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## **Indonesia**

### **Water Supply and Sanitation**

#### **Technical Advisory Group**

## **Report**

**on August/September 1995 Visit**

December 1995



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## **Indonesia**

### **Water Supply and Sanitation**

#### **Technical Advisory Group**

## **Report**

### **on August/September 1995 Visit**

This report presents the findings of the Technical Advisory Group appointed to review AusAID's current water supply and sanitation projects in eastern Indonesia. The findings are subject to discussion and agreement between the Government of Australia and the Government of Indonesia, and to consideration by AusAID and the related counterpart agencies in Indonesia. The findings do not necessarily represent the views of the Australian Government.

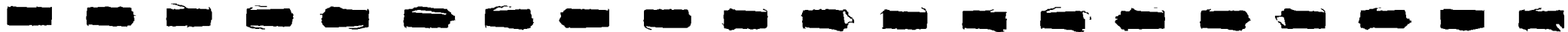
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**Australian Agency for International Development (AusAID)**

**INDONESIA WATER SUPPLY AND SANITATION  
TECHNICAL ADVISORY GROUP (TAG)**

**VISIT REPORT**

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## FISCAL YEAR

Indonesia : 1 April to 31 March

Australia : 1 July to 30 June

## GLOSSARY OF TERMS AND ABBREVIATIONS

Adat	Customary law
ADB	Asian Development Bank
APBD	Anggaran Pendapatan dan Belanja Daerah (Local Government Budget)
APBN	Anggaran Pendapatan Dan Belanja Negara (National Government Budget)
ARI	Acute Respiratory Infections
AusAID	Australian Agency for International Development (formerly AIDAB)
BANGDA	Pembangunan Daerah (Directorate of Regional Development, Ministry of Home Affairs)
BANGDES	Pembangunan Desa (Directorate of Village Development, Ministry of Home Affairs, now known as PMD)
BAPPEDA	Badan Perencanaan Pembangunan Daerah (Regional Development Planning Board)
BAPPENAS	Badan Perencanaan Pembangunan Nasional (National Development Planning Board)
BKKBN	Badan Koordinasi Keluarga Berencana Nasional (National Family Planning Coordination Board)
BNA	Basic Needs Approach
BPAM	Badan Pengelola Air Minum (An interim water utility management enterprise)
Bupati	Head of a Kabupaten or district
Camat	Head of a Kecamatan or subdistrict
CDC/EH	Communicable Disease Control and Environmental Health
CDD	Control of Diarrhoeal Diseases
CF	Community Facilitator (also known as FO on ETWSS)
Cipta Karya	Dit Jen. Cipta Karya (Directorate General for Housing, Building, Planning and Urban Development, Ministry of Public Works) (aka. Directorate General of Human Settlements)
CWSHC	Community Water, Sanitation and Health Committee





DAB	Direktorat Air Bersih (Directorate of Water Supply, Cipta Karya)
Daerah	An area of territory
DEPDAGRI	Departemen Dalam Negeri (Department of Home Affairs)
DEPKES	Departemen Kesehatan (Department of Health)
Desa	Village
DINKES	Dinas Kesehatan - the health agency at any regional level, responsible to local government (aka. DiKes)
Dinas	A provincial or Kabupaten functional office reporting directly to the Governor and Bupati respectively.
DIP	Daftar Isian Proyek (Development budget of a Ministry or Department after allocation by Bappenas)
Dir - Jen	Direktor - Jenderal (Director-General)
Dit - Jen	Direktorat - Jenderal (Directorate-General)
DPLP	Direktorat Penyehatan Lingkungan dan Pemukiman (Directorate of Environmental Sanitation, Cipta Karya)
DPU	Departemen Pekerjaan Umum (Department of Public Works) (aka. Dep PU)
DUP	Daftar Usulan Proyek (list of proposed projects)
Dusun	Small village or hamlet, a traditional subdivision of a Desa
EHE	Environmental Health Education
ETADEP	Ema Mata Dalam ba Progresso (only registered LSM in East Timor; formerly known as East Timor Agricultural Development Project)
FO	Field Officer
GAD	Gender and Development (predecessor policy was WID)
GOA	Government of Australia
GOI	Government of Indonesia
HDPE	High density polyethylene pipe
HO	Health Officer (formerly known as MO - Monitoring Officer)
IBRD	International Bank for Reconstruction and Development (The World Bank)
IKK	Ibu Kota Kecamatan - (the principal town of a Kecamatan) also used to refer to a piped water supply system specifically designed for these semi-urban areas
IMR	Infant Mortality Rate
INPRES	Instruksi Presiden (Presidential instruction). Often represents special development assistance program funds allocated directly to lower levels of government for specific program expenditures.
Kabupaten	District; second level of local government (Level II)
Kader	Government trained, non-salaried, village-level worker

