No.

平成14年度　個別一般
「農村振興セミナー」
特別案件等調査
調査報告書

平成15年10月

独立行政法人国際協力機構
北海道国際センター（札幌）

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序　　文

独立行政法人　国際協力機構（JICA）は、平成12年度に「北海道における地域振興事例調査」を、平成13年度には「北海道における地域振興事例調査（農協の役割）」を行い、地場の特産品や産業を核として自治体や農協などの組織がいかに連携を図り地域振興に努めたかを調査し、北海道において本分野のリソースが研修事業を通じて開発途上国に十分に活かされ得るとの結果が出された。その結果を受け、平成16年度以降に同分野の集団研修コースを実施することを目指し同コースが効果的かつ効率的に実施されるよう、地域振興の進度が異なる２ヶ国を調査し、現状でどのような問題を抱いているか把握することを目的に特別案件調査団を派遣した。本報告書は、その結果をまとめたものである。

本調査の実施にあたり、多大なるご協力とご支援を頂いた内外の関係者各位に対し、こころより感謝の意を表します。

平成15年10月

独立行政法人国際協力機構
北海道国際センター（札幌）
所長　中村　三樹男

マ国ナサンジェ村でのキャッサバ試食会

マ国リロングェ ADD との打合せ

マ国ロビ地区果樹農家との意見交換

マ国キャッサバ農農グループとの意見交換

イ国農業省農業設備局臼杵専門家及び元研修員との打合せ

イ国 Ranometo 村での意見交換会

ゴア地区 BAPPEDA 事務所での打合せ

イ国マッカサール周辺農家訪問

目　　次

１．特別案件等調査団派遣の背景と目的

これまで当センターでは「北海道における地域振興事例調査」（平成12年度）、「北海道における地域振興事例調査（農協の役割）」（平成13年度）を実施し、農地開墾から生産性向上に至るまでの技術的な分野を中心とした農業振興策と併せて、「産業振興」「まちづくり」を前提とした農村振興策に力を注いできた北海道の農業・農村の発展過程や、これまでに数多くの課題や問題点を解決して成功を収めた施策、取り組みに関する教訓をとりまとめた結果、そこには途上国における地域開発と多くの共通項があると思われたため、当該分野の集団コース実施に向けて準備することとなった。なお、平成14年10月には個別一般の合同コースとして５名の研修員を受け入れ、当該分野研修の第一歩を踏んだ。

今回の調査では、平成15年度実施予定の個別集団型研修、ひいては平成16年度以降実施予定の集団コースを効果的かつ効率的に実施するために、地域振興の進度が異なるマラウイ国とインドネシア国を代表例として調査し、現状でどのような問題を抱いているか把握した上で、現地ニーズに即した研修カリキュラムを作成することを目的とする。

２．団員構成

１）飯澤　理一郎　　団長　　北海道大学大学院農学研究科　助教授

２）外山　聖子　　農村支援　　外山農場

３）宮崎　明博　　研修計画　　JICA 北海道国際センター業務課

３．調査日程

マラウイ国における調査日程

日順	日　　付	予　　定	宿泊地
1	平成15年１月８日㈬	新千歳1425→（JL562）→1600東京／成田1740→（JL735）→2145香港2340→（SA7801）	機中泊
2	平成15年１月９日㈭	→（SA7801）→0630ヨハネスブルグ1020→（SA170）→1250リロングウェ JICA マラウイ事務所訪問、打合せ	リロングェ
3	平成15年１月10日㈮	農業水利省表敬・協議 リロングェ ADD にてプログラムマネージャーの表敬訪問 リロングェ ADD に Mrs Mgomezulu と意見交換 ナサンジェ村キャッサバ農業グループ ナサンジェ村搾乳グループ ナサンジェ RTC にてリロングウェ職員と会合	リロングェ
4	平成15年１月11日㈯	リロングェ ADD にて集合 カマリピンデュラ野菜生産組合で意見交換	

		果樹園にてムゲシ野菜グループと Mrs Trindad による意見交換 ロビ EPA センターにて職員と意見交換 リロングウェに戻る	リロングェ
5	平成15年１月12日㈰	リロングウェ0820→（QM201）→1040ヨハネスブルグ1415→（SQ405）→	機中泊

調査日程（インドネシア）

日順	日　　付	予　　定	宿泊地
1	平成15年１月13日㈪	→(SQ405)→0635シンガポール0800→(SQ152)→0835ジャカルタ ・JICA インドネシア事務所打合せ ・在インドネシア日本大使館表敬 ・農業省国際協力総局表敬 ・農業省農業設備・国際協力総局表敬 ・研修参加者（Ms.Rina Suprihati）及び臼杵専門家との打合せ	ジャカルタ
2	平成15年１月14日㈫	（移動）ジャカルタ→クンダリ ・地域農業事務所訪問 ・Ranometo 村訪問・踏査（南東スラウェシ州農業農村総合開発協力プロジェクトサイト）	クンダリ
3	平成15年１月15日㈬	・現地調査（Kiaea 村）	クンダリ
4	平成15年１月16日㈭	（移動）クンダリ→マカッサル ・杉永、岡本専門家との打合せ	マカッサル
5	平成15年１月17日㈮	・現地踏査（地域開発政策プロジェクト、地域行政人材育成プロジェクト：南スラゥシ地域）	マカッサル
6	平成15年１月18日㈯	（移動）マカッサル→ジャカルタ	ジャカルタ
7	平成15年１月19日㈰	・団内打合せ ・報告書作成準備作業	ジャカルタ
8	平成15年１月20日㈪	・JICA 事務所報告 ・在インドネシア日本大使館報告 ・清水専門家との打合せ ・地域行政能力向上プログラムとの打合せ　　（移動）ジャカルタ→関西空港	機内泊
9	平成15年１月21日㈫	（移動）関西空港→千歳空港	

4．主な面談者

・Malawi（マラウイ）

Dr. C. J. Matabwa	Soil Scientist, Control of Agricultural Extension and Technical Services
Dr. B. C. Munthali	Weed Scientist, Programme Manager, Ministry of Agriculture And Irrigation
Mr. A.W. Phiri	Project Manager, Ministry of Agriculture And Irrigation Lobi

	Horticulture Appropriate technology extension project
Ms. Andrina F. Mchiela	Principal Secretary, Ministry of Agriculture And Office
加藤　高史	JICA マラウイ事務所　所長
松本　賢一	JICA マラウイ事務所　所員
Ms. Sawako Nevin	同上
丹羽　克介	JOCV Senior Member, Team Leader, Lobi Horticulture Appropriate technology extension project

・Indonesia（インドネシア）

Mr. Nasrun Hasibuan	Secretary of Directorate General, Directorate General of Agricultural Infrastructure and Facilities, Ministry of Agriculture
Ms. Rina Suprihati	Head of Cooperation Sub-Division, Planning Division
Ms. Emilia Harahap	Head of Bilateral Division of Bureau for International Cooperation, Ministry of Agriculture
Mr. H. Zainal Abidin	Head of Southeast Sulawesi Regional Office for Agriculture
Mr. Rivai Isnanu	Sub-Director of Southeast Sulawesi Regional Office for Agriculture
Mr. Ismailo Landau	Ex-Head of Kiaea Village（now Head of another village）
Mr. Alim Bahar	Head of Kiaea Village
Dr. Jr. Suejiman	Agricultural Economist, Univesity of Haluoleo
Dr. Yusuf Sommeking	Director of Gowa region of BAPPEDA
Dr. D. Agnes Rampisela	Director of LEMBAGA PELANGI
Mr. Ismail Bansasnan	Head of Village
Mr. H. Hanafie Maddo	Director of Regional Agriculture Bureau of Kantor in South Sulawesi
作田　竜一	在インドネシア日本国大使館　一等書記官
臼杵　宣春	JICA 専門家（農業基盤整備）：Directorate General of Agricultural Infrastructure and Facilities, Ministry of Agriculture
岡本　正明	JICA 専門家（スラウェシ地域開発政策支援）：Regional Development Policy in the Decentralization Era
金子　菊造	シニア海外ボランティア（有機肥料生産普及）：Regional Agriculture Bureau of Kantor in South Sulawesi
清水　俊夫	JICA 専門家（協同組合計画強化）：
榎本　正義	JICA 専門家（地方行政人材育成：チーフアドバイザー）

川端　岳郎	JICA 専門家（地方行政人材育成：業務調整）
杉永　雅彦	JICA 専門家（地方行政人材育成：行政管理研修）
大竹　祐二	JICA インドネシア事務所　次長
神谷　まち子	JICA インドネシア事務所　所員

5．調査結果

Ⅰ　マラウイ国

1）マラウイ国の概況

マラウイ国は南緯９度45分～17度16分、東経33度～36度、アフリカ南東部に位置し、タンザニア、モザンビーク、ザンビアと国境を接する。マラウイ国としての独立は1964年で、旧宗主国はイギリスであり、そのせいもあってか公用語は英語及びチュワ語となっている。とは言え、英語が通じるのは官公庁など一部に限られ、大多数の国民はチュワ語を使用いている。

国土面積は11万８千平方㎞で、北東部にアフリカ第３位のマラウイ湖を擁する。季節は乾季・雨期に二分され、前者は５月～10月、後者は11月～４月で降雨のほとんどは雨期に集中している。気温変動は少なく概ね22・23度～30度余の範囲内にある。日本人の通例の感覚であれば「暑い」の一語に尽きそうであるが、首都リロングウェ（Lilongwe）が高地（海抜1,000m 程）にあるせいもあってか、それ程の暑さを感じさせない。

人口は1,000万人余で、15－64歳人口は1998年で500万人となっている（表１）。1980年のそれが300万人であったから、この18年間に200万人、66％も増大した勘定になり、「人口爆発」の凄まじさを伺わせている。また、10－14歳の児童労働比率（児童の中で労働に従事した比率）は1980年の45％から1998年には33％に低下したとは言え、未だ高水準と評せる。ただし、近年、HIV 感染（住民の40％強が感染者と言われる）による男子労働力人口の減少が問題視されるほどになっており、今後ともこの「人口爆発」趨勢の続く可能性は大きく低下してきているものと想定される。

表１　マラウイ国の労働力構成

年	15－64歳	労働力人口	うち女性割合	児童労働比率
1980	300万人	300万人	50.6％	45％
1998	500万人	500万人	48.8％	33％

注：児童労働比率に言う児童とは10－14歳の子供達を指す。
資料：世界銀行「世界経済・社会統計2000」、鳥居泰彦翻訳監修、東洋書林、2001年。

労働力人口のうち1997年で男子の50％、女子の73％が農業に従事し、工業に従事している

のは男子の25%、女子の７%、サービス業には同25%、20%にしか過ぎない（表２）。1980年に比べ、農業比率が低下し、工業、サービス業比率が上昇しているとは言え、労働力配置上、マラウイ国の第１の産業は農業であり、農業の今後の有り様が国の経済・社会の方向性を規定すると言っても良い。それだけに、確固とした農業発展戦略・政策の樹立・推進、また、農業発展へ向けた各国からの諸支援が重要となっていると言えよう。

表２　マラウイ国の産業別従事者割合（%）

年	男子労働力人口中の割合			女子労働力人口中の割合		
	農業	工業	サービス業	農業	工業	サービス業
1980	78	10	12	96	1	3
1997	50	25	25	73	7	20

資料：表１に同じ

２）マラウイ国農業の概況

⑴　最近の農業生産の動向

表３は、近年のマラウイ国の農業生産の動向を示したものである。農業生産指数（全品目）は1995年の109.0から96年117.1、97年111.4、98年117.1、そして99年128.3と一路上昇とはいかないまでも、着実な上昇を看取することができる。また、食糧生産指数は同じく105.0から111.9、100.8、116.0、131.4と事情はほぼ同じである。ただし、1998年から99年にかけての上昇は15.4ポイントと農業生産指数（全品目）の11.2ポイントを大きく上回っている点は注目される。

現政権による、この間の「種子・肥料を無料配布して」のメイズ（インディアン・コーン）の生産振興やJICA支援等による灌漑施設を配しての水田振興などが、それに大きく寄与してきただろうことは容易に想像されよう。事実、メイズを中心とする穀物生産高は1990年の141万トンから95年には178万トン、そして99年には266万トンへと増大しているのである。また、JICAマラウイ事務所によれば2002年の生産高はメイズ300万トン、米30～40万トンとされるから、生産量増大のテンポは一層加速してきていると言える。

表３　マラウイ国の農業生産の動向

年		1990	1995	1996	1997	1998	1999
農業生産指数	（全品目）	－	109.0	117.1	111.4	117.1	128.3
	（食　糧）	－	105.0	111.9	100.8	116.0	131.4
穀類生産高	（千㌧トン）	1413	1778	1943	1349	1860	2655
油脂作物（油脂換算千㌧トン）		16	22	29	29	42	42

注：指数欄は1989－91＝100とした指数である。
資料：国際連合統計局編、原書房編集部訳「平成14年日本語版国際連合世界統計年鑑1998」、原書房、2002年。

穀物生産の傾向的増大に較べ、家畜飼養は、羊類が1992年の108.2万頭から1999年には140.5万頭に伸びているのを除けば、牛類は同期間に96.7万頭から83.0万頭、豚は23.8万頭から25.0万頭と変動が激しく、概して停滞的と言える（表４）。ただし、マラウイ国の場合には、統計調査の精度が大きな問題であり、穀類に較べ特に家畜の場合にはそう言えそうである。確固とした農業発展戦略・政策を樹立しようとする際、それなりの精度の統計調査が必要不可欠とされることを勘案すれば、統計調査の設計・施行・集計・分析などの手法取得に対する諸支援も重要なことかも知れない。

表４　マラウイ国の家畜飼養の動向　（単位：千頭）

年	1992	1993	1994	1995	1996	1997	1998	1999
牛類	967	800	680	690	700	750	800	830
羊類	1,082	1,000	1,100	1,200	1,358	1,370	1,390	1,405
豚	238	240	245	247	220	230	240	250

注：牛類とは Cattle and Buffaloes、羊類とは Sheep and Goats である。
資料：表３に同じ。

⑵　政府の農業振興組織と活動状況

マラウイ国の農業振興・政策の推進を担うのは「農業水利省」である。首都 Lilongwe にある農業水利省の地方出先機関として ADD（Agricultural Development Division、「農業開発局」）が、Lilongwe を始め Mzuzu、Blantyre など全国８ヶ所に置かれている。各 ADD は更に地域に事務所を置き、農業技術指導や農民の組織化などに当たっている。

Lilongwe ADD は最大の ADD であり、地域固定の３つのプロジェクト、５つの農業開発プロジェクトを担っている。同 ADD は Lilongwe、Dedza、Ntcheu の各行政区に事務所を置き、また６つの「農業改良普及所」的な支所を持っている。各支所では EPAs（Extension Planning Areas、「普及計画区域」）を定め（Lilongwe ADD で36区域）、Lilongwe 事務所で358名、Dedza 事務所で156名、Ntcheu 事務所で82名の AEDO（Agricultural Ex-

tension Development Officer、「農業普及開発官」)を配置している。AEDO は日々、農民に接し、農業技術普及や農民の組織化などに当たっているのである。今日、Lilongwe ADD で推進している作目は、耕種作物でメイズ、ピーナッツ、タバコ、キャッサバ、タピオカ、ポテト、各種野菜、マンゴー・柑橘類などの果樹類などであり、家畜では肉牛、乳牛、羊、山羊、豚、兎、鶏、ホロホロ鳥などとされる。

しかし、普及活動が順風満帆にいっているわけではない。

まず、何よりもの問題は農民の階層間格差が余りにも大きなことである。機械化を押し進める1000ha 以上層や労務者を雇用する10ha 以上層が存在する反面、農民の86％は0.4ha 前後とる零細規模に止まっていることである。零細規模層は識字率も極めて低く、文書での普及活動は絶望に近い。また、担保力がないため信用力も低く、肥料などの生産資材購入のための資金の借入も容易ではない。ために、生産技術水準は至って低いままに止まっているのである。

二つは、支所の持つ物的諸手段の圧倒的不足である。多数の農民が文字を読めない中で、写真などビジュアル的な伝達手段が威力を発揮するはずであるにも拘わらず、カメラは一台しか配置されていない。また、日本では容易に想像できないほどの「悪路」(我々が訪れたのが雨期だったせいもあってか、主要道路でも「グチャグチャ」で、四輪駆動の車でやっと通行できるか否かと言った状態) にも拘わらず、AEDO の移動手段として用意されているのは自転車だけであり、オートバイや車は配置されていない。おそらく、自転車で移動できるのはごく狭い範囲に限られ、それだけ、普及エリアは狭い範囲に限られざるを得ないと考えられるのである。

三つは AEDO の数の少なさである。地区の農民数を AEDO 数で割返すと AEDO 一人当たり1,900人にも登るとされる。これでは目の行き届いた指導は望むべくもない。また、スタッフ不足のせいもあってか、AEDO の研修機会も限られ、ために急速に進歩する農業技術についていくことが出来ない状況とされる。

四つは、上のこととも関連するが、マラウイ国では1997年に主要農産物取引きの自由化、すなわち「市場化」が実施されたが、農産物のマーケティングに精通したスタッフが皆無に近いことである。1997年以前、政府による価格調整 (ADMAK) が実施されており、取り敢えず普及活動も技術的な側面に限って良く、マーケティングに精通したスタッフがいなくても特段、支障はなかった。しかし、今ではそうはいかず、マーケティングに精通したスタッフがいないために、農民に市場情報が伝わらず、仲買人の専横を許す結果になっていると言われる。

最後に、女性の AEDO の少なさを指摘しておきたい。皆無ではないにしても、今、進めようとしている女性のグループ化と活動の活性化に較べて、それを指導する女性 AEDO

の数は至って少ない。女性 AEDO の養成が望まれるところである。

3）農民の諸組織及び活動の実態

Lilongwe ADD のエリアには15程度の農民グループが存在すると言われる。われわれは、その中の Nathenje Cassava farmer's group と Nathenje Milk Bulking group、Khamalipindula Vegetable Production group、Mrs Trindad の果樹園及び Mugesi Vegetable group を訪れ、意見交換を行った。

⑴ Nathenje Cassava farmer's group

Nathenje 地区には17,343ha の耕地があり、25,900戸の農家がある。平均耕地面積は0.75 ha ほどで、メイズを主作物に豆類、タバコ、サトウキビ、サツマイモ、野菜、果樹、香辛料、ミレット、そしてキャッサバが生産されている。キャッサバ生産の歴史はそう古くはなく、現金収入を得るため、あるいは自給食糧として導入された。地区のキャッサバ作付面積は1,822ha、作付戸数は5,977戸とされるから、耕地の10.5%、農家の23.8%に相当し、一戸当たりの平均作付面積は0.3ha ほどとなる。苗（マンニューコーラ種）は主に現地調達され、一部農業水利省、グンダー農科大学や南アフリカ共和国の NGO サーネットからも入手している。収穫期は乾期末期から雨期初期の９－12月で、ha 当たり収量は６－７トンとされる。

面談した Nathenje 地区のバナミ村の生産クラブでのキャッサバ生産はメンバーの一人がブング・カレッジからキャッサバの切り株を入手し、農民に分けたことに始まる。キャッサバ導入以前、バナミではタバコを生産していたが、タバコは手間がかかる割には収益は少なかった。また、直接、食糧にすることも適わなかった。早速、キャッサバを試作したところ、タバコに較べ手間もかからず、収益も上々であった。また、直接、食糧に供することも可能であった。メリットを実感した同村では以降、キャッサバ生産が大きく増大し、Lilongwe ADD の勧めもあり生産クラブも結成されていくのである。しかし、問題がないわけではない。最大の問題は、販売が個人に任されており、しかも商人の買取価格が１本５－10Kwcha、エーカー当たり1.5万－２万 Kwacha と安いことである。苗が40本で50Kwacha、１本当たり1.2Kwacha ほどとされるから、肥料などの生産資材や投下労力を考えれば、タバコよりは良くても決して高い買値と言うわけにはいくまい。共同販売組織やあるいは農業協同組合のような組織の結成が望まれるところである。

また、キャッサバ生産は同村の食糧消費を豊かにしたようである。ADD が設置する「料理研修所」で同村の婦人が収得してきたキャッサバ料理は10数に登り、村民にも次第に浸透していっている様子であった。中には、商品化を目指しても良いようなものもあっ

たが、運転資金（キャッサバ以外の、例えば肉類、乳製品・砂糖類などの原材料購入のための）不足で自家用生産に止まっているとのことである。低利あるいは無利子の少額資金貸付制度（インドで試みられているような）が創られれば、農村部から農民による農産物加工業が徐々にであれ育っていく可能性も高いと言えるかも知れない。

⑵ Nathenje Milk Bulking group

Nathenje Milk Bulking group は1984年、地区では先頭を切って出来たグループで、20家族からなり、143頭の乳牛を飼養している。うち７戸の乳牛が現在、乾乳期に当たり、残り13家族がクーリング・センターに生乳を搬入している。搬入された生乳は MDI（マラウイ酪農工業）に販売される。餌にはメイズの残り滓や牧草を使用し、種付けは一部人工授精も行われているものの、代金が高いこともあって、自然交配が主流となっている。そのせいもあってか、一日当たりの乳量は3.5リットルほどで、搾乳期を７ヶ月としても735kg ほどと極めて低い。しかし、13年ほど搾乳が可能とされている点は、いわゆる「動物福祉」と関連して興味深い。

ここでも未だ多くの問題を抱えている。その一つは、多くの農家が生乳の一部しかクーリング・センターに搬入せず、残りを自ら販売してしまうことである。そこには、MDI の購入価格が17Kwacha と安いことが大いに関係していよう。農民組織はあるにはあるものの、未だ十分に機能せず、共同販売パワーも発揮されていないせいかも知れない。

二つは牧草の管理技術が低く、発芽率が悪く、高価な牧草種子も無駄になる割合が高いことである。三つは農民の保存・加工技術習得が至って低いレベルにあることである。技術向上のためのプロジェクト・諸支援が望まれるのである。

⑶ Khamalipindula Vegetable Production group

Khamalipindula Vegetable Production group は男性６名、女性16名からなるキャベツ栽培グループである。キャベツ栽培は天水を利用でき、資金もかからず、労力も少なくて済む雨期に行われている。乾期には低湿地帯で各種の野菜栽培を行っている。ゾーン毎に播種時期をずらし、長期継続的な出荷を目指している。また、1999年から果樹との混作を試み、同一圃場で雨期・乾期を通した通年栽培の可能性にもチャレンジしている。販売先探しはグループの役員が担当し、価格及び数量を相手方と交渉する。価格交渉は肥料・農薬や労力など投入部分を頭に描きながら行っているが、一応の目安はキャベツ１個当たり10Kwacha とされる。現在のところ、大口の取引先は首都 Lilongwe のセブン・イレブンであり、その他にも地方の市場にも出荷していると言われる。

⑷ Mrs Trindad の果樹園

Mrs Trindad はマンゴー、桃などの果樹園を経営する女性である。同地区には1,337名の組合員を擁する農民組合があるが、うち1,100名ほどは女性の組合員と言われる。彼女が果樹に手を染めだしたのは1995年のことであるが、初めてのこととて大いに苦労したと言う。特に、同地区は雨期には水浸しになるところで、排水には特に苦労したとされる。また、逆に乾期の水不足対策も大変で、足踏みポンプの導入で乗り切ってきたとされる。果樹の販売先は生産量が少ないせいもあって、今のところ近隣となっていると言われる。

⑸ Mugesi Vegetable group

Mugesi Vegetable group は JICA の「ロビ適性園芸技術普及プロジェクト」(1998年11月１日～2003年10月31日）に関連したグループである。同プロジェクトは上位目標に「ロビ地区の農民の現金収入が増加する」ことを、目標に「ロビ地区における持続的な適性園芸作物生産量が増加する」ことを掲げ、「マラウイ側で実施可能な農法の発掘・形成及び普及」「農民が持続可能な適性技術の発掘及び普及」「地域社会のエンパワーメントを目的とした参加型村落開発アプローチの促進」の３点を実施方針に掲げている。このプロジェクトの準備段階の諸活動とも関連して14（組合員200名）の野菜栽培グループが結成され、ロビ農民園芸組織も結成された。本格的なプロジェクトの開始もあって、現在ではグループ数は66、組合員数は1,137名にも達しているのである。

