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AUSTRALIAN AID EXPERIENCE IN THE AGRICULTURE,
FORESTRY AND FISHERIES SECTORS OF THE
LESS DEVELOPED COUNTRIES

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ACRONYMS AND ABBREVIATIONS

AAECP	ASEAN Australia Economic Cooperation Program
AAES	Agricultural Aviation Experiment Station (China)
ACTIAR	Australian Centre for International Agricultural Research
ACNARP	Australia's Contribution to National Agricultural Research Project (Thailand)
AESS	Appraisals, Evaluation and Sectoral Studies Branch (AIDAB)
AFHP	ASEAN Food Handling Project
ADAB	Australian Development Assistance Bureau
AIDAB	Australian International Development Assistance Bureau
ANU	Australian National University
ASEAN	Association of South East Asian Nations
AWB	Australian Wheat Board
BSFIC	Bangladesh Sugar and Food Industries Corporation
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CYMMIT	International Centre for Maize and Millets Research (Mexico)
DH	Department of Horticultural Production (Jammu Kashmir, India)
DIFF	Development Import Finance Facility
DIGS	Development Import Grants Scheme
DLD	Department of Land Development (Thailand)
DOA	Department of Agriculture (Thailand)
DOAE	Department of Agricultural Extension (Thailand)
DOL	Department of Lands (Thailand)
DSIR	Department of Scientific and Industrial Research (New Zealand)
ERR	Economic Rate of Return
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
GNP	Gross National Product
HASD	Highland Agricultural and Social Development Project (Thailand)
IAD	Integrated Area Development (Project)
IFDC	International Fertilizer Development Center (USA)
IPC	International Potato Center (Peru)
IRR	Internal Rate of Return
LDC	Less Developed Country
NADP	Northern Agricultural Development Project (Thailand)
NARP	National Agricultural Research Project (Thailand)
NGO	Non Government Organisation
ODA	Overseas Development Assistance
OM	Operations and Maintenance
SRI	Sugarcane Research Institute (Bangladesh)
TALD	Thailand Australia Land Development Project
TAWLD	Thailand Australia World Bank Land Development Project
UNDP	United Nations Development Program
WID	Women in Development

All \$ values referred to are Australian dollars unless otherwise specified.

ABSTRACT

AIDAB's agriculture, forestry and fisheries projects have sought to develop the rural sector, expand production and provide resources in the less developed countries of Asia, Africa and the Pacific.

In the ten years to 1987-88 AIDAB's bilateral expenditure in agriculture (excluding livestock) amounted to \$707 million, forestry \$31 million and fisheries \$15 million. In the agriculture sector nearly fifty per cent of the expenditure was in South East Asia, with Thailand and Indonesia being the dominant recipients. Forestry expenditure was heavily concentrated in Africa and South Asia, the main recipients being Ethiopia and Nepal. Fisheries activities have been concentrated in the South Pacific; Solomon Islands being the main beneficiary.

In the agriculture sector AIDAB has contributed in a number of areas including land capability, survey and titling, land development and settlement in both irrigated areas and uplands, crop improvement and production in humid tropics, arid zone and temperate regions, sugar industry improvements, agricultural services, food handling, processing, storage and food security, training, and ACIAR and NGO program support. Within the forestry portfolio AIDAB has provided assistance in conservation, land rehabilitation, timber harvesting and utilisation, tree improvement, management of forests, establishment and management of plantations, social forestry and production of firewood, and in training. The main areas of support in the fisheries sector have been ASEAN marine science projects, provision of infrastructure and equipment, development of marine fisheries, and fish production and processing.

A number of issues and lessons arose out of this Review. Generally, inadequate attention was given to socioeconomic and cultural factors at all stages of project development: in determining project rationale, in planning and design, and in implementation. There was an over-optimism pervading in most projects that agricultural technology existed to trigger improved productivity and incomes for farmers. Even if the technology was available its use was constrained by factors such as lack of land titles, credit and markets. Women's role in almost all projects had been overlooked until the mid 1980s. The overall quality of technical assistance provided was satisfactory and where delivery problems occurred they were usually due to poor project design and management.

1. INTRODUCTION

1.1 Background

Agriculture, forestry and fisheries are important sectors in AIDAB's current development assistance program. For the purposes of this Review the agriculture sector excludes livestock for which AIDAB recently completed a separate sector review (Chandra et. al., 1989). Agriculture, forestry and fisheries have been an important target of Australia's foreign aid throughout its history. Over the decade 1978-79 to 1987-88, AIDAB provided some \$707 million for agriculture, \$31 million for forestry and \$15 million for fisheries.

Agriculture, forestry and fisheries are important in most LDCs. Agriculture makes an important contribution to employment and to the GDP of these nations, especially those that are less industrialised. Aid for agriculture has been given to a large number of countries in Asia, Africa and the Pacific. Forestry and fisheries projects have concentrated in a smaller number of countries and regions. The largest forestry project, accounting for forty-three per cent of total forestry expenditure, is located in Ethiopia. Fisheries projects have tended to concentrate in the smaller island states of the South Pacific. Types of agriculture, forestry and fisheries projects and activities in the AIDAB portfolio have varied from large-scale integrated area development programs to small technical assistance schemes involving only the provision of expert services.

Recent increased agriculture, forestry and fisheries development activities in the LDCs reflect the recognition by recipient governments of the need to diversify their primary industries, increase food production, be more self-sufficient, and increase import substitution to reduce foreign exchange costs of imports.

A review of AIDAB's involvement in agriculture, forestry and fisheries is especially pertinent at this time because of their linkage with other key development issues such as environment, poverty, health, and women in development, all of which are of increasing interest in AIDAB's programs. Also, these sectors have strong development interaction with community development, education and training which are also of key concern in Australia's overseas aid program.

1.2 Objectives of Review

This paper is a summary of a recent review which describes and assesses AIDAB's experience in agriculture, forestry and fisheries. The main report analyses AIDAB's performance in meeting project objectives, and:

identifies and describes areas (types of inputs, projects, components) of particular success and the main reasons for this;

identifies areas of evident failure to meet objectives and, where possible, provides explanations.