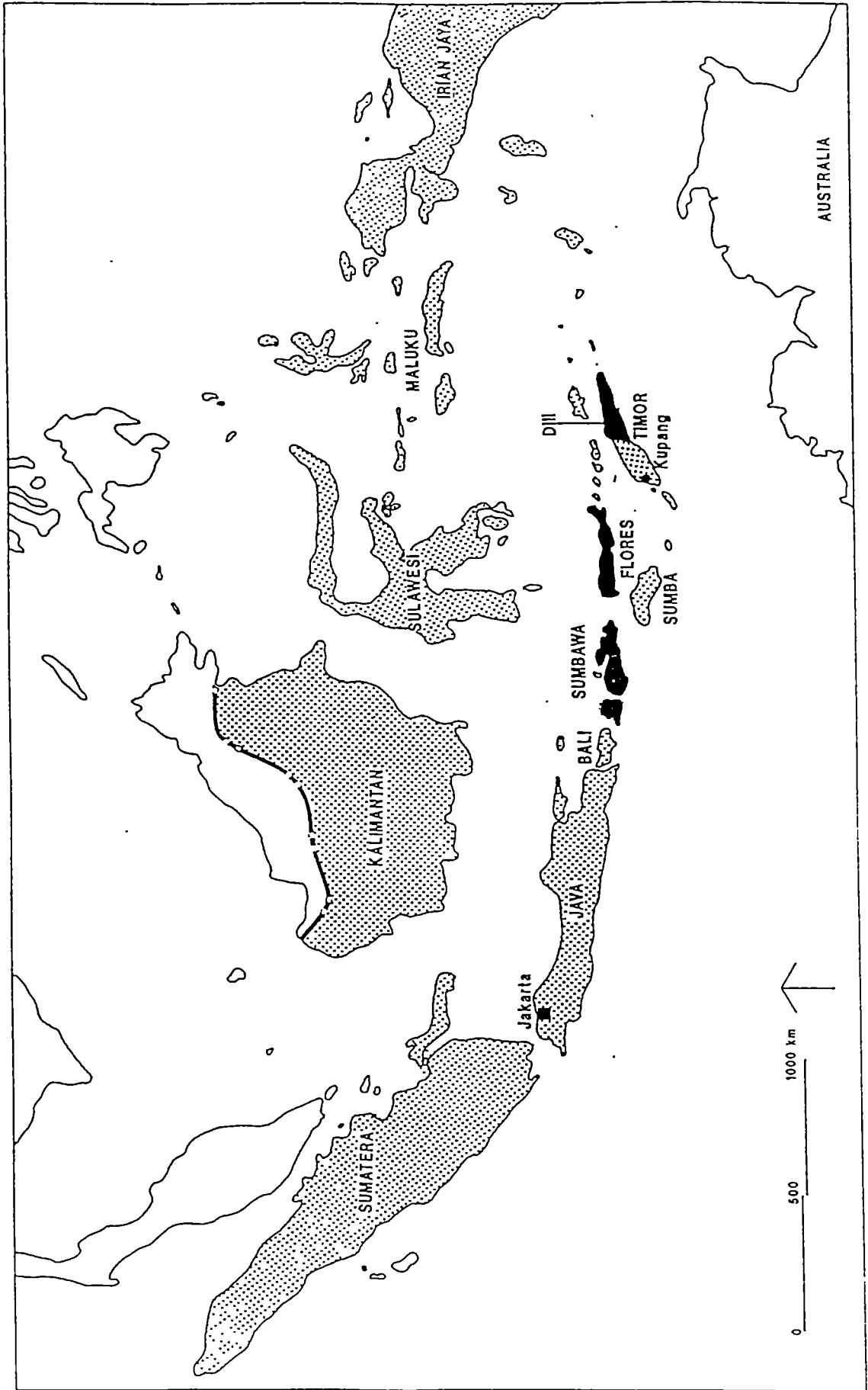


KANWIL	Kantor Wilaya, Ministerial office at any regional level and responsible to the Department head in Jakarta.
Kampung	Hamlet (usually referring to urban area)
KAP	Knowledge, attitudes and practices
Kecamatan	Sub-district; third level of local government (Level III)
Kepala	Head; often referring to the head of an institution or agency
Kotamadya	Second level of local government (city) (Level II)
KST	Kelompok Studi Wanita (Women's Study Group)
LKMD	Lembaga Ketahanan Masyarakat Desa (the Village Self-Reliance Organisation)
LMD	Lembaga Musyawarah Desa (Village Consultative Organisation)
LPSM, LSM	Lembaga Swadaya Masyarakat (Indonesian NGO)
NGO	Non-government Organisation
NTB	Province of Nusa Tenggara Barat (West Nusa Tenggara)
NTT	Province of Nusa Tenggara Timur (East Nusa Tenggara)
P2LDT	Integrated Infrastructure Planning
P2MPLP	Directorate-General of Communicable Diseases Control and Environmental Health
P2AT	Groundwater investigation unit of P3SA
P3AB	Provincial branch of DAB, Cipta Karya (formerly PPSAB)
PDAM	Perusahaan Daerah Air Minum (Water utility management enterprise)
PDD	Project Design Document
Pegawai	(Pegawai negeri) an employee, commonly used to refer to a public servant
PEMDA	Pemerintah Daerah (Regional Government)
PID	Project Implementation Document
PKK	Pembinaan Kesejahteraan Keluarga (Family Welfare Organisation, Women's Section 10 within LKMD)
PMD	Pembangunan Masyarakat Desa (Community and Village Development, formerly Bangdes) at National, Tk I and II.
PMDU	Project Monitoring Development Unit
Pokja	Kelompok Kerja (Working Group)
Posyandu	Village health aid posts staffed by volunteers
PPLP	Proyek Penyehatan Lingkungan Pemukiman (Environmental Sanitation Project, provincial branch of PLP, Cipta Karya)
Propinsi	Province - the first level of local government (Level I)
PSW	Pusat Studi Wanita (Women's Studies Group)
PU	(Ministry of) Public Works



PUGR	Peningkatan Usaha Gotong Royong (Intensification of Cooperative Efforts)
PUOD	Direktorat-Jendral Perusahaan Umum dan Otonomi Daerah (Directorate General of Public Enterprises & Regional Autonomy)
PUSDIKLAT	Training and education centre of a Ministry or Department
PUSKESMAS	Community Health Centre - Kecamatan Level
