No.

ウルグァイ獣医研究所強化計画
終了時評価報告書

平成13年4月

国 際 協 力 事 業 団
農 業 開 発 協 力 部

農 開 園
J R
01 － 38

序　　文

ウルグァイ獣医研究所強化計画は、平成 8 年 3 月 22 日に署名された討議議事録（R/D）に基づき、ウルグァイ国の主要産業の 1 つである畜産業の発展に寄与するため、農牧水産省家畜衛生研究部（DILAVE）における家畜疾病診断技術の改善と技術者養成を目的として、平成 8 年 10 月 1 日から 5 年間の予定で協力が行われてきました。

今般、国際協力事業団は、プロジェクト協力期間の終了を 7 か月後に控え、平成 13 年 3 月 4 日から同 17 日まで、当事業団国際協力総合研究所国際協力専門員　多田融右氏を団長とする終了時評価調査団を現地に派遣しました。

同調査団は、ウルグァイ側評価委員と合同評価委員会を構成して、プロジェクトの活動実績、計画達成度等について総合的な評価を行いました。この結果、本件計画はきわめて順調に進展し、計画どおりの期間内に所期の目的をほとんど達成できることが明らかになりました。このため合同評価委員会は、評価調査結果を合同評価報告書に取りまとめ、署名を取り交わしたうえ、日本・ウルグァイ両国政府関係機関に提出しました。

本報告書は、合同評価報告書に基づいて本調査団の調査・評価結果を取りまとめたものであり、今後広く関係者に活用されるとともに、本プロジェクト並びに関連する国際協力の推進に寄与することを願うものです。

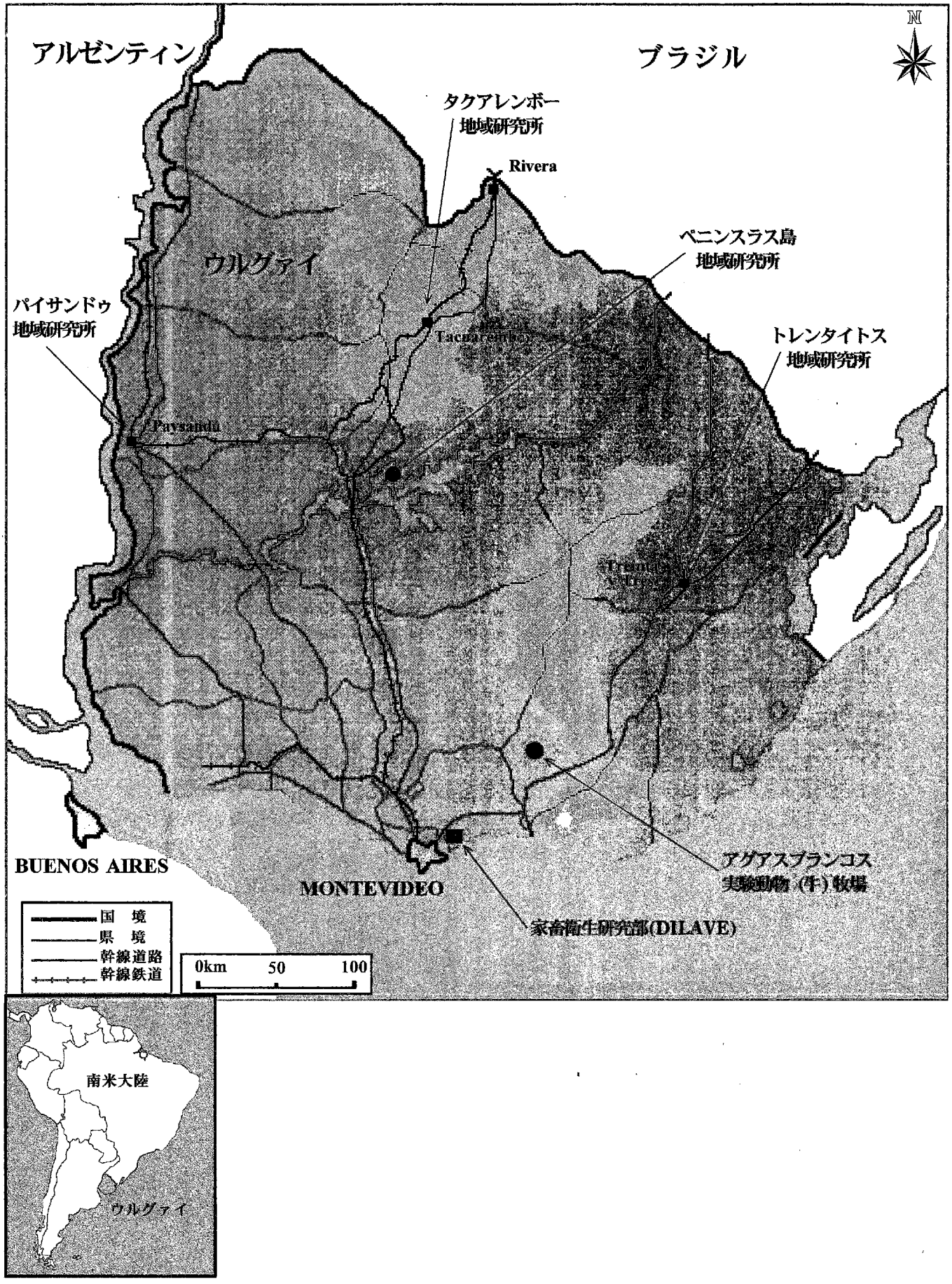
ここに、本調査にご協力いただいたウルグァイ政府関係者及び我が国の関係各位に厚く御礼申し上げるとともに、当事業団の業務にいっそうのご支援をお願いする次第です。

平成 13 年 4 月

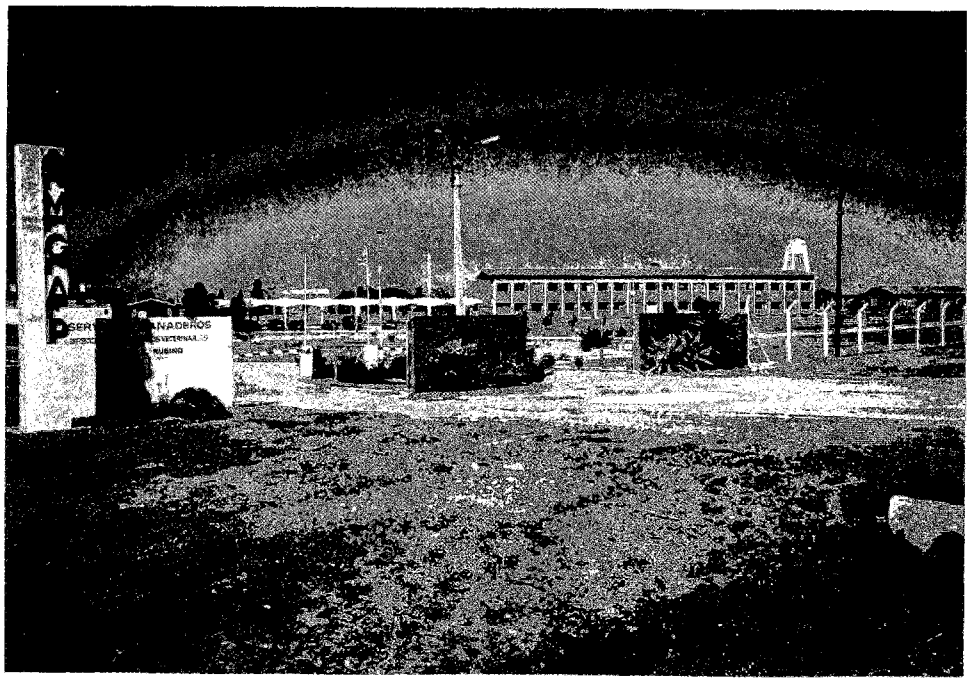
国 際 協 力 事 業 団

理事　**後 藤　　洋**

家畜衛生研究部、地域研究所、付属牧場の位置図



写真－１．ウルグァイ家畜衛生研究部(DILAVE)正門（遠景）



写真－２．正門（近景）

目　　次

付属資料

１．終了時評価調査団の派遣

１－１　調査団派遣の経緯と目的

ウルグァイでは畜産業を輸出貢献産業と位置づけて振興しており、畜産業の発展に必要不可欠な家畜衛生の向上は、同国の畜産業ひいては経済発展に大きく寄与するものである。家畜疾病の存在は国家経済と畜産物流通の上で、大きな障害となる。すなわち、家畜疾病は、家畜の生産性の低下によって農家の生計に悪影響を与えるのみならず、国内及び国外市場における畜産物の流通を著しく阻害する。

ウルグァイ国農牧水産省の家畜衛生研究部 (DILAVE) は家畜疾病診断、輸出畜産物の検査、家畜衛生研究を業務としている。正確かつ迅速な診断は効率的効果的な家畜疾病防除の基本であり、診断技術の整備、確立はウルグァイの畜産物の品質や安全性に対する国際的な信用を高め、輸出の振興を図るためにも重要である。しかし、DILAVE の検査診断技術水準は十分でなく、機器の多くが老朽化していたことも相まって日常の診断にも支障をきたし、技術者の養成・確保を含めた家畜伝染病診断技術の改善が急務となっていた。このためウルグァイ政府は、1993 年 1 月、我が国に対し重要家畜疾病診断技術の改善、技術者の養成を目的としたプロジェクト方式技術協力を要請してきた。

これを受けて国際協力事業団は、1994 年 12 月に事前調査団を派遣、1995 年 11 月には長期調査を実施したうえ、1996 年 3 月に実施協議調査団を派遣して、討議議事録(Record of Discussions)及び暫定実施計画(Tentative Schedule of Implementation) の署名・交換を行った。

本プロジェクトは 1996 年 10 月から長期専門家を派遣して、家畜伝染病の迅速かつ正確な検出のための診断技術改善を目標に技術協力を開始した。1997 年 4 月には計画打合せ調査団を派遣して、5 年間の具体的な活動計画としての暫定詳細実施計画(Tentative Detailed Implementation Plan)、及びプロジェクト・デザイン・マトリックス(PDM) を策定し、それに沿って協力活動が進められてきた。さらに、1999 年 6 月には巡回指導調査団が派遣されて、活動の進捗状況を評価するとともに、必要な助言指導を行い、併せて TDIP 及び PDM の若干の修正を行った。

プロジェクトは現在、協力開始から 5 年目を迎え、2001 年 9 月 30 日に所定の協力期間を終了する予定である。このため、終了時評価調査団を派遣してこれまでの活動実績を評価するとともに、協力期間の終了に向けた提言を行い、協力活動から得られた教訓を提示することとした。

１－２　調査団の構成

（１）総括

国際協力事業団 国際協力総合研修所 国際協力専門員　　多田　融右

（２）病理学

農林水産省 家畜衛生試験場 病態研究部 感染病理研究室 室長　　播谷　亮

（３）細菌学

農林水産省 家畜衛生試験場 総合診断研究部 疫学研究室 室長　　濱岡　隆文

（４）ウイルス学

農林水産省 動物検疫所 動物検疫課 主任検疫官　　大友　浩幸

（５）協力政策

農林水産省 総合食料局 国際部 技術協力課プロジェクト企画係長　　中村　裕一

（６）評価分析

株式会社ニュージェック 国際部 部長　　久保　眞介

（７）計画評価

国際協力事業団 農業開発協力部 畜産園芸課　　勝西　純子

１－３　調査日程

日順	月日（曜日）	訪問先・用務	場　所
1	3月　4日(日)	成田発（サンパウロ経由）	移動日
2	5日(月)	モンテビデオ着 専門家との打合せ	モンテビデオ
3	6日(火)	午前　農牧水産省畜産サービス総局 午後　家畜衛生研究部（DILAVE）表敬 第1回合同評価委員会（評価方法と評価スケジュールの説明・確認）	
4	7日(水)	午前　DILAVE内調査（カウンターパートによる業務内容説明、施設・機材等の利用状況調査） 午後　専門家のインタビュー	
5	8日(木)	（１）カウンターパートによる活動の進捗状況報告 （２）カウンターパートのインタビュー （病理、細菌、ウイルス、実験動物、運営管理の各分野別に実施）	
6	9日(金)	午前　第2回合同評価委員会 （3/6～3/8に実施した調査に基づき、評価委員会内で協議）	
7	10日(土)	第2回合同評価委員会の協議結果に基づき、合同評価報告書（案）を作成	
8	11日(日)	午前　ミニッツ（案）作成 午後　ズラスノ農場視察（DILAVE技術移転の成果の波及先調査）	ズラスノ、 パソデロストロス
9	12日(月)	DILAVE実験牧場視察、 移動（パソデロストロス→モンテビデオ）	モンテビデオ
10	13日(火)	第3回合同評価委員会： 評価委員最終協議、合同評価報告書作成	
11	14日(水)	午前　合同調整委員会開催： 合同評価委員会代表が合同調整委員会へ評価結果を報告 （１）協議（質疑応答） （２）プロジェクトダイレクターである畜産サービス総局長代理（副総局長）とプロジェクト・チームリーダーが、合同調整委員会のミニッツへ署名・交換 午後　日本大使館へ調査結果報告	
12	15日(木)	モンテビデオ発	移動日
13	16日(金)	サンパウロ経由	移動日
14	17日(土)	成田着	移動日

１－４　主要面談者

（１）農牧水産省畜産サービス総局

総局長	Dr. Julio Barozzi
副総局長	Dr. Carlos OLAVE
家畜衛生研究部(DILAVE) 部長	Dr. Victor LYFORD-PIKE
〃　副部長	Dra. Marta CUADRADO
〃　副部長	Dr. Eugenio PERDOMO
〃　事務長	Sr. Washington FIORE
〃　職員	Sr. Fernando CHIESA
〃　病理科 科長	Dr. Francisco CAPANO
〃　組織病理研究室 室長	Dra. Cecilia Pauller
〃　臨床病理研究室 室長	Dr. Milton PIZZORNO
〃　繁殖病理研究室 室長	Dr. Leandro FERNANDEZ
〃　毒性研究室 室長	Dr. Fernando RIET
〃　細菌科 科長	Dr. Manrique LABORDE
〃　レプトスピラ研究室 室長	Dra. Blanca HERRERA
〃　細菌診断研究室 室長	Dra. Maria Victoria REPISO
〃　ウイルス科 科長	Dra. Rosa DI LANDRO
〃　ウイルス研究室 室長	Dra. Helena Guarino
〃　生物資源科 科長	Dr. Homero TOSCANO
〃　実験動物室 室長	Dr. Hugo COITINHO
〃　実験動物室 研究員	Dr. Enrique POCHINTESTA

（２）ウルグァイ側評価委員

評価委員長	Dr. Andres GIL
評価委員	Dr. Ricardo SIENRA
評価委員	Ing. Agr. Edgardo RECALDE
評価委員	Sr. Juan GUIONES

（３）在ウルグァイ日本国大使館

吉田 和弘　　一等書記官

（４）プロジェクト専門家

平　詔亨	リーダー
矢口 宏一	業務調整員
大澤 健司	病理学
柏崎 佳人	細菌学
乾 健二郎	ウイルス学

１－５　終了時評価方法

日本・ウルグァイ双方の評価チームによる合同評価を行い、プロジェクトの当初計画、双方の投入実績、活動実績、プロジェクト実施の効果、運営管理体制等につき評価調査を行う。併せて、当初の協力期間終了後における対応方針についても検討し、これらの結果を合同評価報告書に取りまとめ、評価チームとして両国政府関係当局に提言する。

（１）調査団（日本側評価チーム）のウルグァイ訪問前にプロジェクトが参考資料を作成する。

（２）評価チームは事前に参考資料を検討の上、質問事項をまとめプロジェクトに対し質問をし、回答を得て、予め調査できる部分について確認をしておく。

（３）日本側評価チームはウルグァイ側評価チームとともに、専門家及び C/P のインタビュー、C/P の発表、現地状況調査などを通じ、評価 5 項目に従って合同評価を行い、合同評価報告書（英文）に取りまとめる。

（４）調査結果を両国政府及び関係機関に報告・提言する。

2．要約

ウルグァイの畜産分野における DILAVE の任務と役割に照らし、協力活動の目的、枠組みおよび実施体制は、全体として妥当なものであり、有効に機能したと認められる。プロジェクトの投入においても、ごく一部に供与機材の到着の遅れや、緊急を要する消耗品や機材修理のためのウルグァイ側予算支出の困難があったものの、全体としては、日本側からの専門家の派遣、機材の供与、本邦研修、ウルグァイ側の職員の配置や施設・設備の提供など、満足できる内容であった。

すべての供与機材は良好に管理され、効果的に活用されている。機材の供与や DILAVE 職員の本邦研修と専門家の派遣は、効果的に組み合わされ、このことが技術の改善としての成果だけではなく、双方の良好な協力関係の構築に大きく貢献している。

協力期間中、日本人専門家が技術協力を行うための、先方側カウンターパート職員の配置も適切に行われた。しかしながら、ウルグァイ政府の政策による 2005 年までの新規職員採用の全面的停止処置の結果、現在 DILAVE には 40 歳以下の若手職員がいない状態となっている。このことは、DILAVE の将来において、プロジェクトにより培われた技術の継承やさらなる自立発展に悪影響を及ぼすことが危惧される。

プロジェクトの基本的な目標である診断技術の改善、すなわち正確かつ迅速な診断においては、著しい成果が得られた。病理、細菌、ウイルスの各研究室において、国際的な標準に対応可能な適切かつ最新の診断が、様々な重要な疾病について可能となっている。免疫組織化学、高速液体クロマトグラフィー(HPLC)、蛍光抗体法、酵素免疫抗体法(ELISA 法)、ポリメラーゼ連鎖反応法(PCR 法) などの診断法が、これらの診断方法に必要な診断薬の調製技術と共に実用に供され、日常の病勢鑑定業務に効果的に活用されている。さらにこれらの診断技術による診断結果を用いて貴重な疫学的情報も得られるようになり、より効果的な防疫対策や防疫計画の作成を可能とし、ウルグァイの畜産物や防疫技術に対する国際的信用を高める効果も現れている。

ウイルス、細菌、原虫による家畜疾病の発生状況などの疫学的情報や診断技術に関する情報は、DILAVE の日常の病勢鑑定業務やセミナー、学会などを通じて、関係機関や各支所、現場の獣医師にも提供されている。またインターネットを利用した情報システムの構築により、国際的な情報の交換が可能となった。

高品質の実験動物の供給は、様々の実験室業務や診断薬の調製などに必須である。このため、実験動物の遺伝的形質や微生物感染状況の監視技術、クローズドコロニーの繁殖技術および適切な飼養管理技術が導入され、SPF(Specific Pathogen Free)マウスの生産が可能となった。しかしながら、実験動物舎の建設の遅れや実験動物の需給計画策定が難しいなどの理由により、

