

フィリピン共和国  
ワニ養殖研究所プロジェクト  
終了時評価報告書

平成6年7月  
(1994年7月)

国際協力事業団  
鉱工業開発協力部

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フィリピン共和国  
ワニ養殖研究所プロジェクト  
終了時評価報告書

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鉱工業開発協力部

国際協力事業団

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## 序 文

本プロジェクトは、国際的な野生生物の保護に関する機運が高まるなか、絶滅に瀕した野生ワニの保護とその利用による地域社会・経済への寄与を目的として、昭和62年8月20日から開始され、2年間の延長期間を含め計7年間にわたり実施されています。

協力期間終了までほぼ3カ月を残した現時点で、当事業団は協力期間延長後のプロジェクトの進捗状況を確認し、当初計画に対する協力と技術移転の達成度についてフィリピン側関係者と合同で評価を行い、必要があればフォローアップなどの継続的な協力計画を策定することを主な目的として、平成6年5月16日から6月3日まで終了時評価調査団を派遣しました。

本報告書は同調査団の調査結果を取りまとめたものです。

ここに本調査の実施に関し、ご協力いただいた日・比両国の関係各位に対し深甚の謝意を表するとともに、今後とも本プロジェクトの発展のために一層のご支援をお願いする次第です。

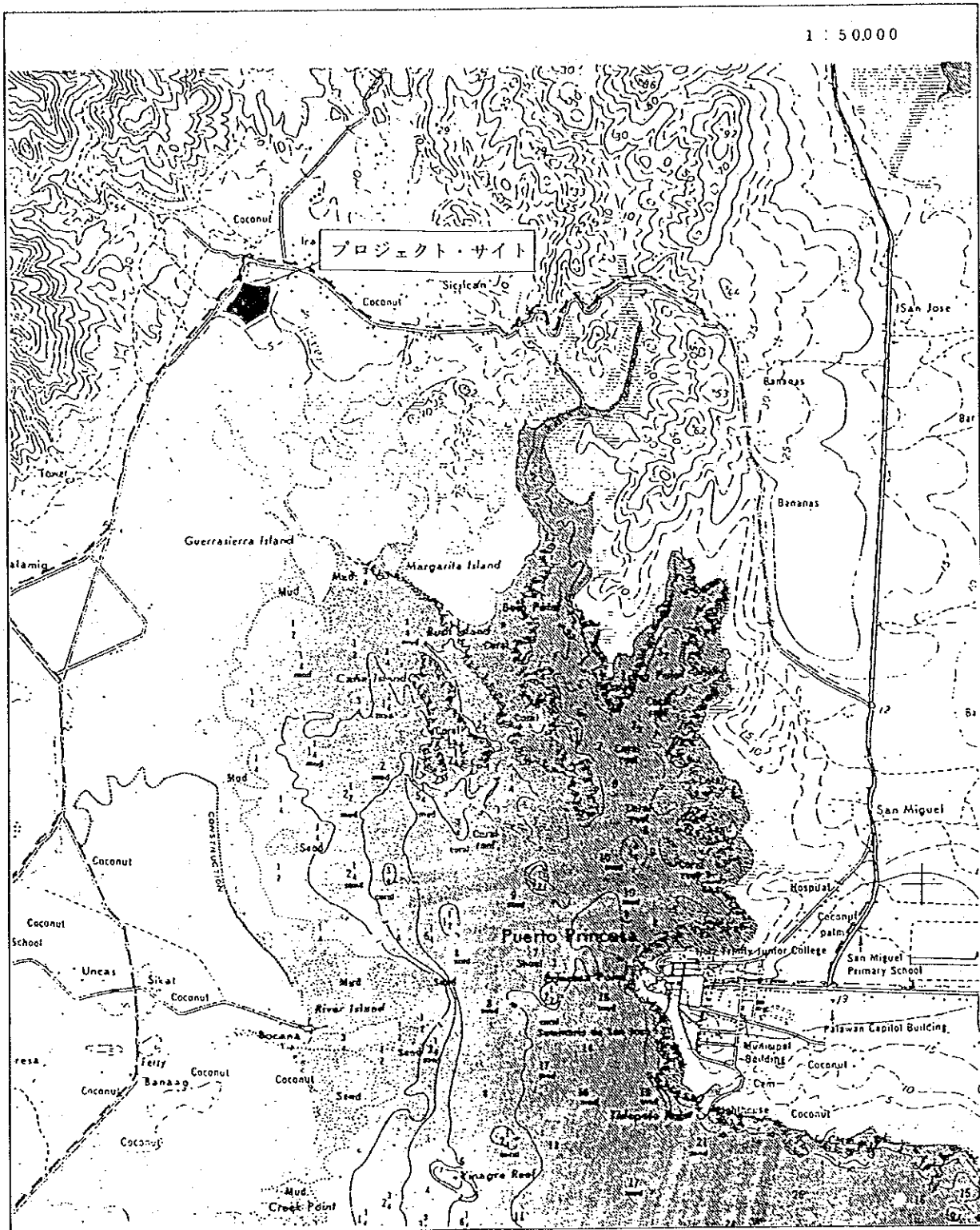
平成6年7月

国際協力事業団

理事 田守栄一

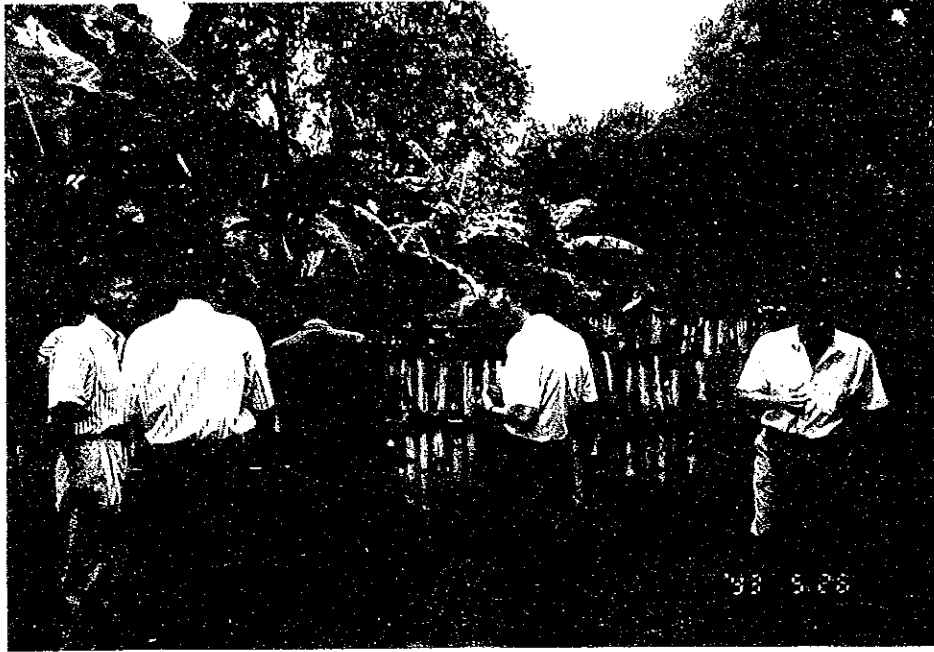


# プロジェクト位置図









▲ ワニ養殖研究所デモンストレーション・ファーム見学（94年5月26日）



▲ 合同委員会終了後の記念撮影（94年6月3日）



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## 第1章 終了時評価調査団の派遣

### 1-1 調査団派遣の経緯と目的

「ワニ養殖研究所プロジェクト」に対するプロジェクト方式技術協力要請は、1982年にフィリピン国政府から日本国政府に対して正式要請された。その要請を受けてわが国政府は、国際協力事業団（JICA）を通じて83年11月に事前調査団を派遣し、要請の背景、計画の妥当性、協力の規模等を調査し、87年8月に実施協議調査団を派遣して討議議事録（Record of Discussions）の署名を行った。本件プロジェクトは、同討議議事録に基づき、87年8月20日から5年間にわたる技術協力が開始され、その後92年8月20日から協力は2年間延長された。

協力終了後の自立発展性を確実なものとするため、93年11月の計画打合せ調査団派遣時にフィリピン側に対し、以下の3条件について今回の終了時評価調査団派遣時までに達成することを求め、比側はこれを約束した。

- (1) 保護区宣言もしくは保護区の設定に関する手続きの実質的な進捗の確認
- (2) CFIで飼育されているワニの利用計画の策定
- (3) パイロットファーム候補地の正式内部手続きを踏んでの特定  
(詳細は、計画打合せ調査団報告書<93年11月>参照)

プロジェクト終了の94年8月19日まで約3カ月を残した現時点で、JICAは比側関係者と協力期間延長後のプロジェクトの投入実績の確認と協力目標の達成度の評価を行うとともに、今後のプロジェクトの自立発展性について協議を行い、前述した前提3条件の達成状況を判断し、必要があればフォローアップ計画を策定することを主な目的として、94年5月16日から6月3日まで終了時評価調査団を派遣した。

1-2 調査団の構成

	担 当	氏 名	所 属
団長	総 括	湊 芳郎	国際協力事業団鉾工業開発協力部 鉾工業開発協力課長
団員	技術協力政策	常盤 剛史	外務省経済協力局技術協力課 事務官
団員	技術協力政策	河本 光明	通商産業省通商政策局技術協力課 課長補佐
団員	技術協力計画	穴倉 邦茂	通商産業省生活産業局文化用品課 課長補佐
団員	野生生物保護	市原 信男	環境庁自然保護局鳥獣保護業務室 室長補佐
団員	ワニ皮利用	斉京 昭	国内支援委員
団員	評価調査データ 整理	坪内 俊憲	財団法人自然環境研究センター 研究員
団員	プロジェクト 評価管理	堀本 隆保	国際協力事業団鉾工業開発協力部 鉾工業開発協力課

## 1-3 調査日程

派遣期間1994年5月16日～6月3日(19日間)

日 程	調 査 内 容
5月16日(月)	移動 成田→マニラ(コンサルタント団員のみ)
5月17日(火)	JICA事務所打合せ・環境天然資源省表敬
5月18日(水)	比側調査団と調査
5月19日(木)	移動 マニラ→プエルト・プリンセサ 比側調査団と調査
5月20日(金)	比側調査団と調査
5月21日(土)	資料整理
5月22日(日)	移動 プエルト・プリンセサ→マニラ
5月23日(月)	移動 成田→マニラ/JICA事務所打合せ・大使館表敬
5月24日(火)	環境天然資源省表敬/移動 マニラ→プエルト・プリンセサ
5月25日(水)	サイト見学
5月26日(木)	移動 プエルト・プリンセサ→マニラ/調査団打合せ
5月27日(金)	合同評価委員会
5月28日(土)	資料整理
5月29日(日)	休日
5月30日(月)	合同評価委員会
5月31日(火)	比側との協議、合同評価報告書(案)・M/D(案)作成
6月1日(水)	比側との協議、合同評価報告書(案)・M/D(案)作成
6月2日(木)	合同委員会開催 合同評価報告書・M/D調印/JICA事務所・大使館報告
6月3日(金)	移動 マニラ→成田 帰国

1-4 主要面談者

(フィリピン側)

(1) 環境天然資源省 (DENR)

Usec. Ben Malayang III	Acting Secretary, DENR.
Usec. Ricardo Umali	Undersecretary, DENR.
Dr. Carlos Tomboc	Regional Executive Director, National Capital Region, DENR, Chairman, CFI-Technical Review Community.
Mr. Rafael Camat, Jr.	Director, Foreign Assisted and Special Project Office, DENR.
Atty. Marlon M. Cardinoza	Officer-in-Charge, PAMD, Foreign Assisted and Special Project Office, DENR.
Mr. Celestino B. Ulep	Asst. Director, Protected Areas and Wildlife Bureau, DENR.
Dr. Manuel Bravo	Chief, Lentic Section, Ecosystem Research and Development Bureau, DENR.
Dr. Segundino Foronda	Director, Forest Research Division, PCARRD
Ms. Mary Jean A. Caleda	Chief, Wildlife Division, Protected Areas and Wildlife Bureau, DENR.

(2) 国家経済開発庁 (NEDA)

Mr. Rolando Tungpalan	Director, Project Monitoring Staff, National Economics and Development Authority.
Ms. Edna B. Capacillo	Chief, Project Monitoring Staff, NEDA.

(3) ワニ養殖研究所 (CFI)

Dr. Gerardo Ortega	Director, Crocodile Farming Institute, DENR.
Dr. Mona Lisa Jamerlan	OIC Research Section, Crocodile Farming Institute, DENR.
Mr. Patrick Regoniel	Senior Researcher, Resource Management and Ecology Unit, Crocodile Farming Institute, DENR.



(日本側)

中沢 則夫 在フィリピン国日本大使館 一等書記官

橋本 明彦 JICAフィリピン事務所所長

町田 哲 " 次長

吉田 勝美 " 所員

森 孝順 JICA個別専門家 (PAWBアドバイザー)

橋本 東一 ワニ養殖研究所チーフアドバイザー

幸 伊作 " 業務調整員

佐竹 靖 " 専門家

木村 新 " "

佐方 啓介 " "

#### 1-5 終了時評価の方法

##### (1) 評価実施者

フィリピン側

フィリピン側評価調査団 (メンバーは巻末資料2「評価報告書」参照)

日本側

日本側終了時評価調査団 (メンバーは巻末資料2「評価報告書」参照)

##### (2) 参考資料

定量定性的に、延長後2年間の実績を評価するために次の事項を参照した。

① 当初および延長時討議議事録 (R/D)

② 討議の覚え書 (M/D) と年次協力計画および本プロジェクト実施過程で合意または容認されたその他文書

③ プロジェクトからの定期報告書

④ 延長時のプロポーザル「評価報告書」ANNEX 1

⑤ ロジカル・フレームワーク「評価報告書」ANNEX 2

## 第2章 調査結果の要約

本プロジェクトは1987年8月20日にR/Dに署名して、5年間の技術協力を開始し、その後協力を2年間延長した。プロジェクトの終了を94年8月19日に控え、延長後2年間についての両国の投入実績および協力目標の達成度を評価し、今後の対応について協議した結果はおおむね以下のとおりである。

- (1) 上位目標との整合性については、野生ワニの保護と持続的利用による地域社会への裨益の具体化には至らなかったものの、そのベースとなる養殖技術はほぼ確立された。
- (2) プロジェクトの目的の達成状況については、
  - ① ワニ養殖分野の研究・開発活動は、一部の研究活動を除いてほぼ達成
  - ② ワニ養殖技術のカウンターパートへの技術移転もほぼ達成
  - ③ ワニ養殖とワニの保護についての技術普及の基本計画の策定については、具体的な計画の策定には至っていないが、CITES（ワシントン条約）登録など一定の進捗は認められる。
- (3) インプット項目は両者ともほぼ順調に達成されている。また、アウトプット項目のうち一部の項目（野生ワニの保護・養殖技術の普及）は比側の事情により未達成であるが、それ以外はすべて達成済み。案件の効果と将来の自立発展性についてもおおむね肯定的な評価が下された。
- (4) 以上を踏まえ、合同評価の提言として、将来の自立発展性をより確固たるものにするため、野生ワニの保護と養殖技術の普及（養殖事業の推進）に関し、フォローアップ協力の必要性が指摘された。

ただし、このフォローアップ協力を有効に実施するためには、93年11月計画打合せ調査団のミニッツに記されているとおり、比側が3項目の措置（保護区の宣言、有効利用計画の策定、パイロット・ファームのサイトの決定）をとることが前提条件となる。

現時点では比側の努力は認められるものの、これら3条件はいずれも未達成であり、双方協議の結果、追って3条件をクリアのうえ、その証拠書類とともに比側がフォローアップの要請書を提出し、日本側がこれを検討するという合意し、その旨ミニッツで確認した。

## 第3章 協力実施の経緯

### 3-1 協力の背景と経緯

フィリピン国には2種類のワニが生息している。イリエワニ(学名Crocodylus porosus)、ミンドロワニ(学名Crocodylus mindorensis)の2種類であるが、両種とも絶滅に瀕している。ミンドロワニはフィリピン固有のワニであり、フィリピンでの絶滅は地上よりの絶滅を意味する。

フィリピン政府は、野生生物の持続的利用が野生生物の保護のために役に立つということや、ワニ養殖の地域社会への導入が関連産業への活性化や雇用機会の提供になるということについて強い関心を持ち、ワニ養殖研究所(CFI)を設立して国内にワニの人工養殖の技術を普及することを計画した。フィリピン政府は、日本国政府に対してワニ養殖研究所のための無償資金協力と技術協力を要請し、1987年3月パラワン島プエルト・プリンセサ市に無償資金協力によりワニ養殖研究所が設立された。

引き続き、同年8月20日から同研究所に対するプロジェクト方式技術協力が開始されたが、当初の協力期間である5年間で終了する時点で日・比双方によるプロジェクトの合同評価を実施し、両者は2年間の協力期間の延長に合意した。そして現在のところプロジェクトは1994年8月19日で終わる予定となっている。

### 3-2 暫定実施計画(TSI)と技術協力計画(TCP)

R/Dに基づく暫定実施計画(TSI)および技術協力計画(TCP)の実施状況は、それぞれ巻末資料2「評価報告書」のANNEX 4と9のとおりである。

## 第4章 目標達成度

### 4-1 上位計画との整合性

本プロジェクトは、ワニの養殖技術の開発と促進のためCFIを設立し、もって、野生ワニの保護と地域社会の社会・経済的利益に寄与することを上位目標としている。究極の目標である野生ワニの保護と地域社会への貢献の前提として、ワニの養殖技術はCFIでほぼ確立されたと認められる。

しかし、野生ワニの保護にとってきわめて重要な保護区の設置については、ミンダナオ島アグサン湿原を保護区とする方向で94年内に予定されているものの、今のところ明確な動きに至っていない。また、地域社会への裨益については、具体的に経済的効果を生み出すには至っていないが、少なくとも近い将来それが見込まれる状況になった、ということではできよう。

### 4-2 協力目的の達成状況

日本側の技術協力の目的はマスタープランに記載されているとおり以下の内容である。

- (1) ワニ養殖の分野における研究および開発活動の実施
- (2) ワニ養殖技術のカウンターパートへの技術移転
- (3) ワニ養殖とワニの保護についての技術普及の基本計画の策定