Repelita VI	Sixth Five Year Plan, 1994 - 1999
RT	Rukun Tetangga (a small neighbourhood unit)
SD	Sekolah Dasar (primary school)
SMA	Sekolah Menengah Atas (senior high school)
SMP	Sekolah Menengah Pertama (junior high school)
STM	Sekolah Teknik Menengah (technical high school)
TAHU	Terminal Air dan Hidran Umum (water terminal and public hydrant)
Tk I	Tingkat I (provincial level of local government)
Tk II	Tingkat II (kabupaten level of local government)
TO/TOS	Technical Officer cum Supervisor
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
WHO	World Health Organisation
WID	Women in Development (recently replaced by GAD)
Wilayah	An area or territory
WSS	Water Supply and Sanitation
WSSPLIC	Water Supply and Sanitation Program for Low Income Communities (a World Bank project)
WTP	Water Treatment Plant





Indonesia





## EXECUTIVE SUMMARY

AusAID is currently providing support to three projects in the water supply and sanitation sector in eastern Indonesia:

- East Timor Water Supply and Sanitation Project (ETWSS)
- Flores Water Supply and Sanitation Reconstruction and Development Project (FWSSRD) and
- NTB Environmental Sanitation and Water Supply Project (NTB ESWS).

They are each designed as five-year projects, and are of different scales and at different stages of completion: the NTB ESWS project with almost one million beneficiaries will finish in about one year, the ETWSS project with 150,000 beneficiaries is at mid-term of its schedule, and the FWSSRD project which will benefit some 300,000 people is in its second year of implementation.

There are strong similarities in the designs of the three projects; all have significant components of both institution-based and community-based activities, working in both the urban and rural sectors, with water supply and sanitation activities being supplemented by inputs in environmental health and other social education.

As a follow-up to an Effectiveness Study by AusAID in September/ October 1994, it was decided to mobilise a Technical Advisory Group (TAG) for two weeks in August/ September 1995, to report on activities related to the recommendations of the Effectiveness Study, and as a resource to the projects to identify current issues and facilitate appropriate actions towards their resolution.

