

## 附 録 の 部



筆者の在任中、最大の行事が、この落成式と考えた。そのため着任翌日、農業次官（JADP 中央委員会議長）に挨拶の際、最初の質問がこのことで、予想期日をたしかめたところ、国王の御都合で今からその期日の予告はできないが、今年の雨季明けから秋季にかけて、との返答に接し、早ければ10月、おそくとも11月末との見当をつけ、対応準備の方針をかためた。

準備として最も期間を要するものは、記念刊行物とみなし、同日、現地国内印刷を目途として、直ちに高山調整員に Kathmandu 市内における最もすぐれた印刷技術、とくに写真版技術を主対象として見本の収集を依頼し、更に現地赴任後も、その構成・内容、原稿作成について早々に具体的構想をねった。（詳細 36～37 ページ記述）

現地側においても事前に準備すべき予算とか場内美化のための植樹用育苗などは早めに着手したが、具体的活動は8月中旬に準備委員会の設置方をはかり、9月上旬からその活動を開始した。

その頃から、式典期日が10月末もしくは11月初めの線が出、筆者としては、このProjectの協定停結日である11月6日の一つのめどとして諸準備を進めることを提案し、委員会のメンバーを督促していたところ、主な理由が所管大臣の国際会議出席のため海外出張の都合で11月20日以降となり、最終的には11月25日に決定したのは11月上旬である。この期日の延期は、式典並びに諸行事準備の都合上甚だ好都合で、これらが極めて円滑に挙行し得た一つの理由ともなったことは甚だ幸いである。

上記の準備委員会の発足から、式典及び記念諸行事について詳しい経過は英文によって現地対象に印刷し、関係各界に配布、永く記録としてとどめることとし、当Project Progress Report No. 2として、筆者在任中最後のつとめとして原稿作成し、その印刷方を後任者に依頼して引あげた。

よって、ここでは、この記録から、その大要のみを抜萃してかかげることとする。但し、本報告の末尾に添えた記録写真は現地対象のそれとはやや構成をかえ、日本向とした点が異なる。

#### 1. 第1日落成式、式典

11月25日

当日の11時30分、プロジェクトセンターの構内東北部の空地にヘリコプターでお着きになった国王は、プロジェクト関係主要職員及び日本側専門家、同家族一同から表敬、歓迎の花環をお受けになり歩行約400mの式場へお成りになり、式場の入口で日本側代表の大使御夫妻及び法眼総裁がお迎えして御挨拶を申しあげる。

式典は次の式次第で進められた。

- (1) 所管大臣による開式の辞
- (2) 駐ネ、日本国大使による祝辞

- (3) プロジェクトマネジャーによるプロジェクトの経過と活動の報告
- (4) 国王による落成／開所記念マーブルプレートの除幕
- (5) 国王による記念植樹、ヒンドウの慣行により、2種のボダイジュ（ベンガルとインド）

植樹を終えられた国王は大臣及び両国側マネジャーの先導で記念行事の一つである屋外仮設の農業展示会場、農畜水産物品評会場を御覧になり、その後新装なるユニークな展示室において、地域農業の概観及びプロジェクト活動関係の展示品について主として所管大臣の説明が終って同室で暫らく御休憩、その間法眼総裁単独拝謁、祝辞を申しあげる。展示室前からは自動車で再びヘリコプターポートへマネジャー自ら運転して御案内、1時30分御帰還になる。

国王御帰還後：現地側は会議室及び講堂で、日本側はリーダーの公舎で夫々中食、総裁及び大使御夫妻の一行は4時発ジャナカプール空港からカトマンドウへ。

この式典に参加した人々はたゞにこの地域だけでなく、この国の農業関係の官民の代表者の殆んどが列席し、532名、この式典の盛大さを物語る。センター構内に入場を許されない近在住民の多くは、国王の御来訪前、早朝からヘリポートの柵外でお迎えし、それらの人々は式典の翌日から入場が許された。

## 2. 農業展示農畜水産品評会、畑削実演会

25日の式典後の午後は、式典参加者を対象に、一般の人々は翌日から29日までの4日間にわたり標記の展示・実演会参観のためセンターを開放した。当初の計画では26・27日の両日をあてていたが2日目の入場者が余りに多く、外部からの要請で2日間延期した。この間の入場者数は下記のとおり。

25日	26日	27日	28日	29日	計
532	3,223	9,585	3,568	722	17,630

上記は正門通過の成人を2名の数取り器で算定したもので、同伴の未成年者を加えると2万人をはるかに越えたと推測できる。

この催しの成果は賛助出品参加した某農機取次店の主人の言を借りると「国内における、このような催しには常に出品参加しているがこれほどの大規模で、これほどの農民がおしかけ、官民指導者がこれほど多く参集したことはこれまでに見たことがない」と、彼の展示場の前で筆者にもらした。

また、式典の翌日、翌々日の2日にわたるネパール語、英語による新聞報道は初日は第1面全紙を埋め、次の日は約半面と社説で取上げたことはこの国として異例、画期的な扱いと関係者はよろこんでいた。

たしかに、政府当局、現地関係者一同、その労が報いられたとの一種の満足感をもったこと

は確かである。予期以上とは、このような場合にふさわしい、と筆者は痛感した。

#### 参加出品機関

政府関係： このプロジェクト関係以外では、農業試験場、油脂・園芸試、農機研、衛生（家族計画）家畜病院、水産試験場の7場所

団体関係： タバコ、サトウキビ、銀行、小農開発計画、農業資材、農機工場の6団体機関

私企業： 農機、肥料・農薬、3

農民： 農畜水産物品評会参加、156農家

全部の6デストリクトから出品

上記の参加諸機関、団体、個人別の出品展示物の内容は、英文報告では詳しく記録されているが、ここでは省略し、農民の出品による各種の農産、畜水産及び業者の試作品についてのみ列記することにする。

果実： ジュナール、マンダリン、レモン、パパイヤ、バナナ

そさい： カリフラワー、ラデッシュ、葉アブラナ、トマト、ナス、キュウリ、ボンキン

穀類： コメ（籾）、コムギ、シコクビエ、トウモロコシ

工芸作物： サトウキビ、ジュート、ナタネ

畜産： 水牛、山羊、ニワトリ、アヒル

水産： コイ、フナの類

農具： 接木用ナイフ（試作品）

上記の各出品物については、夫々の部門別に審査員を設け、審査の結果、1等2等3等及び等外をきめ、12月6日に賞品授与式を挙行政した。受賞者数50名、賞品代7,500ルピーをあてた。（式典及び諸行事所要経費の概算：7万ルピー）

### 3. 式典及び諸行事を円滑、効果的ならしめるためにとった措置

(1) 方針： a. 周到な事前準備計画

b. プロジェクトスタッフ全員による一致協力体制（特に強調）

c. 頻りに経過報告会の開催による相互間の連繋の確保

(2) 周到な事前準備

当初の計画では11月初旬を目途とし、10月末までに諸準備完了することとし、先づ2つの委員会を設置した。

a. 準備委員会： 9月6日設置、発足、計画立案、予算化、4つの小委員会の責任者と各委員指名

b. 展示・実行委員会： 会場係（仮設建築）の他、各会場別、部内・部外図表係など12

の係を設け、夫々責任者と実行・全スタッフ参加の方針により編成表を作成、各人の  
任務分担を明確にし、日本側は各分野のアドバイザーとしてタッチすることとした。

(3) スタッフ全員の任務分担制採用による全員の一致協力体制をしく：この方針は甚だ有効、  
全場一致の気分養成上、夫々セクションの主任クラスを係長とし、月給採用者の全員の係、  
分担をきめ、編成表を作成、夫々の自覚を促がす。

(4) 頻繁な連絡会議の開催：発足後はじめは1乃至2週間おきに、会期の直前には10日お  
きに開き、相互協調労力調整を効果的に配慮。

約1カ月前から、労務者150名連日稼働、但しその大半は仮設展示会場づくり。

「附録-2」 プロジェクトに対する現地側第1回評価の概要(中間報告)

"Evaluation of the Janakpur Agricultural Development Project" (Interim Report). Agricultural Project Services Centre, Dilli Bazar, Kathmandu, Nov. 1976.

上記センターの所長、Dr. B.P. DHITAL 指導のもとに、調査官6名のチーム、夫々担当地区をきめ現地農家調査、その内の1名プロジェクトセンターに7日間滞在、資料集収及び聞きとり調査実施」現地調査期間は、1976年2～3月にかけて1カ月間、その調査結果を取りまとめ、同年11月に67 pageのタイプ印刷として発表したのがこのレポートである。このレポートを些細に目を通して感ずることは先ず構成に慎重を期し、成文、内容ともに注目、更にこの種レポートによく見かけるタイプのミスのないことである。

このレポートはプロジェクトの評価法としても、一つのモデルを示すもので、わが国の対外協力プロジェクトで未だ実施されていない、将来を考えての 'bench mark' study に70～80%の重みをつけ、(この事前基準調査結果だけでも、JADP Zoneの農業・農家現況、実態として甚だ意義深いものである)、既往の成果に対する業績評価も、過去のそれに対する採点/良否よりも、今後如何にプロジェクト活動の成果を高めるか、どのように伸ばすか、に主眼をおいていること、にとくに注目すべきである。

将来わが国がこの種プロジェクトの評価方法を考えると、このレポート原文そのままの紹介がより有意義と思われるが67ページにもわたるので、その概要摘記にとどめることにする。

このレポート/調査の特色、目標

R/D(1971、11月)から4年3カ月、本協定(1974、11月)から1年3カ月を経過した時点で、i) 協定前の準備段階期における業績評価と、ii) その後の普及段階への進展に当たっての事前基準調査 'bench mark' study の2つの目標が本調査/レポートの特色である。とくに後者に人的、時間配当の大半がかけられ両目標とも、いわゆる普通の評価-プロジェクトの成果に対する優劣/成否の判定が目的でなく、このプロジェクト成果をよりたかめるには、どうするか、その為の欠点を指摘し、効果的発展方向を示唆する、ことに意を注がれていることにある。

更にこの国として将来、この種プロジェクトを新たに採用し、効果的に進めるには、どのように計画、運営、実施すべきかの教訓的モデルとして活かすことが一つの主要なねらいとなっている。

第1部 プロジェクトの準備段階における業績評価

1. 建物及び用地について

調査の時点ではプロジェクトの建物、施設がほぼ完成した段階であったので、プロジェクトセンターに対する評価は、建物、諸施設に対する批判が大半を占めている。摘記すれば次のと

おりである。(経費的評価省略)

- (1) センター建設の場所選定に当っては、当該地域(Zone)の少しでも、地理的に中心に近いことと、用地買収の難易問題の2つの点から現在地に設置がきまったらしいが、この地域の政治、経済・交通、教育などの中心がジャナカプール市であり、それとの距離が20K以上もあり、事業推進上必要とする、この間の連絡、物資運搬に使用される車輛の損耗、消費燃料の無駄、加えて職員の生活上の不便が、このプロジェクトがつづく限り永久に累積、打つづくことを考えると、貧しい国ネパールの財政的負担では支えきれず、用地買収に要する一時的支出と比較し、用地の選定を適当とは認めがたい。とくに用地の東北部が河川にそい、毎年の雨季に侵蝕されその護岸対策費/工事費が永く継続支出せねばならないことを併せ考えると(現地側では日本側専門家が現地側専門家の意見を取り入れず一方的に多額の工事費を投入して構築した河川内の「水制工」に対しては甚だ批判的)センター用地選定について甚だ批判的な評価をしている。
- (2) 他国からの援助とはいえ、これだけの用地、不必要に宏大な建物に対しては強い批判を示し、とくに職員宿舎はネパール国としては各クラスとも一般と余りにもかけ離れたScaleで、加えて日々/永久に消費される発電用燃料の国家負担、建物維持、修理費の無駄を考えると、国の財政規模から考えて無理なことを指摘し、ハンドオーバー時の問題としている。
- (3) センターとハルデナート農場の両所に同一目的の建物がある。農機倉庫、部品庫、訓練生宿舎など、の無駄、更に両所間は12Kの距離あり、その連絡、物資運搬に要する車輛とその燃料の消費が、年中、毎日であるだけに、測り知れない浪費とみなさざるを得ない。上記の3項目については変更は不可能、よってハンドオーバーまでに何らかの策を講じて、之等欠陥の是正/補正、改善につとめることが肝要であると、  
しかし、将来、この国で、この種プロジェクト設置しようとする場合このプロジェクトの実態は貴重な教訓となったことは認めねばならないが、国家財政の無意義な支出を余儀なくさせられることに対しては、きびしい評価をせねばならない。
- (4) 準備段階の3年余間における、日本側供与と現地側支出額を対比分析し、詳細に記録しているが省略。

