Government of Cambodia will take necessary measures to mobilize existing equipment if necessary for the implementation of the Project other than the Equipment provided by JICA under II-2 above.
4. In accordance with the laws and regulations set in force in the Kingdom of Cambodia, the Royal Government of Cambodia will take necessary measures to meet the running expenses necessary for the implementation of the Project.

IV. ADMINISTRATION OF THE PROJECT

1. Project Director

Director General of FiA is the Project Director who shall bear overall responsibility for the implementation of the Project.

2. Project Manager

Director of Department of Aquaculture Development (DAD) is the Project Manager who shall be responsible for the managerial and technical matters of the Project on a day-to-day basis.

3. Deputy Project Manager

Deputy Director of DAD is the Deputy Project Manager who shall support the Project Manager in the project activities on a day-to-day basis.

4. Other Counterpart Personnel

Sufficient number of extension staff shall be assigned from DAD, Cantonment, Division and Sangkat offices. For technical improvement activities, adequate number of counterpart personnel shall be assigned to the Toek Vil Fish Seed Production Station in Siem Reap.

5. The Japanese Chief Advisor will provide necessary recommendations and advice to the Project Director and the Project Manager on any matters pertaining to the implementation of the Project.

6. The Japanese experts will give necessary technical guidance and advice to Cambodian counterpart personnel on technical matters pertaining to the implementation of the Project.



7. For the effective and successful implementation of the Project, a Joint Coordinating Committee (JCC) will be established. The functions and composition of the JCC are described in ANNEX VI.

V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by JICA and the Cambodian authorities concerned, at the middle and during the last six months of the cooperation term in order to examine the level of achievements.

VI. MUTUAL CONSULTATION

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

VII. MEASURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE PROJECT

For the purpose of promoting support for the Project among the people of the Kingdom of Cambodia, the Royal Government of Cambodia will take appropriate measures to make the Project widely known to the people of the Kingdom of Cambodia.

VIII. TERM OF COOPERATION

The duration of the Project will be four (4) years from the date of dispatch of the first Japanese expert.

ANNEX I	FRAMEWORK OF THE PROJECT
ANNEX II	LIST OF JAPANESE EXPERTS
ANNEX III	LIST OF MACHINERY AND EQUIPMENT
ANNEX IV	LIST OF CAMBODIAN COUNTERPART AND ADMINISTRATIVE PERSONNEL
ANNEX V	LIST OF BUILDINGS AND FACILITIES



ANNEX VI JOINT COORDINATING COMMITTEE
ANNEX VII AGREEMENT ON THE TECHNICAL COOPERATION BETWEEN THE
GOVERNMENT OF JAPAN AND THE ROYAL GOVERNMENT OF
CAMBODIA

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ANNEX I

FRAMEWORK OF THE PROJECT

Overall Goal

Household economy of small-scale fish farmers are improved in the target provinces.

Project Purpose

Small-scale aquaculture production is increased in the target provinces.

Output

1. Small-scale seed production and grow-out technology is improved.
2. Capacity of local aquaculture extension services is enhanced.
3. Seed farmers are capacitated.
4. Small-scale aquaculture is expanded in the target provinces.
5. Networks of seed farmers are enhanced and broadened.

Activities

- 0 . Conduct the baseline and impact surveys.
 - 1-1. Clarify issues and challenges on small-scale seed production and grow-out technology in the target provinces.
 - 1-2. Conduct technical improvement at the Toek Vil Fish Seed Production Station.
 - 1-3. Conduct verification trials at seed farmers and small-scale fish farmers.
 - 1-4. Develop technical manuals adaptive to the target provinces by revising the FAIEX-1 manuals.
- 2-1. Confirm and clarify roles and functions of local extension staff at each level of FiA (Cantonment, Division, and Sangkat) and local authorities.
 - 2-2. Conduct training on grow-out technology and extension methods for local extension staff.
 - 2-3. Conduct training on seed production technology and extension methods for selected local extension staff.
 - 2-4. Analyze extension activities undertaken, and draw up an extension guideline and good practices.
- 3-1. Select target communes and seed farmers based on the criteria established.
 - 3-2. Conduct training on seed production aspects for the seed farmers.
 - 3-3. Assist the seed farmers in their seed production activities mainly at initial stage.
- 4-1. Conduct training of trainers (TOT) on grow-out technology for the seed farmers.
 - 4-2. Assist seed farmers to conduct farmer-to-farmer training for small-scale fish farmers.
 - 4-3. Select Community Fish Refuges (CFRs) for resource enhancement based on the criteria established.
 - 4-4. Support CFR activities and prepare the CFR implementation manual.
 - 4-5. Disseminate information of small-scale aquaculture among farmers and local extension staff in the target provinces.
- 5-1. Facilitate seed farmers to establish a provincial network to strengthen cooperation among seed farmers in each target province.
 - 5-2. Facilitate inter-networks in the target provinces.
 - 5-3. Promote cooperation among the networks of FAIEX-2 and FAIEX-1.

ANNEX II LIST OF JAPANESE EXPERTS

The number, the fields and the assignment period of Japanese experts will be decided through mutual consultations between the Japanese side and the Cambodian side in the JCC by considering the Plan of Operation, progress of the Project and budget allocation of JICA. Dispatch of the third country experts is also considered as alternative to the Japanese experts. The dispatch of experts is subject to change corresponds to project activities.

The following experts are considered necessary:

- Chief Advisor / Aquaculture Extension
- Project Coordinator/Aquaculture Training
- Seed Production Technology
- Broodstock Development and Management
- Grow-out Technology
- Feed Development
- Fish Stock Enhancement (CFR)
- Aquaculture Facility Improvement
- Others as necessary



ANNEX III LIST OF MACHINERY AND EQUIPMENT

Part of the Equipment necessary for the effective implementation of the Project will be provided by the Japanese side. The Equipment shall be used only for the technology transfer activities undertaken by the Project. Contents, specifications and quantity of the Equipment will be determined through mutual consultation. Main items of the Equipment are as follows:

1. Equipment for technical improvement at the Toek Vil Fish Seed Production Station
2. Equipment for aquaculture training and extension activities
3. Equipment for assistance to seed farmers for hatchery development
4. Equipment for assistance to CFR activities
5. Others if necessary



ANNEX IV **LIST OF CAMBODIAN COUNTERPART AND ADMINISTRATIVE PERSONNEL**

1. Counterpart personnel

(1) FiA at central level

Project Director	Director General, FiA	1
Project Manager	Director, DAD	1
Deputy Project Manager	Deputy Director, DAD	1
Technical Supervisor	Staff of DAD	5
(3 in charge of each target province and 2 technical staff in charge of CFR and seed production)		

(2) FiA at Cantonment level

Field extension officer (4 x 3 provinces)	Staff of Cantonments	12
Technical trainer/Researcher	Staff of Toek Vil Fish Seed Production Station	4

Total		24
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2. Administrative Personnel

- (1) Administrative staff
- (2) Secretaries / Typists
- (3) Clerks
- (4) Drivers
- (5) Other support staff necessary for the implementation of the Project

Note:

Secretaries, typists and drivers for the Japanese experts will be assigned by the Royal Government of Cambodia from the allocated budget for the Project according to the Cambodian regulations. In addition that, necessary for additional counterpart personnel shall be allocated after commencement the Project.

ANNEX V LIST OF BUILDINGS AND FACILITIES

The Royal Government of Cambodia will provide the following buildings and facilities for the implementation of the Project.

- (1) Office and facilities for the Japanese experts at the FiA headquarters, Siem Reap Cantonment Office and the Toek Vil Fish Seed Production Station.
- (2) Rooms and space necessary for installation and storage of the Equipment provided by the Japanese side
- (3) Other facilities necessary for the implementation of the Project



ANNEX VI **JOINT COORDINATING COMMITTEE**

1. Function

The Joint Coordinating Committee will meet when necessity arises and at least once a year in order to fulfill the following functions:

- (1) To formulate the annual work plan of the Project based on the Plan of Operations within the framework of the Record of Discussions
- (2) To review the results of the annual work plan and the progress of the technical cooperation
- (3) To review and exchange opinions on major issues that arise during the implementation of the Project

2. Chairperson and Members

- a. The Director General of Fisheries Administration, Ministry of Agriculture, Forestry and Fisheries as Project Director is the Chairperson.

(2) Cambodian side:

- a. The Director of Department of Aquaculture Development, Fisheries Administration, Ministry of Agriculture, Forestry and Fisheries as Project Manager
- b. The Director of Fisheries Inspectorate, Fisheries Administration, Ministry of Agriculture, Forestry and Fisheries
- c. Counterpart personnel of the Project
- d. Representative of Council for Development of Cambodia/Cambodia Rehabilitation and Development Board
- e. Any relevant stakeholders to be invited by Chairperson, if necessary

(3) Japanese side:

- a. Representatives, JICA Cambodia Office
- b. Experts of the Project
- c. Any relevant stakeholders to be invited by JICA, if necessary

Note: Official(s) of the Embassy of Japan may attend the committee sessions as observer(s)



Annex IV Cost sharing chart


Items	Cambodian side	Japanese side	Remarks
1. Project Office in Phnom Penh			
Maintenance cost for office equipment and office supply such as electricity, water, etc.	○		
Running cost for Communications - internet connection etc.	○		
Running cost for Communications - phone, fax, etc.		○	Only for the project activities
Activities cost such as papers, ink, etc.		○	
2. Personnel			
Salary of the Counterpart	○		
Accommodation and daily allowance for Cambodian side	○	○	Based on JICA's rules
Transportation	○	○	Based on JICA's rules
3. Teek VII Fish Seed Production Station			
Renovation of the Station facilities	○	○	Maximum is USD50,000 from Japanese side
Equipment of the Station	○	○	
Maintenance cost for equipment and office supply		○	Only for the project activities
Salary of Counterpart personnel and Workers	○		
Electricity, water supply, etc. to the Station	○		
Running cost for Communications - phone, fax, internet connection etc.		○	Only for the project activities
4. Training to Seed Producer and fish farmer			
Training Materials		○	
Printing materials		○	
Accommodation and daily allowance	○	○	Based on JICA's rules
Transportation		○	Based on JICA's rules
Initial instillation cost		○	
5. Technology Improvement			
The seeds and other equipment necessary for technical improvement		○	Only for Target Project Areas
6. Networking			
Workshop/Seminar	○	○	
Accommodation and daily allowance for Cambodian side	○	○	Based on JICA's rules
Transportation		○	Based on JICA's rules
7. Community Fish Refuge			
Workshop/Seminar	○	○	
Accommodation and daily allowance for Cambodian side	○	○	Based on JICA's rules
Transportation		○	Based on JICA's rules

MINUTES OF MEETING
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
FISHERIES ADMINISTRATION
OF MINISTRY OF AGRICULTURE, FORESTRY AND FISHERIES
OF THE ROYAL GOVERNMENT OF CAMBODIA
ON
JAPANESE TECHNICAL COOPERATION
FOR
THE FRESHWATER AQUACULTURE IMPROVEMENT
AND EXTENSION PROJECT II (FAIEX-2)

Chief Representative of the Japan International Cooperation Agency (hereinafter referred to as "JICA") Cambodia Office and Fisheries Administration (hereinafter referred to as "FiA") of Ministry of Agriculture, Forestry and Fisheries had series of discussions for the purpose of working out the details of the technical cooperation programme concerning the Freshwater Aquaculture Improvement and Extension Project II (FAIEX-2) (hereinafter referred to as "the Project").



As a result of the discussions JICA and FiA agreed to recommend to their respective Governments the matter referred to in the Record of Discussions (hereinafter referred to as "R/D") signed on 10 January 2011.

Both JICA and FiA also agreed to make this Minutes of Meeting in order to confirm the mutual understanding reached through the discussions attached hereto.



Mr. Yasujiro SUZUKI
Chief Representative
Cambodia Office
Japan International Cooperation Agency
Japan

Phnom Penh, 10 January 2011



H.E. Dr. Nao Thvok
Director General
Fisheries Administration
Ministry of Agriculture, Forestry and Fisheries
The Kingdom of Cambodia

THE ATTACHED DOCUMENT

I. Project Design Matrix

As a result of the discussions, JICA and FiA have jointly formulated the Project Design Matrix (hereinafter referred to as "PDM") shown in the ANNEX 1. PDM specifies the objectives, outputs and activities and achievements. PDM may be modified upon the approval of the Joint Coordination Committee (hereinafter referred to as "JCC") within the framework of R/D when necessity arises in accordance with the progress of the Project.

II. Plan of Operation

Both sides have jointly formulated the Plan of Operation (hereinafter referred to as "PO") shown in the ANNEX 2. PO has been formulated in connection with R/D signed by JICA and FiA. PO may be modified upon the approval of JCC within the framework of R/D when necessity arises in accordance with the progress of the Project.

III. Special Remarks

1. FAIEX-1 successfully developed the technology and extension methodology/system associated with small-scale aquaculture development for the four target southern provinces of Prey Veng, Takeo, Kampong Speu and Kampot. And, FAIEX-2 will verify their adaptability and applicability to those newly selected target provinces of Pursat, Batambang and Siem Reap. Based on the above, it has been agreed by the both sides and assured by the Cambodian side that after FAIEX-2 ends, it is FiA and other concerned government agencies that will expand the verified technology, methodology and system to other parts of Cambodia without seeking assistance from JICA.
2. It has been agreed by the both sides that the inputs from Japanese side will be at minimum level. The Project shall make full use of resources developed and used by FAIEX-1 such as capacitated personnel, technology, methodology, equipment/machinery and system.

IV. Other Relevant Issues for Implementation of the Project

1. Synergy Effects with Other JICA-Assisted Programs and Projects

The Project shall promote as much as possible synergy effects with other JICA-assisted programs/projects especially in agricultural and water sector.

2. Assignment of Counterpart Personnel

FiA shall assign adequate qualified counterpart personnel from DAD, Cantonment, Division and Sangkat offices to the Project even before the Project gets started in preparation for its smooth implementation from the beginning. For technical improvement activities, adequate number of counterpart personnel will be assigned to the Toek Vil Fish Seed Production Station in Siem Reap.

3. Coordination with Relevant Offices and Organizations

FiA shall make necessary coordination with its local offices, local authorities, other relevant organizations and stakeholders at all levels for smooth implementation of the Project.

4. Target Fish Species

4-1 In principle, target fish species for FAIEX-2 will be the same as those for FAIEX-1 namely Silver Barb, Common Carp, Silver Carp, Indian Carp and Tilapia.

4-2 Any new species such as hybrid Clarias should be excluded from the Project considering biodiversity conservation and environmental impact.

4-3 Any new species such as Pangasius could be included in the Project only if suitability of such species to the Project's concept is confirmed and agreed by the both sides.

5. Community Fish Refuge (CFR)

The Project will undertake the CFR-related activities only for the purpose of making a CFR implementation manual. Therefore, the Project shall not establish new CFRs but select functioning ones to obtain necessary information for developing the manual. The following aspects shall be taken into consideration for the selection of target CFRs.

5-1 CFRs have been effectively managed by the management committees for at least one year.

5-2 Location and accessibility should be considered to minimize the Project's operation cost.

5-3 CFRs which give negative impact to its beneficiaries or those used for other purposes than fish stock enhancement should be avoided.

6. Toek Vil Fish Seed Production Station

6-1 The Station shall be upgraded as a national center and will be directly managed by FiA as in the case of the Freshwater Aquaculture Research and Development Center at Bati in Prey Veng province.

6-2 FiA shall allocate adequate number of counterpart personnel to the Station with sound academic background and research and development experiences.

6-3 FiA shall be responsible for operational and maintenance cost for the Station shown in ANNEX 3). For improving the facilities that are considered necessary to implement the project activities, the Japanese side is prepared to shoulder the cost of 50,000 US dollar at the maximum.

7. Project Operation Cost

The project operation cost shall be shared by the both sides as in Cost Sharing Chart shown in ANNEX 3.

8. Project Office

FiA shall provide office to the Project. The project office will be set up initially in Phnom Penh, and if necessary, it will be moved to Siem Reap province at the later stage.

Annex 1: Project Design Matrix (PDM)

Annex 2: Plan of Operation (PO)

Annex 3: Cost Sharing Chart

Annex I: Project Design Matrix (PDM: Version 0)

Project Title : Freshwater Aquaculture Improvement and Extension Project II (PAJEX-2) in Cambodia

Target Areas : Pursat, Battambang, and Siem Reap Provinces

Target Group : Small-scale fish farmers and seed farmers in the target areas

Project Period : 01 March 2011 - 29 February 2015 (Four Years)

Version 0

Date : 10 January 2011

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>Overall Goal Household economy of small-scale fish farmers are improved in the target provinces.</p>	<p>1. The number of small-scale fish farmers with increased profits¹ and savings² from fish farming is increased from XX households to XX households in each target province by 2018.</p>	<p>1-1. Sampling survey/ Data from the FIA, extension offices 1-2. Baseline/ Impact survey report</p>	<p>The policy and direction on the aquaculture programs are not drastically changed by the governmental of Cambodia.</p>
<p>Project Purpose Small-scale aquaculture production is increased in the target provinces.</p>	<p>1. Aquaculture production in each target province is increased by XX% on annual average.</p>	<p>1. Baseline/ Impact survey report</p>	<p>Prices of cultured fishes are not largely declined.</p>
<p>Outputs 1. Small-scale seed production and grow-out technology is improved. 2. Capacity of local aquaculture extension services is enhanced.</p>	<p>1-1. The number of the technical improvements through experiments is increased. 1-2. The degree of the technical improvement, such as growth rate and survival rate, is improved. 2-1. The percentage of the local extension staff who properly conducts extension activities on grow-out and seed production technology attains to more than XX% on average. 2-2. Satisfaction ratings of the seed farmers attain to more than XX% on average regarding the teaching capability of local extension staff.</p>	<p>1-1. Technical manuals 1-2. Results of verification trials 2-1. Questionnaire survey to local extension staff 2-2. Questionnaire survey to seed farmers</p>	<p>1. Natural disasters, such as droughts, floods, etc., do not give a profound effect to the project activities. 2. Outbreaks of serious fish diseases do not occur. 3. The imports of fingerlings from neighboring countries do not give an enormous influence to the supply balance of fingerlings produced in Cambodia.</p>
<p>3. Seed farmers are capacitated.</p>	<p>3-1. The number of seed farmers able to produce fingerlings is increased from XX farmers to XX farmers in each target province. 3-2. The number of seed farmers who can produce seed of at least three species is increased by XX % in each target provinces. 3-3. Seed production in each target province is increased by XX%. 3-4. Sales income of seed farmers is increased by XX% in each target province.</p>	<p>3-1. Baseline/ Impact survey report 3-2. Baseline/ Impact survey report 3-3. Baseline/ Impact survey report 3-4. Baseline/ Impact survey report</p>	
<p>4. Small-scale aquaculture is expanded in the target provinces.</p>	<p>4-1. The number of small-scale fish farmers benefited from farmer-to-farmer training attains to more than XX households in the target provinces. 4-2. The number of small-scale fish farmers working for community fish refuges (CFRs) is increased from XX households to XX households in each target province.</p>	<p>4-1. Baseline/ Impact survey report 4-2. Baseline/ Impact survey report</p>	
<p>5. Networks of seed farmers are enhanced and broadened.</p>	<p>5-1. The meetings for information exchange on seed production technology, seed marketing, etc. are convened XX times per year. 5-2. The number of advices and recommendations regarding seed production technology, seed marketing, procurement of farm inputs, etc. is increased in the target provinces.</p>	<p>5-1. Records of the meetings for information exchange 5-2. Monitoring results by the Project and impact survey report</p>	

¹ "Profit" is given by subtracting "production cost" from "fish sales income of cultured fish."

² "Savings" is given by self-consumption of cultured fish, which would otherwise be expenses for purchase of fish in the market, i.e., by subtracting "present cost to purchase fish" from "previous cost to purchase fish."