本格的な SPF マウスの生産供給体制までには至っていない。実験動物の維持生産のための基本技術はすでに確立できていることから、今後は適切な生産計画とそれに見合った実験動物施設の運用体制を整える必要がある。

3．プロジェクトの当初計画

3－1　プロジェクトの目的及び基本計画

（1）上位目標

家畜伝染病の防疫あるいは撲滅のための効果的なシステムの確立

（2）プロジェクト目標

家畜伝染病の迅速かつ正確な検出のための獣医診断技術の改善

3－2　活動計画

（1）病理学、細菌学、ウイルス学部門：家畜伝染病に係る診断技術改善のための技術移転

（2）上記分野に係る診断のための実験小動物の生産技術の移転と生産体制の確立

3－3　投入計画

（1）日本側の投入

1）長期専門家派遣

リーダー、業務調整、病理学、細菌学、ウイルス学の 5 名構成

2）短期専門家派遣

必要に応じて年間数名程度

3）研修員受入

日本におけるウルグァイ国カウンターパート研修の受入実施。年間 3～4 名程度

4）機材供与

本計画の実施に必要な車輌・診断機器類の供与

5）ローカルコスト負担

プロジェクトの円滑な実施に必要な業務費の負担

（2）　ウルグァイ側の投入

1）カウンターパートの配置

プロジェクトダイレクター、プロジェクトマネージャー、プロジェクトコーディネーター、各専門分野のカウンターパート、その他管理運営に必要な人員

2）土地、建物及び施設の整備

プロジェクトの実施に必要な土地、建物、施設、機材の設置・保管に必要な部屋・スペース、専門家執務室

3）プロジェクト運営に必要なローカルコスト

プロジェクトの円滑な実施に必要な業務費の負担。

４．プロジェクトの実績

４－１　実施体制

（１）責任機関

農牧水産省畜産サービス総局

(General Direction of Livestock Services, Ministry of Livestock, Agriculture and Fishery)

（２）プロジェクトサイト

農牧水産省畜産サービス総局家畜衛生研究部ミゲール.C.ルビーノ

(Direccion de Laboratorios Veterinarios "Miguel C. Rubino"：DILAVE)

（３）プロジェクトダイレクター

畜産サービス総局長が、プロジェクトダイレクターとして本プロジェクトの運営管理及び実施に責任を負う。

（４）プロジェクトマネージャー

DILAVE 部長は、プロジェクトマネージャーとして、本プロジェクトの管理運営及び技術的事項に関して責任を負う。

（５）合同調整委員会の開催本プロジェクトによる技術協力が効果的に実施されるよう、合同調整委員会が構成された。

４－２　投入実績

（１）日本側の投入

１）日本人専門家派遣

協力開始から 2001 年 3 月までに 11 名の長期専門家及び延べ 15 名の短期専門家がプロジェクトへ派遣され、今後さらに 2 名の短期専門家が派遣される予定である。また、モデルインフラ整備事業により SPF 実験動物施設を整備するにあたり、設計、入札補助、施工監理を目的としたコンサルタントの派遣（のべ 6 名）も実施された。

各指導分野・専門家氏名・派遣期間については、付属資料 1. ミニッツ ANNEX 1 並びに付属資料５.（１）を参照。

２）カウンターパートの日本研修

協力開始から 2001 年 3 月までに、カウンターパート 21 名の日本研修（うち 1 名は家畜衛生試験場で実施されている集団研修参加）が実施された。今後、さらに 2 名のカウンターパート研修を実施予定である。

研修を修了したカウンターパートの所属先・氏名・研修期間・主な研修受入機関については、ミニッツ ANNEX 2 並びに付属資料５．（２）を参照。

３）機材供与

プロジェクト実施に必要な主要な機材は十分に配置され、今後さらに供与済み機材の付属機材・スペアパーツ等が配置される予定である。供与済み機材の詳細はミニッツ ANNEX 3 並びに付属資料５．（３）を参照。

４）ローカルコスト負担

プロジェクトの円滑な運営に必要な一般現地業務費の他、効果的な技術移転に必要な「技術交換事業」、「モデルインフラ整備事業」、「啓蒙普及活動事業」に係る経費が措置された。詳細は、ミニッツ ANNEX 4 並びに付属資料５．（４）を参照。

（２）　ウルグァイ側の投入

１）人員配置

33 名のカウンターパートと管理要員がプロジェクトに配置されたが、そのうち 4 名については、退職・死亡等の理由により離職した。詳細は、ミニッツ ANNEX 5 並びに付属資料６．（１）を参照。

２）土地・建物及び施設の提供

プロジェクト実施に必要な土地・建物及び施設・機材が提供された。

３）プロジェクトの運営に必要な予算措置

協力開始から 2000 年 12 月（ウルグァイの予算年度は 1 月から 12 月）までに、7 万 1,738US ドルの予算が措置された。

５．評価結果

５－１　効率性

効率性を評価するに際しては、プロジェクト成果の達成度合を投入された財政的、人的及び物的資源の効率的な使用と比較して調査・判定される。

効率性はまた進行過程の生産性を意味し、基本的には“成果”を“投入量”で除して得られる。換言すれば成果は各種の投入量がどのように成果として反映されているかによって判定される。

しかしながら、今回のプロジェクトでは達成された成果と投入量を金額的または他の手法によって量的に変換することはほとんど不可能である。したがって、合同評価委員会は評価作業を行うため、プロジェクト関係者に質問票に回答するよう要請した。この質問票はウルグァイ側の管理者 5 名(DILAVE 部長とリーダー研究員 4 名)及び、一般研究員 20 名に配付した。その調査結果は付属資料 1. ミニッツ ANNEX 7 に記載されている。

（１）投入量のタイミング

１）日本側の投入

a．日本人専門家の派遣

長期及び短期専門家は適切に派遣されている。短期専門家はある分野において長期専門家が不在の場合によく補佐対応できていた。短期専門家は要求されている分野の技術を効果的に伝達してきた。

b．カウンターパートの日本における研修

カウンターパートの日本研修は、当該技術の効率的な伝達のために適切な時期に行われるよう、計画どおり実施されている。

c．機材供与

最も重要かつ最新の機器材が供与されており、これらの機器材は効果的に使用されている。

d．ローカルコスト負担

「技術交換事業」、「モデルインフラ整備事業」、「啓蒙普及活動事業」により技術移転が効果的に実施され、また一般現地業務費により、プロジェクトの運営が円滑になされた。

２）ウルグァイ側の投入

a．人員配置

カウンターパートは当初計画どおりに配置されている。ただし DILAVE の若干のスッタフは退職し、この分の補充はされていない。

b．土地・建物及び施設の提供

用地及び施設は当初計画どおり準備されている。

c．プロジェクト実施のための予算

上記予算はミニッツ ANNEX 6 に示されているが、この予算では消耗品の補給購入には十分でなかった。

（2）投入と成果のバランス

プロジェクトの成果は、投入に対して十分に見合っている。

5－2　目標達成度

プロジェクト実施で得られた成果により、2001 年 9 月のプロジェクト協力期間終了までに、プロジェクト目標は達成されると判断された。暫定詳細実施計画（TDIP）に沿った協力課題別の達成度は次のとおりである。

（1）病理学

1）病理組織学的診断技術の向上

a．病理組織学的診断

病理組織学的診断機器が導入され、関連技術が伝達された。これにより、家畜疾病の迅速かつ正確な病理組織学的診断が可能となった。

b．免疫組織化学の導入

免疫組織化学的技法が導入され、関連技術が伝達された。これにより、ネオスポラ、リステリア、BVD-MDV 及び IBR 等の病原体抗原の免疫組織化学的検出が可能となった。

2）マイコトキシンに関する診断技術の向上

a．マイコトキシンの迅速検出技術の導入

HPLC が導入され、関連技法が伝達された。さらに、薄層クロマトグラフィーの感度が UV キャビネットの導入により向上した。

b．高度診断技術の標準化

穀物及び配合飼料中に存在する 6 つのマイコトキシンの定量的分析法が確立された。適切な実験動物を使用しマイコトキシンの生物学的分析法を確立することが、今後の DILAVE の課題である。

c．マイコトキシンに関する疫学的調査

INIA (National Institute of Agriculture-Livestock Investigation)及びウルグァイ東方

共和国大学獣医学部の資金援助の下、導入された技法を応用してマイコトキシンに関する疫学的調査が継続実施される予定である。

3）臨床病理学的診断技術の向上

a．感染性病原体による繁殖障害の診断

牛の繁殖障害に関する野外実態調査を実施したところ、キャンピロバクターが重要な病原体であることが明らかになった。この調査には、本プロジェクトにより導入された診療車が活用された。また、微分干渉顕微鏡の導入により、精液診断の精度が向上した。

b．トキソプラズマ病及びネオスポラ症に関する診断技術の向上

豚のトキソプラズマ病の血清学的診断のため、ラテックス凝集反応が導入された。豚のトキソプラズマ病に関する疫学的調査が本プロジェクトの終了までに完了する予定である。また、ネオスポラ症の血清学的診断のため、IIFAT が導入された。本プロジェクトにより、ウルグァイにおけるネオスポラ症の存在が初めて確認された。

（2） 細菌学

1）微生物感染症の診断技術の改良

a．牛結核病、ブルセラ病の診断技術の改良

新しい機材の投入と技術の移転により牛結核病とブルセラ病の生前診断法が改善された。ブルセラの診断用 ELISA 抗原や結核の PPD 抗原（ツベルクリン）の製造についても、新しい機材と技術の投入で質量共に改善され、例えば 1997 年に PPD 抗原は 13 万 7,850 ドーズ生産されたが 1999 年には 25 万 8,000 ドーズとなった。

計画された活動の多くは順調に達成されたが、PCR 法による結核の診断については感染組織からの DNA 抽出が難しいことから、その応用が困難なことが明らかになった。しかし、PCR は遺伝子型別には有効であることが明らかになり、この指導に短期専門家が派遣されることとなっている。

b．防除に必要な疫学調査

ウルグァイでは、結核とブルセラ病は国の撲滅対象疾病としてキャンペーンが行われ、よくコントロールされている。本プロジェクトの成果としての診断液の供給も十分である。牛のブルセラ病については 2000 年度の実績で 4,534 頭調査し、全頭陰性であった。こうした活動はプロジェクト終了後も DILAVE の家畜疾病診断センターとしての活動として引き続き行われる。

２）微生物の感染に起因する繁殖障害病の診断技術の改良

a．キャンピロバクター症、レプトスピラ症などに対する診断技術の確立

炭酸ガス培養器、顕微鏡、オートクレーブなど適切な機材の投入でキャンピロバクターやレプトスピラの分離培養、同定技術は改善し、定着した。キャンピロバクターの迅速診断のための蛍光抗体の作成は使用する菌株の選定が遅れたため、予定より遅れたが、現在作成中である。PCR 法は正確で迅速な診断を可能とし、計画どおり技術移転が完了した。抗原分析については実用的でなかったことから、遺伝子多型解析（RFLP）法などによる遺伝子型別に変更して検討した。レプトスピラ症の ELISA 法は安全に多検体処理が可能なことから有効な診断法であり、現在至適反応条件がほぼ確定したことから、残された期間で応用可能となる見通しである。この課題についても計画はほぼ達成されたと評価できた。

b．疫学調査

キャンピロバクター症の全国サーベイを実施した。約 230 農場（1 農場当たり 10 頭の種雄牛）を調べ、約 20%の農場が汚染されていることが明らかになった。レプトスピラ症については、ELISA 法が実用化されるまでマイクロ凝集反応でサーベイを実施しているが、現在約 230 農場の 6660 サンプルを収集し、ELISA 法が完成次第検査することとしている。

ワクチンの使用状況調査と効果判定については、約 230 農家にアンケート調査を実施し、約 11%の農場でワクチンを実施していることが分かったが、詳細なデータ解析を実施中である。レプトスピラ症の ELISA 法によるサーベイが予定より遅れているものの、プロジェクト期間内には計画を達成できると見込まれ、計画は順調に達成できると評価した。

３）鶏サルモネラ症疫学調査のための診断技術の改善

サルモネラの同定用型特異抗血清の導入と関連技術を移転したことにより、サルモネラの同定施設としての機能が備わった。さらに新しい技術として、*Salmonella* Enteritidis の鶏卵や胚からの PCR 法による直接検出法を確立した。その検出感度と特異性については十分なサンプルを集めて評価する必要があるが、プロジェクト終了時にはこの課題は達成できると見込まれる。

（３）　ウイルス学

１）ウイルス病の診断技術の改良

a．牛、めん羊、馬、豚及び鶏のウイルス病の診断技術の改良

この課題については、①要株化細胞の導入、培養技術の定着、②ウイルス分離技術の改善定着及び検出可能ウイルス種の増加、③抗体検出技術の改善定着及び検出可能ウイルス抗体種の増加、を到達目標として活動してきた。その結果、MDBK、BT 等の主要株化細胞が導入され、細胞培養技術が定着した。特に MDBK、BT、Vero、RK13 の 4 株化細胞は、ウイルス分離が常時行えるよう維持されている。また、ウイルス分離技術では、蛍光抗体法、イムノペルオキシダーゼ法が、また、抗体検出技術では、中和試験、寒天ゲル内沈降反応及び赤血球凝集抑制反応が導入され、それら技術が定着した。表－１に示すとおり、検出可能ウイルス種及び抗体種が、本プロジェクト開始以前と比較して増加した。特に牛白血病、馬伝染性貧血については、抗原の自家作成が可能となり、輸入及び輸出用検査に使用されている。

表－１　検査法リスト

疾　病　名	ウイルス及び抗体検出法			
	93～94 年		現　在	
	ウイルス	抗　体	ウイルス	抗　体
牛ヘルペスウイルス１型感染症	I	E	I、E、F、P	S、E
牛ヘルペスウイルス２型感染症			I、F	S
牛ヘルペスウイルス４型感染症			I、F	S
牛ウイルス性下痢症			I、E、F、P	S、E
牛コロナウイルス病			I、F	S、H
牛ＲＳウイルス病			I、F	S
牛パラインフルエンザ			I、F	S
牛丘疹性口炎			I、F	S
牛パルボウイルス病			I、F	S
牛白血病		E、A	E、P	E、A
馬鼻肺炎			I、F	S
馬ウイルス性動脈炎			I、F	S
馬伝染性貧血		A		A
ニューカッスル病		H	I	H
伝染性気管支炎			I、P	S
鶏伝染性ファブリキウス嚢病			I	S
口蹄疫	E	E	E	E

（注）I：ウイルス分離、E：ELISA、F：蛍光抗体法、P：PCR 法、
S：中和試験、A：ゲル内沈降反応、H：赤血球凝集抑制反応

b. 新診断技術の導入

PCR 法によるウイルス検出技術の導入を到達目標として活動してきた結果、4 ウイルス（牛ヘルペスウイルス 1 型、牛ウイルス性下痢症ウイルス、牛白血病ウイルス、伝染性気管支炎ウイルス）の核酸検出が可能となった。また、6 ウイルス（牛コロナウイルス、ブルータングウイルス、鶏伝染性ファブリキウス嚢病ウイルス、ニューカッスル病ウイルス、豚流行性下痢ウイルス及び豚コレラウイルス）に対するプライマーも準備可能であり、今後の PCR 診断に応用できる状態である。

c. 疫学調査

各種ウイルス病の国内分布、動向を把握することを到達目標とした。肉用牛については、牛のウイルス病 10 種（牛ヘルペスウイルス 1 型・ 2 型及び 4 型感染症、牛ウイルス性下痢症 1 型及び 2 型、牛 RS ウイルス病、牛パラインフルエンザ、牛コロナウイルス病、牛パルボウイルス病、牛丘疹性口炎）の抗体保有状況を 144 牧場で調査した。その結果、牛ウイルス性下痢症、牛 RS ウイルス病、牛パラインフルエンザ、牛パルボウイルスは抗体保有率 70%以上であった。また、乳用牛 60 群においても同様の調査を実施中である。このうち、牛ヘルペスウイルス 1 型及び 2 型感染症については、さらなる詳細な疫学調査を実施中である。

馬のウイルス性疾病（馬鼻肺炎、馬ウイルス性動脈炎）に対する血清サーベイランスについては、100 以上の牧場で実施している。

（４） 実験動物学

１）診断に必要な実験動物の供給

a. マウス、ラット、モルモット、ハムスター、及びウサギなど実験小動物の生産技術の向上

実験小動物の生産技術の向上のため、DILAVE の現行の繁殖計画、給餌システム、飼養施設、飼養動物について検討された。その結果、施設、管理についての問題点が明らかになり、さらに既存の飼養動物（マウス、ラット、ハムスターなど）についても深刻な微生物汚染や遺伝的汚染が明らかになった。こうした過程を通して基本的な実験小動物の衛生的飼養管理、微生物学的汚染、遺伝的汚染のモニタリング手法などについて効果的に技術移転がなされた。施設の問題点については、新 SPF 実験動物施設が 2000 年度に建設されたことで根本的に改善された。これに併せ、短期専門家が効果的に投入され、SPF 施設の消毒法、飼料・飲水の消毒法など、SPF 動物舎にかかわる基本的な管理法などが技術移転され、SPF マウスが導入された。

ただし、新施設の効果的、継続的な運用に関しては DILAVE の診断、研究業務の高度化

に必要な SPF マウスの利用計画などを基本とする総合的な生産管理計画の策定が重要と考えられ、ユーザーとしての研究、診断部門、実験動物生産部門、運営管理部門からなる運営委員会を設置して検討すべきと考えられた。

b. 繁殖群の維持と生産技術の確立

前述のとおり，従来から DILAVE で維持されていた実験小動物繁殖群については遺伝的汚染の有無、微生物汚染の程度などが検討され、マウス、ラット、ハムスターの繁殖群は問題が多いことが明らかになり、淘汰された。SPF 動物舎の完成を待ち、SPF マウスの帝王切開による作出法、SPF マウスの維持管理法、クローズドコロニーの近交を避けた維持交配法などが技術移転され、新施設内にクローズドコロニーマウス（CD-1 系）が SPF として導入された。現在、順調に維持継代されており、当該課題は所期の目的を達成していた。

しかし、DILAVE 内でも需要が多いと考えられる BALB/c や C57/BL などの SPF 近交系マウスの導入予定が遅れており、残るプロジェクト期間内での実現が望まれる。

（５） 啓蒙普及活動

1999 年に実施された巡回指導調査において、「DILAVE の地域研究所のスタッフを含む獣医研究者、現場獣医師及び農家に対する技術研修及びセミナー等を通じた普及プログラムを継続・強化すべき」旨提言された。この結果、それまで各分野別の課題として設定されていた「地域研究所を含む獣医技術者への指導」が「技術普及活動」として別途新たな項目に設定・統合され、啓蒙普及活動を総合的に推進することとされた（TDIP 及び PDM も改訂）。