## 2. 当初4年余間の業績評価

プロジェクトセンターとしての活動は1974/75から始まるが、それまでの既設の2農場はR/D当初から、他の1農場—シンドウリー農場は1974年から、またジャナカプール園芸農場は1975年から、またIAP地区はTube-well工事が1974/75から着工、夫々の経過年月には長短様々であるが、評価時点(1976、2月)における調査団による評価の概要は次のとおりである。(附表省略)



- (1) ハルデナート農場： 甚だ高い評価を得 Completely Successful …… としている。とくに主要活動である種苗生産が目標を達成、積極的な Extension 活動、必要な各種トライアルの実施、農民への働きかけ、農民デーの成功など。
- (2) ラブティモデル農場： 主目的である種苗生産額が目標に達せず、普及活動をも含めて全般の成果も好ましくならず、かなりきびしい評価をうけている。
- (3) シンドウリー農場： 本農場は未だ embryonic state にあり、評価にいたらず、却って JADP センターに対し、支援の足りないことを指摘している。
- (4) ジャナカプール園芸農場： JADP 編入、9カ月後の評価で、果樹、そさいの種苗生産目標を達成している、とのみ記載。
- (5) IAP 地区： 1974/75 以降、その時点までの各 Tubu-well 7本の湧水見込量と実際の湧水量を比較し、時間の経過とともに減量傾向を懸念。問題点として、この水量問題と併せてこの種 Drilling Tube-well の工事費の計算を早く行ない、果して、経済的にひき合うかどうかを速やかに推測せねばならない、と強調。但し、灌がい水の確保によるこの地区内、作物栽培体系の変化、より有利な作物への転換・導入、作付回数増加などの推移に関しては高く評価。

### 3. 人事、サービス、業務管理に対する批判

- (1) 一般に職員の交替が多すぎることをあげ、とくにプロジェクトの責任者であるマネジャー及び物品管理責任者の短期交替をとりあげ、前者は少なくとも3年間の継続在任が好ましいことを力説。

〔一般職員の短期交替については、過般の福田調査団からも指摘されたところであるが、H. M.G. 人事局として、どの程度考慮しているか疑問である〕

- (2) サービスについては、一般職員にはふれていないが、満足すべき状態にないかの如き印象をもったことが言外に窺知される。即ちその代表として代々(3名)のマネジャーのサービスについて、きびしい批判をしている。過去3年間のマネジャーの出張日数を詳しく調査し、1973/74、34%、1974/75、41%、1975/76、48%、即ち最も多い前年度は約半分を職場を離れ、而もその日数の70%はカトマンドウ、余りにも現地不在の多いことを指摘し、多くの語数を割いて批判している。更にマネジャーの任務は Administration だけでなく、Extension など技術的指導があること、その任務に対する著意を欠くこと、をいましめている。

また、一般職員全般に対し、このプロジェクトの職員に対して、Gazetted Officer には25%、non-Gazetted には50%の特別手当がついていることに対し、その理由についての自覚が十分でないかの如き表現をしている。

- (3) 業務管理については、とくに日本側から供与された諸物品の保管事務の甚だ不備なことを指摘し、書類の整備がよく行なわれていないことを強くいましめ、その理由としてマネジャーの業務管理指導の不良、物品保管官が短期間で転々と交替したことによるもので、対策として、それまでの前任3名の責任者がある期間転出先から呼び寄せ、物品と書類のチェック、整理させることを示唆。〔プロジェクト側としてはこのレポートによるアドバイスにもとづき、直ちに整理に着手し、日本側専門家指導により8月末完全に終る。1977〕

#### 4. プロジェクトの発展に対する助言／示唆

本調査の主目的が、プロジェクト活動がより高い成果をおさめるよう、目標に向ってスムーズな前進を期待／寄与するにあり、とくにこのプロジェクトは当国としては、この種では第2番目のプロジェクトであって、将来のモデルとしての重要性に鑑み、常時計画、実施に反省改善が加えられ、よりよき成果を期し、次の如き助言／示唆を掲げている。

##### (1) 記録、資料を作成整備保存せよ：

この評価調査の主要目的の一つが、このプロジェクトの将来の評価のためのbench markを設定することにある。そのためfarm-levelのbench markは、アンケート調査で直接農家にインタビューして得ることができた(詳細別記)。これと同様に、あるいはそれ以上に重要なProject-levelのbench markとして必要なインフォメーションはサブプロジェクトを含めて詳細なdataが必要である。にもかかわらずこれら資料が作成、整備されてないため評価チームは関係資料の集取に甚だしい困難を体験した。よって、3年後ハンドオーバー時、問題がないよう、評価し易いよう、平素から自らの記録、bench mark資料づくりを考え、また事業全般に亘る記録をサブプロジェクトを含めて調成し、合本としておけ。

##### (2) 年報の刊行

プロジェクト発足後既に4年有余を経過しているにもかかわらず、その業績記録のレポートがない、直ちに計画、実施せよ。

〔この評価実施後恰度1年に筆者着任、このアドバイスとは無関係に、直ちに企画し6カ月後原稿完結、8月31日印刷所へ渡し、11月20日完成〕

##### (3) 関係諸機関との協調、連絡の重要性

直接的間接的にプロジェクトの関係のある諸機関との情報交換の重要性を理解し、その実施に心がけよ。例えばADB、AIC、各試験場、家畜病院、米穀会社、保健、輸送、通信など。制度的不備は認めるが直ちにその不備の改善は期待しがたいので、プロジェクトの上層部とEconomic Analysis Sectionで配慮せよ。〔実際はむづかしい〕

##### (4) スタッフの短期転出の交替：

マネジャー及び重要なスタッフが余りにも短期間で他に転出、業務の進展上甚だ阻害して

いることを反省せよ。(詳細前記)

(5) マネジャーの服務/任務について

前記の如く、マネジャーは出張。とくにカトマンドウ出張を制限し、現地就務日数をより多くし、プロジェクト業務の運営、部下の指導により熱意をもって当れ、マネジャーは Administration だけでなく技術面の指導責任者であることを忘れるな。後者の重みを強くするため事務的な仕事は Administration Section に委せることも考えてよい。

(6) 物品保管事務が最もよくない。

物品保管事務、帳簿整理が甚だよくないことを指摘(前記)このことは既に会計検査官も指摘して注意を与えているが、何ら改められていない。このことは係官の短期交替によるところが大きいと思われるが、当初からのマネジャーの著意の乏しかったことにもよるもので遺憾なきよう善処されたい。

(7) 各種の Training について

プロジェクトの事業として Training の重要性を強調し、それに必要な施設の増加、整備をかかっている。とくに普及員の不足、質の向上の重要なことを力説し、Training の内容、期間などについて貴重な助言を行っている。

[このことについても同様、筆者着任直後提唱したプロジェクト活動3本の柱の一つとして、別記、英文レポート]

(8) I A P (灌がい地区特別指導計画)

このプロジェクトにおける自噴水利用のパイロットモデルとして期待がかけられている計画ではあるが、その経済性について検討の上、将来の展開を考えるべきであろう。Hill area に対して小型灌がい方式の実用性についての検討を示唆し、プロジェクトとして必要な資材、技術協力、地方労働力の活用による積極的展開を期待。

(9) プロジェクトのセンター及び所属農場に対する意見

a. プロジェクトは灌がい地のみを主対象とし、天水地区を殆んど考えていないが、それでよいのか?

b. これまでの試験、調査結果が十分に活かされていないように思われる。まとめた記録もない。各セクション毎に要求しても直ぐには提出に応じられない。マネジャーがいないと殆んど何も理解しがたい。それでよいのか?

c. センターと農場に多くの使用しない機械が並んでいる。

農家とか見学者に不快の念を与えはしないか?

d. 農場だけでなく、農家圃場に試験展示、実験圃を設けその指導を Extension worker にやらせたら、どうか?

f. 普及/配布した改良種子の増殖を農家にやらせ、その成績良好な農家を「種子増殖農家」

として育成をはかっては、どうか？

(10) Extension 対象の Panchayat について

プロジェクトの普及活動は限られた 'Potential Panchayats' を主対象とし、より数の多く農業諸環境に恵まれず、不利な条件下にある一般の 'average panchayats' をネグレクトしていることは問題である。よって、このことに関する関心と併せて、Small Formers の普及指導参加について、とくに Economic Section で意を注ぐべきである。更に Marketing に対する関心も低いので、より高いアプローチを求めたい。〔Economic Analysis Section のスタッフは 2 名だけ、少々無理な注文である。年中ジャナカプールの市場調査は行なったが〕

(11) Post-handover について

プロジェクトの業績評価は協定終了し、現地側へ引渡し時、円滑な引継ぎができるか、どうか、その準備の良否が大きく関係する。多くの外国援助プロジェクトで、その準備が十分でないため、引渡し時の評価を著しく低下している事例が多い。巨大な施設をし、多くの財源を投入し、それらの管理維持のため、永くつづけられなければならない国家投資は、この国のような貧しい財政では、余りにも負担が大きすぎる。

その故を以ってプロジェクトが不成功であったとの批判をさけるため、戦略としては、当該国の計画の改善（変更）と実行可能程度の両方の調整を配慮すべきであろう。

以上の見地から、次のように助言／示唆で結んでいる。

外国援助が終了後、プロジェクト活動の低下をさけるため、そのプロジェクトを一般の行政管轄に統合し、その国の実情—財政、人的、物的に実行可能性に応じた規模で計画、実施すべきである。

このことは、多くの同種の国際協力による外国援助プロジェクトでみられる問題であることを、プロジェクトの活動開始当初から十分考慮に入れておくべき肝要事と思われる。

要 約

- A. 本調査から窺知される評価の着眼点
  - a. 目標、目的に対する計画の妥当性、規模、経費など
  - b. 計画に対する達成の度合い
  - c. 可なり巾広い関係各界からの意見の尊重
  - d. 将来の評価を科学的にする為の bench mark study 重視
  - e. 業務管理及び平素の服務状況に対する評価
- B. 成果を高めるための助言／示唆
  - a. 計画と実施を、この国の実情を考慮の上で常に改良すること

- b. 地域開発を目標とする限り、限られた灌がい可能地、Potential Panchayats だけを対象としてよいか
- c. Training に対しては更に重視すべきである。
- d. 責任者の熱意、とくに技術的指導の重要性
- e. 業績の整理刊行、農民及び普及員へのサービスの重視
- f. ハンドオーバーを考えての措置を早くから。

## 第2部 プロジェクト地域内の農家営農の実態

### 'FARMERS LEVEL ANALYSIS'—営農実態調査成績

第1部で述べられたように、このEvaluationの対象をProject-levelとFarm-levelに分け、第1部では前者について紹介し、第2部では'bench mark' studyとして将来JADPの活動が進むにつれて対象地域内農家の営農の実態がどのように変るか、を推測するため、このプロジェクトの普及活動が未だ農家に及ばない時点で詳しく記録し、将来の評価基準にしようとするものである。

この種の調査はこの国としては初めての試みで、1975/76年度65,000ルピーを計上し、A.P.S.Cの事業としてH.M.Gの委嘱によって実施したものである。(日本円、140万円相当物価指数で約1500万円に当る)

#### 1. 調査の方法

##### (1) 調査員の構成と調査期間

農業Project Serviceの所長Dr. B.P. Dhital指導の下6名のチームを編成し、1976年2月から3月にかけて、1カ月にわたり、ジャナカプールゾーン内の現地に入り、5つのデストリクト内で、種々のパンチャットにおける対象農家について詳しい面接調査が行われた。

##### (2) 調査農家のえらび方(Sampling Design):

適当な農家/調査し易い農家を地区毎に何名かをえらぶのではなく、いわゆる近代統計学—Fisherの推計学によりサンプリングのデザインが行われた。Fisherian senseに基づくサンプリングにしても、母集団から出来るだけ多くのサンプリングすることが好ましいには違いないが実際には限られたサイズの抽出となる。従って一方では推計学的見地から、他方では実際の可能性の両方から考慮し、調査農家は母集団の大小とサンプリングの規模の両側から配慮し、集団の代表が抽出されるように計画された。具体的には次の2段階に分けてサンプリングされた。

(i) 地域内 5 デストリクトのすべてのパンチャットを 2 つのカテゴリーにグルーピングする  
 a) H.M.G の普及活動下にあるものと、b) 普及活動下でないもの。(ii) 次に両グループのうち、夫々ランダムに 1 つのパンチャットをえらぶ。このようにして各デストリクト毎に 2 つのパンチャットが選出される。(iii) 次に各選出パンチャット毎にランダムに全農家の 5 %、353 農家を対象として面接、ききとり調査が行われた。

(3) Study design

本調査の目的、実施、結果の分析の諸点から、次のことをとくに考慮に入れられた。

- a) すべての分析は、Tarai と Hills の地理的区分により 2 分し、Inner Tarai は Hill とみなし、後者に含めた(理由省略)
- b) 調査の目的に鑑み、全調査農家を次の 4 つのグループに区分し、夫々の比較/Hills 対 Tarai として論ずることとした。

Type of Farmer	Size of Holdings (in hectare)	
	Hill	Tarai
1) Very Small Farmer (VSF)	Less than 0.20	Less than 1.00
2) Small Farmer (SF)	0.20 to 0.50	1.00 to 3.00
3) Medium Farmer (MF)	0.50 to 1.00	3.00 to 5.00
4) Large Farmer (LF)	above 1.00	above 5.00

2. 調査の結果

(1) Sample size: 実際の調査農家数

Project 内の 10 village Panchayats から 353 の農家を前記の方法で選び面接、ききとり調査を行ったが、その中、48 農家が内容不備、信用できる応答が得られず、よって  $353 - 48 = 305$  を対象として調査結果の分析が行われた。この 305 農家の Tarai と Hills の分布は

Tarai の 6 Panchayats から 167 (54.7%)

Hills の 4 Panchayats から 138 (45.3%)

調査農家数は Tarai の方が多いが、母集団の数に対する割合では Hills の方が著るしく大きい。

Tarai と Hills 毎に前記の階層別農家(調査)数を示したのが次表である。

Table 1. Number and Percentage of Sampled Farmers under Different Heads

	VSF	SF	MF	LF
Tarai	60(36)	49(29)	25(15)	33(20)
Hills	38(27)	48(35)	23(17)	29(21)

N.B.: Figures in the parenthesis indicate percentages of the total.