さて、意見交換の中で出された意見・要望・問題点などを列記しておけば、以下の通りである。

［現地農民から］

⑴ 資金不足によって、投入財や農薬スプレーなどの機械器具が購入できない。

⑵ 貯蔵施設不足によって、有利販売が実現できない。

⑶ 加工技術の不足。

⑷ マーケティング力や運搬手段不足によって、仲買人の買いたたきに合い易い（キャベツの価格は一個10Kwacha ほどと、この10年ほとんど上がっていない)。

⑸ 日本のプロジェクトが間もなく終了するが、終了後のことが心配である。

［現地スタッフから］

⑴ マージンや収益に関する農民の知識が不足している。

⑹ 現在進行中のプロジェクトにはマーケティングに関する要素が不足している。

⑵ 農民同士の研修・交流の場・機会が少ない。

［青年海外協力隊隊員から］

１）農民組合の運営手法などの向上が必要である。

2）何が売れるか分からないので、雑多作になる傾向が強い。

3）有機肥料を駆使する技術開発が必要である。

4）農民の現金手持ちが余りにも少ないために、「日銭稼ぎ」に出てしまい、農作業に手抜きが生じている。

5）新規作物などに関する情報収集が必要である（情報不足のために、生産される野菜の種類が少なくなっている）。

いずれも、もっともな意見等である。資金やマーケティング知識、あるいは加工技術など、どちらかと言えば「ソフト」的な面に深く関連するものが目立つと言える。プロジェクト終了後の「ソフト」的なアフターケアが特に重要と言えそうである。

4）農村部における女性の位置づけ・役割について

マラウイの中でも、訪れたリロングェ地区は、主に母系家族とのことで、女性が家族を養うという意識が強く、男性は、狩猟が中心だったこともあってか、農耕的な営みは、女性が担ってきたようである。

その事は、農耕を中心とする現在においてもあまり変わっていない様で、女性が主体となり農業が営まれている。

つまり、女性は、農業労働と家事労働の両面を担い、家族の長としての役割を果たしている。

家事労働について母親は、男子のみの子供であれば、炊事、洗濯など家事の手伝いをさせるが、その後、女子が生まれ、家事の手伝いをするようになると、それまで手伝わせていた男子には、家事を手伝わせなくなるとのことで、結婚後も同様、夫はあまり家事を手伝わないようである。

長い歴史の中で培われた慣習は大きく、また、女性がそのことに疑問を持っているかは尋ねることはできなかったが、男性が協力することで、女性の労働負担を軽減し、なおかつ効率のよい家庭生活や農業経営ができると感じられた。

この事は、男性の意識改革もさる事ながら、女性自身の意識改革が重要と考える。

家事労働のみならず、農作業についても同様で、主食のメイズ栽培については、男性も働くとのことだったが、野菜の栽培は、もっぱら女性が主体的に関わっており、グループ活動の構成員（グループ員数1337名・内1158名が女性・約86％）からみてもそのことがうかがえる。

視察先のキャッサバグループにおいては、生産に加え、調理、加工法の研究が、ADD の指導のもと行われており、メイズ主体の食生活から調理加工の用途が広いキャッサバへの関心の高さが伺えた。今後は、資金的な面など課題は大きいと思われるが、生産に留まらずに

調理加工品の販売も手がけ、より付加価値の高いものにしたいとのことであった。

また、メイズなどの作物栽培に加え、1995年より桃、マンゴーなども栽培する Mrs. Trindad は、元々お父さんが栽培していた果樹に目を向け、食生活を豊かにし、長期に渡り現金収入が得られると後継者と共に励んでいた。

彼女は、すでにお孫さんもいるが、英語もでき、先進地に出かけ学ぶなどとても意欲的な方で、マラウイの女性の強さとしたたかさが感じられた。

個々の家庭にあっては、女性が家長としての役割を担っているとは言え、視察先である野菜栽培グループ（22名うち女性16名）をみても会の中心は男性であり、地域においても同様の位置付けと感じられた。

5）研修の必要性

これらのテーマについて説明する前に、現状におけるマラウイ国農業セクターの全貌を明らかにした後に当該分野における開発・研修の必要性を確認することとする。

マラウイ国中央政府における農業セクターの問題点・戦略を明らかにする資料としてマラウイ農業水利省より発行された Review of Malawi Agricultural Policies and Strategies（1999年11月刊行）が存在し、同報告書では、農業分野の各セクターにかかる問題点が抽出されると共に、将来的な開発計画・政策が明記されており、今後のマラウイ国における同セクターの方向性を確認する上で信頼のおける情報源として活用できると考えられる。

本報告書の内で、サブセクター（農作物生産）にかかる開発計画・政策の序文として次のとおり記載されている。

Crop production is a key sub－sector in the national economy in terms of its contribution to food security and external trade. The main staple food for the population is maize and is grown on80％of the arable land. Tobacco, tea and sugar exports contribute about 90％of foreign exchange earnings. The crops sub－sector has unique characteristics which influence performance

これらの文章からマラウイ政府において、農作物の生産は国家経済の重要な位置を形成するとともに、多様な作物を生産することによる外貨獲得の重要性を述べた一節であり、国家政策として、メイズ（マラウイにおける主食）のみの生産力向上を図ったこれまでの政策を否定するとも取れるのではないかと考えられる。

また、同サブセクターにおける問題点として、1）肥料不足、2）種子不足、3）殺虫剤の不足、4）地方における貧困、5）低い技術の適用が挙げられ、これらの問題を改善すべく、2020年までの中期開発戦略が策定されている。

（資料1を参照のこと）

また、畜産分野の現状に関しては、同報告書において６つの主な問題点を１）家畜品種の生産量、適切な繁殖技術の改良またはそれに至るアクセスの欠落、２）家畜に纏わる病気・寄生虫の存在及び生産力の減少、３）家畜泥棒、４）家畜マーケットの閉鎖（有効ではない又は機能しない)、５）手作業の繁殖にかかるコストの問題、６）低い畜産学・繁殖技術等と提示し、それらを解決すべく開発戦略が以下のとおり唱えられている。

（資料２を参照のこと）

これら状況から農業水利省はマラウイ国が抱く総合的な農業セクターの問題点として以下の８項目を提示している。

a）Lack of/inadequate capital

b）Capacity building

c）Poor marketing

d）Unreliable water supplies

e）Lack of National Policy on irrigation

f）Lack of coordination between the Department of Irrigation and other departments within the Ministry of Agriculture and Irrigation, and between the Department of Irrigation and link ministries, the private sector and the NGO community

g）Absence of linkage between irrigation development and livestock production

h）Fragmented approach to development

また、上の問題点を解決するための戦略として以下の４項目を掲げている。

a）Formation of an agricultural bank ;

b）Offer credit packages for the development of irrigated agriculture by financial institutions ;

c）Develop irrigation schemes through food for work programs and other cost sharing mechanisms ; and

d）Form and empower farmers associations to have access to low cost capital.

一方、マラウイにおける国家開発計画・戦略とは別に、現地マラウイ国においてJOCV事業を中心に活動するJICAマラウイ事務所においては、今後の援助の方向性を定めるべく援助重点分野の一つとして食糧安全保障を位置付け、その内、開発課題として食用作物生産向上を挙げ、急務な課題と考えられる食糧不足緩和のための対策を協力プロジェクトにおいて講じる予定である。

これらの背景から、マラウイに対する同分野の協力（研修員受入れ）は政策的に妥当な判断であると思われると共に今後の同国農業セクターに十分寄与するものと思われる。

また、本調査期間に中央政府（農業水利省)、リロングェADD及びロビ地区ADDにて

協議を行い、先方政府関係者よりマラウイ国内農業セクターの問題点について説明と共に本件研修参加に係る強い意志表明し、多くの研修員を受入れて欲しい旨要求が為された。

6）研修項目の抽出

⑴ 必要と考えられる研修項目

マラウイ国においての農業事情は上記のとおりであり、総合的な農業全般にかかる研修・実習が必要と思われる。

また、当方が実施する予定の集団研修は農業を通じた村落開発・振興を如何に実施・推進するかを体系的に確認することが研修の目的である。この研修でよい成果を上げ、参加国に円滑な技術の移転を行い、好影響を及ぼすためには、研修員に農業分野の基礎的な素養があること、及び住民（農業従事者）が開発に意欲的であることが前提条件として考えられる。

これらを照らし合わせた際に、マラウイ国において研修で必要とされる項目は多数確認され、特に農協組織の成り立ち・経営手法は今後の同分野における開発に大きく寄与するものと思われる。

現地調査時に実施したインタビューにおいて、農村振興・農業開発を実施する際の問題点と考えられる項目を以下のとおり確認することができた。

・同国における作付け品種が偏り（メイズが中心)、商品作物の流通を活性化できない。（農業水利省）
・酪農分野が弱く、乳製品が確保できない。(農業水利省)
・小規模農家（0.4Ha 以下）が多く、約85%が自給自足の生活を強いられ、生産技術レベルが低い。(リロングェ ADD)
・農村振興を実施する組織が少ない。(リロングェ ADD)
・農具・資材を手に入れることが困難である。(小規模農家に対する貸付制度がなく、資金調達が困難である。)(リロングェ ADD)
・農作物の買い取り価格が非常に低い。(リロングェ ADD)
・農場における牧草の管理ができない。(ロビ ADD)
・市場のニーズが把握できない。(ロビ ADD)
・肥料・農薬及び農具の購入が困難である。(ロビ ADD)
・市場経済分野の調査が十分に実施されていない。(ロビ ADD)
・食糧保管倉庫の維持管理ができない。(ロビ ADD)
・農作物における需要と供給のバランスを予測することができない。(ロビ ADD)
・加工技術がなく、高価格の商品として販売することができない。(ロビ ADD)

同様に、現地農業普及員が各村落における普及活動の際に抱く問題点として、以下の項目の意見を聴取した。

・農村部において、農業従事者で読み書きができるものが少なく、資料配付等の文字による技術移転が困難である。
・普及員の絶対数が不足しており、一人あたりが担当する村落が多く（現在リロングェADD内で普及員が300人程度で一人あたり700？900世帯を担当している。）、円滑な技術移転が困難である。
・各村落までのアクセスが悪く、円滑なる技術移転が困難であると同時に新たな技術を習得する時間が不足している。

これらの現状からマラウイ国から参加する研修員が必要とする研修項目としては以下のものが考えられる。

・北海道農業の歴史
・農業協同組合組織
・生産から流通までの過程または流れ
・農家向け金融システム
・農村部における女性の役割
・地域振興事例の確認　等

⑵ 不必要と考えられる研修項目

マラウイの農業分野における現時点での開発・発展レベルから見て、先進的な環境循環システムの構築・２次産業の育成に関する研修の導入は時期尚早と思われ、農村振興の基礎となる上述の６項目（北海道農業の歴史、農業協同組合組織、生産から流通までの課程または流れ、農家向け金融システム、農村部における女性の役割、地域振興事例の確認等）を中心に研修を実施することが望ましいと思料する。

また、マラウイ国内では農作物生産過程において農業機械が活用される可能性が少なく、概ね手作業で実施されていることから、農業機械に関する計画論等の講義の必要性は薄いと思われる。

果樹、野菜栽培技術については、日本とマラウイとで気候条件に差があることから一般的な技術の紹介にとどめることが望ましいと考えられる。

7）帰国研修員へのインタビュー結果

本研修参加者であるMs.MGOMEZULU Mzondwase Agnes（農業省リロングウェ農業開発区農業普及担当主任）に研修内容につき質問したところ、以下のとおり問題点・改善点の

意見がなされた。

・研修期間が短く、現地視察を実施するための移動の時間を多く必要とすることから、疲労が蓄積した。特に、マラウイから長時間のフライトの後に研修が実施されたことより休む暇がなかったとのこと。

・現場視察（特に農家視察）の際に講師ないしは受入機関で時間の関係からゆっくりと質問する間もなく、立ち去るケースがあり、じっくりと質問するための時間が必要と思われたこと。

等が、今後の改善点としてコメントがあった。

8）研修実施効果・影響

ここまでの項目で確認したとおり、マラウイ国において農業セクターは国内における生活の機軸*であり、今後の経済発展に大きく寄与することが期待されること、ロビ地区においては一部組織化を活性化させることで地域の発展に寄与しているが、マラウイ国全体として農業分野は基幹産業であるにもかかわらず、農業水利省により主体的に将来的な展望・計画が立てられていない現状からも、マラウイ政府が現状を真摯に受け止め、農業生産性向上技術の改善に立ち向かう必要があり、農業水利省が中心となりこれらの課題に貢献・寄与することが急務の課題と考えられる。

農業生産技術力の向上のみならず、未だ組織化（特に、営農形態の改善、融資制度の確立、農具の流通等を活性化させるための組織化）が十分になされていないことから本研修を受講することによる効果・影響は大きく、普及活動の中でも日本の農協制度、家畜の検査制度等、参考に改善すべきところが多く、同分野の発展にも大きく寄与することが考えられる。

*1991年時点でのマラウイ国内における部門別国内総生産比では、農業分野が34.4％（国際協力事業団「マラウイ国人口・家族計画基礎調査報告書：平成３年」）とあり、労働人口比で見れば約７割近い人口が農業に従事している。

Ⅱ　インドネシア

1）インドネシアの概況と農業の位置づけ

インドネシアは北緯６～11度、東経96～141度に及ぶ、13,700の島々（住民のいる島は約6,000）からなる世界最大の「島国家」である。平均気温は27℃ほどで、乾期（４月～９月）と雨期（10月～３月）とに分かれる熱帯雨林気候に属する地域が多い。ジャワ人、スンダ人、バリ人など100を超える民族が住むとされる典型的な他民族国家で、人口２億人強を擁する巨大国家である。主要宗教はイスラム教であり、官公庁にもモスクが配置されている場合も多い。また、公用語はインドネシア語であり、英語は中央官庁など一部を除いて通用しない場合が多い。

近年、地方分権が押し進められており、地方政府の力量強化、住民の参加意識高揚が図られているところである。

表５は、最近の就業人口構成を示したものである。1999年の就業人口は8,882万人で人口の43.6％を占め、うち農林水産業が3,838万人と43.2％を占め最大で、以下、商業・ホテル・レストランの1,752万人（19.7％）、公務員の1,223万人（13.8％）、製造業の1,152万人（13.0％）、その他の917万人（10.3％）の順となっている。人口に較べての就業人口率の低さは気になるところである。それが1990年代後半の「経済危機」に基づく失業者の増大によるものか、あるいは統計調査の不備などによるものか。同表の限りでは判然としないが、過半を切ると言う就業人口率の低さには多分に後者の要因が大きく影響しているのではないかと推察される。

表５　インドネシアの就業人口（単位：万人）

年	1997年	1999年
農林水産業	3,585（42.2）	3,838（43.2）
製造業	1,121（12.9）	1,152（13.0）
商業など	1,722（19.8）	1,752（19.7）
公務員	1,264（14.5）	1,223（13.8）
その他	1,013（11.6）	917（10.3）
計	8,705	8,882

注：１）（　）内は構成比で、単位は％である。
　　２）商業などは商業・ホテル・レストランの略である。
資料：「インドネシア共和国セクター・イッシュー別基礎資料」、JICA インドネシア事務所、2001年。

1997－1999年の変化で見れば、公務員、その他の就業人口が減少し、農林水産業、製造業、商業・ホテル・レストランのそれは増加している。中でも農林水産業では253万人も増加し、

全就業人口の増加（177万人）を上回っている点は刮目に値しよう。それが、「経済危機」に起因する製造業や商業・ホテル・レストランなどの不振に基づく「帰農」「帰第一次産業」現象の結果を示すものか、あるいはこの間の農林水産業開発・振興などに基づく失業者などの農林水産就業への就業によるものか、この限りでは判然としない。しかし、我々の現地踏査の結果によれば、1）JICA などによる各種支援の結果、農業などの生産性が大きく上昇し、「就業人口吸収力」あるいは「人口扶養力」が大きく高まってきていること、2）海岸線地帯を中心に「エビ等の養殖業」が隆盛を極めてきているように感じられたこと、などからすれば後者の要因が大きく作用していることだけは間違いなさそうである。

ともあれ、インドネシアを巡る現下の経済的情勢からすれば、急激な製造業や商業・観光業などの発展はそれ程期待出来ず、ここ暫くは農業を始めとした第一次産業の振興が、就業人口吸収・増大の鍵、引いては経済発展の鍵を握ってくると言えそうである。

それは、インドネシア国内総生産を示した表6からも裏付けられる。同表によれば1999年のインドネシアの国内総生産は1,107兆 Rupia に達している。うち、その他を除いて最大の比率を占めるのは製造業の25.8%、285兆 Rupia で、以下農林水産業の19.4%（215兆 Rupia）、商業・ホテル・レストランの16.54%（183兆 Rupia）、公務・国防の5.1%（57兆 Rupia）の順となっている。これを1997－1999年の変化で見れば、確かに製造業や商業・ホテル・レストランも大きく伸ばしているとは言え、農林水産業の114兆 Rupia、113%増には大きく及ばない。農業を始めとした第一次産業が当面のインドネシア経済の牽引車の役割を果たしていくと考えられよう。

表６　インドネシアの国内総生産　（兆 Rupia）

	1997年	1999年
農林水産業	101（16.1）	215（19.4）
食用作物	52（ 8.3）	113（10.2）
非食用作物	16（ 2.6）	38（ 3.4）
畜産	12（ 1.9）	21（ 1.9）
林業	10（ 1.6）	17（ 1.6）
漁業	11（ 1.7）	25（ 2.3）
製造業	168（26.8）	286（25.8）
商業など	100（15.9）	183（16.5）
公務・国防	32（ 5.1）	57（ 5.1）
その他	227（36.1）	367（33.1）
計	628	1,107

注：１）（　）内は構成比で、単位は％である。
２）食用作物から漁業までは農林水産業の内数である。
３）商業などは商業・ホテル・レストランの略である。
４）ラウンドの関係で各項の合計が計欄の数値と合致しない場合もある。

資料：「インドネシア共和国セクター・イッシュー別基礎資料」、JICA インドネシア事務所、2001年。

２）インドネシア農業の概況

⑴　農用地の利用状況と農業生産の動向

インドネシアの農用地面積は1998年で4,216万 ha で、うち耕地が1,794万 ha で42.6％を占め、次いで果樹などの永年作物地の1,305万 ha、永年牧草地の1,118万 ha となっている（表７）。1970年のそれは、それぞれ1,800万 ha、800万 ha、1,240万 ha の計3,840万 ha であったから、この間農用地面積で376万 ha（9.8％）増え、耕地で６万 ha 減じ、永年作物地で505万 ha（63.1％）増え、永年牧草地で122万 ha（9.8％）減じた勘定になる。

同表は農用地面積が1990年まで大きく増大し、以降減少に転じたことを示している。減少を担ったのは耕地と永年牧草地で、1990－1998年の間に、前者で231万 ha（1990年対比11.4％）、後者で193万 ha（同14.7％）も減少している。また、永年作物地が1980年代後半以降、急増している点は注目されよう。もう少し詳細な統計を見なければ何とも言えないが、耕地の減少・永年作物地の増大がガット・ウルグアイラウンド交渉、農産物貿易の「自由化」の進行とほぼ並行している点は刮目しておいても良い。多分に、国際競争力に乏しいと目される雑多な作目が次第に姿を消し、国際競争力に優れると目される作目に生産が集中してきたことを、それは物語っているのではないかと推察されるからである。事実、同表は米、トウモロコシなどに生産が集中し、また表８は果実の生産が大きく増大し

てきたことを示しているのである。特定の作目への生産集中と言う意味で、農産物貿易の「自由化」は農業「モノカルチャー」化を押し進める起爆剤になるとも評せよう。

表７　インドネシアの農用地利用の推移　（単位：万 ha）

	1970	1980	1985	1990	1995	1998
農用地面積	3,840	3,800	3,935	4,508	4,198	4,216
うち耕地	1,800	1,800	1,950	2,025	1,713	1,794
作物地	800	800	800	1,172	1,305	1,305
牧草地	1,240	1,200	1,185	1,311	1,180	1,118
穀物収穫面積	1,107	1,174	1,234	1,366	1,509	1,555
うち米	814	901	990	1,050	1,144	1,172
トウモロコシ	294	273	244	316	365	383

注：作物地・牧草地は永年作物地・永年牧草地の略である。
資料：「インドネシアの農業」、1991年。なお、同資料は日本貿易振興会が農水省国際部国際調整課貿易・情報室の委託を受けて作成したものであり、原資料は FAO 統計である。

表８　インドネシアの農産物生産の推移　（単位：万ﾄﾝ）

	1970	1980	1985	1990	1995	1998
穀物	2,216	3,364	4,336	5,191	5,799	6,007
米	1,933	2,965	3,903	4,518	4,974	5,087
トウモロコシ	283	399	433	673	825	920
野菜	218	247	324	439	564	571
果実	358	427	483	576	933	776
牛乳	5	8	19	33	43	38

注：米は籾ベースである。
資料：表７に同じ。

また、表８で、野菜生産が1980年代後半以降大きく増大し、1998年には571万トンに達している点、未だ少量とは言え牛乳生産も1980年の８万トンから40万トン前後に達している点は注目される。

⑵　農業生産の担い手の状況

さて、これら農業生産の担い手は、一方では膨大な零細規模農家と他方では主に輸出用農産物を生産する大規模な公社等の大規模農園（エステート農業）の二極に大きく分化している。1997年の土地調査によれば、エステート農業地は全農用地面積の25％に及ぶとされ、インドネシア農業の展開に大きな影響力を持っている（「インドネシア共和国セクター

・イッシュー別基礎資料」第２巻、308頁、JICA インドネシア事務所、2001年)。それを除く、農家の耕地規模別構成を「インドネシア共和国セクター・イッシュー別基礎資料」第２巻から拾ったのが表９である。数値が1983年センサスのものであり、いささか古めかしい感もないではないが、以降、人口圧などによる耕地の零細化が進んだ以外、大きな構造変動が見られないとされることからすれば、大凡の傾向を見るには大過あるまい。

同表によれば、１ha 未満層は992万戸に達し、全体の62.4％を占めている。反対に２－４ha 未満層は167万戸、４ha 以上層は61万戸に過ぎず、比率も10.5％、3.8％を占めるにしか過ぎない。しかし、経営面積では２－４ha 未満層が420万 ha、25.2％、４ha 以上層が406ha、24.3％を占め、１ha 未満層は436万 ha、26.1％しか占めていないのである。ともあれ、如何にインドネシアの農家の経営規模が小さいかが分かろう。これでは、余程の集約的作物を作らない限り、農業で自立するのは困難と見なければならない。以降、更なる零細化が進んでいると言われるから、ますます農業で自立することの困難性が増しているだろうこと、容易に想像されよう。

表９　耕地規模別農家数など（単位:千戸､千 ha）

	農家数	経営面積
－0.20	1,392（12.1）	262（ 1.6）
0.20－0.39	3,486（21.9）	980（ 5.9）
0.40－0.59	2,601（16.3）	1,263（ 7.6）
0.60－0.99	2,463（15.5）	1,852（11.1）
1.00－1.99	3,166（19.9）	4,071（24.4）
2.00－3.99	1,670（10.5）	4,200（25.2）
4.00－	609（ 3.8）	4,062（24.3）
計	15,924	16,689

注：（ ）内は構成比で、単位は％である。
資料：表７に同じ。

現地踏査で良く聞かれた「農民の自立心の弱さ」は案外、以上のようなところに原因があるのかも知れない。とすれば、農民が農業で曲がりなりにでも生計を立てられるようにする各種の支援－例えば、野菜・果実などの集約的作物の導入、生産性向上のための耕地整理、あるいは有利販売のためのマーケティング力の向上など－が、今必要とされていると言えるのではないだろうか。

3）地方分権化と農業振興諸組織

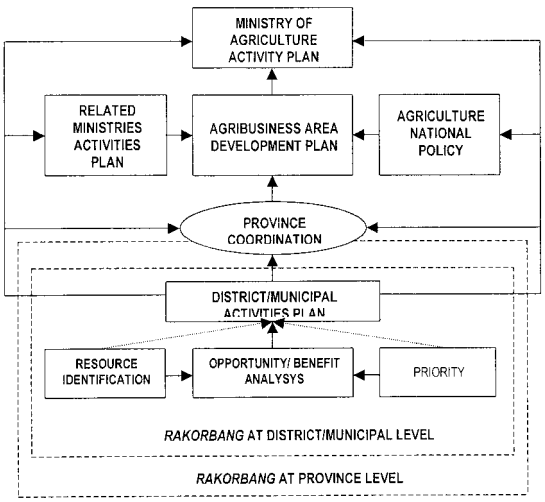
(1) 地方分権化に伴う農業行政のあり方の模索

この間、インドネシアでは地方分権化が進められてきたが、農業分野とて例外ではない。地方分権化が進められる以前、農業政策はいわば「上意下達」的で、中央省庁が基本計画を作成し、中央省庁の出先機関や地方政府はそれをただ実行するだけの機関にしか過ぎなかった。「普及員を始め、公務員が現地・フィールドに出ない」と多々指摘される弱点は、そんなところに起因していると言えよう。