以上を受けて、各分野の専門家及びカウンターパート（C/P）により、現場獣医師、獣医研究者及び関係研究機関を対象としたセミナー、ワークショップ及び関係学術雑誌への研究成果の発表等が活発に実施された。調査時点までの活動実績は次のとおりであり、今後、プロジェクト終了時までに 2 回のセミナー及び 2 回の技術講習会の開催が予定されている。

１）獣医関係者対象：2 回のセミナーが開催され、臨床獣医師等 200 名を超える参加があった。専門家による講演会は 31 回開催された。

２）関連研究所における講演：大学や獣医師会等において専門家講演会が 4 回、C/P 講演会が 20 回以上実施された。

３）獣医学会や学術雑誌における研究成果の発表：2000 年にウルグァイで開催された世界牛病学会や国内学術雑誌等において 30 報以上の研究成果が発表された。

なお、今後、DILAVE は、獣疫研究機関として国際的に認知されるためにも、研究成果を国際学術雑誌に積極的に公表するとともに、研究成果を DILAVE のウルグァイ国内の 3 地域研究

所へ効果的に適用すべく、さらに努める必要があると認められた。

５－３　効果

プロジェクト実施による効果は結果として意図的なものもあれば、意図的でないものもあり、直接的､間接的あるいはプラス面､マイナス面の変化が発生するものである。質問票の回答を分析して、以下のような明確かつ実際的なインパクト(効果)が得られたことが明らかになった。質問票の結果はミニッツ ANNEX 7 に添付されている。

（１）　プロジェクト目標レベルにおける直接効果

１）正確な診断法

以前よりもいっそう正確な診断方法が新しい機器材や技術の導入により行われるようになった。

２）迅速な診断

多くのサンプルについて処理するための適切な診断技術の導入により､より多くのサンプル(検体)についての試験が短時間のうちに実施できるようになった。

３）疫学調査

疫学調査のための有益なデータが入手可能となり､病気の存在と流行を明確にしている。

４）防疫指針の作成

疫学調査により、暫定的な防疫指針が得られている。

５）関係機関との連携強化

標記については、疫学的調査、診断協力や地方研究所、大学、獣医などのためのセミナーを通じて関係機関との連携強化が進められている。

（２）　上位目標レベルでの間接効果

１）研究所としての DILAVE の機能向上

本プロジェクト実施による技術移転及び機材供与により、中央研究機関としてDILAVE の能力が向上した。

２）相互の信頼関係の確立と親密な意思伝達

日本・ウルグァイ間の相互信頼は、日本人の長短期専門家のウルグァイへの派遣とカウンターパートの日本研修により成立したものである。したがって、2 国間の確固な橋渡しが確立されたと言える。

３）スタッフの作業効率と DILAVE の地位の改善

DILAVE の研究員の診断と研究に対する向上心が増大した。DILAVE の地位は、家畜の病気、診断研究の重要性を認識することにより改善された。また、農牧水産省の幹部

や農家(畜産業者)だけでなく、診断を行なう現場の獣医などによっても同様の認識が見うけられた。

４）情報収集能力の改善

コンピューターネットワーク網と DILAVE のウェブサイトが確立され、情報の収集と交換に活用されるようになった。

５－４　計画の妥当性

妥当性の評価にあたっては、プロジェクトの方向が援助受益側の社会的、国家的ニーズに依然として沿っているか、またプロジェクトの期間中に発生する可能性のある社会・政治的情況がプロジェクトの正当性を変える(歪める)かどうかに関する質問を行うことにより推定される。

（１）上位目標の妥当性

１）受益者ニーズとの整合性

本プロジェクトは家畜伝染病の防疫及び撲滅のための適切なシステムの確立を上位目標としている。これは受益者である農家のニーズにも合致している。

２）開発政策との整合性

畜産品の輸出増大を国策のトッププライオリティーに置いているウルグァイの政策に、本プロジェクトの上位目標は合致している。本件の妥当性に関する関連質問はミニッツ ANNEX 7 に示されている。

（２）プロジェクト目標の妥当性

１）上位目標との整合性

本プロジェクトは、家畜伝染病を迅速かつ正確に発見するための獣医診断技術の改善を目標としている。家畜伝染病を改善するためには、正確かつ迅速な診断を行わなければならない。したがって、本プロジェクトは上位目標に合致している。

２）実施機関の組織ニーズとの整合性

DILAVE の重要な結果の１つは、輸出用の肉製品の安全性を保証することである。家畜伝染病の正確かつ迅速な診断はこの目的に欠かせないものである。したがって、本プロジェクト目標は DILAVE のニーズと合致している。

（３）計画設定の妥当性

上位目標と投入の実績が明確であることから、確立された計画の妥当性は認められる。

（４）妥当性を欠いた要因

これについては何らの欠損も見うけられなかった。

５－５　自立発展性

（１）制度的側面

ウルグァイ国農牧水産省畜産サービス総局は、家畜衛生部、産業家畜部、家畜流通監視部及び家畜衛生研究部の 4 部体制で従来からの変更もなく、畜産物の生産拡大及び輸出拡大プログラムの拡充等を通じ、今後も畜産物の生産・輸出拡大政策を継続することが確認できた。このため、ウルグァイにおける畜産物の生産・輸出拡大に必要な衛生分野の充実・推進のための組織的連携は保たれるものと判断できた。

さらに、農牧水産省は、DILAVE をこれまでの「畜産物輸出のための検査センター」の役割に代えて、新たに「リファレンスラボ」と位置づけており、その強化・拡充に向けた適切な対策がとられた。これについては、組織的強化、予算配分の拡充（人件費を除く年間 60 万ドルの運営予算配分）等が農牧水産省により講じられることが確認された。

（２）財政的側面

ウルグァイ政府は、2001 年 1 月より DILAVE に対し、年間 60 万ドルの予算を措置する計画である。加えて、DILAVE には、①診断サービス、②動物医薬品販売、③動物医薬品の検査・販売許可書発行、④畜産物の検査・証明書の発行による収入源もあることから、プロジェクト終了後も継続した活動を実施できる予算が確保されるものと判断された。

（３）技術的側面

DILAVE 職員の技術は向上した。各研究室には診断及び研究業務に必要十分な機器が導入され、これらの機器を含めた研究室の施設は適切に使用かつ整備されている。よって、技術的側面からも継続した活動が十分実施されるものと判断された。

（４）人員的側面

ウルグァイは、国家公務員の新規採用を 10 年間凍結する、いわゆる「国家公務員の新規採用制限法（採用制限法）」を 2005 年末まで継続実施の予定である。その結果、DILAVE の研究者に若手はおらず、年々、年齢構成が高齢化しており、最若手の研究者は 40 歳となっている。

上記の高齢化問題は畜産サービス総局の懸案事項になっており、農牧水産省は、研究機関における若手研究者の不足が研究活動の低下や研究機関全体に対する評価の低下に直接影響することから、採用制限法が病院、学校及び国軍における新規採用を制限の対象外としていること

に着目し、DILAVE も新規採用制限の除外機関として法改正されるよう、国会手続きを開始しているところである。

他方、上記法改正手続きとは別に、DILAVE は、農牧水産省の承認で実施可能な「臨時雇用・研究者育成制度」（獣医学部の在学生や新卒者等を臨時研究員として雇用・育成し、育成した人材の中から優秀な人材を将来にわたり正式に採用しようとするもの）を農牧水産省に申請している。

DILAVE 所長によれば、上記２つの措置の実現可能性は低くないとされており、DILAVE の人員的側面から見た今後の自立発展性を阻害する要因は少ないものと思料された。

６．提言及び教訓

６－１　提言

プロジェクトは適切な投入と活動によって順調に進捗しており、実験動物の生産体制にかかる問題など若干の課題を残すものの、これらの課題も残された協力期間内に十分達成可能とみられる。したがって、合同評価委員会は、本件協力が当初計画どおり、2001 年 9 月末までに所期の目的を達成することが可能と判断し、さらなる活動の強化と自立発展性の確保をめざすため、次の提言を行った。

（１）現在の技術協力活動を終了時まで積極的に推進し、なおいっそうの技術力の強化と計画目的の達成を通じて、終了後の自立発展性の向上に資するよう努力すること。

（２）実験動物委員会（仮称）を設置し、実験動物施設の適切な運用の促進を図ること。実験動物の国内需要や供給実態の調査、SPF マウス以外の実験動物の需要に対応するため、協力を通じて得られた飼育生産技術を用いた旧施設の活用を含め、一定の生産計画と施設の運用計画、実験動物技術職員の育成計画を作成し、実施に供すること。

（３）なお合同評価委員会は、将来に向けた DILAVE の自立発展のために、本件協力の目的には直接含まれないものの、特に次の事項について提言する。

１）病理研究室と他の研究室の間に一部協力はみられるものの、各研究室にまたがる総合的な診断や疾病調査活動に比較的弱いものがある。このため、各研究室が参加する組織的な診断活動と、共同による疾病調査活動を促進すること。

２）DILAVE のような専門機関にとって、専門技術者の継続的な育成、確保はきわめて重要である。このため、本件協力を通じて得られた活動や技術を継承、発展させていくためにも、一定の職員人材の育成確保計画を作成すること。

３）DILAVE 中央の技術力が向上したのと相対的に、地方支所との技術格差が増大した。この格差を埋めるため、地方支所との技術交換を促進すること。

４）DILAVE は国際的な標準に合致するよう、将来もその技術水準の確保向上に努力すること。

５）供与された機材は適切な使用管理規則に基づき、正しく効果的に活用し、保守管理を行うこと。また将来の機材の更新に向けては、財務上健全な減価償却法式など適切な方策をとること。

６）最後に、本件協力により築かれた DILAVE と日本側関係機関との緊密かつ良好な関係を今後とも維持発展できるよう、合同評価委員会は希望する。

６－２　教訓

本件計画はきわめて順調に進捗し、計画どおりの期間内で所期の目的のほとんどを達成することが確実とみられるが、これには次のような条件がそろえられたためと考えられる。

（１）家畜衛生試験場を中心とする日本側国内支援体制が充実し、供与機材の選定、カウンターパート研修、専門家の派遣の各投入が内容的によく吟味され、各投入間の連係を保ちつつ、計画的かつ効果的に実施されたこと。

（２）先方の組織体制、カウンターパートの知的・技術的能力が高く、協力受容能力が高かったこと。

（３）先方が必要としている比較的高度の技術内容が、日本側中核支援機関の保有する技術内容とよく適合したこと。

（４）もともと畜産業と畜産物の輸出が最重要産業であるウルグァイにおいて、近年の世界各国における広範な重要家畜伝染病の発生もあり、本計画の技術的ニーズが極めて高く、国家的関心も大きく、結果として自助努力が促進されたこと。

（５）本案件に参加した専門家とカウンターパートの知的、人格的資質が高く、技術協力を円滑に進めるための相互理解が進んだこと。実際に本案件が開始されるまでは、お互いについてほとんど知らなかった双方が、たった 5 年間でこれだけの緊密かつ友好的な関係を築き、顕著な成果を上げ得たことは特筆に値する。

付　属　資　料

1．ミニッツ

2．終了時評価時のプロジェクト・デザイン・マトリックス（和文）

3．各協力課題の進捗状況

4．実施期間組織図

5．日本側投入実績

（1）専門家派遣実績

（2）カウンターパートの研修受入実績

（3）機材供与実績及び利用状況

（4）ローカルコスト負担実績

6．ウルグァイ側投入実績

（1）カウンターパート等主要関係者配置表

（2）家畜衛生研究部（DILAVE）職員の等級分類別リスト

（3）予算措置

7．プロジェクト終了後の実験動物の生産・利用計画の概要（案）

8．DILAVE の組織としての自立発展性に関するプロジェクトマネージャーに対するインタビュー議事録

9．DILAVE パンフッレット（啓蒙普及活動）

10．セミナー開催案内（啓蒙普及活動）

11．新聞記事

資料１．ミニッツ

MINUTES OF DISCUSSIONS
ON
THE JOINT COORDINATING COMMITTEE MEETING
FOR
THE VETERINARY LABORATORIES IMPROVEMENT PROJECT
IN
THE ORIENTAL REPUBLIC OF URUGUAY

The Joint Coordinating Committee Meeting for the Veterinary Laboratories Improvement Project (hereinafter referred to as "the Project") was held between the Uruguayan and Japanese sides concerned at Division of Veterinary Laboratories "Miguel C. Rubino", Ministry of Livestock, Agriculture and Fisheries, Montevideo on the 14th March, 2001. Both sides discussed the Evaluation Report which was presented by the Joint Evaluation Committee.

The major items were agreed by in the Joint Coordinating Committee are shown in the attachment.

Montevideo, 14th March, 2001

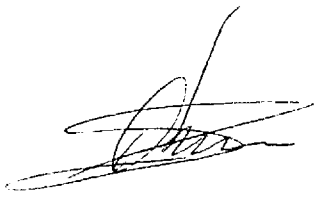
Dr. Noriyuki TAIRA
Leader
Japanese Expert Team of the Project
Japan International Cooperation Agency
Japan

Dr. Carlos OLAVE
Deputy Director General
Livestock Services
Ministry of Livestock, Agriculture and Fishery
The Oriental Republic of Uruguay

ATTACHMENT

1. The Joint Evaluation Committee, jointly organized by JICA and the Government of the Oriental Republic of Uruguay, has presented the Evaluation Report.

2. The Joint Coordinating Committee has agreed and accepted the report presented by the Joint Evaluation Committee and taken note of the recommendations made for sustaining the Project achievements.



MINUTES OF DISCUSSIONS
OF
THE JOINT EVALUATION
ON
THE JAPANESE TECHNICAL COOPERATION
FOR
THE VETERINARY LABORATORIES IMPROVEMENT PROJECT
IN THE ORIENTAL REPUBLIC OF URUGUAY

Prior to the termination of the Veterinary Laboratories Improvement Project in the Oriental Republic of Uruguay (hereinafter referred to as "the Project") on September 30th 2001, which started on October 1st 1996, as stated in the Record of Discussions (hereinafter referred to as "the R/D"), the Japanese Evaluation Team organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA"), headed by Dr. Yusuke TADA, visited the Oriental Republic of Uruguay from March 5th to 15th 2001.

The Joint Evaluation Committee, consisting of the aforementioned Japanese Evaluation Team and the Uruguayan Evaluation Team headed by Dr. Andres D. GIL, Adviser, Epidemiology and Statistics, Livestock Services, Ministry of Livestock, Agriculture and Fisheries, was organized in order to review the overall performance and to conduct the final evaluation for the Project.

The Team had a series of discussions with the relevant authorities of the Government of Uruguay, made field surveys and exchanged views among themselves from technical and administrative point of view.

As a result of discussions, the Joint Evaluation Committee agreed to recommend to their respective Governments the matters referred to in the documents attached hereto.

Montevideo, Uruguay, March 14th, 2001

Dr. Yusuke TADA
Leader
The Evaluation Team
Japan International Cooperation Agency
Japan

Dr. Andres D. GIL
Leader
The Evaluation Team
Ministry of Livestock, Agriculture and Fisheries
The Oriental Republic of Uruguay

JOINT EVALUATION REPORT
ON
THE VETERINARY LABORATORIES
IMPROVEMENT PROJECT
IN
THE ORIENTAL REPUBLIC OF URUGUAY

March 2001

JAPANESE - URUGUAYAN
JOINT EVALUATION COMMITTEE

LIST OF ACRONYMS AND ABBREVIATIONS

AGID	Agar Gel Immunodiffusion test
BCV	Bovine Corona Virus
BHV	Bovine Herpes Virus
BLV	Bovine Leukemia Virus
BPV	Bovine Parvo Virus
BPStV	Bovine Papular Stomatitis Virus
BRSV	Bovine Respiratory Syncytial Virus
BTV	Bluetongue Virus
BVDV	Bovine Viral Diarrhea Virus
BVD-MD	Bovine Viral Diarrhea-Mucosal Disease
CSFV	Classical Swine Fever Virus
DILAVE	Division of Veterinary Laboratories "Miguel C. Rubino"
DNA	Deoxyribonucleic Acid
ELISA	Enzyme-Linked Immunosorbent Assay
EHV	Equine Herpes Virus
EIAV	Equine Infectious Anemia Virus
EVAV	Equine Viral Arteritis Virus
HI	Haemagglutination Inhibition test
HPLC	High Performance Liquid Chromatography
IBDV	Infectious Bursal Disease Virus
IBR	Infectious Bovine Rhinotracheitis
IBV	Infectious Bronchitis Virus
IFAT	Indirect Fluorescent Antibody Technique
IHC	Immunohistochemistry
JICA	Japan International Cooperation Agency
MAFF	Ministry of Agriculture, Forestry and Fisheries
MAGP	Ministry of Livestock, Agriculture and Fisheries
NIAH	National Institute of Animal Health
NDV	Newcastle Disease Virus
PI3	Parainfluenza 3
PCR	Polymerase Chain Reaction
PDM	Project Design Matrix
PEDV	Porcine Epidemic Diarrhea Virus
RAPD	Random Amplified Polymorphic DNA Fingerprinting
R/D	Record of Discussion
RFLP	Restriction Fragment Length Polymorphism
SN	Serum Neutralization test
SPF	Specific Pathogen Free
TDIP	Tentative Detailed Implementation

CONTENTS

1. INTRODUCTION

A joint Uruguayan and Japanese evaluation team (hereinafter referred to as "the Team") reviewed the Japanese technical cooperation for the Veterinary Laboratories Improvement Project in the Oriental Republic of Uruguay (hereinafter referred to as "the Project") in March 2001. The progress and achievements being made to the date as well as necessary recommendations toward the completion of the cooperation program were discussed during the review.

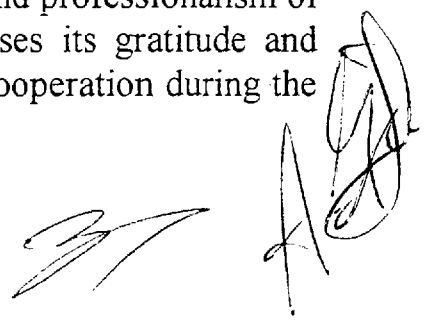
The Project started in October 1996 by dispatching Japanese long-term experts. The consultation study team was dispatched in April 1997 to formulate Tentative Detail Implementation Plan (hereinafter referred to as "TDIP"). In June 1999, Mid-term Evaluation Study Team was dispatched and evaluated the progress of activities and recommended the necessary measures to be taken for the implementation of the Project in the remaining cooperation period.

The role of the Veterinary Laboratories is so important that economy of Uruguay heavily dependent on the livestock related industry. Livestock diseases could be the significant risk and constraint both for the national development and trade promotion. Low productivity of livestock caused by the diseases affects the livelihoods of farmers, and trade may be severely restricted both in domestic and international market without the control or eradication of the diseases. Establishment of the accurate and prompt diagnosis system is the basis of the effective and efficient control of the livestock diseases. Furthermore, established diagnostic technology is most necessary to increase export potential of livestock and livestock products to the international market by the improved international reliability on quality and safety.