Viewed together, these projects would be assessed as a successful development program. Appropriate approaches and technologies are being applied efficiently and cost-effectively, blending physical (material) and non-physical (technical assistance) inputs to not only improve social and economic conditions for large target populations in the short-term, but also maximising prospects for sustaining the benefits in the longer term.

Significant current and expected achievements include:

- strong linkages with counterpart institutions involved in implementing project activities;
- appropriate physical contributions, coordinated with complementing contributions from GOI institutions and communities at levels appropriate to sustainability goals;
- effective technical assistance to improve the quality of facilities installed, including those funded largely or wholly by others;
- technical assistance to strengthen the institutions which will be responsible for the operation, maintenance and management of the larger, more complex water supply systems, sustaining them effectively into the future; and



- facilitation of communities to fully manage their own water and sanitation facilities, through planning and construction to operation and maintenance, also assuring long-term sustainability.

One measure of the success of this community-based approach was its use as a model for the development of a large country-wide programme sponsored by the World Bank.

Of course there are elements of each project which have been less successful than might have been expected. Some difficulties are common to all activities in this sector, and are shared by all the projects. The more important of these common themes are:

- the inherent weakness of the water authorities, and their importance to the sustainability of project outputs;
- the prevalence of low standards of construction by local contractors;
- the "project" and "target" orientation of water supply and sanitation agencies largely responsible for implementing physical works;
- coordination of the planning and budget processes, and the difficulties in securing allocations for routine (maintenance) expenditure; and
- the need to enhance appreciation of AusAID's GAD policies.

Most are recognised and being addressed by the projects. Where appropriate, further actions have been suggested by the TAG.

Each project also has an individual setting with its own difficulties to be overcome. These are discussed in the text of the report under headings such as gender, health and environment, community issues, institutional, technology and monitoring and reporting. Arising from, or in addition to these are issues for which action plans were discussed with each project team. Some of these issues and actions relate to overall direction, some to specific current situations.

Examples of individual project issues include:

For ETWSS: drainage, sanitation and health, and the staffing of community inputs

For FWSSRD: transition arrangements upon dissolution of the counterpart agency, health promotion, and the focus of future inputs in urban and rural sectors

For NTB ESWS: the winding down of project activities and transfer of responsibilities.

In most cases these issues were identified jointly with the project teams, and the approach to defining actions was undertaken in a cooperative and constructive way. Indeed, many of the actions have already been initiated by the projects prior to publication of this report. The detailed text will serve as background and reference as necessary.

The TAG was considered a worthwhile activity.



## 1. INTRODUCTION

### 1.1 Background

The Australian Agency for International Development (AusAID) is providing support for three projects in the water supply and sanitation (WSS) sector in eastern Indonesia. These are an important part of the bilateral project program with the Government of Indonesia (GOI), representing a total Australian financial commitment of approximately A\$65 million. The projects are located in the eastern provinces of Nusa Tenggara Barat (NTB), Nusa Tenggara Timur (NTT) and Timor Timur (East Timor), and are known as:

- East Timor Water Supply and Sanitation Project (ETWSS)
- Flores Water Supply and Sanitation Reconstruction and Development Project (FWSSRD) and
- NTB Environmental Sanitation and Water Supply Project (NTB ESWS).

There are similarities in the structure of the three projects. They are each designed as five-year projects, and are of different scales and at different stages of completion: the NTB ESWS project with almost one million beneficiaries will finish in about one year, the ETWSS project with 150,000 beneficiaries is at mid-term of its schedule, and the FWSSRD project which will benefit some 300,000 people is in its second year of implementation.

In September/ October 1994, AusAID undertook a comprehensive Effectiveness Study of the three sector projects. The objective of the study was to ascertain whether identified high risks could be reduced by changes to project designs, implementation and monitoring practices. The study identified a number of difficulties encountered in implementing the projects, constraints and risks in project activities and in realising project objectives. Recommendations were also put forward for addressing both sectoral and project-specific issues and managing risks.

As a follow-up to this Effectiveness Study, and to build upon its findings, AusAID decided to mobilise a Technical Advisory Group (TAG). The TAG was intended as a small team with a strong focus on the issues of direct and current relevance to the Australian project activities. The TAG was to visit each of the projects, review and advise on recommended strategies, facilitate actions in relation to current project-specific issues, and submit a brief report on each to AusAID.