図１は、今目指されている農業発展プラン樹立の姿を示したものである。県や郡など（もちろんその基礎として村などがあることは言うまでもない)、地方から積み上げ、全体のプランを作ると言う流れが描かれている。

図１　　農業発展プラン樹立のフロー図

Figure 2: Agricultural Development Planning Mechanism



Note: *Rakorbang* = Development Coordination Meeting

資料：インドネシア農業省「ARICULTURAL　DEVELOPMENT PROGRAM2001－2004」、58頁より引用。

如上の方針は今、実施に移されているが、これまでがこれまでなので、些か時間がかかりそうである。インドネシアに派遣されている JICA 専門家の話によれば、地方出先機関、地方政府を問わず、計画立案能力に乏しく、各種政策のレヴュー力にも乏しいとされる。また、これまで、各種研修は公務員が階梯を上がる際や中央の方針を徹底するためのものがほとんどで、思考力やリーダーシップ性を涵養するものではなかったと言われ、如何なるプログラムの研修を行うかを模索するのも、重要な課題とされる。その意味で地方行政官や普及員の政策立案力量の向上、リーダーシップの涵養などに関する諸教育に対する支援も重要な事柄と言えるかも知れない。

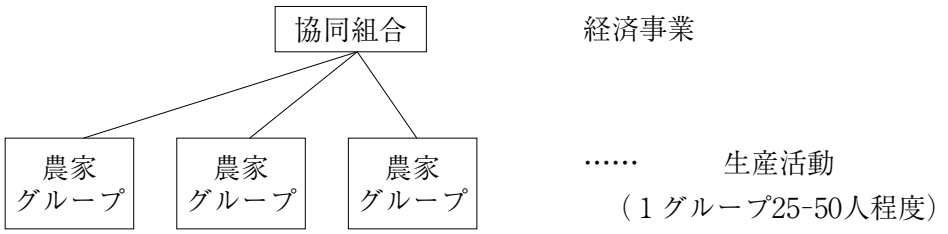
⑵ 農民諸組織の状況

現在、インドネシアの農村に存在する最有力の組織は協同組合とされる。協同組合は「協同組合法」に基づいて設立され、協同組合省が所管している。農業省所管でない事情は、等しく協同組合と称しても、イスラム教学校協同組合や手工業、テンペ豆腐、公務員、従業員、卸売市場、信用、陸運、住宅業を始め、陸軍・海軍・空軍協同組合など、多種多様の、あらゆると言っても良いほどの業種の協同組合があるからである。2000年時点で、活動している協同組合が88,930、活動停止中の組合が14,147あるとされ、組合員は2,738万人に達するとされる。

さて、農業・農村の関連する協同組合はスハルト政権時代、米の増産と選挙の際の「集票」を目指して郡単位にほとんどのところで設立されてきた。当時は、自由に設立することは出来なかったようである。しかし、地方分権化が進められる中で、協同組合の設立は自由となり、農業・農村関連の協同組合は大きく増加してきていると言われる。設立単位も今では郡単位ではなく、村落単位の協同組合（KUD、Kaperasi（協同組合）Unit（単位）Desa（村落））のものが増えているとされる。後に触れる Kieea 村の協同組合はその典型と言えよう。

我々の聞き取り調査によれば、先進的な協同組合では図２に示したような組織形態を取り、経済事業や生産諸活動を担っているとされる。とは言え、米販売においてさえ、商人が未だ優勢で、協同組合の取扱い率は40％程度とされる。協同組合の力量強化に向けて、１）リーダーシップの涵養、２）地域に適合的な組織のあり方の模索、３）販売・生産などに関する計画の樹立、４）必要な資金の調達、５）協同組合間協同の模索などが、今後の重要な課題と言われる。

図２　協同組合の組織図



４）農民の諸組織の実態と諸活動

我々はインドネシアで、スラウェシ島を中心に現地視察、関係機関・農民等との意見交換を行った。現地視察は Kendari 地区の Romameeto 村、Kieea 村、及び Makassar 地区 Tanabakangka 村の虹の会、Makassar 地区 Gowa 住民貯蓄銀行、Makassar 地区メロン栽培

グループで行った。

⑴ Romameeto 村

Romameeto 村は JICA の支援の灌漑事業などによって、水田面積が20ha 余から200ha 余に大きく拡大したところである。事業に伴って、ハンドトラクターや精米施設なども導入され、作業効率は大きく向上し、以前に増して「大規模作付」が可能となった。米単収は ha 当たり最大で 4 トン程度（モミ）で、政府価格はモミで kg 当たり1,700Rupia、精米で2,700Rupia とされる。単収 4 トンとして ha 当たり680万 Rupia 程度の粗生産額となる。それが、多いか、少ないか。以前の ha 当たり粗生産額を掴めていないので明確に断言することはできないが、農民や関係機関の言から判断すれば、粗生産額が大きく増大しただろうことは疑いない。

とは言え、担当普及員の言によれば、１）トラクターの導入当初、農民が使用方法を知らなかったために使えなかったこと、また、現在でも農民にメンテナンス力がなく、長期間の使用が出来ないこと、２）未だ田植えが手労働のため、その時期の労働力不足が深刻化していること、そのために田植えの遅れも見られ、収穫期の遅れ・収穫量の減少に結びついていること、などの問題点を抱えているとされる。50%の政府補助（50%は自己負担）の受けられる UPTA（農業機械サービス・ユニット）などを利用したメンテナンス力の向上や田植え・稲刈り時の機械化なども、今後検討していく必要があるのではなかろうか。

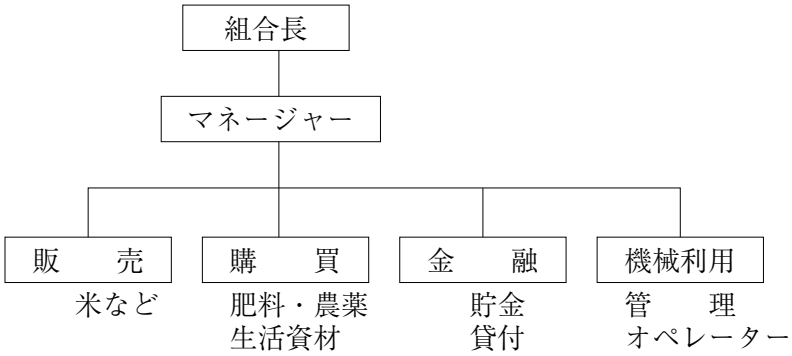
また、品種改良や病害虫防除体系の確立、更に乾期稲作のために水路から水を汲み上げるポンプアップ施設なども今後、改良・検討していくべき課題と言えるかも知れない。

⑵ Kieea 村

Kieea 村は JICA の支援によって水田化が実現するまで、焼畑を主にしていた。今では183ha もの水田が広がり、焼畑の面影はない。同村の水田開発は 4 つのダムを建設し、道路・水路を造ることから始まった。ハンドトラクター・精米施設の導入は Romameeto 村と同様であるが、オペレーターの育成やメンテナンス力の向上にも力が注がれてきた。また、肥料の使い方に関する実証展示圃も設置し、農民に使い方を伝授している。

ここでの特徴は農民の組織化計画が建てられ、実践されたことである。9 つの農民グループが作られ、必要に応じて農民グループが借用するストック資金（JICA 贈与）を管理してきた。その農民グループが基礎となり、1996年 4 月には販売・購買・金融・機械利用を兼営する協同組合が結成されているのである（図 1 参照）。

図３　Kieea 村の協同組合の組織図



協同組合への農民の出資金は加入時10,000Rupia と月々の積立金500Rupia で、もちろんそれは脱退時に返却される。農民の資金借入に当たっての利子は月３％、年36％であり、我々の感覚からすれば高利に感ずるが、現地の状況からすればむしろ低利と言えるかもしれない。また、販売事業は米を中心に農民からの買い取りで営まれており、その買取価格は幾分商人より高く設定しているとされる。機械のオペレーター７人を含め15名のスタッフを雇用し、生産・生活資材を中心とした店舗も設置している。収益金は40％を内部留保に、20％をスタッフの給与などに当て、残る40％を組合員に還元している。組合のメリットが浸透してか、組合員は設立時の20人から、今では68人に増大していると言われる。

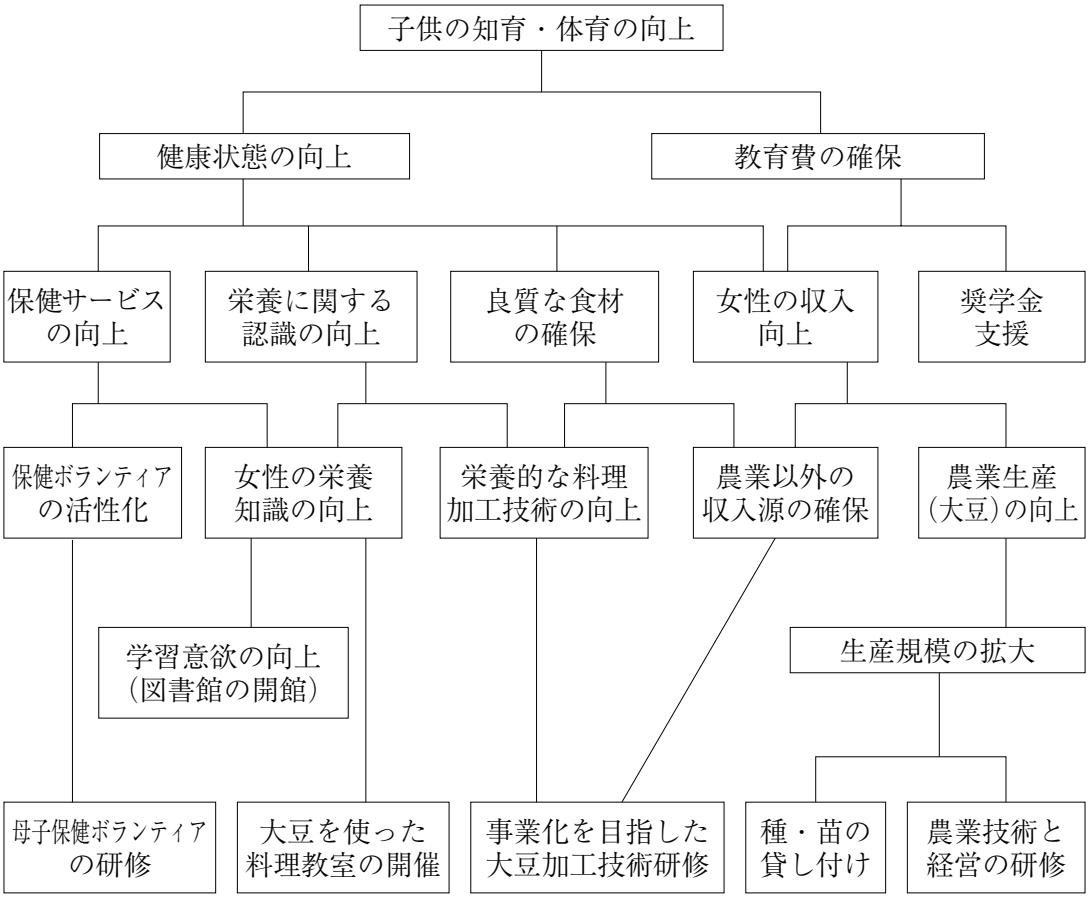
地域稲作の今後の更なる発展にとって、１）大きな貯蔵倉庫の設置、２）ハンドトラクターの増台、３）乾期稲作用の井戸水汲み上げ用のポンプの設置などが課題とされる。

⑶　Makassar 地区 Tanabakangka 村の「虹の会」

「虹の会」は1996年、アグネス・ランピセラ氏によって1996年に設立された組織である。その活動目的は「子供の知育・体育の向上」にあり、主に子供の栄養状態の改善とそのための母親教育に取り組んでいる（図２参照)。特に子供の蛋白質不足は深刻とされ、１）５歳以下の乳幼児・妊婦・授乳中の母親への豆乳の配給、２）高栄養価の料理教室の開催、３）大豆加工食品市場化へ向けての講習会、４）保健ボランティアの訓練などを重点的取組みとしている。

また、同時に女性をメンバーに家庭小物の制作会を開催したり、テンペ（Tempe）と言われる板状の大豆発酵食品を自給用に作ったりしている。大豆は普段、農民から購入し、不足時には商人からも買う場合もあるとされる。2001年には台所や図書館を持つ公民館も建設され、村人の交流や学習の場や地域発展の活動拠点になっている。虹の会の目指すものは農村部の女性を中心とした「生活改善」運動を通じて、地域社会・生活の向上を図ろうとするところにあると言えそうである。

図４　虹の会の目指すもの



資料：「虹の会」パンフレット。

⑷　Makassar 地区 Gowa 住民貯蓄銀行

Gowa 住民貯蓄銀行は、1998年から村長を努めるイスマエル・バーン氏によって４年程前に設立された。イスマエル・バーン氏は設立目的として、１）インドネシア銀行まで遠く、行くだけで１万 Rupia ほどの費用が必要とされるがそれを節約したい、２）クレジットを受けたい場合、気楽に出来るようにしたい、３）収穫時に全てを使ってしまうと言う住民意識を変え、計画的に使うようにしたい、の３点を上げている。現在貯蓄者は400名を上回り、クレジット利用者（貯蓄者でなければ利用できない）も400名ほどに登るとされる。貯蓄利子は当初月0.5%に設定したが、安過ぎるとの声に押され、月１%に引き上げている。クレジット利用者は農民、菓子製造を手がける婦人、レンガ職人などと多彩であり、借入の際「土地証書」を担保とし、利率月３%、返済期間は10ヶ月に設定している。借入申込みは１日当たり３～４件あるが、資金繰りの関係で全てには応じられない状況と言われる。余裕を持った資金繰りを実現するために利率0.6%の県のクレジット資金を5,000万 Rupia ほど借り入れたいと言う。

銀行は住民から選出されたトップ、クレジット担当、出納係の３人で運営・管理され、

特別な事務所は持たずに、リーダーの家を事務所・金庫代わりにしている。銀行設立の際、政府から１銀行当たり900万 Rupia の交付を受けたが、地方自治の時代でもあり、自立的に運営していくことが重要とイスマエル・バーン氏は言う。また、資金マネージメントや収支管理が手探り状態にあり、今後力量アップを図ることが課題と指摘する。

⑸ Makassar 地区メロン栽培グループ

Makassar 地区メロン栽培グループはインドネシア農業局の指導の下、政府の住民開発基金を導入し、2000年からメロン栽培に着手したグループである。メンバーは現在20名で、米収穫後の水田５ha に「アクション434」と言う品種を中心に生産している。20名で５ha であるから、一戸当たり0．25ha ほどの作付けの勘定になる。一戸当たり耕地面積が0．5ha 程であるから、その半分ほどにメロンが作られている勘定になる。メロンは水の関係で連作不可とされるから、0.25ha はギリギリの作付け面積と言うことができよう。生産されるメロンは、気候の影響からか、ジャワ産やスラバヤ産のものより糖度が高く、評判は上々とのことである。

販売先は「マタハリ」「アルファ」「ゴロ」などの Makassar 地域の量販店が主なところで、一部 Makassar のスラバヤ・ホテルへの販売や他県からの買付商人にも販売している。週当たりの販売量は概ね2,000kg 程度であり、一個２－３kg とされるから大凡700～1,000個程度となる。価格は一個当たり2,200Rupia 程度とされるから、週当たり販売額は154万～220万 Rupia ほどで、農家一戸当たりで7.7万～11万 Rupia ほどとなる。収穫期は７月上旬から11月の３－４ヶ月ほどであるから、メロン販売額はグループ全体で2,000万～3,500万 Rupia、一戸当たりで100万～170万 Rupia ほどとなろうか。以前から生産していたスイカよりも軽労働で済み、また米の５倍程の収益が得られると言われる。

しかし、量販店との取引きでは、支払いサイトが２週間と長く、また売れ残ったものについて代金を支払わないとするところもあるなど、今後解決すべき問題を抱えているのも事実である。また、木箱にメロンを詰め込み、小型バンで運搬するために品痛みも起き、品質劣化が起きやすいとされる。更に、スイカの種子が600個入りで1.5万 Rupia なのに対してメロンは10万 Rupia と極めて高価なのも問題と言えば問題と言えよう。

グループでは、今後の目標を１）多様な品種のメロンを生産すること、２）メンバー以外の農民も誘い地域のメロン作付面積を10ha（５ha の増加）にすること、そして３）当該地域でのメロン消費の風習を作ること、に置いている。品種の多様化には2002年から取組み、現在新たに３品種を作付け、市場の評価を探っている。新品種は東部インドネシア野菜プロモーション展示会に出品し、好評を博したとされる。また、消費風習を醸成するため、残品や販売するには小振り過ぎるものを近隣に無料で配っていると言う。更に、作

付面積の増大に向けて、メンバー以外の農民に対する働きかけも活発に行っている。その際、上で指摘した収益性の良さなどがキー・ポイントになるかも知れない。それは、「市場化」が急速に進み、産地間の競争が一層激しくなることが予想される中で、量的な纏まりを確保し、有利販売に結びつけようとする動き、日本流の表現を使えば「主産地形成」の動きとしてとらえることも出来よう。この辺でも、これまでわが国の経験を彼らに伝えることが重要な気がしてならない。

5）農村部における女性の位置づけ・役割

訪ねた数カ所の農村は、いずれも8.5馬力のトラクターで田畑を耕し、田植えは手作業で行われており、まるで日本の３～40年前にタイムスリップしたような光景で、懐かしさを覚えた。

農村部においての役割については、日本と同様、農業経営の中心は男性であり、女性は、家事と経営の補佐として、また自家野菜の栽培を担っている様である。

訪問する先々では、集まってきた人たちのほとんどが男性であり、女性の発言する場面は、ほとんどなく地域の中での発言力も同様と感じられた。

とは言え、地域銀行を立ち上げたゴワ地区村長宅には、女性たちが大勢集まり、真剣に耳を傾けている様に今後の取り組みに期待が感じられた。

この銀行は、22地区で構成され、１地区３名（66名内女性23名）がその運営に携わっていた。女性の選出理由は、無駄遣いが少なく、村に住み着いていることが多いからとのことあったが、持参された帳簿は、丁寧に記帳がなされており、女性ならではの細やかさに加え、より高度な学習や指導により、レベルアップが図れると感じられた。

マラウイとインドネシアの状況は、大きく異なっており、同じプログラムでの研修では、難しさが多々あると感じられ、実態に即したより効果的なプログラムの提供が重要である事を痛感した。

6）研修の必要性

1997年７月のタイ・バーツ切り下げに始まるアジア通貨危機の影響を受け、1998年のインドネシアにおける実質 GDP 成長率は－13.2％の落ち込みを見せたが、農林水産業セクターは、－1.3％と比較的落ち込みが少なかった。その理由としては、生産品の大半が経済変動の影響を受けにくい食用作物生産に依存していることが考えられる。（インドネシア中央統計局のデータでは、2000年において、食用作物の比率は、全体の50.7％となっている。）

また、産業人口では、同セクターの就業人口が全体の約45％を占めると共に、輸出総額の約16％を稼いでいることから、同セクターがインドネシア国内において重要な位置を示して

いることが理解できる。

これらの状況を基に農業省により2000年から2004年の間の開発戦略がプラコサ元農業大臣により掲げられ、以下の５項目を農業の重要な役割として重視することとなった。

・農民の生活レベルと所得の向上
・食糧需要を満たし、国家の食糧安定を達成する食糧生産の増加
・製造業の原料としての市場と輸出のための農産物生産の増加
・アグリビジネスの振興を通じ、高い生産性と雇用機会の増大、効率的な起業機会の増加
・環境に配慮したアグリビジネスの振興を通じた農村地域経済の発展

また、その10ヶ月後に就任したサラギ農業大臣の下では、これまでの計画を反映する形で以下の農業開発計画を発表した。

・アグリビジネス・システムとアグリビジネス事業により農民の所得と生活水準を向上させる。
・アグリビジネス・システムと、競争力があり、大衆に依存し、持続的で地方化したアグリビジネス起業の発展を通じ、村落経済活動を発展させる。
・地方で地域の食糧資源、組織制度及び食糧文化の多様性を基礎とした食糧安定システムを構築する。
・アグリビジネス・システムを通じ、就業構造と公正な起業機会を増大する。

*アグリビジネスとは、種子生産・肥料・農業機械の生産等の上流部門から農水産物生産・農水産加工等の中流部門、更には市場流通等の下流部門と多岐に亘っている。また、これらを管轄する省庁も農業省、海洋水産省、協同組合・中小企業担当国務大臣府、商業工業省と広範囲に亘る。

これらの方針を基に、現在農業省ではアグリビジネスを活性化するための施策を試みており、JICA に対してもこれらの状況を促進するような内容の研修の立案と当該研修への参加を希望していると考えられる。

今回、訪問した農業省農業施設総局で本研修の必要性を確認したところ、積極的に参加したいとの回答があり、１名だけの枠ではなく、2,3名の受入れを必要とする旨強く要求された。また、アグリビジネスを強化し、地方においても円滑に適用るため、地方の人材も１名以上参加させたいとの要望があった。

農業省国際総局での協議では、同省農業施設総局と同様に本研修の必要性を先方が強く訴えると共に、本研修はインドネシア国の国家開発計画に則っており、重要な分野であるとの説明があった。

今回の調査では、農業省本部のみではなく、南東スラウィシ州（旧南東スラウェシ州農業農村総合開発協力サイト）、南スラウェシ州（現在実施中の地域開発政策プロジェクトサイ

ト）で現場のニーズ・意向を確認したところ、本研修への強い参加意志が表明された。

補足事項として、1998年５月に32年に亘るスハルト政権が崩壊し、ハビビ大統領、ワヒド大統領、メガワティ大統領と次々と政権が交代することとなり、不安定な政策が進められる中、ハビビ大統領以降地方分権化の動きが活発になり、1999年５月に地方分権に係る基本法が国会にて承認され、2001年１月より施行されたことに鑑み、今後地方がイニシアティブをとれるようにするための地方自治体人材開発・育成が急務の課題と考えられる。

7）研修項目の抽出

⑴ 必要と考えられる研修項目

本研修では、地域開発をする際に、農業または農産物というツールを活用して起業化を図り、官民協調の基、地域の特産物を作る行程を確認すると共に、キーパーソンの育成・意識の高揚を促すことが目的と考えられる。インドネシアにおいては、比較的インフラが整備されているにも関わらず、これまでの農業政策がすべて中央省庁により一律的に施行されていたことから地方分権化が進む現在、地方においてはソフト面・ハード面とも以前と比較して情報が少なく、計画が実施に結びつかないのが現状である。このことから、地方の人材については基礎的な開発計画手法を習得する必要があると思われるが、一方ジャカルタにて勤務する行政官は基礎的な開発計画・農村振興手法を理解しているものの、実施面では地方との意識の乖離があり、机上の空論となる傾向があると思われる。

そのため本研修に求められる研修ニーズを国単位で一律のものとして考えることは困難であると思われる。また、インドネシア政府の政策的な方向性から、アグリビジネスの強化と、地方における円滑な適用をテーマとする研修が必要となると考えられる。本研修においては地方における人材の育成に主眼を置き、必要と思われる研修項目を抽出することとする。

・北海道農業の歴史
・農家における現状の把握（中央行政官のみ）
・現地踏査における事例の確認
・生活改善事業
・農家経営における女性の役割
・小売販売店視察または農産物加工過程視察　等

⑵ 不必要と考えられる研修項目

６．においても説明したとおり、首都ジャカルタにて勤務する行政官は基礎的な開発計画・農村振興手法を理解しているが、地方において勤務する職員とは意識的にも職務的に

もずれがあり、研修が必要な項目が違うと同様に不必要な項目も異なると考えられるが、総体としては不必要と考えられる項目はなく、どの技術・手法も現地で応用・活用することが可能と思われる。

8）帰国研修員へのインタビュー結果

農業省農業施設総局課長である Ms.Rina　Suprihati に平成14年度個別一般合同研修に参加した経験から、将来的に集団研修を実施する上での改善点を確認したところ以下のとおり回答があった。

・10～11月に研修コースが実施されたため、作物の生育過程、作付け状況を確認することができなかったことから、次回実施の際には、畑の状況が確認できる夏期の実施が望ましいと考える。
・種子生産・肥料・農業機械の生産等のインドネシア国におけるアグリビジネス上で上流部門とされる分野、農水産物生産・農水産加工等の中流部門、更には市場流通等の下流部門を含めた農業分野全般についての情報が得られる研修が望ましいと考える。