For these reasons, the Project has been implemented at the Central Laboratory of Division of Veterinary Laboratories "Miguel C. Rubino"(hereinafter referred to as "DILAVE") following the technical cooperation program of Japan International Cooperation Agency since 1996.

Evaluation was conducted by the collaboration of the Team members, getting cooperation of staff members of DILAVE and stakeholders of the Project to determine the relevance and fulfillment of the Project objectives, developmental efficiency, effectiveness, impact and sustainability. And the Team also tried to provide credible and useful information including lessons learned for the relevant authorities and peoples concerned to the Project.

The Team was impressed with the enthusiasm, commitment and professionalism of the members associated with the Project. The Team expresses its gratitude and appreciation to all concerned who provides kind and effective cooperation during the evaluation study.



2. OUTLINE OF THE PROJECT

2-1 Objectives of the Project

1) Overall Goal

Establishing an effective system of support for the control or eradication of animal infectious diseases

2) Project Purpose

Improving veterinary diagnosis techniques in order to detect animal infectious diseases rapidly and precisely

2-2 Activities and Output of the Project

1) Activities

To transfer methods for improving veterinary diagnosis techniques through activities in the fields of pathology, bacteriology and virology, and animal experimentation to support the above three fields.

2) Output

Strengthening of the diagnosis system for animal infectious diseases

3. OBJECTIVE AND METHOD OF THE EVALUATION

3-1. Objective of the Evaluation

The evaluation activities were performed at the objectives of:

1) Evaluating the degree of achievement based on TDIP and Project Design Matrix (hereinafter referred to as "PDM");
2) Identifying problems on any aspects of the Project implementation and proposing necessary solution, so as to help its self-subsistence after the cooperation period; and
3) Recommending any matters to their respective governments that are necessary for the smooth and successive implementation of the Project.

3-2. Items of the Evaluation

This evaluation was conducted in accordance with the Record of Discussions (hereinafter referred to as "the R/D"), TDIP and PDM by the Joint Evaluation Team through reports, questionnaires, interviews and discussions with the personnel involved in the Project.

The following items were evaluated:

1) Efficiency
2) Impact
3) Effectiveness
4) Relevance
5) Sustainability

3-3. Analysis based on the Evaluation Criteria

The Team analyzed the performance of the Project using the following 5 criteria.

1) Efficiency

Efficiency of the Project implementation was analyzed focusing on quality, quantity, timing, and utilization of inputs, overall management of the Project activities and other external factors that affected the implementation.

2) Impact

Project impact was identified focusing mainly on positive and negative, direct and indirect impact related to the Overall Goal of the Project realized as the final evaluation of the Project.

3) Effectiveness

Analyzing the Project achievements assessed effectiveness of the Project implementation.

4) Relevance

The validity of the Project purpose was judged according to the development policy of the relevance of the Uruguayan side.

5) Sustainability

Sustainability of the Project was forecasted by examining such factors as utilization of the Project inputs and qualified Uruguayan counterparts, management capacity and resources available for successive Project activities.

3-4. Composition of the Joint Evaluation Committee

3-4-1. Japanese side

1) Dr. Yusuke TADA; DVM, MS: Leader
Development Specialist,
Institute for International Cooperation,
Japan International Cooperation Agency (JICA)

2) Dr. Makoto HARITANI; DVM, PhD
Head, Laboratory of Infectious Disease Pathology,
Department of Pathology and Physiology,
National Institute of Animal Health (NIAH),
Ministry of Agriculture, Forestry and Fisheries (MAFF)

3) Dr. Takafumi HAMAOKA; DVM, PhD
Head, Laboratory of Epidemiology,
Department of Systematic Diagnosis, NIAH, MAFF

4) Dr. Hiroyuki OTOMO; DVM, MS
Senior Veterinary Officer,
Division of Animal Quarantine,
Department of Animal Quarantine
Animal Quarantine Service, MAFF

5) Mr. Yuichi NAKAMURA; PLT
Chief of Project Cooperation Section,
Division of Technical Cooperation,
Department of International Affairs,
General Food Policy Bureau, MAFF

6) Mr. Shinsuke KUBO
General Manager,
Department of International Business,
NEWJEC Inc.

7) Ms. Junko KATSUNISHI
Staff, Division of Livestock and Horticulture,
Department of Agricultural Development Cooperation, JICA

3-4-2. Uruguayan side

1) Dr. Andres D. GIL; DVM, MS, PhD : Leader
Adviser, Epidemiology and Statistics,
Livestock Services,
Ministry of Livestock, Agriculture and Fisheries (MGAP)

2) Dr. Ricardo SIENRA Cock; DVM, MS
Adviser, Direction of Livestock Services, MGAP

3) Ing. Agr. Edgardo RECALDE
Agronomist Expert, The Technical Cooperation and Project Unit, MGAP

4) Mr. Juan GUIONES
Budget Technician, Department of Budget Administration,
Division of Veterinary Laboratories " Miguel C. Rubino ",
Livestock Services, MGAP

3-5. Method and Schedule of the Evaluation

The Joint Evaluation Committee spent 9 days from 6 to 14 March 2001 carrying out the following activities:

1) Review of the Project activities undertaken through technical presentations by the Uruguayan Counterparts (hereinafter referred to as "C/Ps")
2) Interview in individual sessions with JICA Experts and Urugayan C/Ps
3) Observation of the Project site, including laboratory facilities and equipment
4) All information obtained will be utilized for the Evaluation Report

Date	Schedule	Venue
6th March (Tue)	The First Joint Evaluation Meeting	DILAVE, Montevideo
7th March (Wed)	Observation: Project site, laboratory facilities and equipment Discussion and Interview with experts	ditto
8th March (Thu)	Presentation about Achievement of Project Activities from C/Ps Discussion and interview with C/Ps	ditto
9th March (Fri)	The Second Joint Evaluation Meeting	ditto
10th March (Sat)	Preparation for the documents of evaluation report	ditto
11th March (Sun)	Move from Montevideo to Durazno Observation: Farmers	Durazno
12th March (Mon)	Observation: Experimental Farm of DILAVE	ditto
13th March(Tue)	The Third Joint Evaluation Meeting	DILAVE, Montevideo
14th March (Wed)	The Joint Coordinating Committee Meeting	ditto

4. RESULTS OF THE EVALUATION

4-1. Summary of the Evaluation

The overall objectives, program framework and organizational support structures of the Project appeared to be sound and relevant regarding to the required important role of DILAVE in livestock sector in Uruguay. Overall, the Project has been satisfactorily implemented with the appropriate input Japanese experts, equipment supply, training program, Uruguayan staff assignment and facilities, although delay of equipment supply and stagnation of payment from local budget for emergency needs such as necessary repairing and consumables have occurred few times.

All the supplied equipment has been effectively used and maintained. Training of DILAVE staff in Japan and dispatch of Japanese experts have been well correlated and coordinated and, it has greatly contributed to the Project achievement and creating the good working relationship between both side of Japanese and Uruguayan.

DILAVE staff has been appropriately assigned for the technical cooperation with the Japanese experts.

However, there is no young staff of less than 40years of age because of the governmental policy of total ban of new employment for ten years until 2005. It may affect the sustainability of developed techniques and institutional capacity and further development of the DILAVE in future.

Significant achievement has been obtained through the activities that have been carried out according to TDIP, enabling DILAVE to conduct the accurate and prompt diagnosis that is the primary purpose of the Project. The laboratories of pathology, bacteriology and virology can serve the diagnosis on various important diseases with appropriate modern technology compatible to internationally recognized standard. Various diagnostic techniques of pathological, bacteriological and virological fields such as IHC, HPLC, FA, ELISA, PCR, etc. have been tested for their effectiveness in practical use. Those are standardized and established with the preparation of necessary diagnostic reagents and equipment in each laboratory and effectively utilized. Improved diagnosis system has greatly contributed to increasing international credibility of disease control system and animal products of Uruguay. Obtained diagnostic results can be used for control strategy and more effective control of livestock diseases.

In fact, based on the established diagnostic technology, some valuable epidemiological information, such as epidemics of viral, bacterial and protozoal infection in livestock animals have been obtained. The obtained information has

been utilized for preparation of the guideline of disease control and also for the technical exchange with other organization and personnel such as veterinary school, regional veterinary offices and veterinary practitioners through seminars, scientific meetings and field activities. Furthermore improved information system is bringing to make global collection and exchange of information.

Supply of qualified laboratory animal is one of the key elements for various laboratory tests and preparation of diagnostic reagents. Genetic and microbiological monitoring technique has been introduced with the improvement of breeding technique of closed colony and housing conditions of laboratory animals. Quality SPF mice have been successfully produced. However, production and distribution system has not yet been well established because of delay of the construction of animal accommodation and difficulties of production planning to meet variable of demands of the laboratories. Although technical basis of production and maintenance of laboratory animals has been established, appropriate production plan and suitable operation standard for animal facility must be prepared.

4-2. Efficiency

4-2-1. Input by both governments

1) Japanese side

a. Dispatch of Japanese Experts

A total of eleven (11) long-term and fifteen (15) short-term experts have been assigned to the Project. Two more short-term will be dispatched in 2001. And 6 supervisors have been dispatched for the construction of SPF Laboratory Animal Facility by Model Infrastructure Program. The details of their names, fields, duration are shown in ANNEX 1.

b. Acceptance of Counterpart Personnel in Japan

A total of twenty-one (21) counterpart personnel (twenty by the Project and one by Group Training Course) have finished their training in Japan. Two more C/Ps will be accepted for training in 2001. The details are shown in ANNEX 2.

c. Provision of Machinery and Equipment

Most essential equipment for implementation of the Project has been fully supplied and installed. The details are shown in ANNEX 3. Some additional accessories and spare parts of the equipment will be planned to supply in 2001.

d. Provision of the Local Operation Cost

The budget for "Technical Exchange Program", "Model Infrastructure Program" and "Enlightenment and Extension Activities Program" were allocated in

addition to the general local budget for the effective implementation of the Project activities. The details are shown in ANNEX 4.

2) Uruguayan side

a. Allocation of the Personnel

A total of thirty-three (33) C/Ps and administrative personnel have been designated to the Project. Four counterpart personnel out of thirty-three left DILAVE during this period. The details are shown in ANNEX 5.

b. Provision of the Land and Facilities

At DILAVE, the Project site, land, building and facilities with equipment for implementation of the Project have been prepared.

c. Budget Allocation for the Project Operation

DILAVE has allocated some 71,738 dollars by 2000 Uruguay fiscal year (commencing in January, hereinafter referred to as "UFY") and DILAVE has made appropriate efforts to allocate its budget to the Project. The details are shown in ANNEX 6.

4-2-2. Evaluation

In assessing the efficiency, achievement level of the outputs is examined in comparison to the efficient use of financial, human and material resources. Efficiency refers to the productivity of the implementation process and is basically measured by dividing "outputs" by "inputs". In other words it is measured by how efficiently the various inputs are converted into outputs.

However, it is almost impossible in this case to reasonably convert "outputs and inputs" to monetary or other countable measure in terms of quantity. Therefore, the Team presented a questionnaire on the project evaluation to the personnel concerned. Five persons from administration/management and all researchers participated in the survey. The results of the questionnaires are shown in ANNEX 7.

4-2-2-1 Timing of the input

1) Japanese Side

a. Dispatch of Japanese Experts

Both long- and short-term experts were appropriately dispatched. Short-term experts could cope with the absence of a long-term expert in a certain field. Short-term experts could effectively transfer the requested technologies.

b. Acceptance of Counterpart Personnel in Japan

C/Ps trainings have been implemented as planned at appropriate timing for the efficient transfer of techniques.

c. Provision of Machinery and Equipment
Most essential and new equipment was provided. The equipment has been utilizing effectively.

2) Uruguayan Side

a. Allocation of the Personnel
C/Ps were allocated as originally planned, (although a few staff retired and no newcomer introduced in DILAVE).

b. Land, Facilities, Installation of equipment
The land and facilities were prepared as originally planned.

c. Budget for the Project Operation
The budget have been allocated as shown in ANNEX 6, although the allocation was not enough even to buy consumable goods.

4-2-2-2. Balance between input and output
The achievement of the Project has well corresponded to the input.

4-3. Impact
Impact is intended and unintended, direct and indirect, positive and negative changes as a result of the Project. Following positive impacts have been obtained through questionnaire. The result of questionnaire is shown in ANNEX 7.

4-3-1. Direct impact in the level of the Project purpose

1) Accurate diagnosis
More accurate diagnosis has been realized by introduction of equipment and techniques.

2) Rapid diagnosis
More samples can be tested within short period of time by the introduction of appropriate techniques to process large quantity of samples.

3) Epidemiological survey
Useful epidemiological data have been obtained to clarify the presence and distribution of diseases.

4) Make indicator of disease control
Tentative indicator for animal disease control is obtained from the epidemiological survey.

5) Co-operation to relevant organization such as regional branch laboratories
It is promoted by means of epidemiological survey, diagnostic services and seminars for regional branch laboratories, university and veterinarians.

4-3-2. Indirect Impact in the level of the Overall goal

1) Improvement of DILAVE work as institute

Technical transfer and provision of equipment refined capacity of DILAVE as central laboratory.

2) Mutual trust and close communication between both sides

Mutual understanding is created by stay out long and short-term experts in Uruguay and training C/Ps in Japan. A strong bridge between two countries has been established.

3) Improvement of working efficiency of DILAVE staffs and DILAVE status

Motivation for diagnosis and research work of DILAVE staff was promoted. DILAVE status has been improved by recognition of importance of animal disease diagnosis study, to whom of the high position officers of MGAP, clinical veterinarian together with many farmers.

4) Improvement of ability for collection of information

Computer network and website in DILAVE was established and has been used for collection and exchange of information.

4-4. Effectiveness

Effectiveness concerns the extent to which the Project purpose has been achieved, or is expected to be achieved, in relation to the outputs produced by the Project. The result of questionnaire is shown in ANNEX 7.

4-4-1. Achievement degree of Project Activities

It was recognized that the technology transfer activities of the Project had almost achieved their objectives as a result of the efforts made by both sides.

4-4-2. Major achievements of Project activities

The major achievements of the Project Activities as on March 2001 are summarized herewith in ANNEX 8.

4-4-2-1. Pathology

1) Improvement of diagnostic techniques in histopathology

a. Histopathological diagnosis

Introduction of equipment and transfer of related techniques were completed. Histopathology can be sufficiently used for the diagnosis of the diseases.

b. Introduction of immunohistochemistry

Introduction of the techniques was completed. The techniques can be sufficiently used for the immunohistochemical diagnosis of the diseases including bovine neosporosis, BVD-MD, IBR and listeriosis.

2) Improvement of diagnostic techniques for mycotoxicosis

a. Development of rapid determination techniques for mycotoxins

HPLC has been installed and guidance on the manipulation has been implemented. Sensitivity of thin-layer chromatography has been improved by introduction of a new UV cabinet.

b. Standardization of advanced diagnostic techniques

Quantitative analysis of six mycotoxins in grain and mixed feed by HPLC has been established. Biological analysis of the mycotoxines using experimental animals has to be established through future activities of DILAVE.

c. Epidemiological survey of mycotoxins

The epidemiological survey of mycotoxins using the techniques introduced has to be continued through future activities of DILAVE under a financial support from INIA (National Institute of Agriculture-Livestock Investigation) and Faculty of Veterinary Medicine.

3) Improvement of diagnostic techniques in clinical pathology

a. Diagnosis for the reproductive disorders caused by infectious agents

It was suggested that *Campylobacter* spp might be one of the major causative agents of the reproductive disorders as a result of field survey using a vehicle with diagnostic facilities. In addition, diagnostic techniques in andrology have been improved by an introduction of a phase-contrast microscope.

b. Improvement of diagnostic techniques for toxoplasmosis and neosporosis

Latex agglutination test has been successfully introduced for serological diagnosis of swine toxoplasmosis. The epidemiological survey has to be finished by the end of the Project. IFAT was successfully introduced for diagnosis of neosporosis. Presence of the disease in Uruguay was confirmed for the first time through activities of the Project. Further efforts have to be made for stabilization of ELISA for serological survey of neosporosis.

4-4-2-2. Bacteriology

1) Improvement of diagnostic techniques for major microbial infections

a. Improvement of diagnostic techniques for bovine tuberculosis and brucellosis

The diagnosis of bovine tuberculosis and brucellosis was improved by introduction of new equipment and transfer of advanced techniques, which facilitated the antemortem diagnosis. The biological products such as ELISA antigens for brucellosis became doubled also by introduction of new equipment and improvement of techniques. These activities have been successfully achieved

except for application of PCR for the diagnosis of bovine tuberculosis since the PCR was found to be unsuitable for its purpose because of the difficulties on DNA purification from tissues. However, the PCR appeared to be useful for the genotyping of mycobacterias and its techniques will be transferred by a short-term expert, who will be dispatched from April through May 2001.

b. Studies on epidemiology for control and eradication of the diseases

In Uruguay, bovine tuberculosis and bovine brucellosis have been well controlled. The field survey of the diseases has to be continued through the activities of DILAVE as a national diagnosis center for animal diseases. A nationwide serological survey on bovine brucellosis has been successfully achieved utilizing the products mentioned above.

2) Improvement of diagnostic techniques for microbial reproductive disorders

a. Establishment of diagnostic techniques for campylobacteriosis, leptospirosis, etc.

The isolation and cultivation systems for *Campylobacter* and *Leptospira* were established by the introduction of new equipment such as CO_2 incubator, microscope, autoclave, and so on. The fluorescent antibody conjugate against *Campylobacter* is under preparation and will be utilized for rapid diagnosis and identification. The PCR system for campylobacteriosis was established and successfully applied for accurate and rapid diagnosis. The ELISA for the serodiagnosis of leptospirosis is under establishment for it can efficiently process a large number of samples. The conditions for the test will be optimized until the end of the Project. Genotyping of field isolates of Campylobacter was carried out by the RFLP and RAPD-PCR and has been successfully achieved.

b. Epidemiological survey of the diseases

Nationwide survey on campylobacteriosis was implemented. For leptospirosis, serological survey has been implemented by the microagglutination test, which will be replaced by the ELISA when the system is established. Samples (6,900 sera) were collected and waiting for the examination. Evaluation of *Leptospira* and *Campylobacter* vaccine efficacy and field investigation of their status were implemented. The vaccine efficacy was evaluated by the ELISA using experimental animals. Questionnaires on vaccination were carried out at 230 farms and their data analysis is on going. The activities have been successfully achieved except for the establishment of ELISA for leptospirosis.

3) Improvement of diagnostic techniques for epidemiological survey of avian salmonellosis

The improvement of isolation and identification of *Salmonella* spp. were supported

by the effective introduction of new equipment and reagents such as type specific antisera. As an advanced new technique, PCR for the detection of *S.Enteritidis* in eggs and embryos was applied. However, its specificity and sensitivity have not been sufficiently evaluated because of shortage of field samples brought to DILAVE. By the end of the Project, the activity will be completed.