<p>Activities</p> <p>1-1 Conduct the baseline and impact surveys.</p> <p>1-2 Clarify issues and challenges on small-scale seed production and grow-out technology in the target provinces.</p> <p>1-3 Conduct technical improvement at the Toek VII Fish Seed Production Station.</p> <p>1-4 Conduct verification trials at seed farmers and small-scale fish farmers.</p> <p>1-5 Develop technical manuals adaptive to the target provinces by revising the FALEX-1 manuals.</p> <p>2-1 Confirm and clarify roles and functions of local extension staff at each level of FIA (Cantonment, Division, and Sangkar) and local authorities.</p> <p>2-2 Conduct training on seed production technology and grow-out technology and extension methods for local extension staff.</p> <p>2-3 Analyze extension activities undertaken, and draw up an extension guideline and good practices.</p> <p>3-1 Select target communes and seed farmers based on the criteria established.</p> <p>3-2 Conduct training on seed production aspects for the seed farmers.</p> <p>3-3 Assist the seed farmers in their seed production activities mainly at initial stage.</p> <p>4-1 Conduct training of trainers (TOT) on grow-out technology for the seed farmers.</p> <p>4-2 Assist seed farmers to conduct farmer-to-farmer training for small-scale fish farmers.</p> <p>4-3 Select Community Fish Refuges (CFRs) for resource enhancement and support CFR activities and prepare the CFR implementation manual.</p> <p>4-4 Disseminate information of small-scale aquaculture among farmers and local extension staff in the target provinces.</p> <p>5-1 Facilitate seed farmers to establish a provincial network to strengthen cooperation among seed farmers in each target province.</p> <p>5-2 Facilitate inter-networks in the target provinces.</p> <p>5-3 Promote cooperation among the networks of FALEX-2 and FALEX-1.</p>	<p>Inputs</p> <p>Japanese side</p> <p>1. Experts</p> <p>Chief Advisor / Aquaculture Extension Project Coordinator / Aquaculture Training Seed Production Technology Broodstock Development and Management Grow-out Technology Feed Development Fish Stock Enhancement (CFR) Aquaculture Facility Improvement Others as necessary</p> <p>2. Training of counterpart personnel in Japan and/or the Third Countries</p> <p>3. In-country training</p> <p>4. Facility improvement of the Toek VII Fish Seed Production Station</p> <p>5. Provision of machinery and equipment Provision of machinery and equipment including transportation means if necessary necessary for the project activities, such as technical improvement at the Toek VII Fish Seed Production Station, hatchery development for seed farmers, training, extension activities, etc.</p> <p>6. Local expenses for the project activities</p> <ul style="list-style-type: none"> - Expenses for workshops, seminars, etc. - Teaching materials for training - Others 	<p>Cambodian side</p> <p>1. Personnel Project Director Project Manager Deputy Project Manager Counterparts</p> <p>2. Provision of the project offices and facilities necessary for the project implementation</p> <p>3. Expenses for the construction and development of aquaculture ponds</p> <p>4. Others Administrative and operational expenses Running costs for electricity, water, etc.</p> <p>Pre-condition Understanding and cooperation on the project activities are obtained from farmers in the target provinces.</p>	<p>The local extension staff, seed farmers, and small-scale fish farmers trained by the Project continue working for their respective positions in the target provinces.</p>
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Annex 2: Plan of Operation (PO: Version 0)
 Schedule of the Implementation and Responsible Organizations

Activity	Total months												Responsible organizations		
	1	2	3	4	5	6	7	8	9	10	11	12			
0. Conduct the baseline and impact surveys	■														Director of Department of Aquaculture Development (DAD) Deputy Director of DAD
OUTPUT 1. Small-scale seed production and grow-out technology is improved.															
1-1. Identify issues and challenges on small-scale seed production and grow-out technology in the target provinces	■														Deputy Director of DAD Technical staff of the Toek VII Fish Seed Production Station
1-2. Conduct technical improvement at the Toek VII Fish Seed Production Station	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Deputy Director of DAD Technical staff of the Toek VII Fish Seed Production Station
1-3. Conduct verification trials at seed farmers and small-scale fish farmers	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Deputy Director of DAD Technical staff of the Toek VII Fish Seed Production Station
1-4. Develop technical manual adaptive to the target provinces by rewriting the FAJEN-1 manuals	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Deputy Director of DAD Technical staff of the Toek VII Fish Seed Production Station
OUTPUT 2. Capacity of local aquaculture extension services is enhanced.															
2-1. Confirm and clarify roles and functions of local extension staff at each level of FA (Contentment, Division, and Sungsai) and local authority.	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Deputy Director of DAD Directors of Purat, Batubang, and Siam Reap Fisheries Centres
2-2. Conduct training on grow-out technology and extension methods for local extension staff	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Deputy Director of DAD
2-3. Conduct training on seed production technology and extension methods for selected local extension staff	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Deputy Director of DAD
2-4. Analyze extension activities undertaken, and draw up an extension guideline and good practices	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Director of DAD Deputy Director of DAD
OUTPUT 3. Seed farmers are capacitated.															
3-1. Select target communes and seed farmers based on the criteria established	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Deputy Director of DAD Chief of local extension offices in Purat, Batubang, and Siam Reap provinces
3-2. Conduct training on seed production aspects for the seed farmers.	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Deputy Director of DAD Chief of local extension offices in Purat, Batubang, and Siam Reap provinces
3-3. Assist the seed farmers in their seed production activities mainly at initial stage	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Director of DAD Deputy Director of DAD
OUTPUT 4. Small-scale aquaculture is expanded in the target provinces.															
4-1. Conduct training of farmer (TOT) on grow-out technology for the seed farmers	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Deputy Director of DAD Chief of local extension offices in Purat, Batubang, and Siam Reap provinces
4-2. Assist seed farmers to conduct farmer-to-farmer training for small-scale fish farmers	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Deputy Director of DAD Chief of local extension offices in Purat, Batubang, and Siam Reap provinces
4-3. Select Community Fish Village (CFV) for resource enhancement based on the criteria established	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Deputy Director of DAD Director of Purat, Batubang, and Siam Reap Fisheries Centres
4-4. Support CFR activities and prepare the CFR implementation manual.	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Director of DAD Deputy Director of DAD
4-5. Disseminate information of small-scale aquaculture among farmers and local extension staff in the target provinces.	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Deputy Director of DAD Chief of local extension offices in Purat, Batubang, and Siam Reap provinces
OUTPUT 5. Networks of seed farmers are enhanced and broadened.															
5-1. Facilitate seed farmers to establish a provincial network to strengthen cooperation among seed farmers in each target province.	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Deputy Director of DAD Directors of Purat, Batubang, and Siam Reap Fisheries Centres
5-2. Facilitate inter-networks in the target provinces.	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Deputy Director of DAD Directors of Purat, Batubang, and Siam Reap Fisheries Centres
5-3. Promote cooperation among the networks of FAJEN-2 and FAJEN-1.	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Director of DAD Deputy Director of DAD

Note: The start of the Project activities is indicated in this chart, and so on are subject to modifications through further examinations and discussions in future.

■ To complete physical activities within the solid line

■ To complete community capacity project activities during the dotted line.

▲ To conduct seminars, produce documents, etc.

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Annex 3 Cost Sharing Chart


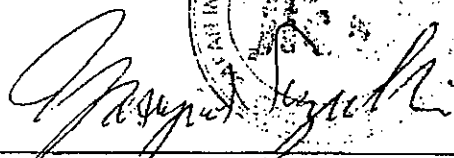
Items	Cambodian side	Japanese side	Remarks
1. Project Office in Phnom Penh			
Maintenance cost for office equipment and office supply such as electricity, water, etc.	○		
Running cost for Communications - internet connection etc.	○		
Running cost for Communications - phones, fax, etc.		○	Only for the project activities
Activities cost such as papers, ink, etc.		○	
2. Personnel			
Salary of the Counterpart	○		
Accommodation and daily allowance for Cambodian side	○		Based on JICA's rules
Transportation	○		Based on JICA's rules
3. Toek VII Fish Seed Production Station			
Renovation of the Station facilities	○		Maximum is USD50,000 from Japanese side
Equipment of the Station	○		
Maintenance cost for equipment and office supply		○	Only for the project activities
Salary of Counterpart personnel and Workers	○		
Electricity, water supply, etc. to the Station	○		
Running cost for Communications - phone, fax, internet connection etc.		○	Only for the project activities
4. Training to Seed Producer and fish farmer			
Training Materials		○	
Printing materials		○	
Accommodation and daily allowance	○		Based on JICA's rules
Transportation		○	Based on JICA's rules
Initial installation cost		○	
5. Technology Improvement			
The seeds and other equipment necessary for technical improvement		○	Only for Target Project Areas
6. Networking			
Workshop/Seminar	○		
Accommodation and daily allowance for Cambodian side	○		Based on JICA's rules
Transportation		○	Based on JICA's rules
7. Community Fish Refuge			
Workshop/Seminar	○		
Accommodation and daily allowance for Cambodian side	○		Based on JICA's rules
Transportation		○	Based on JICA's rules

RECORD OF DISCUSSIONS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
FISHERIES ADMINISTRATION OF
MINISTRY OF AGRICULTURE, FORESTRY AND FISHERIES OF
THE ROYAL GOVERNMENT OF CAMBODIA
ON
JAPANESE TECHNICAL COOPERATION
FOR
THE FRESHWATER AQUACULTURE IMPROVEMENT
AND EXTENSION PROJECT II (FAIEX-2)

In response to the request of the Royal Government of Cambodia (hereinafter referred to as "RGC"), the Government of Japan (hereinafter referred to as "GOJ") has decided to implement the Freshwater Aquaculture Improvement and Extension Project II (hereinafter referred to as "the Project").



Accordingly, Japan International Cooperation Agency (hereinafter referred to as "JICA") exchanged views and had a series of discussions with Fisheries Administration (hereinafter referred to as "FIA") with respect to the desirable measures to be taken by JICA and the RGC for the successful implementation of the above-mentioned project.

As a result of the discussions, and in accordance with the provisions of the Agreement on Technical Cooperation between the GOJ and the RGC, signed in Phnom Penh on June 17th 2003 (hereinafter referred to as "the Agreement"), JICA and FIA agreed to recommend to their respective Governments the matters referred to in the document attached hereto.



Mr. Yasujiro SUZUKI
Chief Representative
Cambodia Office
Japan International Cooperation
Agency
Japan

Phnom Penh, 10 January 2011



H.E. Th. Nis Thuk
Director General
Fisheries Administration
Ministry of Agriculture, Forestry
and Fisheries
The Kingdom of Cambodia

THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN JICA AND THE RGC

1. The RGC will implement the Freshwater Aquaculture Improvement and Extension Project II (FAIEX-2) (hereinafter referred to as "the Project") in cooperation with JICA.
2. The Project will be implemented in accordance with the Framework of the Project which is given in Annex I.

II. MEASURES TO BE TAKEN BY JICA

In accordance with the laws and regulations in force in Japan and the provisions of Article III of the Agreement, JICA, as the executing agency for technical cooperation by the GOJ, will take, at its own expense, the following measures according to the normal procedures of its technical cooperation scheme.

1. DISPATCH OF JAPANESE EXPERTS

JICA will provide the services of the Japanese experts as listed in Annex II. The provision of Article V of the Agreement will be applied to the above-mentioned experts.

2. PROVISION OF MACHINERY AND EQUIPMENT

JICA will provide such machinery, equipment and other materials (hereinafter referred to as "the Equipment") necessary for the implementation of the Project as listed in Annex III. The provision of Article VII of the Agreement will be applied to the Equipment.

3. TRAINING OF CAMBODIAN PERSONNEL IN JAPAN

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

III. MEASURES TO BE TAKEN BY THE RGC

1. The RGC will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period of Japanese technical

cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.

2. The RGC will ensure that the technologies and knowledge acquired by the Cambodian nationals as a result of the Japanese technical cooperation will contribute to the economic and social development of Cambodia.
3. In accordance with the provisions of Article V of the Agreement, the RGC will grant in Cambodia privileges, exemptions and benefits to the Japanese experts referred to in II-1 above and their families.
4. In accordance with the provisions of Article VII of the Agreement, the RGC will take the measures necessary to receive and use the Equipment provided by JICA under II-2 above and equipment, machinery and materials carried in by the Japanese experts referred to in II-1 above.
5. The RGC will take necessary measures to ensure that the knowledge and experience acquired by the Cambodian personnel from technical training in Japan will be utilized effectively in the implementation of the Project.
6. In accordance with the provision of Article V of the Agreement, the RGC will provide the services of Cambodian counterpart personnel and administrative personnel as listed in Annex IV.
7. In accordance with the provision of Article V of the Agreement, RGC will provide the buildings and facilities as listed in Annex V.
8. In accordance with the laws and regulations in force in Cambodia, the RGC will take necessary measures to supply or replace at its own expense machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the Equipment provided by JICA under II-2 above.
9. In accordance with the laws and regulations in force in Cambodia, the RGC will take necessary measures to meet the running expenses necessary for the implementation of the Project.

IV. ADMINISTRATION OF THE PROJECT

1. Director General of FiA, Ministry of Agriculture, Forestry and Fisheries (hererinafter referred to as "MAFF") as the Project Director, will bear overall responsibility for the administration and implementation of the Project.
2. Director of Department of Aquaculture Development (hererinafter referred to as "DAD"), FiA, MAFF as the Project Manager, will be responsible for the managerial and technical matters of the Project.
3. Deputy Director of DAD, FiA, MAFF, as the Deputy Project Manager, will support the Project Manager in implementing the project activities on a day-to-day basis.
4. The Japanese Chief Advisor of the Project will provide necessary recommendations and advice to the Project Director and the Project Manager on any matters pertaining to the implementation of the Project.
5. The Japanese experts will give necessary technical guidance and advice to Cambodian counterpart personnel on technical matters pertaining to the implementation of the Project.
6. For the effective and successful implementation of technical cooperation for the Project, a Joint Coordinating Committee will be established whose functions and composition are described in Annex VI.

V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by JICA and FiA, at the middle and during the last six months of the cooperation term in order to examine the level of achievement.

VI. CLAIMS AGAINST JAPANESE EXPERTS

In accordance with the provision of Article VI of the Agreement, the RGC undertakes to bear claims, if any arises, against the Japanese experts engaged in technical cooperation for the Project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in

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Cambodia except for those arising from the willful misconduct or gross negligence of the Japanese experts.

VII. MUTUAL CONSULTATION

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

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

For the purpose of promoting support for the Project among the people of Cambodia, the RGC will take appropriate measures to make the Project widely known to the people of Cambodia.

IX. TERM OF COOPERATION

The duration of the technical cooperation for the Project under this Attached Document will be four (4) years from March 2011.

- ANNEX I FRAMEWORK OF THE PROJECT
- ANNEX II LIST OF JAPANESE EXPERTS
- ANNEX III LIST OF MACHINERY AND EQUIPMENT
- ANNEX IV LIST OF CAMBODIAN COUNTERPART PERSONNEL AND
 ADMINISTRATIVE PERSONNEL
- ANNEX V LIST OF BUILDINGS AND FACILITIES
- ANNEX VI JOINT COORDINATING COMMITTEE
- ANNEX VII AGREEMENT ON THE TECHNICAL COOPERATION BETWEEN THE
 GOVERNMENT OF JAPAN AND THE ROYAL GOVERNMENT OF
 CAMBODIA

ANNEX I

FRAMEWORK OF THE PROJECT

Overall Goal

Household economy of small-scale fish farmers are improved in the target provinces*.

Project Purpose

Small-scale aquaculture production is increased in the target provinces.

Output

1. Small-scale seed production and grow-out technology is improved.
2. Capacity of local aquaculture extension services is enhanced.
3. Seed farmers are capacitated.
4. Small-scale aquaculture is expanded in the target provinces.
5. Networks of seed farmers are enhanced and broadened.

Activities

- 1-1. Conduct the baseline and impact surveys.
- 1-2. Clarify issues and challenges on small-scale seed production and grow-out technology in the target provinces.
- 1-3. Conduct technical improvement at the Toek Vil Fish Seed Production Station.
- 1-4. Conduct verification trials at seed farmers and small-scale fish farmers.
- 1-5. Develop technical manuals adaptive to the target provinces
- 2-1. Confirm and clarify roles and functions of local extension staff at each level of FiA (Cantonment, Division, and Sangkat) and local authorities.
- 2-2. Conduct training on seed production technology and grow-out technology and extension methods for local extension staff.
- 2-3. Analyze extension activities undertaken, and draw up an extension guideline and good practices.
- 3-1. Select target communes and seed farmers based on the criteria established in the FAIEX-1.
- 3-2. Conduct training on seed production aspects for the seed farmers.
- 3-3. Assist the seed farmers in their seed production activities mainly at initial stage of the Project.
- 4-1. Conduct training of trainers (TOT) on grow-out technology for the seed farmers.
- 4-2. Assist seed farmers to conduct farmer-to-farmer training for small-scale fish farmers.
- 4-3. Select Community Fish Refuges (CFRs) for resource enhancement and support CFR activities and prepare the CFR implementation manual.
- 4-4. Disseminate information of small-scale aquaculture among farmers and local extension staff in the target provinces.
- 5-1. Facilitate seed farmers to establish a provincial network to strengthen cooperation among seed farmers in each target province.
- 5-2. Facilitate inter-networks in the target provinces.
- 5-3. Promote cooperation among the networks of FAIEX-2 and FAIEX-1.

* The target areas include three provinces namely Pursat, Battambang, and Siem Reap.

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ANNEX II LIST OF JAPANESE EXPERTS

The number, the fields and the assignment period of Japanese experts will be decided through mutual consultations between the Japanese side and the Cambodian side in the Joint Coordinating Committee by considering the Plan of Operation, progress of the Project and budget allocation of JICA. Dispatch of the third country experts will also be considered as alternative to the Japanese experts.

The following experts are considered necessary:

- Chief Advisor / Aquaculture Extension
- Project Coordinator/Aquaculture Training
- Seed Production Technology
- Broodstock Development and Management
- Grow-out Technology
- Feed Development
- Fish Stock Enhancement (CFR)
- Aquaculture Facility Improvement
- Others as necessary

ANNEX III LIST OF MACHINERY AND EQUIPMENT

Part of the Equipment necessary for the effective implementation of the Project will be provided by Japanese side. The Equipment shall be used only for the technology transfer activities undertaken by the Project. Contents, specifications and quantity of the Equipment will be determined through mutual consultation. Main items of the Equipment are as follows:

1. Equipment for technical improvement at the Toek Vil Fish Seed Production Station
2. Equipment for aquaculture training and extension activities
3. Equipment for assistance to the seed farmers for hatchery development
4. Equipment for assistance to CFR activities
5. Others if necessary

**ANNEX IV LIST OF CAMBODIAN COUNTERPART PERSONNEL AND
ADMINISTRATIVE PERSONNEL**

1. Counterpart personnel

(1) FiA at central level

Project Director	Director General, FiA	1
Project Manager	Director, DAD	1
Deputy Project Manager	Deputy Director, DAD	1
Technical Supervisor	Staff of DAD	5
(3 in charge of each target province and 2 technical staff in charge of CFR and seed production)		

(2) FiA at Cantonment level

Field extension officer (4 x 3 provinces)	Staff of Cantonments	12
Technical trainer/Researcher	Staff of Toek Vil Fish Seed Production Station	4

Total	24
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2. Administrative Personnel

Administrative staff necessary for the implementation of the Project will be assigned by the RGC.

ANNEX V LIST OF BUILDINGS AND FACILITIES

The RGC will provide the following buildings and facilities for the implementation of the Project.

- (1) Office and facilities for the Japanese experts at the FiA headquarters, Siem Reap Cantonment Office and the Toek Vil Fish Seed Production Station.
- (2) Rooms and space necessary for installation and storage of the Equipment provided by the Japanese side
- (3) Other facilities necessary for the implementation of the Project

fr

2

ANNEX VI JOINT COORDINATING COMMITTEE

1. Function

The Joint Coordinating Committee will meet when necessity arises and at least once a year in order to fulfill the following functions:

- (1) To formulate the annual work plan of the Project based on the Plan of Operation within the framework of the Record of Discussions.
- (2) To review the results of the annual work plan and the progress of the technical cooperation
- (3) To review and exchange opinions on major issues that may arise during the implementation of the Project

2. Chairperson and Members

(1) The Director General of FiA, MAFF as Project Director will be the Chairperson.

(2) Cambodian side:

- a. The Director of DAD, FiA, MAFF
- b. The Director of Fisheries Inspectorate, FiA, MAFF
- c. Counterpart personnel of the Project
- d. Representative of Council for Development of Cambodia/Cambodia Rehabilitation and Development Board
- e. Any relevant stakeholders to be invited by Chairperson, if necessary

(3) Japanese side:

- a. Representatives, JICA Cambodia Office
- b. Experts of the Project
- c. Any relevant stakeholders to be invited by JICA, if necessary

Note: Official(s) of the Embassy of Japan may attend the committee sessions as observer(s)

ANNEX VII. The Agreement

AGREEMENT ON TECHNICAL COOPERATION
BETWEEN THE ROYAL GOVERNMENT OF CAMBODIA
AND
THE GOVERNMENT OF JAPAN

The Royal Government of Cambodia and the Government of Japan,

Desiring to strengthen further the friendly relations existing between the two countries by the promotion of technical cooperation, and

Considering mutual benefits derived from promoting the economic and social development of their respective countries,

Have agreed as follows:

ARTICLE I

The two Governments shall endeavor to promote technical cooperation between the two countries.