9）研修実施効果・影響

インドネシア国においては、前にも述べたとおり地方分権に係る基本法が国会にて承認され、地方におけるイニシアティブが今後の大きな課題となっており地方自治体における人材開発・育成が急務の課題と考えられることから、次の２点が期待される。１）本研修の参加により、農村・地域開発の手法・技術を地域社会に伝搬し地域開発を促すことを期待される農民団体・地域が、自発的な農村振興をすべく活動を実施すること。２）インドネシア同国において農業省が中心となって進めているアグリビジネスの内、農水産物生産・農水産加工等の中流部門、市場流通等の下流部門のアグリビジネス事業を推進し、農民の所得と生活水準を向上させること。

また、インドネシアで、現在進められている地方分権化の流れから、本研修に参加することによる波及効果は期待できる。特に地方村落において地域の活性化を自ら促す手段を農業セクターに委ねるのは必至と思われ、これらを効率よく促進するためのきっかけ作り、リーダーシップの育成は非常に重要と思われる。

10）同国にて実施の地域開発政策プロジェクト研修ニーズ

社会開発協力部主管により現在インドネシア国において実施中のプロジェクト（地方行政人材育成：2002.4.1～2005.3.31）では、来年度以降に地域開発行政にかかる行政官の本邦研修を検討をしているが、当該本邦研修と当方で実施予定の本研修（農村振興セミナー）と

は内容に関連性があるため、本研修への同プロジェクトカウンターパートの参加、同プロジェクトの一部の本邦研修と本研修との合同実施、または本研修と別途同プロジェクトカウンターパートを対象とする国別研修の実施等の可能性について、詳細を現地プロジェクト関係者と打合せることとなった。

出発前の関係者合同打合せにおいて、以下のとおり本邦で必要と思われる研修内容をブレインストーミング的に洗い出した。結果は以下のとおり。

1）地域開発分野において、首都ないしは地方において行政官として活躍する人材が各地域において必要とされる能力（地域開発施策の企画・立案・実施等）を網羅的に強化するための研修

2）過去に北海道にて実施された国別特設コース「インドネシア東部地域開発促進対策」と類似した国目を含みつつも、農村振興の観点を前面に出した研修コ。

3）研修において得られた知識・経験を、研修参加者が帰国後速やかに開発計画の実施に結びつけるための手段も明確にする研修　等

しかしながら、現地においてプロジェクト関係者と打合せを実施したところ、同プロジェクトでは、上述2）で言及した「インドネシア東部地域開発促進対策」コースと全く同類のコースを必要としており、農村振興の観点から見たコース設定ではなく、国土交通省北海道開発局が実施する地域開発関連の研修内容を必要とする旨説明があった。

この打合せ結果から地方行政人材育成プロジェクトと本研修との関連性は非常に少ないと考え、当該プロジェクト関連の本邦研修を別途地域部において立案するとの方向性からも、当センターではこれ以上同プロジェクト関連案件には立案段階では関わらないこととする。

6．研修日程（案）

これまでの調査結果及び平成14年度個別一般合同コースの実施の実績を反映して、以下のとおり研修日程（案）を作成した。

今回作成した研修日程の内、焦点を当てるべき箇所は、「現場の経験」である。参加する研修員は行政官である可能性が高いことから現場での経験が少ないと想定されるため、札幌近郊において農家実習を経験させ、現場での考え、直面する問題点を把握させることとする。

また、これまでは農協関連の講義はホクレンに依頼することが多かったが、農協組織全体のコンセプトについての議論が必要と思われるため、JA 中央会に講義を依頼し、経営概念、金融業務、小売業務等全般の流れを説明頂くこととしたい。

前回の個別一般合同研修は、10、11月にかけて研修が行われたことが評価会ならびに今回の調査における帰国研修員へのインタビューでも、実施作物の生育過程、作付け状況を確認できるよう、次回実施の際には、畑の状況が確認できる夏期の実施を強く希望する旨回答を得てい

る。よって今後は育成・採種状況を見ることが出来る夏期、なかでも収穫前の比較的農閑期となる時期を想定して８月中旬以降に実施することとしたい。

集団研修を実施する際に陥りやすい形として、日本側（講師陣）による一方的な情報提供の場になりやすく、参加する研修員の意見を研修内で汲み取ることが難しい状況になることが多いことから研修員がストレスを感じることがある。この状況を和らげるために一部の講義では双方向に発言できる機会を与え、お互いの情報を共有することにより各講師陣からも適切なアドバイスがなされることを期待して農家実習はじめディスカッションの機会を多く持てる研修としたい。

８月12日	火	来日
13日	水	ブリーフィング
14日	木	オリエンテーション
15日	金	オリエンテーション
16日	土	休日
17日	日	休日
18日	月	プログラムオリエンテーション、カントリーレポート
19日	火	北海道農業の歴史と特色 地域振興概要
20日	水	事例視察（幌加内町）
21日	木	事例視察（鷹栖町）
22日	金	事例視察（北竜町）移動→HICS
23日	土	休日
24日	日	移動
25日	月	農家実習
26日	火	↓
27日	水	↓
28日	木	↓
29日	金	↓
30日	土	休日
31日	日	休日
９月１日	月	農家実習の総括・ディスカッション
２日	火	午前：石狩・カット野菜見学 午後：JA 創設の歴史と組織形成及び金融店舗見学
３日	水	午前：農家経営における女性の役割、生活改善事業
４日	木	現地視察（出荷から加工まで）（旭川農村婦人大学訪問）
５日	金	現地視察（加工から販売まで） 札幌卸売市場及び小売販売店視察
６日	土	休日
７日	日	休日
８日	月	農機具メーカーの視察（スター農機） レポート作成要領
９日	火	協力隊 OB とのディスカッション
10日	水	レポート作成
11日	木	ファイナルレポート発表、閉講式
12日	金	終了

７．総括

今回の調査では、平成15年度実施予定の個別集団型研修、ひいては平成16年度以降実施予定の集団コースを効果的かつ効率的に実施するために、地域振興の進度が異なるマラウイ国とインドネシア国を代表例として調査し、現状でどのような問題を抱いているか把握することが大きな目的であったが、滞在期間中に多くの農民グループ、小規模農家、地域・農村振興を促進する組織・行政機関等と直接ディスカッションし、現状で抱える問題点を客観的に把握することができたと考えられる。

両国共通の問題としては、農業の現場を知らない行政官と行政が実施・計画する政策・開発戦略を知る由もない農家との意識の乖離が激しいことがあげられる。日本ひいては北海道における農村振興の成功事例を見ると、その成功の影には地域の状況を調査・分析し、予算、法的な措置を行なう行政等機関と現場で汗水をたらし血眼に働く農家とが進むべく方向を共にし、よりよい協力関係が良い結果を生み出していると考えられる。開発途上国においても双方が互いに信頼し、良好な関係を築くことが重要であると思われえる。

また、地域振興を成功させるためには行政と農家の関係だけではなく、地域における農家同士の関係も非常に重要なポイントと考えられるが、この点においても両国の状況は良好とは言えず改善の余地がある。両国においては農業技術普及員が存在するが、彼らが中心となり地域において育種・採種技術が農家間に浸透し、互いの信頼関係が構築されれば土壌・地理的な条件から近い将来に大きく飛躍するポテンシャルを秘めていると考えられる。

また、産業としての農業をより発展させるためには行政組織が農産物が円滑に無駄なく循環させるために必要な生産から流通までの一連の流れを明確に把握し、この循環が円滑かつ効果的に働くよう法規制及びインフラを整える必要がある。生産現場の主体となる農家においても農業技術普及員などを経由し、各個人がこの循環を理解し、自らが置かれる状況を把握すると共に収益の増加に結びつく改善がなされ家族の健康と子供に教育を与える環境を作ることが重要と考える。その観点からも日本において本研修を通じて地域・農村振興における過去の歴史的な経緯、組織の取り組みを含めた発展過程を学び、現地踏査によって地域の事例を確認することにより同研修に参加する研修員が母国で地域振興または農村振興に必要な知識を習得し、地域の発展に大きく寄与するものと思われる。

資料編

１．リロングェ農業開発局の概要

２．マラウイ国農業セクター開発計画

３．インドネシア国農水産業セクタープログラム開発計画調査（抜粋）

LILONGWE AGRICULTURAL DEVELOPMENT DIVISION

BRIEFING REPORT FOR JICA SURVEY TEAM ON TRAINING IN AGRICULTURE AND RURAL DEVELOPMENT 09-12 JANUARY, 2003

THE PROGRAMME MANAGER
LILONGWE ADD
P.O. BOX 259
LILONGWE

LILONGWE ADD BRIEFING REPORT FOR JICA SURVEY TEAM ON TRAINING IN AGRICULTURE AND RURAL DEVELOPMENT 09 - 12, JANUARY, 2003.

1.0 INTRODUCTION

Lilongwe Agricultural Development Division is one of the eight (8) development divisions into which Malawi as a country is agro-ecologically demarcated. Each ADD is further divided into District Offices. Lilongwe ADD has three administrative districts of Lilongwe, Dedza and Ntcheu. The Districts are made up of Extension Planning Areas (EPAs), of which Lilongwe ADD has 36. The smallest unit of operation is a Section which is manned by an Agricultural Extension Development Officer (AEDO), who interfaces directly with farmers on daily basis. The establishment for AEDOs in LADD is 596, distributed as follows:

Lilongwe - 358
Dedza - 156
Ntcheu - 82

Functionally, the Ministry of Agriculture is organized into five (5) technical programmes namely; Extension and Support services, Crop Development, Animal Husbandry and Veterinary Services, Soil and Water Conservation and Irrigation Services. These programmes are supported by Planning Division, Human Resource Management, Financial Management and Administrative Services.

These programmes are replicated at ADD and District levels.

2.0 EXTENSION APPROACH

2.1 Group Approach

Rural Farmers in Malawi are organized into groups for extension contact. The group approach is preferred to individual increasing for the purpose of contact per extension worker.

The current staff to farmer ratio is high at 1: 1945 as opposed to the ideal of 1:500. This low number of staff has been made worse because of a number of factors such as the government freeze in recruitment of staff for almost 5 years, suspension of training for Extension Workers which lead to failure in replacement of retiring staff, and deaths particularly from HIV/AIDS related diseases.

2.2 Participatory Approaches

The Extension department is advocating participatory approach in order to empower farmers to take a lead in development process. The experience has been that once government staff pull out of a project, the farmers have been unable to sustain the activities being undertaken.

2.3 Participation of Non - Governmental Organizations and farmer organizations.

The new extension policy explicitly encourages the involvement of other organizations in the extension delivery service. This alleviates budgetary constraints and improves staffing levels.

Farmer organizations such as associations and cooperatives are taking an active role in extension delivery to their members. However, the quality is still poor.

2.4 Message Development and Communication

Problem areas are requiring messages are identified in a participatory process at the community level and channeled to Subject Matter Specialists for development of messages.

These messages are communicated to field staff who train farmers through demonstrations, at farmers gardens or at Day Training Centres, or Residential Training Centres depending on the complexity.

2.5 Other communication methods

Farmer guide books (Za achikumbe), Farm radio broadcasts, campaigns and agricultural shows, are major ways of communication to farmers.

Program	Activities	Outcome
Extension and Support Services	• Institutionalization participatory Approaches	• Empowerment of Communities
	• Training staff in new technologies	• Better qualified staff
	• Gender and HIV awareness	Reduction in infection and Impact of HIV/AIDS
	• Encourage formation of village banks/Revolving fund	• Commercialisation of agriculture
	• Promotion of dietary diversification and modification	• Improve nutritional status of farming communities
Crops Development	• Provide start up materials for key Crops	• Household food security achieved
	• Facilitate establishment of Farmer managed crop Nurseries	• Alternative food crops for food security produced
	• Conduct crop specific	• Number of officers

	specialized training for staff e.g cassava, sweet potatoes	trained
	• Promote Farm mechanization	• Drudgery reduced
	• Migratory pests control	
	• Conduct crop specific specialized training for Crop Associations	• Number of Association courses conducted
Livestock Development	• Facilitate acquisition of various breeding stock	• Livestock products increased
	• Facilitate training of A.I technicians i.e farmer and Government Technicians	• Improved breeding Service delivery through qualified technicians
	• Intensification of diseases Surveillance and control	• Animal diseases minimised
	• Facilitate pasture production and conservation	• Quality pasture produced, stored, and utilized
Land Resource & Conservation Program	• Promote proper land use and resource conservation Technologies	• Improved natural resource management
	• Establishment of vetiver and agro-forestry nurseries	• Sustainable production achieved
	• Promote water harvesting	• Sustainable production achieved
	• Promote manure making	
Irrigation Development	• Promotion of various irrigation technologies	• Irrigation culture adopted among small scale farmers
	• Small motorized pumps	
	• Canalisation and water impounding	
	• Use of treadle pump	

3.0 PROGRAM PLANNING AND IMPLEMENTATION

The Ministry of agriculture and Irrigation development programme has been implementing activities through a series of development phases, and strategic plans since the 1980's. The current agricultural policy and plans have been derived from the Malawi Poverty Reduction Strategy Paper (MPRSP), 2001.

The focus of the MPRSP is poverty reduction through empowerment of the poor. The different programmes are implementing plans that prioritise activities that have impact on the poor. A copy of the MRSP and plans are provided. The following are priority issues under each program:

4.0 PLANNING UNIT

For effective program planning, implementation, monitoring and evaluation the ADD has a Planning Unit responsible for the activity.

5.0 CONSTRAINTS

5.1 Funding - Plans are not implemented according to schedule due to Erratic and inadequate funding.

5.2 Staffing - Many vacancies have remained unfilled due initially to government freeze of new appointments and attrition through retirement and deaths.

- a number of staff are working in positions which they are not adequately trained in e.g currently, the Ministry is emphasizing on cooperatives but few staff are knowledgeable about the subject.

5.3 Transport - Most vehicles are very old and frequently break down resulting in poor supervision of field programmes.

5.4 Infrastructure

- Poor road conditions
- Lack of agro processing and storage facilities - Poor market Information, Expensive credit systems, Hamper agricultural performance.

5.5 Literacy Levels

- Low literacy levels among farmers causes poor adoption of technologies

6.0 TRAINING NEEDS

A number of areas are particularly important if rural development is to occur.

6.1 Skills in formation and management of sustainable groups/cooperatives
6.2 Farm Business skills
6.3 Specialized training in e.g extension, horticulture
6.4 Rural Development Planning skills
6.5 Social marketing.

Ministry of Agriculture & Irrigation
Malawi Agricultural Sector Investment Programme

Government of Malawi

REVIEW OF MALAWI AGRICULTURAL POLICIES AND STRATEGIES

Ministry of Agriculture and Irrigation

November, 1999

CONTENTS

FOREWORD

A change in the global economic order characterised by a shift towards open trade policy and formation of regional trading blocks such as NAFTA, the EU, SADC and COMESA is a challenge to countries with low productivity in the major economic sectors such as agriculture. One of these countries is Malawi. Apart from being resource-poor and land locked, the under-developed transport system makes the country uncompetitive globally. The Government of Malawi is aware that unless the daunting obstacles to increased productivity are surmounted through effective policies and strategies, the country's vision of becoming a middle income country by the year 2020 will not be realised. It is in this vein that it commissioned a review of the 1995 Agricultural and Livestock Development Strategy and Action Plan with a view to developing a sector-wide invest-

ment programme.

Previous attempts to reform and commercialise the agricultural sector have been compromised by lack of a consolidated and prioritised framework on which all stakeholders, including the donor community, NGOs and the private sector could base their investment plans. In particular, lack of priority setting has resulted into uncoordinated interventions by development agencies, duplication of effort, and waste of time and scarce resources.

This document provides an analysis of weaknesses, strengths, threats and opportunities in the agricultural sector of Malawi based on literature review and sector-wide stakeholder consultations. In addition, it contains recommendations on policies and strategies which will make the country's major economic sector competitive regionally and globally. Since these recommendations reflect national priorities, they form a rational basis for the development of sector-wide programmmes, and efficient and equitable resource allocation. In contrast to past approaches to rural development planning, the consultative process followed in the development of the recommendations ensured congruence of ideas among all major stakeholders including the donor community who have often been labeled as the main initiators of interventions.

Some of the recommendations require institutional reform which may result in drastic changes in human and physical resource allocation. However, reallocation of resources often results in gain or loss of authority and benefits to individuals involved. It is my conviction that those likely to suffer distress will consider such an experience as temporary, since the long-term benefits of transformation are likely to outweigh the short-term costs. Thus, implementation of the recommendations will depend on the understanding of the rationale to change, willingness and cooperation of all concerned stakeholders. Other factors likely to influence the successful implementation of the recommendations include macro-economic and political will and commitment. These recommendations are also made on the presumption of good will and continued donor support.

It is my humble duty as Minister of Agriculture and Irrigation to present this document to all stakeholders with the hope that it will provide a guideline for institutional reform and sector-wide interventions in agriculture. I would like to take this opportunity to express my sincere gratitude to the donor community for their continued contribution and support to the Ministry of Agriculture and Irrigation, and I do hope that our consultative process in programme planning and implementation will form a basis for Malawi's sustainable growth and development.

This is a well prepared document and as such I would like to thank all individuals involved directly or indirectly in its compilation and publication.

Honourable Leonard K. Mangulama
MINISTER OF AGRICULTURE AND IRRIGATION

ACKNOWLEDGEMENT

The preparation of this document involved a wide spectrum of stakeholders, too many to be listed. However, I would like to single out the guidance and leadership of the Controller and Deputy Controller of Planning Services of the Ministry of Agriculture and Irrigation, Mr. Chikhosi and Mr. Ian Kumwenda, respectively. In addition, the MASIP Secretariat deserve credit for all the planning and logistics in all the phases of the document preparation. I would also like to recognise the contribution, advice and support of the respective heads of departments in the process of sector-wide consultations, review and synthesis of the findings.

I would like to sincerely appreciate and commend the work of the local team of consultants which undertook the preparation of this document. These include : Prof. L.K. Mughogho (Team Leader), Dr. James Banda, Mr. Stephen Nanthambwe, Mr. Geoffrey Chavula, Dr. Jeffrey Luhanga, Mrs. Rose Chege and Dr. Charles Mataya.

Sector-wide consultations involved a series of meetings and workshops involving staff, the farming and non-farming community in all the Agricultural Development Divisions (ADDs). The Programme Managers and their core staff are acknowledged for their active involvement and support in the consultations. The consultative process could have been incomplete without the participation of the donor community, NGOs and the private sector. The list of all stakeholders consulted appears in the annexures.

A national workshop was held to share information on major findings and recommendations, and to receive feedback on them. The workshop was attended by 182 participants from a cross-section of stakeholders. I wish to sincerely thank all persons involved in the preparation and administration of the workshop as well as the participants. The comments received helped to shape the final product of the consultative process.

Finally, I would like to thank the JICA and DANIDA for their financial support without which it could not have been possible to produce this document.

Dr. Ellard Malindi
PRINCIPAL SECRETARY
MINISTRY OF AGRICULTURE AND IRRIGATION

LIST OF ACRONYMS

ADCP	:	Animal Disease Control Project
ADD	:	Agricultural Development Division
ADMARC	:	Agricultural Development and Marketing Corporation
AI	:	Artificial insemination
ALDSAP	:	Agricultural and Livestock Development Strategy and Action Plan

APIP	:	Agricultural Productivity Investment Programme
ARET	:	Agricultural Research and Extension Trust
ASEAN	:	Association of South-East Asian Nations
ASF	:	African Swine Fever
BAHSP	:	Basic Animal Health Services Project
B.Sc.	:	Bachelor of Science degree
CAMA	:	Consumer Association of Malawi
CATM	:	Chinese Agricultural Technical Mission
COMESA	:	Common Market for Eastern and Southern Africa
CURE	:	Co-ordination Unit for the Rehabilitation of the Environment
CVL	:	Central Veterinary Laboratory
DAHI	:	Department of Animal Health and Industry
DANIDA	:	Danish International Development Agency
DARTS	:	Department of Agricultural Research and Technical Services
DEMAT	:	Development of Malawi Traders
DEVPOL	:	Development Policies
DfID	:	Department for International Development, UK
ECF	:	East Coast Fever
EDDRP	:	Entrepreneurship Development and Drought Recovery Programme
EIASs	:	Extension Irrigation Assistants
ENSO	:	El Nino and Southern Oscillations
EPA	:	Extension Planning Area
ESCAP	:	Economic and Social Commission for Asia and the Pacific
EU	:	European Union
FAO	:	Food and Agriculture Organisation of the United Nations
FBS	:	Fertiliser Buffer Stock
FDI	:	Foreign Direct Investment
FIAH	:	Foundation for the Improvement of Animal Health
FINCA	:	Foundation of International Community Assistance
FMD	:	Foot and Mouth Disease
FOT	:	Free-on-Truck
FRDP	:	Fiscal Restructuring and Deregulation Programme
GAD	:	Gender and Development
GDP	:	Gross Domestic Product
GoM	:	Government of Malawi
GTZ	:	Deutche Gesellschaft fur Technische Zussammenarbeit
HA	:	Hectare
IFAD	:	International Fund for Agricultural Development
IMF	:	International Monetory Fund
INDEFUND	:	Investment and Development Fund
IBs	:	Intermediate Buyers
IPM	:	Integrated Pest Management
ITPAC	:	Industry and Trade Policy Adjustment Credit
JICA	:	Japan International Cooperation Agency
KFCTA	:	Kasungu Flue Cured Tobacco Authority
LHTC	:	Land Husbandry Training Centre
LRCD	:	Land Resources Conservation Department
LLDP	:	Lilongwe Land Development Programme
MAFE	:	Malawi Agroforestry Extension Project
MANRMR	:	Malawi Agricultural and Natural Resources Research Master Plan
MASIP	:	Malawi Agriculture Sector Investment Programme
MBS	:	Malawi Bureau of Standards
MIPA	:	Malawi Investment Promotion Agency
MIRTCD	:	Malawi Industrial Research and Technology Development Centre
MoAI	:	Ministry of Agriculture and Irrigation
MoHP	:	Ministry of Health and Population
MPTF	:	Maize Productivity Task Force
MEPC	:	Malawi Export Promotion Council
MRFC	:	Malawi Rural Finance Company
MTSF	:	Medium Term Expenditure Framework
MUSCO	:	Malawi Union of Savings and Credit Co-operatives
M.Sc.	:	Master of Science degree
MYP	:	Malawi Young Pioneers
NABW	:	National Association of Business Women
NAFA	:	North American Free Trade Area
NASFAM	:	National Smallholder Farmers Association of Malawi
NASME	:	National Association of Small and Medium Entrepreneurs
NATURE	:	Natural Resources Management and Environmental Support

		Programme
NCD	:	New Castle Disease
NGO	:	Non Governmental Organisation
NLDMP	:	National Livestock Development Master Plan
NLRMPS	:	National Land Resources Management Policy and Strategy
NORAD	:	Norwegian Development Agency
NRC	:	Natural Resources College
NRCM	:	National Research Council of Malawi
NSCM	:	National Seed Company of Malawi
NSIS	:	National and Shire Irrigation Study
ODA	:	Overseas Development Administration
OPV	:	Open Pollinated Variety
PEM	:	Participatory Extension Method
PFPs	:	Policy Framework Papers
Ph. D.	:	Doctor of Philosophy degree
PIAM	:	Poultry Industry Association of Malawi
PROSCARP	:	Promotion of Soil Conservation and Rural Production
PO	:	Professional Officer
PTA	:	Preferential Trade Area
PSIPs	:	Public Sector Investment Programmes
PVP	:	Private Veterinary Practitioner
SACA	:	Smallholder Agricultural Credit Administration
SFFRF	:	Smallholder Farmers Fertiliser Revolving Fund
SGR	:	Strategic Grain Reserve
SUCOMA	:	Sugar Corporation of Malawi
RDP	:	Rural Development Project
SADC	:	Southern Africa Development Community
SALs	:	Structural Adjustment Loans
SAP	:	Structural Adjustment Programme
SEDOM	:	Small Enterprise Development Organisation of Malawi
SPI	:	Starter Pack Initiative
TAMA	:	Tobacco Association of Malawi
TCC	:	Tobacco Control Commission
TO	:	Technical Officer
UNDP	:	United Nations Development Programme
UNEP	:	United nation Environmental Programme
USAID	:	United States Agency for International Development
US $	:	United States Dollar
VAM	:	Vulnerability Assessment Mapping
VAs	:	Veterinary Assistants
VEZA	:	Village Enterprise Zone Association

4. CROPS POLICIES AND STRATEGIES

4.1 Introduction

Crop production is a key sub-sector in the national economy in terms of its contribution to food security and external trade. The main staple food for the population is maize and is grown on 80% of the arable land. Tobacco, tea and sugar exports contribute about 90% of foreign exchange earnings. The crops subsector has unique characteristics which influence performance. These include :

- Crops are grown predominantly under unimodal rainfed conditions since irrigation is underdeveloped. This has resulted in unpredictable yields including total crop failure due to droughts. There have been three drought years during the last decade. The unimodal rainfall regime has a bearing on productivity because it leads to seasonality of supply of agricultural products and underutilization of labour during the dry period.
- A dual farming pattern (small-scale and large-scale) is institutionalised in the policy framework. Small -scale farmers (over 2 million farm families) dominate the farming sector. The average land holding, which is owned under customary law, is below 1.0 ha. Farmers practice subsistence agriculture and provide the surplus food for the urban and the food deficit rural population including the estate sector. Some 56% of small-scale farmers have land holdings of 0.5 ha or less and are unable to produce enough food. Legal and institutional restrictions have prevented the sector from growing cash crops such as tobacco and tea in the past. Productivity is generally low due to a number of factors including lack of access to inputs and technology. The large-scale or estate sector has average land holdings which range between 10 ha to over 350 ha per household. Land ownership is under leasehold. Historically the estate sector was developed to produce cash crops such as tobacco, tea and sugarcane. The total land holding is estimated at 1.2 million hectares. Land is grossly underutilized in the estate sector where only 33% is in cultivation. Productivity is higher because of past policies which have targeted the development of this sector such as subsidised credit, and preferential prices. The estate sector also offers employment to the rural population through the tenant system in tobacco production and direct employment. The sector has a high potential for growth.