それらの達成状況は以下のとおりである。

- (1) 研究・開発活動はおおむね予定どおり実施されている。
- (2) カウンターパートへの技術移転はほぼ達成された。
- (3) ワニ養殖の普及に関しては、93年3月CITES登録がなされて国外輸出が許可されたことや、パイロット・ファーム事業のための関係者のワークショップが94年4月に実施され、アクションプランの原稿の第1回読み合わせが行われたことなどいくつかの進捗がみられるものの、基本計画の策定には至っていない。

### 4-3 アウトプット目標の達成状況

- (1) 野生ワニの生息数動態および生態研究

生息数動態および生態研究の分野での基本的技術はすでにカウンターパートに技術移転済みである。

生息数および分布調査は同様に達成し得たし、それについての論文として“*IUCN Crocodile Specialist Group Asia Oceania Regional Conference*”と“*Philippine Vertebrate: Symposium on their Preservation and Conservation*” (1993)が出された。

ミンドロワニの必要時再導入（自然界への再放流）についての生態的行動については継続的な繁殖期の調査が実施され、環境天然資源省に報告書が提出された。

## (2) 野生ワニの保護

生息地域の生態環境を評価するための基本的な生態行動調査の技術はすでにカウンターパートに技術移転済みである。保護区設置・管理プロポーザルは提出されているが、保護区のモニタリング調査の技術はまだ移転されていない。

保護区管理プロポーザルはすでに環境天然資源省に保護区設置の準備のために提出されている。I P A S 計画のために保護区候補として特定されているミンダナオ島アグサン湿原がワニの保護区としての可能性があることは調査済みである。そして、アグサン湿原保護区の生態系の一部をワニについても保護する地域とすることをI P A S (Integrated Protected Areas System: 集中保護地区システム) 計画に含めることを要請している。しかし、ワニの保護計画を確立するためには、アグサン湿原の生態学的追加調査が必要である。

## (3) ワニ飼育・繁殖技術

基本的ワニの人工養殖技術はすでにカウンターパートに移転済みである。

ロジカル・フレームワークの評価結果をみてもわかるように、ワニ養殖技術は確立されている。しかし、養殖技術の効率化のための不断努力や同系交配を避けるための方法の確立がさらに必要とされる。

## (4) ワニ養殖事業の推進（養殖場管理）

フィリピン社会のワニ養殖事業の紹介および推進のための技術・ノウハウはまだ十分に移転されていない。

1993年3月には、C F I の活動が成果をあげた結果、C F I で人工養殖されたイリエワニについてC I T E S 登録がなされ、国外輸出が許可されることとなった。また、C F I のデモンストレーション・ファームがワニ養殖事業推進に向けての訓練と基礎データ獲得のために設立された。さらにパイロット・ファームのプロポーザルや民間養殖場の管理計画について、2回目の読み合わせが行われている。

C F I の将来的役割や機能はワニ養殖産業の推進と関連して検討されるべきである。

## (5) 広報および訓練

カウンターパートは、移転された技術をもとに広報活動や啓蒙活動（ワニの保護の重要性・持続的利用のための養殖事業の重要性）を十分行っており、今後もより一層の活動が期待される。

#### 4-4 インプット目標の達成状況

##### (1) プロジェクトの実施計画と実績

延長期間の暫定実施計画（T S I）と実績は巻末資料2「評価報告書」ANNEX 4 のとおり。

##### (2) 日本側のインプット

###### ① 専門家と調査団の派遣

延長期間の専門家と調査団の派遣実績は「評価報告書」ANNEX 5 のとおり。

###### ② 研修員受入

延長期間の研修員受入実績は「評価報告書」ANNEX 5 のとおり。

###### ③ 機材供与

延長期間の供与機材は「評価報告書」ANNEX 6 のとおり。

##### (3) フィリピン側のインプット

###### ① 要員配置

カウンターパート配置状況は「評価報告書」ANNEX 7 のとおり。

###### ② プロジェクトの経費実績

フィリピン側の経費実績内訳は「評価報告書」ANNEX 8 のとおり。

## 第5章 案件の効果

### 5-1 効果の内容

本プロジェクトは、一部の項目が先方の事情により未了であるが、全体としてさまざまな面で重要な効果をあげている。

- (1) プロジェクトの実施のために必要な技術はほとんどカウンターパートに移転を完了した。
- (2) フィリピン国で2種類のワニの必要時再導入（自然界への再放流）による保護は確立されつつある。
- (3) ワニ養殖のための技術はかなりの部分確立された。
- (4) ワニ養殖事業の推進はかなり準備されてきたし、イリエワニについてCITES登録がなされて国外輸出が許可された。
- (5) パラワン島を中心にフィリピン国内で、ワニの保護に関するさまざまな啓蒙活動が行われた。
- (6) “Workshop on the Biological Characteristics and the Conservation Sustainability of *C. mindorensis* in the Philippines” がCFIで開催された。  
CFIプロジェクトの成功はCSG (Crocodile Specialist Group) から高く評価されている。

### 5-2 効果の広がりや受益者の範囲

- (1) CFIは、持続的利用による野生ワニの保護について人々に啓発を与えた。
- (2) イリエワニについてCITES登録がなされて国外輸出が許可されたことにより、フィリピンの人々がイリエワニの持続的利用による利益を得ることが可能となった。
- (3) このプロジェクトによりフィリピン側は、生物資源の利用を通じた野生生物保護の重要性とその方法を認識した。
- (4) フィリピン国は、特にミンドロワニの保護の成功がCSG (Crocodile Specialist Group) から評価されるなど野生ワニの保護に関し、国際的注目や評価を得ている。

## 第6章 自立発展の見通し

### 6-1 組織的自立発展の見通し

- (1) CFIは、ワニの保護のための専門技術を有する研究所として環境天然資源省のなかで確固たる位置づけを与えられている。
- (2) CFIは活動計画の実施に必要なスタッフを擁していると考えられる。しかし、カウンターパートの定着率については改善の必要がある。
- (3) 民間のワニ養殖への参加を促進するためには、将来的役割・機能をも念頭に置いたCFIの再構築が必要であると考えられる。

### 6-2 財務的自立発展の見通し

- (1) CFIは、ワニの保護の研究所として環境天然資源省のなかで確固たる位置づけを与えられているので、協力終了後もCFIは継続的に財政的な支持・支援を得られる見通しである。
- (2) イリエワニについてCITES登録がなされて国外輸出が許可されたために、養殖事業推進による収入を期待できる。その収入はCFIの運営を支えることができる。

### 6-3 技術的自立発展の見通し

- (1) 日本人専門家は、研究・開発活動についてカウンターパートに助言、指導を行い、CFIの技術的自立発展に寄与した。
- (2) 十分な技術スタッフが研究・開発の両部門に割り当てられている。しかし、カウンターパートの定着率を上げる必要がある。
- (3) ワニ養殖の技術がきわめて珍しく目新しいフィリピン国では、技術的な知識・経験を継続的に保持することが重要である。
- (4) 保護区でのモニタリング調査技術のより一層の確立と、ワニ資源の有効利用の視点からの養殖事業の推進が、このプロジェクトの技術的自立発展を十分なものとするために必要である。

### 6-4 その他

- (1) プロジェクトにおけるカウンターパートの雇用形態は、年度ごとの契約となっている。しかし、ワニ養殖技術を身につけた技術スタッフはCFIで継続して雇用されることが強く望まれる。
- (2) 持続的利用による野生生物保護を実施するうえで、CFIは関連省庁、地方政府そしてNGOや地域社会との協力・連携をとることが重要である。



## 第7章 評価結果総括

### 7-1 評価の総括

- (1) 日本側・フィリピン側双方ともインプットについてはおおむね適切であったと認められる。機材の保守・使用も適切に行われている。
- (2) アウトプットについては、一部を除いて技術移転はほぼ達成済みであり、活動計画もおおむね予定どおり実施された。フィリピンでの2種類のワニの保護は担保されたと認められ、民間へのワニ養殖事業にもめどが立ちつつある。
- (3) 案件の効果については、野生ワニの保護とワニ養殖事業の潜在的可能性についての関心・理解が環境天然資源省のみならず、地域社会にも広がりつつある。
- (4) 自立発展性の見通しについては、フィリピン政府はワニ養殖研究所の潜在力の重要性について認識しており、94年度にも1400万ペソの予算が割り当てられている。しかし、カウンターパートの定着率を向上させることが自立発展性を確実なものとするために必要である。

### 7-2 結論

評価の総括として、合同評価チームは、本プロジェクトが、絶滅の危機に瀕した2種類のワニの種の保護のみならず、地域社会の社会経済的福利の向上に資する潜在的な可能性を開いたという意味においても、大きな貢献をなしたことを再確認した。

合同評価チームは次の結論に達した。

- (1) 全般的にR/D上必要とされるカウンターパートへの技術の移転はおおむね完了した。
- (2) カウンターパートは生息数動態および生態研究、ワニ飼育・繁殖技術、ワニ養殖事業の推進（養殖場管理）、広報および訓練のいずれについても、おおむね独力で実施し得るようになった。
- (3) 以上を踏まえつつ最終的な結論として合同評価チームは、野生ワニの保護とワニ養殖事業推進（養殖場管理）に関する一部の技術が、プロジェクトの目的を十分に達成するためには未だ必要であるとの認識で一致した。

### 7-3 提言

日本側・フィリピン側双方は、最終目標に向けた長期プログラムとして、持続的利用を通じたワニの保護のための継続的努力が必要であるとの認識に基づき、次の事項を提言する。

- (1) 合同評価チームは、持続的利用を通してのワニの保護についての責任を十分認識する。また、フィリピン側は、このプロジェクトによって技術移転されたカウンターパートを使ってプロジェクトの最終目標を実現するために継続して努力することを確約する。
- (2) 合同評価チームは、フィリピン国における持続可能な利用を通じたワニの保護の必要性を理解するとともに、野生ワニの保護とワニ養殖事業推進（養殖場管理）に関する若干の技術がまだカウンターパートには必要だと認識している。
- (3) 合同評価チームは、野生ワニの保護とワニ養殖事業推進（養殖場管理）についてフォローアップ協力が必要であることを提言する。フォローアップ協力の具体的な要望の内容は、比側が詳細検討のうえ、追って日本側に要請書として提出される。
- (4) 持続的利用を通じたワニ保護のためのCFIの役割と機能が、環境天然資源省の管理方針に基づき確立されるべきである。そして、ワニ養殖事業への民間部門の参加を促進するために、CFIの機能と役割を十分果たし得るようプロジェクトの再構築を図る必要がある。

## 第8章 フォローアップの必要性

本プロジェクトは、当初の計画どおり技術移転が行われたが、一部技術移転のなかで未達成な部分（野生ワニの保護と養殖事業の推進（養殖場管理））があり、その分野についてのフォローアップの必要性が指摘された。

しかし、評価調査団派遣時点では、93年11月に計画打合せ調査団と比側とで交わされたミニッツのなかに記されているフォローアップの前提となる3条件については十分に履行されていない。

- すなわち、① 保護区の宣言もしくは内部手続きの実質的な進捗の確認
- ② CFIで飼育されているワニの利用計画の策定
- ③ パイロット・ファーム候補地の正式手続きを踏んでの決定

の3条件についての調査団派遣時の履行状況は以下のとおりである。

①については、アグサン湿原の保護区設定について、すでに保護管理活動についての世銀の融資が決定されており、6月から地域住民の公聴会が開かれる予定で、8月には大統領による保護区宣言の原稿が環境天然資源省より提出されることになっている（巻末資料6）。

②と③については、パイロット・ファームについてのプロポーザルを作成し、それをもとに第1回のワークショップが4月に開催された。6月にはパイロット・ファームの2度目のワークショップが開かれる予定であり、サイトの決定はその後になる。また、8月にアクションプラン（利用計画）が決定される予定である。

要すれば、比側の努力は認められるものの、いずれの項目についても未達成であることは明白で、このままフォローアップ協力を継続して実施することは困難と判断せざるを得ない。

そこで、日本側は、追って3条件の履行について十分確認されたあと、比側に正式プロポーザルを提出してもらい、それを日本側が検討してフォローアップ実施の可否を決めることとし、比側もこれに同意した。結果として、協力期間終了後、ある程度の間を置いたうえで、フォローアップの検討を行うこととなるが、より実りある協力を行ううえでやむを得ざる措置ということで双方とも了解した。以上の点を踏まえて、日・比双方は次のとおりミニッツを取りまとめた。

### (1) 合同評価報告書の承認

日・比合同委員会は、合同評価チームの提出した合同評価報告書を承認する。

### (2) ワニ養殖研究所プロジェクトに対する将来的な協力計画

日・比双方は、1993年11月15日に署名したミニッツに記されているフォローアップ協

力の前提3条件の現況につき協議した結果、3条件はまだ達成されていないとの認識で一致した。そして、日・比双方は、比側が追ってフォローアップに必要とされる3条件の履行を証する次の書類を提出することで合意した。

- ① 環境天然資源省から大統領府へ提出するアグサン湿原の保護区宣言の草稿
- ② CFIで養殖されたワニの利用についてのアクションプラン
- ③ パイロット・ファーム事業の実施サイトと養殖業者のリストおよびそれぞれの契約書

比側は、関係諸機関の合意のうえで、必要とされる分野、活動内容、技術移転内容などを具体的に記したフォローアップの要請書を正規のルートを通じ提出する。

日本側は、比側の3条件関連書類と要請書を受け取ったあと、その内容を吟味し、当初R/Dの範囲内で、フォローアップ協力が本プロジェクトの目的達成のために必要か否かを判断する。日本側がフォローアップ協りに合意したら、日・比双方がフォローアップのためのR/Dに署名し、協力を開始する。

### (3) その他

日本側は、現場での協調的な業務環境と、このプロジェクトにかかわるすべての関係機関と関係者の共通認識の重要性を提言し、比側の同意を得られた。

日・比双方とも、現在の日本人専門家は予定どおり1994年8月19日に全員帰国することを確認した。

# 資料



1 ミニッツ (MINUTES OF DISCUSSIONS)

MINUTES OF DISCUSSIONS  
BETWEEN THE JAPANESE EVALUATION TEAM  
AND THE AUTHORITIES CONCERNED OF  
THE GOVERNMENT OF THE REPUBLIC OF  
THE PHILIPPINES  
ON THE JAPANESE PROJECT-TYPE TECHNICAL COOPERATION  
FOR CROCODILE FARMING INSTITUTE PROJECT  
IN THE REPUBLIC OF THE PHILIPPINES

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (DENR),  
THE REPUBLIC OF THE PHILIPPINES

2, JUNE 1994  
DENR, MANILA  
THE PHILIPPINES

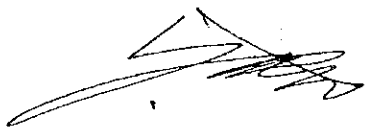
MINUTES OF DISCUSSIONS  
BETWEEN THE JAPANESE EVALUATION TEAM  
AND THE AUTHORITIES CONCERNED OF  
THE GOVERNMENT OF THE REPUBLIC OF THE PHILIPPINES  
ON THE JAPANESE PROJECT-TYPE TECHNICAL COOPERATION  
FOR CROCODILE FARMING INSTITUTE PROJECT  
IN THE REPUBLIC OF THE PHILIPPINES

The Japanese Evaluation Team (hereinafter referred to as "The Japanese Team") organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Yoshiro Minato, Director, Technical Cooperation Division, Mining and Industrial Development Cooperation Department, JICA, visited the Philippines from 23 May to 2 June 1994, for the purpose of evaluating jointly with the Philippine Evaluation Team (hereinafter referred to as "The Philippine Team") the achievements of the Project Type Technical Cooperation on Crocodile Farming Institute Project (hereinafter referred to as "The Project") on the basis of the Record of Discussions signed on 20 August 1987 and extended for 2 years from 20 August 1992 (hereinafter referred to as "The R/D").

After the Joint Evaluation of The Project, The Japanese Team discussed with the authorities concerned of the Government of the Republic of the Philippines the findings and recommendations for the successful implementation of The Project.

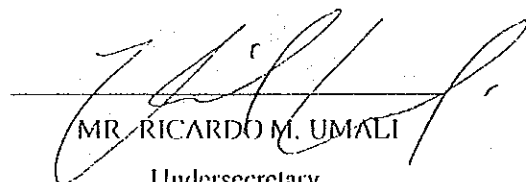
As a result of the discussions, both sides mutually agreed upon the matters referred to in the document attached hereto.

Manila, 2 June 1994



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MR. YOSHIRO MINATO  
Leader,  
Japanese Evaluation Team,  
Japan International Cooperation Agency,  
Japan.



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MR. RICARDO M. UMALI  
Undersecretary,  
Department of Environment  
and Natural Resources,  
The Republic of the Philippines.



ATTACHED DOCUMENT

1. Recognition of the Joint Evaluation Report

The Joint Committee recognizes the Evaluation Report submitted by the Joint Evaluation Team.

2. Future Assistance Plan to Crocodile Farming Institute Project

Both sides discussed the status of the three pre-conditions for the proposed Follow-Up Program indicated in the Minutes of Discussion signed on Nov. 15, 1993, and noted that compliance with this is still in progress.

Both sides agreed that the Philippine Side will submit the following documents as proof of substantial compliance with the three pre-conditions needed for the proposed Follow-Up Program.

- 1) Draft proclamation for Agusan Marsh endorsed to the office of President by the DENR.
- 2) Action plan to utilize crocodiles farmed at the CFI.
- 3) List of selected site(s) and farmer(s) and the associated contract(s).

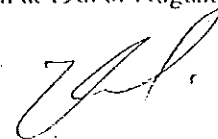
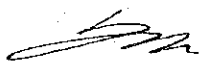
After approval and consensus by proper authorities the Philippine Side shall submit the request for the Follow-Up Program including the required fields of expertise, the terms of references, and technology from Japanese Experts through normal channels.

Upon receipt of the request, the Japanese Side sincerely examine these documents to determine whether Follow-Up Program is needed for the purpose of the project within the scope of The R/D. Upon approval by the Japanese Side of the Follow-Up Program, the Record of Discussion on this will be signed by both sides..

3. Others

(1) The Japanese Side expressed the importance of harmonious working relationship and unified consensus in The Project among the authorities and persons concerned. This concern is mutual shared by the Philippine Side.

(2) Both sides confirmed that the present Japanese Experts will return to Japan at 19th of August, 1994, as scheduled.