The objective is to provide AIDAB management with useful information on portfolio performance and recommendations on how its management may be improved.

2. THE PROJECT PORTFOLIO

2.1 The Agriculture Sector

In the ten years to 1987-88 AIDAB undertook 948 projects in agriculture at the cost of \$707 million. These have been classified into ten categories, as shown in Table 2.1.

Table 2.1 Classification of Agriculture Projects

Category	
1.	Land capability, survey, and titling
2.	Land development and settlement
	A. Irrigated
	B. Uplands
3.	Specific crop improvement and production
	A. Humid tropics
	B. Arid zone
	C. Temperate
4.	Sugar industry
5.	Agricultural services
6.	Food handling, processing, storage and food security
	A. ASEAN
	B. Others
7.	ACIAR
8.	Training
9.	NGO activities
10.	Others

2.2 The Forestry Sector

Some \$31 million was spent on 73 forestry projects over the period 1978-79 to 1987-88. These have been classified into nine categories as shown in Table 2.2.

Table 2.2 Classification of Forestry Projects

Category

1. Conservation
 2. Land rehabilitation
 3. Timber harvesting and utilisation
 4. Tree improvement
 5. Management of forests
 6. Establishment and management of plantations
 7. Social forestry and fuelwood
 8. Training
 9. Others
-

2.3 The Fisheries Sector

About \$15 million was spent on 56 fisheries projects over the period 1978-79 to 1987-88. These have been classified into five categories as shown in Table 2.3.

Table 2.3 Classification of Fisheries Projects

Category

1. Infrastructure and equipment
 2. Research
 3. Institutional budget support
 4. Aqua/Mariculture
 5. Marine fisheries
-

3. IMPLEMENTATION EXPERIENCE IN THE AGRICULTURE SECTOR

3.1 Introduction

The twenty-five largest agriculture projects, representative of all AIDAB's agriculture projects excluding those implemented by ACIAR, ASEAN and NGOs were reviewed in depth. Individual project costs varied from \$50,000 to \$21.8 million. The total cost of the twenty-five projects was \$138 million. The implementation experience of nine of the different types or categories of projects is summarised below, illustrated by short descriptions of typical projects in the portfolio.

3.2 Land Capability, Survey and Titling

AIDAB funded a total of twenty projects in this category which received some \$12.1 million. They range from ten relatively small projects of less than \$50,000 each to one ongoing project for which current expenditure approval is \$9.8 million. Several of the smaller projects were for procurement and supply of equipment, or for funding feasibility studies or technical assistance.

The nature of projects undertaken has changed substantially. Earlier projects were small, heavily focused on procurement and supply of survey equipment, and traditional land survey activities. More recent projects are based to a greater extent in high technology applications such as remote sensing, Doppler satellite positioning, establishment of geodetic networks, and use of modern cadastral mapping techniques aimed at improved land administration, land titling and registration procedures, and ultimately, better natural resource management.

Performance of such projects has generally been successful, although sometimes projects had to be extended in order to achieve the project objectives established in the design. The problems encountered during implementation can often be traced to inadequate project design and implementation planning, including inadequate assessments of:

- (i) Socio-economic and cultural conditions in the project area, relating especially to the customs, lifestyle, needs and aspirations of local people as potential project beneficiaries, and also their potential for participation in project planning, design and implementation;
- (ii) Infrastructural requirements of the project and project staff, especially in relation to whether these exist at project initiation; whether it is to be an agreed function

of the recipient government to provide these facilities; or whether they should correctly be a project responsibility; and

- (iii) Institutional and counterpart staff arrangements, especially in relation to their capacity and capability to service the project in accordance with planned design and the implementation schedule.

Australia has much to gain by continuing to prospect opportunities for such projects, because they establish Australia with a high profile capability at the forefront of 'state of art' technology. Nevertheless, it is surprising that more assistance was not provided for basic soil and land capability studies, for which Australia (especially CSIRO) has a long established record of achievement. Most aid seems to focus in the last decade on sophisticated information systems for land use management instead. Australian technology and experience across all land capability, survey and titling activities is an exportable commodity, capable of competing on a worldwide basis.

3.3 Land Development

Land development in its broadest sense, is typified by widespread clearance of natural vegetation for agriculture. It is a dynamic and people-related activity, almost always involving human settlement, and a desire or need to increase agricultural production. The process has two important dimensions - technical and socio-economic. During the 1960s and 1970s AIDAB funded a number of land development projects. The heaviest expenditures were in a series of irrigated schemes, but rainfed land in upland areas has increasingly been the focus.

A. Irrigated Lands

The two main projects under this category, the Sri Lanka Lower Uva Project and the Laos-Australia Irrigation Project emphasise that:

- (i) Institutional and implementation arrangements require detailed examination and definition during design, and
- (ii) Good project design is highly dependent on detailed analysis and understanding of local socio-economic conditions. Wherever possible, local people should contribute to design, including women's role in project activities; subsequent monitoring and evaluation of project activities. Measurement of project impact is difficult in the absence of data.

B. Rainfed Uplands

AIDAB has financed a number of major projects in rainfed upland areas. These projects, relating to environmental consequences of land clearing, transition from slash-and-burn agriculture to a permanent agriculture, and search for sustainable cropping systems under socio-economic conditions often not adequately understood, generally required long implementation periods, and through successive phases, changed emphasis in project goals and objectives.

One important project in this category was the Thai-Australia-World Bank Land Development (TAWLD) Project.

The main lessons from this are:

- (i) Socio-economic and cultural factors under-pinning slash-and-burn agriculture must be clearly understood before promoting change. Potential institutional constraints should also be analysed and clearly understood.
- (ii) Large land development projects are unwise unless acceptable and sustainable farming systems are known and piloted with traditional farmers.
- (iii) The methodology by which farmer awareness and adoption of change can be achieved must also be properly piloted in the specific socio-economic and cultural circumstances.
- (iv) The risks to project implementation and performance must be thoroughly analysed, discussed and understood by recipient and donor before project approval.
- (v) In the absence of, or without adoption of, stable conservation farming systems, land clearing is environmentally hazardous, and
- (vi) Large land development projects involve complex relationships across technical, institutional, socioeconomic and cultural boundaries, and implementation can be expected to take considerable time to successfully achieve project objectives.