- Overdependence on a single crop for food and cash, i.e. maize and tobacco, respectively. Over the years there have been deliberate policies to stimulate the production of the two crops at the expense of other crops. This has rendered the economy vulnerable to the valgaries of weather and instability in external markets. Future development policies have to focus on diversification of the resource base in order to achieve sustainable income generation and food security objectives.
- Lack of commercialisation of farming. Each household in a rural community would like to produce enough food for consumption without paying due regard to the economics of production. This is a result of past policies which have emphasised food self-sufficiency at household level through maize production. The lack of business orientation has lead farmers to grow maize in marginal areas where crops such as cassava or sorghum are best suited. There is need to change farmers' attitude towards farming. Commercialisation of agriculture would be the priority option for obtaining household food security in a sustainable manner and for increasing productivity.
- Low agricultural productivity. The country experiences chronic food shortages and imports maize in most years. About 60% of the households are food insecure and poverty is endemic. Despite massive investments in the agricultural sector including the implementation of a comprehensive policy reform programme, agricultural productivity has stagnated considerably. The majority of farmers continue to use low yielding, unimproved crop varieties and have limited access to fertiliser. It is estimated that over 75% of the crop grown is planted to local maize and the average yield (912 kg per ha) is well below what is attained in other countries within the Southern Africa Development Community (SADC) region such as Zimbabwe. The prices of a number of commodities are uncompetitive on the regional market as low productivity leads to increased costs of production. Utilisation of organic and inorganic fertilizers in the farming system is also considerably low. The agro-processing industry is unable to secure sustainable supplies of raw materials because of low volumes of production for crops such as cotton and groundnuts.

  It is evident from the foregoing that future agricultural development policies and strategies will have to take into account these developments in the crops sector in order to have meaningful and sustainable impact on the economy. The challenge facing agriculture is improvement of production efficiency.

4.2 Analysis of Current Policies and Strategies

The crop policies and strategies in ALDSAP are analysed in relation to problems and issues raised by stakeholders.

4.2.1. Inputs

Stakeholders cited input supply (fertiliser, seeds and pesticides) as a major constraint to crop productivity. The key issues which relate to supply are : availability, distance to supply points, timeliness of supply and affordability. There are number of policies and strategies which address the issue of input supply in the ALDSAP.

The primary objective of the trade liberalisation policy is to provide greater opportunities to the private sector in the input (fertiliser, seeds and pesticides) trade. The attendant legislations (Fertilizer, Farm Feeds and Remedies Act and The Seeds Act) have been amended. There has been a substantial increase in the number of input merchants.

Removal of subsidies led to a sharp increase in input prices. A drop of 43% was reported in the usage of fertilizer in the year (1993/1994) after subsidy removal. Seed sales declined by 56% during the same period. Input supply to most of the remote rural areas is poor because of withdrawal of Agricultural Development and Marketing Corporation (ADMARC). Local traders find it costly to move in because of the road network which is in disrepair or non-existent. There has also been proliferation of substandard imports ; these provide unfair competition to the local industry and adversely affect productivity.

The liberalisation policy lacked ex-ante analysis. Strengthening the impact assessment capacity for policy initiatives is essential. This will generate valuable information for decision makers. In fact it has been noted that currently most programmes in the MoAI lack impact assessment studies. The input trade is governed by legislation. There is provision within the act to monitor the quality of inputs in the trade. Legislation needs enforcement.

Besides the liberalisation policy, there are other strategies in ALDSAP which relate to individual commodities or inputs, i.e. fertilizer, seeds, pesticides and chemicals. These are reviewed separately.

4.2.1.1 Fertilizer

Strategies

- Inject capital in the rural areas by providing fertilizer coupons instead of cash for public works.
- Promote the generation and dissemination of reliable information on fertiliser response to encourage effective and economical use. Extensive area specific fertiliser trials have been conducted under Group I of the Maize Productivity Task Force (MPTF). Fertiliser recommendations for hybrid maize have been developed and disseminated. There is need to extend the study to other crops such as rice, groundnuts, vegetables and fruits.
- Promote farming systems that incorporate legumes for nitrogen fixation and the use of manure and crop residues. There are efforts to popularise low cost sustainable technologies in the Ministry. However, current efforts to promote such technologies are not coordinated or integrated. Different departments and projects pursue singular objectives. The work is dispersed between Departments of Agricultural Research and Technical Services (DARTS) and Land Resources Conservation, and projects such as Promotion of Soil Conservation and Rural Production (PROSCARP), and MPTF Action Group IV. Future efforts

will concentrate on the coordination and, where necessary, integration of such activities.

4.2.1.2 Pesticides. Pests and diseases reduce crop yields, and pesticides are required to control them. The integrated pest management (IPM) strategy in ALDSAP is designed to provide sustainable pest control measures in a cost effective manner. Current IPM programmes have limited scope because of the high cost of pesticides. As with fertilizer, injection of capital in rural areas through pesticide coupons for public works would be a practical and implementable strategy.

4.2.1.3 Seed. Access to seed and planting material is a major constraint to crop diversification. Farmers are unable to grow new crops or switch to new crop enterprises because of scarcity of seed. Use of pure seed is essential in the agroprocessing industry in order to attain a uniform product such as cotton lint and milled rice. A seed policy was formulated in 1993 but it was not incorporated in ALDSAP. The policy objective is to enhance seed availability of all crops through the promotion of private sector participation in the industry. A number of policies and strategies are outlined in ALDSAP which reflect seed policy objectives.

Strategies

- Encourage seed production on both estates and small-scale farms. Seed multiplication programmes have been initiated which promote private sector participation. The volume of seed emanating from the programme is insufficient to meet demand. Farmers are concerned with delays in seed purchases and field inspections. For the programme to be sustainable, responsibility for supervision will shift from the MoAI to the associations which have recently been formed.
- Provide an enabling regulatory framework to guarantee the production and supply of quality seed to farmers. The amendments to the Seed Act provide for a decentralised seed certification or quality control service. The Ministry of Agriculture and Irrigation has licenced extension staff to conduct inspections on behalf of the seed services which is headquartered in Lilongwe at Chitedze. This arrangement guarantees cost-effective access to inspectorate services by seed producers in Agricultural Development Divisions (ADDs). The Ministry has also established seed laboratories in three ADDs. Despite these developments, the regulatory machinery is not functioning effectively : substandard seed is on sale, inspections are conducted late in some crops due to lack of transport. The Ministry will review the regulatory services and develop an effective quality control unit. All ADDs should have seed laboratories and licenced ADD inspectors should be provided with resources to conduct inspections. Seed inspection services should be provided on a cost recovery basis for sustainability.
- Train farmers and private traders in seed production ;
- Establish a foundation seed multiplication programme which can provide start-up planting material in a sustainable manner ;
- Facilitate the harmonisation of regional variety release procedures in order to facilitate the introduction of new varieties and the development of buffer seed stock.

4.2.2. Capital

Farmers cited lack of capital access to credit as a major constraint to production. The main factors are : collateral, short-term credit, poor access and restrictions. In ALDSAP the strategies for credit provision include : the formation of an automous credit company-the Malawi Rural Finance Company (MRFC), and" social" collateral. MRFC has high interest rates which are not conducive to investment in agriculture. The bank has limited coverage (beneficiaries) and there is restriction on crops. Tobacco is the prime investment area for MRFC.

Some NGOs and government programmes provide subsidised credit to the agricultural sector. However, there is a limited number of beneficiaries. Non targeting of such programmes means the majority of the disadvantaged members of the community, such as women, do not benefit. Many rural areas do not have micro-finance institutions. Credit provision will be a major determinant on the ability of farmers to diversify and increase crop productivity. A comprehensive agricultural finance policy will be formulated to address the issue of accessibility, interest rates, and collateral and coverage.

4.2.3. Poverty

Farmers cited poverty as a major constraint in input utilisation since the majority of people cannot afford to purchase fertilizers, seeds and chemicals. It is estimated that 60% of the rural population lives below the poverty line. The most vulnerable groups are children and female-headed households. The targeted intervention for the resource poor in ALDSAP is designed to redress the situation. Two safety net programmes have been initiated :

Starter Pack Initiative (SPI). This programme was initiated by the Ministry of Agriculture and Irrigation in 1998. Extension support and free inputs (starter pack) consisting of fertilizer and seeds (cereals and legumes) enough to plant 0.1 hectares were issued to 1.8 million households. The aim is to improve household food security whilst maintaining soil fertility. This programme is to be repeated in 1999／2000 season. Farmers have realised increased yields. They have also been exposed to new technologies. However, the major concerns are that the non-targeting approach may perpetuate the dependency syndrome, inputs arrived late and some seed did not germinate. A great opportunity was lost to train farmers as extension staff were not adequately prepared for this role. It is recommended that the initiative should be re-designed to target resource poor households and also promote technology transfer.

Agricultural Productivity Investment Programme (APIP). This was launched in 1997／98 season . The aim is to mitigate the social impact of liberalisation on the rural poor by providing subsidised

credit to procure seeds（hybrid maize and legumes）and fertilizer. The goal is to improve household food security. The credit is channelled to farmers through non-governmental organisations（NGOs）and farmer associations. Some 154,450 farmers benefited in 1997／98 season. Farmers have improved access to inputs and this is reflected in overall increase in productivity, some 176,000 tonnes representing 10.4% of the 1997／98 total maize production was realised. With the projected increase in the number of beneficiaries（254,000 farmers）in 1998／99 season this is the biggest input delivery programme under a credit programme. Lack of collateral requirements improves accessibility by resource poor farmers. Major problems raised by stakeholders include : lack of targeting, late delivery of inputs, incomplete package and limited scope in terms of numbers of beneficiaries and volume and diversity. The issue of sustainability is also important because of the subsidy provided to input suppliers. An exit strategy is required which may include creation of a credit revolving fund for associations, farmers clubs, or co-operatives. Deserving resource poor farmers should be targeted for subsidised credit.

4.2.4. Markets and Marketing

During field consultations most stakeholders including farmers input suppliers and agro-processors cited marketing, as a major constraint to production. In fact in many parts of the country farmers had produce on the road side which was not selling. The constraints include : lack of markets, market information（intelligence）, low prices for products whilst inputs are sold at exhorbitant prices. There are a number of policies and strategies in ALDSAP to address the problem.

- **Restrictions in the growing and marketing of crops have been abolished under the market liberalisation policy.** More farmers are growing burley tobacco than before. The number of intermediate buyers（IBs）has increased in all crops, although in tobacco there are three concerns with IBs : low quality tobacco, increased theft of tobacco, and abandonment of growing tobacco in preference to buying. The IBs problems requires concerted action by all key players in the tobacco industry. Withdrawal of ADMARC from rural areas has led to reduced capacity for the country to export. Alternative marketing channels need to be explored, including farmer associations, in order to develop capacity.
- **Market intelligence**. A number of organisations are expected to provide market intelligence services. MoAI collects information and disseminates through the media agricultural produce prices for major crops. The Malawi Export Promotion Council（MEPC）collects market information for exportable commodities. Malawi Investment Promotion Agency（MIPA）is responsible for providing market information to potential local investors. There are major weakness in the current delivery of market intelligence services : information is limited to few crops, there are weak institutional linkages, and information is not widely publicized. There is need to strengthen market intelligence services. Market forecast for crops should be one year in advance to enable farmers respond to the demand. Market intelligence should also cover inputs. MoAI will provide leadership in the establishment of an independent agricultural statistics and policy analysis institute to provide market intelligence for Malawi's agriculture.
- **Agribusiness training**. Some ad hoc agribusiness training programmes for stakeholders have been conducted by MoAI in collaboration with MIPA. However, there are no regular training programmes. Extension service in agribusiness is weak because staff lack skills. The training programme needs strengthening.
- **Provision of market physical infrastructure**. Very little has been done because implementation modalities were not worked out in ALDSAP. The rural areas lack market infrastructure including refrigeration facilities and warehouses. A strategic plan is required to provide requisite infrastructure. In addition, all programmes which promote crop production, such as irrigation and horticulture, should have provisions for market development. Government should develop modalities for the private sector to have access to ADMARC's warehouse facilities.
- **Outgrower or contract growing** : This strategy is not included in ALDSAP. Stakeholders proposed the outgrower scheme as one way in which produce marketing can be facilitated. Under the scheme agro-processors can negotiate in advance prices to be paid for expected produce. The agro-processors can also provide inputs on loan. This mechanism is widely used by the sugar companies, seed companies, Press Agriculture and Cheetah Paprika Company. ADMARC has also launched a similar scheme for maize production. Farmers actively participate in the programmes. An outgrower scheme strategy needs promotion to improve marketing of produce.
- **Bargaining power on prices**. Lack of bargaining power on commodities can be enhanced through farmers clubs or associations. Most of these are not functioning efficiently, consequently they have very little bargaining power. In ALDSAP there is a policy to support the formation of farmers organisations. Under liberalisation there is need to strengthen the capacity of associations or clubs in marketing skills.
- **Retail outlets for commodities**. Although in ALDSAP it was recommended for ADMARC and SFFRM to develop retail outlets in rural areas, this is not feasible in a liberalised market and in fact this has not been done. Stakeholders noted that most inputs（pesticides, seeds, fertilizers）are not available in rural areas. Consumers have to trek long distances to procure these items. A study has been initiated by the MoAI to review retail business. The aim is to develop an efficient retail market for agribusiness. Some countries within SADC（e.g. Zimbabwe）have an elaborate agribusiness retail network. Government should develop modalities for strengthening retail business in rural areas.
- **Market promotion**. Stakeholders observed that the lack of market promotional drive for products both within the country and internationally as a constraint to increasing demand. The internal demand for locally produced food crops is also low.

Strategies are provided in ALDSAP for market promotion : strengthening the role of MEPC, estab-

lishment of the post of agricultural attache in embassies, participation in trade fairs and hosting trade delegations. These programmes have minimal impact on the market because there is very little coordination between institutions and follow-up action. In fact most of the strategies have yet to be implemented. They also have a limited focus. Agricultural shows which were an important tool for market promotion in rural areas are infrequent or not held at all. Farmers are not fully involved in field days. Local products are poorly presented on the market. Packaging can attract interest or demand. Farmers are not aggressive in market promotion. There is need to develop comprehensive product promotional strategies to include inputs and crop produce, inter-institutional linkages, and agribusiness education specific for farmers and traders.

The impact of markets on crop diversification policies. Farmers respond to the market. The increase in the volume of smallholder produce of paprika and tobacco and the decline in the production of soyabeans is a reflection of this phenomenon. The profit motive is paramount in choice of enterprise. During consultations farmers revealed that in the absence of formal market intelligence data, the decision to grow a crop or diversify is made after harvest based on the prevailing market conditions of the crops already grown. Since the export demand of the majority of crops is not met, there is need to expand production. Existing crop diversification policies in ALDSAP have minimal impact-maize and tobacco are still predominant crops. Improvements in markets will be a pre-requisite for positive diversification.

4.2.5 Labour

This is a major constraint in Malawi's agriculture. Farmers are unable to undertake critical crop and land management tasks because at peak periods (January to February) most rural households are food insecure and communities opt to look for food through" ganyu" than work on their fields. Also the HIV/Aids pandemic has reduced the population of productive people. Strategies in ALDSAP have no impact. Some of the options to deal with this problem are :

- Agribusiness education will empower farmers to prioritise their enterprises. Currently most farmers want to grow all crops without due regard to resource constraints.
- Credit schemes should provide cash or vouchers for hiring labour and procurement of food during stress periods.
- The agricultural sector is underdeveloped in labour saving technologies including mechanisation. The use of herbicide, proper fertilizer placement techniques and farm implements would minimise drudgery. A comprehensive mechanisation programme needs to be developed. This issue is dealt with later in section 9.

4.2.6 Technology development and transfer (Extension)

The Departments of Agricultural Research and Technical Services (DARTS) and Agricultural Extension and Training have the mandate to develop and transfer technology, respectively. During consultations, a number of issues were raised : low technology adoption and lack of participatory approaches in technology development.

In ALDSAP a number of strategies are available for improving service delivery. These strategies have had varied impact on agriculture. **The research master plan** was revised in 1995. This has been the basis for research programme development. However, the capacity to implement has been constrained because of lack of actions plan and resources. There is need to up-date the master plan. It should be integrated with the overall Ministry's future agricultural development policies and aligned with the recently developed Malawi Agriculture and Natural Resources Research Master Plan to minimise duplication. The Extension Department should also develop a strategic plan. The technology promotion strategy has not been affective. A technology promotion campaign has to be launched to target winning technologies. The aim should be to improve production efficiency and yield through proper crop husbandry practices.

Interviews with stakeholders revealed that projects do not include participatory approaches. Farmers want field days, on-farm demonstrations and agricultural shows intensified. There is need to train scientists and extensionists in participatory techniques. DARTS has substantial on-shelf technology. The Department needs to document the technologies and package them for farmer use. Most of the technology generated does not have economic analysis. Incorporation of these factors in programme implementation will enhance technology adoption.

Future thrust for research and extension. Research has to be at the cutting edge of applied science in responding to the constraints to production. Some of the potentially high impact areas for research are labour saving technologies to take out the drudgery in farming, soil fertility studies with a focus on sustainable low cost soil fertility improvement and agro-processing. In future the research and extension agenda should be linked to crop development policies. There has to be a systematic programme to package new technology and mount an elaborate promotional campaign. Genetically modified organisms technology is having impact on agriculture. The Ministry should develop modalities for accessing the technology with due regard to health and environmental concerns.

4.3 Future Crops Policies and Strategies

Future crops policies and strategies (Table 4.1) incorporate stakeholder concerns and sustainability mechanisms. They shift responsibility to the private sector, while government's role will be to facilitate development.

- The crop diversification policy will have a commercial orientation. Food and cash crops policies in ALDSAP have been integrated. Crop diversification will be linked to economic diversification. In effect farm-

ers will have to base the choice of enterprise on profitability. Food security at household level will be based on access to income or cash than physical production. National food security considerations will be managed by a comprehensive disaster preparedness policy which will constitute an early warning system, strategic grain, fertilizer, and seed reserves policy, and rapid response mechanisms to deal with pest outbreaks and floods.

- Production efficiency will be a major goal because the market demand is enormous.
- Interventions for the resource poor will not stifle private sector participation.
- Government will enforce legislation in order to create a level playing field for the private sector.
- The establishment of farmers associations and farmer empowerment will be fundamental in ensuring access to production resources. This will minimise the dependency syndrome.

Table 4.1 : Future Policies and Strategies

Problem	Policy	Legislation	Strategy
Lack of fertilizer	**Fertilizer Policy** · Develop a comprehensive fertilizer policy to improve accessibility and utilization	· Fertilizer, Farm Feeds and Remedies Act to be reviewed	· Provide fertilizer coupons for public works · Develop crop and area specific recommendations for fertiliser use · Improve management practices · Promote affordable low cost soil fertility enhancing technologies (agroforestry, manure)
Lack of seed	**Seed Policy** · Review existing policy and incorporate sustainability mechanisms in order to enhance seed availability of all crops	· Review the Seed Act	· Develop and promote sustainable small-scale and large-scale private seed enterprises · Facilitate provision of start-up capital and technical skills to prospective seed entrepreneurs · Provide efficient certification and regulatory services on a cost recovery basis · Establish breeder and foundation seed production programmes
Lack of pesticides	**Plant Protection Policy** · Develop a comprehensive plant protection policy to control diseases and pests	· Plant Protection Act · Pesticide Legislation (draft for Parliament to enact)	· Develop integrated pest management control programme · Train farmers in pest management control · Institute disease surveillance programme · Provide pesticide coupons for public works
Endemic poverty	**Safety-net Policy** · Formulate a sustainable intervention policy for resource poor and disadvantaged communities		· Target interventions · Design participatory approaches in problem identification and solutions · Conduct ex-ante analysis on markets
Low technology adoption rates	**Technology development policy** · Develop a policy which will promote technology development and utilization	· Seed Act · Fertilizer, Farm Feeds and Remedies Act	· Promote use of participatory methodologies in technology development and transfer

4.4 Institutional Framework

In order to implement the new policies and strategies the capacity of DARTS should be strengthened to effectively deliver services. Operational options including the establishment of a parastatal research institute have been proposed under the Civil Service Reform Programme. In order to improve productivity the reform programme for DARTS should take into account staff morale, career structure, incentives, accountability and efficiency. Existing vacant positions should be filled. Promotions should not re-locate staff to administrative positions. The Department has to be re-organised-commodities should be reconstituted, programmes should be rationalised and prioritised. Management Unit (headquarters) should move to Chit-

edze Agricultural Research Station to reduce administrative overhead costs and improve efficiency. DARTS should commercialise research in high value crops. The Department should introduce intellectual property rights. This can be a source of funds through levies. The underutilised land in research stations can be made productive by introducing commercial enterprises such as seed production.

The Extension Department and ADDs are understaffed at field level. Staff have little capacity to visit farmers because of lack of resources. Staff morale is low. A new career structure is required and staff should be accountable through monitoring. Vacant positions should be filled. Programmes have to be prioritised. Extension on high value crops such as tobacco and coffee should be commercialised. Associations and clubs should be empowered to train members on crop management practices. Both DARTS and the Extension Department have to develop comprehensive staff training programmes.

- Research, Extension and Farmer Linkages. There is need to strengthen linkages. The MoAI will implement strategies which were developed by a task force on linkages.
- **Crops Department's** role duplicates those of extension and research. There is no need for it to exist in the new structure.

4. LIVESTOCK POLICIES AND STRATEGIES

5.1 Background

Livestock constitutes a very small sub-sector in the overall agricultural economy. The sub-sector contributes only around 7 % to the total GDP and around 12% of the total value of agricultural production, although it involves over 50% of the 2 million smallholder families. The expenditure on livestock products accounts for less than 10% of the total household expenses and provides about 1.3% of the total dietary protein. Current production and consumption levels are woefully insufficient by international standards and even below sub-Saharan levels. Animal populations are estimated at 619,000 cattle, 1,600,000 goats, 102,000 sheep, 313,000 pigs and 10,366,000 chickens. These populations are low and those for cattle have been decreasing since 1987.

Between now and 2010, it is estimated that Malawi's human population will increase by 34% from 10 million to 15 million. If food production, including livestock, does not grow faster than this, Malawi will face massive in supplies of animal protein and continue to import livestock products, which would be a drain on foreign reserves. Clearly, policies and strategies must be formulated that will promote the expansion of animal production to feed the growing population in a secure and sustainable manner.

The livestock sub-sector has long been subjected to a wide variety of inappropriate government policies that have seriously hampered the development of the industry. It is only during the past few years that the sub-sector has received some attention regarding its contribution to household food security and human nutrition. The strategies put in place seem not to have worked. Some of the policies and strategies pursued currently are summarised below and analysed in relation to the issues and problems raised by stakeholders.

5.2 Analysis of Current Livestock Policies and Strategies in Relation to Issues/Problems Raised by Stakeholders

Stakeholders raised a number of problems and issues regarding the livestock industry in Malawi. The problems were regrouped and prioritized. Six major problems were determined on the basis that solutions to such problems would bring immediate results to the livestock industry with both short-term and long-term benefits.

- Low numbers and productivity of all livestock species as well as lack of access and inadequate numbers of improved breeds ;
- Diseases and parasites decimate livestock populations and reduce their productivity ;
- Stock theft ;
- Livestock markets are closed, not available or non-functional ;
- High cost and/or inavailability of manufactured feeds ;
- Poor livestock husbandry and feeding practices.