<List of Attendance>

JAPANESE SIDE

1) The Japanese Evaluation Team

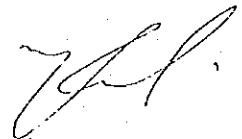
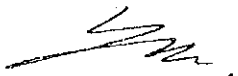
- Mr. Yoshiro MINATO - Leader
- Mr. Takeshi TOKIWA - Technical Cooperation Policy
- Mr. Mituaki KOMOTO - Technical Cooperation Policy
- Mr. Kunishige SHISHIKURA - Technical Cooperation Planning
- Mr. Nobuo ICHIHARA - Wildlife Conservation
- Mr. Akira SAIKYO - Crocodile Skin Utilization
- Mr. Toshinori TSUBOUCHI - Technical Advisor
- Mr. Takayasu HORIMOTO - Coordinator

2) Japanese Experts

- Mr. Toichi HASHIMOTO - Chief Advisor, Crocodile Farming Institute
- Mr. Isaku YUKI - Coordinator, Crocodile Farming Institute
- Mr. Yasushi SATAKE - Breeding, Crocodile Farming Institute
- Mr. Arata KIMURA - Biochemistry, Crocodile Farming Institute
- Mr. Keisuke SAKATA - Wildlife Management, Crocodile Farming Institute
  
- Mr. Takayori MORI - Conservation Policy, PAWB, DENR

3) JICA Philippine Office

- Mr. Akihiko HASHIMOTO - Resident Representative
- Mr. Katumi YOSHIDA - Assistant Resident Representative



4) Embassy of Japan

Mr. Norio NAKAZAWA

First Secretary

PHILIPPINE SIDE

Usec. Ben Malayang III

Acting Secretary, DENR.

Usec. Ricardo Umali

Undersecretary, DENR

Dr. Carlos Tomboc

Regional Executive Director, National Capital Region, DENR, Chairman, CFI-Technical Review Committee.

Mr. Rafael Camat, Jr.

Director, Foreign Assisted and Special Project Office, DENR.

Atty. Marlon M. Cardinoza

Officer-in-Charge, PAMD, Foreign Assisted and Special Project Office, DENR.

Mr. Celestino B. Ulep

Asst. Director, Protected Areas and Wildlife Bureau, DENR.

Dr. Manuel Bravo

Chief, Lentic Section, Ecosystem Research and Development Bureau, DENR.

Dr. Segundino Foronda

Director, Forest Research Division, PCARRD

Mr. Rolando Tungpalan

Director, Project Monitoring Staff, National Economics and Development Authority.

Ms. Edna B. Capacillo

Chief, Project Monitoring Staff, NEDA.

Ms. Mary Jean A. Caleda

Chief, Wildlife Division, Protected Areas and Wildlife Bureau, DENR.

Dr. Gerardo Ortega

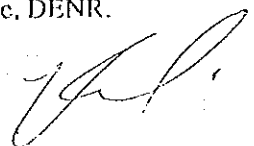
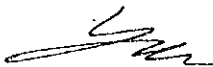
Director, Crocodile Farming Institute, DENR.

Dr. Mona Lisa Jamerlan

OIC Research Section, Crocodile Farming Institute, DENR.

Mr. Patrick Regoniel

Senior Researcher, Resource Management and Ecology Unit, Crocodile Farming Institute, DENR.



2 評価報告書 (JOINT EVALUATION REPORT)

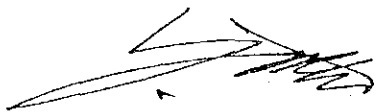
JOINT EVALUATION REPORT  
ON  
THE JAPANESE TECHNICAL COOPERATION  
FOR  
CROCODILE FARMING INSTITUTE PROJECT

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (DENR),  
THE REPUBLIC OF THE PHILIPPINES

2, JUNE 1994  
DENR, MANILA  
THE PHILIPPINES

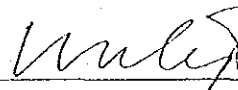
MUTUALLY ATTESTED AND SUBMITTED  
TO ALL CONCERNED

2, JUNE 1994  
DENR, MANILA  
THE PHILIPPINES



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MR. YOSHIRO MINATO  
Leader,  
Japanese Evaluation Team,  
Japan International Cooperation Agency,  
Japan.



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MR. CELESTINO B. ULEP  
Assistant Director of PAWB,  
Philippine Evaluation Team  
Department of Environment  
and Natural Resources,  
The Republic of the Philippines.

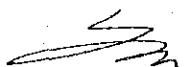
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- Annex 4. Schedule of Implementation and Accomplishment
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## I. INTRODUCTION

### 1. The Joint Evaluation Team

The Japanese Evaluation Team (hereinafter referred to as "The Japanese Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA"), headed by Mr. Yoshiro Minato, JICA, visited the Philippines from 23 May to 3 June 1994 in order to jointly evaluate with the Philippine Evaluation Team (hereinafter referred to as "The Philippine Team") through forming the Joint Evaluation Team on the achievement of the two years extension period of the Technical Cooperation for Crocodile Farming Institute Project (hereinafter referred to as "The Project") on the basis of the Record of Discussions signed on 20 August 1987 and extended 2 years from 20 August 1992 (hereinafter referred to as "The R/D").

The Joint Evaluation Team discussed and studied regarding the output, input, impact, sustainability and the future cooperation of The Project. (The scope of the evaluation of the achievement is limited only in the extension period.)

Through careful studies and discussions, both Sides summarized their findings and observations as described in this document.

### 2. Member of the Joint Evaluation Team

#### 2-1 Japanese Side

##### The Japanese Evaluation Team

Mr. Yoshiro MINATO	-	Leader
Mr. Nobuo ICHIHARA	-	Wildlife Conservation
Mr. Takeshi TOKIWA	-	Technical Cooperation Policy
Mr. Mituaki KOMOTO	-	Technical Cooperation Policy
Mr. Kunishige SHISHIKURA	-	Technical Cooperation Planning
Mr. Akira SAIKYO	-	Crocodile Skin Utilization
Dr. Toshinori TSUBOUCHI	-	Technical Advisor
Mr. Takayasu HORIMOTO	-	Coordinator



## 2-2 Philippine Side

### The Philippine Evaluation Team

Dr. Corazon Catibog-Sinha	Director, Protected Areas and Wildlife Bureau, DENR
Dr. Carlos Tomboe	Regional Executive Director, National Capital Region, DENR, Chairman, CFI-Technical Review Committee.
Mr. Rafael Camat, Jr.	Director, Foreign Assisted and Special Project Office, DENR.
Atty. Marlon M. Cardinoza	Officer-in-Charge, PAMD, Foreign Assisted and Special Project Office, DENR.
Mr. Celestino B. Ulep	Asst. Director, Protected Areas and Wildlife Bureau, DENR.
Dr. Manuel Bravo	Chief, Lentic Section, Ecosystem Research and Development Bureau, DENR.
Dr. Segundino U. Foronda	Director, Forestry Research Division, PCARRD.
Mr. Rolando Tungpalan	Director, Project Monitoring Staff, NEDA.
Ms. Edna B. Capacillo	Chief, Project Monitoring Staff, NEDA.
Ms. Mary Jean A. Caleda	Chief, Wildlife Division, Protected Area and Wildlife Bureau, DENR.

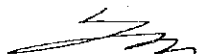
## II. METHODOLOGY OF EVALUATION

### 1. Evaluators

The Joint Evaluation Team consists of both the Philippine Evaluation Team and the Japanese Evaluation Team.

### 2. Materials for Evaluation

In order to evaluate the performance and achievement in the two years extension period both quantitatively and qualitatively, the following items were used;



- (1) The Original and the Extension of Record of Discussions (The R/Ds).
- (2) The Minutes of Discussions, the Annual Work Plans and other documents agreed on or accepted in the course of implementation of the Project.
- (3) Reports from The Project.
- (4) Extension Proposal as shown in Annex 1.
- (5) The Logical Framework as shown in Annex 2.

### III. BACKGROUND AND SUMMARY OF THE PROJECT

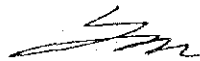
#### 1. Brief Background of The Project

Two species of crocodiles occur in the Philippines, the saltwater crocodile (*Crocodylus porosus*) and the Philippine crocodile (*Crocodylus mindorensis*). Both species in the Philippines are considered to be in danger of extinction. Since the Philippine crocodile is endemic only to the Philippines, the extinction of the species from the Philippines means the complete extirpation of the species from the world.

The Philippine government recognized that sustainable utilization of wildlife resources can greatly contribute to conservation, and that the introduction of crocodile farming to local communities will activate related industries and offer job opportunities. Therefore the Philippine Side planned Crocodile Farming Institute (hereinafter referred to as "CFI") to develop and distribute appropriate crocodile farming in the country. Grant aid and technical cooperation were requested to the Japanese government by the Philippine government. Thus, CFI was established in Puerto Princesa City, Palawan.

CFI aims to generate appropriate and sustainable farming technology in the Philippines as a measure for wildlife conservation through the project type technical cooperation between the governments of the Philippines and Japan.

As a result of discussions held between Japanese Side and DENR, both parties agreed on the *Technical Cooperation Project* and was initiated at 20th of August, 1987. Since the start of The Project, the Japanese Side has dispatched a number of Experts, accepted a number of Philippine counterpart personnel for training and provided machinery and equipment.



Based on the joint evaluation done between Japanese Side and DENR at the end of 5 year technical cooperation originally signed, both parties agreed to extend The Project for two years. Thus, the present period of The Project is ending at 20th of August 1994.

## 2. Chronological Review of The Project

The chronological review of The Project is as shown in Annex 3.

## 3. Purpose of The Project

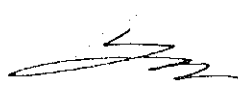
The overall objectives (ultimate goal) of The Project are to contribute to the conservation of wild crocodiles and to the socio-economic well-being of local communities through the development and promotion of crocodile farming technology.

The objectives of the Japanese Technical Cooperation stated in master plan, which are subject to the present evaluation are;

- a) To conduct research and development work in the field of crocodile farming.
- b) To train counterpart personnel concerned on crocodile farming technology; and
- c) To make a basic program of dissemination of crocodile farming and conservation.

## 4. Tentative Schedule of Implementation

The initial tentative schedule of implementation is as shown in Annex 4.



#### IV. RESULTS OF EVALUATION

##### 1. Input to The Project

###### 1-1. Schedule of Implementation and Accomplishment

Tentative Schedule of Implementation and its Accomplishment are summarized in Annex 4.

###### 1-2. Input by the Japanese Side

###### 1-2-1. Dispatch of the Japanese Experts and Survey Teams

JICA has dispatched long-term experts and short-term experts, and also sent survey teams in relation with The Project as shown in Annex 5, respectively.

###### 1-2-2. Acceptance of the Philippine Counterpart Personnel for Training in Japan

JICA has accepted Philippine counterpart personnel for training in Japan as shown in Annex 5.

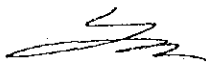
###### 1-2-3. Provision of Machinery and Equipment

Up to now, the machinery, equipment and materials equivalent to ¥14,987,716 have been provided by the Japanese Side through JICA as shown in Annex 6.

###### 1-3 Input by the Philippine Side

###### 1-3-1. Allocation of Philippine Counterpart Personnel

To date the Philippine Side has allocated the personnel as shown in Annex 7, respectively.



### 1-3-2. Expenses by the Philippine Side

The total outlay of The Project by the Philippine Side was 16,937,917 pesos as shown in Annex 8.

## 2. Output from The Project

### 2-1. Population Dynamics and Ecology of Wild Crocodile

Basic technology required in the field of population dynamics and ecology (behavior, food habit and reproductive biology) has been acquired by counterparts.

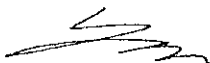
Population and distribution studies have been accomplished at some level and reports were presented in " IUCN Crocodile Specialist Group Asia Oceania Regional Conference" and "Philippine Vertebrate : Symposium on their Preservation and Conservation" 1993.

Behavior in *C. mindorensis* reproduction has been studied in consecutive breeding season and the accomplishment reports were submitted to DENR.

### 2-2. Conservation of Wild Crocodiles

Basic technology of habitat and social condition survey to evaluate ecosystem in areas has been acquired by counterparts. Though sanctuary establishment and management proposals were submitted, techniques on monitoring survey remain to be applied.

Sanctuary management proposal has been submitted to DENR for the preparation of sanctuary establishment. Agusan marsh identified by IPAS program has been surveyed as a potential crocodile sanctuary. It was proposed that crocodile as a part of ecosystem in Agusan marsh protected area could be jointly conserved with IPAS program. Further ecological study is, however, needed in the area for establishment of crocodile conservation program.



### 2-3. Captive Breeding and Establishment of Crocodile Farming Technology

Fundamental technology required to captive breeding and establishment of crocodile farming technology has been acquired by the counterpart.

It could be said that the crocodile farming technology has been established from the verification indicators in Logical Framework. However, continuous efforts for the improvement of the efficiency of farming technology and the establishment of the programs to avoid inbreeding are needed.

### 2-4. Promotion of Farming and Ranching Management

Technology and know how for the introduction and the promotion of the crocodile farming in Philippine society has yet to be fully implemented.

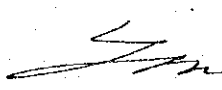
CITES registration of CFI as a *C. porosus* captive breeding operation was realized in March 1993. A demonstration farm in CFI has been established and operated as a training facility and for acquisition of fundamental data in the promotion of the crocodile farming. Proposals of pilot test farming and control scheme of private crocodile farms were at the second reading.

The future role and function of CFI should be defined in relation to promoting the crocodile farming industry.

### 2-5. Public Information and Training

Counterparts have been implementing activities with sufficient technology.

Public awareness campaign in Palawan and the education of local people have been substantially done. It is necessary to continue these efforts.



### 3. Impact of The Project

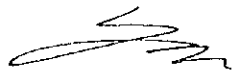
#### 3-1. Contents of Impact

Though only few items of technology transfer and accomplishment remain to be completed, The Project has had a great impact on several important aspects;

- 1) Counterparts have acquired most of the necessary technologies for implementation of the project.
- 2) Ex-situ conservation of two species occurring in the Philippines has been established.
- 3) Technology on crocodile farming was established to a considerable extent.
- 4) Promotion of crocodile farming has been prepared at certain extent and was recognized by CITES secretariat.
- 5) Filipinos especially in Palawan have been enlightened on crocodile conservation.
- 6) The "Workshop on the Biological Characteristics and the Conservation Sustainability of *C.mindorensis* in the Philippines" was held at CFI. The success of CFI project has been recognized and lauded by International Union for Conservation of Nature and Natural Resources, Species Survival Commission, Crocodile Specialist Group.

#### 3-2. Diffusion of Impact

- 1) It is obvious that CFI contributed to people's awareness on crocodile conservation through sustainable utilization.
- 2) Filipinos can now expect benefits from the sustainable utilization of *C.porosus* crocodiles which is already recognized internationally by the CITES secretariat.
- 3) The Project contributed to the Philippine Side's recognition of the importance, and means of





wildlife conservation through utilization of biological resources.

- 4) The Philippines has been benefited from the international attention and appreciation on the crocodile conservation especially *C.mindorensis* by IUCN; Species Survival Commission; Crocodile Specialist Group.

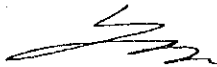
#### 4. The Prospect of Sustainability

##### 4-1. The Prospect of Sustainability from the Organizational Aspect

- 1) The CFI is firmly positioned as a technology generating crocodile conservation institution in DENR at this point in time.
- 2) It is considered that CFI had the required staff for implementing activity programs. However, it needs to improve the retention rate of personnel.
- 3) Restructuring of CFI toward its future role and function in promoting private sector participation in crocodile farming should be considered.

##### 4-2. The Prospect of Sustainability from the Financial Aspect

- 1) Since CFI is firmly recognized in DENR structure as a crocodile conservation institution at this point in time, CFI will be continuously supported and sustained even after the technical cooperation.
- 2) As a CITES recognized breeding operation of *C.porosus*, the Philippines can expect to obtain revenue from the promotion of crocodile farming. The revenue generated can help to sustain CFI operation.

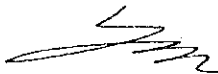


#### 4-3. The Prospect of Sustainability from Technical Aspect

- 1) Japanese experts were dispatched to advise and guide counterparts in research and development works and this contributed to CFI technical sustainability.
- 2) Enough technical staff were allocated in research and works in the identified subjects. However, the retention rate of the counterparts should be improved.
- 3) It is important that the retention of technical knowledge should be regarded as a priority since crocodile farming technology is quite unique and new in the Philippines.
- 4) Further establishment of monitoring technology in protected areas and promotion of the farming in crocodile utilization would be needed to fully obtain the sustainability of technology in the Project.

#### 4-4. Other Matters

- 1) The status of counterparts employment in The Project has been restricted to contractual position. It is, however, desirable that technical staff who have acquired crocodile farming technologies be retained in CFI.
- 2) It is important for CFI to cooperate and coordinate with relevant government agencies, local government units, other Non-government Organizations and local communities working for wildlife conservation through sustainable utilization.



## V. EVALUATION

### 1. Input

Inputs by both Sides are appropriate and sufficient at this point in time. Maintenance and operation of equipment and facilities are done adequately.

### 2. Output

#### Technology Transfer

The evaluation was made based on Technical Cooperation Program and items of techniques output of The Project as shown in Annex 9, 10 respectively.

Most of the items in the Technical Cooperation Activity Plan have been completed. Only a few items remain to be done.

#### Accomplishment

In general, most of the activity plan and technology needed have been accomplished at substantial level.

It can be said at this point in time that two species of crocodilian in the Philippines are conserved and The Project is ready to introduce crocodile farming to private sector in the Philippine society.

### 3. Impact

Impact of The Project in terms of awareness and understanding crocodile conservation and its potential opportunity for farming has been extended not only to DENR but also to the local communities.



#### 4. Sustainability

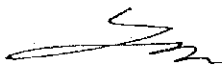
Philippine government recognizes the importance of the potential of the CFI by allocating 14 million peso budget for 1994. However, it needs to improve retention rate of technical staff to assure sustainability of CFI.

## VI. CONCLUSION

As a result of thorough evaluation, the Joint Evaluation Team reaffirmed the great contribution of The Project in the conservation of the two endangered crocodylian species as well as the potential benefit to the upliftment of socio-economic well-being of local communities.