3.4 Crop Improvement

AIDAB's experience with some ninety-one crop improvement projects is considered in three categories: Humid Tropics, Arid Zone, and Temperate Zone.

A. Humid Tropics

About 80 per cent of the projects were with humid tropical crops, with sizes ranging from less than \$50,000 to \$4-5 million. One project was the China Lingling Citrus Development Project.

This was a complex project implemented under considerable difficulty at an isolated location. The main lessons were:

- (i) the project was poorly prepared in the initial feasibility study and inadequacies in the design were not fully addressed by the pre-implementation review and its revised design; and
- (ii) accommodation, office and working conditions for expatriate staff were not clearly identified and discussed during design. Electricity supply remained a major issue throughout the four year period of project implementation. The potential for commercial sales is difficult to judge. Competitive juicing and extraction technology and equipment from other donor countries, need to be considered in assessing commercial opportunities.

B. Arid Zone

AIDAB's experience in this area is relatively limited. Five projects were funded at a cost of \$4.5 million. One relatively large project, the Jordan-Australia Dryland Farming Project, accounted for approximately \$4 million of this amount.

To the end of Phase II of this Project there was little or no effective socioeconomic input into design which appears to have been largely a technical response to a somewhat general request for assistance; modifications were not introduced in design, implementation or management as the project progressed and as problems became apparent; project sustainability and impact are dependent on Phase III achieving its objectives. The difficulties of adapting Australian technology to different ecological and socioeconomic conditions were amply demonstrated.

C. Temperate Zone

Six projects were funded, costing \$3.2 million, and ranging from less than \$20,000 to \$2 million each. One representative project was the Bangladesh: Potato Research and Development Project which was a detailed research effort with several long term objectives. In a research context, the project appears to have performed reasonably well during the period AIDAB was involved. Each of the components was initiated successfully. AIDAB funding was channelled through the World Bank and ceased in June 1986 when there was no further request for assistance from the Government of Bangladesh. Project sustainability and impact are likely to be low, but are difficult to judge because of the research approach and its long-term horizons. This type of project appears to be outside the main stream of AIDAB's current activities and probably would be best handled under the ACIAR program.

Another project was the India-Australia Apple Extension Project. The main lessons were that (i) private industry leaders representing producers, traders and marketers should have been involved from the outset; and (ii) projects should more positively address training needs and technology transfer, rather than infrastructural development. In this instance, construction of three smaller, dispersed coldstore complexes, rather than one large complex, may have had greater impact on project effectiveness. Technology transfer is difficult in the absence of an adequate credit system for producers and establishing the project as a cell in DH (and not linking it into the extension system) mitigated against project performance.

3.5 Sugar

Four sugar industry projects were funded for a total of \$20 million. One cost \$19.7 million, the Bangladesh-Australia Sugar Industry Project.

The lessons from this project are:

- (i) The objectives established for projects should be realistic and project design should ensure that available resources are directed to a limited number of activities rather than attempting to cover a wide-ranging number of activities.
- (ii) More attention should be given to the planning phase of the project.
- (iii) Management and organisation arrangements should reflect the responsibilities and facilitate cooperation and coordination between the managing agent and the implementing agency.

- (iv) Project implementation planning should recognise likely problems with procurement activities and the project implementation schedule should be adjusted accordingly, and
- (v) Recruitment of project personnel should recognise qualifications, experience in developing countries, and cultural sensitivities.

3.6 Agricultural Services

In the ten years to 1987-88, AIDAB funded 282 projects, costing \$151 million, to strengthen agricultural services in recipient countries. The projects covered a wide diversity of subjects including agricultural research and extension, aviation, machinery and equipment training, quarantine services, and infrastructure.

One project, the China Gansu Grasslands Agricultural Systems Research and Development Project, had a number of problems in the early stages due to inadequate project design, but subsequent project performance has been good. Prospects are good for long term sustainability, and for the development of sustainable farming systems likely to have considerable impact on agricultural production and farm income.

In another project, the China Agricultural Aviation Project, in its first full year of operations, the benefits to the farming community serviced by the aerial agricultural operations were estimated to be at least equal to the total cost of Australian inputs. The commercial advantage to Australia from the supply of aircraft to China is difficult to assess. Spare parts will be required, and to achieve long term objectives, the Chinese will need to purchase at least ten new aircraft over the next few years. During implementation, Polish aircraft were purchased and pilots sent to Poland for training. The Chinese reportedly had expectations that the project would be extended for a further three years. This did not occur and it seems likely that China will explore aircraft and spares availability from other donors.

One large agricultural research support project was the Thailand-Australian contribution to National Agricultural Research. Overall, the project performance has been good and the project impact will be substantial in the longer term. It is too early to measure sustainability but the number and level of academic fellowships at Australian and other universities should ultimately ensure increased research and management capability in DOA. The model adopted for managing the project by a state Department of Agriculture in conjunction with a state university appear to have worked well, and training arrangements are likely to be sustained well in the future.

3.7 Food Handling and Storage

A. ASEAN

A total of forty-eight projects conducted by ASEAN were funded, costing \$38 million. One project was the AAACP: ASEAN Food Handling Project which successfully fostered research cooperation between ASEAN countries but did not have much success with Australian-ASEAN linkages. Project performance was overall poor and there was no measure of project sustainability or impact except by inference. The main lesson is that AIDAB should maintain a much higher level of administrative control and technical supervision in such projects.

B. OTHERS

Fifty projects were funded, costing \$16.1 million. Approximately fifty per cent were for storage and handling of grains and other agricultural products, with the remainder directed towards cold storage, food technology and food security.