The problem of lack of capital which was also assessed as a priority is dealt with under sector-wide policies and strategies in sections 10.3.2. These problems and issues are discussed below and the relevance and applicability of ALDSAP livestock policies and strategies will be analysed. The purpose is to analyse whether the problems or issues raised by stakeholders are addressed by the current policies, strategies, legislation, and projects. On each issue raised by stakeholders, recommendations on the policies and strategies deleted, retained, revised or newly formulated will be provided.

5.2.1 Low numbers and productivity and lack of access to local as well as improved and productive breeds

This problem has two parts. The first part is about low numbers and productivity of all livestock species, while the second part is about the lack of access and inadequate numbers of improved and more productive breeds.

a) Low numbers and productivity of all livestock species

Stakeholders gave low and declining numbers and low productivity of all livestock species as the top priority problem in livestock production. This problem is not specifically mentioned in ALDSAP (1995) except in reference to an overall livestock development policy to " expanding production to satisfy the demand for animal protein on the domestic market". This all-inclusive policy was meant to contribute to the

food security and poverty alleviation policies. The policy has two strategies :

· **Integration of livestock into smallholder systems**

This strategy does not offer a solution to increasing numbers or productivity. The means to achieve the strategy are not clearly indicated. Smallholder systems are generally integrated and the strategy would have impact if improvements through increased and sustainable use of technology and inputs are included. The strategy is supported by small research projects on integration of small ruminants and guinea fowls into the smallholder farming systems conducted by Bunda College in collaboration with Chitedze Research Station. The results have not yet been packaged for farmers' use, and so the benefit to increasing productivity at farm level cannot be assessed at this point. There is no development project managed by government or the private sector on integration of livestock into smallholder farming systems. However, integration of livestock into farming systems is important because livestock mitigate against risk, contribute to reconditioning of soils (nutrient cycling) and to overall household nutrition, employment and incomes.

It is recommended that a new strategy be formulated that deals directly with increasing numbers of all livestock species.

· **Diversification of the range of estate outputs**

ALDSAP states that commercial beef and dairy cattle production, egg and broiler production, and pig production will be promoted prominently in the diversification programme aimed primarily at the estate sector. This strategy addresses partially the problem of numbers, but does not sufficiently cover the issue of productivity and the means to achieve it. Since the formulation of this strategy in 1995, no new estate has taken up livestock production. This is because of the high cost of inputs, e.g., feeds, drugs, raw materials for feeds, and high interest rates on credit charged by banks and other financial institutions. New owners of the privatised livestock farms are facing the same problems. The strategy is indirectly supported by the Small Stock Development Project for poor farmers funded by IFAD/World Bank, but it does not address the estate sector. *It is recommended that the strategy be maintained with a modification to increase the number of estates venturing into livestock production through provision of incentives that encourage participation of the private estate sector*. Actually, estates have vast land that could be used for expansion of livestock production to meet the need for increasing numbers. Government and the estate sub-sector should get together and find ways of promoting use of estate land for livestock production.

Most projects on food security, sustainable livelihoods and poverty alleviation implemented by government or NGOs do not include livestock production. This is unfortunate because livestock provide a reliable source of year-round income, nutrition and employment.

Some of the reasons why efforts to increase numbers of the livestock population have been ineffective are rampant theft and diseases. The Meat and Meat Products Act will be used to enforce regulations and rules governing movement of animals, slaughter of immature and breeding stock, but it will also allow investment in livestock into production and processing by the private sector. The Department of Animal Health and Industry (DAHI) will only monitor and provide licenses. In the past, the Milk and Milk Products Act was used to discourage milk production from the informal sector. Regulations governing milk sales restricted milk supplies to and from the three major dairy factories in Blantyre, Lilongwe and Mzuzu. This forced farmers to sell milk elsewhere at low prices and did not allow expansion of milk production and processing by the private sector. The act will be reviewed to allow private sector involvement and expansion of production even in the rural areas, in line with liberalisation and poverty alleviation policies.

b) Lack of access and inadequate numbers of improved breeds

Stakeholders have no access to improved breeding stock of all species. Although there is no policy to address the problem in ALDSAP(1995), there are strategies in the document designed to solve the problem. These are discussed below.

· **Revitalising and improving efficiency of artificial insemination (AI)**

According to ALDSAP (1995), the strategy was designed to increase and expand the dairy herds in the smallholder dairy schemes in the southern, central and northern milkshed areas through upgrading. The schemes had focused exclusively on dissemination of exotic breeds from government farms and through government AI services. The services were useful at the beginning of the dairy programme, but the number of animals the government could supply was too small, consequently the programme has hardly had any impact. This is because AI services were not well organised. Currently, the AI system is seriously hampered by lack of sufficient operating funds, which affect mobility of staff and the supply of liquid nitrogen. The prices of the resulting crossbred cows were too low to cover the expenses. In addition, AI services were only restricted to milkshed areas and on government beef ranches. There is need to expand AI services beyond the milkshed boundaries so that animal numbers can be increased even in the Zebu cattle herd.

Recommended strategies

· Rehabilitate the bull centre and the nitrogen plant at Mikolongwe NAIS centre in order to guarantee adequate production and distribution of both extended and frozen semen on cost-recovery basis ;

· Privatise the AI service and/or make it sustainable and effective through cost recovery and training of both the AI technicians and the farmer AI representatives.

· **Genetic improvement and crossbreeding programmes**

This overall breeding strategy formulated in ALDSAP was designed to produce and distribute improved and productive animals to farmers for the following programmes :

· Beef cattle stall-feeding system ;

· Black Australop chicken to improve local chickens ;
· Promotion of crossbreeding of local pigs with exotic breeds ;
· Improvement of the local goats and sheep.

These programmes adequately cover the demands of the stakeholders. Previously, the government implemented these programmes through either revenue or projects funding at various government livestock centres or farms. The strategy made a significant contribution to the stock needs of the farmers. However, due to poor government funding, poor management and low livestock prices, all centres and farms, except three, collapsed and were eventually privatised. The privatisation strategy formulated during ALDSAP was meant to get the private sector involved in breeding and multiplication of livestock, increase their numbers and productivity. However, the livestock demand gap has not been filled up to now due to lack of support and incentives for the private sector. As a result, the problem of accessing improved and more productive animals still persists. The strategy will, however, be maintained, but with some changes as recommended below.

Recommendations

· Promote importation of semen and suitable breeds of animals by the private sector for sale to other farmers in order to rapidly increase numbers of improved breeds ;
· Establish private stud breeders as well as hatcheries and supported by favourable credit facilities to encourage investments in the selection and cross breeding of livestock ;
· Establish smallholder" send-an-animal" schemes in the rural and peri-urban areas to rapidly increase numbers of farmers and animals.

Since there is no policy in ALDSAP, a livestock development policy will be formulated with the objective of increasing the production and productivity (quality) of the national herds and flocks through utilisation of adapted breeds, including imported ones, depending on farmer management level, production system or agro-ecological zone, while avoiding indiscriminate breeding with exotic breeds.

The legislation regarding meat and milk will be reviewed to allow private and informal sector participation in breeding and production. Legislation is required to prevent indiscriminate breeding with exotic breeds. However, the Control and Diseases of Animals Act can be used to regulate imports of breeding stock.

5.2.2 Diseases and Parasites

Diseases and parasites have decimated livestock populations and caused reduced productivity of all livestock species. This is due to the inability of the Veterinary Services to maintain effective surveillance and disease control measures. The most important diseases cited by stakeholders were parasitic and viral diseases mainly tickborne diseases, and especially East Coast Fever (ECF). Others included New Castle Disease (NCD) and Gumboro in poultry, African Swine Fever (ASF) in pigs, Blackquarter and Lumpy Skin disease in cattle, and Tuberculosis in both humans and livestock. Foot and mouth disease outbreaks occur, especially in the North (Karonga) and South (Nsanje).

Stakeholders complained of lack and/or high cost of drugs for the most common diseases and health conditions like helminthiasis, NCD and Gumboro, coccidiosis, blackquarter, and mastitis. Tick-borne diseases are now more prevalent due to the breakdown of the dipping system. There is need to address delivery mechanisms of veterinary services to control diseases and availability of drugs. The cost of drugs may not be easy do deal with because they are the result of market forces in a liberalised economy.

ALDSAP (1995) does not have a national disease control policy. However, CODA (1994) and NLDMP (1998) mentioned such a policy whose objective is" to control major animal diseases in order to ensure a permanent basis for an expanded livestock industry and maximum protection to the public against animal diseases that affect people (zoonoses)." This policy is still valid and will be retained as an objective within the livestock development policy proposed. It is surprising that although ALDSAP does not mention this policy, yet, over 60% of the funds allocated to current projects in the livestock sub-sector are on animal health and disease control. In ALDSAP there are two strategies for the control of diseases and parasites :

· **Government to finance disease control not provided by the market**
· **Conduct research and extension on a few contagious diseases**

These strategies are not sufficient to address the problem of availability and cost of drugs as well as the negative impact that diseases and parasites have on livestock. In addition, they do not consider the mechanisms of disease control delivery that will conform to the current reforms that have taken place since ALDSAP was formulated. Despite the lack of clear strategic formulation in ALDSAP, there are other current strategies used to support implementation of the disease control policy.

· **Disease surveillance and control of contagious diseases**

This strategy involves the implementation of disease surveillance and control programmes and the supporting measures. It is the most important one, and probably takes most of the resources of DAHI since it involves coordination with neighbouring countries to control trans-boundary diseases, which are a threat to the sub-sector in Malawi. The impact has been substantial. Although these diseases are available in the neighbouring countries (Tanzania, Zambia and Mozambique), Foot and Mouth Disease (FMD), Rinderpest and Chronic Bovine Pleural Pneumonia are under control in Malawi. Other diseases such as African Swine Fever, New Castle Disease and Gumboro have somehow been contained. This has been achieved through movement control, strong disease surveillance, emergency response and quarantine measures. The Government should continue allocating money to implement this strategy. The control of contagious endemic diseases like ASF, NCD and Gumboro could be handed over to the farmers on a cost-recovery basis, but Government will include a contingency fund for emergency vaccinations where necessary. The department also has a good component on control and prevention of zoonotic

diseases, like tuberculosis, rabies, brucellosis, and cysticercosis. However, enabling legislation is required to clarify the respective responsibilities and functions of Ministry of Agriculture and Irrigation（MoAI）, Ministry of Health and Population（MoHP）and Ministry of Local Government（MoLG）on public health.

There have been many projects to support surveillance and control of contagious and transboundary diseases. The success of the strategy can be quantified by low incidences of these diseases.

This strategy will be retained as the core function of DAHI, but will be reworded to read" *Establish, implement and maintain an effective and comprehensive disease surveillance and control of contagious diseases from within and outside Malawi*". An additional strategy is formulated to deal with" *Strengthening the implementation of livestock products inspection, animal movement controls tuberculosis testing and rabies control to protect the public*".

· **Cost-effective disease control interventions strategies**

The control of some diseases like NCD or Gumboro in poultry, trypanosomiasis and tick-borne diseases, black quarter and helminthiasis was previously provided free by DAHI. Due to problems with financial resources and efficiency in delivery systems, several strategies on cost-sharing or cost recovery have been introduced.

a) Delivery of basic animal health extension. Basic animal health services are delivered to livestock farmers through village livestock groups（VLGs）for smallholder farmers or similar arrangements for the peri-urban small-scale commercial farmers. Veterinary assistants（VAs）provide the health messages. The problem is that most of the VAs have had no training in participatory extension methods（PEM）. There is need to improve skills of the VAs to deliver effectively the messages through farmer groups. The strategy is maintained and includes training of selected key farmers who will in turn assist fellow farmers in animal health extension.

b) Drug revolving fund (drug box). To make drugs readily available and at reasonable cost, farmers in Mzuzu and Karonga ADDs have formed village livestock groups（VLGs）through which drugs are channeled and livestock extension messages delivered. A Drug Revolving Fund（DRF）was established from initial funds provided by GTZ, and drug boxes were established for each group using the funds. A farmer buys drugs from the box on cash basis. The system is based on farmer empowerment and community participation. The strategy has succeeded in supplying drugs to farmers where they were always in short supply or not available when the animals were sick. At the regional and national level, the VLGs have formed a trust called the Foundation for the Improvement of Animal Health（FIAH）, which manages drug boxes and livestock extension activities. Disease and parasite control is now easier in Mzuzu and Karonga ADDs.

In spite of some teething problems, the drug box strategy is working and will be continued. It is a sustainable strategy as the farmers themselves are empowered to operate the drug boxes using their own funds. Not all the farmers can afford the drugs, however, because they are still too expensive since they have to be imported with a tariff charged on them. Government will consider reviewing import regulations for such important inputs in the sub-sector. A similar drug box（drug revolving fund）scheme which was introduced in the Central Region and operated by the EU-funded SADC Animal Disease Control Project（SADC ADCP）, allows veterinary assistants（VAs）to sell drugs to farmers at a profit. This is a welcome development, as it will facilitate the eventual privatisation of veterinary field services, including meat inspection and field surveys. This approach will work if the main purpose is to privatise the supply of drugs and some minor veterinary services, but is liable to abuse and over-profiteering by the VAs. To avoid this, DAHI will closely monitor the operations of these VAs.

Legislation dealing with the Control and Diseases of Animals Act, Veterinary Private Practices Act and the Pharmacy, Medicines and Poisons Act will be reviewed or amended to allow veterinary assistants to retail veterinary medicinal products instead of only fully qualified pharmacists or undertake basic curative animal health services. There is also need to encourage utilization of ethno-veterinary practices in the control of animal diseases by farmers.

c) Veterinary private practitioners. The gradual privatisation of the veterinary profession by establishing veterinary clinics in major towns will bring assistance to both urban and peri-urban farms. Progress on the implementation of this strategy is very slow due to the small customer size in the major towns. The problem with this approach is that it can not be extended to the rural areas where veterinary assistants are operating in order to reduce or avoid competition. However, private vets will be allowed to practice in the rural areas if they are willing to do so.

Enabling legislation will be enacted by revising the Control and Diseases of Animals Act, Veterinary Private Practices Act and the Pharmacy, Medicines and Poisons Act to allow private veterinarians to retail veterinary medicinal products instead of only fully qualified pharmacists, and allow for subcontracting of some animal health inspection activities to them.

An impact analysis will be carried out of the GTZ-funded Basic Animal Health Services（BAHS）approach and the EU-funded SADC Animal Disease Control（SADC-ADC）approach. The one which delivers effectively at lower costs will be promoted and expanded, otherwise a way should be found to harmone the two approaches.

d) Dip tank. Dipping facilities and their management are no longer the responsibility of the Government. They were handed over to farmers who must finance the purchase of the acaricides. In principle, this is a welcome development. However, it has had a negative impact in that most of the dip tanks have ceased to function. This is because the handing over of this responsibility to farmers was done haphazardly and abruptly without preparing the farmers. Farmers need training on how to manage a common resource and require seed money for operational costs. Previously, weekly dipping was compulsory in order to con-

trol tick-borne diseases. The new dipping strategy will require that legislation on Control and Diseases of Animals should be reviewed to provide for voluntary dipping.

The overall strategy for (a), (b), (c) and (d) is reformulated to read" *Expand and support cost-effective basic or primary animal health care services through community and private sector participation*".

· **Continuous farmer and field staff education**

This is important for imparting knowledge about diseases, their prevention and control. This strategy is for both the DAHI and the private sector. However, a clear policy on how the MoAI (DAHI) intends to carry this out (FAs versus VAs) will be determined when the new structure of the Ministry is in place.

Malawi has obtained assistance from many donors for the control of specific diseases. Disease control currently takes over 60% of all current project funds within DAHI. Although stakeholders ranked diseases and parasites as one of the most important problems, the share of financial resources is skewed in favour of disease control. Most of these projects have suffered from lack of sustainability and follow-up on the government's side, top-down approach in project planning and implementation, projects are simply uncoordinated bits and pieces of a system, and lack of ex-ante and post-ante assessment of impact. These aspects will be considered in any future projects on disease control.

In line with current reforms in the delivery of veterinary services and disease control measures, the objectives within the proposed livestock development policy will be :

· To control major animal diseases in order to ensure a permanent basis for an expanded livestock industry and maximum protection to the public against animal diseases that affect people (zoonoses) and meet international obligations ;

· To improve and sustain animal health by private sector and farmer involvement in delivery of animal health services.

5.2.3 Stock Theft

Whole herds or flocks of livestock, including immature and breeding stock and work oxen, are stolen and slaughtered either in the bush or at ungazetted slaughter places. This problem is relatively new and is not mentioned in the ALDSAP. The theft is of great public concern since it affects all communities in the country. One of the major causes of theft is liberalisation of input/output markets and decontrol of prices. These policies have provided incentive market price signals to all Malawian citizens. The high prices together with the breakdown of law and order have increased the practice of theft, which has discouraged investment in the livestock industry.

Currently, the problem of theft or security is the jurisdiction of the police. However, within the livestock development policy, a strategy is required to provide a secure environment for livestock investment and development. Legislation is also required to deal with the problem.

Communities will be empowered to deal with theft in liaison with the Police by forming security units and the provision of village certificates of livestock ownership. Rules and regulations regarding livestock slaughters, movements and marketing will be enforced through community involvement and civic education.

5.2.4 Markets and Marketing Problems

Problems in livestock markets and marketing are different from those in crop marketing. Stakeholders complained that markets are closed, not available or non-functional. Further, access is difficult due to poor road infrastructure, lack of transport, handling and storage facilities and unfair marketing practices. Markets and marketing of other livestock species is not formalized. Agro-processing and marketing of livestock products is minimal.

There is no policy in ALDSAP specific to livestock marketing. This aspect is indirectly covered under the liberalisation policy, particularly the marketing and pricing policy. ALDSAP has a strategy on livestock marketing which stipulates" provision of improved facilities for transport, auction and slaughter of livestock". This strategy is no longer valid because of the liberalisation policy which in ALDSAP states that" agricultural outputs and inputs markets have been liberalised for both goods and services to produce a competitive rewarding environment for increased and sustainable agricultural production. All barriers to production and marketing will be removed". Unfortunately, liberalisation of markets has led to the collapse of most of the live-weight markets due to the following reasons :

· Liberalisation of markets was not accompanied by efficient support services, e.g., road maintenance, transport systems, rural electrification, etc ;

· It has benefited the butchers or intermediate buyers rather than the farmers, especially where the farmers are not organized (currently there is no mechanism to control abuse through monopolistic cartels which buyers form during livestock marketing) ;

· There is lack of resources to rehabilitate markets and sustainably operate them ;

· Marketing is irregular.

The objectives of a policy on agricultural markets are :

· To promote the development of markets and marketing of livestock and livestock products ;

· To regulate markets and marketing of livestock with respect to slaughter of young and breeding stock, diseases, theft and monopolistic cartels of buyers.

5.2.4.1 Community/group-based participation

DAHI changed the marketing strategy in 1996 so that farmers could take over the responsibility of op-

erating government live-weight markets. This strategy encourages groups of farmers to engage in livestock marketing together in a self-help spirit（community participation）. It gives farmers the liberty to sell at the prices that reflect the cost of inputs. It also reduces the financial and human resource burden of DAHI in operating the markets. This approach will be encouraged as assistance or credit（loan）could be accessed through groups or associations for operation of the markets.

5.2.4.2 Private sector involvement

The liberalisation of markets has also allowed entry of private entrepreneurs like Ori Meat Products, Midima Meat Products, Crystol Foods, Dairibord（Malawi）Ltd., and others in the processing and marketing of livestock products. ALDSAP does not specifically mention private sector involvement in livestock processing and marketing. The strategy has led to several companies to participate in processing and marketing of livestock products. However, lack of access to finance, and lack of marketing intelligence require consideration if market failure by this sector is to be avoided. Establishment of mini-dairies, poultry slaughter equipment, egg grading machines, rural abattoirs, chilling and storage facilities will encourage agro-processing and formalization of markets.

Although the Agricultural and Livestock Marketing Act and the Fertilizers, Farm Feeds and Remedies Act were reviewed to encourage participation of farmers and the private sector, there has not been any impact due to lack of access to financial resources and market information. There is need to seek assistance for the review study of economical and marketing strategies for national livestock products regarding loan schemes for livestock owners, competitiveness of national versus imported products and provision of information for livestock entrepreneurs. There is also need to quickly review the Meat and Meat Products Act as well as the Milk and Milk Products Act to allow investors to expand even to areas outside current production, processing and marketing boundaries.

Examination of all current projects available in the sub-sector shows a great deficiency in the marketing area. It is therefore, important that when projects are planned, they are holistic in nature, to include all areas from production through processing to marketing. Marketing is an area where donor support is required, especially where groups of farmers operate.

For the livestock markets to operate efficiently, and effectively on a sustainable basis, the following strategies will be implemented :

- Assist farmers organizations to own and rehabilitate cattle markets.
- Regulate and monitor marketing activities with respect to slaughter of stock, theft, diseases, inspection of livestock and their products.
- Assist farmers' organizations to construct, manage rural abattoirs, and mini dairies and associated chilling and storage facilities.

Enabling legislation will be enacted to allow community participation and private investment in livestock marketing. Strong linkages will be developed between the livestock industry and the organizations that deal or will deal with activities such as rural feeder road network rehabilitation and maintenance ; rural electrification ; and rural transport networking.

5.2.5 High cost and/or inavailability of manufactured feeds

Major problems faced by the stakeholders were high cost of formulated（concentrate）feeds and their inavailability, especially for dairy cattle, pigs and poultry. Essential raw materials, such as vitamin and mineral premixes, used in formulating livestock feeds are imported either from Zimbabwe or South Africa and attract a tariff. This has made local feeds too expensive and has forced stakeholders out of business because of unfair competition resulting from government's regional trade policies. In addition, the feeds and feed ingredients imported are not closely monitored for quality as liberalization of marketing and trade has encouraged unscrupulous informal trade of sub-standard products.

The policy objective in ALDSAP is" to have reliable and efficient concentrate feed industry critical for development of the livestock industry". The issue is also indirectly affected by the liberalisation of input/output markets, which was designed to improve private sector participation. Several strategies were designed to achieve these policies :

- **Provide support to programmes for increased production of cereals and oilseeds**

This strategy was designed to produce raw materials locally for the feed manufacturing industry at the lowest possible cost. There have been no special programmes to implement the strategy since ALDSAP was formulated. However, producing cereals and oil seeds for feed manufacturing is a secondary objective as the ingredients are the same as those used for human consumption. In this respect it is in conflict with the food security policy. It is difficult to persuade estates to produce specifically for the feed industry unless under contract or there are profits to be made.

- **Encourage private sector to invest in feed formulation and processing**

The private sector must be provided with incentives in order to invest. Since 1995 when ALDSAP was formulated, the government has failed to assist the private sector feed industry. As a result, feeds, including raw materials, have had to be imported from Zimbabwe and South Africa at a high cost due to the tariff charged on essential raw feed materials that have to be imported for the production of formulated feeds.

Regional trade policy stipulates that all trade restrictions should be removed. However, a contradiction has arisen where the same Government has put a tariff on imported raw feed materials that cannot be locally produced. This makes Malawi uncompetitive with neighbouring countries who produce feeds and hence livestock very cheaply. In addition, surtax is charged on feeds processed locally. This has dis-

couraged local feed production and has led to the collapse of the livestock industry, especially the poultry industry. Other livestock enterprises threatened by these policies are the dairy industries (both powdered milk and raw feed materials) and the pig industry. Unless Government reviews these import regulations, these industries are unlikely to revive.

The strategy is retained subject to Government review of tariffs and the need to protect the industry from unfair competition.

· **Identify and provide sources of credit for investment in feed formulation and processing**

The Government has failed to assist the private sector since 1995. The loans available have high interest rates and in some cases, they are targeted to crop production only. In Section 5.5 of the ALDSAP, no credit is mentioned and the means of soliciting for credit was not indicated. Credit will encourage investors to produce cereals and oilseeds for the feed industry.

· **Establish, monitor and enforce regulations on feed standards**

This strategy is important and valid especially with the liberalisation of the markets. Liberalisation has meant importation of even sub-standard feeds and feed raw materials by unscrupulous cross-border traders. There will be need to closely monitor this aspect either through DAHI, Malawi Bureau of Standards or by establishing an independent quality monitoring body to enforce these regulations.

Associated with this strategy was the repeal of the Agricultural and Livestock Marketing Act and the amendment of the Fertilizer, Farm Feeds and Remedies Act to provide a legislative framework that would allow involvement of the private sector and tariff free entry of agricultural inputs into the country.

A livestock development policy should be formulated to promote development of local feed manufacturing industry through provision of incentives such as tax-free imports of essential ingredients. A Livestock Feeds Act separate from the Fertilizers, Farm Feeds and Remedies Act will be enacted. This will be followed by a review of import regulations on imported raw feed materials, similar to the removal of tariffs in the poultry industry. Information is required on alternative feeds that are locally available, and on the technologies for mixing the feeds. Farmers will be trained in the production and formulation of feeds.