ARTICLE II

Separate arrangements which govern specific technical cooperation programs carried out under this Agreement shall be agreed upon between the authorities concerned of the two Governments. The authority concerned of the Royal Government of Cambodia is the Ministry of Foreign Affairs and International Cooperation and the authority concerned of the Government of Japan is the Ministry of Foreign Affairs.

ARTICLE III

The following forms of technical cooperation will be carried out by the Japan International Cooperation Agency (hereinafter referred to as "JICA") at its own expense in accordance with the laws and regulations in force in Japan as well as with the arrangements referred to in Article II:

- (a) providing technical training to Cambodian nationals;
- (b) dispatching experts (hereinafter referred to as the "Experts") to the Kingdom of Cambodia;

- (c) dispatching Japanese volunteers with a wide range of technical skills and abundant experience (hereinafter referred to as the "Senior Volunteers") to the Kingdom of Cambodia;
- (d) dispatching Japanese missions (hereinafter referred to as the "Missions") to the Kingdom of Cambodia to conduct surveys of economic and social development projects of the Kingdom of Cambodia;
- (e) providing the Royal Government of Cambodia with equipment, machinery and materials; and
- (f) providing the Royal Government of Cambodia with other forms of technical cooperation as may be decided upon by mutual consent between the two Governments.

ARTICLE IV

The Royal Government of Cambodia shall ensure that the techniques and knowledge acquired by Cambodian nationals as well as the equipment, machinery and materials provided as a result of the Japanese technical cooperation as set forth in Article III contribute to the economic and social development of the Kingdom of Cambodia, and are not utilized for military purposes.

ARTICLE V

In case JICA dispatches the Experts, the Senior Volunteers and the Missions, the Royal Government of Cambodia shall:

1. (1) (a) exempt the Experts, the Senior Volunteers and members of the Missions from taxes including income tax, and fiscal charges imposed on or in connection with salaries and any allowances remitted to them from overseas;
- (b) exempt the Experts, the Senior Volunteers, members of the Missions and their families from consular fees, taxes including customs duties and fiscal charges, as well as from the requirements of obtaining import license and certificate of foreign exchange coverage, in respect of the importation of:

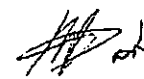
- (i) Luggage;
 - (ii) personal effects, household effects and consumer goods; and
 - (iii) one motor vehicle per Expert, per family of the Expert, per Senior Volunteer and per family of the Senior Volunteer assigned to stay in the Kingdom of Cambodia;
- (c) exempt the Experts, the Senior Volunteers and their families who do not import any motor vehicle into the Kingdom of Cambodia from taxes including value added tax and fiscal charges in respect of the local purchase of one motor vehicle per Expert, per family of the Expert, per Senior Volunteer and per family of the Senior Volunteer; and
- (d) exempt the Experts, the Senior Volunteers and their families from the registration fee of the motor vehicles mentioned in (b) (iii) and (c);
- (2) (a) provide at its own expense suitable office and other facilities including telephone and facsimile services necessary for the performance of the duties of the Experts, the Senior Volunteers and the Missions as well as to bear the expenses for their operation and maintenance;
- (b) provide at its own expense the local staff (including adequate interpreters, if necessary) as well as Cambodian counterparts to the Experts, the Senior Volunteers and the Missions necessary for the performance of their duties;
- (c) bear expenses of the Experts and the Senior Volunteers whenever local conditions and financial possibilities of authorities concerned of the Royal Government of Cambodia permit for:
- (i) daily transportation to and from their place of work;
 - (ii) their official travels within the Kingdom of Cambodia; and
 - (iii) their official correspondence;

[Handwritten signature]

- (d) provide the convenience for acquisition of appropriate housing accommodation for the Experts, the Senior Volunteers and their families; and
- (e) provide the convenience for receiving medical care and facilities for the Experts, the Senior Volunteers, members of the Missions and their families;
- (3) (a) permit the Experts, the Senior Volunteers, members of the Missions and their families to enter, leave and sojourn in the Kingdom of Cambodia for the duration of their assignment therein, offer them the convenience for procedures of alien registration requirements, and exempt them from consular fees;
- (b) issue identification cards to the Experts, the Senior Volunteers and members of the Missions to secure the cooperation of all governmental organizations necessary for the performance of their duties;
- (c) offer the Experts, the Senior Volunteers and their families the convenience for acquisition of car driving license; and
- (d) carry out other measures necessary for the performance of the duties of the Experts, the Senior Volunteers and the Missions.

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

3. The Royal Government of Cambodia shall accord the Experts, the Senior Volunteers, members of the Missions and their families such privileges, exemptions and benefits as are no less favorable than those accorded to experts, senior volunteers, members of missions and their families of any third country or of any international organization performing a similar mission in the Kingdom of Cambodia.



ARTICLE VI

The Royal Government of Cambodia shall bear claims, if any arise, against the Experts, the Senior Volunteers and members of the Missions resulting from, occurring in the course of, or otherwise connected with, the performance of their duties, except when the two Governments agree that such claims arise from gross negligence or willful misconduct on the part of the Experts, the Senior Volunteers or members of the Missions.

ARTICLE VII

1. (1) In case JICA provides the Royal Government of Cambodia with equipment, machinery and materials, the Royal Government of Cambodia shall exempt such equipment, machinery and materials from consular fees, taxes including customs duties and fiscal charges, as well as from the requirements of obtaining import license and certificate of foreign exchange coverage, in respect of the importation. The equipment, machinery and materials mentioned above shall become the property of the Royal Government of Cambodia upon being delivered c.i.f. at the port of the disembarkation to authorities concerned of the Royal Government of Cambodia.

(2) In case JICA provides the Royal Government of Cambodia with equipment, machinery and materials, the Royal Government of Cambodia shall exempt such equipment, machinery and materials from taxes including value added tax and fiscal charges in respect of the local purchase.

(3) The equipment, machinery and materials mentioned in sub-paragraph (1) and (2) shall be utilized for the purpose specified in the arrangements referred to in Article II of this Agreement unless otherwise agreed upon between the authorities concerned of the two Governments.

(4) The expenses for the transportation within the Kingdom of Cambodia of the equipment, machinery and materials mentioned in sub-paragraph (1) and (2) and the expenses for their replacement, maintenance and repair shall be borne by the Royal Government of Cambodia.

2. (1) The equipment, machinery and materials, prepared by the Government of Japan, necessary for the performance of the duties of the Experts, the Senior Volunteers and members of the Missions shall remain the property of the Government of Japan unless otherwise agreed upon between the authorities concerned of the two Governments.



(2) The Royal Government of Cambodia shall exempt the Experts, the Senior Volunteers and members of the Missions from consular fees, taxes including customs duties and fiscal charges, as well as from the requirements of obtaining import license and certificate of foreign exchange coverage, in respect of the importation of the equipment, machinery and materials mentioned in sub-paragraph (1)

(3) The Royal Government of Cambodia shall exempt the Experts, the Senior Volunteers and members of the Missions from taxes including value added tax and fiscal charges in respect of the local purchase of the equipment, machinery and materials mentioned in sub-paragraph (1).

ARTICLE VIII

The Royal Government of Cambodia shall maintain close contact, through organizations designated by it, with the Experts, the Senior Volunteers and members of the Missions.

ARTICLE IX

1. The Royal Government of Cambodia shall admit JICA to maintain an overseas office of JICA in the Kingdom of Cambodia (hereinafter referred to as the "Office") and shall accept a resident representative and his/her staff to be dispatched from Japan (hereinafter referred to as the "Representative" and the "Staff" respectively) who perform the duties to be assigned to them by JICA relative to the technical cooperation programs under this Agreement in the Kingdom of Cambodia.

2. The Royal Government of Cambodia shall:

- (1) (a) exempt the Representative, the Staff and their families from taxes including income tax and fiscal charges imposed on or in connection with salaries and any allowances remitted to them from overseas;
- (b) exempt the Representative, the Staff and their families from consular fees, taxes including customs duties and fiscal charges, as well as from the requirement of obtaining import license and certificate of foreign exchange coverage, in respect of the importation of:

- (i) luggage;
 - (ii) personal effects, household effects and consumer goods; and
 - (iii) one motor vehicle per Representative, per Staff, per family of the Representative and per that of the Staff assigned to stay in the Kingdom of Cambodia;
- (c) exempt the Representative, the Staff and their families who do not import any motor vehicle into the Kingdom of Cambodia from taxes including value added tax and fiscal charges in respect of the local purchase of one motor vehicle per Representative, per Staff, per family of the Representative and per that of the Staff;
 - (d) exempt the Representative, the Staff and their families from the registration fee of the motor vehicles mentioned in (b) (iii) and (c);
 - (e) permit the Representative, the Staff and their families to enter, leave and sojourn in the Kingdom of Cambodia for the duration of their assignment therein, offer them the convenience for procedures of alien registration requirements, and exempt them from consular fees;
 - (f) issue identification cards and special passes to the Representative and the Staff to enter airport/seaport beyond passport control point to receive and send off the Experts, the Senior Volunteers and members of the Missions;
 - (g) offer the Representative, the Staff and their families the convenience for acquisition of car driving license; and
 - (h) carry out other measures necessary for the performance of the duties of the Representative and the Staff;
- (2) (a) exempt the Office from consular fees, taxes including customs duties and fiscal charges, as well as from the requirements of obtaining import license and certificate of foreign exchange coverage, in respect of the importation of the equipment, machinery, motor vehicles and materials necessary for activities of the Office;



- (b) exempt the Office from taxes including value added tax and fiscal charges in respect of the local purchase of the equipment, machinery, motor vehicles and materials necessary for the functions of the Office; and
- (c) exempt the Office from taxes including income tax and fiscal charges imposed on or in connection with office expenses remitted from overseas.

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

4. The Royal Government of Cambodia shall accord the Representative, the Staff and their families as well as the Office such privileges, exemptions and benefits as are no less favorable than those accorded to representatives, staff and their families as well as offices of any third country or of any international organization performing a similar mission in the Kingdom of Cambodia.

ARTICLE X

The Royal Government of Cambodia shall take necessary measures to ensure security of the Experts, the Senior Volunteers, members of the Missions, the Representative, the Staff and their families staying in the Kingdom of Cambodia.

ARTICLE XI

The Royal Government of Cambodia and the Government of Japan shall consult with each other in respect of any matter that may arise from or in connection with this Agreement.

ARTICLE XII

1. The provisions of this Agreement shall also apply, after the entering into force of this Agreement, to the specific technical cooperation programs which have commenced prior to the entering into force of this Agreement, and to the Experts, the Senior Volunteers, members of the Missions, the Representative, the Staff and their families staying in the Kingdom of Cambodia as well as to the equipment, machinery and materials related to the said programs.

2. The termination of this Agreement shall neither affect the specific technical cooperation programs being carried out until the date of the completion of the said programs, unless otherwise decided upon by mutual consent between the two Governments, nor affect the privileges, exemptions and benefits accorded to the Experts, the Senior Volunteers, members of the Missions, the Representative, the Staff and their families staying in the Kingdom of Cambodia for the performance of their duties in connection with the said programs.

ARTICLE XIII

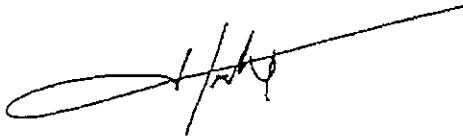
1. This Agreement shall enter into force on the date of the signature thereof.

2. This Agreement shall remain in force for a period of one year, and shall be automatically renewed every year for another period of one year each, unless either Government has given to the other Government at least six months' written advance notice of its intention to terminate the Agreement.

IN WITNESS WHEREOF the undersigned, duly authorized thereto, have signed this Agreement.

DONE in duplicate in English at Phnom Penh on June 17, 2003.

For the Royal Government
of Cambodia:



For the Government of
Japan:

川口順子



Questionnaire A
 Preliminary Study on
 Freshwater Aquaculture Improvement and Extension Project Phase 2 (FAIEX-2)

Name	Chin Da		
Department & Position	Department of Aquaculture Development		
Contact Information	E-mail: chinda77@yahoo.com	Tel:	

Objectives of the Preliminary Survey

The objective of this preliminary survey on the Phase 2 of Freshwater Aquaculture Improvement and Extension Project (FAIEX-2) is to review the contents of the project proposal submitted by the Royal Government of Cambodia (RGC), especially on its technical aspects, for formulation of the project framework. This questionnaire is an integral component of the survey, with which a consultant assigned for the survey is intended to collect necessary information complementally to the field activities scheduled from 25th May to 16th June, 2010.

Instruction for the questionnaire:

Two sets of questionnaire are prepared: Questionnaire A and B. Questionnaire A is requested to be answered by Fisheries Administration (FiA) FiA while Questionnaire B is requested to be answered by each cantonment office at the seven provinces (Siem Reap, Oddar Meanchey, Banteay Meanchey, Battangmang, Pailin, Pursat and Kampong Chnang) considered as the target provinces for the Project.

The answer to the questionnaires can be made either in a digital medium (in Microsoft® Word® format) or on paper sheets. For the multiple choice questions where are provided, please place in the appropriate box(es). For the questions requesting written sentences, please insert rows as many as necessary to explain your answer when answering in the digital form, or use separate sheets when writing on paper. Please try to answer all the questions.

A. Target Group and Provinces

1. “Small-scale farmers” are the target group of the FAIEX Project. Mark one box in the following list that you think is the most appropriate description of small-scale farmers on whom the project should focus its implementation activities. Do not select more than one answer. Also provide the reason for your choice.

- Typical small-scale farmers who constitute the majority in the target region
- Vulnerable small-scale farmers who needs the assistance most
- Advanced small-scale farmers who are likely contribute most for economic advancement
- Both typical and vulnerable farmers
- Both typical and advanced farmers
- All of them at equal emphasis

The reason why the Project should focus on the above farmers: Based on Farmers to Farmers extension strategy that will be formed or established by project, vulnerable and typical farmers can learn from advanced small scale farmers who assisted and developed by project as well. Policy of the Cambodia Government is to develop small scale aquaculture for all types of rural farmers and promote them to be advanced farmers together.

2. Number of households to which the Project can successfully introduce fish farming depends on various conditions in the Project site. How are the relative conditions of the Phase 2 area (5 proposed provinces) in general in comparison to that of the Phase 1 site? Mark one box for each category. Add lines for additional categories that you think are important for the introduction of fish farming.

	<u>General conditions in Phase 2 area relative to Phase 1 area</u>		
Water availability:	<input type="checkbox"/> more available	<input type="checkbox"/> less available	<input checked="" type="checkbox"/> no difference
Household ponds:	<input type="checkbox"/> more ponds	<input checked="" type="checkbox"/> fewer ponds	<input type="checkbox"/> no difference
Existing fish farmers:	<input type="checkbox"/> more fish farmers	<input checked="" type="checkbox"/> fewer farmers	<input type="checkbox"/> no difference
Existing hatchery:	<input type="checkbox"/> more hatcheries	<input checked="" type="checkbox"/> fewer hatcheries	<input type="checkbox"/> no difference
Poverty level	<input type="checkbox"/> more poor	<input type="checkbox"/> less poor	<input checked="" type="checkbox"/> no difference
Landless farmers	<input type="checkbox"/> more landless farmers	<input type="checkbox"/> fewer landless farmers	<input checked="" type="checkbox"/> no difference
School ponds:	<input type="checkbox"/> more ponds	<input type="checkbox"/> fewer ponds	<input checked="" type="checkbox"/> no difference

Existing CFR ponds more CFR ponds fewer CFR ponds no difference
 Other factor (____): more fewer or less no difference

3. Construction of fishponds that takes long time could be a significant factor that could impede the project progress. Choose one box that you think the countermeasure is more practical. Also give us other idea for accelerating the increase of fishponds' number in the project area.

Encourage communities with assistances (e.g., Work for Food) to dig fishponds manually

Employ heavy duty machinery (e.g., bulldozers and backhoes) to dig fishponds

Other method for facilitating the fishpond construction (describe): Form a group of farmers (5 or 10 farmers) who will be supported by project to dig fishponds manually (Work for Food). It is an other way that accelerate the increase of fishponds' number in the project area.

C. Community Fish Refuge Management

4. Department of Aquaculture in FiA has a division dedicated especially for the Community Fish Refuge Pond (CFR) development. Explain the mission (goal) and the main strategy for achieving the goal of the division.

Mission Statement (Goal):

To manage aquatic resources in rural areas, particularly in public fish refuge ponds (priority is far from main natural water bodies) where all species of brood stocks are protected all year round season and they have reproduced and migrate to rice field in rainy season which are profitable for vulnerable and landless farmers.

Strategy for achieving the Goal:

To achieve the goal, support from government and strong participation from local authorities are most important. The establishment and management of Community Fish Refuge (CFR) ponds have strongly been supported by government and became to policy of government stated that "CFR pond required establishing one per commune". For this purpose, the crucial activity has been planned in the Strategic Planning Framework (SPF) for fisheries 2010 -2019. On the other hand, based on the policy of government, local authorities/governments have accelerated to increase the CFR ponds in their target communes. However, with the lack of management strategy, they require Development Partners (DP) to support.

5. It was reported in the final report of FAIEX-1 that there were hundreds of CFR ponds established nationwide. Please provide a summary of the CFR ponds by constructing a table with headings as shown below for all the established CFR ponds in the provinces considered for the Phase 2 project (Siem Reap, Oddar Meanchey, Banteay Meachey, Battambang, Pailin, Pursat, Kampong Chnang). If possible, supply us with a map showing the location of CFR ponds in the provinces.

(Answer to this question will be available in questionnaire B responded by provincial caontoments)

Name of CFR pond	Commune	District	Province	Pond Area (ha)	Year Established	Foreign assistance
						<input type="checkbox"/> Yes <input type="checkbox"/> No
						<input type="checkbox"/> Yes <input type="checkbox"/> No
						<input type="checkbox"/> Yes <input type="checkbox"/> No

6. The CFR stock enhancement activities exclusively utilize indigenous species. Artificial breeding of indigenous fish has not been popular yet, thus, the stocking activity into CFR ponds depends on collection of small fish from the natural stocks. How practical is to collect the fish from the Tonle Sap Great Lake to use in the CFR stocking programs in the Phase 2 area? Is it in line with the strategy of FiA?

The real CFR stock enhancement activities included both utilization of indigenous species bred from hatcheries and collect from wild (rice field and other natural water bodies). Fish from both sources are allowed to be stocked. For the Phase 2, the same practices are also implemented in the target areas where fishes from natural stocks and from hatcheries are to be used.

7. Supports from various levels of local governments are important factor for establishment of Community Fish Refuges. Are you satisfied with the current level of their cooperation in general in the work of establishing CFR? Select one appropriate box, and also explain the nature of problem, if any.

Provincial government: satisfactory to the expectation, not satisfactory to the expectation

District government: satisfactory to the expectation, not satisfactory to the expectation
 Communes: satisfactory to the expectation, not satisfactory to the expectation

Problems faced, if any: Lack government staff with experiences to establish and manage the CFR ponds and budget constraint make difficult to establish and manage the CFR ponds.

8. In FAIEX-1, the Food for Work by World Food Program supported construction of CFR ponds and related facilities. Is there any cooperation program funded by external donors expected to be available for the CFR activities in the FAIEX-2 project?

Yes, there are some cooperating donors expected to support the CFR activities in FAIEX-2
 No, there isn't any donor assistance expected for the CFR activities in FAIEX-2.
 If Yes, please provide the nature of assistance expected: It may be the World Food Program

E. Target Area

9. The fish farming technology disseminated in the Phase 1 was suitable in lowland plains. Some provinces proposed for the Phase 2 project, especially Pailin and Oddar Meanchey, do not have extended area of similar physical environment. These two provinces are also located off the main high way. Inclusion of them in the target area, therefore, requires extra efforts for developing a new technology and for accessing remote sites. Please give us your rationale for the inclusion of these provinces in the Phase 2 area despite the extra cost and technical difficulties expected.