In the Egypt Grain Storage Facilities Project the project performance has been good, with construction targets completed on or close to schedule. Egyptian operations staff have been fully trained in O and M, and project sustainability is expected to be good. Egyptian commitment to the project has been good, and project impact is expected to be substantial due to reduction in grain losses, improved grain quality, reduced handling costs, and savings in foreign exchange for bag purchases. The project rationale is related to Australia's wheat sales to Egypt where Australia has established a strong market. Future sales prospects appear good, based on Egyptian/Australian co-operation established by the project.

3.8 Training

In addition to extensive project related training funded through the foregoing project categories, AIDAB also funded 275 training projects costing \$151 million. Assistance for training has covered a wide diversity of subjects: soil seminars, post-graduate training in insect science, salt-affected wasteland seminar, rural project planning and management, rice-based farm workshop, land use information systems and female rural kitchen training.

3.9 Integrated Area and Regional Development Projects

AIDAB has supported some 20 integrated area development (IAD) and regional development projects over the decade, costing

\$99 million. A review of the largest nine IAD projects was made in November 1989, including three projects in Thailand, two in the Philippines and one each in Indonesia, Sri Lanka, Kenya and Papua New Guinea. These projects are large, complex, difficult to implement, long running, and have a fairly high risk of failure, especially when involving land settlement. After reviewing the experience with these projects, the following approaches were recommended:

- Complexity of Design - Integrated planning should more often than not lead to disaggregated and sequenced component implementation, usually with different agencies responsible at different times
- Project Management - Regular line agencies should usually be used, even at the expense of slower, less efficient progress in physical works and longer implementation schedules
- Technical Assistance - The level of technical assistance inputs should be reduced, even if the projects will be implemented slower, in favour of local staff training. Training objectives and plans linked to institutional development objectives must be appraised and regularly monitored.
- Participation of Beneficiaries - Beneficiary inputs are necessary in planning to obtain their perception of priority needs; in implementation to enhance "ownership" of works; and thereafter to maintain communal facilities.
- Infrastructure - Future maintenance responsibilities and funding sources must be fully identified, agreed, and appraised as an acceptable risk before construction. Appropriate institution building is more difficult than simply constructing physical works, but must be achieved if the works are to be maintained and yield the benefits expected.
- Social Services - Social service inputs are important for potential development contribution and equity, but must not be treated as add-ons to physical works programs. Such components should be prepared thoroughly and then implemented as free standing projects by upgraded national or provincial services. Sustainability must be properly addressed.
- NGOs - NGOs can play useful role but are not a panacea

for IAD. Pilot community development activities implemented by NGOs may be important during early phases of the project. NGOs can be helpful also during the preparation and appraisal processes.

- Technical Base for Growth - The risks of non-achievement of rainfed farming production targets must be fully assessed before project implementation. This frequently requires early trials on productivity and of farmer acceptance which should precede other development. Trials could be done in parallel with infrastructure where the infrastructure can be justified on the basis of known agricultural technology, transport savings or other benefits. Secure access to land or other policies must be in place so that uptake of better farm practices is not limited. Land settlement schemes should be approached with special care.
- Clarify Objectives - Poverty frequently links to political instability, and farmers may well see secure land access and fair prices more important than roads for example. Governments often perceive roads for security as a main requirement for political stability. Cultural change and integration must be promoted, and cannot be enforced. Governments can only provide framework for self-sustaining private/community growth. It is important to set specific attainable objectives for each IAD intervention, not global aspirations.
- Managing Agents - Managing consultants require constant AIDAB supervision and technical and economic challenge. Without high level supervision in AIDAB, there is a danger if feasibility studies are done by firms which are to be appointed as managing consultants, for implementation.

3.10 NGO Agricultural Projects

Increasing support has been given by AIDAB to NGOs engaged in agricultural and rural development. AIDAB grants for such NGO projects are typically small (averaging about \$18,000), with matching funds provided by the NGOs concerned. In addition to subsidies for small agricultural projects, AIDAB has provided rather larger grants to international NGOs for agricultural programs. The program is administered by a joint committee of

AIDAB and NGO representatives, which approves annual allocations and project requests.

A small sample of the NGO projects was reviewed, covering diverse projects to Sri Lanka, Ethiopia, Zimbabwe, Indonesia and Laos. In two cases, no progress or completion reports were available. In the other cases, reports were consistently inadequate to establish whether physical targets were reached and if the proposed impact was likely to be achieved. Nevertheless, some of the findings may be useful. In the Indonesia case (Community Organisation for Rural Development in Eastern Indonesia) the AIDAB grant was \$45,700 which together with some \$15,300 from the sponsoring NGO would have funded some forty-five per cent of project costs. During implementation three quarters of the anticipated local funds were not forthcoming, and the project was reduced to seventeen villages instead of thirty. The Indonesian NGO reduced funding because no firm commitment had been agreed for project activities and greater priority was given to other projects of the NGO. In Ethiopia (Drought Recovery Intervention Program) the project was funded by five different countries (local offices of the international NGO concerned) with the AIDAB grant forming eighty per cent of the Australian NGO contribution. Seed was successfully distributed to some 31,000 families, in line with targets, but because of funding and other delays, hand tools, ploughs, and livestock were not distributed. The revolving credit scheme was not started, nor were the demonstration farms established. Because of unusually heavy but delayed rains, crops were badly damaged and delivery of inputs for the next crop season was disrupted. Coordinating so many sources of funding for a project with such wide geographic spread (throughout Ethiopia) would present problems to any project agency. It may be better to restrict Australian funding to a smaller well defined project area with more restricted objectives. The objectives of the \$82,750 AIDAB/NGO grant in Zimbabwe (Farm Worker Health Scheme) concern improving primary health care, sanitation, water and preschooling for farm workers. Difficulties were encountered because a workable institutional framework was not established in the project design, and because physical targets were not established. In this case also, NGO reporting failed to assess progress and use of the AIDAB subsidy.