5.3 Future Policies and Strategies

Future policies and strategies are presented in Table 5.1. They are ranked according to responses of the stakeholders. Stock insecurity is ranked higher than expected because stakeholders stated that it was a disincentive to invest in livestock.

Table 5.1 : Livestock policy, objectives and strategies according to priorities

Priority	Problem/issue	Policy/Objective	Legislation	Strategy
1.	Low livestock populations, low productivity, and lack of access by farmers to improved and more productive breeds	· **Livestock breeding objective** : To increase numbers and productivity (quality) of the national herds and flocks through utilisation of adapted breeds, including imported ones, depending on farmer management level, production system or agro-ecological zone, while avoiding indiscriminate breeding with exotic breeds	Supported by the · Meat & Meat Products Act · Milk & Milk Products Act Which require urgent review · Legislation is required to prevent indiscriminate breeding with exotic breeds · The Control and Diseases of Animals Act to deal with imports of breeding stock	· Rehabilitate the bull centre and the nitrogen plant at Mikolongwe NAIS centre to guarantee adequate production and distribution of both extended and frozen semen even beyond current milkshed boundaries on cost-recovery basis · Establish private stud breeders, ranches and feedlots, AI services and" send-an-animal" schemes as well as hatcheries and support them by favourable credit facilities to encourage investments in selection and cross breeding of livestock · Promote importation of semen and suitable breeds of animals by the private sector stud breeders for sale to other farmers on cost recovery · Enforce rules and regulations that control the indiscriminate slaughter of young and breeding stock as well as livestock theft (See priority 3)
2.	Diseases and parasites decimate livestock populations and reduce productivity	· **Animal disease control objective** a) controlling major diseases of animals including those transmissible to man to ensure permanent basis for expansion of livestock industry and meet international obligations b) improve and sustain animal health through involvement of the private sector and farmers in delivery of animal health services	Need for review of : · The Control and Diseases of Animals Act (1967) · The Pharmacy, Medicines and Poisons Act · Veterinary Private Practice Regulations · Fertilizers , Farm Feeds and Remedies Act (1973)	· Establish, implement and maintain an effective and comprehensive disease surveillance and control of contagious diseases from within and outside the country · Strengthen the implementation of livestock products inspection, tuberculosis testing, animal movement controls and rabies control to protect the public · Expand and support cost-effective basic or primary animal health care services through community and private sector participation · Provide effective and comprehensive management and nutrition packages through groups, clubs, associations or cooperatives as a means to prevent and control diseases
3.	Stock theft-livestock are stolen	· A policy is required to provide a secure environment for livestock investment and development	Legislation is required to deal with the problem	· Form farmers' groups, or community security units in liaison with the police (community policing) to control both theft and illegal animal movements and slaughters · Enforce rules and regulations governing livestock slaughters, movements, and marketing
4.	Government livestock markets are closed, not available or non-functional	· A markets and marketing policy is required to a) promote the development of markets and marketing of livestock and their products ; b) regulate markets and marketing of livestock with respect to slaughter of young and breeding stock, diseases, theft and monopolistic cartel of buyers	Need for legislation that allows community participation and private investment in livestock marketing	· Assist farmers' organizations to own and rehabilitate cattle markets · Regulate and monitor marketing activities with respect to slaughter of stock, theft, diseases, inspection of livestock and their products · Assist farmers' organizations to construct rural abattoirs (for all livestock) and mini dairies as well as associated chilling and storage facilities, and egg grading
5.	High cost of manufactured feeds or their inavailability	· A policy is required to promote development of local feed manufacturing industry through provision of tax incentives on inputs of essential ingredients	· There should be a separate Livestock Feeds Act in place of the Fertilizers, Farm feeds and Remedies Act	· Provide support, such as favourable credit, for programmes for increased production of cereals and oilseeds on estates and commercialized smallholder farms · Review taxation rules and regulations regarding importation of raw feed materials such as vitamin and mineral premixes to encourage private sector investment in feed formulation, processing and marketing · Establishing an independent body to monitor and enforce regulations on feed standards · Promote research on non-traditional feeds

5.4 Institutional Framework

5.4.1 Animal health services

The Department of Animal Health and Industry (DAHI) provides 24 different types of services to both the smallholder farmers and the medium/large-scale farmers. As can be seen in Table 5.2, all of the services are directly related to animal health and control of animal diseases, except animal production, marketing and animal husbandry advisory services. The ALDSAP provides a strategy whereby DAHI

would primarily be organised to generate and disseminate profitable technologies that would increase livestock production and productivity. Given this overall policy, neither disease control and treatment, nor the generation and dissemination of livestock production technologies are carried out effectively or efficiently. This will be addressed by some introduction of institutional restructuring and reallocation of responsibilities through divestiture, sub-contracting or involvement of the farming community in all aspects of livestock development.

Table 5.2 gives recommended roles of DAHI and the private sector in financing, and the modalities for provision of the services. The DAHI staff were consulted during delineation of these functions into core (those to be retained by DAHI) and non-core (those to be divested or handed over to the private sector) functions. There were other functions, which could not easily be classified, but can be shared between Government and the private sector. These functions will gradually be privatized once the private sector builds its capacity.

Functions of the DAHI will be reduced to 10. Eight of the remaining 14 should be devolved to the private sector and the other six will gradually be handed over to the private sector. Meanwhile, DAHI and the private sector will share responsibilities of these six functions. This allocation of functions will enable DAHI to carry out the most important public services efficiently and effectively with the current budgetary allocations and make savings on those that can be privatised. This is in line with the ALDSAP strategy of private sector involvement in delivery of veterinary services. Since 1995 when ALDSAP was developed, some clinical services, vector control, herd health and production programmes have been handed over to the private sector and the community. It is an important strategy to build up capacity of the private sector through advice, training and research so that the sector can efficiently perform and prepare itself to take over more responsibilities.

Table 5.2 : Recommendations for the roles of DAHI and the Private Sector in financing and delivering veterinary services

SERVICE	FINANCE		DELIVERY	
	PUBLIC	PRIVATE	PUBLIC	PRIVATE
Disease surveillance (Contagious diseases	GoM		DAHI	
Disease diagnosis and reporting	GoM			Subcontract to PVP
Clinical diagnosis and treatment				Private Sector
Compliance monitoring	GoM		DAHI	
Compulsory testing	GoM		DAHI	Subcontract to PVP
Drug/vaccine production and distribution		Private Sector		Private Sector
Drug vaccine quality control	GoM		DAHI	
Vaccinations	GoM		DAHI	Subcontract to PVP
Artificial Insemination	GoM/Donor to rehabilitate the current AI centre	Cost recovery Private Sector		Private Sector
Food hygiene/inspection (export and certification)	GoM		DAHI	
Tick/tsetse control	GoM to assist in rehabilitation of dip tanks + borehole construction	Cost recovery (Dipping Committee or Livestock Committee to collect fees	DAHI (for tsetse) with community participation	BAHSP, SADC-ADCP, PVP (DAHI to monitor)
Herd health and production programmes		Private Sector		BAHSP, SADC-ADCP, PVP (DAHI to monitor)
Accreditation of personnel	GoM		DAHI	
Disease emergency response	GoM		DAHI	
Marketing livestock and its products	GoM to assist in rehabilitation of all markets	Cost-recovery	DAHI only to supervise and advise	Community and committees(also FIAH)
Planning for emergencies	GoM		DAHI	
Animal welfare	GoM		DAHI	Subcontract to PVP
Diagnostic support	GoM	Cost recovery (Commercialise)	DAHI	CVL to act as an agency, a centre for diagnostic excellence
Livestock credits		Private Sector		Private Sector
Notifiable disease control	GoM		DAHI	
Zoonosis control and public health	GoM		DAHI	Link with MoHP, MoLG,CAMA,MBS
Research and field testing	GoM		DAHI	Contract to Private Research institutions
Advice, training and research	GoM	Private Sector	DAHI	Private Sector
Drug registration	GoM		DAHI	Link with PMPB

GoM Government of Malawi
PVP Private Veterinary Practitioner
DAHI Dept. of Animal Health and Industry
BAHSP German-Malawi Basic Animal Health Services Project

SADC-ADCP	SADC Animal Disease Control Project	**MoHP**	Ministry of Health and Population
MoLG	Ministry of Local Government	**CAMA**	Consumers' Association of Malawi
MBS	Malawi Bureau of Standards	**PMPB**	Pharmacy Medicines and Poisons Board

5.4.2 Livestock husbandry advisory service

The services provided by Livestock Husbandry Advisory Service are to transfer technologies from research to all types of farmers. The technologies are in the areas of feeding and pasture management, housing, breeding (including AI), disease control, milk hygiene and marketing. In some cases, subjects like bookkeeping and group dynamics are taught by specially trained personnel.

ALDSAP (1995) indicated that livestock extension will be provided by field assistants belonging to the Department of Agricultural Extension and Training, except specialised training which would be the prerogative of the DAHI. *The extension policy to be pursued by MoAI (FAs versus VAs) should be clarified. Multi-skilling is recommended so that both VAs and FAs are capable of advising farmers on all aspects of farming enterprises. Extension activities and messages between DAHI, NGOs, projects and other link ministries should be coordinated.*

5.4.3 Livestock farmers organisations

Government is facing a lot of resource constraints and must therefore place emphasis on community initiative and participation. This entails using local resources to increase self-reliance and empowerment. Examples of farmer organisations so far in existence are clubs, village groups, associations and cooperatives. Their roles are to promote the spirit of self-help and self-reliance and to take advantage of economies of scale in areas of marketing, input acquisition and negotiations with Government and other organisations. Farmer organisations are efficient mechanisms for delivery of livestock extension messages. Examples of farmers' organisations are the Foundation for the Improvement of Animal Health(FIAH), Milk Producers Associations and the Poultry Industry Association of Malawi (PIAM). ALDSAP (1995) indicated that government will encourage formation of farmers' organisations.

The formation of farmer organisations and agricultural cooperatives will continue to be encouraged and supported for purposes of extension and training, economies of scale, and to instill the spirit of community participation and self-reliance.

5.4.4 Research

Agricultural research in livestock, especially animal production, is conducted jointly by Department of Agricultural Research and Technical Services (DARTS) in the MoAI and Bunda College of Agriculture in the University of Malawi. At Bunda College, research is conducted in the Department of Animal Science. Animal research is also conducted by DAHI, mostly at the Central Veterinary Laboratory. The mandate of the CVL is to conduct basic and applied research in order to generate technologies or new information useful for farmers and consumers of livestock products. It also generates epidemiological data on diseases and livestock production to guide the department in updating or reformulating its policies in animal health and production.

Potential areas of livestock research as given in ALDSAP (1995) on breeding, animal nutrition, disease and parasite control, pasture and forage development and feed formulation are still relevant, but do not represent the current views and priorities of the farmers and other stakeholders. Most of the research results have not been taken to farmers. This means that there has not been any impact on the major stakeholders.

Research priorities on feeds and nutrition, livestock management, rapid stock multiplication, parasites and diseases, breed improvement and processing, storage and utilisation produced in the National Research Council's (NRC) Master Plan for Agriculture do not tally with the current ALDSAP review priorities.

The livestock researchable priorities will be on increasing the numbers and productivity of livestock, disease and parasite control measures, markets and marketing technologies, feed production and formulation as well as packaging animal health and management practices, in this order. Where possible, the private sector, e.g., Malawi Industrial Research and Technology Development Centre (MIRTDC), will be involved in generating near-to-market technologies.

.4.6 Human resource capacity and development

Staff attrition through retirement and death mainly due to HIV/Aids, has led to a deficiency of professionals at both ADD and RDP levels where services are required most. Field staff complained of lack of incentives and low morale, and lack of proper supervision. There is also over-emphasis on Veterinary Services Section compared to Animal Husbandry Section, evident from resource allocation and manpower policies practiced by the Department.

The following need to be implemented :

- **Capacity and requirements**. DAHI will urgently embark on training or capacity building of the staff. As an interim measure, some professional staff from the Department's Headquarters will be deployed in RDPs until more staff are recruited.
- **DAHI's manpower policy**. DAHI should develop a policy of providing incentives for good performance. Horizontal promotion on merit is recommended. Ownership schemes should be extended to all staff. Sufficient funds must be provided to field staff according to annual work plans produced and higher level staff should avoid ad hoc meetings. Staff should be deployed in positions for which they were trained. There is need for equitable advancement in career opportunities for staff in both the Veterinary and Ani-

mal Husbandry Sections.

5.4.7 Decentralization and coordination

The rationale of the Decentralisation Policy is that it channels the centre of implementation to the grassroots, thereby promoting the participation of the communities in development activities at district level. It removes the bureaucracies of the various levels of Government, making implementation more effective and efficient.

It is recommended that all the livestock extension and veterinary services should be decentralised. Most of the professional staff will be deployed to RDPs to be closer to the sites of implementation. DAHI will develop mechanisms to strengthen coordination and collaboration with other departments, Bunda College, NGOs and other relevant stakeholders.

6. LAND RESOURCES CONSERVATION POLICIES AND STRATEGIES

6.1 Background

Land resources, especially soil and water, are the cornerstones for sustainable agricultural production and development in Malawi. As an agricultural country, Malawi needs to wisely utilize the natural resource base to ensure sustainable social and economic development. However, the natural resource base is deteriorating sharply as evidenced by soil erosion and degradation, water pollution, siltation of watercourses and irrigated areas, pasture degradation and deforestation.

Malawi has a land area of 9.4276 million hectares (94, 276 km^2) of which only 32 per cent is suitable for rainfed agriculture under the prevailing unimproved management practices. Malawi with a 1998 population of 9.8 million and growing at the rate of 1.9% per year is the most densely populated country in the SADC region (104 people per km^2).

In 1987／88, 56% of all smallholder farm families in Malawi cultivated less than one hectare of land each, 31% had 1 to 2 hectares, and the remaining 13% had more than 2 hectares. Within these categories, average landholding sizes were 0.55 ha, 1.40 ha, and 2.91 ha respectively, with a national average of 1.11 hectares. The per capita arable land availability ranges from as low as 0.024 hectares in some parts of Chiradzulu District to no more than 1.451 hectares in Nkhata Bay. With the present high population growth rate, landholding sizes will continue to be fragmented further to sizes which would not, even with the best of technologies, produce enough for a household. These small land holdings also make farm mechanization and the formulation and implementation of farm conservation plans difficult.

There is growing concern within Malawi over the decline in the productive capacity of the country's soil resources. The most recent State of the Environment Report (1998) ranks soil degradation as the most serious environmental problem facing the country. It is estimated that Malawi loses a total of 160 million metric tones (mt) of topsoil per year averaging 20 mt/ha/ year and contributing to mean crop yield loss of 4 -11 percent per year. The cost of soil erosion in terms of replacing lost nutrients and organic matter together with other 'offsite' costs is enormous.

Soil fertility has also declined. During the 1960 s unfertilized local maize typically yielded 1700 kg/ha. Now yields have fallen to a national average of less that 1, 000 kg/ha. Across the country the response of maize to fertilizer has declined : in Lilongwe, for example, it has fallen from an average of 23 kg maize (local) per kg of nitrogen in 1957-1962 to 13 kg per kg of nitrogen in 1983-1985.

The issues of high population growth rate, poverty, and land degradation are related. Firstly, the rapid population growth rate which has led to increased demands on the limited land and exceeds its regenerative and assimilative capacity must be checked. Secondly, poverty of the majority of small-scale farmers in Malawi that leads them trade off long-term sustainable land use for short-term unsustainable uses must be dealt with head on. Thirdly, the stakeholders have indicated that market and policy failures that have led to inefficient resource allocation, lack of investment in land management technologies and subsequent land degradation must be

7.3 Malawi's Irrigation Potential

A lot is already known about irrigation potential in Malawi. Several studies done since the 1970 s put the irrigation potential at 200, 000 ha of which only 26, 100 ha have been exploited leaving 174, 000 ha to be developed. Most of this land lies in the plains along the shores of Lake Malawi in Karonga and Nkhotakota -Salima, the Lake Chilwa Plain, the Lower Shire Valley and the flood plain of Limphasa River in Nkhata Bay. These areas have fertile soils and adequate water resources for the development of irrigated agriculture.

In 1970, with funding from FAO/UNDP, Lockwood Survey Corporation Ltd. of Toronto conducted a study for an Irrigation Development Plan for the Lower Shire Valley. In 1973, another study was carried out with financial assistance from the United Nations by Sir William Halcrow and Partners, London, to define irrigated areas of the Lake Malawi catchment. Fresh studies on the assessment of the country's potential for irrigation were done in 1980 by Hunting Technical Services Ltd., UK, with a view to understanding the performance of existing irrigation schemes, assessment of future irrigation development and to undertake more detailed studies of the Lower Shire Valley. The project, under the tittle" National and Shire Irrigation Study" (NSIS), recommended that rice production under irrigation is viable, that irrigation based on large storage dams is uneconomical, extension of existing schemes, use of irrigation on tobacco estates, promotion of rice production on self-help irrigation schemes, increased purchasing prices for crops grown under irrigation (rice, cotton, groundnuts and wheat) in order to make irrigation attractive to farmers and

the rehabilitation of existing government schemes. The Hunting Study identified 57 potential irrigation projects in the country ; and of these 7 are in the Northern Region, 12 are in the Central Region and 38 are in the Southern Region. Out of the 38 potential sites for irrigation in the Southern Region, 25 are in the Lower Shire Valley. This implies that the Lower Shire Valley has the greatest potential for irrigation development in the country. The NSIS on groundwater irrigation potential made two recommendations : the implementation of a pilot irrigation project, culminating in the establishment of Ngolowindo Irrigation Scheme in Salima ; and further studies in aquifer characteristics for alluvial/lacustrine basins.

The 1992 BCEOM Study funded by EU established that the potential for small-scale irrigation development was about 100,000 ha ; and that out of this hectarage 3,319 ha were identified as being suitable for immediate development.

More recent studies on irrigation potential include those by SFCD, a French consulting firm, on the development of a gravity fed scheme in the Shire Valley in 1988／89 and in 1991／92 ; the feasibility study of the Bwanje Valley Smallholder Irrigation Development in 1994 by Nippon Koei Company Ltd. ; the 1996 Lower Shire Valley Irrigation Project by CODA and Partners ; the 1997 Support to Small-Scale Irrigation Pilot Activities in the Dambo Wetlands by PEMconsult ; and the 1998 Smallholder Flood Plains Development Programme.

7.4 Review of Current Policies and Strategies

Stakeholders raised the following problems and issues as major areas for action in the development of irrigated agriculture in Malawi :

- Lack of/inadequate capital
- Capacity building
- Poor marketing
- Unreliable water supplies
- Lack of National Policy on irrigation
- Lack of coordination between the Department of Irrigation and other departments within the Ministry of Agriculture and Irrigation, and between the Department of Irrigation and link ministries, the private sector and the NGO community
- Absence of linkage between irrigation development and livestock production
- Fragmented approach to development

These problems and issues will now be analyzed in relation to policies and strategies in ALDSAP to determine whether or not these policies should be deleted, retained, revised or new ones should be formulated in order to provide a framework for the development of irrigated agriculture in the country.

7.5 Lack of Capital and Inadequate Funding

Stakeholders considered lack of capital and inadequate funding to be a major hurdle in the development of irrigated agriculture in the country. Farmers need capital for a number of inputs including the procurement of motorized pumps for water abstraction, purchasing fertilizer and pesticides, hiring labour for land preparation and weeding, paying for electricity/fuel for the pumps, and for transporting farm produce to market places. Capital is also required for procuring spare parts for irrigation equipment especially pumps, building new dams and rehabilitating the old ones, drilling tube wells, rehabilitation/repair and maintenance of communal schemes and the construction of new smallholder irrigation schemes. Farmers in all the ADDs pointed out that, like in any business enterprise, the availability of capital is critical. The initial capital outlay on irrigation development is very high, therefore, farmers should be mindful of the fact that irrigation farming is expensive. In this respect, it would not be reasonable to use irrigation systems for subsistence farming.

ALDSAP does not have a policy or strategy governing the provision of credit to both smallholder and commercial farmers interested in irrigated agriculture. The proposed National Irrigation Policy and Development Strategy (1998) also does not have a specific strategy on how capital for the development of irrigation is to be resourced. Where returns to investment are profitable, as is the case of irrigating high value cash crops such as sugarcane, tea and macademia nut, capital may be available from lending institutions. The profitability of small-scale irrigation schemes is yet to de determined. These schemes will depend on government or donor funding for development before farmers organizations can assume full responsibility for management.

Policy :

It is recommended to develop an Agricultural Finance Policy which will enable smallholder and commercial farmers have access to capital/or credit.

Strategy :

- Formation of an agricultural bank ;
- Offer credit packages for the development of irrigated agriculture by financial institutions ;
- Develop irrigation schemes through food for work programmes and other cost sharing mechanisms ; and
- Form and empower farmers associations to have access to low cost capital.

7.6 Lack of National Capacity to Develop and Manage Irrigated Agriculture

Stakeholders were concerned about inadequate capacity in the country to develop and manage irrigation systems. This deficiency applies not only to the Department of Irrigation in the Ministry of Agriculture but also to farmers, the private sector and the NGO community. Malawi does not have people with practical skills and experience in irrigated agriculture, nor does the private sector have capacity to provide the

essential engineering services for irrigation.

ALDSAP only points out the need to carry out capacity building in the Department of Irrigation ; and the training of farmers and field staff on water resources management for irrigation. It further recommends the formation of the National Commission on Irrigation and Drainage to promote research, demonstration and development in irrigation practice and management. But the Department of Irrigation still remains heavily understaffed, training of farmers and the field staff in water management for irrigation has not been adequate, the National Commission on Irrigation and Drainage has not been formed. Therefore the policy will be retained but it will be supported with action which will include the formation of the National Commission on Irrigation and Drainage, and the training of members of staff, farmers, the private sector and the NGO community in irrigation technology. In addition, capacity building will not just be confined to training in water resources management. Farmers need training in pump maintenance, land leveling, marketing, mechanization, etc. It is therefore recommended that farmers should be given skills that will enable them to reduce their dependence on government.

In the draft National Irrigation Policy and Development Strategy, issues of national capacity building in irrigation are given prominence. The introduction of a degree course in irrigation engineering at Bunda College of Agriculture, and the soon to be launched diploma and certificate courses at the NRC are a direct response to lack of capacity in irrigation technology in the country. Action will be taken to give farmers, the private sector and the NGO community skills in the development and management of irrigation schemes through training.

Policy

This issue is addressed by the draft National Irrigation Policy and Development Strategy.

Strategies

- Training will be offered to members of staff in the Department of Irrigation, smallholder farmers, the private sector, the NGO community and training institutions in irrigation technology.
- The Department of Irrigation will facilitate tours to places where irrigation has been successful.

7.7 Marketing

Poor marketing systems have contributed greatly to the retardation of progress in the development of irrigated agriculture. Marketing problems have been manifested in low prices for farm produce, lack of accessibility to organized markets for crops, lack of bargaining power, proliferation of foreign farm produce which can be grown locally, poor infrastructure especially the road network, and unscrupulous private buyers who dupe farmers by tampering with weighing facilities. The problem has been compounded by the inability of ADMARC to purchase farm produce because of inadequate capital.

ALDSAP states that the success of the diversification programme and the overall agricultural output will be determined by the active participation of the private traders. This is obviously an assumption which contradicts the real situation on the ground as private traders have dismally failed to go into the rural areas to buy farm produce because of poor road network, lack of security and inadequate capital. As a result, a lot of farmers fail to sell their products in order to procure farm inputs for the next growing season and to pay back their loans.

In the National Irrigation Policy and Development Strategy, it is proposed that the Government will take up the responsibility for identifying markets for farm produce. This is obviously not practicable in view of the absence of marketing specialists in the Department. Conducting marketing intelligence is a task that will not be done by the Government. If anything the government will concentrate on making the trade regimes favorable for marketing purposes. But identification of markets will be done by the farmers associations, the private sector themselves or the apex body for farmers. This will enable the Department of Irrigation to concentrate on its advisory services in the development of irrigation schemes, rather than getting embroidered in issues outside its sphere of competence.

Policy

The government should develop an Agricultural Market and Marketing Policy.

Strategies

- The government should ensure the availability of market infrastructure ;
- The government should improve infrastructure especially the road network to enable traders and farmers have an easy access to markets ;
- Group marketing should be encouraged ;
- Malawi Bureau of Standards should help in improving the quality of farm produce for local and export markets.