It is good for Phase 2 to promote fish farming in remote areas in the both provinces where there are not many fish ponds to develop small scale aquaculture activities. It is the same AIDA project funded by Spanish government to support small scale aquaculture in the remote areas of 4 target provinces are Kratie, Stung Treng, Ratanakiri and Mondulkiri where there is lack of fish ponds to promote the small scale aquaculture. Department of Aquaculture Development (DAD) has proposed AIDA project to support rural farmers who are really want to grow fish, but have no pond and project can support them to dig fish ponds for growing fish. For the Phase 2 DAD proposed to support in the same way.

10. On the other hand, two adjacent provinces to the proposed area, namely Prusac and Kampong Chhnang, have similar lowland plains. It is thus expected that the inclusion of these provinces could increase the number of beneficiaries without much extra efforts provided. Please give us your opinion on the idea of including these provinces in the Phase 2 area.

The 2 adjacent provinces are most good aquaculture potential and similar areas of target provinces in Phase 1 that have more fish ponds and water can be retained for at least 6 months for growing fish in ponds and rice field as well. The selection of the both provinces are therefore appropriated for promoting small scale aquaculture technologies based on the same support conditions of phase1.

11. Please summarize the conditions at provincial FiA cantonments in the provinces considered for FAIEX-2.

Items	SR	OM	BM	BB	PL	PS	KC
Number of FiA Officers	52	10	23	45	9	41	48
Annual budgetary allocation (\$)	-	-	-	-	-	-	-
Number of provincial hatchery	1	1	1	1	1	0	0
Number FiA official vehicle	2		1	1	0	1	7
Number of FiA motor cycles	3		2	6	0	10	1
Number of FiA computer sets	3		3	4	0	4	5
Condition of Internet communication	<input checked="" type="checkbox"/> good	?	<input type="checkbox"/> good (poor)	<input type="checkbox"/> good (poor)	<input type="checkbox"/> good ?	<input type="checkbox"/> good (poor)	<input type="checkbox"/> good (poor)
Condition of ground telephone communication	<input checked="" type="checkbox"/> good	?	<input type="checkbox"/> good (poor)	<input type="checkbox"/> good (poor)	<input type="checkbox"/> good ?	<input checked="" type="checkbox"/> good	<input type="checkbox"/> good (poor)
Condition of cell phone communication	<input checked="" type="checkbox"/> good	<input checked="" type="checkbox"/> good	<input checked="" type="checkbox"/> good	<input checked="" type="checkbox"/> good	<input checked="" type="checkbox"/> good	<input checked="" type="checkbox"/> good	<input checked="" type="checkbox"/> good

SR: Siem Reap, OM: Oddar Meanchey, BM: Banteay Meanchey, BB: Battambang, PL: Pailin, PS: Pursat, KC: Kampong Chhnang

G. Technical development

12. There are three aquaculture systems mentioned in your proposal (Output 1) as alternative fish farming technologies, namely, rice-cum-fish culture, cage culture, plastic canvas sheet culture. Please elaborate them with the features listed in the following table.

Type aquaculture	Suitable geographic environment	Targeted small-scale farmers	Type of feed used	Fish species used	Culture containers
Rice-cum-fish culture	Suitable for only some of target provinces	are most appropriate for small scale farmers	Planktons and additional feeds duckweed, rice brand,	Silver barb, Tilapia, C.carp, Indian carp. snake skin gourami.	
Cage culture (wooden or hapa net)	Suitable for some of farmers in KC, PS, BB, SR	Possible for that provinces	Home made feed with trashed fish at least 25%	<i>Pangasianodon hypophthalmus</i> , <i>Clarias</i> , <i>Silver barb</i> , and other scale fish	
Plastic canvas sheet culture	Suitable for all target provinces	Suitable for all types of rural farmers, particularly landless and pond less farmers	Home made feed, additional feeds duckweed, rice brand,	<i>Clarias catfish</i>	small ponds size covered with plastic canvas

* Culture container: earthen ponds, concrete tanks, raceway, bamboo cages, etc.

13. There are several new aquaculture species proposed to be included in the Phase 2 activities. Please describe the current status of technical development for them in Cambodia by filling the table below.

Candidate species	Approximate production in the nation	Fingering production in private hatchery	Breeding from cultured brood stock	Culture in private sector with wild seeds	Technical manual
<i>Macrobrachium rosenbergii</i>	500,000	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Not so	<input checked="" type="checkbox"/> Yes already but not enough
<i>Trichogaster pectoralis</i>	100,000	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Not so	<input checked="" type="checkbox"/> Yes already but not enough
<i>Anabas testudineus</i>	50,000	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Not so	<input checked="" type="checkbox"/> Not yet
<i>Clarias macrocephalus</i>	200,000	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Not so	<input checked="" type="checkbox"/> Yes already but not enough
<i>Clarias gariepinus</i>	100,000	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Not so	<input checked="" type="checkbox"/> Yes already but not enough
<i>Hybrid clarias fish</i>	2,000,000	<input checked="" type="checkbox"/> Yes already	Not possible	<input checked="" type="checkbox"/> Not so	
<i>Leptobarbus hoevenii</i>	500,000	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Not so	<input checked="" type="checkbox"/> Yes already but not enough
<i>Pangasianodon hypophthalmus</i>	5,000,000	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Not so	<input checked="" type="checkbox"/> Yes already but not enough
<i>Labeo rohita (rohu)</i>	50,000	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Not so	<input checked="" type="checkbox"/> Yes already but not enough
<i>Cirrhinus cirrhosus (Mrigal)</i>	5,000,000	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Yes already	<input checked="" type="checkbox"/> Not so	<input checked="" type="checkbox"/> Yes already but not enough

14. Use of abundant trash fish available from the Tonle Sap Great Lake as feed materials for small-scale farmers is suggested in the Phase 2. The Project was initially requested with the objective of providing animal protein to the area where fish supply from the Tonle Sap region was scarce. Please explain about the seeming discrepancy between your technical suggestion and the project objective.

Use of trash fish is not an environmentally friendly culture practice. So we would like to change the traditional feeding habits of cage and pond culture techniques to improve feeding formulation by using

small part of trash fish with other agriculture ingredients.

15. The national highways of N5 and N6 which pass through proposed provinces are designed to have an elevation of 10-year flood level + 0.5 to 1 m allowance. This implies that lowland plains in the project area could be submerged once in every 10 years or so, and that complete avoidance of the risk of escaping of the cultured fish into the Tonle Sap Great Lake is not possible. Please justify your intention to take this presumed risk in relation to the FiA's policy on the protection of species diversity especially in the Tonle Sap Great Lake?

The government is taking maximum care when it introduces aquaculture with exotic fish not to let them to escape from the culture ponds by increasing the awareness of biodiversity on training, workshop and other occasions with the local authorities and fish farmers because the benefit of rural fish farming on the food security and income generation to them is high.

I. Project Implementation

16. Financial support of approximately US\$500/farm was provided in FAIEX-1 to the selected seed producing farmers with the aim to establish a system of revolving funds with the repayment money made by the farmers. Evaluate the effectiveness of this financial scheme of FAIEX-1 with the reason. Give suggestions for improvements in FAIEX-2 in case a similar scheme is included in the FAIEX-2.

- The financial scheme and management of revolving funds in FAIEX-1 are satisfactory
 The financial scheme and management of revolving funds in FAIEX-1 are not satisfactory

Suggested improvement measures in FAIEX-2: In real practical works, village fish seed producers selected from rural farmers are generally lacking budget for constructing fish hatchery. If the fund should be increased US\$700/ farm, it is to increase the revolving fund kept in the seed producers' network for assisting members of the network to develop their fish seed production.

17. Explain your rationale to support establishment of a "national" network of fish farmers for a "regional" aquaculture development project.

Fish seed supply has been considered as crucial requirement of aquaculture development in Cambodia. For this purpose, Government has promoted local fish hatcheries are available in communes or districts as much as possible by cooperation with development partners. After the establishment, the local fish seed producing farmers have encountered two main problems which are lacks of knowledge and skill of the fish seed production technologies and fish seed marketing supply which local extension services system for which the government cannot work out. To address the issues, establishment of Aquaculture Farmers Network (AFN) of FAIEX-1 has been more interested by FiA and MAFF and they have supported to the establishment strategy in the 4 target provinces and promoted the establishment in other provinces where are local seed producing farmers located. The AFN of FAIEX- 1 has been solving the two issues mentioned above not only in the previous 4 target provinces (Takeo, Kompong Speu, Kompong Cham and Prey veng), but in other provinces namely in Banteaymeanchey, Siem Reap, Kompong Cham Kompong Som and so forth. FiA and MAFF have therefore interested and promoted the AFN establishment in other provinces where are local seed producing farmers locating.

18. Compare the physical, budgetary, and human resources conditions between the FiA aquaculture stations at Toek Vil and Battambang by completing the table below.

Items	Toek Vil, Siem Reap	Aquaculture center in Battambang
Land area (ha)	2.026 ha	1.5 ha
Water source	<input checked="" type="checkbox"/> abundant all year round	<input checked="" type="checkbox"/> limited seasonally
Ponds	Number: 27, total surface 1.8ha	Number: 5, total surface 0.5ha
Main facilities	Hatchery: 120 m ² , tanks =14	Hatchery: 225m ² , tanks =5
	Laboratory: 16m ² , <input checked="" type="checkbox"/> dry laboratory	Laboratory: 0 m ² , no laboratory
	Office building: room= 1 , area= 40 m ²	Office building: room= 0 , area= 0 m ²
	Office building of FiAC (out of station) room= 11 , area= 192 m ²	Office building of FiAC (next to the station) room= 4 , area= 120 m ²
	Training facility: <input checked="" type="checkbox"/> no	Training facility: <input checked="" type="checkbox"/> no
Annual budget	US\$ 0.00 (0.00 Riel)	US\$ 0.00 (0.00 Riel)

19. The Project aims to establish a network of seed production farmers as the key strategy for aquaculture extension. Keeping this in mind, please explain the functions of the provincial cantonment's offices for achieving each of the expected outputs of the Project.

Functions of cantonments' offices for Output 1 (Technical Development): First of all, staff of FiAC associated with project has to be recruited properly. All of selected FiAC staff need to be evaluated their capacity on technical and management aspects of rural aquaculture activities and to improved. Each selected staff has been assigned individual target management locations to take responsibility for all the 4 outputs of the project. It is necessary to study and identify together with project on what are real potential and environmental conditions for rural aquaculture development in different locations. Targeting farmers and school ponds have to be carried out properly based on experiences and criteria of DAD. Farmers capacity have often been assessed, evaluated and improved by associated provincial staff collaborated with DAD associated staff. Chief and staff of FiAC in each target provinces have to contribute to the project on where are potential areas for rural small scale aquaculture development in remote areas which are far from main natural water bodies and not flooded in wet season. On the other hands, they are needed to inform about environmental condition in each different target areas to study on what are appropriate aquaculture technologies can be applied.

Functions of cantonments' offices for Output 2 (Extension): Existing village seed producers and private seed producers in target provinces including new target village seed producers will be selected and supported by project are playing important roles in contributing to achieve the output 2 through Farmers-to Farmers Training (FFT) provided by themselves. For this purpose, capacity of those seed producers on technical and extension aspects are required to assess and improve every year gradually. Based on experiences of FIAEX-1, capacity on FFT of those seed producers have to be followed up to explore what are the gaps of their capacity on the FFT. To achieve all the mentioned concepts, capacity of FiAC staff on how to select new target village seed producers, form them with all existing village seed producers and private seed producers in target provinces and improve their capacity have to be identified and improved.

Functions of cantonments' offices for Output 3 (CFR development): Experiences on how to establish and manage Community Fish Refuge (CFR) ponds from FIAEX-1 have to be transferred to FiAC staff by DAD to improve the existing established CFR ponds and select new target public fish refuge ponds in proper ways to establish and manage as communities for the benefits of the rural poor, particularly landless and pond less farmers.

Functions of cantonments' offices for Output 4 (Network establishment):

A) To learn on:

- ① what are functions and advantages of establishment of Aquaculture Farmers Network
- ② how to manage the network to be sustainability
- ③ technologies of fish seed production, hatchery construction and seed supply marketing
- ④ how to facilitate among all existing farmers and private seed producers as well as local authorities and NGOs to improve fish seed production and fish seed marketing supply
- ⑤ how to identify knowledge, skill and training need assessment of existing farmers and private seed producers
- ⑥ how to follow up and evaluate their capacity through their real practical works on the fish seed production and fish seed marketing supply
- ⑦ how to plan and propose small project proposal to local NGOs to support the fish seed production and fish seed marketing supply to improve the network

B) To explore where appropriate locations are in the remote target areas and potential (Farmers are interest fish culture, have appropriate pond, water for at least 6 to 8 months periods, lack natural fish for home consumption and so forth) for rural small scale aquaculture development

C) To identify knowledge and skill of local existing seed producers' capacity and improve

20. Please give us details of the current staffing condition at provincial FiA cantonments in the following provinces. Insert rows for all officers or write this table in a separate paper.

(The answer to this question is available in questionnaire B to the provincial cantonments)

21. Give us details of the existing private seed producers in the seven provinces (Siem Reap, Oddar Meanchey, Battambang, Pailin, PUrsat, Kampong Chnang). Add rows for all known seed producers, or use a separate paper for preparing this table.

(The answer to this question is available in questionnaire B to the provincial cantonments)

22. The initial financial support provided by the project for the seed producing farmers in FAIEX-1 played a crucial role for the successful establishment of their business and therefore the farmer's network. Do you think the existing micro-financing institutions can perform well in the provision of the initial financial assistance? Please write the reason why you think so.

- Yes, the existing micro-financing institutions can perform well for the establishment of seed production farmers
 No, they cannot perform well

Reasons for your choice of the answer: Because of the micro-financing institutions have high interest rate (average 3%/ month or 36% / year and needed to pay back every month, or quarter or semester) that rural aquaculture farmers can not accepted. It is also due to income from fish culture or seed production in at least 10 months. Therefore, how the rural aquaculture farmers have budget to pay back for monthly, or quarter or semester with the high interest.

23. Appropriate fish farming techniques to be extended into the Project area can be improved through on-farm experiments conducted at farmers' fishponds, or thorough on-station experiments at the government stations. Which type of experiments do you think is more important for the Phase 2 of this Project? Why do you think so?

- Technical development through on-farm experiments at farmers' ponds
 Technical development through on-station experiments at governments stations

Reasons for your choice: It is depended on the possibility of the target provinces; whether there are farmers' ponds/ farm or government station have potential for implement the on-farm experiment. But, generally the experiment needed to conduct in government station where is easy for the station or project staff to stay full time for practicing, observing and recording results of the experiment. In some case, it can be conducted in farmers' ponds which are in good criteria of selection and the government stations are not good qualification for the experimental implementation or not available.

24. It is proposed that FAIEX-2 should have two project offices at Siem Reap and at Phnom Penh. What are the functional differences between the two offices, and why those functions cannot be managed from a single project office?

Based on experience from FAIEX-1, the main project office should be one located in Phnom Penh for the FAIEX-2, because of all aquaculture experiences staff of DAD based in Phnom Penh. They can not stay full time in target provinces, due to needed high expenditure for living in the provinces and they are required to have some of obligations with FiA in Phnom Penh.

On the other hand, success of project management activities is not only relying on the location of the project office, but it is depended on the following factors:

- Capacity and responsibility of associated project staff are more important factor among the following factors
- Technical advisors of DAD recruited for responsibility in each target provinces
- Fisheries Administration Cantonment staff associated with project will be recruited to take responsibility for each target communes
- Training need assessment for capacity building of associated project staff needed to be conducted every year within 5 year project periods
- Observation and evaluation of project implementation of associated project staff needed to conduct through monthly meeting in project office based in Phnom Penh to identify their technical problem, appropriate resolution, suggestions and next planning activities
- After the monthly meeting, follow up project implementation of associated project staff in each target provinces is required for 7 to 10 days a month for each advisors to identify their technical problem, project implementation management, appropriate resolution, suggestions and next planning activities

25. Please give us the latest update (achievements comparative to the objectives) for the three projects funded by international donors mentioned in the proposal, namely those supported by AIDA, DANIDA/DFID/New Zealand, and EU.

AIDA project

Objectives: Capacity building and institutional strengthening of FiA staff as a way to increase high quality food fish from aquaculture in the 4 target provinces.

Achievements planed:

- 90% of the fish farmers in the 4 target provinces are satisfied with the technical services provided by FiA staff during the project.
- The number of hatcheries increases from 7 in 2009 to 17 in the 4 target provinces by the end of the project.
- The number of aquaculture facilities increases from 490 farms in 2009 to 640 farms in the 4 target provinces by the end of the project
- The total production of cultured fish in tonnes raises from 30, 7, 10 and 0 Mt in Kratie, Stung Treng, Ratanakiri and Mondulkiri (respectively) in 2009, to 40, 15, 18 and 5 Mt in Kratie, Stung Treng, Ratanakiri and Mondulkiri (respectively) by the end of the project.

DANIDA/DFID/New Zealand project

Objectives: Aquaculture extension networks of fish seed producing farmers as farmer-based aquaculture extension agents and new village fish hatcheries for new village fish seed producers established and strengthened.

Achievements planed:

- 12 new village fish hatcheries constructed and strengthened across 5 target provinces
- Established fish seed producing farmers and 12 new fish seed producing farmers formed as network and operation as farmer-based aquaculture extension agents
- Information on adopted aquaculture technologies and seed market supply disseminated to target provinces in 2010.

ESCOSRN project : This project has been collaborating with the cantonment office in the project area, therefore, the headquarters do not know much detail.

Objectives:

Achievements:

26. “At present, more than 130 seed producing farmers out of about 180 seed producers in the country participated in the network activities which were initiated by FAIEX-1”. Please elaborate this sentence in your proposal in light of the current status of the (national) network and its activities.

The established network is playing important role in sharing technical knowledge, experiences skill and problems in aquaculture and information on seed supply marketing among all members of seed producing farmers established by project in the 4 target provinces and other seed producing farmers in other provinces supported by other local NGO and FiA.

[end of questionnaire A]

Questionnaire B (For Provincial FiA Cantonments Offices)
 Preliminary Study on
 Freshwater Aquaculture Improvement and Extension Project Phase 2 (FAIEX-2)

Name		
Department, Position, Province		
Contact Information	E-mail:	Tel:

Objectives of the Preliminary Survey

The objective of this preliminary survey on the Phase 2 of Freshwater Aquaculture Improvement and Extension Project (FAIEX-2) is to review the contents of the project proposal submitted by the Royal Government of Cambodia (RGC), especially on its technical aspects, for formulation of the project framework. This questionnaire is an integral component of the survey, with which a consultant assigned for the survey is intended to collect necessary information complementally to the field activities scheduled from 25th May to 16th June, 2010.

Instruction for the questionnaire:

Two sets of questionnaire are prepared: Questionnaire A and B. Questionnaire A is requested to be answered by Fisheries Administration (FiA) FiA while Questionnaire B is requested to be answered by each cantonment office at the seven provinces (Siem Reap, Oddar Meanchey, Banteay Meanchey, Battangmang, Pailin, Pursat and Kampong Chnang) considered as the target provinces for the Project.

The answer to the questionnaires can be made either in a digital medium (in Microsoft® Word® format) or on paper sheets. For the multiple choice questions where are provided, please place in the appropriate box(es). For the questions requesting written sentences, please insert rows as many as necessary to explain your answer when answering in the digital form, or use separate sheets when writing on paper. Please try to answer all the questions.

A. Target Group and Provinces

1. “Small-scale farmers” are the target group of the FAIEX Project. Mark one box in the following list that you think is the most appropriate description of small-scale farmers on whom the project should focus its implementation activities. Do not select more than one answer. Also provide the reason for your choice.

- Typical small-scale farmers who constitute the majority in the target region
- Vulnerable small-scale farmers who needs the assistance most
- Advanced small-scale farmers who are likely contribute most for economic advancement
- Both typical and vulnerable farmers
- Both typical and advanced farmers
- All of them at equal emphasis

The reason why the Project should focus on the above farmers:

2. Number of households to which the Project can successfully introduce fish farming depends on various conditions in the Project site. How are the relative conditions of your province in comparison to that of the Phase 1 area? Mark one box for each category. Add lines for additional categories that you think are important for the extension of fish farming.