The field visit took place over two weeks in August/ September 1995. Draft findings, which had generally been discussed on site, were circulated to the projects for correction and comment during September, and presented to AusAID in Canberra on 4 October. This report was compiled in draft for wider circulation, and is expected to be finalised in late October 1995. The report will serve as background and reference; at the time of writing, many of the issues and recommendations recorded have already been acted upon.



## 1.2 Terms of Reference

The Terms of Reference (TOR) for the TAG were issued by AusAID Canberra in draft form in July, and circulated to each of the Managing Contractors and their teams responsible for the execution of the projects, as well as to the relevant Post officers and members of the TAG. Comments were received and incorporated as appropriate, and the final version of the TOR were issued on 9 August 1995. A copy of these final Terms of Reference are included as Annex A to this report.

The TOR used the findings of the 1994 Effectiveness Study as a starting point, and acknowledged that the present situation may be quite different from that reported almost one year ago. Many of the recommendations of the Effectiveness Study may have been put into effect, and because of changes in the project settings, some may no longer be relevant and/or other issues may have arisen or become more relevant to each project. It was also felt that the TAG could provide more than a monitoring and reporting function; the TAG could also be used by the project teams as a resource, to assist the definition of important issues and facilitate appropriate actions towards their resolution.

In keeping with that dual role, the TOR were written in two parts:

- Part A - Sector Issues, identified as being common to all projects, and requiring to be reported separately for each; and
- Part B - Action Plans, arising from issues identified jointly by the TAG and the project teams, generally limited to about four points.

The Parts A sector issues are listed in the TOR, and are reported upon in the following, under the headings of gender, health and environmental, community issues, institutional, technology, and monitoring and reporting. The reader is invited to make reference to the specific points listed under each heading in Annex A. It was intended that the reporting was focused on these points as they relate to each project, rather than providing a wide-ranging, general commentary.

For the issues to be reported under Parts B, the TOR provided some suggestions for each project. These, together with supplementary comments and observations, formed the basis of discussions between the TAG and project teams, generally at the start of the TAG visit to each project. In each case the list was refined to cover those of current relevance, recognising the time limitation of the visit. The revised, agreed list then provided additional points of focus for the attention of the TAG, whose findings were discussed in a wrap-up meeting with the key members of the project team at the conclusion of their visit to each project.

This report follows the structure of the TOR, and the contents are explained more fully below.





### 1.3 Approach

As the members of the TAG were geographically dispersed, pre-departure briefing in Canberra was not practical. Relevant reports were circulated and discussions took place by telephone and electronically. As Denpasar is the hub of all flights in eastern Indonesia, the TAG met there for briefing by the Post at the start of the visit.

The TAG field visit took place from 25 August to 8 September 1995, allowing between three and five days on each project. Considering also the logistical difficulties in travelling between and within projects and sites, the schedule required that TAG activities were very focused, with little time for formalities or basic data gathering. The team's membership and itinerary, together with a list of most persons met by the team, are included in Annex B.

The logic of each project visit was:

- an initial briefing, discussion and agreement on definition of issues to be addressed by the TAG under the TOR Part B (refer above);
- site visits, field inspections, meetings with officials, communities and other interest groups, discussions with project staff;
- preparation of immediate outputs, notes etc. as appropriate; and
- a wrap-up meeting with the key members of the project team, for presentation and discussion of the TAG's initial findings and suggestions for the action plans arising from the agreed points.

Between 9 September and 3 October 1995, the team prepared summaries of their findings, generally as presented in the wrap-up meetings, and they were circulated in draft form to the management and staff responsible for each project. Corrections, comments and suggestions were returned, and incorporated as appropriate. They were then presented to AusAID in Canberra on 4 October. A draft version of the full report was assembled in mid-October for wider circulation and comment. The final report (this version) was issued in mid-December 1995. Meanwhile, actions arising from the TAG findings were initiated after the site visits, and continue.

The structure of the report is briefly as follows:

- The next chapter presents brief descriptions and summary data for each project, which is largely a repetition of information from other reports, but included for completeness and the convenience of the reader.
- Chapter 3 reports on some themes which are common to sector activities, with the principal intent of making the report easier to understand, particularly for the reader who is not very familiar with the WSS sector in Indonesia, and processes relevant to AusAID projects such as these.
- Chapters 4, 5 and 6 report on each project in turn, presenting the findings of the TAG under the subdivisions of the TOR: Part A Sector Issues, and Part B Action Plans in each case. While the Parts A are common, as listed in Annex A, the issues for Parts B are specific for each project, and are introduced at the start of the relevant section in each Chapter.