The Team reached the following conclusions ;

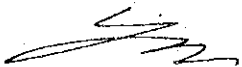
- 1) In general, most of the technologies required in the implementation of The Project in The R/D have been acquired by the Philippine personnel.
- 2) The Philippine personnel will be able to carry out the activities of population dynamics and ecology, captive breeding and establishment of crocodile farming technology, information and training by themselves.
- 3) Finally, The Joint Evaluation Team agreed that only a few technologies in the field of Conservation of Wild Crocodiles and Promotion of Farming and Ranching Management would be needed to achieve the project purpose.



## VII. RECOMMENDATIONS

Based on mutual basic understanding that the continuing effort of crocodile conservation through sustainable utilization is necessary as a long term program toward the ultimate goal, the following items are recommended;

- 1) That the Joint Evaluation Team fully recognizes the responsibility in the conservation of crocodiles in the country through sustainable utilization and the Philippines Side assures the continuous efforts to realize ultimate goal of the project utilizing technical staff trained in The Project.
- 2) That the Joint Evaluation Team understands the need of crocodile conservation through sustainable utilization in the Philippines and only a few technology in the Conservation of Wild Crocodiles and the Promotion of Farming and Ranching Management remain to be acquired by technical staff.
- 3) That the Joint Evaluation Team recommends that the Follow-Up Program would be needed in two fields. Items in the Follow-Up Program would be further decided and requested to the Japanese Side by the Philippines Side.
- 4) The role and function of CFI in crocodile conservation through sustainable utilization shall be established in administrative policies of DENR. Then, restructuring of CFI project is needed to meet the role and function of CFI to promote and guide private sector participation in crocodile farming.



## A N N E X I

### APPLICATION FOR EXTENSION OF PROJECT-TYPE TECHNICAL COOPERATION

- I. NAME OF PROJECT :  
Crocodile Farming Institute Project
- II. IMPLEMENTING AGENCY :  
Department of Environment and Natural  
Resources - Region IV Office
- III. RESPONSIBLE DEPARTMENT :  
Department of Environment and Natural Resources
- IV. SITE OF PROJECT :  
Irawan, Puerto Princesa City, Palawan
- V. BACKGROUND OF THE PROJECT

#### Objectives

Crocodile Farming Institute (CFI) located in Barangay Irawan, Puerto Princesa City, Palawan, was established in 1987 in order to generate appropriate and sustainable farming technology in the Philippines as a measure for wildlife conservation through the mutual cooperation between the Government of the Philippines and the Government of Japan. The project belongs to the government of the Philippines and is implemented by the Department of Environment and Natural Resources (DENR). It is the first one for the Philippines as well as for Japan in that it deals with wildlife and it positively utilizes wildlife for nature and wildlife conservation.

The CFI has two main objectives:

- To conserve the two endangered species of crocodiles in the Philippines ; and
- To promote the socio-economic well-being of local communities through the development and introduction of a suitable crocodile farming technology.

The overall objective is to conserve the two species of crocodiles in the Philippines through sustainable utilization.

#### Role and Functions of the Project in the Philippines

CFI was created as a research and development institute for crocodile conservation under the structure of DENR's policy to pursue wildlife conservation through a positive utilization of wildlife resources.

CFI is an organization tasked to implement the sustainable use through research and development and to serve as scientific advisory body to the government for crocodile conservation.

CFI is responsible in promoting a cycle, that is, propagation of crocodiles to preserve the species and prevent extinction, partial utilization of the resource to initiate a crocodile industry, introduction of the industry to local communities and restoration of the profit for species preservation.

CFI's major activities with the corresponding steps that should be undertaken in order to achieve its objectives are described below:

1. Develop and establish captive breeding and rearing techniques as a basic measure for a sound crocodile conservation and wise utilization.
2. To positively utilize researches in order to advance or develop profitable and productive farming techniques.
3. Promote, inculcate and instill in the minds of Filipinos the value of crocodiles and its surrounding environment.
4. To promote sustainable utilization of wildlife resource as a means of conservation.
5. To introduce and transfer the crocodile farming technology as a profitable industry in the future.
6. To ensure crocodile conservation in the Philippines monitoring and evaluating of sanctuaries as a scientific advisory body to the managing authority in the Philippines.
7. To provide scientific and technical guidance and advice to crocodile farms and CITES managing authority and act as an information center by collecting from, analyzing and distributing to crocodile farms information regarding crocodile farming management.

#### Organization

The CFI consists of 2 divisions, 5 sections and 4 research units. (see organizational Chart)

## Organization Chart

Total : 66 Post

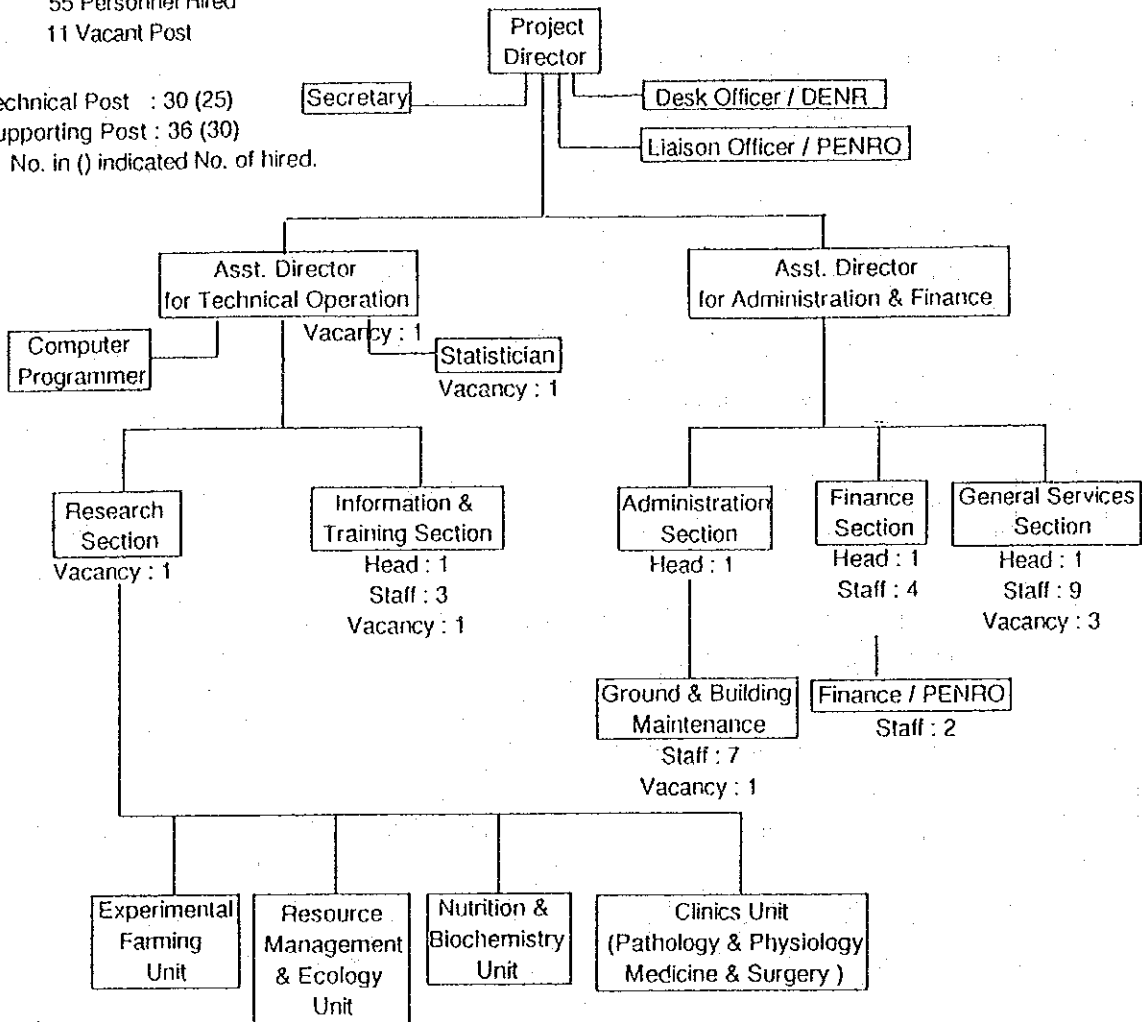
55 Personnel Hired

11 Vacant Post

Technical Post : 30 (25)

Supporting Post : 36 (30)

No. in ( ) indicated No. of hired.



Senior Researcher	1	1	Vacancy : 1	1
Junior Researcher	3	1	Vacancy : 1	1
Care Taker & Others	8	1	1	1

### Personnel

The number of personnel required by the project and the actual number of employees hired are listed below:



Position	No. of Personnel Required	No of Personnel Employed
Director	1	1
Assistant Director	2	1
Research Section Head	1	0
DENR Desk Officer	1	1
Senior Researcher	4	3
Junior Researcher	6	5
Information and Training Section Head	1	1
Information and Training Staff	4	3
Computer Programmer	1	1
Administration Head	1	1
Administration Staff	2	2
Accountant	1	1
Cashier	1	1
Finance Section Staff	4	4
General Service Section Head	1	1
Mechanic	1	1
Driver	3	3
Agronomist	1	1
Secretary	1	1
Asst. Secretary	1	1
Other Contractual Positions	16	16
Casuals	6	6
<b>Total</b>	<b>60</b>	<b>55</b>

Budget

CFI 1992 Budget

Personnel Services	3,901,000.00
Maintenance and Operating Expenses	6,012,000.00
Capital Outlay	750,000.00
<b>Total</b>	<b>P10,663,000.00</b>

VI. HIGHLIGHTS OF ACCOMPLISHMENTS

<u>Year</u>	<u>Accomplishments</u>									
1988	One <i>C.mindorensis</i> laid eggs. Paper on "Reproductive Ecology of <i>C.mindorensis</i> " presented at the 9th Crocodile Specialist Group Meeting in Papua New Guinea									
1989	First successful captive breeding and artificial incubation of <i>C.mindorensis</i> in CFI 5 females laid eggs and 7 hatchlings produced									
1990	First successful captive breeding and artificial incubation of <i>C. porosus</i> in the Philippines 4 females of <i>C. mindorensis</i> laid eggs and 14 hatchlings produced 2 females of <i>C. porosus</i> laid eggs and 62 hatchlings produced Paper on "Crocodile diseases and their treatment" presented at the Annual Convention of Philippines Veterinary Association Submission of proposal for establishment of crocodile sanctuary in Lake Manguao, Taytay, Palawan Increase in the number of CFI visitors (24,253 this year)									
1991	12 females of <i>C.mindorensis</i> laid eggs and 137 hatchlings produced 10 females of <i>C.porosus</i> laid eggs and 186 hatchlings produced									
	<table border="0"> <thead> <tr> <th></th> <th style="text-align: center;"><i>C.mindorensis</i></th> <th style="text-align: center;"><i>C.porosus</i></th> </tr> </thead> <tbody> <tr> <td>Breeding Rate</td> <td style="text-align: center;">63.2%</td> <td style="text-align: center;">29.4%</td> </tr> <tr> <td>Hatching Rate</td> <td style="text-align: center;">58.4%</td> <td style="text-align: center;">78.5%</td> </tr> </tbody> </table>		<i>C.mindorensis</i>	<i>C.porosus</i>	Breeding Rate	63.2%	29.4%	Hatching Rate	58.4%	78.5%
	<i>C.mindorensis</i>	<i>C.porosus</i>								
Breeding Rate	63.2%	29.4%								
Hatching Rate	58.4%	78.5%								
1992	International workshop was held at CFI on the Prospect and the Future Strategy of Crocodile Conservation in the Two Species ( <i>Crocodylus mindorensis</i> , <i>Crocodylus porosus</i> ) occurring in the Philippines.									

VII. PROPOSAL FOR EXTENSION

Reason for extension

The task assigned to CFI is to guarantee the continued existence of the two species of crocodiles. What CFI is aiming at is the conservation of crocodiles through sustainable use, that is, crocodile

conservation depending on the profit created by the crocodile itself.

Taking into account CFI accomplishments and its visions there are two phases necessary for CFI activities. Targets of the two phases are:

Phase I

1. Propagation of sufficient number of crocodiles in captivity for conservation and release of crocodiles in protected sanctuaries;
2. Preparation of basic technical material for crocodile farming; and

Phase II

1. Implementation of the sustainable utilization of crocodiles ( Refer to Future Plan ).

While much has been accomplished during the five-year period that CFI has been in operation especially with regards to the captive breeding of crocodiles, the two targets under Phase I have yet to be completely realized.

The five years allotted under the original proposal was not sufficient for CFI to achieve all of its task due to the delay of acquisition of breeders, lack of basic knowledge and experience of personnel in dealing with crocodiles which are almost solved now, and budgetary constraints, among others.

The delay was due to the miscalculation in the assumption that the 200 breeder crocodiles will be readily available at the start of the project. We must realize that the mere fact that they are endangered that means scarce population. The assumption did not consider where to source and how to source as the project went through the tedious process of trial and error method of trapping before discovering the effective way of capturing crocodiles.

Wild breeder do not breed instantly as they require 3 year acclimatization period before breeding in captivity.

The lack of basic knowledge and experience of project personnel is quite understandable since this is a pioneering venture in the Philippines, needless to say nobody is an expert in the Philippines.

And the timely release of budget in the Philippines is an inherent and perennial problem in our bureaucracy.

Considering the CFI's final goal and what CFI has actually accomplished and based on the recommendation of the Joint Evaluation Teams of DENR and JICA, a two-year extension is necessary to fully attain the targets of the first phase and is hereby proposed.

Program of activities for the 2-year extension

The following items are CFI's proposed activities during the 2-year extension:

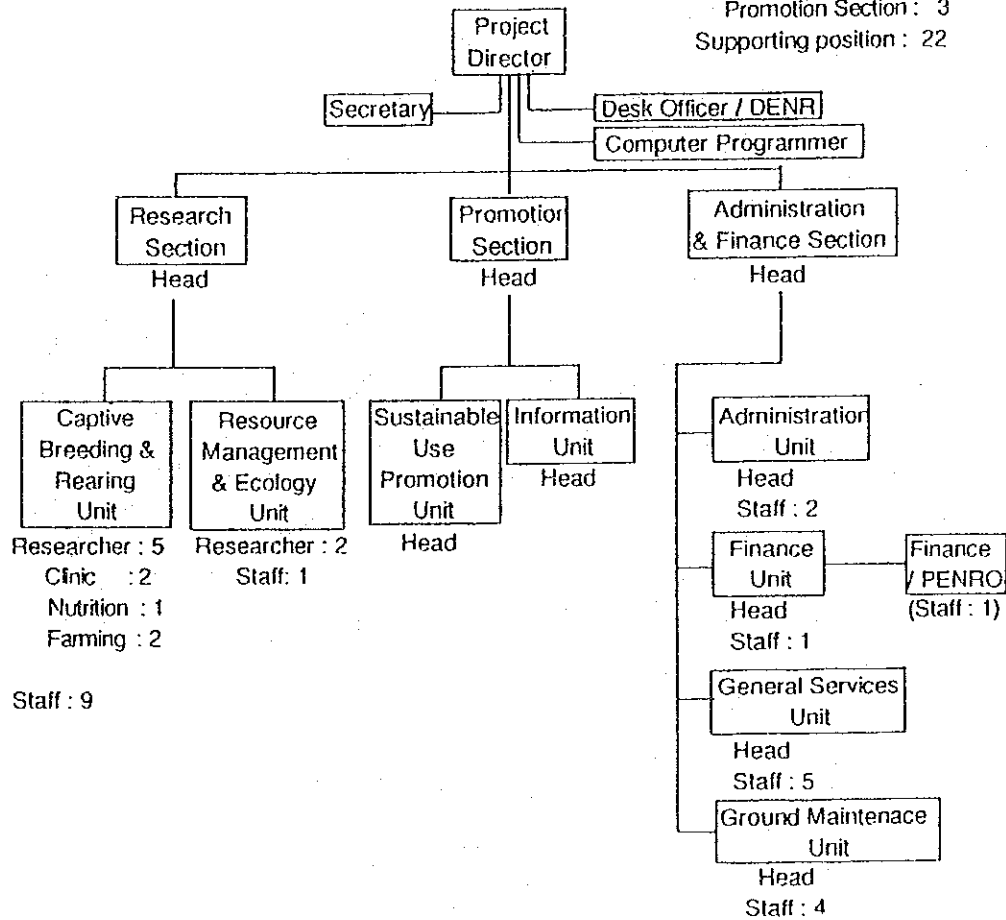
Subject	Program
1. Population Dynamics and Ecology of Wild Crocodile	Study of population dynamics and ecology of the two species. Submission and publication of preliminary report on the status of crocodiles in the Philippines.
2. Conservation of Wild Crocodile (Establishment of sanctuaries to conserve wild crocodiles.)	<ol style="list-style-type: none"> <li>1. Identification of potential sanctuary areas.</li> <li>2. Submission of the second sanctuary proposal and formulation of sanctuary management proposal.</li> <li>3. Reintroduction and monitoring of captive-bred hatchlings after declaration of sanctuary.</li> </ol>
3. Establishment of Crocodile Farming Technology	<ol style="list-style-type: none"> <li>1. Fundamental researches for the further improvement of farming techniques.</li> <li>2. Preparation of basic materials for sustainable use with data obtained from the development of rearing and breeding techniques.</li> </ol>
3-1. Crocodile Rearing Techniques	<ol style="list-style-type: none"> <li>1. Improvement of rearing techniques.</li> <li>2. Framing of a provisional manual.</li> </ol>
3-2. Crocodile Breeding Techniques	<ol style="list-style-type: none"> <li>1. Securement and maintenance of the minimum breeding gene stocks required for each species (200 varieties) in order to avoid undesirable results due to inbreeding.</li> <li>2. Improvement of the breeding techniques.</li> <li>3. Establishment of mass production techniques.</li> <li>4. Framing of a provisional manual.</li> </ol>
4. Promotion of Farming and Ranching (Dissemination of Farming Technology)	<ol style="list-style-type: none"> <li>1. Establishment and operation of training facilities. (Establishment and operation of a demonstration farm in CFI premises.)</li> <li>2. Implementation of pilot-testing farms to foster private <i>C. porosus</i> farms and preparation of materials for the purpose.</li> <li>3. Experimental processing of Skin (Tannery and preservation)</li> <li>4. Preparation and submission of the proposal of a control scheme for private <i>C. porosus</i> farms.</li> </ol>
5. Public Information and Training (Enlightenment of the people on wildlife conservation through sustainable use.)	<ol style="list-style-type: none"> <li>1. Information Campaigns.</li> <li>2. Seminar for promoting crocodile farming.</li> <li>3. Production of Informative Material.</li> </ol>

Organization

In order to overcome budgetary problems encountered during the project operation and maximize project cost-efficiency, streamlined work force shall be maintained for the extension period. In order to prepare the implementation of sustainable utilization, promotion section and sustainable use promotion unit shall be created for encouraging, guiding farmers and control the scheme of captive bred crocodiles. The responsibilities and tasks of each technical unit in the project program should be clearly understood. The following organization chart is hereby proposed for two years extension.