上表によると、プロジェクト地域内の全農家の63.5%が零細農と小農に属し、貧農が多いこと、更にHillsよりTaraiで大農と零細農間の差が大きいことが窺われる。

(2) Tenancy Pattern 自小作関係

プロジェクト地域内における自、小作関係は次の表で示される。

Table 2. Percentage of Farmers Possessing Different Type of Land

LAND TYPE	VSF	SF	MF	LF
Tarai: Own land only	39.10	60.66	63.33	58.87
Own + in-rented	60.90	35.96	30.55	13.11
Own + out-rented	-	3.38	6.12	28.02
Hills: Own land only	81.40	73.88	77.07	61.10
Own + in-rented	18.60	13.84	22.93	18.90
Own + out-rented	-	12.28	-	18.90

上表から要約すれば、1) Hillsに自作農が多い。

2) HillsはTaraiに比べ小農が多く、1農家当り耕地面積甚だ小、農以外に働き場所なく、多労農となっている。

(3) Land Size and Fragmentation

農家1戸当り平均耕地(水田、畑)面積と平均一筆面積のTarai.Hills間、階層間の値は次のとおりである。

[LAND SIZE]		VSF	SF	MF	LF
Tarai	Lowland (A)	0.32	1.31	3.00	9.67
	Upland (B)	0.23	0.41	0.83	2.63
	Total (A+B)	0.55	1.72	3.83	12.30
	A/A+B x 100	58.18	76.16	78.33	78.62
Hills	Lowland (A)	0.06	0.19	0.41	1.16
	Upland (B)	0.09	0.17	0.44	1.18
	Total (A+B)	0.15	0.36	0.85	2.34
	A/A+B x 100	40.00	52.78	48.23	49.57
[FRAGMENTATION]					
Tarai	Lowland	0.13	0.25	0.42	0.97
	Upland	0.12	0.25	0.48	0.71
Hills	Lowland	0.05	0.07	0.21	0.36
	Upland	0.05	0.07	0.11	0.24

1 農家当り平均土地所有面積は Tarai で 4.6 ha、Hills で 0.92 ha、前者が約 5 倍大きい。大小農間の差は、Tarai で 2.4 倍、Hills で 1.5 倍 (LF : VSF)。

Lowland の占める割合では、Tarai で 72.82%、Hills で 47.64% で平地に多いことは当然であるが、Hills に於ても 50% に近くが lowland に属することは意外である。

〔注〕 lowland (KHET) 平面で灌がい水、天水で水田となるところ

upland (PAKHO) 平面でなく、水が得られても水田とならぬところ

田畑の一筆面積で注目されることは Tarai、Hills とも大農ほど大きく小農が小さく、明らかな相関が認められることである。

〔将来の農業機械化を考える場合、Tarai の大農は既にトラクター導入しているものもあるが、小農ほど小区画、とくに Hills では大農といえども耕耘機どまりで、それ以上は無理。〕

#### (4) Demographic Aspects 農業労働事情

労力は土地について重要な input として、かなり詳しく調査。

但し、労力は年齢 10~60 才の間とし、農家規模の大小 4 区分毎に Tarai と Hills 別に、標準偏差をつけて示す。



Table 4. Structure of Family Size

Particulars		VSF	SF	MF	LF	Average
Tarai	1) Average family size	6.26	8.18	8.29	10.27	8.25
	2) (10-60) Av. size	4.26	5.26	4.88	7.96	5.59
	3) Active age participation rate <u>1/</u>	68.05	64.30	58.86	77.50	67.75
	4) Participation rate <u>2/</u>	67.86	55.07	49.76	40.80	53.37
	5) Dependency rate <u>3/</u>	31.95	35.70	41.14	23.50	32.25
	6) Av. No. of servants	-	-	1.40	3.05	1.11

1/ Average (10-60) size/Average family size x 100

2/ Actual working members in (10-60) group/Average (10-60) age member x 100

3/ (100-active age participation rate)

Hills	VSF	SF	MF	LF	Av.
1)	6.0	6.30	8.03	9.39	7.43
2)	3.25	4.11	4.95	6.28	4.64
3)	54.16	65.23	61.64	66.87	62.45
4)	86.12	73.84	88.07	67.50	78.88
5)	45.84	34.77	38.36	33.13	37.55
6)	-	-	1.25	1.35	0.65

標準偏差 (mean 値からの) : Tarai で 1.33, Hills で 1.46

Hills, Tarai 間、各階層間、夫々の考察あるも省略。

大農における Joint family、サーバントが中農以上、Tarai の大農で 3 名、Hills の大農で 1.35 など注目をひく結果が得られている。

(5) Man-land ratio

1 ha 当り農業労働力は、Tarai と Hills 間で甚だしい違いがみられ、Tarai では 1.79 (persons/ha)

Hills では 8.07

平均 4.93 (Project 地域全般平均)

平均で 4.93 ≒ 5 人、即 1 人当り 0.2 ha となる。

プロジェクト地域内全般を対象としても、1 人当り 0.2 ha, Hills area では実に 1 人当り

0.125 ha、このような余分の労働力を農業内で活かすとすれば、より集約的に進むか、農外に向けるか、の両者しかない、ことを示唆している。

(6) Land-use Pattern.

作物作付の現況を次表で示している。

Table 5. Land-use Pattern

Percentage of land under	With Ext. A	TARAI Without Ext. B	$\frac{A+B}{2}$	With Ext. A	HILLS Without Ext. B	$\frac{A+B}{2}$
First Paddy	21.32	17.39	19.35	14.80	12.13	13.47
Second Paddy	66.44	65.06	65.75	55.62	52.36	53.97
Wheat	21.27	17.47	19.37	26.79	21.06	23.93
Maize	-	-	-	61.77	59.05	60.41
Others <u>1/</u>	39.85	47.71	43.78	52.89	53.73	53.31

N.B.: 1/ Green manure crops, pulses, etc., and also in some cases only small amounts of potato, millet, etc.

最近の動向として小麦とタバコの導入以外はこれまでの慣行型に殆んど変化ない、といっ  
てよい。

灌がい施設に伴なう作付の変化： プロジェクトの一つの目玉サブプロジェクトである I A P  
地区で、tube-well の新設に伴って雨季前の稲作導入、乾季小麦作が可能となり、同地区  
で、小麦作が 5.873 ha から 13.810 ha に急増、注目すべき変化としてかかっている。

(7) Cropping Intensity

高度土地利用の指標として、作物の作付率、作付頻度が重視される。次表は Tarai と  
Hills の普及事業推進地区とそうでない地区別にとりまとめたものである。

Table 6. Cropping Intensity

		With Ext.	Without Ext.	Average
TARAI	Main Crops	109.04	96.95	102.99
	Main + Catch Crops	148.32	144.48	146.50
HILLS	Main Crops	157.02	130.70	143.86
	Main + Catch Crops	209.95	180.58	195.26

この表から、1) Tarai より Hills で著るしく作付率が高いこと。

2) 全般に作付率の低いのは水の問題。

3) 普及パンチャットで作付率が高い。

普及指導の一つの成果とみなしてよいか？

- 4) Catch crops の作付が低いのはMain Crops に比べて価格問題と、市場問題がこれを阻んでいる、とみなされる。

## (8) Seeds, Fertilizers and Insecticides

Table 7. Percentage of Farmers Adopting Improved Inputs

[TARAI]		With Extension				Without Extension			
Inputs	Crops	VSF	SF	MF	LF	VSF	SF	MF	LF
H.Y.V. seeds	Paddy	5.55	24.56	25.00	17.98	-	-	6.25	58.35
	Wheat	40.41	66.00	84.00	89.10	34.26	71.43	83.33	93.33
	Maize	-	9.09	-	37.50	-	-	-	-
Fertilizers	Paddy	6.67	20.15	43.34	19.00	-	6.67	25.00	45.57
	Wheat	30.00	61.95	76.67	91.97	32.17	77.14	91.67	90.00
	Maize	-	9.09	-	37.50	-	-	-	-
Insecticides	Paddy	-	12.12	-	30.12	-	-	-	41.60
	Wheat	-	13.46	17.80	-	-	-	-	11.11
	Maize	-	-	14.00	-	-	-	-	-
[HILLS]									
H.Y.V. Seeds	Paddy	-	6.13	13.57	42.55	-	6.25	15.00	49.86
	Wheat	66.31	55.53	54.10	91.50	30.77	58.75	63.35	60.80
	Maize	5.00	8.25	27.45	47.90	8.45	7.50	16.15	59.73
Fertilizers	Paddy	-	9.00	33.33	38.67	-	6.25	16.67	33.85
	Wheat	17.00	8.00	66.67	41.65	30.77	38.75	66.70	56.92
	Maize	37.50	-	16.67	33.33	-	-	-	7.69
Insecticides	Paddy	-	9.09	14.67	16.67	-	-	-	7.69
	Wheat	-	-	-	-	-	-	-	-
	Maize	-	-	-	-	-	-	-	-

- 1) 改良諸資材の使用は明らかに大農が多く小農で少い。
  - 2) 一般には普及地区が多い傾向があるがHills areaでは必ずしもそうでない理由はTaraiに比べ普及活動のむづかしいことにある。
  - 3) 高収量品種に対する需要は小麦では高いが水稻では低い。
  - 4) 肥料の需要は水稻ではH.Y.V.のそれとほぼ並行しているが小麦では種子に対する期待が肥料を上まわっている。農業省略。
- (9) 肥料の施用分量、種子量など

Tarai 地方における肥料の成分別施用次表のとおり

Table 7. Actual Consumption Rate of Fertilizer Nutrients in the Tarai Project Area

Crops	Farm Size	Actual Rate		Recommended Rate
		With Extension	Non-Ext.	
Paddy	VSF	4.1 : 3.4 : 0		HYV: 100 : 40 : 30  LV: 40 : 30 : 30
	SF	8.0 : 8.0 : 0	6.0 : 3.0 : 0	
	MF	8.2 : 2.6 : 0	17.0 : 8.0 : 0	
	LF	22.1 : 4.0 : 0	18.4 : 6.9 : 0	
Wheat	VSF	17.4 : 11.3 : 5.4	10 : 2.4 : 0	100 : 60 : 40
	SF	28.6 : 6.0 : 0	10 : 3.4 : 0	
	MF	19.5 : 8.7 : 4.0	15 : 4 : 0	
	LF	29.4 : 12.0 : 0	31 : 8 : 0	

上表から次のことが要約される。

- 1) 施肥基準に対して非常に僅かな量しか実際には使用されていない。
- 2) 僅かな施肥量のなかでも麦作に対しては米作よりかなり多く使用。
- 3) 大農と小農間の施肥量の差が顕著に現われている。
- 4) 全般に Hills より Tarai の施用が多いが大農で麦作が基準の  $\frac{1}{2}$  の N、米作では地方品種（在来品種）基準の  $\frac{1}{2}$ 。
- 5) N 肥の大半は Urea、(46%)  $\text{NH}_3\text{SO}_4$  (21%)

Complex (20 : 20 : 0) の 3 種が代表

種子消費量：(kg/ha)