- The final chapter presents some summary conclusions. These should not be regarded as complete, as no attempt has been made to summarise the recommendations and action plans specific to each project. The interested reader would need to refer also to the earlier chapters for this detail.

The annexures include copies of the ToR, itinerary, list of persons contacted, supplementary information referred to in the text of the report, and a small set of maps illustrating the locations and detail of project activities.



## 2. THE AusAID WATER SUPPLY AND SANITATION PROJECTS

### 2.1 East Timor Water Supply and Sanitation Project

#### 2.1.1 Project Description

The East Timor Water Supply and Sanitation Project is a five-year programme of assistance to improve the water and sanitation conditions in two Kabupaten (districts) in the province of East Timor: Dili, including the province capital on the north coast, and Covalima on the south coast of the island. The maps in Annex D show the location of the works, noting that Suai, the principal town of Kabupaten Covalima, is about seven hours by road from Dili. The project officially commenced in October 1992.

The **project goal** is to improve the welfare of the people of Kabupaten Dili and Kabupaten Covalima through sustainable improvements to facilities and use of facilities for water supply and sanitation, consistent with GOI and GOA policies. The objective of each of the four components of the project are as follows:

- The **Institutional Development** component (previously Management Systems component) is to improve the capability of agencies in the WSS sector so that they can successfully operate the facilities after the project finishes.
- The **Major Urban Works** component is to provide improved water supply and sanitation facilities through the implementation of a major works program, including investigation, design and construction of water, sanitation and drainage works.
- The **Low Income Community Works** component is to provide communities with low cost facilities for water supply and sanitation through a process of development of community-level human, financial and physical resources.
- The **Project Management** component is to manage the project according to GOI and GOA guidelines through the establishment of project management systems, including the monitoring and evaluation of activity implementation.

The project team is based in Dili, with a secondary operating unit located in Suai. the social situation in East Timor, particularly for community-related activities, is amongst the most difficult in Indonesia. Highlights of the main activities under the project would include the following.

#### Urban Water Supplies

- master plans for water supply in Dili and Suai;
- upgrading sources for the Suai water supply;
- rehabilitating water treatment plants in Dili;
- design and rehabilitation/construction of deep wells in Dili
- design and construction of reservoirs in Dili and Suai;
- designing and constructing new transmission mains in Dili and Suai;



- locating and repairing pipe leaks in Dili and Suai;
- installation of consumer and system water meters in Dili and Suai; and
- procurement for all of the above.

### **Institutional Development**

- HRD study of the Dili Water Enterprise (BPAM);
- Design and delivery of training courses to upgrade skills of BPAM officers;
- Reform of management and operating practices of BPAM to ensure compatibility with national guidelines and sound financial practice; and
- Formation and guidance in the development of the Suai BPAMD.

### **Community Based Activities**

- Develop a fully functioning community development unit within the project;
- Encourage development of local NGOs and assist them with WSS projects;
- Carry out small-scale water supply and sanitation projects in areas of Kabupaten Dili and Kabupaten Covalima which are not served by the urban water supply systems.

### **Health Activities**

- Health education campaign using social marketing techniques to increase correct/appropriate use of project supplied water;
- Equipment, training and guidance for water testing laboratories in Dili and Suai;
- Study of appropriate technology for toilets; and
- Assistance to communities in construction of toilet facilities.

### **Drainage Activities**

- Master plan for Dili drainage system
- Training, equipment supply and assistance in development of an operations and maintenance unit within the Mayor's office (Walikotif Dili).

The Australian financial contribution is applied to technical assistance and training, principally through Australian and Indonesian consultant inputs, and the procurement of materials and equipment for project activities. The remaining inputs, comprising mostly the balance of materials and equipment and construction costs, are funded by the GOI, with some contribution from communities.





## 2.1.2 Current Status

The project is in its third year of implementation, at the mid-point of the scheduled five years. Mobilisation was particularly difficult, but subsequent progress, especially in the Dili urban area works, has been good. General financial indicators of project status are as follows (all costs shown are A\$ millions).