Organization Chart

Total : 43 Position  
 Technical Position : 21  
 Research Section : 18  
 Promotion Section : 3  
 Supporting position : 22



In order to make crocodile farming into an attractive business and to conserve crocodiles in the wild (e.g. sanctuaries) in the future, involvement of local governments or non-governmental organizations is

essential. In this extension period the possible operational structure of the project regarding this matter shall be carefully studied and the substantial collaboration with local governments or NGOs should be considered and/or established.

Personnel

The number of personnel required for the skeletal force of the project is as follows.

Position	No of Personnel Required
Director	1
Secretary	1
DENR Desk Officer	1
Computer Programmer	1
Research Section Head	1
Researcher	7
Research Section Staff	10
Promotion Section Head	1
Information Unit Head	1
Sustainable Use Promotion Unit Head	1
Administration and Finance Head	1
Administration Head	1
Administration Staff	2
Finance Head	1
Finance Staff	2 (1)
General Service Head	1
Mechanic	1
Electrician	1
Driver	1
Plumber	1
Carpenter	1
Ground Maintenance Unit Head	1
Ground Maintenance Unit staff	4
<b>Total</b>	<b>43 (1)</b>

Number in parenthesis indicate number of staffs in PENRO.

### Budget

Cost-performance of each item in the budget shall be evaluated to maximize direct cost for objective, i.e. feed for crocodile and vital and essential researches. Following budget is needed for two year extension of the project in total.

Maintenance and Operation Cost (4.4x2)	P 8.8 million	Government of the Philippines
Personnel Services (2.8x2)	P 5.6 million	Government of the Philippines
( Philippines Government Contribution P 14.4million )		
Equipments	P 2.4 million	Government of Japan
Improvement of Facilities	P 2.8 million	Government of Japan
Counterpart Training in Japan	P 1.4 million	Government of Japan
Experts and Local Cost Assistance	P 40.0 million	Government of Japan
( Japanese Government Contribution P 46.6 million )		
-----		
Total	P 61.0 million	

Local government units have more direct authority and resources on establishment of crocodile (and/or wildlife) sanctuary. In order to improve cost-effectiveness of project funds, collaborative efforts with the local government's should be made in the extension period.

Registration of CFI as a captive breeding operation of *C. porosus* under CITES will enable the project to sell captive bred *C. porosus* to any parties in any forms ( live crocodile, skin, meat and others) with the certificate of captive bred individual from Protected Area and Wildlife Bureau. This would mean that CFI will be able to generate a part of its own budget indirectly from crocodile with certain arrangements in the government ( refer to the schematic diagram.). In this extension period the possible scheme, for the indirect income generation by utilizing skin or other product of mortality cases and captive bred *C. porosus* itself, shall be studied and realized.

More specific business plan shall come after the results of demonstration and pilot testing farms have been consolidated and analyzed ( e.g. schemes and feasibility ).

In addition, CFI has over 15,000 visitors per year now. Needless to say CFI has become a tourist spot in Palawan Province. Taking advantage of this opportunity, a counter measure against the budgetary problems may be drawn by collecting minimum entrance fee. And other possible measures to help the Philippines

economy through crocodiles either directly or indirectly shall be studied, and if possible implemented.

Tentative break down of the annual Philippine budget of CFI project per subject is shown in the following table.

Unit	Responsible Subject	No of Personnel	Budget		Sub-total
			Personnel Services	Operation	
Resource Management and Ecology	1. Population Dynamics and Ecology 2. Conservation of Wild Crocodiles (Help Establishment of Sanctuary)	3	P195,000	Survey P100,000x2= <u>P200,000</u>	P395,000
Captive Breeding & Rearing	Establishing Crocodile Farming Technology	15 (include section head)	P975,000	1. Crocodile Feed (4t x12x20peso/kg) <u>P960,000</u> 2. Feed Supplement and other research materials <u>P300,000</u>	P2,235,000
Sustainable Use Promotion Unit	Promotion of Farming and Ranching	2 (Include section head)	P130,000	( required references )	P430,000
Information Unit	Enlightenment of the people on wildlife conservation through sustainable use .	1	P65,000	( Combined two units P300,000 )	P65,000
Administration and Finance Section and Managing Staff	Supporting Works	22	P1,430,000	1. Illumination & Power <u>P750,000</u> 2. Rep./Maint.. Gov. Facilities <u>P150,000</u> 3. Supplies and Materials <u>P200,000</u> 4. Maint.of Gov. Vehicle <u>P350,000</u> 5. Others Services <u>P750,000</u> 6. Others ( travel exp. communication, etc. ) <u>P450,000</u>	P4,080,000
	Total	43	<u>P2,795,000</u>	P4,410,000	P7,205,000



VIII. EXPERTS REQUIRED :

Japanese experts required for the extension of the Project are as follows :

Field	Number	Duration	Area of Concern
Chief Technical Adviser	1	Long Term	Project management
JICA Coordinator	1	Long Term	
Farm Management	1	Long Term	Handling of crocodiles, Feeding, Growth analysis, Pen Management, Pairing, Reproductive efficiency, Artificial incubation.
Physiology and Pathology	1	Long Term	Diagnostic and treatment, Preventive Medicine.
Nutrition and Biochemistry	1	Long Term	Feeding and Feeding analysis (Nutritional requirement )
Wildlife Management and Ecology	1	Long Term	Distribution and Population dynamics Behavior, reproductive biology.
Sanctuary Management	1	Short Term	Habitat survey, identification of area Sanctuary management proposal Reintroduction of crocodiles.
Product Processing	1	Short Term	Tanning and preservation of skin.
Others		Short Term	
Total	8		

IX. TRAINING OF PHILIPPINE PERSONNEL :

Training of Philippines personnel (in and outside Japan) are required in the following fields:

Field	Number
Crocodile Farm Management	1
Wildlife Management	1
Sanctuary Management	1

Nutrition and Biochemistry	1
Information Dissemination	1
Product Processing	1
Others	
-----	
Total	6

x. EQUIPMENT NEEDED FOR EXTENSION :

The followings are equipment necessary for the project.

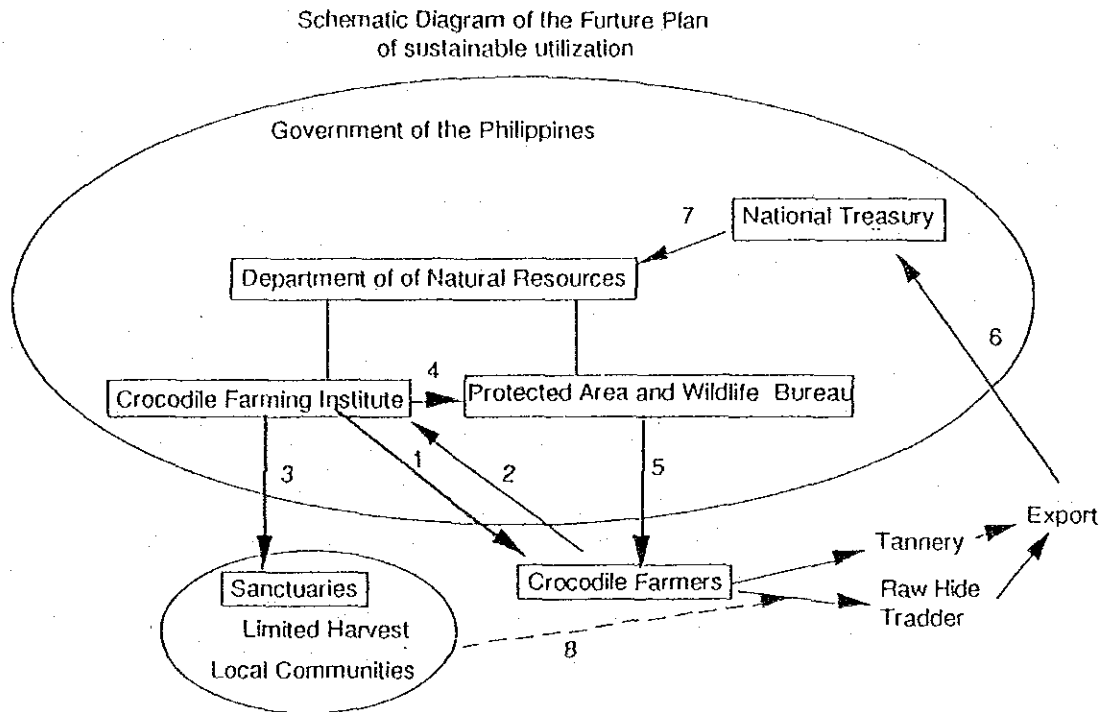
1. Water Jacketed Incubator (2 units)
2. Tannery Equipment/Chemicals
3. Communications system (paging systems, hand held radios, repeater system)
4. References
5. Hovercraft
6. Speed boat (with 25 HP engine)
7. Photocopying machine
8. Computers
9. Pick-up (Toyota 4WD)
10. Audio-van
11. Electrothermometer
12. Water heater
13. Lawn mower/grass cutter
14. Large animal X-ray machine
15. Others

XI. FUTURE PLAN OF THE PROJECT

CFI has given priority to and realized the preservation of the two crocodile species, and has established basic technique of breeding and rearing crocodiles. The future strategy towards crocodile conservation through sustainable use has been formulated ( see ; The Comprehensive Report ). However, it is understood that all the two year extension will be spent to prepare for the implementation of the sustainable use and to perfect the technology. CFI needs apparently a longer term to establish its ultimate goal, and has to maintain it indefinitely. The financial source is the most critical factor and has a control over the operation. In the process, CFI will have opportunities to

generate income to supplement its financial requirement, and when crocodile farming industry is introduced, income is expected from the established industry to the conservation. Until the budgetary constraint is eased, CFI may only have to concentrate on the prioritized activities which directly affect the technical aspects of the sustainable use and thus limit other less urgent activities. After the extension period, CFI should make strenuous effort to implement sustainable crocodile conservation through its utilization.

The future schematic diagram of crocodile conservation through sustainable utilization is shown in following figure.



**Crocodile Farming Institute**

1. Disperse captive bred crocodiles and farming technology to private farmers.
2. Accumulate data of crocodiles in private farmers.
3. Reintroduce captive bred crocodile to sanctuaries. Conduct and report scientific study to monitor of crocodile sanctuaries.
4. Serve as the scientific advisory body to CITES managing authority ( Protected Area and Wildlife Bureau ; PAWB )

**Protected Area and Wildlife Bureau ( PAWB )**

5. Control private crocodile farmers as the CITES managing authority. Issue certificate of captive bred individual and export permit to private sector with CFI's advise.

#### Government of the Philippines

- 6.7. Reasonable portion of the crocodile business profit shall be obtained in order to support conservation measures ( sanctuaries and CFI maintenance )  
To ensure the value added revenue, tannery and product development component shall be greatly encouraged.

#### Local Communities

8. In order to ensure harmonious relationship between local community surrounding sanctuaries limited harvest of crocodile may be allowed when possible.  
Minimal labor generation by engaging local residents as park rangers or sanctuary watcher.

The following items described here are the possible complementing measures for obtaining sustainability until the crocodile industry is set, the efforts are planned to make in the extension period.

#### 1. DIVERSION OF CFI ACTIVITIES

The local government and communities are principally responsible for the management and maintenance of their environment and wildlife. Their participation and collaboration are essential in an effective implementation of crocodile conservation through sustainable utilization. The local government and private organizations could benefit from and might perform some activities more efficiently at community level crocodile farming, can establish and manage sanctuaries, disseminate the public information campaigns as well as a visitors' educational amusement, with a proper set up in CFI. Collaboration with other institutes may also improve the efficiency and scope of research activities.

It is, therefore, necessary to take steps for developing an operating structure by which local government or other organizations take part in conservation of their responsible resource. During the two year extension period, necessary discussions among CFI and concerned parties especially local government units shall be held for possible measures on mutual effort and benefit. And if possible, collaborating and coordinating activities with the parties on certain fields should be started in the extension period.

For a long term sustainable conservation, it is apparent that CFI could not be able to sustain a continuing program solely within the limited budget. Therefore, it could be wise to seek alternative to be able to disseminate parts of its activities using other local resources. The feasibilities of the future structure of the operation are to be studied in the extension period and, if its possible put it into practice.

#### 2. INCOME GENERATION

CFI has achieved remarkable results in crocodile farming techniques. However, economic effectiveness

which could be yielded by the introduction of crocodile farming has not yet been realized due to its inevitable long preparation. Although realization of crocodile industry is imminent, the absence of any economic effectiveness at present naturally makes it difficult to justify government subsidy on CFI's activities.

CFI has also experienced problems of shortage and delay in the release of the operational fund, which eventually hindered its proper operation. Furthermore, expenses can be doubled or tripled in the future concomitant with the crocodile population increase and ongoing researches. To alleviate the difficulty, income generating measures have been conceptualized and the following items will be studied and put into practice during the extension period.

#### COLLECTION OF ENTRANCE FEES

Although CFI does not yet have attractive facilities for tourism, it has become a favorite visiting spot in Palawan. It receives about 1000 visitors monthly and it may be worthwhile to charge entrance fee. The suitable amount has not yet been decided, but in the extension period this could be carried out. A rough estimate indicates that with the amount of five pesos per person, the annual income may be able to cover a month's electricity expenses for CFI. It is also considered necessary to improve facilities to attract more visitors in the near future.

#### ATTRACTIONS

Feed would be sold to those who wish to experience feeding the crocodiles by themselves. However, with the existing facilities such attractions are very limited. In order to increase the income from the visitors an investment is apparently required. At present animal cages are being constructed to keep a variety of animals for visitors' attraction and education for wildlife conservation. In the future, this type of eco-tourism should be developed.

#### SALES OF C. POROSUS

Once CFI is registered under CITES, CFI will be able to sell its captive bred *C. porosus* internationally. It is apparent that CFI has a high potential of crocodile skin production for export. However, it requires an internal legal arrangement and an adequate private farm control policy, which in turn may require fairly long procedures to be established. It is hoped that CFI be registered in the soonest possible time with CITES and be launched into this operation. At present a proposal for the registration and a pilot farm plan, which will enable CFI to be a practical farming prospect, are being prepared.

Initially mortality cases or sacrificed animals should be utilized for this purpose right after the registration. And when circumstances allow, hatchlings of *C. porosus* will be sold to prospective farmers or as pets. The dispersible hatchling production projected is 509 and 733 heads respectively in 1993 and 1994.

### 3. RESEARCH GRANT

Research activities have been certainly limited because of small number of captive bred crocodiles. Upon a remarkable success of captive breeding, research activities to enhance farming techniques and knowledge on wild crocodiles in the Philippines shall be activated. The budgetary problem hinders efficient activities. It is, therefore, necessary to seek research grants from any other organizations all over the world. And the reception of such a grant may enhance the reputation of the research level at CFI should published works be internationally recognized. Also, CFI could conduct collaborating studies with researchers from various institutes in the world. Exchange of information with these researchers will surely benefit the CFI's own researchers.

**LOGICAL FRAMEWORK**  
 Technical Cooperation for the Crocodile Farming Institute Project in the Philippines.

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
<p><b>Overall Goal</b></p> <ul style="list-style-type: none"> <li>To conserve wild crocodiles and to contribute to the socio-economic well-being of local communities through the development and promotion of crocodile farming technology.</li> </ul>	<p><b>Achievement of Project Purpose</b></p> <ul style="list-style-type: none"> <li>Conservation of Wild Crocodiles.</li> <li>Establishment of sanctuaries.</li> <li>Improvements of socio-economic well-being of local communities.</li> <li>Number of people benefiting revenue generated</li> </ul>	<ul style="list-style-type: none"> <li>Proclamation of sanctuaries.</li> <li>Survey of people benefited from crocodile conservation through sustainable utilization.</li> <li>Accounting of revenues generated from sustainable use.</li> </ul>	<ul style="list-style-type: none"> <li>DIENR in collaboration with relevant government agencies, JICA, local government units and communities adopt and execute the strategy for the promotion of sustainable crocodile conservation and management.</li> </ul>
<p><b>Purpose of Project</b></p> <ul style="list-style-type: none"> <li>To establish an institution for the development and the promotion of crocodile conservation through sustainable utilization.</li> </ul>	<ul style="list-style-type: none"> <li>Research and development in crocodile conservation and management as indicated in Record of Discussion.</li> <li>Skills development and technology generation.</li> <li>Development of sustainable crocodile conservation and management program.</li> </ul>	<ul style="list-style-type: none"> <li>Validation/assessment of researches, activities undertaken.</li> <li>Training conducted; Technology generated.</li> <li>Technical reports/advise CFI project management;</li> <li>CITES registration;</li> <li>Preparation of action plan for pilot farming</li> </ul>	<ul style="list-style-type: none"> <li>Sufficient and appropriate counterparts to sustain expertise in CFI.</li> </ul>
<p><b>Expected Outputs</b></p> <ol style="list-style-type: none"> <li>Assessment of the status of two species.</li> <li>Conservation of wild crocodiles.</li> <li>Development of crocodile captive breeding and farming technology suitable in the Philippines.</li> <li>Dissemination of crocodile farming technology.</li> <li>Promotion of awareness of CFI activities.</li> </ol>	<ol style="list-style-type: none"> <li>Report on assessment (population estimate, distribution and status) of crocodiles</li> <li>Number and location of site identified, sanctuary and management proposals.</li> <li>Breeding rate, Production rate, Mortality rate and reports.</li> <li>Farming manual, CITES registration, demo. and pilot farm, pilot farming action plan.</li> <li>No. of seminar, campaigns, exhibit, visitors, informative materials.</li> </ol>	<p><b>Numbers and Comparison:</b></p> <ol style="list-style-type: none"> <li>Report: presentations, publications</li> <li>No. and location of site identified:</li> <li>Sanctuary proposals:</li> <li>Management proposals:</li> <li>Rate and Comparison:</li> <li>Report: presentations, publications</li> <li>Farming manuals:</li> <li>CITES proposal:</li> <li>Demonstration farm:</li> <li>Pilot farms:</li> <li>Pilot farming action plan:</li> <li>Lectures: Campaigns:</li> <li>Visitors: Exhibits:</li> <li>Informative Materials:</li> </ol>	<ul style="list-style-type: none"> <li>Equipment reach project site at night time.</li> <li>Dispatch experts timely.</li> <li>Mutual cooperation and understanding between experts and counterparts.</li> <li>Allocate counterparts timely.</li> <li>Sufficient budgetary and administrative support to CFI activities by DIENR.</li> </ul>
<p><b>Activities</b></p> <ol style="list-style-type: none"> <li>Population Dynamics and Ecology of Wild Crocodile.</li> <li>Conservation of Wild Crocodiles.</li> <li>Captive Breeding and Establishment of Crocodile Farming Technology.</li> <li>Promotion of Farming and Ranching Management.</li> <li>Information and Training.</li> </ol>	<p><b>Inputs by Japanese Side:</b></p> <ol style="list-style-type: none"> <li>Dispatch of the Japanese experts</li> <li>Acceptance of the Philippines counterparts personnel in Japan</li> <li>Technical Exchange Program</li> <li>Provision of the machinery and equipment</li> <li>Local Cost Assistance Fund: 1992: ¥10,790,000, 1993: ¥11,539,000, 1994: ¥5,000,000</li> </ol> <p><b>Inputs by Philippines Side</b></p> <ol style="list-style-type: none"> <li>Allocation of the Philippine counterparts and administrative personnel</li> <li>Allocation and implementation of funds</li> <li>Creation of CFI Technical Review Committee: Sep. 1995.</li> </ol>	<p><b>Pre-examination</b></p> <ul style="list-style-type: none"> <li>Sufficient founder stocks for captive breeding program would be 200 per species and ready to be obtainable.</li> </ul>	

11/11/95

LOGICAL FRAMEWORK  
 Technical Cooperation for the Crocodile Farming Institute Project in the Philippines.