	<u>Conditions in Phase 2 province (your province) relative to Phase 1 area</u>		
Water availability:	<input type="checkbox"/> more available	<input type="checkbox"/> less available	<input type="checkbox"/> no difference
Household ponds:	<input type="checkbox"/> more ponds	<input type="checkbox"/> fewer ponds	<input type="checkbox"/> no difference
Existing fish farmers:	<input type="checkbox"/> more fish farmers	<input type="checkbox"/> fewer farmers	<input type="checkbox"/> no difference
Existing hatchery:	<input type="checkbox"/> more hatcheries	<input type="checkbox"/> fewer hatcheries	<input type="checkbox"/> no difference
Poverty level	<input type="checkbox"/> more poor	<input type="checkbox"/> less poor	<input type="checkbox"/> no difference
Landless farmers	<input type="checkbox"/> more landless farmers	<input type="checkbox"/> fewer landless farmers	<input type="checkbox"/> no difference
Existing CFR ponds	<input type="checkbox"/> more CFR ponds	<input type="checkbox"/> fewer CFR ponds	<input type="checkbox"/> no difference
Other factor (_____):	<input type="checkbox"/> more	<input type="checkbox"/> fewer or less	<input type="checkbox"/> no difference

3. Construction of fishponds that takes long time could be a significant factor that could impede the project progress. Choose one box that you think the countermeasure is more practical. Also give us other idea for accelerating the increase of fishponds' number in the project area.

- Encourage communities with assistances (e.g., Work for Food) to dig manually fishponds
 Employ heavy duty machinery (e.g., bulldozers and backhoes) to dig fishponds

Other method for facilitating the fishpond construction (describe): _____

C. Community Fish Refuge Management

4. It was reported in the final report of FAIEX-1 that there were hundreds of community fish refuge (CFR) ponds established nationwide. Please provide a summary of CFR ponds by constructing a table with headings as shown below for all the established CFR ponds in your province. If possible, supply us with a map showing the location of CFR ponds in the provinces.

Name of CFR pond	Commune	District	Pond Area (ha)	Year Established	Foreign assistance
					<input type="checkbox"/> Yes <input type="checkbox"/> No
					<input type="checkbox"/> Yes <input type="checkbox"/> No
					<input type="checkbox"/> Yes <input type="checkbox"/> No

5. The CFR stock enhancement activities exclusively utilizes indigenous species. Artificial breeding of indigenous fish has not been popular yet, thus, the stocking activity into the CFR ponds depends on collection of small fish from the natural stocks. How practical is to collect the fish from the Tonle Sap Great Lake to use in the CFR stocking programs in the Phase 2 area?
- _____
- _____

6. Supports from various levels of local governments are important factor for establishment of Community Fish Refuges. Are you satisfied with the current level of their cooperation in the work of establishing CFR in your province? Place ✓ at appropriate boxes (all appropriate boxes), and also explain the nature of problem, if any.

- Provincial government: satisfactory to the expectation, not satisfactory to the expectation
 Nature of cooperation: financial legal technical security other ()
- District government: satisfactory to the expectation, not satisfactory to the expectation
 Nature of cooperation: financial legal technical security other ()
- Communes: satisfactory to the expectation, not satisfactory to the expectation
 Nature of cooperation: financial legal technical security other ()

Problems faced, if any: _____

7. In FAIEX-1, the Food for Work by World Food Program supported construction of CFR ponds and related facilities. Is there any cooperation program funded by external donors expected to be available for the CFR activities in FAIEX-2 project (province where you work) in your province?

- Yes, there are some cooperating donors expected to support the CFR activities
 No, there isn't any donor assistance expected for the CFR activities

If Yes, please provide the nature of assistance expected: _____

E. Target Area

8. Please summarize about the conditions at provincial FiA cantonments in your province.

Items	Cantonments office condition
Number of FiA Officers	_____ officers, _____ staffs
Annual budgetary allocation	_____ US\$ (_____ Riel)

Number of provincial hatchery	
Number FiA official vehicle	_____, type of vehicles: _____ condition: _____
Number of FiA motor cycles	_____, condition: _____
Number of FiA computer sets	_____, Operating system: _____ condition: _____
Internet communication condition	<input type="checkbox"/> good <input type="checkbox"/> poor
Use of telephone communication	<input type="checkbox"/> good <input type="checkbox"/> poor
Use of cell phone communication	<input type="checkbox"/> good <input type="checkbox"/> poor

9. Based on the observations made in your province, please evaluate the water retention capacity of the soil according to suitability for fishpond construction. Select one appropriate box for the evaluation of the soil in general for different geographic categories based on the rice farming system. Ignore the row if your province does not have extended land area belonging to that category.

Geographic category based on rice farming system	Soil suitability for fishpond construction		
Flood plain of the Tonle Sap Great Lake	<input type="checkbox"/> Good	<input type="checkbox"/> Middle	<input type="checkbox"/> Poor
Recession rice farming area	<input type="checkbox"/> Good	<input type="checkbox"/> Middle	<input type="checkbox"/> Poor
Irrigated rice farming area	<input type="checkbox"/> Good	<input type="checkbox"/> Middle	<input type="checkbox"/> Poor
Rain-fed rice farming plain land area	<input type="checkbox"/> Good	<input type="checkbox"/> Middle	<input type="checkbox"/> Poor
Upland dry rice area	<input type="checkbox"/> Good	<input type="checkbox"/> Middle	<input type="checkbox"/> Poor

10. Based on the observations made in your province, rank the geographic categories mentioned in the previous question according to the popularity of fish farming. Select one appropriate rank from 1 to 5 that correspond to your evaluation.

Geographic category based on rice farming system	Popularity of fish farming*				
Flood plain of the Tonle Sap Great Lake	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Recession rice farming area	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Irrigated rice farming area	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Rain-fed rice farming plain land area	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Upland dry rice area	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

* 1: the most popular area, 2: the second most popular area,, 5: the least popular area

11. Based on the observations made in your province, evaluate the following factors according to the importance for farmers to start fish farming. Select one box for each factor that is appropriate for your evaluation.

Factors influencing fish farming operation	Significance level for starting fish farming*			
Farmers' economic capacity	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Farmers' interest and personal capacity	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Market accessibility for the fish sales	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Availability of water	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Availability of fish seeds	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Availability of technical know how	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Availability of feed and fertilizing materials	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

* 1: most significant factor,, 4: least significant factor

G. Technical development

12. There are three aquaculture systems mentioned in RGC's proposal (Output 1) as alternative fish farming technologies, namely, rice-cum-fish culture, cage culture, plastic canvas sheet culture. Please summarize the current status of these fish farming activities in your province.

Type aquaculture	Summary of activities in your province
Rice-cum-fish culture	
Cage culture (wooden or hapa net)	
Plastic canvas sheet culture	

13. There are several new aquaculture species proposed to be included in the Phase 2 activities. Please describe the current status of technical development for them in your province by filling the table below. If there is no breeding activity at all for the species, leave the row without answer.

Candidate species	Approximate production in the province	Fingerling production in private hatchery	Breeding from cultured brood stock	Culture in private sector with wild seeds	Technical manual
<i>Macrobrachium rosenbergii</i>	X1000	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet	<input type="checkbox"/> Popular <input type="checkbox"/> Not so	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet
<i>Trichogaster pectoralis</i>	X1000	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet	<input type="checkbox"/> Popular <input type="checkbox"/> Not so	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet
<i>Clarias macrocephalus</i>	X1000	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet	<input type="checkbox"/> Popular <input type="checkbox"/> Not so	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet
<i>Leptobarbus hoevenii</i>	X1000	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet	<input type="checkbox"/> Popular <input type="checkbox"/> Not so	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet
<i>Pangasianodon hypophthalmus</i>	X1000	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet	<input type="checkbox"/> Popular <input type="checkbox"/> Not so	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet
<i>Labeo rohita</i>	X1000	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet	<input type="checkbox"/> Popular <input type="checkbox"/> Not so	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet
<i>Cirrhinus cirrhosus</i>	X1000	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet	<input type="checkbox"/> Popular <input type="checkbox"/> Not so	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet
Other species (_____)	X1000	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet	<input type="checkbox"/> Popular <input type="checkbox"/> Not so	<input type="checkbox"/> Yes already <input type="checkbox"/> Not yet

14. The national highways of M5 and M6 which pass through proposed provinces are designed to have an elevation of 10-year flood level + 0.5 to 1 m allowance. This implies that lowland plains in the project area could be submerged once in every 10 years or so, and that complete avoidance of the risk of entering the cultured fish into the Tonle Sap Great Lake is not possible. Do you think the lowland plains should be excluded from the project area for extension of pond fish farming with exotic species?

I. Project Implementation

15. The project proposal include establishment of a national network of fish farmers as an important project component (Output 4). Do you think the establishment of national aquaculture farmers' network will contribute for extension of fish farming in your province? If so, explain how it will contribute.

16. (For Siem Reap and Battambang province offices only. Other provincial offices should skip this question)

Compare the physical, budgetary, and human resources conditions between the FiA aquaculture stations at Toek Vil or in Battambang by completing the bale below.

Province: Siem Reap Battambang

Station	<input type="checkbox"/> Toek Vil station in Siem Reap or <input type="checkbox"/> Aquaculture station in Battambang
Land area (ha)	_____ ha
Water source	<input type="checkbox"/> abundant <input type="checkbox"/> limited seasonally, Type of water source: _____
Ponds	Number: _____, total surface _____ ha, most popular size: _____ m ²
Main facilities	Hatchery: _____ m ² , major facilities:
	Laboratory: _____ m ² , <input type="checkbox"/> wet <input type="checkbox"/> dry
	Office building: rooms _____, _____ m ²
	Training facility: <input type="checkbox"/> yes <input type="checkbox"/> no
	Activities (describe):
Annual budget	US\$ _____ .00 (_____ .00 Riel)

17. The Project aims to establish a network of seed production farmers as the key strategy for aquaculture extension. Keeping this in mind, please explain the functions of the provincial cantonment's office for achieving each of the expected outputs of the Project.

Output 1: Technical Development

Output 2: Extension through Farmer to Farmer Training

Output 3: CFR development

Output 4: Establishment of National Network

18. Please give us details of the current staffing condition at the FiA cantonment's office in your province. Insert rows for all officers.

Name of officer	Government grade	Academic background	Main activities
1.			
2.			
3.			

19. Give us details of the existing private seed producers in your province. (Add rows for all known seed producers)

Name of fish seed producer	District	Year of establishment	Species produced and annual production
1.			
2.			

20. The initial financial support provided by the project for the seed producing farmers in FAIEX-1 played a crucial role for the successful establishment of their business and therefore the farmer's network. Do you think the existing micro-financing institutions can perform well in the provision of the initial financial assistance in your province? Please write the reason why you think so.

- Yes, the existing micro-financing institutions can perform well for the establishment of seed production farmers
- No, they cannot perform well

Reasons for your choice of the answer:

21. Appropriate fish farming techniques to be extended into the Project area can be improved through on-farm experiments conducted at farmers' fishponds, or thorough on-station experiments at the government center. Which type of experiments do you think is more important in your province? Why do you think so?

- Technical development through on-farm experiment at farmers' ponds
- Technical development through on-station experiments at governments stations

Reasons for your choice:

22. Provide the estimated numbers of existing fish farmers, number of households and having ponds without doing fish farming in your province.

Province	Total number of existing fish farmers	Number of households having ponds without doing fish farming

23. Provide the estimated numbers of school that is carrying out fish farming and that have ponds but not doing fish farming in your province.

Province	Total number of existing schools doing fish farming	Number of school having pond without doing fish farming

[end of questionnaire]

**Sumamry of
Questionnaire B (For Provincial FiA Cantonments Offices)
Preliminary Study on
Freshwater Aquaculture Improvement and Extension Project Phase 2 (FAIEX-2)**

Respondent

Province	Name	Position	Contact
Siem Reap	Mr. Prin Savir	Vice Chief of cantonment,	Tel: 012 821 584
Oddar Meanchey	Un Chanthey (Heng Seng and Mom Sayorn)	Chief (and Vice Chief) of Cantonment, Vice Chief of Division Samrang)	hengseng@yahoo.com Tel: 011 808 199/012 771 893
Bantey Meanchey	Mr. Ly Veng	Chief of Cantonment	Tel: 012 853 383
Battambang	Heng Piseth	Chief of Cantonment	hp15aug@yahoo.com Tel: 016 908 790
Pursat	Mr. Seng Sun Huon	Chief of Cantonment,	Tel: 012 726 527
Kampong Chhnang	Mr. Keo Thay	Chief of Cantonment,	Tel: 012 959 026

A. Target Group and Provinces

Q1. Target group

Province	Typical	Vulnerable	Advanced	Typical +Vulnerable	Typical +Advanced	All at equal importance
SR					✓	
OM	✓					
BM			✓			
BB			✓			
PS				✓		
KC		✓				
Total	1	1	2	1	1	0

Reasons:

SR (T+V): We consider that small-scale farmers who have possibility to do fish culture should be assisted by project particularly farmers really want to grow fish and have ponds as well as water sources.

OM (T): To improve farmer's economic condition by improving small-scale aquaculture technology and upgrade the capacity to have higher aquaculture technology.

BM (A): Easy to promote them (advanced farmers) to be good farmer extension agents in order to discriminate rural aquaculture technology to other rural farmers

BB (A): 1) Easy to promote the seed producers to be a modern farmer and disseminate information to the other rural farmers. 2) They are good indicators of the success in the development.

PS (T+V): Rural poor farmers have poor living standard. They cannot find other jobs for earning income. No time to work outside the villages. They lack funds and other facilities to start culturing fish farming.

Q2. Provincial condition relative to FAIEX1 Area

Province	Water availability	Household ponds	Existing fish farmers	Existing hatchery	Poverty level	Landless farmers	Existing CFR ponds
SR	0	-1	-1	-1	0	0	0
OM	-1	+1	-1	-1	0	-1	0
BM	+1	+1	0	0	0	+1	0
BB	+1	+1	0	0	0	+1	0
PS	+1	+1	-1	-1	-1	+1	-1
KC	+1	+1	+1	-1	0	+1	-1
Total	+4	+4	-1	-4	-1	+3	-2

+1: better than FAIEX1, 0: no difference, -1: worse than FAIEX1

Q3. Means to construct fishponds

Province	Manual	Machine	Other methods
SR		✓	
OM		✓	
BM	✓		1) Rehabilitate existing ponds, 2) Introduce plastic pond
BB	✓		1) Rehabilitate existing ponds, 2) Introduce plastic pond
PS	✓		Food for Work
KC	✓		Food for Work
Total	4	2	

C. Community Fish Refuge Management

Q4. Existing CFR

Province	SR	OM	BM	BB	PS	KC	Total
Established CFR	36	10	14	25	8	9	102

Data from the Statistics report to FiA (Numbers different from the Questionnaire response)

Q5. Collection of fish to stock from Tonle Sap Lake

SR: It is not difficult find seed fish from the wild condition (not necessary to get the seed fish). It is also in the breeding season of indigenous fish so that silver barb and easy to get the paddy field). Silver carp is also a fish that is easy to reproduce in fish farm.

OM: The important point is to keep water in the CFR pond during the dry season. Participation from some communities for patrolling is not strong. After establishing the community management body, the board cannot keep the activity without financial support.

BM: Releasing indigenous brood stock sourced from natural water bodies including lake and river are good and effective way.

BB: The releasing the brood stock caught from the Great Lake to CFRs is the best way to enhance the fish resources.

PS: (no answer)

KC: The Cantonment office is purchasing indigenous brood stock species form fishing lots to release into community fish refuge ponds every year.

Q6. Supports from local governments

Provinces		Satisfied	Not sat.	Financial	Legal	Technical	Security	Other
SR	Provincial G.	✓		✓				
	District G.	✓		✓				
	Communal G.	✓		✓				
OM	Provincial G.	✓					✓	
	District G.	✓		✓				
	Communal G.	✓						
BM	Provincial G.	✓			✓			
	District G.	✓			✓			
	Communal G.	✓			✓			
BB	Provincial G.	✓			✓			
	District G.	✓			✓			
	Communal G.	✓			✓			
PS	Provincial G.	✓						
	District G.	✓						
	Communal G.	✓					✓	
KC	Provincial G.	✓					✓	
	District G.	✓					✓	
	Communal G.	✓					✓	

Problems faced:

SR: At the beginning of CFR establishment, there were illegal fishing activities of farmers from outside communities because our extension promotion and dissemination of the CFR management did not reach the outside communities.

OM: The important point is to keep water in the CFR pond during the dry season. Participation from some communities for patrolling is not strong. After establishing the community management body, the board cannot keep the activity without financial support.

BM: Awareness of the local people is limited on the advantage of the community fisheries refuge activities. Community development plans are not included CFR ponds yet.

BB: 1) Awareness of the advantage of community fish refugee ponds is not reached to the communities. 2) Community development plan do not incorporate the community fish refuge pond activities.

PS: 1) Participation for witnessing the election for establishment of community fish refugee, 2) Dissemination and promotion to rural community to have good participation, 3) Promote the community to take care and protect illegal fishing activity to increase the aquatic resources and participate for solving problems, 4) Lack of water for consumption, 5) Lack of participation of the community to patrol, 6) There is illegal fishing activity at night, particularly by electric fishing gear, 7) Some of CFRs have many aquatic plant

KC: Local authorities have no good willingness to participate in the community fish refuge pond activity to solve encountering problems because FiAC does not have budget for promoting their awareness.

Q7. Donors available for CFR activities

	Yes	No	Total
Availability	5	1	6

SR: In 2010, there are local funds and FAO support to the management activities of CFR in some target districts. These programs support the promotion of the fishery law, setting up of fish sanctuary, brood stock releasing, etc.

OM: FAO, JICA, and CIDO (Community based Integrated Development Organization)

BM: Funds from districts, communes, local NGOs and other donors.

BB: The funds from communes, districts, NGOs and other supporters.

PS: From DFID-DANIDA through FiA

KC: (N/A)

E. Target Area

Q8. FiA cantonments

Items	SR	OM	BM	BB	PS	KP	Total
FiA Officers	37	10	17	(34)	21	29	148
Total staff	52	10	23	45	40	48	218
Annual budget (US\$)	854	-	-	30	-	-	
Provincial hatchery	1	1	1	1	0	0	4
Vehicle	1	0	1	1	1	1	5
Type	Pick-up	-	Pick-up	Pick-up	Pick-up	Pick-up	
Condition	Good	-	Running	Running	Running	Running	
Motor cycles	3	2	?	8	10	7	30+
Condition	Running	Running	-	Running	Old	Old	
Computer sets	3	1	-	4	4	3	15+
Internet	Good	Poor	Poor	Poor	Poor	Poor	
Telephone	Good	Poor	Good	Poor	Good	Poor	
Cell phone	Good	Good		Good	Good	Good	

Q9. Soil suitability in the Province

Geographic category based on rice farming system	Soil suitability for fishpond construction					
	SR	OM	BM	BB	PS	KP
Flood plain of the Tonle Sap Great Lake	Middle	-	Good	Good	Good	-
Recession rice farming area	Middle	Good	Good	Good	Middle	-
Irrigated rice farming area	Good	Middle	Good	Good	Good	-
Rain-fed rice farming plain land area	Middle	Middle	Good	Good	Middle	Middle
Upland dry rice area	Poor	Poor	Middle	Middle	Poor	-

Q10. Popularity of Fish Farming in different region

Geographic category based on rice farming system	Popularity of fish farming*					
	SR	OM	BM	BB	PS	KP
Flood plain of the Tonle Sap Great Lake	4	-	4	4	1	-
Recession rice farming area	4	-	4	4	3	-
Irrigated rice farming area	1	4	1	1	1	-
Rain-fed rice farming plain land area	3	1	1	1	2	1
Upland dry rice area	4	1	3	3	3	-

* 1: the most popular area, 2: the second most popular area,, 5: the least popular area

Q11. Significant factor for starting fish farming

Factors influencing fish farming operation	Significance level for starting fish farming*						
	SR	OM	BM	BB	PS	KP	Avg.
Farmers' economic capacity	1	2	2	2	1	-	1.6
Farmers' interest and personal capacity	1	1	1	1	1	1	1
Market accessibility for the fish sales	3	1	2	2	1		1.8
Availability of water	1	1	1	1	1		1
Availability of fish seeds	1	1	1	1	1		1
Availability of technical know how	2	2	2	2	2		2
Availability of feed and fertilizing materials	3	2	2	2	2		2

* 1: most significant factor,, 4: least significant factor

G. Technical development

Q12. Activities in rice-cum-fish culture, cage culture, plastic canvas sheet culture

Aquaculture type	Province	Summary of activities
Rice-cum-fish culture	SR	There are some activities in project target area.
	OM	Very little introduced
	BM	Less participation from existing fish farmers because of the difficulty in management. Needs to increase budget to extend this technology.
	BB	Small participation from rural farmers due to their lack of budget, labor and knowledge
	PS	Just started gradually promoting to rural farmers.
	KC	There are some activities in different locations.
Cage culture (wooden or hapa net)	SR	They are located in some commune close to the fishing domain, culturing <i>Pangasius hyphophthalmis</i> and catfish.
	OM	No activity
	BM	---
	BB	Majority of farmers involve but the constraint is the trash fish availability from wild
	PS	Very popular for the people living in the floating house area
	KC	There are a lot of activities.
Plastic canvas sheet culture	SR	There are little activities.
	OM	Generally, farmers use this aquaculture system for small-scale family culture.
	BM	This idea has been introduced to farmers and accepted by them because of the low expense and easy to get success.
	BB	There are a lot of farmers' participation because of easy to get success and low expenses
	PS	Has been introduced, particularly in poor water resources area with the spout of TSSL.
	KC	The activities are still little.