In the ten years to 1987-88, NGO projects have originated almost entirely from NGO initiatives: very few from AIDAB or governments. In many cases NGOs are well placed to help plan and implement at the village/community level major agricultural and rural development schemes. It may be useful to screen proposed projects consistently to see if NGOs should be incorporated, and bring such opportunities to the attention of NGOs and project agencies. If the role of NGOs is to be increased, the NGO reporting and AIDAB supervision of implementation must be improved, as indicated above. Quarterly progress reports should

be the norm, with report content restricted to physical and financial targets, achievements against them, problems encountered and procurement status. It should not present a burden to require this for large projects, or from the larger NGOs which are implementing several small projects.

4. ISSUES ARISING FROM PORTFOLIO REVIEW

4.1 Introduction

Most of the projects reviewed are now completed. Their design and early implementation took place before the AIDAB reorganisation which followed the 1984 Jackson Committee review. Changes have been implemented which should improve project performance, not only in agriculture, forestry and fisheries, but in all development activities. Noticeable here is the progressive strengthening of country aid strategy papers, better technical and economic underpinning of the projects selected for assistance, an increase in AIDAB's project supervision (monitoring) staff in the field, and installation of a regularly updated activity data base for management use.

Nevertheless, a number of issues, which cut across the project portfolio, arise from the review of implementation experience. These issues provide further guidance for the future direction of AIDAB's agriculture, forestry and fisheries aid, and for improving its management.

4.2 Socioeconomic and Cultural Factors

During the decade under review, inadequate account was taken socioeconomic and cultural factors at all stages of project development: in determining project rationale, in planning and design, and in implementation. This applies particularly to projects which originated during the 1970s. Almost all of AIDAB's project reviews refer to difficulties encountered and to inability to measure project impact, because social, economic and cultural factors were not considered adequately at the design stage. The difficulties encountered particularly manifest themselves in projects seeking to change farmers' behaviour or to accept new technology.

The difficulties encountered are multifaceted:

- (i) Failure to involve potential beneficiaries in 'up-front' discussions, thus failing to take account of important social, economic and cultural factors which directly affect and influence the actions and thinking of specific target groups or communities. In some instances it is possible that detailed discussion with

potential beneficiaries might lead to the conclusion that there should not be a project at all, at least in the form originally conceived.

- (ii) The proposed project beneficiaries are often extremely poor, frequently do not have security to their lands, and are generally unable to access equitable credit sources. Project reviews commonly observed that farmers failed to adopt new technology made available by the project. The connection between non-adoption and limitations imposed by various social, economic and cultural factors are now better understood but there is an important point to emphasise. The logical place for detailed analysis and discussion of these factors, to determine their likely influence in specific project situations, and their potential effect on project effectiveness and impact, is in planning and design rather than at some later stage when all that is possible is to record that the project failed to achieve some or all of its objectives.
- (iii) Recipient country institutional attitudes towards smallholders and poor peasant farmers, can sometimes adversely affect project implementation and effectiveness. A 'top-down' approach to development is much more common than a 'bottom-up' approach. The 'top-down' approach usually determines in an abstract way what is required for poor rural communities 'to be developed'. The danger in accepting an institutional 'top-down' approach to project planning and design is to accept that the institutional view is correct and to overlook the contribution rural communities can make to solving some of their own problems. Put simply, poor rural families 'own' the problems, and are far more likely to react positively if given a sense of 'ownership' of the potential solutions. The 'bottom-up' approach to development seeks to achieve this. The institutional role in this approach should be to ensure that rural communities do in fact contribute, and that institutional arrangements assist rather than constrain development activities. These aspects must be thoroughly analysed at an early stage as a basis for good project design, effective implementation and maximum project impact.

Recently, there seems to be greater awareness of the problems which can arise through inadequate socio-cultural analysis. For example, in Phase I of the Western Samoa Cocoa Rehabilitation Project, an AIDAB review in 1983 found there had been management communication problems between expatriate and local staff, relating to research and training components.

When Phase II commenced in 1987, an early priority was to place a sociologist in the field to ensure that the local implementing agency and local counterpart staff had a good understanding of Australia's role in the project and its objectives. This should ultimately reflect in a more effective project.

Action is still needed at many levels, although some of the more experienced managing agents are responding well to the problems. First, AIDAB staff must be made aware of the need for improvement. Seminars to heighten awareness, using participatory case studies, should be increased. Scrutiny of proposed projects by in-house sociologists and socioeconomists should be intensified, as should country strategy papers. Probably the most effort should be paid however to increasing the country manager and desk officers' awareness of the need for social, and as discussed later, gender analysis during project formulation. Consultant teams engaged in feasibility studies should invariably have such skills, and preference should be given during selection of consultant firms to those which evidence a good track record of properly addressing these concerns. Thought must also be given to how the pool can be expanded of Australian consultants with good socioeconomic and cultural sensitivity from overseas experience.

4.3 Technology Transfer

Virtually all projects were designed to increase farm productivity through adoption of improved technology. This included Australian technologies in land development and dryland farming; agricultural research; land capability surveys; extension training and methodology; and farmer training.

In many cases, even when the technology seemed available, the lack of land titles, credit, markets and prices, completely inhibited use of the technology. In more and more cases AIDAB should support small pilot operations to test and adapt the anticipated agricultural technology and experiment how best it may be taken up by farmers. In parallel, AIDAB needs to be sure that the agricultural policy framework is favourable, and also build local institutional capacity by providing technical assistance and training. The skilled manpower and facilities will be needed to adapt technology when it is presented by new challenges such as disease attack or changing prices. It is essential to sequence AIDAB assistance so as to resolve the technology issues and other factors before embarking on major land development schemes or large rural development type projects. AIDAB can play a key catalytic role by a program of well defined short, pilot projects with limited objectives

before major projects proceed, many financed at this stage by other donors, or cofinanced with AIDAB.