Narrative Summary	Verifiable Indicators	Results	Important Assumptions
<p><b>Overall Goal</b></p> <ul style="list-style-type: none"> <li>To conserve wild crocodiles and to contribute to the socio-economic well-being of local communities through the development and promotion of crocodile farming technology.</li> </ul>	<p><b>Attainment of Project Purpose</b></p> <ul style="list-style-type: none"> <li>Conservation of Wild Crocodiles.</li> <li>Establishment of sanctuaries.</li> <li>Improvement of socio-economic well-being of local communities.</li> <li>Number of people benefiting.</li> <li>Revenue generated</li> </ul>	<ul style="list-style-type: none"> <li>Number of sanctuaries proclaimed : 0</li> <li>Number of people benefiting from Crocodile conservation : ?</li> <li>Revenue generated from sustainable use : 0</li> </ul>	<ul style="list-style-type: none"> <li>DENR in collaboration with relevant government agencies, IICA, local government units and communities adopt and execute the strategy for the promotion of sustainable crocodile conservation and management.</li> </ul>
<p><b>Purpose of Project</b></p> <ul style="list-style-type: none"> <li>To establish an institution for the development and the promotion of crocodile conservation through sustainable utilization.</li> </ul>	<ul style="list-style-type: none"> <li>Research and development in crocodile conservation and management as indicated in Record of Discussion.</li> <li>Skills development and technology generation.</li> <li>Development of sustainable crocodile conservation and management program.</li> </ul>	<ul style="list-style-type: none"> <li>Number of research undertaken.</li> <li>Number of research presented/published.</li> <li>Number of counterparts trained.</li> <li>Number of technology generated.</li> <li>CITES registration : C.p. March 1, 1993.</li> <li>Action plan for pilot farming : First Draft</li> </ul>	<ul style="list-style-type: none"> <li>Sufficient and appropriate counterparts to sustain expertise in CFI.</li> </ul>
<p><b>Expected Outputs</b></p> <ol style="list-style-type: none"> <li>Assessment of the status of two species.</li> <li>Conservation of wild crocodiles.</li> <li>Development of crocodile captive breeding and farming technology suitable in the Philippines.</li> <li>Dissemination of crocodile farming technology.</li> <li>Promotion of awareness of CFI activities.</li> </ol>	<ol style="list-style-type: none"> <li>Report on assessment (status, population estimate, distribution and status) of crocodiles</li> <li>Sanctuary and management proposals, number and location of site identified.</li> <li>Breeding rate, Production rate, Mortality rate and reports.</li> <li>Farming manual, CITES proposal, demo. and pilot farm, pilot farming action plan.</li> <li>No. of seminar, campaigns, exhibit, visitors, informative materials.</li> </ol>	<ol style="list-style-type: none"> <li>Report : 5 presentations, 4 publications</li> <li>Numbers : Sanctuary proposals : 0 Management proposals : 1 Number of site identified : 2</li> <li>Breeding rate : C.m. 48.2% C.p. 47.8% Production rate : C.m. 5.46/f. C.p. 8.46/f Mortality rate : C.m. 5.0% C.p. 5.15%</li> <li>Farming manuals : 0 CITES proposal : 1. Demonstration farm : 1 Pilot farms : 0. Pilot farming action plan : First Draft Visitor : 55,825/92,93,94 Exhibit : 5 Informative Materials : 62,750 pcs</li> </ol>	<ul style="list-style-type: none"> <li>Equipment reach project site at right time.</li> <li>Dispatch experts timely.</li> <li>Mutual cooperation understanding between experts and counterparts.</li> <li>Allocate counterparts timely.</li> <li>Sufficient budgetary and administratively support to CFI activities by DENR.</li> </ul>
<p><b>Activities</b></p> <ol style="list-style-type: none"> <li>Population Dynamics and Ecology of Wild Crocodile.</li> <li>Conservation of Wild Crocodiles.</li> <li>Captive Breeding and Establishment of Crocodile Farming Technology.</li> <li>Promotion of Farming and Ranching Management.</li> <li>Information and Training.</li> </ol>	<p><b>Inputs by Japanese Side</b></p> <ol style="list-style-type: none"> <li>Dispatch of the Japanese experts</li> <li>Acceptance of the Philippines counterparts personnel in Japan</li> <li>Technical Exchange Program</li> <li>Provision of the machinery and equipment</li> <li>Local Cost Assistance Fund</li> </ol> <p><b>Inputs by Philippines Side</b></p> <ol style="list-style-type: none"> <li>Allocation of the Philippine counterparts and administrative personnel</li> <li>Allocation and implementation of funds</li> <li>Creation of CFI Technical Review Committee</li> <li>Identification of Designated supervising officer.</li> </ol>	<p><b>Pre-condition</b></p> <ul style="list-style-type: none"> <li>Sufficient founder stocks for captive breeding program would be 200 per species and ready to be obtainable.</li> </ul>	<ul style="list-style-type: none"> <li>Sufficient founder stocks for captive breeding program would be 200 per species and ready to be obtainable.</li> </ul>

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## CHRONOLOGICAL REVIEW OF THE PROJECT

Year	Month	Item
1992	Aug.	Signed the R/D on Extension of the Period of Technical Cooperation
	Nov.	Dispatch of the short-term expert (1 person; CITES Registration)
	Dec.	Dispatch of the long-term expert (1 person; Biochemistry)
1993	Jan.	Training of the Philippine Counterpart Personnel in Japan (3 persons; Farming, Breeding, Veterinary Medicine)
	March	Dispatch of the Consultation Team
	March	Dispatch of the short-term experts (2 persons; Sanctuary Management, Wildlife Management)
	Aug.	Dispatch of the long-term expert (2 persons; Chief Advisor, Wildlife Management)
	Nov.	Dispatch of the Consultation Team
1994	(Feb.	Dispatch of the Survey Team for Improvement of Natural Pen.)
	March	Training of the Philippine Counterpart Personnel in Japan (2 persons; Crocodile Farming, Facilities Maintenance)
	May	Dispatch of the Evaluation Team

Tentative Schedule of Implementation and Accomplishment

Phase	Extension Period											
	1992			1993			1994			1994		
	I	II	III	IV	I	II	III	IV	I	II	III	IV
Calendar Year	1992			1993			1994			1994		
Fiscal Year	I	II	III	IV	I	II	III	IV	I	II	III	IV
Term of the Project	<input type="checkbox"/> Schedule <input checked="" type="checkbox"/> Accomplishment											
<u>Philippines Side</u>	1. Staff Recruitment 2. Budget for the project. 3. Facility Maintenance and improvement.											
<u>Japanese Side</u>	1. Dispatch of Experts Long-term Experts Chief Adviser Coordinator Crocodile Farming Pathology and Physiology Nutrition and Biochemistry Wildlife Management Short-Term Experts CITES Regulation Sanctuary Management Ecology											

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Tentative Schedule of Implementation and Accomplishment

Phase	Extension Period											
	1992			1993			1994			1994		
	I	II	III	IV	I	II	III	IV	I	II	III	IV
Calendar Year	1992			1993			1994			1994		
Fiscal Year	I	II	III	IV	I	II	III	IV	I	II	III	IV
2. Training of Philippines Counterpart in Japan - Field - Farming Breeding Wildlife Management Facilities Maintenance	Accomplishment:											
3. Technical Exchange Program												
4. Dispatch of Survey Team 1) Evaluation Team 2) Technical Consultation Team 3) Follow Up Study Team 4) Extension Evaluation Team												
5. Provision of Equipment and Machinery												
6. Facility Development												

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## &lt;Japanese Experts Dispatched by JICA&gt;

## Long-Term Experts

Field	Name	Term
Chief Advisor	Mr. Ryuichi MURATA	8/7/91~8/19/93
	Mr. Toichi HASHIMOTO	8/1/93~8/19/94
Coordinator	Mr. Shuma FUKUMURA	12/18/89~8/26/92
	Mr. Isaku YUKI	8/14/92~8/19/94
Breeding	Mr. Yasuchi SATAKE	9/26/90~8/19/94
Physiology	Dr. Toshinori TSUBOUCHI	11/3/88~8/19/93
Biochemistry	Dr. Arata KIMURA	12/15/92~8/19/94
Ecology	Dr. Keisuke SAKATA	8/10/93~8/19/94

## Short-Term Experts

Field	Name	Term
CITES	Mr. Yoshio KANEKO	11/16/92~11/30/92
Ecology	Mr. Kazuhiro YAMASE	3/1/93~3/15/93
ditto	Mr. Akira SAIKYO	3/1/93~3/15/93

## &lt;Japanese Teams Dispatched by JICA&gt;

Name	Members	Term
Consultation Team	5	3/5/93~3/13/93
Consultation Team	5	11/8/93~11/16/93
Evaluation Team	7	5/15/94~6/3/94

## &lt;Counterpart Personnel Trained in Japan&gt;

Field	Name	Term
Wildlife Management	Dr. Mona Lisa JAMERLAN	1/17/93~2/16/93
Farming	Mr. Roy BERO	1/17/93~2/16/93
Breeding	Mr. Renato CORNEL	1/17/93~2/16/93
Farming	Mr. Gonzalo SUMILLER	3/28/94~4/21/94
Facilities Maintenance	Mr. Alan TEQUILLO	3/28/94~4/21/94

## &lt;Counterpart Personnel Technical Exchange Program Expensed by JICA&gt;

Name	Country	Term
Dr. Gerardo ORTEGA	Australia	3/13/93~3/21/93
Mr. Patrick REGONIEL	Australia	3/13/93~3/21/93
Mr. Gonzalo SUMILLER	Singapore, Thailand	2/17/94~2/28/94
Mr. Renato CORNEL	Singapore, Thailand, Australia	2/17/94~2/28/94




## EQUIPMENT ACCOMPANIED WITH EXPERTS

NO	NAME OF EQUIPMENT	DESCRIPTION	QUANTITY	ARRIVAL	PLACE	CONDITION	PRICE	REMARKS
1	IBM Personal Computer	Think Pad 320, 523-YAW, DOS J. 5.0V, Windows 3.11 6MB/11D170	1 pc	01/07/94	Ecology Unit	GOOD	423,000	Dr. Sakata
2	Extension Memory	8MB, PS-SIM-8MB	1 pc	01/07/94	Ecology Unit	GOOD	75,800	Dr. Sakata
3	IBM MO-Drive	3.5" 5558A02	1 pc	01/07/94	Ecology Unit	GOOD	230,000	Dr. Sakata
4	MO-DISK	3.5" 128MB	2 pcs	01/07/94	Ecology Unit	GOOD	13,400	Dr. Sakata
5	Sony 14" Color Monitor	C1PD-1431 AC 100V	1 pc	01/07/94	Ecology Unit	GOOD	112,600	Dr. Sakata
6	Transformer,	Toyozumi KD-300, IN220V, 300VA	1 pc	01/07/94	Ecology Unit	GOOD	12,600	Dr. Sakata
7	IBM, Ton Key	79F6408	1 pc	01/07/94	Ecology Unit	GOOD	10,500	Dr. Sakata
8	IBM, Battery	NICD, 49G0318	1 pc	01/07/94	Ecology Unit	GOOD	16,800	Dr. Sakata
9	IBM, AC-Adaptor	AC100-240V, 49G2193	1 pc	01/07/94	Ecology Unit	GOOD	16,800	Dr. Sakata
10	Software	MS-Windows 3.1	1 pc	01/07/94	Ecology Unit	GOOD	16,600	Dr. Sakata
11	Software	MS-Excel for Windows	1 pc	01/07/94	Ecology Unit	GOOD	51,000	Dr. Sakata
12	Software	Word Perfect 5.2 Windows	1 pc	01/07/94	Ecology Unit	GOOD	51,000	Dr. Sakata
13	Software	D Base IV, DOSV	1 pc	01/07/94	Ecology Unit	GOOD	173,600	Dr. Sakata
14	Word Processor	Cannon, Alpha-801i, (100V)	1 pc	01/07/94	Expert Room	GOOD	150,000	Mr. Hashimoto
15	English Spell Correct System	Cannon CW-FS103	1 pc	01/07/94	Expert Room	GOOD	5,900	Mr. Hashimoto
16	"Matsunaga" Stabilizer	Power supply SVC-1000ND, 1000W	1 pc	01/07/94	Expert Room	GOOD	33,600	Mr. Hashimoto

## EQUIPMENT OF GRANT AID

NO	NAME OF EQUIPMENT	DESCRIPTION	QUANTITY	ARRIVAL	PLACE	CONDITION	PRICE	REMARKS
1	Vehicle	Mitsubishi Pajero	1 Unit	04/18/94	Garage	GOOD	2,249,000	

## TECHNICAL COOPERATION EQUIPMENT

NO	NAME OF EQUIPMENT	DESCRIPTION	QUANTITY	ARRIVAL	PLACE	CONDITION	PRICE	REMARKS
1	Personal Computer	Model: Macintosh Classic II w/ keyboard and A.V.R. Transformer (220V)	3	1/24/94	Building A,B	GOOD	1,462,500	
2	Expansion Ram	Simmram 4MB x 2 pcs/ set, Maker: Century	3	01/24/94	Building A,B	GOOD	214,200	
3	Copy Card	Maker: Apple, Macintosh Classic II	3	01/24/94	Building A,B	GOOD	116,400	
4	Removable Hard Disk	Model: MR-90 (Maker: Micronet)	1	01/24/94	Building A,B	GOOD	250,000	
5	Cartridge (LRT)-1	Maker: Micronet	2	01/24/94	Building A,B	GOOD	67,200	
6	SCSI Cable	Maker: Apple	3	01/24/94	Building A,B	GOOD	30,600	
7	SCSI Terminator	Maker: Apple	3	01/24/94	Building A,B	GOOD	18,600	
8	SCSI Preferal Cable	Maker: Apple	1	01/24/94	Building A,B	GOOD	8,400	
9	Local Talk Connector Kit	DIN-8 Maker: Apple	3	01/24/94	Building A,B	GOOD	30,600	
10	Local Talk Cable 10m	Maker: Apple	2	01/24/94	Building A,B	GOOD	20,400	
11	Local Talk Cable 25m	Maker: Apple	2	01/24/94	Building A,B	GOOD	36,800	
12	Large Sliding Microtome	Model: TU-213, Maker: Yamato Kohki	1	01/24/94	Laboratory	GOOD	550,000	
13	Spare Blade Holder Set	Maker: Yamato Kohki Industrial Co., Ltd.	1	01/24/94	Laboratory	GOOD	42,000	
14	Spare Blade S-35 50pcs/Box	Maker: Yamato Kohki Industrial Co., Ltd.	20	01/24/94	Laboratory	GOOD	178,000	
15	Microtome Knives	NB-170 17 cm, Maker: Yamato Kohki	5	01/24/94	Laboratory	GOOD	136,000	
16	Microtomeoil LA-100	Maker: Yamato Kohki Industrial Co., Ltd.	20	01/24/94	Laboratory	GOOD	31,400	
17	Slide Oil LA-115 (LA-NS)	Maker: Yamato Kohki Industrial Co., Ltd.	5	01/24/94	Laboratory	GOOD	8,500	
18	Autopsy Saw	AC220V, 50Hz, 1 with Step-Down Transformer, Maker: Natsume Seisakusho Co. Ltd.	1	01/24/94	Laboratory	GOOD	265,000	
19	Standard Thermometer	O C-50 C Scale: 0.1 C Maker: Jokyo Momoki Seisakusho Co., Ltd.	1	01/24/94	Laboratory	GOOD	59,000	

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## TECHNICAL COOPERATION EQUIPMENT