Q13. New aquaculture species

Candidate species	Number of fish fingerlings produced (x1000)						
	SR	OM	BM	BB	PS	KC	Total
<i>Macrobrachium rosenbergii</i>	0	0	0	0	0	0	0

<i>Trichogaster pectoralis</i>	5	0	0	0	0	0	5
<i>Clarias catfish (hybrid)</i>	0	0	5	2	0	0	7
<i>Leptobarbus hoevenii</i>	0	0	0	0	0	0	0
<i>Pangasianodon hypophthalmus</i>	0	0	0	0	0	0	0
<i>Labeo rohita</i>	0	0	0	10	0	0	10
<i>Cirrhinus cirrhosus</i>	100	0	5	100	0	0	205

Q14. Exotic fish on Tonle Sal Lake biodiversity

SR: Up to now, the promotion of fish culture focuses at the remote area far from the Great Lake and the geographic areas where there is no flood during the rainy season.

OM: (No answer – OM does not have flood plain area)

BM: The lowland flood plain should not be included in the target area to disseminate fish farming techniques with exotic species. If it is included in the target area, only the indigenous fish species should be used.

BB: It is not correct because of the level of the Great Lake is changed by the inflow from the Mekong River. On the other hand, if the flood occurs every ten years, it is not a problem. We can choose another method of prevention.

PS: There was a big flood 10 years ago in the flood plain area and highland area of the national road No5 (implying that the lowland area cannot be use).

KC: The flood plain areas are not allowed to promote exotic species even in ponds, cages or plastic ponds.

I. Project Implementation

Q15. Seed Farmers' Network

SR: Yes, the network is important because it provides opportunities to seed producing farmers to share information, experience, and techniques for rural aquaculture development.

OM: Yes, it is important because the network plays important role to disseminate all the new information in terms of the techniques to all the rural farmers in the area.

BM: This is very important that the fisheries cantonment and existing seed producers want to establish the network but impossible because of no budget. However, we try to invite the existing seed producers to have study tours in other advanced provinces to learn each others.

BB: Establishment of national network is a good idea. Fisheries Cantonment used to invite seed producing farmer to establish the network and accepted by the farmers, but the network formation is not realized due to lack of budget and time.

PS: 1) Participation of seed producers to learn new techniques of seed production through study tours, 2) Meeting often to exchange experiences and information on new aquaculture technology.

KC: It contributes 1) to promote rural aquaculture techniques in ponds, paddy fields, cages, or plastic ponds, 2) To increase aquatic resources in local area for people's consumption and exporting, 3) To preserve or protect brood fish and 4) to improve new aquaculture technology.

Q16. Toek Vil and Battambang provincial hatcheries

Station	Toek Vil station in Siem Reap	Aquaculture station in Battambang
Land area (ha)	2.6 ha	22,092 m ²
Water source	Abundant, Irrigation canal water supply form Barai reservoir	Pumping from the river, problem on supply pipe
Ponds	Number: 27, total surface 1.8ha, ordinary size: 700 m ²	Number: 5, total surface 5,600 m ²
Main facilities	Hatchery: 140 m ² , major facilities: Generator, pump, air pump	Hatchery: 9.04 m ² , facilities not used, not functioning
	Laboratory: 16 m ² , <input type="checkbox"/> wet <input checked="" type="checkbox"/> dry	No laboratory
	Office building: rooms 1, 40 m ²	Office building: adjacent to cantonment office
	Training facility: <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Training facility: <input type="checkbox"/> yes <input checked="" type="checkbox"/> no
	Activities (describe): Produce fish seeds, grow-out fish, and vegetable.	Activities (describe): The station grows vegetables. All fishponds are not good in water retention. Lack of nursery ponds. Have a training room but lack of materials. Fisheries Cantonment has a free land of

		5 ha located 10 km far from Battambang town, which is a good land for hatchery station.
Annual budget	US\$ 0.00 (0 Riel)	US\$0.00 (0.00 Riel)

Q17. Functions of FiA cantonment's office

Output 1: Technical Development

SR: Establish technical center at regional or provincial level to provide training to core extension staffs and farmers, and transfer technology to rural farmers.

OM: It is the Fisheries Admonition Cantonment playing important role to be good trainer and officer to disseminate aquaculture technology.

BM: 1) Associated project provincial cantonment officers have to improve their capacity on the aquaculture technology. 2) Farmer's network has to have a regulation that is acknowledged by the provincial authority.

BB: Counterpart staffs need to improve the aquaculture techniques and farmers' network needs to prepare a regulation acknowledged by the authority

PS: To promote and support advanced aquaculture technology of rural fish farmers.

KC: This is the obligation for the fisheries cantonment.

Output 2: Extension through Farmer to Farmer Training

SR: Extension officers and staffs disseminate aquaculture knowledge and skills through training with practical work in fish farmers' farms.

OM: It is very important, first of all, we need to assist farmers to get success. And then it is easy for other farmers to follow the successful farmer.

BM: 1) Fish farmers have to have good participation in every month or quarterly meeting organized and facilitated by the fisheries cantonment. 2) Associated counterpart staffs are required to follow up farmer's network activity.

BB: Farmer's network needs to conduct monthly meeting or quarterly meeting coordinated by the Fisheries Cantonment and needs to follow up their aquaculture activities every month.

PS: To promote and provide opportunities to farmers for participating study tours to learn and share aquaculture experiences.

KC: This obligation is for FiA division and Sangkat.

Output 3: CFR development

SR: All the local authorities in village commune and district levels have to have good cooperation to establish and manage community fish refuge in their locality.

OM: Just planned to establish 11 CFR ponds.

BM: 1) Public fish refugee pond needs to be organized based on the existing criteria to ensure community refugee pond to have good functions to increase aquatic animal resources. 2) The manager of the community fish refugee pond has to have a good collaboration with FiAC and commune council.

BB: Community Fish Refuge needs to have criteria to increase aquatic resources to ensure sustainability. The managers of the CFRs should have good relationship with fisheries cantonment and community members.

PS: Seed produced by the village seed producing farmers is not only to supply to rural farmers but also to distribute for releasing into community refuge ponds

KC: This is the obligation for the fisheries cantonment.

Output 4: Establishment of National Network

SR: It is the main function to coordinate establishment and implementation of national network particularly to promote and disseminate the information to fish farmers and private sectors and other local NGOs as well to participate in the development of the national network.

OM: It is very important to establish the national network for fish farmers to know and learn about the information and technology on aquaculture and fingerling supply and demand conditions.

BM: It is the crucially important to establish a national network in order to explore the new technology and exchange information among the members through regular meeting (six month meeting frequency).

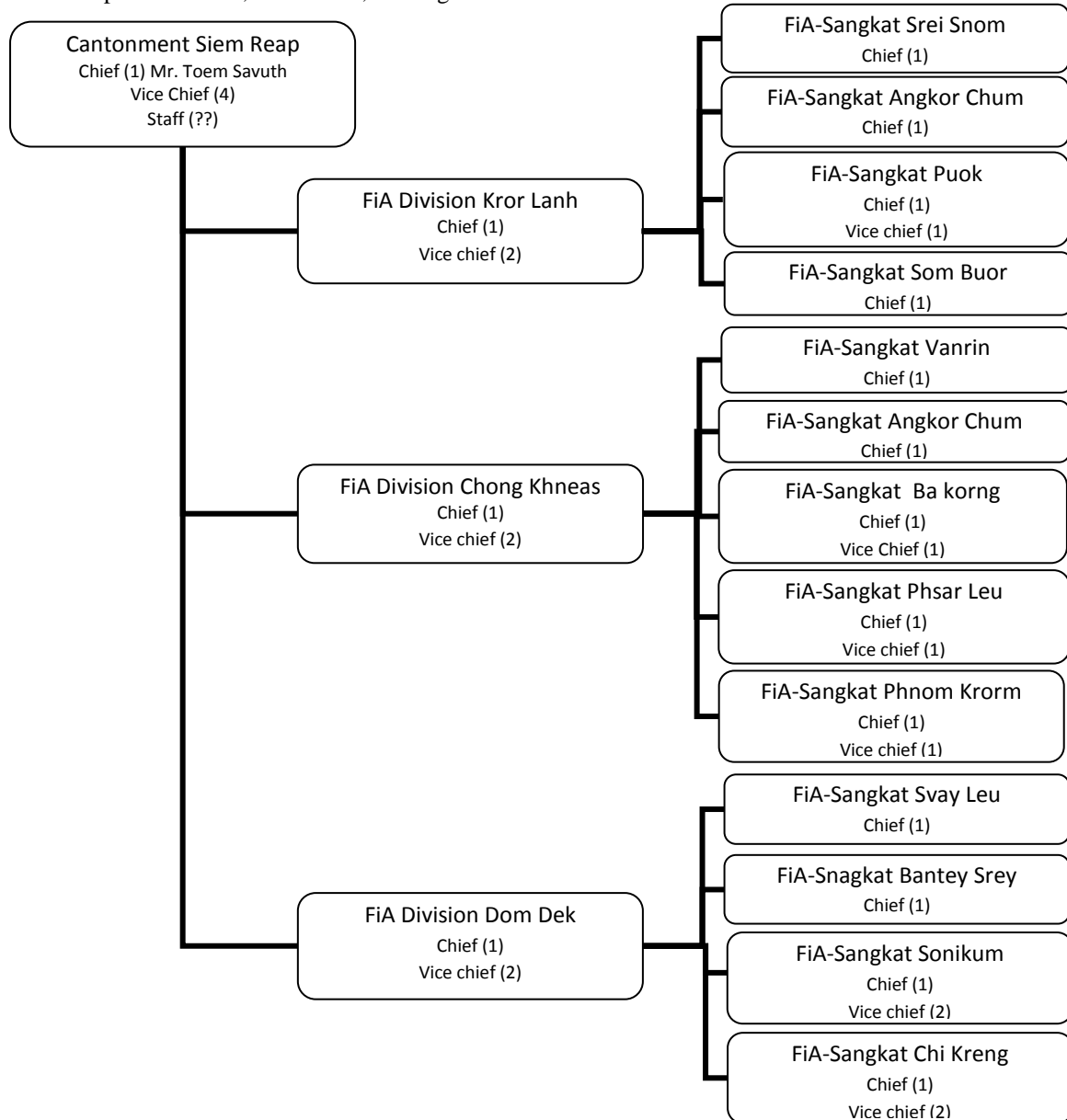
BB: Establishment of national network is most important for exchange of experiences and identifying new technology. It requires having 6-monthly meeting.

PS: The establishment of national network is to support enough fingerlings to distribute to all rural fish farmers.

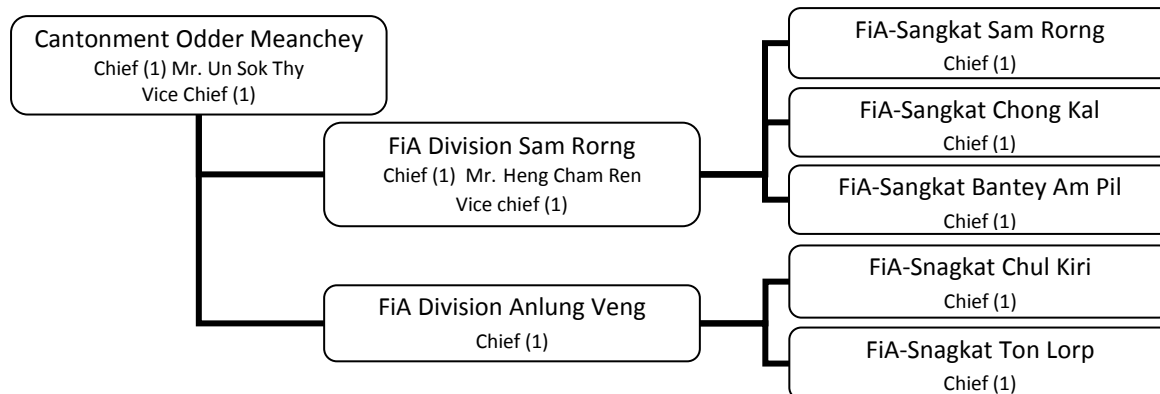
KC: This obligation is for Fisheries Administration.

Q18. Organization chart

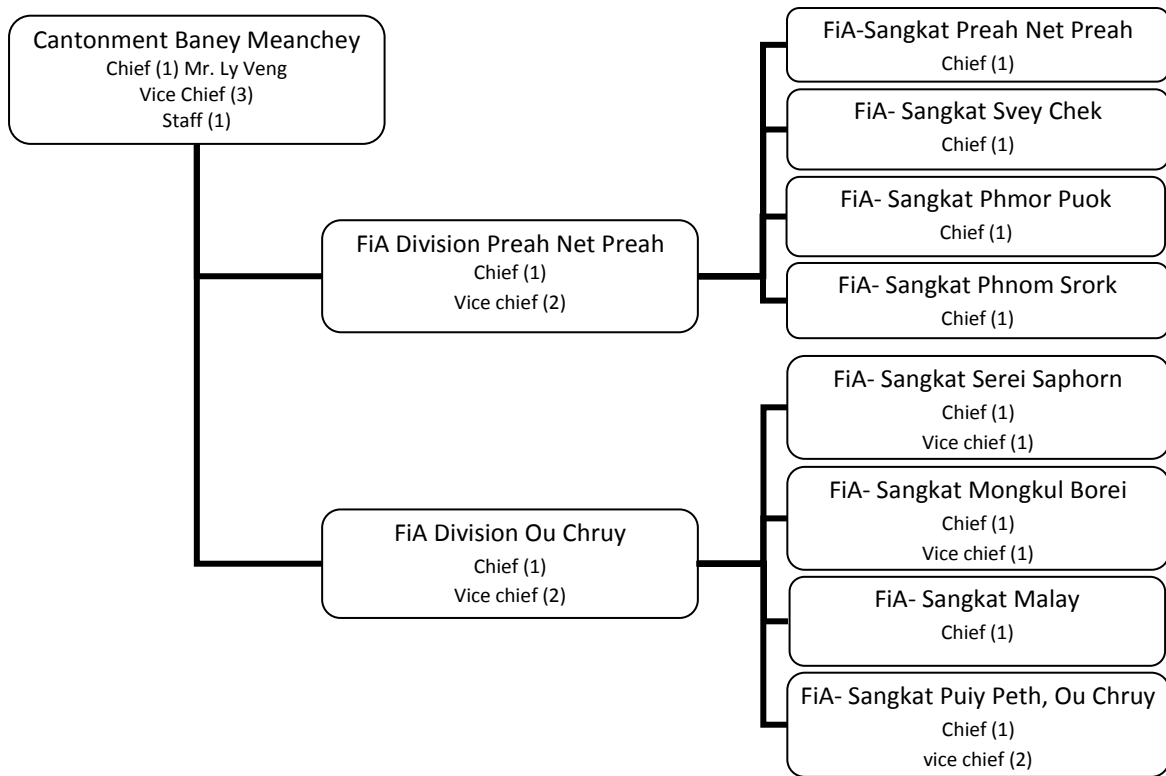
Siem Reap Cantonment, 3 divisions, 13 sangkats.



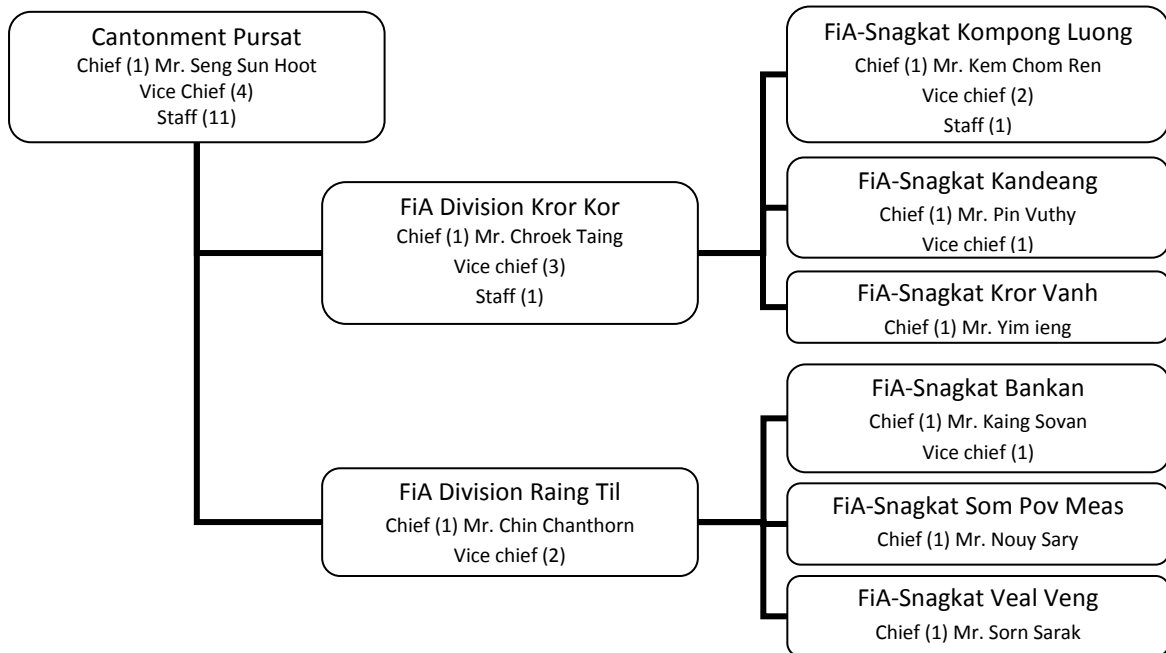
Oddar Meanchey Cantonment, 2 Divisions and 5 sangkats



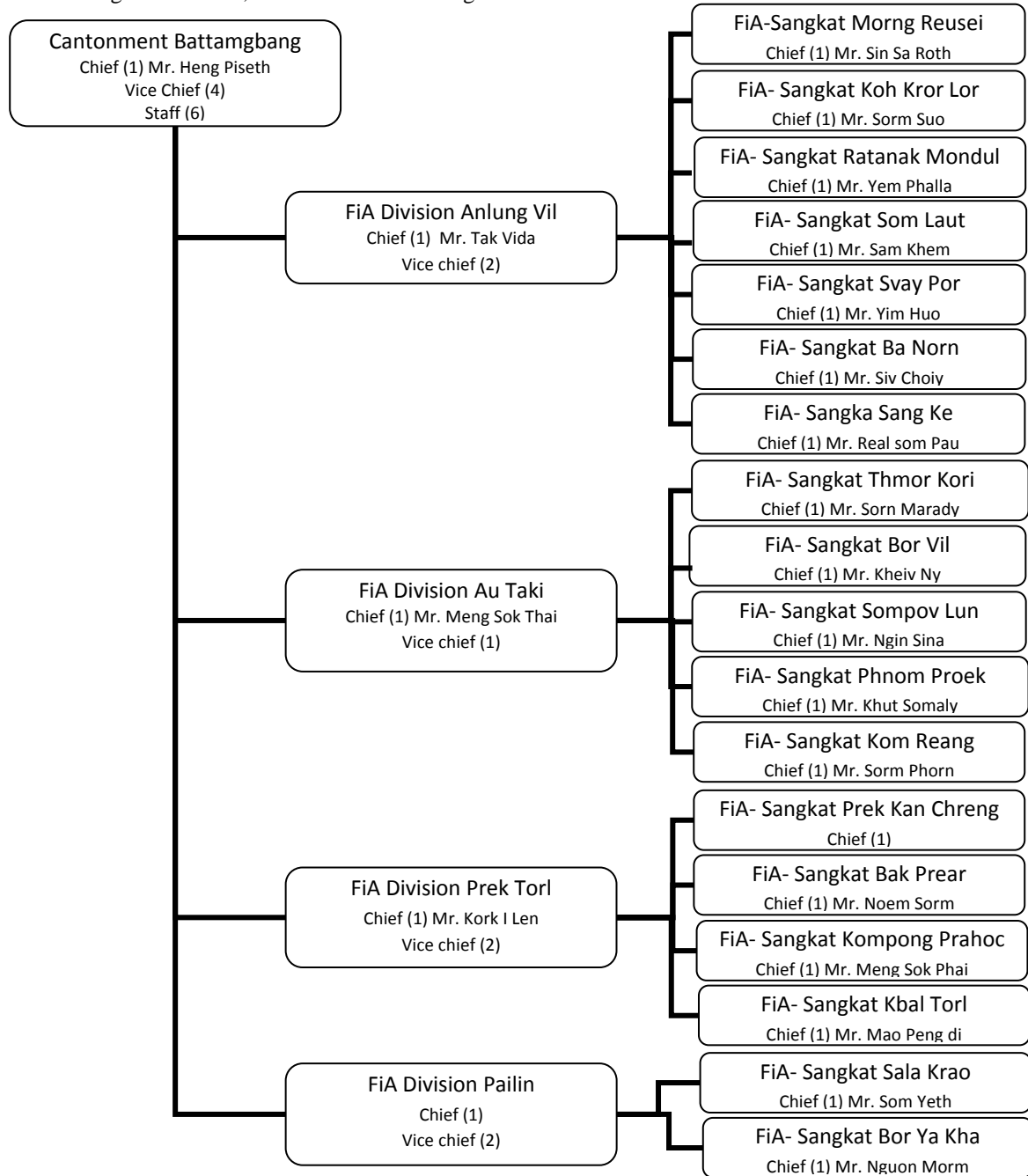
Bantey Meanchey Cantonment, 2 Divisions, and 8 sangkats