The technology to be used must be within the vision and comprehension of the communities and farmers concerned. Australian machinery is likely to demand larger farms to be economic, and certainly would demand readily accessible fuel and spare parts supplies which frequently just are not available. Many Australian technologies also demand a farm management style totally different to the expected beneficiaries. This is important because of the poverty orientation of much of AIDAB's aid program, and the challenges presented for agricultural technology transfer to small traditional farmers, most of whom are destined to derive their living from unfavourable soils, water, climatic and market conditions.

The experience analysed shows clearly a pattern of over-optimism pervading most projects that agricultural technology already exists to trigger improved productivity and incomes for such farmers. The World Bank's 1988 review of 20 years of rural development lending presents a remarkably frank and helpful analysis which closely parallels the AIDAB experience. Finding technology solutions is more often than not time consuming, and diffusing them to farmers usually takes even longer. And in some cases we should admit defeat and recognise that economic technology for agriculture does not exist, nor is likely to exist, which can help people trying to farm impoverished land in harsh climatic zones. There may be other, n' agricultural ways to help such people.

The review suggests that in many cases AIDAB should change its project emphasis to a program of well defined, short, pilot projects with limited objectives before proceeding with major projects, perhaps funded by or co-financed with international funding agencies. If adopted, this approach should largely overcome many of the problems in technology transfer noted in the review. Nevertheless, difficulties are being increasingly faced in finding Australian consultants with long field experience of technology transfer problems, and agricultural training in Australia may require adjustment. A more "system oriented" agricultural training which focuses on problem identification and resolution may be more appropriate than the traditional training in agricultural sciences.

4.4 Women In Development

Since 1984 AIDAB has focused increased attention on the role of women in development (WID). There are compelling reasons for this. In developing countries, rural women account for at least fifty percent of food production. In most sub-Saharan

Africa, much of South East Asia and some parts of Latin America, women represent fifty percent to ninety percent of the agricultural labour force. They carry out the majority or large part of production activities, including planting, weeding, fertilising and harvesting, as well as storage, processing, preparation of food and marketing of the surplus. In many countries, women are responsible for tending the family livestock. Women are often involved in clearing bush or ploughing. In areas with high rates of private land ownership (such as parts of South East Asia), women form up to forty percent of the hired labour force, usually working for lower rates of pay than men.

The review confirmed that the question of women's role in development had been ignored or overlooked in agricultural project planning, design and implementation until the mid-1980s. If considered at all, women's participation was largely by inference where project objectives were to increase family farm income and general welfare. Even this is often misleading, and disaggregation of potential project benefits may show that women continue to be or are increasingly disadvantaged relevant to other family members. Of the projects examined, the Sri Lanka: Lower Uva Project was the only project which specifically included plans to develop women's activities. This was based on developing a women's training bureau and related infrastructural needs, to be directed towards training women in additional income generating activities. The project failed to achieve these objectives and none of the planned developments occurred. Since the 1984 adoption of a policy to ensure women are targeted properly in development assistance, the sensitivity of AIDAB staff and management has been raised. A gender analysis team is in place to assist AIDAB staff implement the policy. Nevertheless, progress is too slow, as judged by the size of the problem encountered in the review. Put simply, the potential for women's involvement in agricultural development was not considered in projects implemented in the ten years to June 1988. Because of their deep involvement in agriculture in underdeveloped countries, more positive steps are required to ensure the potential for women's participation in development is both recognised and realised.

First, AIDAB should screen all projects for their likely impact on, or potential for assisting, women. Major prospects should be subjected to careful gender analysis during the design process, and many such projects will be agricultural projects. Second, AIDAB reviewed progress in implementing its WID policy in 1988 and determined that increased resources should be devoted to the integration of women's issues into country programs. To give more impetus to this decision, AIDAB should:

- (i) request country and regional desks to state clearly how WID Policy is to be implemented in practice, and
- (ii) specifically target two projects per year in each region with the main objective of addressing WID priorities, and provide resources for their proper preparation.

4.5 Technical Assistance

AIDAB funded technical assistance in a number of ways, ranging from single training or advisory positions to relatively large teams fielded by managing consultants. There were some problems with the delivery of technical assistance. In general the overall quality of technical assistance provided was satisfactory and where delivery problems occurred, this was often related to unsatisfactory project design and project management problems. Failure to adapt to local cultural conditions and lack of social and cultural awareness sometimes caused problems between expatriate and counterpart staff. Language training was seldom provided in Australia for technical specialists who took up overseas assignments although in recent years some managing consultants, with AIDAB's approval, had a mandatory requirement that project staff should undertake local language training. This aimed at a reasonable level of proficiency in order to communicate more effectively with counterpart staff. In some recent projects the services of local NGOs have been used to provide a better level of comprehension at village level which enables expatriate specialists to more effectively focus technical assistance.

From a 'standing start' in overseas project work about the mid 1970s, Australian technical specialists have overall performed reasonably well. There is now a considerable number of Australian technical and other resource people with varying degrees of experience in development aid projects, and a substantial body of project management experience has been accumulated by a relatively small number of professional managing consultants.

A major concern however is what Australia can or should do to expand the number of qualified and experienced people capable of providing competent technical assistance in AIDAB funded projects. From a commercial viewpoint, managing consultants will probably continue with their own systems of locating, recruiting and training staff in order to remain competitive. Overall, however, AIDAB could materially assist in training younger, inexperienced resource graduates by agreeing to the

inclusion in technical assistance teams of one or two junior inexperienced people.

4.6 Agriculture Training

The proportion of project funds committed to training varies significantly with the nature of the project. In several co-financed projects Australia has specifically taken up the training component as a large part of its contribution. In the agriculture portfolio the two outstanding projects for their emphasis on training were the Thailand: Land Titling Project and ACNARP.

Project related training is given at at four levels. These are university level training for selected individuals, technical knowledge transfer associated with project performance (project staff/extension workers), skills and knowledge training for the ultimate recipients (farmers) and horizon widening experiences, usually "look-see" tours for senior project management or technicians. All of these can occur in-country, but only the first and last would occur out-of-country and would most likely be in Australia, but not necessarily so. With the exception of the few projects specifically directed at University level training, most projects put by far the greatest emphasis on in-country training at less than University level.