4-4-2-3. Virology

1) Diagnostic services for bovine, ovine, equine, swine, and avian viral infections, except for foot and mouth disease

a. Improvement of diagnosis techniques of viral infections

Major cell lines (MDBK, BT, Vero, etc) have been introduced. Cell culture techniques have been optimized. Four cell lines (MDBK, BT, Vero, RK13) have been maintained always ready for routine virus isolation. Virus isolation techniques have been optimized. Virus identification methods such as immunofluorescence and immunoperoxidase techniques have been introduced. Various antisera have been introduced. The number of identifiable viruses has been increased to 16(bovine 11, equine 2, poultry 3). Antibody detection techniques such as SN, AGID and HI have been optimized. The number of identifiable antibodies has been increased to 17 (bovine 11, equine 3, poultry 3). Necessary key reagents for these tests have been produced in large quantity. AGID antigens for BLV and EIAV have been produced and applied for the import/export tests.

b. Introduction of viral disease diagnosis by application of advanced techniques

Detection system of viral nucleic acid by PCR has been established with 4 viruses (BHVI, BVDV, BLV, IBV). Application for PCR methods has been prepared for 6 more viruses (BCV, BTV, IBDV, NDV, PEDV, CSFV). Genetic analysis of viruses by RFLP and sequencing has been applied, which resulted in the identification of BVDV type2 and BHV1 subtype 2.

c. Epidemiological analysis

The epidemiological survey was carried out to study the prevalence of various viral infections and their epidemiology for the possible control measures.

Prevalence of bovine virus infections in 144 beef herds has been studies with 10 viruses (BHV1, BHV2, BHV4, BVD1, BVD2, BRSV, PI3, BCV, BPV, BPStV). Similar studies are being carried out in 60 dairy herds.

Epidemiological studies with BHV1 and BHV2 are being carried out in detail.

Serological survey of 2 equine viruses (EHV1 and EVAV) has been taken place at over 100 farms. The activities at virology department have been successfully achieved.

4-4-2-4. Laboratory Animals

1) Supply of laboratory animals for diagnosis

a. Production of small laboratory animals, such as mice, rats, guinea pigs, hamsters and rabbits

To improve production of small laboratory animals, the original production system including breeding plan, feeding system, facilities were investigated. Many problems on laboratory animal facility of DILAVE were clarified and evaluated. Then, a new facility for SPF mice was constructed by JICA in 2000. And, SPF mice/CD-1 stock was introduced into the new facility.

Genetic survey and microbiological survey of laboratory animals were carried out. Results of the survey indicated that there were many problems such as genetic and microbial contamination in the animals. Then, the contaminated mouse, rat, and hamster stocks were eliminated. Through the process of the Project activities, basic and advanced techniques for clean laboratory animal handling such as breeding, maintenance and microbiological monitoring procedures were efficiently transferred to C/Ps.

The production and maintenance methods of guinea pigs were investigated and improved using clean cages in existed facility. These activities have been successfully achieved.

An efficient production plan of SPF mice for improvement of diagnostic and research activities is unclear, then it has to be well discussed by "coordination committee" which consist of researchers as user, producing staffs and administration staffs of DILAVE.

b. Production and maintenance of breeding stocks

Survey of heredity and microbiological contamination of breeding stocks were implemented. Results of the survey indicated that the mice, rats and hamsters rearing in DILAVE were unsuitable for breeding flocks because of their genetic and microbial contamination. Therefore, SPF mice/CD-1 stock was introduced into the new facility mentioned above. Methods of extraction of SPF animals and maintenance of closed colony system have been transferred efficiently to C/Ps. Plans for introduction of inbreed mouse stocks such as C57/BL and BALB/c are available. The activities have been successfully achieved.

4-4-2-5. Extension Activities

Mid-term Evaluation Team recommended that Uruguayan side should continue and strengthen the extension program to veterinary researchers, practitioners and farmers including staffs of the DILAVE regional laboratories through technical guidance and seminars.

As a result, extension activities i.e. workshop and seminars for the field and the

laboratory veterinarians, and seminars at relevant institutes or universities were held in appropriate. The details of workshop and seminars are shown in ANNEX 8. Moreover, the publication in the scientific congresses and journals has been succeeded.

From now on, it is expected that research work effort would be promoted in the international scientific journals and applied to three (3) regional laboratories.

4-5. Relevance

The assessment of "Relevance" covers the questions of whether the direction of the Project is still relevant to the needs of the recipient society or nation, and whether the socio-political situations that may have taken place during the lifetime of the Project have altered the justification for the Project.

4-5-1. Relevance of the Overall goal

1) Adjustment to requirement of beneficiary

Project purpose is the establishment of the suitable system for control and prevention of infectious diseases of domestic animals. The purpose is agreed to the need of farmer who received the benefit.

2) Adjustment to political measures

Project purpose is agreed to a policy of Uruguay who gives a top priority to increasing the export of animal products. The result of questionnaire is shown in ANNEX 7.

4-5-2. Relevance of the Project purpose

1) Adjustment to Overall goal

The Project purpose is the improvement of accuracy and rapidity of veterinary diagnosis. To improve an animal hygiene status, the most important thing is accurate and rapid diagnosis. Therefore, the Project purpose adjusts to overall goal.

2) Adjustment to requirement of organization

One of important results of DILAVE is to certify the safety of livestock products for meat export. Accurate and rapid diagnosis of animal disease is essential for that purpose. Therefore, the Project purpose adjusted to what DILAVE requested.

4-5-3. Relevance of plan set up

Relevance of plan setup is well recognized, because the relation between the overall goal and the input are clear.

4-5-4. Factor of lack of validity

No factor of lack of validity was seen.

4-6. Sustainability

4-6-1. Organizational aspects

DILAVE is one of the divisions within MGAP. It has been well supported by the government, and has good relationship with the other related institutions. In addition, DILAVE placed as a national reference laboratory by the MGAP.

4-6-2. Financial aspects

It is informed by the director of DILAVE that Uruguayan government has decided to allocate more adequate budget to DILAVE from 2001 UFY.

In addition, DILAVE have several resources of income such as fees of the diagnosis services, sale of veterinary products, evaluation of veterinary products and analysis for food safety.

4-6-3. Technical aspects

Technical level of staffs in DILAVE has been improved and maintained high enough to conduct diagnostic and research works. Each laboratory has been well equipped and the facilities and the equipment have been adequately maintained.

4-6-4. Personnel aspects

The youngest C/Ps is forty (40) years old. Absence of the young staffs is a serious problem although most of C/Ps have the diagnostic technique. Under such serious situations, DILAVE is requesting a new employment system such as staff development fellowship to the MGAP. Also MGAP and the Faculty of Veterinary Medicine, University of Oriental Republic of Uruguay are developing an agreement to train young veterinarians and students in diagnostic techniques at DILAVE.

5. CONCLUSION AND RECOMMENDATIONS

5-1. Conclusions

The Project has been satisfactory implemented with the appropriate activities and input that mainly consists of Japanese experts, C/Ps training program in Japan and provision of equipment. It is recognized that major target of the Project have been fulfilled although minor technical matters are remained. Those remaining matters are considered to be improved and further fulfillment of the Project objective and more strengthening of DILAVE activities are expected within the remaining period of cooperation.

The Team confirmed the objective of the Project will have been successfully accomplished within the five years of technical cooperation period until September 2001. Accordingly, it is appropriate that the technical cooperation should terminate at the end of September 2001, as scheduled in the R/D.

5-2. Recommendations

1) On-going technical cooperation activities will be continued to further fulfillment of the Project objective and further improvement of the technology until the end of the cooperation period. This will assure the self-reliance of various laboratory activities by Uruguayan staffs after the completion of the Project.

2) For the laboratory animal facility, laboratory animal committee must be established and activated to promote and coordinate the appropriate operation of the facility. It is necessary to conduct the demand and supply survey of laboratory animals. The existed facility will be used with the improved techniques by the Project to respond the variety of needs from the laboratories. It is recommended to prepare particular production plan and suitable operation standard including staffs training program by the end of the cooperation period.

3) Followings are not directly involved into the Project activities. However, the Team recommends DILAVE and relevant authority to make their best effort on following matter for future sustainability and development.

   a. Multidisciplinary approach to improve the diagnosis and surveillance activity is relatively weak in DILAVE although some collaborative diagnoses are conducted in pathology and other laboratories. It is recommended that systematical diagnostic procedure by the participation of all laboratories and collaborative disease surveillance must be promoted more.

   b. It is recommended that particular staffs development plan must be urgently prepared to assure the sustainability and further development of the established activity and technologies. It is very important especially for the specialized

institute in the country to make continuous efforts of maintaining and developing the specialists group because of the limited supply from the human resources in the country.

c. As the results of significance of central laboratories, technological disparity between central and regional laboratories has been increased. Technical exchange with the regional laboratories must be promoted to fill such a gap.

d. For the future, it was identified the necessity to improve the good laboratory practices to fill the requirement to follow the international standard.

e. Supplied equipment by the Project must be properly maintained and effectively used under the optimal regulations for the management of equipment. DILAVE must have financially sound and appropriate depreciation system for the future replacement of the equipment.

f. Finally, the Team cordially hopes that the authorities of both sides concerned to the Project will make efforts to maintain the amicable relations between DILAVE and Japanese relevant institutions.

LIST OF ANNEX

ANNEX 1 Dispatch of Japanese Experts

I. Long-term Experts

	Field	Name	Present post in Japan	Duration
1	Team Leader	Dr.Tadahiro INOUE	National Institute of Animal Health, Japan	1996/10/01-99/09/30
2	Team Leader	Dr.Noriyuki TAIRA	National Institute of Animal Health, Japan	1999/09/29-01/09/30
3	Co-ordinator	Ing. Koichi YAGUCHI	Japan Overseas Co-operative Association	1996/10/01-01/09/30
4	Virology	Dr. Ikuo KOIKE	-	1996/10/01-99/03/31
5	Virology	Dr. Kenjiro INUI	-	1999/03/17-01/09/30
6	Pathology	Dr. Masaru TOMISAWA	National Institute of Animal Health, Japan	1996/10/01-97/09/30
7	Pathology	Dr. Nobuhiko TANIMURA	National Institute of Animal Health, Japan	1997/12/01-98/11/30
8	Pathology	Dr. Toru HIKINUMA	Ex-NOSAI Yamagata	1999/03/03-00/09/02
9	Bacteriology	Dr. Satoshi ONEDA	Utsunomiya Animal Hygiene Service Center, Tochigi, Japan	1996/10/01-98/09/30
10	Virology	Dr. Yoshihito KASHIWAZAKI	-	1999/03/03-01/09/30
11	Pathology	Dr.Takeshi OSAWA	IWATE University	2000/09/20-01/09/19

II. Short-term Experts

	Field	Name	Present post in Japan	Duration
1	Laboratory Animal	Dr. Nobuo GOTO	Ex professor of Kobe University	1997/01/22-97/07/21
2	Pathology	Dr. Masanori KUBO	National Institute of Animal Health, Japan	1997/09/01-97/11/30
3	Bacteriology	Dr. Takahumi HAMAOKA	National Institute of Animal Health, Japan	1997/09/01-97/11/30
4	Virology	Dr. Hiroomi AKASHI	National Institute of Animal Health, Japan	1998/04/08-98/07/06
5	Pathology	Dr. Yuji SHIRAI	Fukuoka Fertilizer and Feed Inspection Station, Japan	1998/08/19-98/11/18
6	Bacteriology	Dr. Hitoshi ISHIKAWA	National Institute of Animal Health, Japan	1998/11/25-99/02/24
7	Virology	Dr. Hiroshi SENTSUI	National Institute of Animal Health, Japan	1999/03/17-99/05/16
8	Laboratory Animal	Dr. Nobuo GOTO	Ex professor of Kobe University	1999/04/05-99/06/04
9	Supervisor of the construction	Mr. Riichiro KITAMURA	ZEN-NOH Architects& Engineers Inc.	1999/04/05-99/04/25
10	Architect for the Equipment	Mr. Yoshiro MORI	ZEN-NOH Architects& Engineers Inc.	1999/04/05-99/04/25
11	Architect for the Facilities	Mr.Tsuneki NARAHARA	ZEN-NOH Architects& Engineers Inc.	1999/04/05-99/04/25
13	Pathology	Dr. Makoto HARITANI	National Institute of Animal Health, Japan	1999/08/11-99/09/30
12	Supervisor of the construction	Mr. Riichiro KITAMURA	ZEN-NOH Architects& Engineers Inc.	1999/09/29-99/11/17
14	Supervisor of the construction	Mr. Riichiro KITAMURA	ZEN-NOH Architects& Engineers Inc.	2000/02/14-00/03/29
15	Bacteriology	Dr. Yumiko IMADA	National Institute of Animal Health, Japan	2000/02/14-00/04/13
16	Statistics and Epidemiology	Dr. Tokuhiro SHIBATO	Honda Biotech Company Ltd.	2000/04/05-00/06/04
17	Supervisor of the construction	Mr. Riichiro KITAMURA	ZEN-NOH Architects& Engineers Inc.	2000/04/09-00/05/10
18	Pathology	Dr. Yoshiji ANDO	National Institute of Animal Health, Japan	2000/08/09-00/10/08
19	Virology	Dr. Kenji MURAKAMI	National Institute of Animal Health, Japan	2000/10/15-00/12/16
20	Laboratory Animal	Dr. Kenkichi IMAMURA	National Institute of Animal Health, Japan	2000/10/15-00/12/16
21	Bacteriology	Dr. Koshi YAMAMOTO	National Institute of Animal Health, Japan	2000/12/12-00/12/17

ANNEX 2 Acceptance of Counterpart Personnel in Japan

	Position	Name	Training in Japan	
1	Adviser, Section of Isolation and Identification	Dr.Maria Anita OLIVERA	1996.10.29-12.06	
2	Former Director	Dr.Jorge Baltar	1996.12.8-12.21	(Deceased)
3	Adviser, Department of Virology	Dr.Edin Raul CASTRO JANER	1997.03.16-05.17	
4	Adviser, Section of Toxicology	Dr.Sulamita COLLAZO GUADALUPE	1997.03.16-05.17	
5	Adviser, Section of Isolation and Identification	Dr.Nestor D' ANATRO	(1996, Group training course)	
6	Bacteriology	Dr.Deborah CESAR BLANCO	1997.6.2.-8.30	(Retired)
7	Head, Department of Pathobiology	Dr.Francisco Jorge CAPANO MOURINO	1997.08.04-09.20	
8	Head, Section of Experimental Animals	Dr.Hugo Pio COITINHO BARBOZA	1997.08.24-10.03	(Suspended)
9	Head, Section of Pathology (Clinical Pathology)	Dr.Milton Hugo PIZZORNO CUADRA	1998.03.02-05.01	
10	Head, Section of Isolation and Identification	Dr.Maria Victoria REPISO IBANEZ	1998.08.03-09.19	
11	Adviser, Section of Reproduction	Dr.Pedro Miguel BANALES PUPPO	1998.08.03-12.05	
12	Head, Department of Renewal Natural Resources	Dr.Homero B. N. TOSCANO B.	1999.03.07-04.11	
13	Adviser, Section of Experimental Animals	Dr.Enrique POCHINTESTA	2000.03.05-04.27	
14	Head, Section of Virology	Dr.Helena GUARINO	1999.07.19-09.03	
15	Head, Department of Bacteriology	Dr. Manrique LABORDE	1999.09.01-10.30	
16	Director General of Livestock Services	Dr.Julio BAROZZI	1999.09.12-09.30	
17	Adviser, Department of Virology	Dr.Alvaro NUNEZ	2000.03.16-05.18	
18	Head, Section of Pathology (Histopathology)	Dr.Cecilia PAULLIER	2000.05.08-06.17	
19	Head, Section of Reproduction	Dr.Leandro FERNANDEZ	2000.05.08-07.01	
20	Sub-director of Veterinary Laboratories Division	Dr.Marta CUADRADO	2000.10.09-10.26	
21	Director of Veterinary Laboratories Division	Dr.Victor LYFORD PIKE	2000.11.06-11.23	
22	Adviser, Section of Biologics Production	Dr. Mariela SILVA	Expected 2001	
23	Adviser, Section of pathology	Dr.Cristina EASTON	Expected 2001	

ANNEX 3 Provision of Machinery and Equipment by Japanese Side

*Bought in Uruguay. >Bought in Japar

J.F.Year	1996. Oct.96-Mar.97	1997. Apr.97-Mar.98	1998. Apr98-Mar99	1999.Apr.99-Mar.2000	2000.Apr.00-Feb.2001
Equipment					
	*Vehicle (Microbus. Mitsubishi)	*Liquid Chromatography with accessories	*Rotary Microtome REICHERT	*Spectrophotometer	Image Capture Camera(Model 330)
	*Vehicle (Montero. Mitsubishi)	*Ultra Centrifuge with accessories	*Fluorescence Photometer	*Autoclave	Centrifuge
	*Autoclave	*Vehicle with diagnostic facilities	*Gene Amp PCR System	*Photographic Equipment	Laser Printer
	*Deep freezer	*Freeze Dry System (Stopping Tray Dryer)	*ELISA Microplate reader	*Other Equipment for Laboratory use	
	*Biological Safety Cabinet	*Microscope with Lens	*Microscope Attachment		
	*Tissue specimen processor-GROSS LAB V	*Normarsky Microscope	*Other Equipment for Laboratory use		
	*Laboratory Equipment etc.	*Mouse Isolator-Micro-isolator Rack System			
		*Fluorescence Microscope	>Inverter Micro Refrigerated Centrifuge	>UV Visible Spectrophotometer	
	>Biological Microscope	*Inverted Microscope system	>Automatic Cell Counter	>Pure Water System	
	>High-Speed Refrigerated Centrifuge	*Incubator Shaker Flask Platform	>File Recorder	>Other Equipment for Laboratory use	
	>Ultra Pure Water Maker	*Other Equipment for Laboratory use	>Rabbit Cage System		
	>ELISA System		>Other Equipment for Laboratory use		
	>CO2 Incubator				
	>Automatic Tissue Processor				
	>Other Equipment for Laboratory use				
Carry-over	Nothing	Nothing	Nothing	Nothing	Nothing
Total	Bought in Japan 43,328,000JPY. Bought in Uruguay 26,714,000JPY	Bought in Uruguay 62,475,000JPY	Bought in Japan 11,000,000JPY. Bought in Uruguay 12,270,000JPY	Bought in Japan 7,425,000JPY. Bought in Uruguay 26,000,000JPY	Bought in Uruguay 2,300,000JPY

ANNEX 3 Provision of Machinery and Equipment

Utilization:

A: Frequent use(daily)

B: Often use (one to three time par week)

C: Use at prorate season

D: Not use frequent (three to eleven times par year)