No.2

NO	NAME OF EQUIPMENT	DESCRIPTION	QUANTITY	ARRIVAL	PLACE	CONDITION	PRICE	REMARKS
20	Hollow Cathode Lamp (Zink)	Maker: Hamamatsu Photonics Co., Ltd. for Atomic Absorption Spectrophotometer	2	01/24/94	Laboratory	GOOD	68,000	
21	Hollow Cathode Lamp (Nickel)	Maker: Hamamatsu Photonics Co., Ltd. for Atomic Absorption Spectrophotometer	2	01/24/94	Laboratory	GOOD	68,000	
22	Plastic Container	Maker: Sanko Co., Ltd., Standard No. A-40-2	50	01/24/94	Laboratory	GOOD	255,000	
23	Round Large Tank with Lid	Code No. 45-275-07 Maker: LUCHI SEIBIDO Corp.	2	01/24/94	Laboratory	GOOD	33,400	
24	"TCM" Fork Lift Truck	Model: FG20N3(C) Gasoline Engine Clutch Type	1 set	05/13/94	Garage	GOOD	1,900,000	
	Spare Parts for Above:							
25	Element, Air	20801-03271	2 pcs	05/13/94	Garage	GOOD	7,800	
26	Bulb & Socket	222A2-42331	2 pcs	05/13/94	Garage	GOOD	300	
27	Bulb & Socket	222A2-42341	1 pc	05/13/94	Garage	GOOD	230	
28	Bulb & Socket	222A2-42351	1 pc	05/13/94	Garage	GOOD	150	
29	Bulb & Socket	222A2-42401	2 pcs	05/13/94	Garage	GOOD	600	
30	Bulb 12V/23W	22252-40021 (23652-42321)	2 pcs	05/13/94	Garage	GOOD	800	
31	Switch, Stop-Lam	23232-42072	1 pc	05/13/94	Garage	GOOD	1,300	
32	Bulb 12V/23W	23652-42321	2 pcs	05/13/94	Garage	GOOD	800	
33	Bulb 12V/5W	23652-42331	2 pcs	05/13/94	Garage	GOOD	900	
34	Bulb 23W/8W	23659-32011	2 pcs	05/13/94	Garage	GOOD	720	
35	Bulb 12V/10W	23659-32021 (22132-40041)	2 pcs	05/13/94	Garage	GOOD	1,700	
36	Wire, Link	25592-42081	1 pc	05/13/94	Garage	GOOD	550	
37	Fuse 30A	25592-42301	2 pcs	05/13/94	Garage	GOOD	460	
38	Fuse 10A	25592-42311	4 pcs	05/13/94	Garage	GOOD	920	
39	Bulb-12V/55W	521A2-42141	2 pcs	05/13/94	Garage	GOOD	7,400	

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## TECHNICAL COOPERATION EQUIPMENT

No.3

NO	NAME OF EQUIPMENT	DESCRIPTION	QUANTITY	ARRIVAL	PLACE	CONDITION	PRICE	REMARKS
40	Packing	24453-02102	2 pcs	05/13/94	Garage	GOOD	380	
41	Cable, RII	222A3-72011	1 pc	05/13/94	Garage	GOOD	1,920	
42	Cable, LII	222A3-72021	1 pc	05/13/94	Garage	GOOD	1,920	
43	Repair-Kit	25593-70111	2 pcs	05/13/94	Garage	GOOD	5,900	
		22673-79801						
44	Kit, shoe & Linnin	522A2-61561	2 pcs	05/13/94	Garage	GOOD	35,000	
45	Oil-Seal	03217-08501	2 pcs	05/13/94	Garage	GOOD	4,600	
46	Nipple	04901-00100	2 pcs	05/13/94	Garage	GOOD	280	
47	Nipple	04901-00190	2 pcs	05/13/94	Garage	GOOD	280	
48	Nipple	04901-00191	2 pcs	05/13/94	Garage	GOOD	260	
		22674-30501						
49	Bolt-Set	23654-39821	4 pcs	05/13/94	Garage	GOOD	3,200	
50	Joint, RII, Ball	24234-30551	2 pcs	05/13/94	Garage	GOOD	7,700	
51	Joint, LII, Ball	24234-30561	2 pcs	05/13/94	Garage	GOOD	7,700	
52	Wire, Accel	213A5-22001	1 pc	05/13/94	Garage	GOOD	2,100	
		213A5-22001C						
53	Filter, Suction	210F7-52022	1 pc	05/13/94	Garage	GOOD	5,700	
54	Filter	214A7-52081	1 pc	05/13/94	Garage	GOOD	5,700	
55	Packing	52252-72072	1 pc	05/13/94	Garage	GOOD	650	
56	Slipper	22678-32001	2 pcs	05/13/94	Garage	GOOD	5,600	
57	Overhaul-Kit, LI	214A8-49801	2 pcs	05/13/94	Garage	GOOD	10,800	
		214A8-49804						
58	Overhaul-Kit, TII	214A8-59801	2 pcs	05/13/94	Garage	GOOD	18,200	

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## TECHNICAL COOPERATION EQUIPMENT

No.4

NO	NAME OF EQUIPMENT	DESCRIPTION	QUANTITY	ARRIVAL	PLACE	CONDITION	PRICE	REMARKS
59	Repair-Kit	21445-33001	1 pc	05/13/94	Garage	GOOD	3,400	
60	Gasket-Kit, Full	N-10101-001125	1 pc	05/13/94	Garage	GOOD	14,640	
		20801-05333						
61	Camband-Kit	N-19110-001101	1 pc	05/13/94	Garage	GOOD	3,750	
62	Repair-Kit	N-21020-001100	1 pc	05/13/94	Garage	GOOD	10,500	
63	Belt, Fan	N-11720-L1102	1 pc	05/13/94	Garage	GOOD	1,900	
64	Plug-Spark	N-22401-W8914	4 pcs	05/13/94	Garage	GOOD	3,600	
65	Brush	N-23135-W7110	2 pcs	05/13/94	Garage	GOOD	1,100	
66	Brushing	N-23319-M8011	1 pc	05/13/94	Garage	GOOD	420	
67	Brush(+)	N-23380-M8310	2 pcs	05/13/94	Garage	GOOD	1,580	
68	Brush (-)	N-23380-M8311	1 pc	05/13/94	Garage	GOOD	790	
69	Switch, Oil-Press	N-25240-89910	1 pc	05/13/94	Garage	GOOD	1,300	
70	Filter, Oil	20801-01041	3 pcs	05/13/94	Garage	GOOD	2,850	
71	Element, Fuel	20801-02061	3 pcs	05/13/94	Garage	GOOD	1,650	
72	Acoma Portable X-Ray Unit	Model: MT-40 (AC220V)	1 set	05/13/94	not yet in CFI	GOOD	975,000	
	Accessories:					GOOD		
73	X-Ray Processing Tank,	40 Liter of W. Tank for 5-7 pcs. 14x17 inch film 3pcs/set	1 set	05/13/94	not yet in CFI	GOOD	38,000	
74	Polyethylene Bottle	5 Liter white for Fixer	2 pcs	05/13/94	not yet in CFI	GOOD	1,700	
75	Polyethylene Bottle	5 Liter brown for developer	2 pcs	05/13/94	not yet in CFI	GOOD	2,200	
76	Film Illuminator	Desk Type, for 2 pcs. of 14x17 inch Film	1 pc	05/13/94	not yet in CFI	GOOD	36,000	
77	Film Hanger	14x17 inch	2 pcs	05/13/94	not yet in CFI	GOOD	3,400	
78		14x4 inch	2 pcs	05/13/94	not yet in CFI	GOOD	3,100	

1/1/94

## TECHNICAL COOPERATION EQUIPMENT

No.5

NO	NAME OF EQUIPMENT	DESCRIPTION	QUANTITY	ARRIVAL	PLACE	CONDITION	PRICE	REMARKS
79	Film DANGER	10x12 inch	2 pcs	05/13/94	not yet in CFI	GOOD	2,900	
80		8x10 inch	2 pcs	05/13/94	not yet in CFI	GOOD	2,900	
81	Cassette	14x17 inch	2 pcs	05/13/94	not yet in CFI	GOOD	26,200	
82		14x14 inch	2 pcs	05/13/94	not yet in CFI	GOOD	23,800	
83		10x12 inch	2 pcs	05/13/94	not yet in CFI	GOOD	16,600	
84		8x10 inch	2 pcs	05/13/94	not yet in CFI	GOOD	14,200	
85	Intensifying Screen	14x17 inch	2 pcs	05/13/94	not yet in CFI	GOOD	23,800	
86		14x14 inch	2 pcs	05/13/94	not yet in CFI	GOOD	19,000	
87		14x12 inch	2 pcs	05/13/94	not yet in CFI	GOOD	12,000	
88		8x10 inch	2 pcs	05/13/94	not yet in CFI	GOOD	10,600	
89	X-Ray Grid, 34 lines/cm	14x17 inch	1 pc	05/13/94	not yet in CFI	GOOD	71,000	
90		14x14 inch	1 pc	05/13/94	not yet in CFI	GOOD	60,000	
91		10x12 inch	1 pc	05/13/94	not yet in CFI	GOOD	33,000	
92		8x10 inch	1 pc	05/13/94	not yet in CFI	GOOD	27,000	
93	Film Storage Box.	1.0mmrb, for 6 doz. of 14x17 inch film	1 pc	05/13/94	not yet in CFI	GOOD	42,000	
94	Protective Apron	0.5mmrb, M-size	1 pc	05/13/94	not yet in CFI	GOOD	42,000	
95	Protective Glove	0.5mm, 42cm	1 pc	05/13/94	not yet in CFI	GOOD	26,000	
96	Protective Glasses	0.5mmrb	1 pc	05/13/94	not yet in CFI	GOOD	27,000	
97	Film Maker, Alphabets & Number		1 pc	05/13/94	not yet in CFI	GOOD	7,000	
98	Dark Room Lamp		1 pc	05/13/94	not yet in CFI	GOOD	6,000	
99	X-Ray film, 100/box	14x17 inch	1 box	05/13/94	not yet in CFI	GOOD	49,500	
100		14x14 inch	1 box	05/13/94	not yet in CFI	GOOD	38,100	
101		12x10 inch	1 box	05/13/94	not yet in CFI	GOOD	24,000	

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## TECHNICAL COOPERATION EQUIPMENT

No. 6

NO	NAME OF EQUIPMENT	DESCRIPTION	QUANTITY	ARRIVAL	PLACE	CONDITION	PRICE	REMARKS
102	X-Ray Film, 100/box	10x8 inch	1 box	05/13/94	not yet in CH	GOOD	18,000	
103	Developer	5 gallon/bottle	1 bottle	05/13/94	not yet in CH	GOOD	9,500	
104	Fixer	5 gallon/bottle	1 bottle	05/13/94	not yet in CH	GOOD	8,300	
105	Dosimeter		1 pc	05/13/94	not yet in CH	GOOD	40,300	
106	Temperature and Humidity Sensor for Hygrothermometer	Model: Y11-33R, Model Y11R with Cable (10m)	6 set	05/13/94	Laboratory	GOOD	426,000	
107	Soft-ware	"AMBASSADOR" Ver. 1.0 Japanese & English Type	1 set	05/13/94	Storehouse	GOOD	31,900	
108	RAM Board for "Macintosh	XAP-4000, 4MB Memory	8 pcs	05/13/94	Storehouse	GOOD	152,000	
109	Waterheater	Automatic, 60/80 Gallon Capacity	1 pc	12/94	Storehouse	GOOD	180,000	P45,000.00
110	Washing Mashine	6 liter Capacity	1 pc	05/94	Expert House	GOOD	50,000	P12,500.00
111	Vehicle	Mitsubishi Pajero, V36V11NDL	1 Unit	05/94	DENR	GOOD	2,249,000	P562,250.00
112	Big Animal Scale	Capacity 2t, Maker: Patebunks	1 pc	05/94	Storehouse	GOOD	900,000	P225,000.00
113	Soft-ware	"EXCEL" Version 4.0	1 set	04/15/94	Storehouse	GOOD	26,400	P6,600.00
114	Soft-ware	Systat	1 set	05/94	Storehouse	GOOD	220,000	P55,000.00
115	Soft-ware	Palaron Timbuktu	1 set	05/94	Storehouse	GOOD	163,096	P40,774.00
116	Soft-ware	SAM	1 set	05/94	Storehouse	GOOD	15,360	P3,840.00
117	Soft-ware	Gran Mate 2.0	1 set	05/94	Storehouse	GOOD	16,000	P4,000.00
118	Scanner	Maker: Apple	1 pc	05/94	Storehouse	GOOD	184,000	P46,000.00
119	Solenoid Valve	Barkert Type: 290A-12	4 pc	05/94	Expert Room	GOOD	81,291	P20,322.80
120	Self Operated Temperature Controller	Type 43-3, W/Three way valve	1 Unit	05/94	Expert Room	GOOD	61,377	P15,344.15
121	Programmable Timer	Legrand 24hrs. type	3pc	3/28/94	Expert Room	GOOD	12,984	P3,246.00

1/11/94

## TECHNICAL COOPERATION EQUIPMENT

No.7

NO	NAME OF EQUIPMENT	QUANTITY	ARRIVAL	PLACE	CONDITION	PRICE	REMARKS
	Chemical Reagent:						
122	Formic Acid 500 ml	37	1/24/94	Laboratory	GOOD	74,000	
123	Phenol 500g	15	1/24/94	Laboratory	GOOD	24,000	
124	Formalin 20 kg	5	1/24/94	Laboratory	GOOD	83,500	
125	Aluminum Potassium Sulfate (Anhydride)		1/24/94	Laboratory	GOOD		
126	Anhydride 500g	100	1/24/94	Laboratory	GOOD	270,000	
127	Crystals 500g	1	1/24/94	Laboratory	GOOD	1,400	
128	Sodium Hydrogen Carbonate 15kg	1	1/24/94	Laboratory	GOOD	20,000	
	Books:						
129	Carnivore Behaviour, Ecology & Evolution	1	1/24/94	Library	GOOD	19,090	
130	Wildlife Production Systems	1	1/24/94	Library	GOOD	28,866	
131	Australian Freshwater Crocodiles	1	1/24/94	Library	GOOD	1,332	
132	Australian Saltwater Crocodiles	1	1/24/94	Library	GOOD	1,332	
133	Crocodiles of Australia	1	1/24/94	Library	GOOD	5,339	
134	Fishes of the World, 2/E	1	1/24/94	Library	GOOD	16,698	
135	Animal Traps & Trapping, 2/E	1	1/24/94	Library	GOOD	5,128	
136	Reproduction & Disease in Captivite & Wild Animals	1	1/24/94	Library	GOOD	19,984	
137	Introduction to Vegetation Analysis	1	1/24/94	Library	GOOD	26,646	
138	Elementary Mathematical Ecology	1	1/24/94	Library	GOOD	6,234	
139	Principles of Wildlife Management	1	1/24/94	Library	GOOD	13,613	
140	Macroevolutionary Dynamics: Species, Niches & Adapti	1	1/24/94	Library	GOOD	9,171	
141	Zoo & Wild Animal Medicine, 2/E	1	1/24/94	Library	GOOD	26,996	
142	Acid Toxicity & Aquatic Animals	1	1/24/94	Library	GOOD	18,874	

## TECHNICAL COOPERATION EQUIPMENT

No.8

NO	NAME OF EQUIPMENT	QUANTITY	ARRIVAL	PLACE	CONDITION	PRICE	REMARKS
143	Management of Lakes & Ponds 2/E	1	1/24/94	Library	GOOD	10,156	
144	Restoration Ecology: Synthetic Approach to LCO	1	1/24/94	Library	GOOD	7,084	
145	Scaling: Why is Animal size so Important ?	1	1/24/94	Library	GOOD	5,750	
146	Marking of Specimens of Animal & Plant Species in	1	1/24/94	Library	GOOD	3,389	
147	Statistics for Biologist 3/E	1	1/24/94	Library	GOOD	15,543	
148	Guide to Scientific Writing Manual for Students & Res	1	1/24/94	Library	GOOD	2,661	
149	The Alligator: Monarch of Marsh	1	1/24/94	Library	GOOD	1,528	
150	Care of Reptiles & Amphibians in Captivity 2/E	1	1/24/94	Library	GOOD	8,414	
151	Comparative Physiology of the Vertebrate Digestive	1	1/24/94	Library	GOOD	18,874	
152	Teeth: Form, Function & Evolution	1	1/24/94	Library	GOOD	22,483	
153	Concise Survey of Animal Behaviour	1	1/24/94	Library	GOOD	7,699	
154	Ecological Experiments: Purpose, Design & Execution	1	1/24/94	Library	GOOD	7,084	
155	Ecosystem Management for Parks & Wilderness	1	1/24/94	Library	GOOD	5,142	
156	Wildland Water Quality Sampling: Sampling & Analysis	1	1/24/94	Library	GOOD	10,280	
157	Researcher's Guide to Scientific & Medical Illustrat	1	1/24/94	Library	GOOD	6,459	

1/11/04

## List of Counterparts (As of March 31, 1994)

UNIT	NAME	YEAR EMPLOYED	POSITION	YEAR RESIGNED	FURTHER INFORMATION
Resource Management & Ecology Unit	<u>Mr. P. A. Regoniel</u>	<u>01/88</u>	<u>S. R.</u>		
	Mr. R. Leyba	11/91	J. R.	1/94	
	Mr. G. V. Ortega	11/87	OIC		became director
Experimental Farming Unit	Mr. M. C. Sibal	11/87	S. R.	7/93	
	Mr. I. G. Sarsagat	12/87	J. R.	6/93	
	Mr. A. G. Barte	12/87	J. R.	1/94	
	Mr. R. D. Bero	01/88	J. R.	7/93	
	<u>Mr. W. L. Tabinas</u>	<u>07/90</u>	<u>J. R.</u>		
	<u>Mr. R. Sumiller</u>	<u>02/92</u>	<u>J. R.</u>		
Nutrition and Biochemistry Unit	Mr. R. Sumiller	02/92	<u>J. R.</u>		Transferred to experimental Farming
	<u>Ms. G. C. Malolos</u>	<u>02/93</u>	<u>S. R.</u>		
	<u>Mr. R. S. Elivera</u>	<u>09/93</u>	<u>S. R.</u>		
Pathology & Physiology Unit	Ms. A. Manglicmot	03/92	J. R.	6/93	
Clinics Unit	<u>Dr. M. L. Jamerlan</u>	<u>02/91</u>	<u>S. R.</u>		
	Ms. C. Sumagaysay	05/92	J. R.	6/93	
Research Head					

## Expenses by the Philippines Side

Category	1992 Result	1993 Result	1994
Personal Services	2,891,313	3,859,304	3,860,000
Maintenance and Other			6,885,000
Operation Expenses			
Travelling Expenses	648,000	382,911	
Communication Expenses	53,986	20,658	
Repairs and Maintenance of Government Facilities	134,997	-	
Transportation	63,958	5,589	
Other Services	1,530,000	1,223,145	
Supplies and Materials	1,620,000	1,424,665	
Rent	54,000	-	
Water Illumination and Power	649,849	915,687	
Repairs and Maintenance of Government Vehicles	624,379	160,471	
Capital Outlays	126,992	548,908	3,225,000
	(peso)	(peso)	
<b>TOTAL</b>	<b>8,396,575</b>	<b>8,541,340</b>	<b>14,000,000</b>



Annex 9.