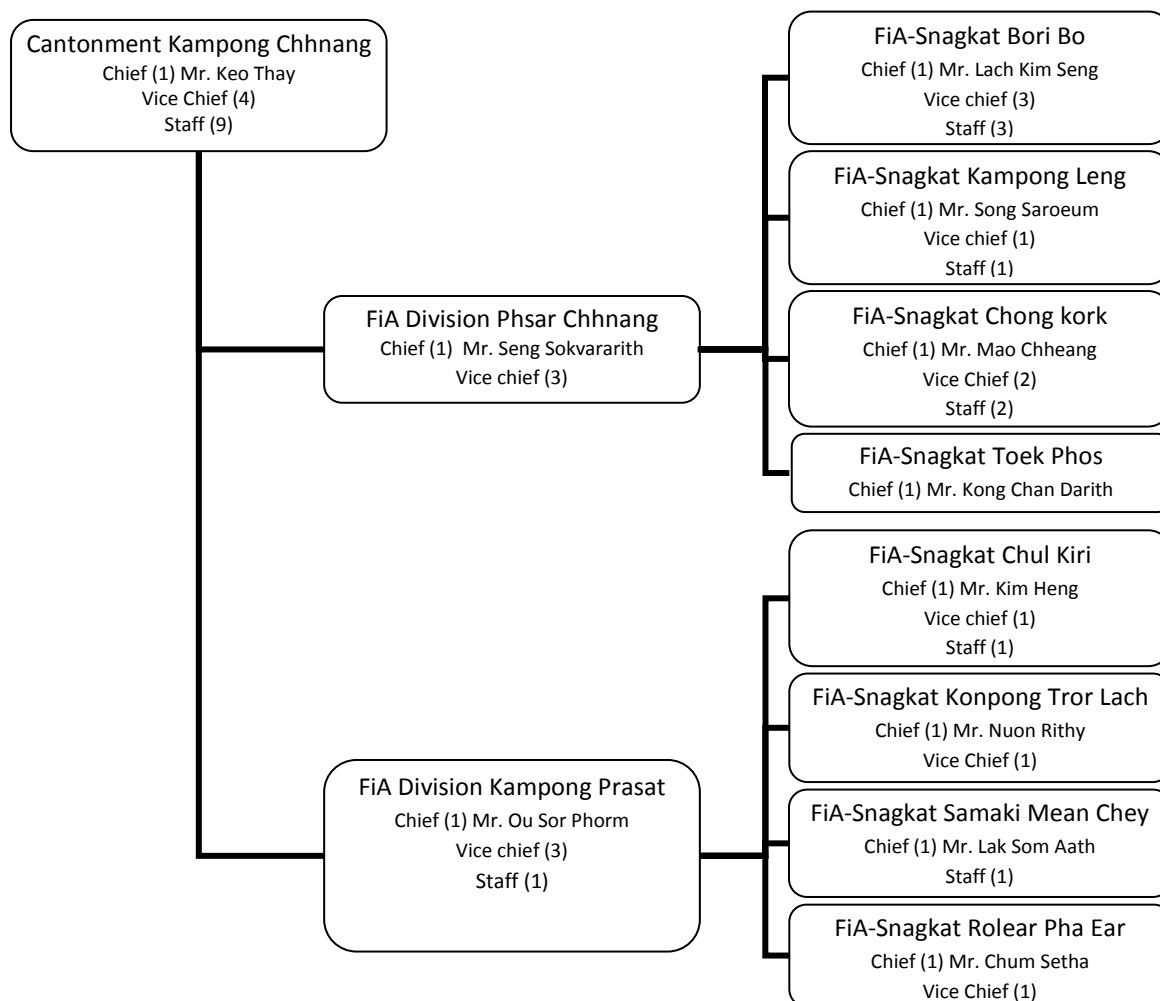
Pursat Cantonment, 2 divisions, and 6 sangkats



Battambang Cantonment, 4 divisions and 20 sangkats



Kanpong Chhnang Cantonment, 2 Divisions, and 8 sangkats



Q19. Existing private seed producers

Siem Reap

Name of fish seed producer	Commune, District	Year of establishment	Species produced and annual production
1. Puok Thmei	Puok, Puok	2007	2,184,000 (fry and including the production at Tak Vil station), SB, CC, Ti, Mrigal
2.	Somrong Year, Puok		
3. Vort	Tbeng, Bantey Srey	2009	1000 (SB, Ti)
4. Svay Chek	Angkor Thom	2009	
5. Svay Chek	Somroang, Sautnaikum	2008	300,000 (fry), SB, Ti, CC, SC
6. Kork Saray	Dan Run, Satnaikum		
7. Pich Chor	Kror Lanh, Kror Lanh	2006	10,500 SB, Ti, CC, SC, Snake skin gourami
8. Khnar Thmei	Kror Dek, Prasat Bakorng	2009	5,000 SB, Ti, CC
9.	Rorong Kor, Kror Lanh		
10.	Anlung Som Nor, Chi Kreng		
11.	Svay Sor, Varin		
12.	Prar Sat, Varin		
13.	Khvao, Chi Kreng		
14.	Sleng Spean, Sray		

	Snom		
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Odder Meanchey Province

Name of fish seed producer	Commune & District	Year of establishment	Species produced and annual production
1. Linh Roth	Chong Kal, Chong Kal	2005-06	Silver barb
2. Poch Peuch	Bantey Ampil, Bantery Meanchey		Common carp

Bantey Meanchey Province

Name of fish seed producer	District	Year of establishment	Species produced and annual production
1 producer	Thmor Pok		1,430,000
1 producer	Mongkul Borei		150,000
1 producer	Malay		70,000
1 producer	Preah Net Preah		200,000
1 producer	Preah Net Preah		10,000
1 producer	Mongkul Borei		25,000
1 producer	Preah Net Preah		70,000
1 producer	Mongkul Borei		No production (lack of water)
1 producer	Preah Net Preah		No production (lack of water)
1 producer	Serei Sorphon	(Government?)	No production (lack of water)

Battambang Province

Name of fish seed producer	Commune, District	Year of establishment	Species produced and annual production
1.	Bansay Treng, Thmor Korl		(1 producer)
2.	Boeng Pring, Thmor Korl		(1 producer)
3.	Ta Pung, Thmor Korl		(1 producer)
4.	Au Taki, Thmor Korl		(2 producers)
5.	Prey Khpos, Bor Vel		(1 producer)
6.	Au Mal, Batom Borng		(2 producers)
7.	Au Takaing 2, Batom Borng		(1 producer)
8.	Ratanak, Batom Borng		(1 producer)
9.	Sdao, Ratanak Mondul		(1 producer)
10.	Prek Norin, Ek Phnom		(1 producer)
11.	Prek Phaung, Ek Phnom		(1 producer)
12.	Peam Ek, Ek Phnom		(1 producer)
13.	Kompong Preang, Sang Ke		(1 producer)
14.	Prey Tauch, Mornng Reu Sei		(1 producer)
15.	Kear, Mornng Reu Sei		(1 producer)

Pursat Province

Name of fish seed producer	Commune, District	Year of establishment	Species produced and annual production
1. Keo Khoeng	Koh Chum, Kandieng	2007	Supported by TSEMP-C2
2. Vorn Nonat	Kandieng, Kandieng	2009	DFID-DANIDA
3. Chao Sa Em	Kbal trach, Krour Kor	2010	
4. Owner of F-3	Kampong Luong, Krour Kor	2010	
5. Owner of FL-7	Kompong Luong, Krour Kor	2010	

6. Owner of FL-1/2	Boeng Khnar, Barkan	2010	
7. Owner of FL-6	Phteah Prey, Krong Posat	2010	500,000 silver barb

Kanpong Chhnang Province

Name of fish seed producer	Commune & District	Year of establishment	Species produced and annual production
1.	Kompong Tror Lach, Kompong Tror Lach		3,000 (total) Supported by FAO-ADB
2.	Seb, Kompong Tror Lach		
3.	Kompong Os, Chul Kiri		
4.	Koh Phlaur, Chul Kiri		20,000 (total)
5.	Khmar Chlmar, Samaki Meay Chey		40,000 (total) Supported by World Vision
6.	Taining Kror, Toek Plaus		160,000 (total)
7.	Trorpaing Chan, Bori Bo		135,000 (total)
8.	Kompong Preah Korki, Bori Bo		10,000 (total)

Q20. Micro-financing institutions

	SR	OM	BM	BB	PS	KC	Total
Yes	✓	✓	✓	✓	✓		5
No						✓	1

Reason

SR: (Yes) Support of initial funds is important for seed producing farmers to construct hatchery and develop other facilities but need to have clear contracts with the farmers and this fund can be returned and kept in the national network.

OM: (Yes) This is important, but it is difficult for the farmers to borrow money from them to invest in fish farming because the interest is high. But they can borrow some small amount of money.

BM: (Yes) Majority of rural farmers are poor and lack of aquaculture technology and funds for investing in fish farming, so micro-financing system is very important for them, but the interest is too high. It should be taken for strong consideration.

BB: (Yes) Rural farmers lack techniques and funds for aquaculture so microfinance system is important for rural farmers but the interest is not satisfactory.

PS: (Yes) Micro financing system is good for rural farmers in remote area. But it is difficult for them to borrow money because they have no money for them to return every month.

KC: (No) Rural farmers are poor. No budget to pay money every month. Seed producing farmers have monthly income for repayment.

Q21. On-farm or On-station experiments

	SR	OM	BM	BB	PS	KC	Total
On-farm		✓	✓	✓	✓	✓	5
On-station	✓		✓	✓			3

Reasons:

SR: It needs to be research activities in the government fish research station and transfer success technology to disseminate fish famers. The government station requires technical material and equipment from the project.

OM: It is easy for them to learn each other in the village.

BM: We cannot consider one is more important than the other because both are equally important and easy to disseminate rural aquaculture technology.

BB: The both points are very important because of easy to disseminate technology to rural farmers through farmer seed producers and government stations.

PS: It is easy for villagers to visit and see the real success of the village seed producing farmers and also makes them good participation and give strong confident to start fish culture.

KC: Because seed producing farmers have opportunities to learn and practice by themselves, and they have strong confidence, knowledge, technology and skills.

Q22. Provide the estimated numbers of existing fish farmers, number of households and having ponds without doing fish farming in your province.

Province	Total number of existing fish farmers	Number of households having ponds without doing fish farming
Siem Reap	192	1038
Oddar Meanchey	293	847
Bantey Meanchey	229	350
Bttambang	198	?
Pursat	200	2,494
Kampong Chhenang	234	1,003
Total	1346	7078+

Q23. School fish farming

Province	Total number of existing schools doing fish farming	Number of school having pond without doing fish farming
Siem Reap	?	75
Oddar Meanchey	0	8
Bantey Meanchey	0	109
Bttambang	?	?
Pursat	0	14
Kampong Chhenang	?	?
Total	0 (?)	206 (?)

Preliminary Survey on Freshwater Fish Farming Improvement and Extension Project (Phase2)
Field Visit and Interview Record

F-1 Suon Savoeun (Fish Farmer)

27/05/2010 9:00 ~ 10:00 by Chin Da

Age: 55, Male, Primary School Andaung Chrors Village, Rolea B'ier Commune, Rolea B'ier District, KC

Natural Condition: Plain, Paddy field Soil water retention: Good (Clayey)

Drinking water: Dug well (wet season) Dug well (dry season) Cooking fuel: Firewood Toilet: Yes

Land holding:	Total land area (ha)	Area of paddy	Area of homestead	Area of vegetable
	1.5 ha	>1 ha	0.1 ha	0.1 ha

House owned: Yes Roof: Tile Wall: Wood Money savings in bank: No Debt: No

Rice cropping: Single cropping Annual production: 2.4 tons/year by family Irrigation: Available Insufficient

Crop cycle	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 st Crop								P			H	H

Rice farming: Rain-fed rice, Irrigated rice Rice variety: Improved Herbicide: Never Pesticide: Never

Animal/fish consumption by family:	Wet season	Dry season
Meat:Fish	30:70	66:33
Fish consumption	0.5kg/day	0.4kg/day

Fish purchase: Regularly Fish availability: Scarce seasonally Household pond: Possessed

Wealth: Well to do Income sources: Trading (hand craft seller)

Interest in fish farming: High because of fast growth of aquaculture fish compared to wild seeds

Fish farmers in the village total households: 1~10 % Fish seed: Available but not enough & expensive

----- Fish Farming Activity -----

Experience in fish farming: since 2009 (1 years) Fishpond: 1 pond, 112 m² Duration: Year round

Reason: Consumption Training: No Material support: No Extension service: No Rice field: No

Record book: No Labor: Family Plan: Increase Fill: Rain & Pump (Well) Drain: Pump

Species: Tilapia, local Clarias, wild fish Polyculture: Yes Production: 6kg/year Sale: 0Riel/year

Seeds: Peer farmers Prices: 0 Riel/head Feed: Rice bran, Kitchen waste (No pay) Fertilizing: Never (no pay)

Technical constraints: Know how on growing fish

Financial constraints: For deepening ponds

Interest in fish culture by neighbors: Yes, but do not know how to grow fish, no facilities, and no free land



Preliminary Survey on Freshwater Fish Farming Improvement and Extension Project (Phase2)
Field Visit and Interview Record

F-2 Meach Saray (Fish Farmer)

27/05/2010 10:15 ~ 11:00 by Chin Da

Age: 27, Male, Secondary/Diploma
Natural Condition: Plain, Paddy field

Kruos Village, Rolea B'ier Commune, Rolea B'ier District, KC
Soil water retention: Good (Clayey /Silty, Rocky/gravelly)

----- Fish Farming Activity -----

Experience in fish farming: since 2009 (1 years) Fishpond: 3 pond, 955 m² Duration: Year round
Reason: Consumption & Selling Training: No Material support: No Extension service: No (TV program) Rice field: No
Record book: No Labor: Family Plan: Increase Fill: Rain & Pump (Well) Drain: Pump
Species: Silver barb, Tilapia, Clarias Polyculture: Yes Production: 86kg/year Sale: 6,000Riel/year
Seeds: NGO/Donors Prices: 80 Riel/head Feed: Commercial feed (Paid) Fertilizing: Cow dung, Chicken manure,
Green manure, duck manure (no pay)

Technical constraints: Slow growth, mortality after stocking

Financial constraints: For commercial feed and seeds

Interest in fish culture by neighbors: Yes, for the consumption but neighbors wait for his results



**Preliminary Survey on Freshwater Fish Farming Improvement and Extension Project (Phase2)
Field Visit and Interview Record**

F-3 Khhuon Naut (Seed Producer)

27/05/2010 11:30 ~ 12:30 by Chin Da

Age: 57, Male, Secondary/Diploma Trapeang Trach Village, Rolea B'ier Commune, Rolea B'ier District, KC
Natural Condition: Plain, Paddy field Soil water retention: Good (Clayey/Sand/Rocky)

----- **Fish Farming Activity** -----

Experience in fish farming: since 2005 (5 years) Fishpond: 3 ponds, 1244 m² Duration: Year round
Reason: Consumption & Selling Training: Yes Material support: ? Extension service: No Rice field: Yes
Record book: No Labor: Family Plan: Increase Fill: Rain & Spring Drain: Never
Species: Silver barb, Common carp, Tilapia, Mrigal Polyculture: Yes Production: 300kg/year Sale: 1.6 million Riel/year
Seeds: Private hatchery Prices: 80 Riel/head Feed: Commercial Feed, Vegetable waste, Insect, Rice bran (No pay)
Fertilizing: Cow dung, Chicken manure, Pig manure, (No pay)
Technical constraints: Non
Financial constraints: For extending ponds
Interest in fish culture by neighbors: Yes for consumption, but no fish pond

----- **Seed Production Activity** -----

Experience: 2009 (1 year) Reason: Income generation Customers: 20 persons from various villages

Species produced:	Silver barb	Com. carp	Tilapia	Mrigal	Silver carp	Clarias	Pangasius	Others
Numbers	25,000	0	0	0	0	0	0	0

Facilities and equipment of fish seed production:	Material	Size	Quantity	Cost
Brood stock pond	Earthen	20x30 m ²	1	
Seine net	Mosquito net	10x30 m ²	1	

Total investment for facilities and equipment: ? Riel (=US\$?)

Brood stock in possession:	Female		Male	
	Number	Average weight	Number	Average weight
No brood stock yet	0	kg	0	kg

Water source: Rain (not year-round) Larvae feed: Not used Brood stock feed: Not used Hormone: Not used

Farmer's Association: No Plan: Increase

Technical problems: Lack of water Financial problem: For extending ponds



**Preliminary Survey on Freshwater Fish Farming Improvement and Extension Project (Phase2)
Field Visit and Interview Record**

F-4 Nong Chana (Seed Producer)

27/05/2010 14:35 ~ 16:00 by Chin Da

Age: 50, Male, Primary school not completed Thma Sa Village, Khnar Chhmar Commune, Sameakki Meanchey District, KC
Natural Condition: Plain, Paddy field Soil water retention: Good (Clayey/sandy)

----- **Fish Farming Activity** -----

Experience in fish farming: since 2009 (1 years) Fishpond: 6 ponds, 668 m² Duration: Year round
Reason: Consumption & Selling Training: Yes (FIAC) Material support: No Extension service: Yes (FIAC)
Rice field connection: Yes
Record book: No Labor: Paid Labor & family Plan: Increase Fill: Rain, Pump (Stream, irrigation channel)
Drain: Never
Species: Silver barb, Common carp, Tilapia Polyculture: Yes Production: ?kg/year Sale: ? Riel/year
Seeds: NGO (World Vision) Prices: ? Riel/head Feed: Rice bran, Kitchen waste, broken rice (Paid)
Fertilizing: Never, (No pay)
Technical constraints: None
Financial constraints: For pump, fence
Interest in fish culture by neighbors: Yes for consumption, but not many (1-2 farmers only in the village)

----- **Seed Production Activity** -----

Experience: 2010 (<1 year) Reason: Improve livelihoods Customers: 4 persons from various communes

Species produced:	Silver barb	Com. carp	Tilapia	Mrigal	Silver carp	Clarias	Pangasius
Numbers	?	?	?				

(Does not know how to count fingerlings)

Facilities and equipment of fish seed production:	Material	Size	Quantity	Cost
Spawning tank	Cement		1	} US\$1800
Hatching tank	Cement		1	
Nursery tank (moina tank)	Cement		1	
Nursery pond	Earthen		5	
Brood stock pond	Earthen		1	
Water storage tank (overhead)	Cement		1	
Water reservoir	Earthen		1	} US\$150
Water pump			1	
Hapa net			0	
Seine net			0	
Generator set			0	
Well			0	

Total investment for facilities and equipment: Hatchery system US\$1800 supported by World Vision (50%) and FIAC (50%), not including nursery tank and pump which was bought by himself.