E: Not use by special reason

Maintenance condition

A: Excellent check and maintenance. always can be use

B: Good check and maintenance

C: Able to be ready for use

D: Can not use

Equipments:Over 1,600,000JPY

Unit:10,000JPY

J.F.Year	No.	Equipment(Maker and Model)	Price a unit	Quantity	Place in use	Utilization	Maintenance	Remarks
1996	1	Vehicle(MITSUBISHI Pajero, 2800cc)	300	1	Garage in DILAVE	B	A	
1996	2	Vehicle(MITSUBISHI Microbus, 2500cc)	240	1	Garage in DILAVE	B	A	
1996	3	Biological Microscope(LEICA、 MODEL DMRB/E)	679	2	Pathology/Bact.	A	A	
1996	4	Tissue Embedding console System(SAKURA. MODEL TEC IV)	160	1	Pathology	A	A	
1996	5	High-Speed Refrigerated Centrifuge (BECKMAN,MODEL AVANTI J-251)	415	2	Virology/Bact.	B	A	
1996	6	ELISA System(BIO-RAD,MODEL 1575)	271	1	Virology	B	A	
1996	7	Ultra Pure Water Maker(Japan Millipore. MOLLI Q SP UF・MILLI RO 5PLUS)	298	1	Virology	A	A	
1997	8	Liquid Chromatography with accessories(SHIMADZU CLASS LC10Avp HPLC System)	1,216	1	Pathology	B	A	
1997	9	Ultra Centrifuge with accessories(BECKMAN OPTIMALE-80K CE)	943	1	Virology	C	A	
1997	10	Diagnostic Car(PEUGEOT. BOXER 350LHTD)	675	1	Garage in DILAVE	B	A	
1997	11	Freeze Dry System (MODEL 79480.FREE ZONE STOPPING TRAY)	387	1	Bacteriology	B	A	
1997	12	Microscope & Lens(LEICA. Dark Field)	367	1	Bacteriology	A	A	

1997	13	Normarsky Microscope.(NIKON.ECLIPSE-600)	270	1	Pathology	A	A	
1997	14	Mouse isolator(LAB PRODUCTS INC.MICRO ISOLATOR RACK SYSTEM)	249	1	Laboratory Animal	A	A	
1997	15	Fluorescence Microscope(OLYMPUS BX60)	210	1	Virology	B	A	
1997	16	Fluorescence Microscope(NIKON.ECLIPSE-600)	204	1	Pathology	A	A	
1998	17	Microcellcunter(F-820/AD-270/RM-810)	311	1	Pathology	B	A	
1999	18	Spectrophotometer (Vitalab Selectra 2)	366	1	Pathology	B	A	
1999	19	Autoclave(992EVL/DP VAP501)	954	1	Laboratory Animal	B	A	

ANNEX 3 Provision of Machinery and Equipment by Japanese Side

Equipments: 100,000<1,600,000JPY - 1

J.F.Y.	No.	Equipment(maker, Model)	Q'ty	Scraped	Stock	Utilization	Management	Remarks
1996	1	Personal Computer and Accessory-Macintosh(Power Book 5300CS)	1	0	1	A	A	Expert carried equipment
1997	2	Personal Computer and Accessory-APTIVA H65(IBM)	1	0	1	A	A	Expert carried equipment
1997	3	Copy Machine SHARP(SF2035)	1	0	1	A	A	Bought in Uruguay(Expert Office)
1997	4	Facsimile Machine SHARP(FO3250)	1	0	1	A	A	Bought in Uruguay(Expert Office)
1997	5	Slide Projector SONY(VPLV500P)	1	0	1	B	A	Bought in Uruguay(Lecture Hall)
1997	6	Electronic Force Balance SARTORIUS(QS16)	1	0	1	A	A	Bought in Uruguay(Pathology)
1997	7	Biologic Safety Cabinet COLE PARMER	1	0	1	A	A	Bought in Uruguay(Pathology)
1997	8	Tissue specimen processor LIPSHAW (GROSS LAB V)	1	0	1	A	A	Bought in Uruguay(Pathology)
1997	9	Incubator COLE PARMER	1	0	1	A	A	Bought in Uruguay(Virology)
1997	10	Aspirator FISHER	1	0	1	A	A	Bought in Uruguay(Virology)
1997	11	Biological Safety Cabinet FORMA	1	0	1	A	A	Bought in Uruguay(Virology)
1997	12	Sonic Dismembrator FISHER(MODEL 550)	1	0	1	C	A	Bought in Uruguay(Virology)
1997	13	Low-speed Centrifuge HERMLE(Z323)	1	0	1	A	A	Bought in Uruguay(Virology)
1997	14	Vertical electrophoresis System BIO-RAD(PROTEAN II xi CELLS)	1	0	1	A	A	Bought in Uruguay(Virology)
1997	15	Ultra Freezer FORMA(SCIENTIFIC ULT85)	1	0	1	A	A	Bought in Uruguay(Virology)
1997	16	Biologic Safety Cabinet FORMA	1	0	1	A	A	Bought in Uruguay(Bacteriology)

1997	17	Autoclave COLE PARMER	1	0	1	A	A	Bought in Uruguay(Bacteriology)
1997	18	Stomacher COLE PARMER	1	0	1	A	A	Bought in Uruguay(Bacteriology)
1997	19	Electrophoresis Power SupplieyBIO-RAD(PROTEAN · SYSTEM)	1	0	1	A	A	Bought in Uruguay(Bacteriology)
1997	20	Vacuum Blotting System (MILLIBLOT-V)	1	0	1	A	A	Bought in Uruguay(Bacteriology)
1997	21	Rotary Tissue processor (SAKURA, MODEL RX-11-4634)	1	0	1	A	A	Bought in Japan(Pathology)
1996	22	Microtome Blade & Holder set (SAKURA,S35 · No.160)	1	0	1	A	A	Bought in Uruguay(Pathology)
1996	23	pH Meters (SHIBATA, MODEL-744)	2	0	2	A	A	Bought in Japan(Bact./Viro.)
1996	24	CO2 Incubator (SANYO MODEL MCO 345)	2	0	2	A	A	Bought in Japan(Bact./Viro.)
1996	25	Autoclave (TOMY, MODEL SS-245)	1	0	1	A	A	Bought in Japan(Bacteriology)
1996	26	Shaker (YAMATO, MK200D)	1	0	1	A	A	Bought in Japan(Bacteriology)
1996	27	Balance(SARTORIUS, MODEL AC211S)	1	0	1	A	A	Bought in Japan(Pathology)
1996	28	Ice Maker (HOSIZAKI-TOKYO, FM-12D)	1	0	1	A	A	Bought in Japan(Virology)
1996	29	Personal Computer and Accessory(IBM,APTIVA MODEL 2176-H6E)	1	0	1	A	A	Bought in Japan(Expert Office)
1997	30	Inverted Microscope system (OLYMPUS IX50)	1	0	1	B	A	Bought in Uruguay(Virology)
1997	31	Incubator with shaker (FORMA SCIENTIFIC,MODEL 4536)	1	0	1	A	A	Bought in Uruguay(Bacteriology)
1997	32	Centrifuge (IEC,CENTRA MP4)	1	0	1	A	A	Bought in Uruguay(Bacteriology)
1997	33	Biological Safety Cabinet (FORMA SCIENTIFIC,CLASS · A/B3)	1	0	1	A	A	Bought in Uruguay(Bacteriology)
1997	34	Water Bath (COLE PARMER)	2	0	2	A	A	Bought in Uruguay(Bacteriology)

1997	35	ELISA Kit	1	0	1	B	A	Bought in Uruguay(Virology)
1997	36	Stomacher(SEWARD,LAB.BLENDERS STOMACHER400)	1	0	1	A	A	Bought in Uruguay(Bacteriology)
1997	37	Lab Refrigerator (FISHER,MODEL 13-986-245GX,44.5cuft.)	1	0	1	A	A	Bought in Uruguay(Bacteriology)
1997	38	Lab Refrigerator (FISHER,MODEL NC949415,27cuft.)	1	0	1	A	A	Bought in Uruguay(Bacteriology)
1997	39	Autoclave (NAPCO)	1	0	1	A	A	Bought in Uruguay(Laboratory Animal)
1997	40	Incubator (LABNET 611R)	2	0	2	B	A	Bought in Uruguay(Bacteriology)
1997	41	Personal computer (IBM,THINKPAD)	1	0	1	A	A	Bought in Uruguay(Bacteriology)
1997	42	Water Still (STILL SIZE 1.5L)	1	0	1	A	A	Bought in Uruguay(Bacteriology)
1997	43	Computersoftwear (STATISTICA)	1	0	1	B	A	Bought in Uruguay(Laboratory Animal)
1997	44	Slide Projector(ELMO, MODEL TRV35H PAL)	1	0	1	B	A	Bought in Uruguay(Expert Office)
1997	45	Bacteriological Identification Kit(BIOMERIEUX, API KITS)	1	0	1	B	A	Bought in Uruguay(Bacteriology)
1997	46	Ultrasonic Cleaner (COLE PARMER, PC620E1)	1	0	1	B	A	Bought in Uruguay(Virology)
1997	47	Thermcouple & Thermometer(COLE PARMER, MODEL 37000-95)	1	0	1	B	A	Bought in Uruguay(Laboratory Animal)
1997	48	Ultraviolet Cabinet Portable(MODEL CX501F)	1	0	1	B	A	Bought in Uruguay(Pathology)
1997	49	Electronic Balance (DENVER, MODEL XL-1810)	1	0	1	A	A	Bought in Uruguay(Bacteriology)
1997	50	Vacuum Sweeper	1	0	1	B	A	Bought in Uruguay(Laboratory Animal)
1997	51	Ultrasonic Cleaner for pipette (COLE PARMER, ULTRASONIC CLEANE	1	0	1	A	A	Bought in Uruguay(Bacteriology)
1997	52	Balance (SARTORIUS, MODEL BP110)	1	0	1	B	A	Bought in Uruguay(Laboratory Animal)

1997	53	Amputating Saw (LIPSHAW)	1	0	1	B	A	Bought in Uruguay(Pathology)
1997	54	White Board (IBID, PC WHITEBOARD)	1	0	1	B	A	Bought in Uruguay(Expert Office)
1998	55	Refrigerator with freezer (KENVINATOR)	1	0	1	A	A	Bought in Uruguay(Pathology)
1998	56	Computer (SEAGULL INTER PENTIUM II)	4	0	4	A	A	Bought in Uruguay(Bac/Patho/Viro)
1998	57	Fluorometro (Series IV Complete/VICAN)	1	0	1	B	A	Bought in Uruguay(Pathology)
1998	58	Micro Plate Reader	1	0	1	B	A	Bought in Uruguay(Bacteriology)
1998	59	Micro Plate Washer	1	0	1	B	A	Bought in Uruguay(Bacteriology)
1998	60	UV Transilluminater	2	0	2	B	A	Bought in Uruguay(Bact./Viro.)
1998	61	Gel Cam Camera system	1	0	1	B	A	Bought in Uruguay(Baceriology)
1998	62	Microcentrifuge (HERMLE)	1	0	1	B	A	Bought in Uruguay(Virology)
1998	63	Gel Image Analyzer (BIO-RAD, GEL Doc 2000)	1	0	1	B	A	Bought in Uruguay(Bacteriology)
1998	64	Balance (SARTORIUS, MODEL BP110)	1	0	1	B	A	Bought in Uruguay(Pathology)
1998	65	Binocular Leica for Multihead Micoroscope	1	0	1	B	A	Bought in Uruguay(Pathology)
1998	66	PCR Thermal cycler	2	0	2	B	A	Bought in Uruguay(Bact./Viro.)
1998	67	Microtome REICHERT (2125T)	1	0	1	A	A	Bought in Uruguay(Pathology)
1998	68	Refrigerated Centrifuge (H-1500DR)	1	0	1	B	A	Bought in Japan (Bacteriology)
1998	69	Ultrasound Homoginizer (UH-150)	1	0	1	B	A	Bought in Japan (Bacteriology)
1998	70	ICE Maker (FM-120D)	1	0	1	A	A	Bought in Japan (Bacteriology)

1998	71	Rabbit Cage System (U-23)	2	0	2	B	A	Bought in Japan (Bacteriology)
1998	72	Autoclave (SS-245)	1	0	1	A	A	Bought in Japan (Bacteriology)
1998	73	Autoclave (SS-325)	1	0	1	A	A	Bought in Japan (Virology)
1998	74	Sterilizing Locker (70-138-02)	1	0	1	A	A	Bought in Japan (Laboratory Animal)
1998	75	Film Recorder (HR-6000)	1	0	1	B	A	Bought in Japan (Expert Office)
1999	76	UV Visible Spectrophotometers(SHIMADZU-UV1240)	1	0	1	B	A	Bought in Japan (Bacteriology)
1999	77	Lawn mower	1	0	1	B	A	Bought in Uruguay(Laboratory Animal)
1999	78	Lighting Equipment for Camerastand	1	0	1	B	A	Bought in Uruguay(Pathology)
1999	79	Personal Computer	3	0	3	A	A	Bought in Uruguay(Bacteriology)
1999	80	West Management System	1	0	1	B	A	Bought in Uruguay(Laboratory Animal)
1999	81	Pure Water System	3	0	3	A	A	Bought in Uruguay(Bacteriology)
1999	82	Photographic Equipment(NIKON U-Ⅲ)	1	0	1	B	A	Bought in Uruguay(Pathology)
1999	83	Compact Centrifuge	1	0	1	B	A	Bought in Uruguay(Pathology)
1999	84	Gel Dryer Vacuum Pump	2	0	2	C	A	Bought in Uruguay(Bact./Viro.)
1999	85	Electro Ejaculator for Bill	1	0	1	C	A	Bought in Uruguay(Pathology)
1999	86	Equipment for semen collection	1	0	1	C	A	Bought in Uruguay(Pathology)
1999	87	Micro centrifuge	2	0	2	B	A	Bought in Uruguay(Virology)
1999	88	Rocking Platform Shaker	1	0	1	B	A	Bought in Uruguay(Bacteriology)

2000	89	Image Capture Camera(Model 330)	1	0	1	B	A	Bought in Uruguay(Bacteriology)
2000	90	High Performance Centrifuge	1	0	1	A	A	Bought in Uruguay(Bacteriology)
2000	91	Microcentrifuge	1	0	1	A	A	Bought in Uruguay(Bacteriology)
2000	92	Compact Centrifuge	1	0	1	A	A	Bought in Uruguay(Bacteriology)

ANNEX 4 Provision of Local Cost by Japanese Side

Unit:1,000JPY

Inputs \ J.F.Year	1996	1997	1998	1999	2000	Total
General Local Cost(Expense for the management of the Project)	3,500	4,000	4,000	6,000	6,000	23,500
Technical Exchange Trip Cost (Brazil)		1,249				1,249
Enlightenment and Extension Activity Cost (Publication)				937		937
Enlightenment and Extension Activity Cost (Seminar)					2,500	2,500
Model infrastructure improvement program				32,516		32,516
Total	3,500	5,249	4,000	39,453	8,500	60,702

ANNEX 5 List of Counterpart Allocation

= Training in Japan

		Assignment					Remarks
Field	J.F. Year	1996,Oct96-Mar97	1997,Apr97-Mar98	1998,Apr98-Mar99	1999,Apr99-Mar00	2000,Apr00-Mar01	Main training place in Japan / Comments
	Name/Month	4 7 10 1	4 7 10 1	4 7 10 1	4 7 10 1	4 7 10 1	
Pathology	Francisco Capano	———	—=——	———	———	———	NIAH-Tsukuba
	Cecilia Paullier	———	———	———	———	=——	NIAH-Tsukuba
	Cristina Easton	———	———	———=	=——	———	
	Milton Pizzorno	———	———	=——	———	———	NIAH-Tsukuba
	Gonzalo Uriarte	———	———	———	———	———	
	Leandro Fernandez	———	———	———	———	=——	IWATE University
	Pedro Banales	———	———	—====	———	———	NIAH-Tsukuba,NIIKAPPU
	Fernando Riet	———	———	———	———	———	
	Sulamita Collazo	——=	=——	———	———	———	NIAH-Tsukuba
Bacteriology	Manrique Laborde	———	———	———	——==	———	NIAH-Tsukuba
	Blanca Herrera	———	———	———	———	———	
	Maria Victoria Repiso	———	———	—=——	———	———	NIAH-Tsukuba
	Maria Anita Olivera	=——	———	———	———	———	IBARAKI University
	Nestor D'Anatro	———	———	———	———	———	
	Mariela Silva	———	———	———	———	———	
	Deborah Cesar	———	—===	———			NIAH-Tsukuba / Retired, 1998.10

Virology	Rosa Di Landro							
	Helena Guarino						NIAH-Tsukuba	
	Edin Raul Castro						NIAH-Tsukuba	
	Sergio Kmaid							Retired, 1998.3
	Alvaro Nunez						NIAH-Tsukuba	
	Mabel Ferrer							
	Julia Saizar							Retired, 1998.3
	M. del Rosario Castro							
Laboratory Animal	Homero Toscano						NIAH-Tsukuba	
	Hugo Coitinho						NIAH-Tsukuba	Suspended, 2000.6
	Enrique Pochintesta						NIAH-Tsukuba	
Administration	Jorge Baltar						NIAH-Tsukuba	Deceased, 1997.12
	Marta Cuadrado						NIAH-Tsukuba	
	Washington Fiore							
	Julio Barozzi						NIAH-Tsukuba	
	Victor Lyford-Pike						NIAH-Tsukuba	
	Fernando Chiesa							

ANNEX 6 Budget Allocation for the Project Operation by Uruguayan Side

Unit=Peso

Item	Details	1996/10~12	1997/1~12	1998/1~12	1999/1~12	2000/1~12
Maintenance cost for Vehicles	Cost of Fuel, Oil filter, and car washing	5,550	9,655	11,200	5,893	9,230
Maintenance cost for Vehicles	Insurance for microbus(Mitsubishi)		13,071	17,840	24,140	25,523
Maintenance cost for Vehicles	Insurance for Montero(Mitsubishi)		35,926	49,918	52,559	49,397
Maintenance cost for Vehicles	Insurance for Diagnostic car (Peugeot)			10,700	19,259	20,361
Personnel expenses	Daily allowance for driver	9,100	10,560	15,300	7,560	12,060
Cost for constraction and repair	Reconstraction of the Project office and installation of equipment	15,000	70,000	90,000	12,000	23,000
Miscellaneous expenses	Cleaning	4,200	6,090		3,700	4,100
Expenses for light and fuel	Electricity charge for Project office	900				
Articles of consumption	Copy etc.	2,600				
Correspondence	Telephone charges		39,068	35,408	33,346	38,545
Total share of DILAVE(Peso)		37,350	184,370	230,366	158,457	182,216
Total share of DILAVE(US$)		4,123	18,165	21,330	13,543	14,577
Exchange rate		1US$=9.06	1US$=10.15	1US$=10.8	1US$=11.7	1US$=12.5

ANNEX 7. Results of the Questionnaires

The Team selected one (1) personnel from Administration/Management and four (4) leading staff from among the researchers and asked them to fill out the questionnaire. Twenty (20) researchers were also asked to fill out it. The Team requested five (5) Japanese long-term experts of the Project to complete almost the same questionnaire written in Japanese.