	実際の使用量	栽培基準量	%
Paddy	34 kg	50 kg	68
Wheat	66	90	73
Maize	13	20	65

害虫防除農薬は、Hills は殆んどなく、Tarai で ha 当り、26 RS 使用、(水稲のみ)、殆んど全部の農家が農薬に対する知識を欠き、適期を失し、効果をあげていない。

#### (10) 農業機具

土着農具に対し、改良農具の使用は甚だ少なく、全調査農家のうち、いわゆる改良農機の代表として、水揚げポンプセット / Tractors の所有割合は、Tarai の MF が 16.7%、LF が 24%、Hills では LF だけで僅かに 3.8% にすぎず、その他の小農は所有しない。その他の改良農具の所有は：(内容不明)

	TARAI				HILLS	
	VSF	SF	MF	LF	MF	LF
%	1.4	3.0	5.5	21.35	0.25	5.05

以上のとおりで甚だ微々たるもの、関連して忘れてはならないことは、数多くの地方のカジ屋の存在である。彼等は土着農具を農家が購入し易いように好意的に分割払いで提供する。何故改良農具を導入しないかとの問いに対して、農家の返事は、このような貧困さにあることを強調している。

#### (ii) 堆肥の使用

ネパール国では堆肥の使用を一つの重点事項としてかけ努力している。しかしながら農家の実際は種々の理由で、その成果はあがっていない。

調査したプロジェクト地域の農家も同様である。

Table 8. Percentage of Farmers having Knowledge on Compost Making

		VSF	SF	MF	LF
TARAI	With-extension	39.0	30.7	52.9	62.7
	Without-extension	9.3	18.0	50.0	42.0
HILLS	With-extension	8.5	12.8	27.7	35.3
	Non-extension	15.5	19.5	12.5	15.4

上表から Tarai と Hills の違い、階層間の差が明らかである。

即ち、明らかに Tarai が Hills より多く、とくに Tarai の普及指導地区でないところで小農に却ってやや多目の数を得られているがその他では、農家の規模に応じ、大農ほど多くの割合で堆肥づくりの知識をもち、実際にも多くを施用していると推測される。

堆肥づくり方を誰から教わったか？

Tarai と Hills 両地方の普及活動の対象地区とそうでない地区別に調査結果を括めたのが次表である。

Table 9. Percentage of Farmers Deriving Compost Making Knowledge from various Sources

Sources	Tarai		Hills	
	With-Ext.	Non-Ext.	With-Ext.	Non-Ext.
1. Extension Workers or (from visits, etc.)	22.74	39.56	30.20	05.00
2. Others (friends relatives etc.)	77.26	60.44	69.80	95.00

上表から1) 直接普及員から教った数より間接的の割合が大。

2) TaraiよりHillsにおける指導の重要性が窺われる。

3) とくに普及活動対象地区以外に対する着意肝要。

#### (2) 農業協同組合

末端の— grass-root level —農家に対する経済的、技術的のサービス機関は農業協同組合とJTA(普及員相当)である。このプロジェクト地域における農協加入農家数の割合は、平均、Taraiで44.33%、Hillsで44.18%、Extension Panchayatsで、

Non-Extension Panchayatsでは、平均、Taraiで33.47%、Hillsで19.55%。

Taraiでは普及活動区とそうでない区との間に差がないが、Hillsでは前者が著るしく加入率高く、後者では約20%にすぎない。

調査農家の74%が、農協活動上問題にしていることは、i) 組合分担金が低すぎることに、RS. 51、ii) 組合加入率が低いこと、の2点である。

#### (3) クレジット

プロジェクト地域内における農民のクレジット対象は、前記の農業協同組合、村落委員会、銀行と個人的の金かしである。調査農家の之等に対するクレジットの実態は次のとおり。

Table 10. Number and Percentage of Farmers Borrowing Credit from Various Sources

Source	VSF	SF	MF	LF
[TARAI]	%	%	%	%
Cooperatives	4(7)	14(28)	14(56)	12(36)
Banks	-	-	-	4(13)
Local sources	32(53)	17(35)	8(32)	5(15)
Non-borrowers	24(40)	18(37)	3(12)	12(36)
[HILLS]				
Cooperatives	2(5)	4(8)	3(13)	8(27)
Banks	-	-	-	2(07)
Local sources	23(60)	28(58)	8(35)	6(21)
Non-borrowers	13(35)	16(34)	12(52)	13(45)

上記はクレジットの件数と割合を示したものであるが、その金額の平均均は次のとおり。

	TARAI	HILLS
Cooperatives	RS. 266.-	232.-
Banks	2,217.-	1,425.-
Local sources	873.-	1,015.-

普及地区と非普及地区間に差なし。

次にクレジットの内容を、公共機関と私的に分け、Tarai と Hills の地方毎に、また農家の規模別に括めたのが次表である。

Table 11. Proportion of Institutional and Local Credit to Farmers

Farm Size	TARAI		HILLS	
	Inst.	Local	Inst.	Local
VSF	7	93	2	98
SF	30	70	3	97
MF	27	73	6	94
LF	64	36	19	81



- 1) 既に前記のとおり、Tarai では公共機関の利用度が高いが、Hills では地方の私的  
かしのもの著るしく大
- 2) 両地方とも小貧農ほど地方クレジットが大きい。

クレジット使用目的：

Tarai, Hills の両地方を通じ、使用目的は次のとおり

組合借用： 農業目的が64%を占める。

結婚費用としてはRS. 2,800~6,000、その大部分は土地を担当若しくは売却し  
てこれにあてる。

借用の時期：

Tarai, Hills 殆んど同様に、

58%	の農家が	4~6月の間、	(食糧を食いつくす時期)
26%		9~11月、	(小麦作肥料が主)
16%		不定	種々の目的

- [附録-3] The Next Phase of Development of the JADP Activity  
- Innovation of the activity and the concrete programme  
in the coming 2/3 years; 1977-'79

#### CONTENTS

The Next Phase of Development of the JADP Activity

- According to Suggestions given by Dr. FUKUDA

Brief Results of Questionnaire's Investigation - Suggestions

by the Officials and Japanese Experts of JADP

Annual Major Activities

- Innovated Subjects of JADP in coming 2/3 years; 1977-79

Sub-Project wise Brief Performances and Future Plan of JADP

Part I Past Performances; 1971-76

Part II Future Plan - Sub-Project wise Annual Plan; 1977-'79

Vehicles and Main Machinery, etc. presented by Japan

#### APPENDICES

1. Main Targets 'Three Pillers of the JADP Centre'
  - Main Future Activities of the Centre and Sub-Centre
2. Innovation of the Organization/Strengthening of the Activity of JADP

## INTRODUCTION

Why the writer has dared to give the name 'The Next Phase' and the word 'innovation' in this report? The following reasons are dealt with:

- (1) Almost all buildings and facilities of the Centre and Hardinath Farm and others are to be completely constructed.
- (2) ADOs in Janakpur Zone and Janakpur Horticulture Farm are belonged/organized under the JADP gradually. Such enlargement did not expect at the time of establishment of this Project.
- (3) Sindhuli Farm which has been belonged to JADP in 1974, and the Farm enlarged and to be developed as the Extension Centre/Sub-Centre of JADP, shortly (1978). And the new Sub-Centre may be expected to develop a base Camp of Hill Area Development in Nepal.

In the light of such developing situation of JADP, and moreover, according to a timely suggestions given by Dr. Fukuda, this report has been dared to arranged with the good help of Mr. R.B. Thapa - Manager, Officers, and Japanese Experts of JADP, and precious advise of Mr. H. Aneha Japanese Senior Adviser.

It seems that there are many bottle necks to achieve good performances under this plan. And how to overcome the bottle necks is a most important problem for both side - Nepal and Japan.

The reporter hopes the bottle necks might be overcome through the close cooperation between Nepalese Officers and Japanese Experts of JADP.

## THE NEXT PHASE OF DEVELOPMENT OF THE JADP ACTIVITY

- According to Suggestions given by Dr. H.Fukuda -

The following 4 points are suggested by Dr. Fukuda to the Authorities of H.M.G. Secretary of Minister for Agriculture and Irrigation and others, during 17th and 18th April 1977.

1. Presented the congratulations to the construction of buildings of JADP Centre, Janakpur are nearly to be completed. And suggested "in the Next Phase, it is very important that how to use these facilities more effectively". Based upon the original idea - at the time of establishment of the JADP according to the Agreement - Extension and Training should be enlarged as the most basic activity of Agricultural development in this Country.
2. In the light of Main Target stated above and the established fact that is this collaboration of Japanese Government ought to be finalized after two and half years, during this period, H.M.G. should be taken necessary action in order to continue the activity without any collaboration from other country. For example, strengthening the Staff who can work as the main worker and Japanese Expert might be served as their counterparts. Usually called/named Nepalese Staff as counterpart so far, but in future Japanese Experts should be called as Counterpart or adviser.
3. It seems that the Officers of H.M.G. who has had precious experience - short or long term Training in Japan should be used effectively for the future development of this Project. Reflecting this point it may be suitable that transfer of the Project Staff/Counterpart should be made under the support/consent with the Japanese Expert.
4. No objection about the shifting gradually the activities of Rapti Model Farm to Sindhuli area, it is very happy to have good information about the establishment of the construction of buildings for the Extension and Training Centre of Semi-Hill Area development. It is hoped that the Centre might be developed as a basal camp of Hill area development in this Country. In the light of such developing facilities of Hill area, financial and personal support should be given/proposed to the JAD Board.

## BRIEF RESULT OF QUESTIONNAIRES INVESTIGATION

### - Suggestions by the Officials and Japanese Experts of JADP -

In order to have general information and actual status of the activity of JADP, just after my (Dr. Suetsugu) arrived to Kathmandu (15th Mar. 1977), questionnaires/question papers were given to all Nepalese Counterpart Officials, Section chief, Japanese Experts and other appropriate Officials under the discuss/consent of Mr. R.B. Thapa Manager.

The contents of questionnaires/requested the answer to questions are as below:

- (1) Past performances in their Section/area and problems to get good results in coming year
- (2) Ideas for the future activity of their each Section/area
- (3) Problems/bottle necks of activity to achieve their ideas stated above and how to overcome the bottle necks
- (4) under the basis of their past experiences, suggestions for the future development of JADP, and
- (5) the hope/expectation to the Japanese side.

According to the result of this questionnaires investigation, following impressions/suggestions are obtained:

- (a) Insufficiency of mutual understanding between not only both sides - Nepal and Japan but also each Sections
- (b) the Target of JADP is not always clear - especially on the Target of Centre activity, and insufficient understanding of mutual relationships between each sections activities,
- (c) importance of unified activity, lack/short discussion on planning, mutual exchange of information of planning and practices/activity amongst each sections - insufficient function/use of the Joint Committee and Staff Meeting in this Centre
- (d) promote/establishment of Publications - Information services, Technical News, Quarterly Report, Annual or Progress Report etc. Text book for Trainees also,
- (e) Arrangement of intensive future plan/Operational Working plan. Planning has been made in Japanese language only, in English planning should be made,

- (f) strengthening/enlargement of ADO activity and promotion of financial and personnel support from JADP Centre,
- (g) fill up the vacant posts and strengthening/support the important and hard working Sections,
- (h) some Nepalese Officers pointed out the language trouble as a bottle neck to keep good mutual understanding,
- (i) necessity of Assistant Manager of JADP so as to meet strengthening of the managing function - establishment of Planning and Coordination Section,
- (j) Japanese Experts have a displeased mind regarding the transfer of good/skilled Assistant without any talking with Japan side - this is only one regrettable point proposed by the Japanese Experts,
- (k) it is necessary to establish the Animal Husbandry Section in this Project because there is any such function/facility in this area,
- (l) to achieve level up the Standard of living, establishment of Food and Nutrition Section and promote the activity of Womens 4-H Club, etc. - Home Science cum Health Centre in JADP Centre.

## ANNUAL MAJOR ACTIVITIES

- Innovated Subjects of JADP in Coming 2/3 years; 1977-'79

Based upon the positive opinions proposed by Officials and Experts including good suggestions by Dr. Fukuda and Mr. R.B. Thapa Manager, and my ideas which are pointed out in the previous papers mentioned before, following major activities are to be proposed to the Board through the Staff Meeting of JADP.