Technical Cooperation Program

Phase	Extension Period												
	1992			1993			1994			1994			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	
Technical Cooperation Program													
(1) Population Dynamics and Ecology of Wild Crocodiles													
• Study of Population dynamics and ecology of the two species. Submission and publication of preliminary report on the status of crocodile in the Philippines.													
• Conduct ecological Study.													
(2) Conservation of Wild Crocodiles													
• Identification of potential sanctuary areas.													
• Submission of second sanctuary proposal and formulation of sanctuary management proposal.													
• Reintroduction and monitoring of captive-bred hatchlings after declaration of sanctuary.													
(3) Establishment of Crocodile Farming Technology (captive breeding)													
• Fundamental researches for improvement of farming techniques.													
• Preparation of basic materials for sustainable use with data obtained from the development of rearing and breeding techniques.													

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Technical Cooperation Program

Phase	Extension Period											
	1992			1993			1994			1994		
	I	II	III	IV	I	II	III	IV	I	II	III	IV
Calendar Year	1992			1993			1994			1994		
Fiscal Year	I	II	III	IV	I	II	III	IV	I	II	III	IV
3-1. Rearing Technology	<ul style="list-style-type: none"> <li>• Improvement of rearing techniques.</li> <li>• Framing of a provisional manual.</li> </ul>											
3-2. Breeding Technology	<ul style="list-style-type: none"> <li>• Securement and maintenance of the minimum breeding gene stocks required for each species.</li> <li>• Improvement of the breeding techniques.</li> <li>• Establishment of mass production techniques.</li> <li>• Framing of a provisional manual.</li> </ul>											
(4) Promotion of Crocodile Farming and Ranching Management	<ul style="list-style-type: none"> <li>• Establishment and operation of training facilities (demonstration farm).</li> <li>• Implementation of pilot testing farms to foster private C.porosus farms.</li> <li>• Experimental processing of skin.</li> <li>• Preparation and submission of the proposal of a control scheme for private C.porosus farms.</li> </ul>											
(5) Public Information and Training	<ul style="list-style-type: none"> <li>• Information campaigns.</li> <li>• Seminar for promoting crocodile farming.</li> <li>• Production of informative material.</li> </ul>											

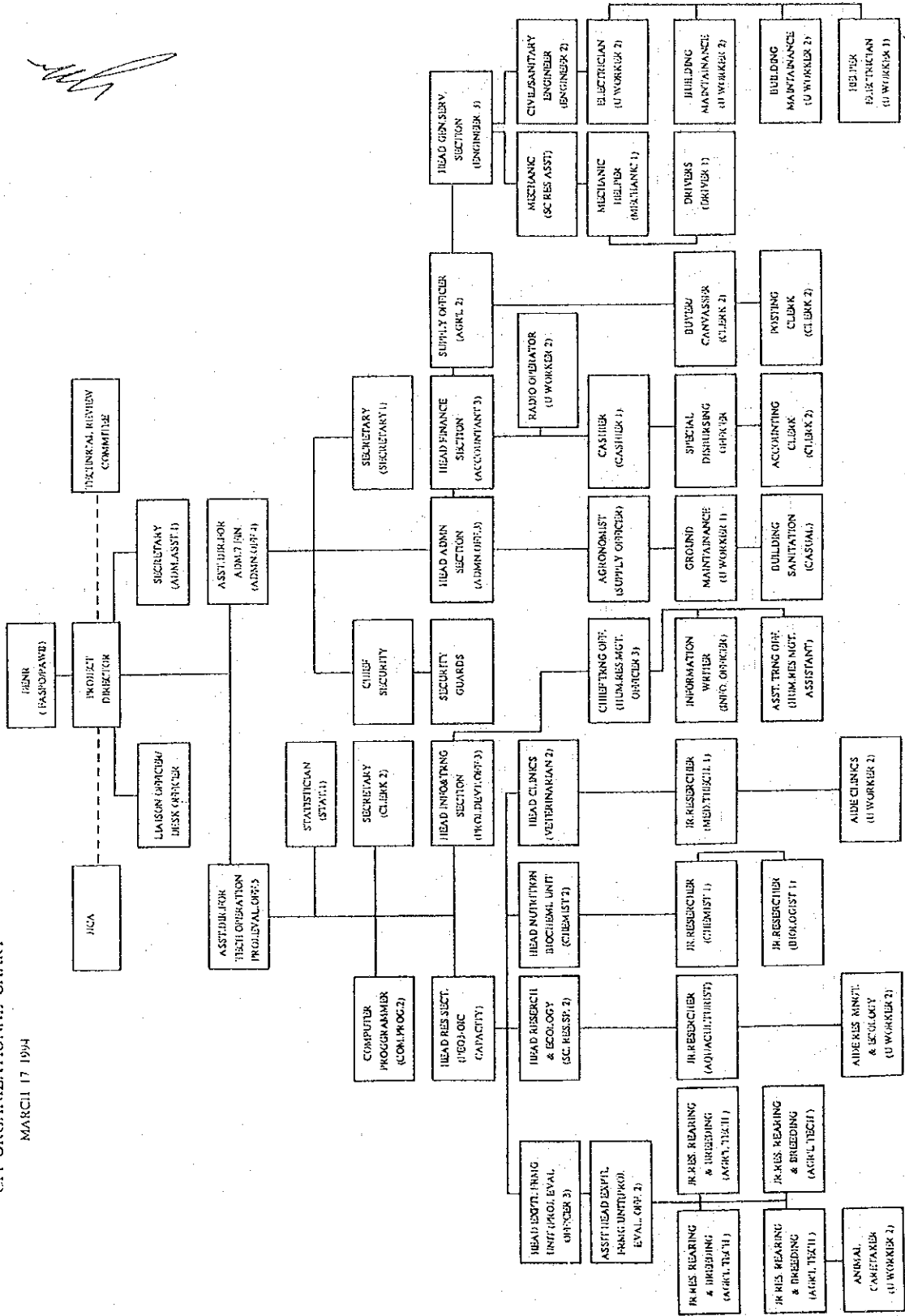
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## TECHNOLOGY OUTPUT OF THE PROJECT

Subjects of the Project	Science / Field	Technology / Activity	Field	Output
Population Dynamics and Ecology of Wild Crocodiles in the Philippines	1. Ecology	1-1. Morphology		Assessment of the status of crocodiles in the Philippines.
		1-2. Feeding habit		
Conservation of Wild Crocodiles	1. Environmental Evaluation for Crocodile Sanctuary	1-3. Meteorological observation		Conservation of wild crocodiles
		1-4. Population census and distribution		
	1-5. Reproductive biology			
	1-1. Habitat survey and evaluation.			
	1-2. Identification of possible sanctuary site			
2. Sanctuary Management	2-1. Sanctuary establishment and management proposal			
	2-2. Monitoring survey and reintroduction of captive bred crocodiles if needed.			
Captive Rearing and Breeding	1. Farming Management	1. Farming management		Development of crocodile captive breeding and farming technology suitable in the Philippines.
	2. Pathology & Physiology (Disease Prevention)	2-1. Disease diagnosis and prevention		
		2-2. Treatment		
		2-3. Clinical evaluation on crocodile.		
3. Medicine & Surgery	2-4. Physiological research to enhance farming productivity			
Promotion of Crocodile Farming and Ranching Management	4. Nutrition	3. Nutritional requirements for the profitable and sustainable farming		Dissemination of crocodile farming technology.
		1. International and Domestic Regulation on Wildlife Trade		
	2. Introduction and promotion of crocodile farming as a new industry.	1-1. Registration under CITES as a Captive Breeding Operation		
		2-2. Demonstration and pilot Farming		
		2-3. Control Scheme on private crocodile farms		
	2-4. Training farmers.			
	2-5. Distribution of captive bred crocodiles			
Public Information and Training	Information, Communication and Education	1. Making Informative Materials		Promotion of awareness of CFI activities.
		2. Information dissemination		
		3. Education of people on the concept of project		

CIH ORGANIZATIONAL CHART

MARCH 17 1994



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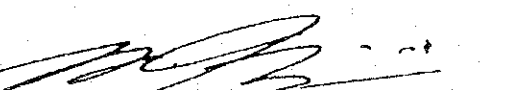
3 延長時のR/Dおよびマスタープラン

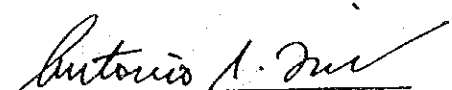
THE RECORD OF DISCUSSIONS ON EXTENSION OF THE PERIOD  
OF TECHNICAL COOPERATION FOR  
THE CROCODILE FARMING INSTITUTE PROJECT  
IN THE REPUBLIC OF THE PHILIPPINES

The following recommendation made by the Japanese and Philippine joint Evaluation Team in Manila on April 21, 1992, Mr. Masataka Iijima, Resident Representative of the Japan International Cooperation Agency (hereinafter referred to as "JICA") in the Republic of the Philippines, had a series of discussions with the authorities concerned of the Government of the Republic of the Philippines on extension of the period of Technical Cooperation for the Crocodile Farming Institute Project (hereinafter referred to as "the Project") based on the Record of Discussions which was signed in Manila on August 20, 1987.

As a result of the discussions, both sides agreed to recommend to their respective Governments that the period of Technical Cooperation for the project be extended from August 20, 1992 to August 19, 1994, in accordance with the Document attached hereto.

Manila, August 17, 1992

  
Mr. MASATAKA IIJIMA  
Resident Representative  
JICA Philippine Office

  
Atty. ANTONIO S. TRIA  
Undersecretary  
Department of Environment  
and Natural Resources

ATTACHED DOCUMENT

1. The period of technical cooperation to be extended will be two (2) years from August 20, 1992.
2. Technical cooperation program and tentative schedule of implementation during the extended period are shown in the Annex attached hereto.
3. All matters other than those mentioned above will be treated in the same manner as prescribed in the articles of the Record of Discussions signed on August 20, 1987, during the extended period.

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A N N E X

1. Technical Cooperation Program

ITEMS OF TECHNICAL TRANSFER	: Year :			
	1992	1993	1994	
	Month: 8	12:1	12:1	8
	:	:	:	:
1. Population Dynamics & Ecology	:	:	:	:
of Wild Crocodiles	:	:	:	:
2. Conservation of Wild Crocodiles	:	:	:	:
3. Crocodile Rearing	:	:	:	:
4. Crocodile Breeding	:	:	:	:
5. Promotion of Farming and Ranching Management	:	:	:	:
6. Public Information & Training	:	:	:	:


2. Tentative Schedule of Implementation

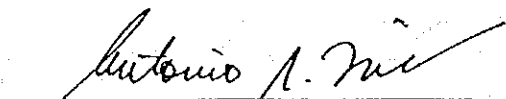
SUBJECTS OF TECHNICAL TRANSFER	: Year :			
	1992	1993	1994	
	Month: 8	12:1	12:1	8
	:	:	:	:
<u>PHILIPPINE SIDE</u>	:	:	:	:
1. Allocation of appropriate number of counterparts	:	:	:	:
2. Allocation of necessary budget for the Project	:	:	:	:
<u>JAPANESE SIDE</u>	:	:	:	:
1. Dispatch of Japanese experts	:	:	:	:
a. Long-term Experts	:	:	:	:
b. Short-term Experts	:	:	:	:
2. Training of Philippine counterpart personnel in Japan	:	:	:	:
3. Provision of equipment	:	:	:	:

MINUTES OF MEETING

Based upon the Record of Discussions on Extension of the Period of Technical Cooperation for the Crocodile Farming Institute Project, signed on August 17, 1992, Mr. MASATAKA IIJIMA, Resident Representative of Japan International Cooperation Agency in the Republic of the Philippines, and the officials concerned of the Government of the Republic of the Philippines have worked out the technical cooperation activity plan, as attached herewith, for the Crocodile Farming Institute Project.

Manila, August 17, 1992

  
\_\_\_\_\_  
Mr. MASATAKA IIJIMA  
Resident Representative  
JICA Philippine Office

  
\_\_\_\_\_  
Atty. ANTONIO S. TRIAS  
Undersecretary  
Department of Environment  
and Natural Resources



TECHNICAL COOPERATION ACTIVITY PLAN

SUBJECT	PROGRAM
1. Population Dynamics and Ecology of Wild Crocodile	1. Study of population dynamics and ecology of the two species Submission and publication of preliminary report on the status of crocodiles in the Phil. 2. Conduct ecological study (food habit, reproductive biology, others)
2. Conservation of Wild Crocodile (Establishment of sanctuaries to conserve wild crocodiles.)	1. Identification of potential sanctuary areas. 2. Submission of the second sanctuary proposal and formulation of sanctuary management proposal. 3. Reintroduction and monitoring of captive-bred hatchlings after declaration of sanctuary
Establishment of Crocodile Farming Technology	1. Fundamental researches for the further improvement of farming techniques. 2. Preparation of basic materials for sustainable use with data obtained from the development of rearing and breeding techniques.
3. Crocodile Rearing	1. Improvement of rearing techniques. 2. Framing of a provisional manual.

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4. Crocodile Breeding Techniques	<ul style="list-style-type: none"> <li>: 1. Securement and maintenance of the minimum breeding gene stocks required for each species (200 varieties) in order to avoid undesirable due to inbreeding.</li> <li>: 2. Improvement of the breeding Techniques.</li> <li>: 3. Establishment of mass production techniques.</li> <li>: 4. Framing of a provisional manual.</li> </ul>
5. Promotion of Farming and Ranching Management (Dissemination of Farming Technology)	<ul style="list-style-type: none"> <li>: 1. Establishment and operation of training facilities. (Establishment and operation of a demonstration farm in CFI premises.)</li> <li>: 2. Implementation of pilot testing farms to foster private C. porosus farms and preparation of materials for the purpose.</li> <li>: 3. Experimental processing of Skin(Tannery and preservation)</li> <li>: 4. Preparation and submission of of the proposal of a control scheme for private C. porosus farms.</li> </ul>
6. Public Information and Training (Enlightenment of the people on wildlife conservation through sustainable use.	<ul style="list-style-type: none"> <li>: 1. Information campaigns.</li> <li>: 2. Seminar for promoting crocodile farming.</li> <li>: 3. Production of Informative Material.</li> </ul>

#### 4. ワシントン条約 (CITES) とワニ養殖研究所

— ミンドロワニ・イリエワニともにCITESの付属書Iに載っている。つまりその扱いは原則『商業取引は禁止され、学術目的の国際取引にも輸出国と輸入国の政府が発行する許可証が必要』となる。

— しかし、ワニ養殖研究所のイリエワニは、93年3月1日より、CITES事務局に人工繁殖事業として登録したことで、ワニ研で人工養殖によって生まれたイリエワニについては輸出国の許可証があれば商業取引の対象としてよいことになった(付属書IIの扱い)。

(イリエワニの種としての人工繁殖事業については、既に別の国での事業を締約国会議で登録済であるためCITES事務局が承認すればこのような取扱が可能)

(人工養殖によって生まれた生物については通常もう1世代後でないと商業取引可能とならないがイリエワニについては締約国議決によって人工養殖で生まれた世代がそのまま対象となることになっている)

— 一方、ワニ養殖研究所のミンドロワニは、付属書Iの通常の扱い通りである。もし、種としての人工繁殖事業を、締約国会議で登録できれば人工養殖によって生まれた生物のもう一世代後の繁殖個体を付属書IIの扱いにできる。

以上

フィリピンにおける保護対象野生動物植物（ワシントン条約付属書Iリスト）

綱/科 Class/Family	一般名 Common Name	和名 Japanese Name	学術名 Scientific Name
1.Mammalia (哺乳類)			
Dugongidae	Dugong	シユゴン	<i>Dugong dugon</i>
Bovidae	Tamaraw	タマラオ(ミント・ロスイキ・ユウ)	<i>Bubalus mindorensis</i>
Balaenopteridae	Finback Whales/Ronquals	ニタリカシラ	<i>Balaenoptera edeni</i>
Cervidae	Calamian Deer	カラムアンジカ	<i>Cervus porcinus</i>
2.Aves(鳥類)			
Accipitridae	Philippine Eagle	フィリピンワシ	<i>Pithecophaga jefferyi</i>
Falconidae	Peregrine Falcon	ハヤブサ (亜種)	<i>Falco peregrinus ernesti</i>
	Migratory Peregrine Falcon	ハヤブサ (亜種)	<i>Falco peregrinus calidus</i>
Phasianidae	Palawan Peacock Pheasant	ハラワンコクジヤク	<i>Polyplectron emphanum</i>
Scolopacidae	Spotted Greenshank	カラフトアオシツキ	<i>Tringa guttifer</i>
	Long-billed Curlew	ネウロクシキ	<i>Numerius madagascariensis</i>
Columbidae	Nicobar Pigeon	ミノバト	<i>Caloenas nicobarica</i>
	Mindoro Imperial Pigeon	ミンドロバト	<i>Ducula mindorensis</i>
Strigidae	Giant Scops Owl	オニコバシク	<i>Otus gurneyi</i>
Pittidae	Koch's Pitta	クノバイトヨウ	<i>Pitta kochi</i>
3.Reptilia(爬虫類)			
Cheloniidae	Green Sea Turtle	アウミカメ	<i>Chelonia mydas</i>
	Hawksbill Turtle	クイマイ	<i>Eretmochelys imbricata</i>
	Olive-ridley Turtle	(クイメイヨウ)ヒメウミカメ	<i>Lepidochelys olivacea</i>
Crocodylidae	Philippine Crocodile	ミンドロワニ	<i>Crocodylus mindorensis</i>
	Saltwater Crocodile	イソワニ	<i>Crocodylus porosus</i>
Dermochelyidae	Leatherback Turtle	ワカメ	<i>Dermochelya coriacea</i>
4.Flora(植物)			
Araceae	Sander's alocasia	コウライタコ	<i>Alocasia sandariana</i>
Orchidaceae	Slippea orchids	ハ・フィネ・デ・イム属	<i>Paphiopedilium spp.</i>
Zingiberaceae	Camia	ハシユクシヤ属	<i>Hedychium philippinense</i>
Nepenthaceae	Picher Plant	オウゴンカスラ	<i>Nepenthes rajah</i>

出典：1990 Statistics on Philippine Protected Areas and Wildlife Resources, PAWB, DENR

注) 付属書Iリストとは、商業取引禁止品種リストを指す。フィリピンでは、哺乳類3種、鳥類10種、爬虫類6種、植物4種の計23種が挙げられている。