For most projects examined, the most important element of project related training was the transfer of technical knowledge to nationals for use in further dissemination among the community to whom the aid was directed. This took the form of training trainers for a further education role, training extension officers, administrators or other persons with an active decision making or dissemination role. This was almost exclusively an in-country activity and often done in conjunction with a local institution. Training staff may be long or short term project personnel both expatriate and national. The degree to which local language capability was required varied considerably between projects. Where the training activity is out of country it is usually directed towards awareness or comprehension in senior people rather than attending a formal training course.

The other major area of local training was the transfer of skills or knowledge to the final aid recipients. This was usually informal and semi-structured training conducted at the local level. Much of it was interwoven with extension effort and aimed at assisting in adoption of improved technologies. This was invariably in-country and in the local language and conducted by nationals, though possibly with some expatriate assistance in program preparation.

Selection of trainees can have a large impact on the effectiveness of the training program, both on the recipient and the way in which the trainee is able to use the acquired knowledge. ACNARP realised that in selecting a large number of candidates for MSc degrees in Western Australia there could be an unconscious bias in favour of English speaking candidates who may well be Bangkok-based and unwilling to go up-country on their return. Accordingly, the scholarships were attached to specific job opportunities in up-country research stations and the entire selection procedure was conducted in the local language with no reference to capability in English. Successful candidates were then given English training and only if they failed assessment after six months did they drop out. The success rate of return to work in the designated locations and in remaining on the job is said to be very high.

Another higher education program which is said to have a significant degree of success is the Indonesian Technical and Vocational Training program. While outside the immediate scope of this review it provides an interesting lesson. Apart from the initial team, the selection of all further Australian personnel has been done by a joint Australian/Indonesian panel. The joint responsibility is said to have greatly increased the responsiveness of the recipient institutions towards the Australian personnel. ACNARP have used the same technique and report a similar response.

One disappointing finding of the review is the almost total lack of objective appraisal on the outcome of training activities. Detailed training plans for project related training rarely were included in appraisal and design documents. Few reviews paid much attention to training other than to count heads or days as a measure of the work done. In part, this problem arises because training is generally spread throughout the various project elements and project reviews tend to assess outcomes by whole elements. Training is not analysed as an activity in its own right. The problem also arises because objective measurement of education outcomes is a difficult procedure.

The failure to assess education outcomes extends even to projects where education or training is a major element of the project. ACNARP has spent \$6.5 million on post graduate training since 1981 and is the largest training project among those reviewed. The 1985 review makes no assessment of the educational outcome of the project other than to present the numbers of those trained and say that the long run effectiveness would be assessable in terms of ultimate research outputs in Thailand. No one has queried whether the

training courses themselves have met the criteria of relevance to job needs or equip the trainee for future work as a researcher in the developing world.

To be effective, systems to measure educational outcomes should be designed into the training program from the outset. This means that the commitment to assessment of training programs should start at the project design phase and be an integral part of implementation. It should be built into the monitoring and evaluation program so that the project managers are getting feedback during the life of the project and have time to deal with identified problems. A specific assessment of the training program should be on the checklist for every review mission. Objective criteria for the outcome of training programs should, as far as possible, be built into logical frameworks.

4.7 Monitoring and Evaluation

Most projects reviewed reported problems with monitoring and evaluation processes. Where quarterly reports were presented regularly, they were often found to be deficient in reporting outputs and achievements against planned inputs and targets. Many were largely narrative in nature, and made it difficult for the Bureau to assess the status of physical progress and project expenditure. Earlier projects were not analysed in a logical framework matrix, and project objectives, outputs and inputs were often not clearly defined. Reporting was thus made more difficult.

One project in which monitoring procedures were found to be seriously deficient was the AAACP: ASEAN Food Handling Project. AIDAB funded the project for fifteen years to June 1989 when total contributions as Accountable Cash Grants had reached \$21.8 million. AIDAB reviewed the project in 1987 and found that accountability had not been established, and that the Bureau's administrative and monitoring procedures were inadequate. The review recommended that funding of the project should be phased out as rapidly as possible. Had AIDAB's monitoring procedures been more effective, the project may not have been funded to the extent that it was, and some of the funding may have been directed more effectively elsewhere.

In addition to the problems in monitoring procedures highlighted by the review, it was commonly reported in AIDAB review documents that effective evaluation of the projects was made difficult or impossible because of failure to establish adequate baseline data at the commencement of a project. AIDAB should ensure that baseline surveys are considered in project design and implementation scheduling, and actually

carried out at an early stage in project implementation to facilitate subsequent evaluation of projects.

AIDAB's management, both in terms of individual projects and its overall agricultural portfolio, is clearly made more difficult in the absence of effective monitoring and evaluation procedures. To improve its monitoring capability the Bureau recently changed from its previous system of projects reporting quarterly to the relevant desk, to a system of monthly monitoring in which responsibility for monitoring is with the in-country Post and the recipient government.

The main requirement is that the project should report monthly to the Post and perhaps augment these reports with more detailed six monthly or annual reports. The Post is also responsible for monitoring visits to the project, at least six monthly. It is clear that if this system is followed and the project reports in concise terms in relation to project achievements and expenditure against previously established targets, AIDAB should be kept reliably informed of project progress.

4.8 Economic and Risk Analysis

There was considerable variation in the approach to economic and risk analysis. Project risks were not considered in earlier projects and only in a general way in a small number of more recently implemented projects. In four large projects recently implemented, rates of return were calculated and a sensitivity analysis was included to demonstrate, for example, the risks of lower farmer adoption rates for new technologies, varying production levels and varying price levels, etc.

Based purely on economic criteria few of the projects implemented over the ten year period appeared to be of high priority to the recipient country. Project impact in most cases was low, although there were some notable exceptions in recently implemented and ongoing projects - Thailand Land Titling, Thailand ACNARP, and Egypt Grain Silos, where impact is expected to be high.