### CENTRE:

- (1) Strengthening the managing function; establishment of Planning & Coordination Section 1977 - 78
- (2) Innovation of Training practices, more effective and intensively 1977
- (3) Innovation of the Staff Meeting & Joint Meeting and Seminar 1977
- (4) Establishment of publication, Extension services - Technical News, Quarterly Report, Progress Report, etc. 1977
- (5) Promotion/support and supervision of ADO activities intensively 1977 - 78
- (6) Reasonable & systematic maintenance of Vehicles & Agromachinery, and level up the repairing techniques of machinery 1977 -
- (7) Support/promote the construction of small irrigation facilities with farmers cooperation and Tube well Boring in farmers field at farmers cost 1978 -
- (8) Establishment of Home Sciences cum Health Centre/ Section and Animal Husbandry cum Veterinary Section 1978 -

### HARDINATH FARM:

- (1) Effective production of Extension materials, seeds & plants 1977 -
- (2) Shifting the major activity - not only seed production but also Training practices 1977 -
- (3) Trials/experimental subjects are to be changed to meet the request need of Training & Extension practices 1978 -
- (4) Fill up/strengthening the teaching materials and facilities for the Training practices 1978 -

(5) To keep good maintenance & arrangement of machinery and all implements	1977 -
<b>HORTICULTURE FARM</b>	
Production of fruit plants and vegetable seeds for Extension service	1977 -
<b>IAP Area</b>	
(1) Boring of one tube well, and construction of irrigation channel and repair of old Village road	1977 -
(2) Intensive Extension work given to the irrigated farmers	1977 -
(3) Organization of farmers cooperation for effective use of irrigated water	1977 -
<b>RAPTI M.F.</b>	
(1) Production of seeds for Extension service	1977
(2) Shifting the function to Sindhuli Farm/Sub-Centre	1978
(3) Follow up the activity	1978 - 79
<b>SINDHULI SUB-CENTRE</b>	
(1) Construction and establishment of the Sindhuli Sub-Centre	1978
(2) Strengthening the activity/function of the new Sub-Centre	1978
(3) Promotion for distribution & guidance of fruit plants & vegetable seedlings cultivation	1977 -
(4) Arrangement of the results of previous survey practiced by Officials & Experts of JADP	1977
(5) Implementation of additional survey and round guidances	1977 -
(6) Framing a semi-Hill Area Agricultural Development Programme	1978 - 79
(7) Special/intensive support of ADO activities in Sindhuli area	1978 - 79



Sub-Project wise BRIEF PERFORMANCES AND FUTURE PLAN OF JADP

PART I Past Performances; 1971-'76

PART II Future Plan - Sub-Project wise Annual Plan;  
1977-'79

PART I Past Performances during 1971 - '76

SUB-PROJECT	BRIEF PERFORMANCE
1. Project Centre	
(1) Construction	
1) Site for the Centre	May '72, 15ha purchased & readjusted
2) Buildings etc.	April '73 started and completed July '77
(2) Function/Activity	
1) General Administration	Nov. 1st '72 started JADB; Board meeting held 14 times up to 1976 Joint meeting held monthly
2) Training	did not practice up to 1975 started in 1976
3) Provision of Machinery	supplied main machinery are list up annual in other papers
4) Control/Direction of ADO activities	After the establishment of JADP, ADOs in Janakpur Zone are under the JADP gradual- ly; 3 ADOs (Dhanusha, Sarlahi and Mahottari District) were belonged up to 1976.
5) Others	to keep green/good circumstances of the Centre, seedlings of garden trees were raised in the Centre from '74, and moreover since '76 raised fruits seedlings for the Extension service of Hill area.
2. Hardinath Farm	
(1) Rearrangement	Nov. '72, transfered and rearranged/ reclaimed (9ha of land) for the experiment field
1) Land & Site	
2) Connecting Road	constructed 2.75 km road; 1973-'74
3) Buildings	additional construction started Jan. '74 and completed July '77.

(2) Activity	1972 -		1973 -	
1) Introduction & Demonstration of improved farming techniques	Wheat		Paddy	
	Agromachinery		Vegetables	
	Maize		Fruits plant	
	Dhaincha			
2) Experiments for Extension of improved farming techniques				
3) Training	1973	74/75	75/76	76/77
Agronomy	1	1	2	2
Agromachinery	1	1		
Pomology		1		
Vegetables		1		
4) Multiplication & distribution of improved seeds and seedlings			Paddy	70 tons
			Wheat	55
			Others	1.5
5) Farmers Day/Exhibition				
Times	1	2	2	3 + 1
Attended farmers (No.)	224	342	285	23,429

### 3. Extension Activities in Tarai area

- 1) Guidance of farming techniques in IAP
- Tube-well Boring started Mar. '75 completed 3 wells in '75, 4 wells in '76. Survey for land use of irrigated plots was carried on since 1973.

Farming Demonstration  
No. of plots

5      30

Organization of farmers committee for effective/reasonable use of water

'75; established Water Management Committee, this committee will be renamed as Farmers Technical Cooperation in 1978

- 2) Improvement of traditional farming and guidance of improved farming techniques
- Demonstration
- |                                      |     |     |
|--------------------------------------|-----|-----|
| Places                               | 228 | 593 |
| Meeting Times                        | 261 | 344 |
| Distributed seeds & seedlings (tons) | 97  | 344 |

Special Programme

Mango hopper control (ha) -

Goat distribution (heads) 413

Masuli seeds increased

Seedlings of fruit plants are provided

Performance of the Special Programme are obtained since '77

- 3) Guidance on formation of farmers organization and their activities
- Since 1973 Meetings of AIC & ADB are continued, and in 1976 innovated the activity as 'SAJHA Program'

\* SAJHA : cooperative (Nepali); SAJHA Programme is a new pattern of farmers cooperative activity started since 1976.

#### 4. Rapti Model Farm

- 1) Introduction and demonstration of improved farming techniques  
Construction of additional buildings started '74, and completed '76
- 2) Multiplication and distribution of improved seeds and seedlings  
Demonstration, multiplication and Extension services are continued since 1973
- 3) Extension of improved farming techniques in the vicinity of the Farm
 

	Distributed seeds (kg)			
	73	74	75	76
Vegetables	54	223	212	226
Paddy	2700	2885	2889	3128
Wheat	2725	2073	3036	204
Others	158	477	837	2143

Vegetable seeds for Sindhuli: 3.5 kg/'74, 17.5 kg/'75

#### 5. Extension and other Activities in Hilly area

- 1) Implementation of a round trip guidance  
practiced since 1975; by Experts/ 7 times only, while by Volunteers/ 55 times.
- 2) Formation of a regional Development Programme  
Preliminary survey  
(times) 2 7 1  
(man/days) 36 99 22
- 3) Sindhuli Farm  
organized under JADP in '74. 1.2 ha, enlarged 5.0 ha. in 1977.

Main Activities:

- a) Trials for Extension of improved farming techniques
- b) Multiplication and distribution of seeds and seedlings of Vegetables, etc.
- c) Demonstration of paddy, wheat, maize & Vegetables.

#### 6. Subjects concerned with the Project Activity

- |   |         |        |        |        |         |       |
|---|---------|--------|--------|--------|---------|-------|
| (1) Dispatched Japanese Experts in short term                         | 71      | 72     | 73     | 74     | 75      | 76    |
| Boring Engineers  |         |        |        | 4      | 2       | 1     |
| (2) Training in Japan   |         |        |        |        |         |       |
| High Class  | 3       | -      | -      | 1      | 1       |       |
| Group Course  | -       | -      | 1      | -      | 3       |       |
| (3) Machinery, instruments and materials aided by Japan (million yen) | 118.800 | 55.000 | 53.422 | 85.305 | 117.000 |       |
| (4) H.M.G.'s Budget of the Project (1,000 Rupees)                     | 500     | 1,322  | 4,526  | 8,948  | 8,530   | 9,712 |
| (5) K.R. Fund (1,000 Dollers)   | 200     | 300    | 250    | 350    | -       | 600   |

PART II Future Plan - Sub-Project wise Annual Plan; 1977 - '79

SUB-PROJECT	OPERATIONAL WORKING PLAN		
	1977/78	1978/79	1979/80
1. Project Centre			
(1) Construction			
1) Site for the Centre	defense/river water		
2) Buildings	repair/window tank etc.	construct./Clinic	
(2) Function/Activity			
1) General Administration - Planning & Coordination	strengthening/Planning Section start/publication services		
2) Training			
JT	5	.....	.....
JTA	5	.....	.....
AA	5	.....	.....
Leading Farmers	5	.....	.....
Others	4	.....	.....
3) Provision of Machinery (Work shop)	checking all machinery	-do- intensive supply of spare parts	-do- hand over
4) Control/Direction of ADO Activities	two ADOs - Sindhuli & Ramechap are belonged to JADP	support/promote the activities of the five belonged ADOs	
5) Others			
Inauguration	Exhibition/Demonstration issue/memorial publication - Progress Report No.1		
Strengthening Managing activity	adoption/Innovation of responsibility system - effective use of man power; App. - 2.		
2. Hardinath Farm			
(1) Building	completed July		
(2) Activity			
1) Introduction & Demonstration of Improved farming techniques	continued	continued	continued

	1977/78	1978/79	1979/80
2) Experiments for Extension of improved farming techniques	continued	continued	continued
3) Training			
JT	2	...	...
JTA	2	...	...
AA	...	...	...
Leading Farmer	2	...	...
Others	...	...	...
4) Multiplication & distribution of improved seeds and seedlings (tons)			
Paddy	70	70	70
Wheat	55	55	55
Others	6.5	6.5	6.5
5) Farmers Day/Exhibition (times)	3	4	3
3. Extension Activities in Tarai area			
1) Guidance on farming techniques in IAP			
Farming demonstration			
No. of plots	81	81	81
Organization of farmers committee for effective/reasonable use of water	'75; established Water Management Committee, this committee will be renamed as Farmers Technical Cooperation in 1978		
2) Improvement of traditional farming and guidance of improved farming techniques			
Demonstration (places)	700	700	700
Meeting (times)	400	400	400
Distribution of seeds & seedlings (tons)	250	250	250
Special Programme			
Mango hopper control (ha)	20	20	40
Goat distribution			
Masuli seeds distribution	200	500	800
Seedlings of fruit plants	3,000	5,000	5,000
3) Guidance on formation of farmers organization and their activities	Farmers group activity/innovated as 'SAJHA' since 1976, will be organized in IAP & FTCC.		

	1977	1978	1979
4. Rapti Model Farm			
1) Introduction and demonstration of improved farming techniques	continued	continued	continued
2) Multiplication and distribution of improved seeds and seedlings	continued	continued	continued
3) Extension of improved farming techniques in the vicinity of the farm	continued	continued	continued
4) Shifting the activity to the Sindhuli Farm	preparation for shifting	Shift to Sindhuli	follow up the activity
5. Extension and other Activities in Hilly area			
1) Implimentation of a round trip guidance			
by Experts Officers (times)	46/360		
man/days			
by Volunteer (times)	.....	.....	.....
2) Formation of a Regional Development Programme	arrangement/previous results of survey, practice additional survey	Survey by Experts of Agr. 1 Dev. Planning; dispatch from Japan	Framing/formation of concrete programme
3) Sindhuli Extension Centre - Sub-Centre			
Building const.	Oct. '77 start	Mar. '78 completion	
Activity			
1) Training		arrangement of facilities and strengthening/support of activity -	
2) Trials for extension of improved farming techniques		Extension & Training materials	
3) Multiplication & distribution of seeds and seedlings			
4) Demonstration: Paddy, Wheat, Maize Vegetables, Fruits plants, etc.			

1977                      1978                      1979

6. Horticulture Farm, Janakpur: organized under JADP in 1967/77

Activity:

1) Production, demonstration and distribution of seeds and seedlings/fruits plant vegetables and flowers                      Supplied machinery etc.

7. Subjects concerned with the Project Activity

1) Dispatch/Japanese Experts in short term	Soil & Fertilizer Expert: one	1) Expert of Plant Protection: one/two	1) Animal Husbandry: one, & Forage Crop Expert: one.
		2) Experts of Planning/Hill area Development: two	2) Food & Nutrients Expert: one/two
2) Training in Japan			
High class course	2	2	2
Group course	4	4	4
Special course (short) - Vehicle repair & maintenance	1	1	1
3) Machinery, implements & materials aide by Japan (million yen)	100.000	100.000	
4) H.M.G.'s Budget of the Project (1,000 Rupees)	8,000		
5) K.R. Fund			
6) Aids for Agriculture Development from Japan			
JADP Sindhuli Extension Sub-Centre		Construction of Office, Domitory, Workshop and others; 1977-'78	
Agriculture Stores/ multi-use store houses		Construction estimated in 1977-'78.	