Approximate Total Cost of Project Activities	17.67
Original (PDD) Estimate of Australian contribution	11.94
Current (Oct 1995) Estimate to complete	13.61
Total expenditure (GOA) to date	7.28
1995/96 Annual estimated expenditure	2.50
1995/96 Expenditure to date (end Sep 95)	0.22

### Approximate Breakdowns of Australian Contribution

ETWSS		Original (PDD)		Current (Annual Plan)	
		Amount	%	Amount	%
<b>By Component</b>					
Component	1 Planning/Instit	1.18	10	2.02	16
Component	2 Urban Works	3.97	33	3.50	27
Component	3 LI Community Works	4.31	36	3.67	28
Component	4 Project Management	2.48	21	3.81	29
<b>By Sector</b>					
A	Urban	4.86	51	5.58	61
	Rural	4.60	49	3.61	39
B	Water Supply	7.19	76	7.36	80
	Sanitation	2.27	24	1.83	20
C	Institution	5.66	60	5.82	63
	Community	3.80	40	3.37	37
<b>By Category</b>					
	Personnel	8.35	70	8.70	67
	Procurement	3.14	26	3.55	27
	Training	0.30	3	0.37	3
	Other	0.15	1	0.57	4



## 2.2 Flores Water Supply and Sanitation Reconstruction and Development Project

### 2.2.1 Project Description

The five-year Flores Water Supply and Sanitation Reconstruction and Development Project (FWSSRD) is to assist the GOI with reconstruction and development of water supply and sanitation facilities in urban and rural areas of five Kabupaten (Flores Timur, Sikka, Ende, Ngada and Manggarai) of Flores Island, in Nusa Tenggara Timur (NTT) Province. The project originated in response to the earthquake and tidal wave on Flores Island on 12 December 1992, and which resulted in significant damage to water supplies and other physical infrastructure in urban centres, especially in the cities of Maumere, Ende and Larantuka, as well as surrounding rural areas.

It was intended that the initial emergency assistance would be followed by longer-term assistance with the reconstruction and development of WSS infrastructure. Thus the project was to evolve from disaster relief to being a normal development project under the bilateral assistance program (hence the abbreviated references to the Flores WSS project). The project officially commenced in July 1994.

The **project goal** is to promote social and economic development in Flores, NTT by increasing the provision, access, effective use and sustainability of water supply and sanitation facilities in urban and rural communities. The objectives of each of the three components of the project are as follows:

- **Component 1 - Urban WSS Development:** to strengthen and support relevant government departments and local water authorities in the planning, implementation and management of water supply and sanitation systems in elected Kabupaten capitals, Kecamatan towns and permanent resettlement areas.
- **Component 2 - Rural WSS Development:** to strengthen and support community groups and local agencies in the planning, implementation and management of water supply and sanitation facilities in selected desas.
- **Component 3 - Project Management:** to establish and operate a management structure which will enable the effective scheduling, monitoring and evaluation of the implementation of Components 1 and 2.

The strategy for implementation generally follows the evolution phases described above. Activities during the first half of the project will concentrate on reconstruction of water supply and sanitation systems in Kabupaten capitals and Ibu Kota Kecamatan (IKK) towns, and will commence the staged implementation of rural community WSS, with an emphasis on the three earthquake-affected Kabupatens of Sikka, Ende and Flores Timur. Activities during the second half of the project will concentrate more on strengthening of water management organisations, both urban and rural. Implementation of rural community WSS works continues throughout the five years to project completion.



Being the most recent of the three similar AusAID-assisted WSS projects in the eastern islands, the design for the FWSSRD project was considerably influenced by design elements from the East Timor and Nusa Tenggara Barat projects described elsewhere in this report. Key aspects drawn from these projects in the FWSSRD project design strategy are as follows:

- targeting of economically disadvantaged people living in urban and peri-urban slum areas and low income communities, and in unserved and underserved villages listed by the GOI under its Inpres Desa Tertinggal ("villages left behind") poverty alleviation programme;
- community participation;
- integrated environmental health education reinforcing the sanitation program;
- demand-driven interventions;
- cost recovery through community capital cost contribution and user fees;
- training using structured learning approaches;
- human resource and institutional strengthening; and
- involvement of LSMs.

The Australian contribution to project costs covers technical assistance and training, and the procurement of goods and equipment. The balance of materials and equipment, and the costs of construction work will be met by the GOI, with communities also making significant contributions to the rural component works.

### 2.2.2 Current Status

The project is in its second year of implementation. General financial indicators of project status are as follows (all costs shown are A\$ millions).