All persons are asked to select any one score from among the following five (5) multiple choices for Questions ;

not at all (-) [a] [b] [c] [d] [e] very much (+)

1. Efficiency

The questionnaire includes the following items in order to derive efficiency;

a. Were the quality and quantity of inputs appropriate?
b. Were the outputs obtained at a reasonable cost? (Not applicable for researchers)
c. Has the management system functioned well to produce the expected outputs?
d. Have the inputs of the project, such as equipment, human resources, operation cost, been fully utilized?
e. Have the inputs been delivered on schedule?
f. Is there any alternative strategy to produce the outputs more efficiently?

The following are their answers for the individual questions above.

Number of Answers

Question a Adm/ Mnt: 1 person for score [d] and 4 for [e]
Researchers: 1person for score [c],12 for [d] and 6 for [e]

Question b Adm/ Mnt: 3 persons for score [d] and 2 for [e]
Researchers: Not applicable for the Researchers

Question c Adm/ Mnt: 1 person for score [c], 2 for [d] and 2 for [e]
Researchers: 1person for score [b] ,12 for [d] and 6 for [e]

Question d Adm/ Mnt: 2 person for score [d] and 3 for [e]
Researchers: 3 persons for score [c], 9 for [d] and 7 for [e]

Question e Adm/ Mnt: 1 person for score [c],2 for [d] and 2 for [e]
Researchers: 1 person for score [b], 3 for [c], 6 for [d] and 8 for [e]

With regard to Question f, some personnel suggest that a new budget system should be established to produce the outputs more efficiently, while most of the DILAVE's staff have no proposal for this item.

A few of them say they have their own financial problem to be solved.

The Team reviewed their answers and concluded as follows;

1) Timing of the input

According to their reply to Questions d and e of the questionnaire, a majority of them has recognized that introduction of the experts and equipment from Japan was timely.

2) Balance between input and output

According to their reply to Question a, they say the quality and quantity of the inputs were appropriate.

2. Impact

The Team has included some relevant items in the questionnaire in order to assess "Impact", because it is intended/unintended, direct/indirect and positive and negative changes will occur as a result of the Project.

Following are the questions;

a. Do you think any changes of the target group will be brought about after the Project?

b. Are those changes favorable or unfavorable for the target group? (For the administration/management personnel only)

c. Are any social, economic, technological, environmental impact observed?

Number of Answers

Question a Adm/ Mnt: 2 persons for item score [d] and 3 for [e]
Researchers: 2 person for score "Not at all", 4 for [c], 8 for [d]

Question b Adm/ Mnt: 4 persons for score [e] and 1 for score " very much"
Researchers: Not applicable for the Researchers

Question c Adm/ Mnt: 1 person for score [c], 2 for [d] and 2 for [e]
Researchers: 3 persons for score [b], 5 for [c], 5 for [d] , 4 for [e] and 2 for score " very much"

The Team reviewed their answers and concluded as follows;

The DILAVE's management/administration personnel and researchers have recognized that favorable changes have been brought about within the target group except very few researchers. Then we can claim that positive impact will be surely brought about.

3. Effectiveness

"Effectiveness" concerns the extent to which "Project purpose" has been achieved, or is expected to be achieved, in relation to the outputs produced by the Project.

The Team has asked DILAVE's management/administration personnel and researcher some relevant items in the questionnaire in order to assess "Effectiveness". The questionnaire is as follows;

a. To what extent has project purpose been achieved ? (Not applicable for the Researchers.)

b. Have the outputs contributed to the realization of the project purpose? (Not applicable for the Researchers.)

c. What factors have delayed the realization of the project purpose?

d. When will the project purpose be attained?

For these questions, they replied as follows;

Question a Adm/ Mnt: 2 persons for score [d] and 3 for [e]
Researchers: n.a.

Question b Adm/ Mnt: 2 persons for score [d] and 3 for [e]
Researchers: n.a.

Question c Adm/ Mnt: 2 persons referred to DILAVE's budget restraint and their private life and a person says a case of emergency delayed the Project purpose. No answers were available for two personnel.
Researchers: 7 persons had (personal) financial problems. 4 people attributed it to delay of equipment and other necessities. 5 researchers gave no answers. Three answers were difficult to specify.

Question d (Question b for the Researchers)
Adm/ Mnt: 3 persons said the Project purpose would be attained by the end of 2001 and 1 person believed it would depend on the budget assigned to DILAVE.
Researchers: 6 researchers said it would be by the end of 2001 and 3 said it would be expected when financial problems were solved. 5 claimed that all technologies and standardization were available. There were 2 no answers.

Taking account of the above replies, the Team conclude as follows;

They have claimed that the Project purpose has been achieved, though they have referred to some kind of financial problems attributable to either researchers themselves or DILAVE's budgetary appropriation.

4. Relevance

The assessment of "Relevance" covers the questions of whether the direction of the Project is still relevant to the needs of the recipient society or nation, and whether the socio-political situations that may have taken place during the lifetime of the Project have altered the justification for the Project.

The Team believes that this is one of the major concerns of DILAVE's management/administration and then it has made inquiries focussed on the subject.

The following are the inquiries in the questionnaire;

a. Are the objectives still consistent with development policy of the recipient country?
b. Are the objectives still consistent with the needs of the target group?
c. Are the objectives consistent with the aid policy of donor country or mission of donor aid organization?

For these questions, they replied as follows;

Question a Adm/ Mnt: 1 person for score [d] and 4 for [e]
Researchers: n.a.

Question b Adm/ Mnt: 1 person for score [d] and 4 for [e]
Researchers: n.a.

Question c Adm/ Mnt: 1 person for score [d] and 4 for [e]
Researchers: n.a.

Considering their views on this item, DILAVE's management/administration personnel have unanimously agreed with the above inquiries. Now the Team can conclude that the Project purpose and overall goal are in accordance with the recipient country's policy, the needs of the target group and the policy stance of the assistance provider.

5. Sustainability

With regard to this item, the Team made the following questions to the people concerned;

a. Have the activities been continuing after the project completion ?
b. Have the inputs of the project – facilities, equipment, manpower, transferred technology – been fully utilized after project completion ?
c. Have the implementing organizations secured necessary financial and human resources (including management capability) for continuing the activities ?
e. Is political support still available after project completion ?

Questions c & d above were not applied to the Researchers.

For these questions, the following are their replies;

Question a Adm/ Mnt: 1 person for score [b], 1 for [c] and 3 for [e]
Researchers: 2 persons for score [b], 4 for [c], 7 for [d] , 3 for [e] and 2 for score " very much"

Question b Adm/ Mnt: 1 person for score [c],1 for [d] and 3 for [e]
Researchers: 2 persons for score [b], 6 for [c], 3 for [d], 5 for [e] and 2 for score " very much"

Question c Adm/ Mnt: 1 person for score [b], 2 for [c] and 2 for [d]
Researchers: n.a.

Question d Adm/ Mnt: 1 person for score [c],1 for [d] and 3 for [e]
Researchers: n.a.

Considering their views on this item, most of DILAVE's people concerned except very few personnel realize that sustainability of the Project is likely to continue after the completion of the Project.

ANNEX8. Project Achievements according to TDIP

1) Result of activity with table (Pathology)

Work plan		Expected output	Progress and results	Achvmt. degree	Reason for the delay	Future plan
Subject	Activity					
I. Improvement of diagnostic techniques in histopathology						
1. Histopathological diagnosis	• Improvement of tissue sectioning methods	• Accurate and rapid diagnosis	• Techniques for the preparation of pathological tissue section have been improved by the introduction of an auto-paraffin embedding machine. The monitoring system of BSE and Scrapie has become more efficient.	4		• Maintenance of the equipment • Publication of the diagnostic and research activities
	• Improvement of diagnostic method by application of special staining techniques		• The method for Spirochete detection has been improved.	4		• Maintenance of the equipment
2. Introduction of Immunohistochemistry	• Validation of diagnosis by Immunohistochemistry	• Establishment as a definitive diagnosis	• The techniques for the detection of the various types of antigen and that for staining have been transferred.	4		• Publication of the research activities
	• Standardization of the technique	• Standarization of the technique	• Diagnosis by immunohisto-chemistry has been routinized.	4		• Maintenance of the equipment
II. Improvement of diagnostic techniques for mycotoxicosis						
1. Development of rapid determination techniques for mycotoxins	• Establishment of accurate analysis of mycotoxins by HPLC	• Rapid diagnosis	• HPLC has been installed and the guidance on the manipulation has been implemented. The sensitivity of TLC has been improved by the introduction of a new UV cabinet.	4		• Maintenance of the equipment • Publication of the diagnostic and research activities
2. Standardization of advanced diagnostic techniques	• Biochemical analysis of mycotoxins	• Biochemical analysis of mycotoxins	• Quantitative analysis of the six mycotoxins in the grain and mixed feed by HPLC has become possible.	4		• Monitoring of the sensitivity and specificity of HPLC

3. Epidemiological survey of mycotoxins	• Biological analysis of mycotoxins • A survey using the techniques introduced	• Biological analysis of mycotoxins • Clarification of the geographical distribution of mycotoxins in the country	• Biological analysis of the mycotoxines using experimental animals has been insufficiently introduced. • Samples for the analysis are being collected at the moment.	2 3	• Lack of SPF animals • Mobility shortage	• SPF animals will be produced in DILAVE. • Statistical analysis and publication of the results
III. Improvement of diagnostic techniques in clinical pathology						
1. Diagnosis for the reproductive disorders caused by infectious agents	• Improvement of existing diagnostic techniques	• Clarification of the etiological agents inducing infectious reproductive disturbances • Reduction of the infectious reproductive disturbances	• Since it was suggested that infection with *Campylobacter* spp may play a major role in the reproductive disorders in a farm, efforts were made to guide the owner to use only semen or bulls that are proved as negative to *Campylobacter* spp. As a result, the conception rate in the farm rose.	3	• Delay in the dispatch of the experts on reproductive pathology • Etiology of reproductive disorders is complicated.	• Field survey will be implemented. • Monitoring system on reproductive functions will be established.
2. Improvement of diagnostic techniques for toxoplasmosis and neosporosis	• Development and evaluation of the tests to detect infected animals with *Toxoplasma gondii* in early stage of infection	• Establishment of the preventive measures through the rapid detection of animals infected with *T. gondii*	• Latex agglutination test was introduced.	3	• Delay in the introduction of indirect fluorescence antibody test (IFAT) for toxoplasmosis	• IFAT and ELISA will be introduced.
	• Epidemiological survey of toxoplasmosis	• Clarification of the distribution of *T. gondii*	• Serum samples from different parts of the country are being collected.	3	• Delay in starting the survey	• The survey will be finished by the end of the project.
	• Establishment of the diagnosic techniques for neosporosis	• Establishment of histopathological and serological diagnosis for neosporosis	• Immunohistochemistry, indirect fluorescence antibody test and ELISA for neosporosis were introduced.	3	• Results by ELISA are not stable.	• Stabilization of ELISA

2) Result of activity with table (Bacteriology)

Work plan		Expected output	Progress and result	Achvmt. degree	Reason for the delay	Future plan
Subject	Activity					
I. Improvement of diagnostictechniques for major microbial iufections						
1. Improvement of diagnostic techniques for bovine tuberculosis and brucellosis	• Improvement of isolation and cultivation methods of the causative agents	• Antemortem diagnostic methods will be established.	• Antemortem diagnosis was established by introduction of new equipment and improvement of techniques.	4		• Further improvement of the techniques
	• Improvement of antigen preparation for *Brucella* ELISA	• A large number of cases will be efficiently diagnosed.	• The products became doubled by introduction of new equipment and improvement of techniques.	4		• Further increase of the products
	• Application of PCR for the diagnosis of tuberculosis	• Rapid diagnosis will be feasible.	• PCR was found to be unsuitable for rapid diagnosis.	2	• Difficulties on DNA purification from organs	• Application of PCR for genotyping of field strains
2. Studies on epidemiology for control and eradication of the diseases	• Survey of the disease occurrence in the field	• Incidence and distribu-tion of the diseases will be clarified.	• Both diseases have been well controled.	4		• Further effort to detect clinical incidences
	• Serological survey on brucellosis	• Control measures for the diseases will be developed.	• Nationwide serological survey on brucellosis was implemented.	4		• Continuation of detection of seropositives

II. Improvement of diagnostic techniques for microbial reproductive disorders						
1. Establishment of diagnostic techniques for campylobacteriosis leptospirosis, etc.	• Establishment of techniques for isolation and cultivation of bacteria	• Isolation and cultivation technques for the accurate diagnosis will be established.	• The system was established by introduction of new equipment and improvement of techniques.	4		• Further improvement of the techniques
	• Preparation of reagents for FA	• FA conjugate will be prepared.	• The conjugate has been under preparation.	3	• Delay of the selection of strains	• Completion of conjugate production
	• Application of PCR for the diagnosis of campylobacteriosis and leptospirosis	• Accurate and rapid diagnosis will be available	• PCR has been utilized as a diagnostic tool and contributes to the accurate and rapid diagnosis.	4		• Improvement of its sensitivity
	• Establishment of ELISA for the diagnosis of leptospirosis	• A large number of samples will be efficiently diagnosed.	• The conditions for the test has been optimized.	3	• Delay of the introduction of reference strains	• Completion of setting up the system
	• Antigenic analysis of field isolates	• Field isolates will be compared with reference strains.	• Field isolates were genotyped by RFLP and RAPD-PCR.	4		• Further analysis on a larger number of strains
2. Epidemiological survey of the diseases	• Field survey of incidence and distribution	• Incidence and distribution of the diseases will be clarified.	• Nationwide survey on campylobac-teriosis was implemented.	4		• Continuation of survey
	• Scrological survey of leptospirosis by the ELISA	• Distribution of the causative agent will be clarified.	• Samples (6900 sera) were pre-pared and waiting for examination.	2	• Delay of the establishment of ELISA	• Implementation of the test after its establishment
	• Evaluation of *Leptospira* and *Campylobacter* vaccine efficacy and investigation of their status in the field	• Vaccine efficacy for the protection against the bacteria will be clarified.	• Vaccine efficacy was evaluated experimentally. Questionnaires on vaccination were carried out at 230 farms.	3	• Delay of the establishment of ELISA for leptospirosis	• Final evaluation by analysing the data from questionnaires
III. Improvement of diagnostic techniques for epidemiological survey of avian salmonellosis						
	• Improvement of isolation and identification of *Salmonella* spp.	• Assistance to the public health service will be enriched in outbreak of human salmonellosis.	• Assistance to the public health service was established by introduction of new equipment and antisera, and improvement of techniques.	4		• Further effort for periodical purchace of antisera and improvement of the techniques
	• Application of PCR for detection of *S. entritidis* in eggs and chicken embryos	• Control of imported hatching eggs will be more effective.	• Diagnosis by PCR was enabled but its reliability is still questioned.	3	• Decrease of field samples for diagnosis	• Comparison of PCR with existing diagnosis

3) Result of activity with table (Virology)

Work plan		Expected output	Progress and result	Achvmt. degree	Reason for the delay	Future work
Subject	Activity					
I. Improvement of diagnostic techniques of viral infections						
1. Diagnostic services for bovine, ovine, equine, swine, and avian viral infections, except foot and mouth disease	Introduction of cell lines susceptible to respective virus of major diseases and their applications	Introduce major cell lines and establish cell culture techniques	Major cell lines (MDBK, Vero, RK13 etc.) have been introduced. Cell culture techniques have been established.	4		
	Improvement of techniques to isolate and identify the causative viruses of major viral diseases	Establish various virus detection techniques. Increase the number of viruses that can be detected.	Virus isolation techniques have been established. Virus identification methods such as FA and immunostaining have been introduced. Various antisera have been introduced. The number of identifiable viruses has been increased to 16 (bovine 11, equine 2, poultry 3).	3	Lack of application due to few field specimens	Encourage field vets to send more specimens
	Improvement of methods to detect viral antigens or antibodies	Establish various antibody detection methods. Increase the number of viral antibodies that can be detected.	Antibody detection techniques such as SN, AGID and HI test have been established. The number of identifiable antibodies has been increased to 17 (bovine 11, equine 3, poultry 3). Necessary key reagents for these tests have been produced in large quantity and stored. AGID antigens for BLV and EIAV have been produced.	4		Standardization of introduced techniques
2. Introduction of viral disease diagnosis by application of advanced techniques	Application of PCR method for diagnosis of viral diseases	Introduce and apply genetic methods such as PCR for the detection and analysis of viruses.	Detection system of viral nucleic acid by PCR has been established with 4 viruses (IBRV, BVDV, BLV, IB). Application of PCR methods has been prepared for 6 more viruses (BCV, BTV, IBDV, NDV, PEDV, CSFV). Genetic analysis of viruses by RFLP and sequencing has been applied.	4		More applications in the characterization of field isolates
3.Epidemiological analysis	Serological survey of major viral diseases of bovine, ovine, equine, porcine and poultry	Study the prevalence of various viral infections and their epidemiology for the possible control measures.	Prevalence of bovine virus infections in beef herds has been studied with 10 viruses (BHV1, BHV2, BHV4, BVD1&2, BRSV, PI3, BCV, BPV and BPStV). Similar studies are being carried out in dairy herds. Epidemiological studies with BHV1 and BHV2 are being carried out. Serological survey of 2 equine viruses (EHV1 and EVAV) has been taken place.	3	Reference viruses were introduced late.	Detailed epidemiological study to know the economic importance of each virus and its control measures

4) Result of activity with table (Laboratory animals)

Work plan		Expected output	Progress and result	Achvmt. degree	Reason for the delay	Future plan
Subject	Activity					
I. Supply of laboratory animal for diagnosis						
1. Improvement of production technique of small laboratory animal, such as mice, rats, guinea pigs, hamsters and rabbits	• Investigation of current breeding plan, feeding system, circumstance for animals • Survey of heredity , breeding and microbiological one of laboratory animal stock strains • Improvement and/or reconstruction of facilities	• Role of laboratory animals in diagnosis will be clarified • Genetic and microbiological monitoring system for the strains will be established • SPF mice will be introduced	• Practical requirement of laboratories is promoting • Viral, bacteriological and parasitic Infections in stock mice were demonstrated • Invasion of bacteria, insect and wild rats was indicated. SPFmice/CD-1were introduced	3 4 4	• Each experiment should be defined to special kind or species of experimental animals. Basically, it is difficult to make plan over looking for mid- or long-term span, because DiLaVe work covered wide range and changeable occasionally	• To make "Joint laboratory animal committee" in DiLaVe should be suggested, for establishment the logical and practical plan
2. Production and maintenance of breeding stocks	• Survey of heredity and breeding of breeding stock • Microbial and viral survey of breeding stocks such as mice and rats • Test trial for producing SPF mice	• Genetic uniformity will be maintained in breeding stocks • Healthy laboratory animals will be produced in breeding stocks • Supply mice for diagnose ; SPF mice will be produced	• Heredity problem in stock mice was indicated • Bacterial and viral infections in stock mice were indicated • CD-1 SPF mice production with closed colony method was completed	4 4 3	• Only one strain of mice is breeding, because e.g. to delay of construction of facility is recommended	• The effective production suggested with the "Joint laboratory animal committee" will be expected