VEHICLES AND MAIN MACHINERY, etc. presented by Japan

- Presented in past 4 years and to be presented following 2/3 years

	1973-74	1975	1976	1977	1978	1979
<b>A. VEHICLE</b>						
Crane truck	1					
Dump truck	2					
Jeep	5	3	4	6		
Mortorbicycle	3		10	10		
Minibus			1		1	
Bulldozer			1			
Truck (2-12.5 t.)			6	1	1	
Tyre & tube set		39				
<b>B. AGROMACHINERY</b>						
4 wheel tractor	1		2	1	1	
Power Tiller	21		24			
Power Sprayer	4		16	7		
Power Thresher	12		16			
Water pump	16	3	12	5	8	
Combine Harvester			1		1	
Sprayer			30	100	50	
Duster				5		
Sprincler set				1	1	
Transplanter						1
Air compressor			1		1	
<b>C. IRRIGATION &amp; DRILLING</b>						
Drilling Machine & accessory (set)	1				1	2
Casing pipe (set)		3		100		
Submerged pump		4		1		
Polyethylen pipe						4
Micro current meter				1		
Drilling Bit						2



	1973-74	1975	1976	1977	1978	1979
<b>D. BUILDING, LIVING INSTRUMENTS, etc.</b>						
Prefabricated Store	6					
Wireless set	3	1		1		
Generator		2				
Water pump			2			
Lightening conduct			9			
Air Conditioner						
<b>E. IMPLEMENTS FOR LABORATORY etc.</b>						
Microscope	2				1	
Dryer	1			1		
Refrigerator	7					
Meteorological (set)	3					
Balance				10		
Thresher				7		
Soil Tester					3	
Venyle House					1	
<b>F. FERTILIZER &amp; CHEMICALS</b>						
Fertilizer (tons)	94	50	54	185	140	140
Chemicals						
<b>G. EXTENSION IMPLEMENTS</b>						
Blackboard	5	12			30	
Film projector (16 mm)	1					
Slide projector						
Broadcasting set	3					
Bicycle				40		
Moisture Meter					6	
<b>H. STATIONERY</b>						
Recopy Machine	4			2		
Type Writer	4			10		
<b>I. SPARE PARTS : presented in every year, while in the final year - 1979 will supply intensively.</b>						

ADDITIONAL requested - veterinery equipments in 1979

Refrigerator: 4, Thermos Flasks: 20, Simple Surgical instruments,  
Microscope: 2, Syringe & needles and Medicines.

App. I MAIN TARGETS 'Three Pillers of the JADP Centre'

- Main Future Activities of the Centre and Sub-Centre -

The innovated new imposing facilities - establishment of the buildings of Headquarter which are nearly to be accomplished, especially the Training facilities are to be completed shortly as the final construction of main buildings in the Centre.

On the occasion of such transitional time, we must pay deep attention to the purpose and function of this Centre coming back to the original idea of the activity of this JADP.

According to the Agreement of the both Governments - H.M.G. and Japan, details of the function/activities are described about the Hardinath Agricultural Farm and the Rapti Model Farm only and not about Headquarter/Centre. Therefore, I would like to propose the following Targets and function of the JADP Centre:

According to the Agreement, 'increasing of farmers income and improveing their standard of living' - these are the main purpose of this Project. And regarding the way - how to approach these purpose - description in the Agreement shows as the activities of belonging two Farms only and not as in the Centre activity. Namely, and description about the activity of the Centre (Headquarter) being find out - managing function only.

On reflection about the basic/fundamental need of the Agricultural development, the following two points may be considered; i) how to level up the potentiality of the Extension Workers, ii) how to rise the farmers will/enlightening the farmers senses. Between these two points, the former may be more essential/primary need than the latter in developing Countries in general.

In Japan, since around 70 years ago - developing stage of Japan and recent innovation period / that is after the Second World War, special attention has been given to the re-education of the Extension Workers. And the present innovation of the agricultural development seems to be caused by the performance of this level up of the Extension Workers basically.

In such point of view, I advised to A State Government in India -

Mysore State (renamed as Karnataka in November 1973) - as the basic need to get good development of agriculture, that is, Training of A.E.Os - Agricultural Extension Officers (they are Graduate middle class officers; Teacher of Village Workers) was given as the primary target and next/followed the Training of Progressive farmers. Out of 480 AECs in Mysore State, 168 about one third were re-educated in the long term training course - 6 months course for 7 years. Good evaluation has been obtained from not only State Government but also from Central Government. Then, this Training has been continued after the final of the Japanese collaboration.

Due to as such same point of view, I would like to propose that the intensive Training of Extension Workers should be taken as the main activity of the Centre - not only the Janakpur Centre but Sindhuli/Sub-Centre also.

Including other activities of this Project, the Targets and function/activities may be arranged systematically as below:

## The Three 'PILLARS' of the Activity

J A D P

PILLAR	A C T I V I T Y
TRAINING	<ol style="list-style-type: none"><li>(1) Extension workers Training</li><li>(2) Leading Farmers and others Training</li><li>(3) Strengthening of teaching substance/contents</li></ol>
EXTENSION	<ol style="list-style-type: none"><li>(1) Strengthening of ADO activity and implementation and supervision of Extension work</li><li>(2) Guidance of advanced techniques to Extension Workers and farmers on their post</li><li>(3) Demonstration of field trials, crops and technical guidance and mechanized farming practices</li><li>(4) Distribution of technical News, improved seeds and seedlings</li><li>(5) As a pilot plot of small irrigated area, - IAP technical help in Boring and Extension practices for effective use of water</li></ol>

### APPLIED RESEARCH, SURVEY AND INVESTIGATION

- (1) Field trials/experiments for technical improvement
- (2) Effective production of improved seeds and seedlings
- (3) Good/reasonable maintenance and trials for effective use of machinery
- (4) Survey and investigation of farming practices, crop yields and technical analysis, etc.

Applied research, survey and investigation are carried out for the purpose of rising performances of Extension and Training activities due to fill up the technical and teaching contents/substances.

All these activities mentioned above are directed as the main function of the Centre. Moreover, publications for information service and progress reports are issued so as to meet the requirement of Extension Workers and progressive farmers, as an important work of the Centre.

Based upon my experience in India stated before, and in the light of actual status of this Zone/Country, Training of Extension Workers and Progressive Farmers should be proposed as the Main Target of this Centre. According to the Agreement, training is only stated as the third item of the Hardinath Farm activity/due to the fact, it seems that the training was not given importance to the Centre activity.

In order to get good performance of training practices, there are some bottlenecks which are as follows:

- a) lack or weak of Teachers/instructors staff and planning section
- b) imperfect/lack of teaching materials/data
- c) long distance between lecture hall and practical/laboratory - field practical training practices
- d) inconvenient of traffic facilities
- e) to fill up these bottle necks more Budget should be provided.

In order to achieve good performance of training practice, the following two points are offered to the Board of JADP:

- a) Establishment of Planning cum Coordinating and Training Sections in the Headquarter, Naktaghij, including the planning of Hill Area Development.
- b) Financial support should be increased to overcome the bottle-necks stated above.

Details and enlargement of training practices may be dealt with the Planning and Training Sections.

App. II INNOVATION OF THE ORGANIZATION

- Strengthening of the Activity of JADP -

In order to promote/strengthening the function/activity of JADP, Staffs and Experts should be incharged to the following task:

General	NEPAL side	JAPAN side
<b>A. Charged Task</b>		
Planning, Coordination Publication, Seminar Joint/Staff Meeting	I/II class (New) Mr. S.K. Thapa Mr. R.P. Sapkota Mr. R.C. Prasad	Dr. Suetsugu Mr. T. Shimada Mr. K. Takayama
Training, Demonstration & Exhibition	Mr. G.L. Shrestha Mr. R.P. Sapkota Mr. U.B. Thapa	Mr. T. Kondo Mr. S. Aota
Extension, General	Mr. R.P. Sapkota Mr. M.B. Thapa	Mr. K. Kanno Mr. T. Shimada
Supervision Officer:	III class (fill up)	
Machinery & Implements	Mr. P.B. Thapa Mr. M.P. Lamichhane	Mr. N. Tokudome Mr. E. Mikami
Inauguration/Exhibition	Mr. S.K. Thapa Mr. U.B. Thapa Mr. R.P. Sapkota Mr. S.K. Shresta	Mr. T. Kondo Mr. T. Shimada
<b>B. Place wise Task</b>		
Hardinath	Mr. G.L. Shrestha Mr. B.K. Thapa	Mr. S. Aota Mr. N. Tokudome
Rapti	Mr. A.N. Yadava	Mr. T. Kondo Mr. Y. Nishimura
JOCV		Mr. K. Kanno
IAP	Mr. R.P. Sapkota Mr. P.B. Shakya	Mr. Shimada Mr. K. Kanno
Hill	Mr. S.K. Thapa Mr. P.B. Thapa Mr. M.B. Thapa	Mr. K. Kanno Mr. T. Kondo Mr. E. Mikami
Sindhuli Farm	Mr. B.M. Basnet Mr.	Mr. Mr.
Horticulture Farm	Mr. D.B. Dhungana	Mr.

A BRIEF REPORT  
ON THE AGRICULTURAL DEVELOPMENT OF HILLS  
IN JANAKPUR ZONE

- A Suggestion to Frame the 'Grass-roots' Planning in  
Sindhuli and Ramechhap District under the Leadership  
of new Sindhuli Extension Centre of JADP -

Dr. I. Suetsugu  
(Project Leader, JADP)

CONTENTS

- I Introduction
- II Background - Features of Hills Ecology - Negative and Positive Factors for Agricultural Development
- III Past, Current and Future Activities of JADP and Sindhuli Farm
- IV The Major Aim of Future Activities - The Three 'Pillars' of the Activity in Extension Centre, Sindhuli
- V The Idea and Aim of 'Grass-roots' Extension System
- VI A Proposal of the Slogan and Motto for Proceeding Strategy of Hills Development
- VII Suggestions for Planning Activities under the 'Grassroots' Sub-Project Programme
- VIII 'MENU' Extension System
- IX A Suggestion to Frame the 'Regional Agricultural Development Programme
- X References for Agricultural Planning and Hill Development in Nepal

APPENDIX

- 1. Concerned letter presented from the writer to the Manager of JADP
- 2. Summarized report on the preliminary survey on the hill areas of Janakpur Zone; conducted by Japanese Experts in 1974-76. (Summarized from Japanese Reports by the writer)

## I Introduction

Why this suggestion has to be forwarded by the writer?

Following three main reasons are pointed out:

(1) According to the Agreement between both Government Nepal and Japan, the JADP is a project expected to carry out an integrated Zonal Agricultural Development, although, one can not find any integrated idea in the articles of Agreement. That is, the main activities of this project mentioned in the Agreement were regarding the two Farms and one Pilot area only, and a round trip guidance for hill area only. Moreover, in the Agreement, without any approach to the basic problems on the Zone development, and as the project activities, several ways at the two Farms and Pilot area only are described. It is difficult to understand why integrated planning had not been proposed in the Agreement<sup>(9,31)</sup>

In the Agreement, additional description was made about hills area in Janakpur Zone, that is as follows:

"Formation of a regional agricultural development programme under the long-term comprehensive development plan of His Majesty's Government of Nepal" (Annex I, (iv) - b).

(2) Problems and highlights on the development of hills are pointed out during the preliminary study carried out by the staff and experts of JADP<sup>(10)</sup>. Moreover, comprehensive studies are made by the authorities recently. (Mountain Environment and Development, 1976)

(3) As the basic camp of the development of hilly or semi-hilly area, Sindhuli Extension Centre may be established shortly (1978).

Planning/programme on the activities of this Extension Centre must proceed immediately under the leadership of JADP.



## II Background

### - Features/Nature of Hills Ecology - Negative and Positive Factors for Agricultural Development

Regarding this subject, many descriptions have already been made by a good many investigators. Therefore, in this report, arranged previous reports, and the background features are divided into two groups - positive and negative factors for agricultural development in the hills compared with the Tarai. And these factors are given major titles and are listed up as below:

#### NEGATIVE - Demerit/impeding factors

- 1) Specific geographic/topographic natures
- 2) lack of natural resources and inadequate transportation facilities
- 3) dispersion of population/dwellings and lack of concentrated town/community
- 4) limited education and plentiful ignorant people
- 5) pressure of increasing population and lack of the industry for increasing employment
- 6) reduction of cultivated area caused by heavy land slide and erosion, and no room of land utilization
- 7) low potentiality of mechanized farming because of small fragmented and slopy plots only.

#### POSITIVE - Profitable/merit factors

- 1) a wide extended fluctuation of temperatures due to the large difference of altitude
- 2) mild Monsoon (wind and rain) and precipitation is more
- 3) rich in the forest resources and fire woods can be obtained easily
- 4) Partially isolated nature and partial different ecologic features
- 5) higher expectation regarding the development of minor irrigation
- 6) higher expectation on the more use of compost connected with the easy availability of fire woods
- 7) higher honest and sincere nature of farmers and higher expectation to the extension services - nearly virgin or semi-virgin area of the agricultural extension activity.