7.9 Unreliable Water Supplies

During the consultative meetings with stakeholders concerns were raised about the unreliability of water supplies for irrigation. This is a situation that needs immediate redress as irrigation does not provide much advantage where water supplies are likely to fail. The problem of water shortages was noted to be serious in schemes that operate run-of-the-river abstractions and those that use motorized pumps. Stakeholders attributed the shortages of water to the drying up of rivers and pump-breakdown. Examples of such schemes are the Dwangwa Sugar Corporation and Ngolowindo. As for the river abstraction schemes, the main reason for the recorded low flows apart from drought events is catchment degradation. Due to encroachment upon catchment areas by human activities such as agricultural production and settlements, most of the land has been devoid of vegetation cover thereby preventing adequate amounts of rainwater to infiltrate into the ground to recharge aquifers which in turn sustain baseflows. In addition to

low baseflows, run-of-the-river schemes also experience serious siltation problems as soils eroded from catchment areas end up choking canals. Therefore, in the interim, there is need to enforce catchment protection measures. This task should be carried out by the Ministry of Water Development in collaboration with the Department of Environmental Affairs and the Water Resources Board. Some NGOs such as CURE have been very active in this field, and therefore will be encouraged to play an active role. But as a long term solution to water shortages, the construction of small upstream storage earth-dams will be encouraged to ensure sustainable water supplies for irrigation schemes. The dams will not only guarantee the availability of water for crops during the dry season and drought periods, but they will also control floods by retaining excess runoff during heavy storms thereby protecting crops from flood damage.

Protection of fragile areas such as river banks and wetlands will be a high priority in the development of irrigation schemes in order to avoid environmental degradation which leads to siltation problems. This will require close coordination of the work of the Departments of Irrigation and the Land Resources Conservation.

Alternative sources of water supply will also be exploited. In this respect, groundwater resources should be developed for irrigation. This also applies to water from Lake Malawi which will be tapped using canals or pumps to irrigate areas along the lake shore. Areas between Liwonde and Mangochi and between Karonga Boma and Songwe would benefit from such irrigation projects. Functions of Water Boards should include provision of water for irrigation.

As for water lifting devices, imported" orphan" pumps, i.e., pumps for which spare parts are not locally available and which cannot be repaired by farmers will not be used for irrigation.

Policy

This issue is addressed by the draft National Irrigation Policy and Development Strategy and the Water Policy（1996）and the Environmental Management Policy（1996）.

Strategies

- More small earth-dams will be constructed over rivers to create reservoirs for use in irrigation farming. This task will be carried out by the local community with financial assistance provided by the donor community and NGOs. The Department of Irrigation will provide technical assistance.
- Catchment areas for rivers supplying water to schemes will be protected. This task will be carried out by the Ministry of Water Development in collaboration with the Department of Environmental Affairs, the Water Resources Board, the NGOs and the local community.
- Environmental impact assessment will be conducted on medium to large-scale irrigation schemes, i.e. all irrigation schemes of more than 10 hectares.

7.10 Lack of Coordination

There is a very loose link between the Department of Irrigation and other departments within the Ministry of Agriculture and Irrigation, and between the Department of Irrigation and other link ministries, the private sector and the NGO community.

Policy

The National Irrigation Policy and Development Strategy addresses this problem through the need to form a National Irrigation Board.

Strategy

- The National Irrigation Board will be formed. The Board will act as a forum where issues pertinent to the development of irrigated agriculture will be discussed by representatives of all stakeholders.

7.11 Lack of Link between Irrigation Development and Livestock Development

In Malawi, irrigated agriculture is synonymous with crop production. But in contrast, the experience from many countries is that the development of irrigation has been accompanied by commercial production of forage or feed and the availability of drinking water for livestock. The non-availability of forage during the dry season is often the key constraint limiting the productivity of the livestock sector. Therefore there is need for the government to encourage farmers to adopt irrigation practices in livestock production as expressed by stakeholders.

Policy

This issue will be addressed by the draft National Irrigation Policy and Development Strategy and the proposed Livestock Development Policy.

Strategies

- The Departments of Irrigation and Animal Health and Industry will work in close collaboration in promoting the incorporation of irrigation in livestock production.
- The existing dams will be rehabilitated and maintained.

7.12 Fragmented Development

During the consultative process it was noted that there is a tendency in Malawi to develop projects in isolation without adopting a holistic approach. For example, when the government is carrying out an irrigation project there is never consideration for improved road network for easy transportation of farm produce to markets, no attention is paid to the provision of health services and yet irrigation development is associated with the prevalence of water related diseases such as malaria and schistomiasis, etc. This usually leads to the failure of these projects to achieve the intended goal of improving the standard of living of the local community.

Policy

A policy will be formulated to encourage a holistic approach in the development of irrigation projects.

Strategy

· The Ministry will develop irrigation projects in a holistic manner.

7.13 New Irrigation Policy and Strategies

In view of the urgent need for a policy on irrigated agriculture, the MoAI will soon finalize the draft irrigation policy whose strategies are shown in Table 7.1

Table 7.1 : New irrigation policy and strategies

Policy	Legislation	Strategy	N	O	S	M	L	Responsibility
Irrigation	· Proposed Irrigation Act	· Rehabilitate existing irrigation schemes and earth dams, and exploit alternative sources of water supply for irrigation development		√			√	MoAI/Farmer organizations
	· Water Act 1996							
	· Environmental Management Act 1996	· Develop national capacity in irrigated agriculture						
	· Land Act 1996							· University/NRC/Private Sector
		· Protect catchment areas		√	√	√	√	
								· Farming community/ NGOs/Land Resources Conservation Department
				√				
								· Department of Environmental Affairs in collaboration with developers of irrigation schemes
		· Conduct environmental impact assessment (EIA) for medium to large-scale irrigation schemes						
				√	√	√		

Key :

N - New
O - On-going
S - Impact in the short-term
M - Impact in the medium-term
L - Impact in the long-term

7.14 Institutional Framework

The development of irrigated agriculture is supported by several institutions including the Ministry of Agriculture and Irrigation, the Ministry of Water Development, the Department of Environmental Affairs, the Water Resources Board, the Department of National Parks and Wildlife, the Department of Forestry and training institutions.

7.14.1 Department of Irrigation

While other departments in the Ministry of Agriculture and Irrigation provide support services to the development of irrigated agriculture, the Department of Irrigation has hitherto been responsible for the actual implementation of irrigation activities. The responsibility to develop irrigation projects now rests with the beneficiary community with the Department of Irrigation playing the role of a facilitator. It is therefore the duty of the Department to provide advisory services in the development of irrigation programmes in the country.

The Department of Irrigation is heavily understaffed. For the past three decades the government has mostly depended on foreign technical assistance to manage irrigation schemes. At present the department has 19 professional officers (POs) including 10 civil engineers and 9 agronomists. This represents 8 % of the required work force. In addition to the professional officers, the department has 7 technical officers (TOs) and 54 technical assistants representing 2 % and 28% of the required staff.

The Department of Irrigation's current organizational structure encompasses offices at headquarters in Lilongwe, divisional offices in the 8 ADDs and over 40 irrigation schemes directly under the manage-

ment of the divisional offices. The department is headed by the Controller of Irrigation Services with support from three Chief Irrigation Officers : one deputizing the Controller whereas the other two are responsible for the engineering and agronomy sections.

From the 1998 Unit Review, it was established that while most of the work in the department appears to be done by the Controller, the roles and responsibilities of the Irrigation Officers were not clearly defined. A recommendation was therefore made that the department should be divided into three sections, viz : Planning, Designing and Operations, Training and Advisory Services and Irrigation Research and Development. It was further recommended that these sections should be headed by Deputy Controllers.

The current study endorses the recommendations of the Unit Review that the vacant positions in the Department be filled as a matter of urgency.

As pointed out earlier, most of the staff in the department require training in irrigation technology.

7.14.2 Ministry of Water Development

The core function of this Ministry is to facilitate the development and management of water resources in the country. The hydrological data that the Ministry collects is useful for the development of irrigation schemes. Catchment protection is also the responsibility of the ministry. However, it has been noted that the link between the Department of Irrigation and the Ministry of Water Development is very weak. Therefore there is need to strengthen the link between these two organizations.

7.14.3 The Water Resources Board

The Water Resources Board is responsible for the granting of water rights for abstractions and discharge of effluents. It is also the duty of this organization to monitor the adherence to the recommended water rights. For the development of irrigation schemes water rights for abstraction and discharge of waste water drained from irrigation schemes have to be granted by the Board. The Water Resources Board is also responsible for protecting catchment areas.

7.14.4 Department of Environmental Affairs

The core function of this department is to ensure that the implementation of projects does not result in the degradation of the environment. In order to safeguard the environment from degradation, environmental impact assessments are conducted on all medium-large irrigation schemes, i.e. all irrigation schemes of more than 10 hectares.

7.14.5 Departments of National Parks and Wildlife and Forestry

The two Departments are responsible for the protection of catchment areas that fall within their jurisdiction. Some of the rivers that are diverted for irrigation purposes arise from areas designated as national parks/game reserves or forest reserves. Therefore, there is need for collaboration between these departments and the Department of Irrigation to ensure that catchment areas are protected.

7.14.6 University of Malawi and Natural Resources College (NRC)

Most of the irrigation officers and technicians working for the Department of Irrigation are graduates from the University of Malawi or from NRC. Graduates from Bunda College deal with agronomy issues whereas graduates from The Polytechnic implement engineering activities. But these institutions lack trained manpower in irrigation technology. Therefore the government will develop capacity in the University of Malawi and NRC.

The Government should provide scholarships to members of staff teaching irrigation courses at the University of Malawi and NRC to enable them pursue academic degrees in subjects pertinent to the development of irrigated agriculture.

8. GENDER ISSUES AND STRATEGIES

8.1 Background

Women in Malawi constitute 52% of the population ; the majority live and work in the rural areas. It is estimated that 70% of full time farmers are women contributing 87% of labour in the agricultural sector. They contribute as producers, processors, and they also market the produce. Despite their numbers and the enormous contribution to the agricultural economy, women continue to face constraints that marginalize them from the mainstream agricultural sector. Gender differentiated access to resources and benefits continue to hinder women's full participation in the agriculture sector. More men than women have access to agricultural resources (land, technology, equipment/tools, capital, information and extension services, markets, credit and labour). This differential access has a negative impact on agricultural productivity. The group most affected are the female headed households. Current data indicate that 30% of smallholder families are female headed. Female headed households are characterized by poverty due to their relative lack of access to means of production, and are not able to exploit opportunities around them and to get out of the poverty trap. Cultural and traditional practices and illiteracy continue to hinder women's participation in the development process.

According to the UNDP human development index of gender equality, Malawi ranks 161 out of 175 countries, and 80 out of 90 countries on the gender empowerment index measure of political representation and economic participation. Illiteracy rate for women is 71% and 52% for men. Maternal mortality is high at 620 for every 100,000 live births. These statistics are aggravated by the current economic crisis

characterized by stagnated economic growth, low agricultural production and persistent poverty. It is in this context that the role and contributions of women in the agricultural sector is examined. The review also looks at the gender implications in the process of achieving the broader vision of high agricultural productivity, equity in household food security, employment and sustainable utilization of natural resources. To achieve this, it entails developing gender aware policies and strategies that invest resources on the resource poor women and men farmers.

8.2 Review of current policies and strategies

Gender based policies can be categorized as being either gender blind or gender aware. Briefly, gender blind policies do not distinguish between men and women. The assumption here is that the policies would have the same impact on men and women. On the other hand, gender aware policies recognize the roles and responsibilities of women and men in society. Such policies acknowledge the different needs and constraints of the different sexes in the development process. Gender aware policies also address issues of fairness in distribution of resources and benefits to ensure appropriate interventions in delivery of services to both women and men.

A participatory approach was used to review current policies and strategies. It involved consultations with the stakeholders who identified issues and problems facing women in the agricultural sector. The following problems/issues came out as the major ones :

- Inadequate access to credit, land, labour-saving technologies, markets, and extension services.
- Heavy workload in agricultural production and reproductive work borne by women.
- Limited access to and control of benefits accrued from agricultural production.
- Gender insensitivity in agricultural policies and strategies.

It is noteworthy that these issues are not new. They were acknowledged in ALDSAP but no specific strategies were put in place to deal with them. We will now analyse them in relation to what is in ALDSAP.

8.2.1 Inadequate access to credit, land, labour-saving technologies, markets and extension services

8.2.1.1 Credit. Lack of access to credit is one of the problems that women face in trying to improve agricultural productivity. Women more often than men have limited access to formal credit. This is partly due to the fact that lending institutions have collateral requirements such as ownership of land or other property. Women are not always able to provide such collateral. Women also tend to take small loans for their enterprises and lending institutions are unwilling to service small loans because of the high transaction costs.

ALDSAP recognized the role of credit in increased agricultural production for smallholder farmers and proposed to explore ways of securing credit availability to the agriculture sector. However, there is no specific policy or strategy on how to achieve this.

In the past, the Government channeled credit for smallholders through the Smallholders Agricultural Credit Administration (SACA). This organization was replaced by the Malawi Rural Finance Company (MRFC) in 1994. Other credit organizations found in the rural areas include DEMAT, NABW and MUSCCO. Inspite of the existence of these lending institutions, consultations with women indicate that they continue to have limited access to credit because of the following reasons :

- Credit institutions in the communities are few and far apart. This makes it difficult to access them.
- Where available, credit organizations have rigid rules and regulations that women are unable to meet.
- Available credit is mainly for direct agricultural inputs such as seeds and fertilizers, but women want loans to be flexible so that they can use them to pay for labour and to buy food during months when food is scarce, or to meet more long-term needs such as poultry enterprises and small-scale dairies.
- Interest rates charged at 48-52% are very high making borrowing very expensive.
- Women complained that the major credit provider Malawi Rural Finance Company (MRFC) preferred lending to men than to women. Data from MRFC indicate that only 37% of loanees are women.

From a gender perspective, there is an assumption that both men and women would benefit equally from a credit programme. This does not happen because credit conditions do not take into consideration the differential needs of women and men. Access to credit remains a valid strategy to be pursued in relation to increased agricultural productivity.

At the moment, there are various organizations providing credit in the rural areas. These organizations (if willing) can be redesigned to meet the needs of women and to improve outreach and equitable service delivery to women and men. Such organizations include MUSCCO, NABW, DEMAT, SEDOM. There are also various farmers clubs and associations in existence or currently being formed. In line with the proposed finance policy, lending institutions will be expected to relax lending rules and regulations, e.g., allow for diversification of credit use so that it can be used to buy food or pay for other necessities such as labour. Extend credit line beyond crops so that it can cover activities such as poultry keeping and other livestock activities. Keep membership fees low so that the poorer women and men can join the credit organizations. Where possible remove requirement for collateral that is based on property ownership. Support credit projects for women only. In the long run this would improve incomes and enhance household food security.

8.2.1.2 Land. Land is an important resource in providing livelihoods in the rural areas. In this respect ALDSAP recommends that land is used in an efficient and sustainable manner, and also that access to it is seen to be fair and equitable. Access to land is seen as a way out of poverty. Stakeholders indicated that women had limited access to land, this is more because of customs and traditional practices that continue

to discriminate women in matters related to land allocation and ownership.

The 1996 Presidential Commission of Enquiry on Land Policy Reform recommends the reorganization of existing tenure arrangements in order to accord equal protection to all land users and adoption of new and socially acceptable inheritance procedures. The Commission recommends equitable distribution of land for males and females in both matrilineal and patrilineal communities.

The Commission further recommends that in the case of inheritance, land should devolve to surviving spouse and to children both male and female in equal shares. If these recommendations are incorporated in a new national land policy, issues of access to land will have been addressed. However, in view of the fact that customs and traditions change slowly, policy makers, traditional leaders, government officials and the society at large will be sensitized on the new policy. This is in line with the strategies proposed in the draft National Gender Policy. Women will be sensitized on their rights to own and register land in their names.

8.2.1.3 Product markets. Smallholder farmers face numerous problems related to marketing of their farm produce. Such problems include lack of markets, poor market infrastructure, and lack of market information among others. These problems are common to both women and men farmers. However, women are affected differently by these problems. In some areas such as the Lower Shire, women said they had been encouraged to grow crops like sorghum (a women's crop) but they had nowhere to sell the crop as ADMARC, the major marketing body, does not buy sorghum and it could not all be consumed locally. Women also complained of long distances to markets. Given their heavy responsibilities in domestic and farm activities, women have limited mobility and therefore tend to dominate local markets. Men on the other hand have choices in markets. They often go to far away markets to sell their produce. While ALDSAP recognizes the need for improved marketing systems,

mechanisms to make this work for the benefit of both women and men are not yet in place. Women and men will be provided with marketing skills. Market infrastructure and information will be provided in line with market and marketing policy.

8.2.1.4 Extension services. Women farmers complained of inadequate contact with extension staff, both male and female. They reported incidents where male extension staff would visit a household and talk to the male farmers in the expectation that they would inform the women. This practice is a cultural attitude and the commonly held belief that men are the farmers and heads of households. Women on the other hand are seen as the farmers' wives. This indicates a lack of appreciation on the part of the extension staff on the roles women play in agricultural production.

ALDSAP states that efforts will be made to increase the number of female extension workers so that extension services to rural women can be improved. The number of extension staff has gone down since 1995 when ALDSAP was written, and by implication as stated by the women farmers, extension services have not adequately reached them. Access to extension services is crucial to increased production. In this respect the strategy to increase female extension staff will be retained. Both male and female extension staff will be gender sensitized so that they are able to provide extension services to both women and men farmers.

8.2.2 Heavy workload for women in productive and reproductive work

Rural women are involved in various agricultural activities from land preparation through harvesting and processing of food to keeping of livestock. Between 63% and 71% of all seasonal agricultural work is done by women. Women also contribute time in what has been termed 'invisible' agricultural work. This consists of food processing activities such as threshing grains, winnowing, sorting seeds and pounding. Under the research strategies, ALDSAP identifies the need to undertake research on low cost technologies, especially technologies for 'household women members.' Consultations with stakeholders indicated that labour-saving technologies are few or not available. Women still use hand implements such as hoes and process food by hand. Labour-saving methods for fertilizer placement and weed control have not been adopted. Some of the reasons why available technologies are not used include affordability of the technologies by the women, inadequate dissemination by the extension services and lack of funds for production of tested technologies.

In female headed households where male labour is not available, women do all the agricultural work as well as all the domestic work. Women also contribute towards reproductive work, which involves the maintenance of the human resource. Time and labour spent in the maintenance of the household is enormous, yet, it tends to be invisible and is less valued. Studies show that women spend up to 15 hours a day working whereas men work for only 6 hours a day. Reproductive work is not included in the national accounts, nor is it taken into account by agricultural policies. While the need to develop and disseminate labour saving technologies is mentioned in the ALDSAP, no action has been taken to reduce women's workload. There are no strategies for reducing farm and household work for women. One consequence of the heavy workload is that young girls become"mothers helpers". This adversely affects girls' education. It also perpetuates the cycle of poverty since an educationally disadvantaged girl child becomes a disadvantaged woman.

There is a limit to how far women's time and energies can be stretched. When the limit is reached, agricultural production or household needs suffer. In view of the fact that not much has been achieved in the area of workload reduction, research efforts on development and dissemination of appropriate technologies for farming related activities will be supported. Labour-saving technologies to be developed and disseminated include planting tools, fertilizer application tools, equipment for ploughing, ridging and weeding.

Processing tools for cassava, maize and groundnut shellers among others. In line with the draft National Policy on Gender, research and extension services will be strengthened to influence design of gender sensitive technologies. Men will be sensitized on the need to take on more of the work carried out by women.

8.2.3 Limited Access and Control of Benefits Accrued from Agricultural Production

Agriculture remains the main source of income for the majority of rural households. While women contribute substantial labour for the production of the produce sold, men control the income and decide how to use it. ALDSAP does not have strategies to address the issue of access to income from sale of agricultural produce. Focus group discussions with women farmers confirmed that in male-headed households women do not get money from the produce sales. Limited access and control of benefits on the part of women can be attributed to cultural attitudes and practices that regard men as 'heads of households' and accord them power over decision-making processes. Where possible, like at the cooperatives, women will be encouraged to register in their names, thus making them eligible to collect payments on produce. Men and women will be sensitized on gender issues at the community level. A study will be undertaken to reveal patterns of decision-making that affect production, expenditure and income at the household level.

8.2.4 Gender insensitivity in agricultural policies and strategies

From the consultations with stakeholders, it was clear that the term gender and what constitutes gender issues were not well understood. The tendency was to dismiss any discussion of this topic as dangerous and misguided feminist talk from the west aimed at disrupting cultural norms and practices. This type of attitude constitutes a denial of the problem and undermines efforts to address problems facing women in the agricultural sector.

Gender and development is a new and evolving discipline ; it uses a holistic approach that seeks to create the visibility of women and men in the development process. It argues that women just like men contribute to national development by contributing labour to agricultural production and human reproduction work and they should be supported to fulfill these roles. To attain the required gender sensitivity in policies and programmes, the approach proposes the use of tools for analysis that identify the needs and interests of women and men and the power relationships. Information from this type of analysis is then used to develop appropriate policies and programmes. At the time the ALDSAP was formulated, none of the steps proposed above were taken. The document categorizes women in the resource-poor group and proposes that targeted interventions be formulated to address their needs. It however does not provide guidance on how gender-based needs should be identified and addressed. To address the needs of women and to ensure their inclusion in development activities, various approaches to development have been developed. These have included women in development（WID） approach popular in the 1970 s and 1980 s which focused on women only.

The current approach, gender and development,（GAD） is a holistic approach to development. It looks at the needs of women and men and incorporates these in policies and programme planning.

From a gender perspective, the targeted approach in ALDSAP focused on women and addressed issues of participation, income generating activities and home management. Inspite of this focus, the targeting approach did not succeed in reducing the gender imbalances that women face in agriculture. The strategy reinforced the women in development approach（WID）, which marginalized the women further.

To address the issue of gender insensitivity, the Ministry will adopt the Gender and Development approach（GAD）. The key strategy in this approach is referred to as mainstreaming of gender perspectives in programmes and projects.

Mainstreaming aims at bringing womens' concerns at the centre stage. The objective of gender mainstreaming is to ensure that women and men participate in sector activities and that they benefit from the participation. Women should have access to sector specific resources. Allocation of these resources will be based on an understanding of gender roles in the specific sector, e.g. if we look at the crop sector, we want to understand if women are involved in growing cash crops, subsistence crops or both. What are the specific activities that men and women undertake in growing these crops, e.g., clearing land, planting, weeding, applying fertilizers, etc.? Do they have the required resources to grow the crops i.e. tools, inputs, time, information and extension service?

Data and information is needed to mainstream gender in the sub-sectors. Under normal circumstances this data and information is generated through a gender analysis exercise that should be undertaken in the process of developing sector activities.

8.3 Institutional Framework

The MoAI has a Women's Programme Section（WPS） in the Department of Agricultural Extension and Training. Its objectives are :

- To increase women's participation in extension programmes and services in order to optimize adoption and agricultural productivity.
- To increase household income through income-generating activities related to agriculture or agro-business.
- To improve home and farm management skills and utilize available resources to improve family health and well being.

ALDSAP stated that the WPS would be strengthened so that it contributes in achieving the objective of targeted intervention for resource-poor smallholders. It is not clear how the WPS was to be strengthened. From consultations with stakeholders, the WPS has continued to implement activities based on the above

objectives.

Despite the focus on women, the targeting approach did not succeed in reducing the gender imbalances that women face in agriculture. The strategy only served to reinforce the WID

approach by focusing on women only and not using the holistic approach to gender and development. The obvious impact here was one of further marginalization of women in the agriculture sector.

The Women's Programme Section has been reviewing its programme activities and structure with a view to strengthening its operations. In this review, they have proposed a shift in approach from WID to GAD. The unit proposes a change in focus from a programme to support women to supporting agriculture gender roles.

In line with the proposed changes, the Gender Unit will undertake the following activities in order to **mainstream** gender in all sub-sectors of the MoAI :

- Build capacity for gender mainstreaming within the MoAI through training and sensitization of staff at all levels ;
- Review agriculture training manuals and curriculum at all levels and make them gender responsive ;
- Provide skills for gender impact analysis of policies, programmes and projects ;
- Develop sector specific gender training manuals for different target groups ;
- Provide data and information for planning purposes ;
- Backstop implementation of projects in terms of advice ;
- Monitor implementation at the sub-sector level to ensure that projects are gender responsive.

The Gender Unit will put in place mechanisms to ensure that the sub-sectors address the relevant gender issues. Appointment of focal points will be a logical starting point. The focal points will have to be officers already providing technical services in the respective sectors. Such people will then be provided with relevant skills for gender analysis and mainstreaming in their sectors. To ensure effective mainstreaming, the Gender Unit will be involved in the key processes of programme/project formulation, design, implementation, monitoring and evaluation.