5) Result of activity with table (Extension Activities)

Work plan		Expected output	Progress and result	Achvmt. degree	Reason for the delay	Future work
Subject	Activity					
I. Extension of project achievements	Workshops and seminars for the filed and the laboratory veterinarians	Extension of techniques and knowledge acquired through project activities	Two large seminars were held on the reproductive disorders that were the major targets of the project. Total of 200 people mainly the field vets participated in the seminars. There were lots of useful suggestions on the role of DILAVE from the participants as the result of the seminars. More seminars and workshops are under planning. Seminars by Japanese experts were taken place 31 times.	4		More seminars and workshops
	Seminars at relevant institutes or universities	Establish links with relevant institutes for the collaboration and the exchange of information	Japanese experts gave 4 lectures and the counterpart staff gave more than 20 lectures at universities and veterinary associations etc. As a result, the exchange of information has been promoted between DLAVE and the other institutions. There were also precious suggestions on the diagnostic services and researches of DILAVE.	4		
	Publications in scientific congresses and journals	Extension of project achievements	There have been more than 30 presentations and publications at academic meetings such as World Congress of Buiatrics and in the scientific journals.	3		Promote publications in the international scientific journals

ANNEX 9-1 Seminars and Training Activities with Japanese Experts

Year	Month	Name of Experts	Title	Note
1997	7	Goto	Laboratory Animals	4
1997	9	Tomisawa	Histopathology	4
1997	11	Hamaoka	Antigenic analysis of Clostridium	4
1997	11	Hamaoka	Antibody labeling with fluorochromes	4
1997	11	Kubo	Electron Microscopy for virus, bacteria, and protozoas	4
1997	11	Kubo	Histopathology of encephalitis; Japan and Uruguay	4
1998	6	Akashi	Actual situation of bovine viral diseases in Japan	4
1998	6	Akashi	BVD/MD	4
1998	7	Akashi	New techniques in the diagnosis of viral diseases	4
1998	9	Oneda	Bacterial diseases in cattle	4
1998	9	Tanimura	Immunohistochemistry	4
1998	11	Shirai	Toxicology	4
1999	3	Koike	Poultry viral diseases	4
1999	5	Inui	Molecular Epidemiology of Animal Viral Diseases	4
1999	5	Sentsui	Genetic variations in equine infectious anemia virus	4
1999	6	Goto	Laboratory Animal Facility at DILAVE	4
1999	9	Haritani	Neosporosis	4
1999	9	Kashiwazaki	Neosporosis in Thailand	4
1999	11	Inui	Morbillivirus	5
1999	12	Inui	Molecular Epidemiology	3
2000	4	Imada	Protective antigen for Eryspelothrix rhusiopathiae	4
2000	4	Imada	Genotyping of Campilobacter isolates in Uruguay	4
2000	8	Hikinuma	Beef farms in Japan and Uruguay	4
2000	9	Inui	Veterinary Acupuncture	4
2000	9	Inui	Use of Internet to serch for the references	4
2000	9	Ando	Microscope; its use and maintainance	4
2000	10	Osawa	Antibody detection ELISA for Neospora	4
2000	11	Inui	Epidemiology of Bovine Herpesvirus 1 in Uruguay	1
2000	11	Inui	Bovine Herpes Mammilitis; A case study in Uruguay	1
2000	11	Murakami	Bovine Herpesvirus 4	1
2000	11	Kashiwazaki	New aspects in diagnosis at DILAVE/Bacteriology	1
2000	11	Imamura	Use of SPF Animals	1
2000	11	Osawa	Application of ELISA test for Neospora	1
2000	11	Osawa	Reproductive disorders in dairy cows	5
2000	12	Inui	Molecular Epidemiology in Veterinary Science	2
2000	12	Murakami	An eradication program of bovine leukemia virus	2
2000	12	Yamamoto	Mycoplasma infection in animals	2
2000	12	Taira	Sudden death syndrome in Strongiloidosis	2
2000	12	Kashiwazaki	Trypanosomiasis in South America	2
2000	12	Osawa	Reproduciton in dairy cows	2

Note:
1: DILAVE/JICA Seminar "Reproductive Disorders of Cattle"
2: DILAVE/JICA Seminar "Veterinary Science"
3: Workshop on "Application of Molecular Biology in Veterinary Science"
4: Lectures held at DILAVE
5: Uruguay Veterinary Association

Special Note: Many other lectures have been given by the counterparts at various occasions.

ANNEX 9-2 DILAVE/JICA Seminar 1 (November, 2000)

☆*Seminario DILAVE-JICA*☆

Avances en el Diagnóstico de Afecciones Reproductivas en Bovinos

DILAVE "M.C. Rubino", 17 de noviembre de 2000

========== PROGRAMA ==========

Moderator: Dr. Jorge Pereyra

8:30 – 9:00 Apertura
Dr. Marta Cuadrado (Director Adujunta), Dr. Noriyuki Taira (Jefe de Proyecto)

9:00 - 10:40 Sección 1
DILAVE-JICA Proyecto y Agencia Cooporación Internacional del Japón
Dr. Noriyuki Taira (Jefe de Proyecto, JICA, National Institute of Animal Health)
Epidemiología de herpesvirus bovino 1 en Uruguay
Dres. Helena Guarino, Ken Inui (JICA)
Infección por herpesvirus bovino 2: un caso de estudio en Uruguay
Dres. Manrique Laborde, Ken Inui (JICA)
Herpesvirus bovino 4 : revisión
Dr. Kenji Murakami (National Institute of Animal Health, Japan)
Uso de Animales SPF
Dres. Enrique Pochintesta, K. Imamura (National Institute of Animal Health, Japan)

11:00 – 12:20 Sección 2
Nuevos aspectos del diagnóstico en el Dept de Bacteriología
Dres. Yoshihito Kashiwazaki (JICA), Nestor D'Anatro, Mariela Silva
Detección de anticuerpos vacinales de C. fetus por la técnica de ELISA
Dras. Maria V. Repiso, Maria Anita Olivera
La Leptospirosis en el Uruguay, epidemiología y control
Dra. Blanca Herrera
Micotoxinas en la Reproduccion
Dres. Fernando Riet, Sulamita Collazo

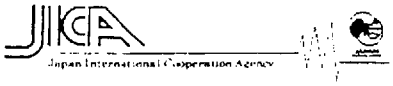
(12:20 – 13:00 Almuerzo)

13:00 – 14:40 Sección 3
Examen clínico-reproductivo de toros: hallazgos patológicos
Dr. Leandro Fernández
Aplicación de un test de ELISA para Neospora en bovinos
Dr. Takeshi Osawa (JICA, Iwate University, Japan)
Neosporosis bovina: primeros datos sobre su incidencia en el Uruguay
Dres. Pedro Bañales, Cecilia Paullier, Cristina Easton, Milton Pizzorno
Diagnóstico de infertilidad nutricional en Uruguay
Dr. Gonzalo Uriarte

15:00 – 17:00 Mesa Redonda
Discusión: Relacionamiento de la DILAVE con el medio
Moderador: Dr. Francisco Capano

==========

ANNEX 9-3 DILAVE/JICA Seminar 2 (December, 2000)



☆ *SEMINARIO JAPONES* ☆

☆ *EN CIENCIAS VETERINARIAS* ☆

13 de Diciembre, 2000 9:00 – 13:00

13:00- 15:00 Parillada, Comida Japonesa, y Muestra de Cultura Japonesa

DILAVE "M.C. Rubino" Ruta 8 Km17.500

Cupos limitados ***Confirmar asistencia antes del 11 de Diciembre !!!***

Tel/fax : 02-222-1865 (Srta. Mitsuko) e-mail: mori@dilave.gub.uy

========== PROGRAMA ==========

Brote de Fiebre Aftosa en Japón

Dr. T. Tsuda (National Institute of Animal Health, Kagoshima, Japan)

Un programa de erradicación del virus de la leucosis bovina

Dr. K. Murakami (National Institute of Animal Health, Tsukuba, Japan)

Infecciones a Mycoplasma en animales

Dr. Y. Yamamoto (National Institute of Animal Health, Tsukuba, Japan)

Enfermedades del ganado lechero en confinamiento

Dr. Y. Yamada (National Institute of Animal Industry, Tsukuba, Japan)

Infecciones por Salmonella y E coli O157 en humanos y animales

Dr. T. Samejima (National Institute of Animal Health, Tsukuba, Japan)

Control de la Fascioliasis en Japón

Dr. Y. Sato (Tohoku University, Sendai, Japan)

Zoonosis parasitarias en Uruguay

Dr. T. Sakamoto (JICA, Iwate University, Morioka, Japan)

Tipo de muerte súbita por Strongiloidosis

Dr. N. Taira (JICA, National Institute of Animal Health, Tsukuba, Japan)

Trypanosomiasis bovina en Sud América

Dr. Y. Kashiwazaki (JICA, Hokkaido University, Sapporo, Japan)

Reproducción en vacas de alta producción lechera

Dr. T. Osawa (JICA, Iwate University, Morioka, Japan)

Epidemiología molecular de enfermedades virales de los animales

Dr. K. Inui (JICA, University of Tokyo, Tokyo, Japan)

==========

ANNEX 9-4 DILAVE/JICA Seminar 3 (March, 2001)

Seminario JICA/DILAVE

Manejo del Rodeo y Desórdenes Reproductivos

Paysandú, 23 y 24 de marzo de 2001

PROGRAMA

23/03/2001: Mc Centre Shopping. Cupo: 100-180 participantes.

08:00-09:00 Inscripciones

09:00-09:30 Apertura: Dr. Noriyuki Taira (JICA), Dr. Victor Pike (DILAVE), Dr. Eduardo Paradiso (CMVP)

09:30-10:15 Problemática de los rodeos de cría en Uruguay: Dr. Guillermo de Nava (Ejercicio Liberal)

10:15-10:30 Descanso (café)

10:30-11:15 Propuestas de bajo costo para el manejo de rodeos de cría: Ing. Agr. Pablo Soca (Fac. Agronomía)

11:15-12:00 Nutrición y fertilidad en el ganado: Dr. Gonzalo Uriarte (DILAVE)

12:00-13:30 Descanso (almuerzo y café)

13:30-14:30 Neosporosis: Drs. Pedro Bañales, Cristina Easton, Jorge Gil (DILAVE)

14:30-15:00 Epidemiología y control de la leptospirosis en la región este: Dr. Fernando Dutra (DILAVE)

15:00-15:30 Estudios epidemiológicos de IBR y DVB: Dra. Helena Guarino (DILAVE)

15:30-16:00 Descanso (café)

16:00-16:45 Manejo reproductivo de la vaca en el postoparto y del ternero recién nacido: Dr. Takeshi Osawa (JICA)

16:45-17:30 Enfermedades esqueléticas en toros de razas de carne: Dr. Fernando Dutra (DILAVE)

17:30-18:15 Examen andrológico de toros, parte I: Dr. Leandro Fernandez (DILAVE)

24/03/2001: Ñuporá. Cupo: 30 participantes.

08:30-12:00 Examen andrológico de toros, parte II: Dr. Alfredo Ferraris (Fac. Veterinaria), Drs. Leandro Fernandez, Nestor D'Anatro (DILAVE)

ANNEX 10-1. PROJECT DESIGN MATRIX (PDM_0)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Overall Goal Establishment of an effective system of support for control or eradication of animal infectious diseases	Decrease of incidence of major animal diseases	• Statistics of animal health • Statistics of animal population • Statistics of animal mortality and being slaughtered	No fundamental policy will alter about animal health administration in the future
Project Purpose Improvement of veterinary diagnostic techniques in order to detect animal infectious diseases rapidly and precisely	1. Realization of prompt diagnosis 2. Realization of precise diagnosis	• Record of samples tested • Record of diagnosis • Protocols for diagnosis	Major premise: No malignant pandemic disease beyond anticipation will occur.
Outputs: being expected as follows: 1. Improvement of diagnostic techniques in histopathology 2. Improvement of diagnostic techniques of diseases caused by mycotoxins 3. Improvement of diagnostic techniques in clinical pathology 4. Improvement of diagnostic techniques in (including reproductive disorders)for microbial infections 5. Improvement of diagnostic techniques for viral infections 6. Supply of appropriate laboratory animals necessary for diagnostic activity 7. Transfer of the improved diagnostic techniques 8. Extension of the Project achievements 9. Arrangement of epidemiological information net work	1. Realization of effective work in diagnosis 2. Elucidation of major diseases 3. Realization of precise diagnosis 4. Supply of appropriate laboratory animals necessary for diagnostic activity 5. Periodical holding of the technical guidance, seminars and special lectures 6. Arrangement of animal disease incidence data 7. Making of presentations and publications	• Record of samples tested • Protocols for diagnosis • Record of diagnosis • Production record of laboratory animals • Actual output of extention activities • Statistics of animal health • Proceedings of academic congresses and scientific journal	• Experienced researchers continuously work in diagnosis and research activity • Trainees conduct diagnostic services • Laboratory equipment, reagents expendable and so on necessary for diagnostic service are procured • Communication media are steadily maintained
Activities 1. To improve diagnostic techniques in histopathology 2. To improve diagnostic techniques of diseases caused by mycotoxins 3. To improve diagnostic techniques in clinical pathology 4. To improve diagnostic techniques for microbial infections (including reproductive disorders) 5. To improve diagnostic techniques for viral infections 6. To supply appropriate laboratory animals for diagnostic activity 7. To hold technical guidance, seminars and special lechtures for diagnostic techniques at DI.LA.VE.and related institutions 8. To make presentations at academic congresses and publications in scientific journals 9. To take advantage of diagnostic result for epidemiological information	INPUTS Japanese side 1. Dispatch of Japanese experts Long-term experts : team leader, coordinator, experts for pathology, bacteriology and virology Short-term experts : at need for laboratory animals and so on 2. Supply of machinery and vehicles 3. Training of counterparts in Japan Uruguay side 1. Allocation of counterparts and administrative personnel 2. Provision of the laboratory buildings, facilities and so on 3. Local cost (running expenses necessary for light and fuel, communication, maintenance of machinery and equipment and so on) 4. Provision of Japanese experts' offices		• Budgetary prosecution of Uruguay is assured to carry on administration and management of the Project PRE – CONDTTIONS No objection against implementation of the Project

ANNEX 10-2. PROJECT DESIGN MATRIX (PDM_E)

Implementation Period: Oct.1, 1996 to Sep.30, 2001

Project Title : Veterinary Laboratories Improvement Project Target Area: DILAVE Target: Staff of DILAVE Prepared by: Joint Evaluation Team Date of Preparation: March 13,2001

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Overall Goal An effective support system for control or eradication of animal infectious diseases is established.	1. Incidence of major animal diseases is decreased.	1-1 Statistics of animal health 1-2 Statistics of animal population 1-3 Statistics of animal mortality and slaughtered animals	No fundamental policy will alter about animal health administration in the future
Project Purpose Veterinary diagnostic techniques are improved in order to rapidly and precisely detect animal infectious diseases.	1-1 Prompt diagnosis is realized. 2-2 Precise diagnosis is realized.	1-1 Record of samples tested 1-2 Record of diagnosis 1-3 Record of diagnostic methods	Major premise: No malignant pandemic disease beyond anticipation will occur.
Outputs: The following items are practiced: 1. Improvement of diagnostic techniques in histopathology 2. Improvement of diagnostic techniques of diseases caused by mycotoxins 3. Improvement of diagnostic techniques in clinical pathology 4. Improvement of diagnostic techniques infections (including reproductive disorders) for microbial infections 5. Improvement of diagnostic techniques for viral infections 6. Supply of appropriate laboratory animals necessary for diagnostic activity 7. Transfer of the improved diagnostic techniques 8. Periodical professional seminars 9. Development of epidemiological information net work	1~6-1 Effective diagnostic practice is made. 1~6-2 Cause of major diseases is resolved. 1~6-3 Precise diagnosis is executed. 7. Appropriate laboratory test animals are supplied for diagnostic activities 8. In-house and external training are held for veterinarians. 9-1 Information on animal disease incidence data is available. 9-2 Special publications on veterinary medicine are established.	1~6-1 Record of samples tested 1~6-2 Record of diagnostic methods 1~6-3 Record of diagnosis 1~6-4 Production record of animals for laboratory experiments use 7. Frequencies of in-house/external training for veterinarians 8. Statistics of animal health 9. Proceedings and scientific journal of academic societies	・ Experienced researchers continuously work in diagnosis and research activities. ・ Trainees conduct diagnostic services. ・ Laboratory equipment, reagents expendable and so on necessary for diagnostic service are procured. ・ Communication media are steadily maintained.
Activities 1. To improve diagnostic techniques in histopathology 2. To improve diagnostic techniques of diseases caused by mycotoxins 3. To improve diagnostic techniques in clinical pathology 4. To improve diagnostic techniques for microbial infections (including reproductive disorders) 5. To improve diagnostic techniques for viral infections 6. To supply appropriate laboratory animals for diagnostic activity 7. To hold technical guidance, seminars and special lectures for diagnostic techniques at DILAVE and related institutions 8. To make presentations of professional papers at academic congresses and publications in scientific journals 9. To take advantage of diagnostic result for epidemiological information	- Japan - INPUTS (As of Mach 2001) - Uruguay - 1. Japanese expert Long-term experts Project team leader 60 MM Project coordinator 60 MM Pathology 54 MM Bacteriology 54 MM Virology 60 MM Short-term expert Laboratory animal 10 MM Pathology 7 MM Bacteriology 8 MM Virology 7 MM Toxicology 3 MM Epidemiology 2 MM Architect & supervisor of facility construction 4 MM 2.Epuipment Machinery, equipment & vehicles 191,512 thousand yen 3.Training of Counterparts in Japan 23 Persons 4.Local cost 60,702 thousand yen (including construction cost for Model Infrastructure Improvement Program)	1. Counterparts & Administrative personnel Project Director 60 MM Project manager 60 MM Project coordinator 60 MM Pathology 486 MM Bacteriology 348 MM Virology 370 MM Laboratory animal 151 MM Administrative personnel 120 MM 2.Facilities The laboratory buildings, facilities 3.Local cost Project operation and management cost 71,738 dollars 4. Japanese experts' office	・ Uruguayan budgetary appropriation assures that it carries on the administration and management system of the project. PRE – CONDITIONS No objection against implementation of the Project is expected.