Specific attention must be paid to these positive factors regarding farming practices of 'Grassroots' programme. How to use these factors actively and effectively may be the key point of future development in hill areas.

### III Past, Current and Future Activities of JADP and Sindhuli Farm

#### 1. Past and Current Activities

Past performances and current activities of JADP and Sindhuli Agricultural Farm are described in the 'First Progress Report of JADP' issued recently. (9) Then avoiding the overlap of description, it is excluded in this report.

#### 2. Future Activities

Future activities were proposed in April 1977 in the previous report (31) - "The Next Phase of Development of the JADP Activity - Innovation of the activity and the concrete programme in the coming 2-3 years. From this report, section regarding the hill development and Sindhuli Extension Centre only is cited here, which is as follows: (page 7)

- (1) Construction and establishment of the Sindhuli Exten. Centre in 1978
  - (2) Strengthening the activity of the new Extension Centre; 1978-
  - (3) Promotion for distribution and guidance of fruit saplings and vegetable seedlings and their culture practices since 1977
  - (4) Systematical arrangement of the results of previous survey conducted/practiced by Officials and Experts of JADP; 1977
  - (5) Implementation of additional survey and round guidances since 1977
  - (6) Framing a semi-hill area agricultural development programme in 1978-'79
  - (7) Special/intensive support of ADOs activities in Sindhuli area in 1977-'79
- #### 3. Activities in the new Extension Centre, Sindhuli (page 13)
- (1) Training of Extension workers, Leading and General farmers
  - (2) Trials for extension of improved farming techniques
  - (3) Multiplication and distribution of seeds and seedlings
  - (4) Demonstration of paddy, wheat, vegetables and fruits plants, etc.

Whole activities should be organized as the local centre of extension and training centre, then applied research should be taken up as the supporting materials for promotion of extension and training practices.

Based upon the new idea 'Grass-roots' Extension system, the function of the Sindhuli Centre will be proposed in the following pages.

#### IV The Major Aim of Future Activities

##### - The Three 'Pillars' of the Activity in Extension Centre Sindhuli

The writer proposed in his previous report (31). 'Three Pillars' of the Project Centre and Sub-Centre as the future major activities, that is; i) Training, ii) Extension, and iii) Applied Research, Survey and Investigation. Why the writer presumed to propose such pillars? The reason has already been stated in the report. (31) - page 17-18.

The writer would like to stand up this pillars again not only in the Project Centre but also in the Sindhuli Extension Centre. The brief contents of the three Pillars are as below: (31) - page 19.

##### Pillar I - TRAINING

- (1) Extension workers training
- (2) Leading farmers and others training
- (3) Strengthening of teaching substances/materials

##### Pillar II - EXTENSION

- (1) Strengthening of ADO activity and implementation and supervision of Extension work
- (2) Guidance of advanced techniques to Extension workers and farmers on their post
- (3) Demonstration of fields, crops and technical guidance and mechanized farming practices
- (4) Distribution of technical News, improved seeds and seedlings

##### Pillar III - APPLIED RESEARCH, SURVEY AND INVESTIGATION

- (1) Field trials/experiments for technical improvement
- (2) Effective production of improved seeds and seedlings
- (3) Good maintenance and field trials for effective use of machinery
- (4) Survey and investigation of farming practices, crop yields and technical analysis etc.

Applied research, survey and investigation are carried out for the purpose of raising performances of extension and training activities to strengthen the technical and teaching contents/substances.

These pillars should be stand up under the idea of 'Grassroots' Extension system which has been emphasized in this report.

The 'Grass-roots' Extension system which has been emphasized in this report should be achieved under these three Pillars. Whole activities in the Sindhuli Extension Centre may be included and summarized in these Pillars.

It seems very significant that planning and implementation of this Sub-Project should be carried out under the feeling of these Pillars. In such point of view, these Pillars are presumed to be cited from previous report here without trouble of duplication.

## V The Idea and Aim of 'Grass-roots' Extension System

### 1. An Innovation of the Extension System

There are three patterns regarding the Policy/strategy of area development/Extension system. One is from MACRO to MICRO and the other one is inversely; from MICRO to MACRO - from lower level 'Grass-roots' to upper level. And another is Combined pattern - Joint pattern of upper and lower. Amongst these patterns, the last is an ideal advanced pattern, if sufficient support from farmers were obtained. Usually most developing countries, the Combined pattern is likely to be shifted to the first pattern, even if a project started under the Combined system. Therefore, the pattern may be divided into two - first and second - excluded the Combined pattern. Needless to say that future goal of Extension activities must be aimed to achieve the good balanced Combined pattern.

Usually, the Extension strategy starts from upper to lower, and the farmers play as passive standpoint. The strategy is likely to be conducted under insufficient understanding and lack of farmers support. This is the most usual reason of insufficient performance of extension work in general. Therefore, most significant basic factor seems to be how to raise the farmers support, any project of agricultural development could not be achieved good performance. It can be indicated that slight attention is likely to be given to the tip of policy - farmers intention from the Policy maker and Extension Officers.

In the view points mentioned above, it seems that future Extension activities must be advanced from micro to macro in this country, that is Extension activity should attach more importance to the level of grass-roots activity.

### 2. Precious Advice given from High Officials of H.M.G.

Regarding the activity of JADP, a severe criticism was made by a High Officials to the Japanese Vice Minister of Foreign Affairs, who visited Nepal in May 1977. That is, the JADP does not contact to farmers/farmers do not approach JADP. This is a very good and valuable advice pointing out the defect of this Project. The information seemed good and timely advice, and the writer aimed to use this advice effectively. Discussion was made twice

immediately as an urgent agenda of the Joint Staff Committee in JADP, as to 'Why such opinion/criticism has been made and how to contact farmers more closely?' Through the discussion, several countermeasures had been framed and adopted.

Such process has functioned as an oriented factor in the development of the idea of 'Grass-roots' system of this report.

3. A Good Suggestion presented from ADO Sindhuli

Mr. Hari Bahadur Karki (ADO Sindhuli) emphasized that there are so many negative factors and problems for the agricultural development of hills, while if only one positive factor is to be pointed out, it may be their high expectation and heavy demand from extension service by farmers. From this feature stated above, it reveals that if the extension services were given intensively and effectively, good results might be expected certainly under the idea of 'Grass-roots' planning and 'Grass-roots' implementation. This is a basic factor of the idea of 'Grass-roots' slogan and 'Self-help' motto are proposed in this report.

In the light of the analytical results of past experiences and good timely advice stated above, the following principle has been induced to achieve the agricultural development of hill area:

PRINCIPLE OF THE 'GRASS-ROOTS' PROGRAMME

- 1) formulation of innovated farming by the farmers themselves
- 2) Extension workers should be given service as co-workers based upon the motto "study together with farmers"
- 3) JADP should provides necessary data and information to the extension workers to meet the requirement of the farmers - providing the 'menu' - Extension MENU (vide page 12)

VI A Proposal of the Slogan and Motto for Proceeding Strategy  
of Hills Development

1. Significance of the Slogan and Motto

At the starting of a social activity, slogan is very significant due to the following reasons:

- a) hoisting a distinct flag is an effective way to give impact and to induce Victory of the fight. The slogan plays as a flag of the strategy.
- b) putting up clear slogan may be very significant to achieve good performance in order to give strong impression to every body concerned.
- c) for the purpose of clear understanding the aim of activities, simplified and symbolized slogan is essential.

There are many ways of challenge for hills development activities, but it seems that any challenge had not ever been conducted under such slogan so far.

The slogan should be easy to understand for every body - not only educated but also illiterate farmers.

2. The Slogan of Hills Development - 'Sufficient Food and higher Income'

Why such slogan has been proposed? The reasons are as follows:

- a) According to the review of references and the results of actual survey practices, the integrated aims are concentrated as 'sufficient food and higher income'. The term 'sufficient food' includes not only human food but animal feeds also and higher income includes cash crops and output of horticulture and animal husbandry etc. (vide References of this report page 16-17).
- b) Substantial gravity of foods production seems to be more significant than in Tarai, especially, from the results of study about future long-term estimation,<sup>19)</sup> considering the pressure of the human and animal population in the hills,<sup>18)</sup> top priority to the aim of food and feed production must be given.

c) Why we must pay deep attention to the development of horticulture in the hills? The answer is not only due to the results of survey of geographic/topographic features but also this idea has oriented from the proposal of Mr. Nepali<sup>17)</sup> and the Holy word of H.M. King Birendra. That is "Let us enrich the mountains with meat and milk, let us cover the hills with fruit saplings and let us grow grain in the lush green plains of the Tarai" - His Majesty the King Birendra, 1973; cited from the Progress Report No.1<sup>9)</sup>.

### 3. Farmers Motto 'Self-help'

"Gifts presented from others are likely to be lost easily, while the treasure which is gained by ones own best efforts remains for a long period without fail"

This instructive advice should be kept in our mind not only by farmers but also by extension workers and others.

Real effective innovation of farming practices may not be fruitful without farmers progressive spirits and his self effort per se. This is the reason why 'Self-help' has being proposed as the motto of progressive farmers.



VII Suggestion for Planning Activities under the  
'Grass-roots' Sub-project Programme

1. The Four Steps/Phases of Extension work and the Strategy to each Step:  
To achieve good performances of extension activity under the idea of 'Grass-roots' programme, following four steps/phases are to be considered:

- a. The first step - 'know-how' phase
- b. The second step - 'show-how' phase
- c. The third step - 'take-how' phase
- d. The final step - 'take-off' phase

Usually, almost all the Extension programmes are used to be closed at the second step so far as stated before, that is Extension programmes are provided up to the phase of the demonstration/pilot farm only as the final step. The show-how is a show-how, and not included farmers actual adoption to their farming schedule. The feature of this programme is how to challenge to not only 'know-how' and 'show-how' phase but also to the phases of the 'take-how' and 'take-off' step.

2. How to Challenge the four Steps

(1) Challenge to 'know-how' phase:

Including the 'know-how' is not only ecological and technical but also other concerned items - fluctuation of marketing price, credit/soft loan (this is also important in the 'take-off' phase) which are needed for proceeding the sub-project. The challenge of this phase will be achieved mainly by training. The training may be divided into three courses; Extension workers training, Leading farmers training, and general farmers training. Technical training may be practiced with the help of guidance book - 'menu' of Extension service (vide page 12).

(2) Challenge to 'show-how' Phase:

The main fields of 'show-how' are Demonstration and Pilot programme. The programme may be provided in the fields of Sindhuli Extension Centre and farmers fields. The management in the farmers fields 'show-how' plot trials will be made by farmers per se. under the guidance/advice of Extension worker/staff of JADP.

(3) Challenge to the 'take-how' phase:

Based upon the basic knowledge - 'know-how' and the results of field trials - 'show-how', farmers should take selected menu (vide page 12) by themselves under the good guidance of Extension workers.

(4) Challenge to the 'take-off' phase:

The aim of these challenges should be focused on the final phase -- farmers 'take-off'. That is farmers active 'take-how' and 'take-off' inducement by their will themselves. How to get farmers self intensity is the final aim of this sub-project activities.

One must pay attention that the 'take-off' is so-called the final phase of preliminary extension service, but the 'take-off' is the starting phase of farming practices. Extension workers have to give kind help to have good and higher flight of 'take-off' plane in the sky. Almost all good 'take-off' may be achieved owing not only to technical but also to other ecological and economic situations.

(5) An Example of the Post 'take-off' Challenge in India - challenge to maximum production of paddy under the idea of 'Grass-roots' planning and management by farmers per se - cited from the References (2) : "Code-named Farmer's Own Management (FOM), the programme seeks to place responsibility for providing seeds and fertiliser, looking after pest control, and marketing the finished product on village Pancha yats - the grass-roots democratic institutions in India's rural areas. Though Indian planners do not admit it, FOM is patterned after the Chinese model of agricultural development, where the farmers themselves plan and organise for maximum production with advice from rural extension workers".

## VIII 'MENU' Extension System

1. If the relation between Extension side and farmers side be compared with a restaurant, following imagination will be induced:

Manager of the Restaurant : Manager of JADP/Chief of Sindhuli Extension Centre

Cook/Cooking assistant : Staff of JADP, ADO

Carrier of the menu/  
Adviser or Consultant  
to the Guest : Extension Worker

Guests of the Restaurant : Farmers

According to this imagination, following menu in the restaurant are presented as a model:

A. Cereal Table

Paddy course  
Wheat course  
Maize course

C. Meat and Milk Table

Meat course  
Milk course

B. Horticulture Table

Fruits course  
Vegetable course  
Seed production course

D. Miscellaneous Table

Poultry course  
Medecinal plants course  
Forage crops & Trees course  
Pulses/Green manure course  
Fish course  
Cash crop course

Contents of the MENU and way of cooking should be discussed and produced by the help of authorities of each sector respectively. Needless to say that the MENU must be cooked/written to meet the guests' tongue.