Brood stock in possession:

	Female and Male	
	Number	Total weight
Silver barb	7	3 kg
Common carp	15	5 kg
Tilapia	?	? kg

Water source: Pond, Well, Rain Year-round: No, from July to February
Larvae Feed: Homemade & commercial feed Brood stock feed: Homemade Hormone: Superfat (FIAC)
Farmer's Association: No Plan: Increase
Technical problems: None Financial constraints: For pump to be used during hatchery operation





**Preliminary Survey on Freshwater Fish Farming Improvement and Extension Project (Phase2)
Field Visit and Interview Record**

F-5 Vorn Bonat (Seed Producer)

28/05/2010 11:00 ~ 12:40 by Chin Da

Age: 27, Male, Secondary/diploma Bang Koul Village, Kandieng Commune, Kandieng District, Pursat

Natural Condition: Plain, Paddy field Soil water retention: Good (Clayey)

Drinking water: Rain (wet season) Dug well (dry season) Cooking fuel: Firewood Toilet: Yes

Land holding:	Total land area (ha)	Area of paddy	Area of homestead	Area of vegetable
	1.5 ha	0.5 ha	0.5 ha	0.5 ha

House owned: Yes Roof: Tile Wall: Wood Money savings in bank: No Debt: Yes

Rice cropping: Single cropping Annual production: - tons/year by family Irrigation: Available just enough

Crop cycle	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 st Crop					P						H	

Rice farming: Rain-fed rice Rice variety: Improved Herbicide: Occasional Pesticide: Never

Animal/fish consumption by family:	Wet season		Dry season	
	Meat:Fish	10:90	10:90	
	Fish consumption	1 kg/day	1 kg/day	

Fish purchase: Occasionally Fish availability: Scarce seasonally Household pond: Possessed

Wealth: Well to do Income sources: Fingerlings sales

Interest in fish farming: High because want to improve livelihoods and assist poor households

Fish farmers in the village total households: 1~10 % Fish seed: Available but not enough

----- **Fish Farming Activity** -----

Experience in fish farming: since 2005 (5 years) Fishpond: 9 ponds, 3,594 m² Duration: Year round

Reason: Consumption & Selling Training: Yes (ADB) Material support: Yes (ADB) Extension service: Yes (FiAC)

Rice field connection: No because not enough water to connect ponds with rice fields

Record book: No Labor: Family Plan: Increase Fill: Rain, Pump (Stream) Drain: Drying

Species: Silver barb, Common carp, Silver carp, Tilapia, Mrigal, Clariid catfish Polyculture: Yes

Production: 350 kg/year Sale: 5,000 Riel/year

Seeds: Private hatchery Prices: 120 Riel/head (150Riel/head for Clariid catfish)

Feed: Commercial feed, Rice bran, Kitchen waste, Vegetable waste, Insect, duckweed (Paid) Fertilizing: Cow dung (paid)

Technical constraints: None

Financial constraints: For plastic bags for packing fingerlings

Interest in fish culture by neighbors: Yes for consumption

----- **Seed Production Activity** -----

Experience: 2007 (3 year) Reason: Income generation Customers: 600 persons from various provinces

Species produced:	Silver barb	Com. carp	Tilapia	Mrigal	Silver carp	Clarias	Pangasius	
Numbers	100,000	100,000	50,000	50,000	100,000	0	0	0

(Does not know how to count fingerlings)

Facilities and equipment of fish seed production:	Material	Size	Quantity	Cost
Spawning tank	Cement	3 m dia.	1	}
Hatching tank	Cement	2 m dia.	1	
Nursery tank (moina tank)			0	
Nursery pond	Earthen	4 x 6 m ²	6	} US\$1800
Brood stock pond	Earthen	23 x 25 m ²	1	
Water storage tank (overhead)	Cement	6 x 5 x 2.5 m ³	1	}
Water reservoir	Earthen	23 x 25 m ²	3	
Water pump			1	US\$350(new)
Hapa net			0	
Seine net			1	US\$80(new)
Generator set			0	
Well			0	

Brood stock in possession:

Female and Male

	Number	Total weight
Silver barb	12	3 kg
Common carp	15	5 kg
Tilapia	25	5 kg
Silver carp	300	100 kg

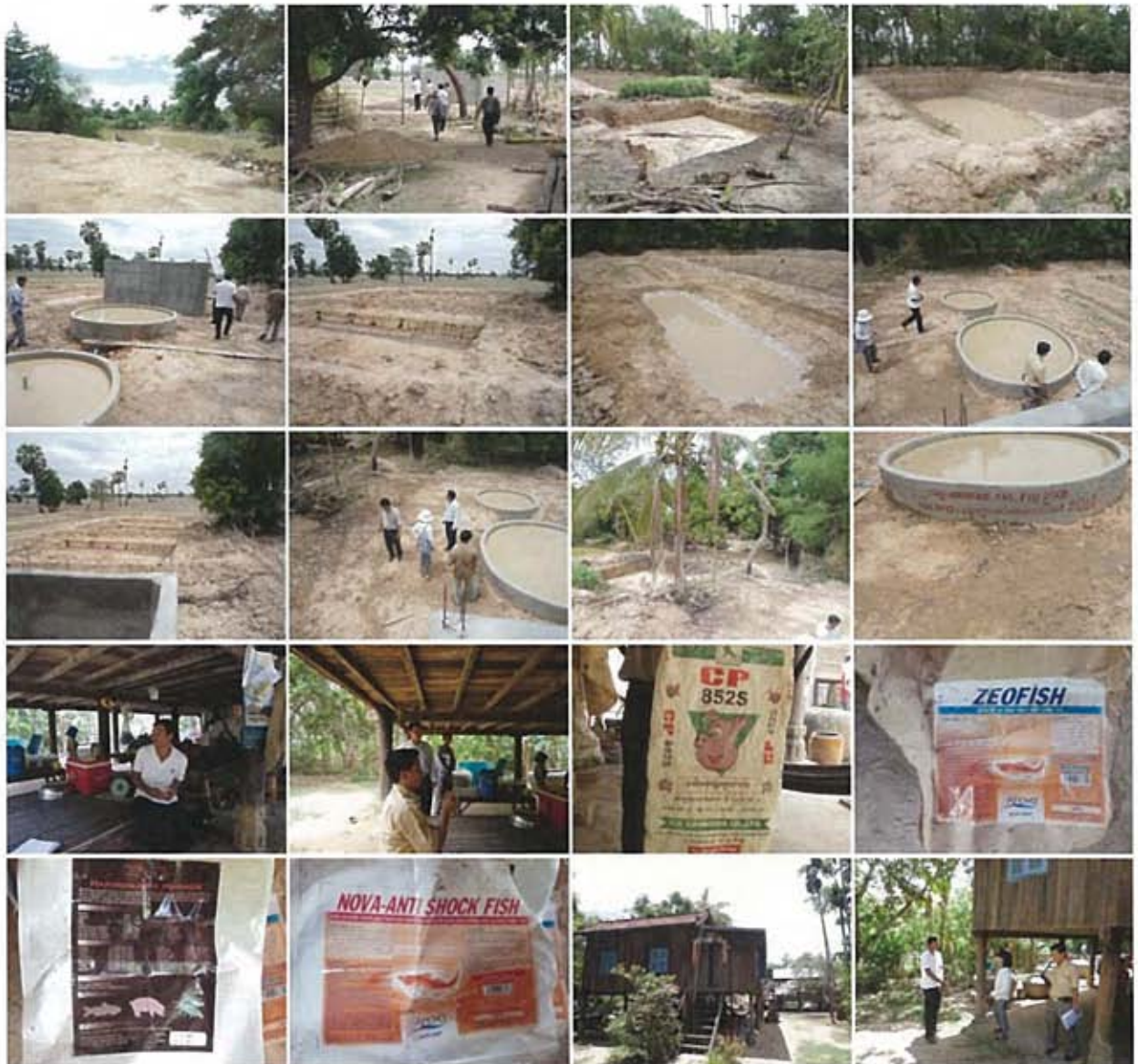
Water source: Stream Year-round: No, from May to November

Larvae Commercial feed & homemade Brood stock feed: Homemade Hormone: HCG, OVAPRIM (DAD)

Farmer's Association: No Plan: Increase

Technical problems: Lack of water, Poor water quality, difficult in obtaining hormone, Lack of brood stock, High mortality

Financial constraints: For store, well, and ponds



**Preliminary Survey on Freshwater Fish Farming Improvement and Extension Project (Phase2)
Field Visit and Interview Record**

F-6 Keo Sieb (Non Fish Farmer)

29/05/2010 15:20 ~ 16:30 by Chin Da

Age: 52, Male, Primary School Talau Village, Talau Commune, Bakan District, Pursat
 Natural Condition: Plain, Paddy field Soil water retention: Good (Clayey)
 Drinking water: Dug well, Rain, Pond (wet season) Dug well, Pond (dry season) Cooking fuel: Firewood, Charcoal
 Toilet: No

Land holding:	Total land area (ha)	Area of paddy	Area of homestead	Area of vegetable
	1.5 ha	1.3 ha	0.1 ha	0.1 ha

House owned: Yes Roof: Iron Sheet Wall: Wood Money savings in bank: Yes Debt: Yes (95% of villagers)
 Rice cropping: Single cropping Annual production: 3 tons/year by family Irrigation: No

Crop cycle	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 st Crop						P					H	H

Rice farming: Rain-fed rice Rice variety: Improved Herbicide: Never Pesticide: Never

Animal/fish consumption by family:	Wet season	Dry season
Meat:Fish	20:80	50:50
Fish consumption	1 kg/day	0.5 kg/day

Fish purchase: Regularly Fish availability: Scarce seasonally Household pond: Possessed (popular in village)
 Wealth: Poor Income sources: Rice, Livestock, Casual labor and Remittance (20% in Malaysia)
 Interest in fish farming: Low, without support from NGOs
 Fish farmers in the village total households: <1 % Fish seed: Not available



**Preliminary Survey on Freshwater Fish Farming Improvement and Extension Project (Phase2)
Field Visit and Interview Record**

F-7 Linh Lei (Fish Farmer)

30/05/2010 15:10 ~ 16:25 by Siv Cheang

Age: 51, Male, Primary School Phom Koy Village, Sala Krau Commune, Sala Krau District, Pailin

Natural Condition: Plain, Paddy field Soil water retention: Good (Clayey/Rocky)

Drinking water: Rain (wet season) Pond (dry season) Cooking fuel: Firewood, Charcoal Toilet: Yes

Land holding:	Total land area (ha)	Area of paddy	Area of homestead	Area of vegetable
	4 ha	2.5 ha	0.1 ha	0.5 ha

House owned: Yes Roof: Tile Wall: Wood Money savings in bank: Yes Debt: No

Rice cropping: Double cropping Annual production: 10 tons/year by family Irrigation: Available sufficient

Crop cycle	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 st Crop		P				H						
2 nd Crop	H						P	P				H

Rice farming: Irrigated rice Rice variety: Improved Herbicide: Regularly Pesticide: Regularly

Animal/fish consumption by family:	Wet season	Dry season
Meat:Fish	40:60	40:60
Fish consumption	0.7kg/day	0.7kg/day

Fish purchase: Occasionally Fish availability: Scarce seasonally Household pond: Possessed

Wealth: Well to do Income sources: Rice, Fish culture, Maize, Vegetable

Interest in fish farming: High because of family consumption and selling

Fish farmers in the village total households: <1 % Fish seed: Not available

----- Fish Farming Activity -----

Experience in fish farming: since 2007 (3 years) Fishpond: 3 pond, 250 m² Duration: Year round

Reason: Consumption Training: Yes (ADMIC, Ag. Dev. Action) Material support: Yes (ADMIC)

Extension service: Yes (FIAC) Rice field: Yes

Record book: No Labor: No Plan: Increase Fill: Irrigation channel Drain: Pump

Species: Tilapia, wild fish Polyculture: Yes Production: 25 kg/year Sale: 0 Riel/year

Seeds: Provincial Dept. of Agriculture Prices: 0 Riel/head Feed: Rice bran, Kitchen waste, Vegetable waste, Insect
(Yes for Rice bran) Fertilizing: Never (no pay)

Technical constraints: Slow growth because of lack of feeding

Financial constraints: For buying feeds

Interest in fish culture by neighbors: Yes for consumption and selling for those who have ponds and access to irrigation. He thinks 100 riel/head price for fingerlings is reasonable but want to get pangasius and catfish.





**Preliminary Survey on Freshwater Fish Farming Improvement and Extension Project (Phase2)
Field Visit and Interview Record**

F-8 Long Suo (Fish Farmer)

31/05/2010 09:20 ~ 10:50 by Siv Cheang

Age: 49, Male, Primary School Thmei Village, Taul Lvia Commune, Pailin Town, Pailin

Natural Condition: Mountain hill Soil water retention: Good (Rocky)

Drinking water: Rain, Stream (wet season) Stream (dry season) Cooking fuel: Firewood Toilet: Yes

Land holding:	Total land area (ha)	Area of paddy	Area of homestead	Area of vegetable
	6.5 ha	0 ha	0.1 ha	6 ha (maize)

House owned: Yes Roof: Iron sheet Wall: Wood Money savings in bank: Yes Debt: Yes (to buy maize seeds, pesticides and herbicides)

Rice cropping: No rice farming Annual production: - tons/year by family Irrigation: No

Crop cycle	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 st Crop (Maize)			P			H	H					
2 nd Crop (Maize)								P	P			H H

Rice farming: - Rice variety: - Herbicide: Regularly Pesticide: Regularly

Animal/fish consumption by family:	Wet season	Dry season
Meat:Fish	50:50	50:50
Fish consumption	1 kg/day	1 kg/day

Fish purchase: Regularly Fish availability: Year round Household pond: Possessed (Popular in village)

Wealth: Well to do Income sources: Maize, Fish culture, Maize, Vegetable, Mung bean, Public servant

Interest in fish farming: High because of consumption and selling

Fish farmers in the village total households: 1~10 % Fish seed: Not available

----- Fish Farming Activity -----

Experience in fish farming: since 2006 (4 years) Fishpond: 1 pond, 400 m² Duration: Year round

Reason: Consumption & Selling Training: Yes (CARE) Material support: Yes (CARE)

Extension service: Yes (CARE) Rice field: No

Record book: No Labor: No Plan: Increase Fill: Stream Drain: Never

Species: Tilapia, Clarias Polyculture: Yes Production: 100 kg/year Sale: 0 Riel/year

Seeds: NGO (CARE) Prices: 100 Riel/head Feed: Commercial feed, Rice bran, Vegetable waste (Paid)

Fertilizing: Never (no pay)

Technical constraints: Slow growth, not know how to harvest, breed fish

Financial constraints: For commercial feed and fingerlings

Interest in fish culture by neighbors: Yes for consumption and selling by all pond owners



Preliminary Survey on Freshwater Fish Farming Improvement and Extension Project (Phase2)
Field Visit and Interview Record

F-9 Dy Channa (Seed Producer)

31/05/2010 14:40 ~ 15:50 by Siv Cheang

Age: 53, Male, Lower Secondary Boeng Ampil Village, Sdau Commune, Ratonak Mondol District, BB

Natural Condition: Valley bottom Soil water retention: Middle (Sand/Rocky)

Drinking water: Rain, Pond (wet season) Rain, Pond (dry season) Cooking fuel: Charcoal Toilet: Yes

Land holding:	Total land area (ha)	Area of paddy	Area of homestead	Area of vegetable
	11 ha	7 ha	0.15 ha	4 ha (sesame, duck+fish)

House owned: Yes Roof: Iron sheet Wall: Wood Money savings in bank: No Debt: No

Rice cropping: Single Annual production: 7 tons/year by family Irrigation: Available insufficient

Crop cycle	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 st Crop							P			H		

Rice farming: Rain-fed Rice variety: Improved Herbicide: Regularly Pesticide: Never

Animal/fish consumption by family:	Wet season	Dry season
Meat:Fish	20:80	20:80
Fish consumption	1 kg/day	1 kg/day

Fish purchase: Occasionally Fish availability: Year round Household pond: Possessed (Not popular in village)

Wealth: Well to do Income sources: Public servant, Livestock (duck), Sesame, Fish, Rice

Interest in fish farming: High because of consumption and selling

Fish farmers in the village total households: <1 % Fish seed: Not available

----- Fish Farming Activity -----

Experience in fish farming: since 2007 (3 years) Fishpond: 5 ponds, 6,400 m² Duration: Seasonal (Jun ~ March)

Reason: Mainly for selling Training: Yes (FIAC) Material support: Yes (fingerlings and brood stock fish)

Extension service: Yes (FIAC) Rice field: No

Record book: No Labor: Family Plan: Increase Fill: Irrigation channel Drain: Pump

Species: Silver barb Polyculture: No Production: 352 kg/year Sale: 60,000 Riel/year

Seeds: FIAC Prices: 100 Riel/head Feed: Commercial Feed, Rice bran, Vegetable waste (Paid)

Fertilizing: Never (No pay)

Technical constraints: Non

Financial constraints: For feeds, nursery ponds

Interest in fish culture by neighbors: Yes for selling

----- Seed Production Activity -----

Experience: 2007 (3 year) Reason: Income generation Customers: - persons

Species produced:	Silver barb	Com. Carp	Tilapia	Mrigal	Silver carp	Clarias	Pangasius	Others
Numbers	?	0	0	0	0	0	0	0

Facilities and equipment of fish seed production:	Material	Size	Quantity	Cost
Spawning tank	Cement	2 dia. x 1 m	1	Free by FIAC
Hatching tank	Cement	2 dia.x0.5m	1	Free by FIAC
Nursery tank			0	
Nursery pond			0	
Brood stock pond	Earthen	1x30 m ²	1	Own labor
Water storage tank (overhead)		1 dia.x3 m		Free by FIAC
Water reservoir	Earthen	30 x 10 m ²	1	Own labor
Water pump			1	150,000 riel
Hapa net			0	
Seine net			0	
Generator set			0	
Well			0	

Total investment for facilities and equipment: ? Riel (=US\$?)

Brood stock in possession:	Female + Male	
	Number	Average weight
Silver barb	50~60	0.4 kg

Water source: Stream Larvae feed: Not used Brood stock feed: Not used Hormone: Not used
Farmer's Association: No Plan: Increase
Technical problems: Not yet started Financial problem: For machines, hormone for breeding, nursery ponds



**Preliminary Survey on Freshwater Fish Farming Improvement and Extension Project (Phase2)
Field Visit and Interview Record**

F-10 Ronk Saroeun (Fish Farmer)

01/06/2010 11:10 ~ 12:00 by Siv Cheang

Age: 41, Female, Primary School Thma Sa Village, Khnar Chhmar Commune, Sameakki Meanchey District, BB

Natural Condition: Plain, Paddy field Soil water retention: Good (Clayey)

Drinking water: Rain (wet season) Rain, Pond (dry season) Cooking fuel: Firewood Toilet: Yes

Land holding:	Total land area (ha)	Area of paddy	Area of homestead	Area of vegetable
	3 ha	2.5 ha	0.24 ha	0.64 ha

House owned: Yes Roof: Iron sheet Wall: Wood Money savings in bank: No Debt: No

Rice cropping: Single Annual production: 7 tons/year by family Irrigation: Not available

Crop cycle	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 st Crop					P						H	H

Rice farming: Rain-fed Rice variety: Improved Herbicide: Never Pesticide: Never

Animal/fish consumption by family:	Wet season	Dry season
	Meat:Fish 30:70	70:30
	Fish consumption 2 kg/day	1 kg/day

Fish purchase: Occasionally Fish availability: Scarce seasonally Household pond: Possessed (Popular in village)

Wealth: Well to do Income sources: Rice, Livestock, Vegetable (Mung bean, sesame)

Interest in fish farming: High because of consumption and selling

Fish farmers in the village total households: <1 % Fish seed: Not available

----- **Fish Farming Activity** -----

Experience in fish farming: since 2000 (10 years) Fishpond: 1 pond, - m² Duration: Year round

Reason: Consumption Training: Yes (FIAC) Material support: Yes Extension service: No

Rice field connection: Yes

Record book: No Labor: No Plan: Increase Fill: Rain, Pump (Stream) Drain: Never

Species: Silver barb, Snake head, Clarias, Pangasius Polyculture: Yes Production: 300 kg/year Sale: 0 Riel/year

Seeds: FIACV Prices: ? Riel/head Feed: Rice bran, Vegetable waste (Not paid) Fertilizing: Never (No pay)

Technical constraints: Slow growth Financial constraints: For expanding ponds

Interest in fish culture by neighbors: Yes for consumption and selling