A judgement in hindsight that a project was of low economic priority in the recipient country, begs the question as to how and why the project was initiated. What was the nature of the request? Was the project seen by the recipient country to have high social benefit if not economic benefit? What were the reasons for AIDAB's response, and subsequent approval of the project? Several countries target grant aid to more risky projects or projects which are unlikely to result in financial returns to the investment, especially those of a social nature, especially in health and education. This reinforces

the importance to AIDAB of having agreed assistance programs and strategy with recipient countries, which assess up-front the areas of high payoff or targets of Australian aid.

Although economic and sensitivity analyses were done for recently implemented projects, virtually all projects were deficient in their treatment of risks associated with implementation. Failure to assess the practical risks of a project not achieving its objectives, and not linking this to the economic analyses, is perhaps both symptom and cause of over-optimism. AIDAB's project procedures now require economic, social, risk and environmental analyses during design and appraisal.

4.9 Environmental Impact

Consideration of environmental impact is now a formalised requirement in AIDAB's activity management cycle. In this review, reference to environmental factors was limited to the more recently implemented projects. Projects were rated subjectively with the following results:

- (i) Projects in which environmental issues were considered to be of minor or no concern (for example, research, food handling, etc): eight,
- (ii) Projects in which environmental benefits were considered to be positive (for example, improved agricultural practices and production technologies): fifteen, and
- (iii) Projects in which there was concern for environmental damage due to project activities (for example, land development): two.

This classification relates mostly to projects which were implemented several years ago. Some projects were included in the 'positive benefits' group on the basis that no negative impacts were recorded, rather than on a statement of positive impact. Of the twenty-five agriculture projects examined, eight are still being implemented. Of these, seven are considered likely to have positive environmental benefits. The remaining project is providing technical assistance and training support for a major research and institution building program, and environment is not an issue.

AIDAB's existing procedures in respect to environmental issues should ensure that a detailed assessment of relevant factors is made in feasibility, design and appraisal studies. The implementation of these procedures however will require more

experienced manpower specialising in environmental issues within AIDAB, and even more so, in the consulting industry. In addition, AIDAB should target at least two projects each year from each region to have their major objective as environmental protection or improvement.

4.10 Poverty Issues

None of the projects examined focused specifically on poverty and there was no distinction between large and smaller projects in this respect. Some of the projects aimed to assist smallholder agriculture and probably envisaged a 'trickle down' effect through which benefits would reach poor smallholders. The HASD project in northern Thailand perhaps came closest to addressing poverty issues in dealing with the disadvantaged hill tribe people. The dryland component of the Sri Lanka: Lower Uva Project also sought to settle, and improve incomes for poor landless people. However, it was only partly successful in this.

AIDAB has as one of its objectives an increased focus on poverty issues. Clearly this must be addressed primarily through country strategy papers and selection of projects in sectors addressing poverty directly. It is also proposed that in the agreed aid program, one or two projects per year per region should be targeted where the focus is principally on alleviation of poverty, in addition to increasing use of NGOs to plan and implement agricultural projects.

4.11 Diversity of Portfolio

The diversity of the portfolio of 948 agriculture projects, 73 forestry projects and 56 fisheries projects handled during the ten years to 1987-88 presents special problems for aid management. Diversity was in terms of project size, and in the types of projects supported. The twenty-five agriculture projects reviewed in depth could be grouped in ten different categories and ranged in individual cost from \$0.05 million to \$21.8 million. Forestry projects were in nine diverse categories, and fisheries in five categories. Amongst the several hundred small projects without documentation on evaluation or impact, diversity is even greater.

The issues which arise revolve around the future direction and content of the project portfolio and the methods by which this should be determined. One of the main results of extreme portfolio diversity is that it substantially increases AIDAB's project management responsibilities and the risks of poor aid performance. The portfolio should be reduced in project numbers and diversity, possibly aiming at areas in which

Australia could develop and pilot technologies for use in subsequent large projects. The AIDAB role in agriculture, forestry and fisheries must also weigh the programs and interests of other donors, since it can act as a catalyst for later intervention by international financing agencies.

AIDAB has taken steps to prepare better country strategy and aid programs, agreed in advance with the recipient countries. Many aid requests continue to be ad hoc and presented late for adequate review. There are good reasons not to engage in large, long-term, agriculture, forestry and fisheries projects with multiple objectives. In consequence, smaller and shorter pilot operations should be emphasised, though they must fit into well defined programs of assistance. There are many opportunities for cofinancing a specific part of large projects, which would be advantageous to AIDAB and recipient countries if such opportunities are explored up-front prior to appraisal by the major financing agency. Country strategy papers and aid programs should give greater emphasis to cofinancing prospects for the future aid program, in addition to present interagency consultative processes.

5.0 CONCLUSIONS

This review found that action is needed by AIDAB on several aspects of its agriculture, forestry and fisheries assistance.

In the agriculture sector:

- (a) The share of land survey, capability and titling projects should be increased.
- (b) Land development should be supported primarily through studies and pilot projects.
- (c) Technical assistance and research for crop improvement programs, including tropical tree crops, sugar and beverages, should be continued.
- (d) Assistance to upgrade agricultural services should be expanded, though aid for research services should be better coordinated with ACIAR's program.
- (e) Except where directly linked to Australia's trade interests, food handling and storage projects should decrease, though technical assistance and research should be continued.
- (f) The share of agricultural training should be increased, provided its objectives are sharply focussed.

In the forestry sector:

- (a) More attention should be given to projects designed to protect the environment and to social forestry and agroforestry for fuelwood, cash generation, and community use.
- (b) Projects designed, implemented and managed by communities should be emphasised and encouraged over timber industry projects.

In the fisheries sector:

- (a) More recognition should be given to the environmental impact of fisheries development, especially by strengthening the resource management capacity of South Pacific nations.
- (b) Projects designed to inventory coastal fishery resources, assess the impact of human induced stresses, and develop appropriate management should be encouraged.
- (c) Technical assistance and training in aquatic resource management and reducing fish spoilage and wastage should continue to be supported.

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