2. Strengthening of Applied Research to meet the Demand from the MENU Makers and Extension workers

In the light of past experiences, it is cleared that without any support from Research side (applied research), a project activity is likely to be at a dead-lock immediately. (We must pay attention to the fact that the JADP activity also seems to be approaching to this situation).

In such point of view, it is noticed that the recent active movement for organizing Agricultural Research in Nepal is going on<sup>23)</sup>.

IX A Suggestion to frame the Regional Agricultural  
Development Programme of Hill Areas in the  
Janakpur Zone

According to the Agreement, the responsibility of formation the programme seems to have both - Nepal and Japan. This is revealed by the following description in the Annex of Agreement:

Formation of a regional agricultural development programme under the long-term comprehensive development plan of His Majesty's Government of Nepal. - Annex I, (iv) - b.

In order to achieve a good performance to meet the demand of Agreement and to expect real useful programme, moreover, not to end a desk plan only but to expect following implementation, it is necessary to call in talented authorities advices and not owing to the partial experts only.

On the other hand, it may be difficult to expect good results of framing the programme by Japan side alone because:

- 1) in the light of the previous results by the past dispatched Japanese survey teams, it is difficult to have sufficient knowledge about ecological and economic features in hills for a limited short period
- 2) under such specific nature and ecologic features of hills in Nepal, any planning to strategy/experience has not yet been tackled so far by Japanese
- 3) it is a substantial negative factor that there are lack or insufficient necessary basic data/statistics and others which are essential factors for framing practice of programme
- 4) better results might be expected by the Joint study of the authorities in Nepal and Japan, under proper allotment of task and good coordination and linkage between both sides, to give full play of their career of both authorities.

From such point of view, the writer would like to propose - Establishment of the JOINT STUDY TEAM for programme formation organized with both side authorities - Nepal and Japan, under the notion of 'Study together' -- this is the writers idea not only for the International Cooperation but also his

motto of daily activities in foreign countries.

This is a personal opinion by the writer and not authorized by Japan side. Then the writer intends to propose this suggestion to Japan side after his return home shortly (March 1978).

X References for Agricultural Planning and  
Hill Development in Nepal

- (1) Agricultural Project Service Centre: Evaluation of the JADP (interim report), 1976. - An evaluation of the Project activities, and a benchmark study for the extension phase of the Project. This report may be very useful to frame/consider the programme of the Sindhuli Extension Centre.
- (2) Arun Bhattacharjee: Aid Small Farmers - The Indian Approach; The Rising Nepal, 28th Nov. 1977
- (3) Basnyat, N.B.: Agricultural Research in Nepal. (Presented report in the Seminar on National Agricultural Research Systems in Asia held at the Indian International Centre, New Delhi, March 8-13, 1971)
- (4) Debremez, J.F.: Exploitation and Prospects of Medicinal Plants in Eastern Nepal, 1976
- (5) Harka, Gurung: Regional Development Planning for Nepal, 1969
- (6) H.M.G. Department of Agriculture: Agriculture Development Project - Agriculture Development Policy and Programme, 1974
- (7) H.M.G. Home Panchayat Ministry: Development through Panchayats, 1972
- (8) Hoegger, R.: Practice and Research in Integrated Development Projects, 1977
- (9) JADP: Report on Activities and Performances of JADP, 1972-'76, Progress Report No.1, 1977
- (10) Japanese Experts: Reports on the Preliminary Survey on the Hill areas of Janakpur Zone in Nepal, 1976 (in Japanese)
- (11) Lee, C.Y.: Analysis of Marketing Problems of Government-Run Commercial Concerns - Two case studies in Nepal, 1971
- (12) Mauch, S.P.: The Energy Situation in the Hills, 1976
- (13) Mihaly, Eugene B.: Foreign Aid and Politics in Nepal - A case study, 1964
- (14) National Education Committee: On Education in Nepal - A Topical Compilation, 1974
- (15) National Education Committee: Education and Development, 1975
- (16) Nepali, S.B.: Land and Life in the Nepal Himalayas (Presented report in International Hill Agriculture Symposium between Oct. 3-9, 1976, in West Virginia, USA)

- (17) Nepali, S.B.: Horticultural Development in the Hills, its Potentials and Necessity, 1976
- (18) Panlay, K.K.: The Livestock, Fodder Situation and the Potential of Additional Fodder Resources, 1976
- (19) Pant, Y.P. & S.C. Jain: Long Term Planning for Agriculture in Nepal, 1972
- (20) Pant, Y.P.: Problems of Development of Smaller Countries, 1974
- (21) Pant, Y.P.: Planning Experiences in Nepal, 1975
- (22) Pradhan, S.S.: Agricultural Supplies their Importance in the Agricultural Development of Nepal, 1970
- (23) Preliminary Draft Committee/Agricultural Research Council: A Proposal for Organizing Agricultural Research in Nepal, 1977
- (24) Rajbhandri, B.L.: Foreign Assistance in Nepal (A Brief Review) 1973
- (25) Rana, J.B.S. Pashupati: The Voice of the Farmers - Ecology around a Development Project, 1976
- (26) Reed, H.B. & Mary I. Reed: Nepal in Transition - Educational Innovation, 1968
- (27) Regmi, M.C.: Some Aspects of Land Reform in Nepal, 1962
- (28) Rieger, H.C.: Floods and Droughts, The Himalaya and the Ganges Plain as an Ecological System, 1976
- (29) Schmid, R.: The Jili Multipurpose Development Project (JMDP), a hard experience in mountain ecology and a very important learning process in Nepalese/Swiss technical co-operation, 1976
- (30) Shreshtha, B.P.: An Introduction to Nepalese Economy, 1974
- (31) Suetsugu, I.: The Next Phase of Development of the JADP Activity -- Innovation of the activity and the concrete programme in the coming 2-3 years; 1977-'79, 1977
- (32) Tribhuvan University: Hill Migration in Nepal - The Effects of Out-Migration on a Hill Village in Far-Western Nepal, 1975. (Institute of Nepal and Asian Studies, Tribhuvan University, Kirtipur, Nepal)
- (33) Tribhuvan University: Annual Report/Institute of Agriculture and Animal Science, Rampur, Nepal, 1976-'77
- (34) Voegele, K.: Some Basic Issues of Integrated Hill Development Project, 1977

Mr. Rohit Bahadur Thapa  
Project Manager, JADP

The writer of this report has had following experiences in Japan and in India

In Japan : As an Agricultural Researcher cum a teacher of two National Universities. At the former he worked as a crop Botanist cum plant Breeder of cereal crops for 35 years, and at the latter, as a instructor of Graduate and post graduate course for 14 years.

In India : He worked as the Project Leader of Indo-Japanese Agricultural Extension Training Centre, Mysore State for 7 years. His main activity was teaching for the course of inservice training/long-term training for Graduate Officers and Graduate farmers.

Therefore, around half of his career is Education of the 'Grass-roots' leaders - Agricultural Extension Officers and Leading Farmers.

Based upon his long experiences stated above in the two countries, he wants to present this suggestion report with his best regards as his final suggestion report for the development of this Project.

This is a brief note, so if you can agree this idea or suggestion, and he is glad that your attention might be focused for framing the concrete programme under the new idea 'Grass-roots' Extension system with the good help of JADP staffs about the following items:

- (1) propaganda of the 'Grass-roots' programme under new slogan, and appeal to farmers the aim of this sub-project
- (2) strengthening the JADP and Sindhuli Extension Centre to meet this idea
- (3) framing the detailed programme - Training etc. under the idea of phasic/step development
- (4) providing the 'menu' - Extension service MENU with the help of staff in each section
- (5) promotion of activities of ADOs - Sindhuli and Ramechap to promote the farmers responses
- (6) proposal of support and strengthen of JADB activities by concerned authorities of HMG.

Lastly, I would like to present a motto - 'Study together and Self-help' as the motto of each staff of this Project. I am very happy, if this motto might be kept in their mind in the daily activities.

Jan. 1978

Dr. Isao Suetsugu  
Japanese Project Leader



Summarized Results of Preliminary Survey Performed by the Experts and Staff of JADP (1974-76)

Name of Expert (No. of Staff)	Date/period (days)	Area/ Location	Items of Main investigated	Brief results of survey/ presented proposals
1. Yazawa & (2)	June 3-14 1974 (12)	Central part of Sindhuli	ADO activity, general situation, population, price of agro-produc- tion, farming practices (8 farmers)	According to the policy of H.M.G. Nepal planning should be made under the fol- lowing main course/items: Adoption of both crops and animal farming jointly and establishment of self-sufficient pattern of living.
2. Hasegawa & Shimada	Dec. 16-27 1974 (12)	Nerthern part of Sindhuli & Southern part of Ramechhap	Oral survey; social & economic and agricul- tural practices in general	-----
3. Shimada & (1)	Feb. 10-17 1975 (18)	Valley of Kamla River	Oral survey; Caste system, migration, cropping pattern, irrigation etc.	-----
4. Tsuboi	Apr. 16-24 1975 (9)	Central part of Sindhuli	Agriculture in general potentiality of fruit growing, demand of fruit saplings	Large demand of fruit saplings and potentiality of future development of fruits growing is very high. Production of potato seeds may be possible in the area above 1500 m altitudes.
5. Hiroto & (2)	May 27-June June 2 1975 (7)	Valley of Merin River	Potentiality of minor irrigation introduction and finding out of important needs	Development plan should be made under the following points mainly: 1) Training of Extension workers, 2) followup study of distributed seeds and seedlings, 3) introduction of new wheat varieties, 4) establishment of minor irrigation system

Name of Expert (No. of Staff)	Date/period (days)	Area/ Location	Items of Main investigated	Brief results of survey/ presented proposals
6. Yazawa	Oct. 25-28 1975 (4)	Vicinity of Sindhuli Madhi	Details of ADO activities etc.	JADP should pay attention to the following items: 1) intensive supply of input/seeds & seedlings, 2) effective use of credit, 3) strengthening of man power (Extension workers), 4) promotion of plant protection, 5) establishment of warehouse, 6) importance of fruit & vegetables and bee-culture etc.
7. Kanno & (1)	Nov. 2-20 1975 (19)	Central part of Ramechhap and valley of Tamakosi River	Geographic/topographic features, agricultural situation in general, rural living practices and farmers desires and demands	Farmers demand: 1) repair of old irrigation channels, 2) importance of soft loan, 3) improvement of transportation & marketing facilities, 4) guidance on improved techniques of farming.  First Step Countermeasures: 1) guidance on compost making techniques, 2) intensive distribution of good and improved seeds & seedlings, 3) Training of JTA, 4) enlargement of Sindhuli agricultural farm  Permanent Countermeasures: 1) improvement of transportation & storage, 2) improvement of Marketing system, and minor irrigation system, 3) establishment of agricultural experiment station, 4) strengthening and improvement of organization of animal husbandry, Cooperative activity and living condition etc.

Name of Expert (No. of Staff)	Date/period (days)	Area/ Location	Items of Main investigated	Brief results of survey/ presented proposals
8. Shimada & (2)	Nov. 18-23 1975 (6)	Citrus growing area of Central Sindhuli	History of Citrus introduction, selection of good mother plants for seedling breeding	Due to the incidence of post & disease etc., Suntala citrus plants were declined in most places of Nepal. Although this area has not yet been injured but it seems to be hopeful in the future. Therefore, this area may be expected as a centre of Junar in Hills of Nepal. Developmental programme should be made gradually from suitable places to other areas step by step --- adequate elevation - 1000-1300 m.
9. Takayama & (2)	Nov. 19- Dec. 6 1975 (18)	Northern part of Ramechhap	Nature, Elevation, Population density space of land utili- zation, Races & Caste, farming practices, emigration long and short term.	Potato cultivation was found even in the area above 3000 m altitudes whereas wheat, corn, millet and buckwheat are grown as main crops at less than 2000 m altitudes. At altitudes lower than 1200 m paddy, wheat, corn, soybean, buckwheat and citrus are grown. Farmers selected these crops on the basis of the distance of their land from their dwellings and degree of slope of the fields mainly and not elevation.
10. Kanno & Tokudome (1)	June 18-28 1976 (11)	Western area of Ramechhap - Northern part of Sunkosi River	Topographic situation, plant growth, soil conditions & farming practices. Problems of technical and political to be tackled	Proposed the following items: 1) Promotion of JTA activities, 2) enlargement of Sindhuli Farm, 3) supply of good seeds and seedlings, 4) multiplication of good compost making/ production, 5) guidance on effective use of fertili- zers and chemicals, 6) training of leading farmers.