Approximate Total Cost of Project Activities	32.03
Original (PDD) Estimate of Australian contribution	23.33
Current (Oct 1995) Estimate to complete	24.81
Total expenditure (GOA) to date	7.72
1995/96 Annual estimated expenditure	4.00
1995/96 Expenditure to date	1.71



## Approximate Breakdowns of Australian Contribution

FWSSRD			Original (PDD)		Current (Annual Plan)	
			Amount	%	Amount	%
<b>By Component</b>						
Component	1	Urban WSS	12.39	53	12.39	53
Component	2	Rural WSS	6.14	26	6.14	26
Component	3	Management	4.80	21	4.80	21
<b>By Sector</b>						
	A	Urban	12.39	67	12.39	67
		Rural	6.14	33	6.14	33
	B	Water Supply	16.50	89	16.50	89
		Sanitation	2.03	11	2.03	11
	C	Institution	13.03	70	13.03	70
		Community	5.50	30	5.50	30
<b>By Category</b>						
		Personnel	6.51	28	6.51	28
		Procurement	12.43	53	12.43	53
		Training	2.85	12	2.85	12
		Other	1.54	7	1.54	7

### 2.3 NTB Environmental Sanitation and Water Supply Project

#### 2.3.1 Project Description

The Nusa Tenggara Barat Environmental Sanitation and Water Supply Project (NTB-ESWS), which commenced in December 1991, is a five-year program of development cooperation in the province of Nusa Tenggara Barat (NTB), including all six Kabupaten on the islands of Lombok and Sumbawa.

The **project goal** is to contribute to improved socio-economic and environmental health conditions in NTB by provision and effective use of community environmental sanitation and water supply facilities, focussing on community and district-based management. It aims to achieve this through development the capacity of local communities to take responsibility for their own sanitation and water supply and by strengthening existing government institutions in their capacity to plan, manage, monitor and evaluate more complex water supply and sanitation systems and activities.





The project draws upon the successful and promising aspects and components of GOI/GOA funded projects previously implemented in NTB and elsewhere in Indonesia, with a focus being given to activities which are sustainable and cost-effective.

The main components are:

- **Community Management Activities**, which also integrate health and women's perspectives, include working with local NGOs and groups in developing the processes and organisation required for the involvement of community groups in the planning, implementation and ongoing maintenance of sanitation and water facilities and community health activities. Specific GOI, GOA and local community inputs (through materials, cash and kind) are also provided and monitored;
- **Institutionally Managed Activities**, develop the design and management requirements and procedures for medium and large reticulated water supply systems, including work within the Public Works agencies and associated water enterprises, as well as health-related activities and water quality surveillance mechanisms;
- **Project Planning and Coordination**, which establishes and maintains management strategies and structures within the existing GOI administrative framework for ES&WS, with a focus on the district level and community participation.

For all components, formal and informal training activities are carried out throughout the life of the project. Overall, development sustainability, the transfer of technology and community participation in and ownership of facilities constructed are given a high priority.

The project is phased over the six Kabupaten in NTB, taking in East, West and Central Districts in Lombok Island and Bima, Dompu and Sumbawa Districts in the island of Sumbawa, with the precise scope of activities being determined by the actual needs and absorptive capacity of the communities concerned. However, the project design estimated that more than 800,000 people will benefit from improved water supply and sanitation through the provision of a range of new and/or rehabilitated facilities during the project. Activities commenced in East Lombok, Sumbawa and West Lombok, and subsequently expanded to include Dompu, Bima and central Lombok.

The Australian contribution to project costs are committed to long and short term consultancy inputs, the involvement of Indonesian non-government organisations (NGOs) and local consultants in the community development activities, the supply of equipment and transport, including pipes and fittings for the proposed piped water systems for towns and rural areas, and for training associated with community development and the strengthening of GOI institutions and enterprises. The Indonesian contributions, for local materials, construction, support and running costs, are being met from GOI budgets and community contributions.



### 2.3.2 Current Status

The project is due to be completed by December 1996, so is entering its final year of implementation. It is the confirmed intention of AusAID that the project activities are properly completed on schedule, and no extensions are being considered. General financial indicators of project status are as follows (all costs shown are A\$ millions).

Approximate Total Cost of Project Activities	28.34
Original (PDD) Estimate of Australian contribution	21.07
Current (Oct 1995) Estimate to complete	26.50
Total expenditure (GOA) to date	18.26
1995/96 Annual estimated expenditure	4.50
1995/96 Expenditure to date	1.36

#### Approximate Breakdowns of Australian Contribution

NTB-ESWS			Original (PDD)		Current (Annual Plan)	
			Amount	%	Amount	%
<b>By Component</b>						
Component	1	Planning & Coord	4.00	19	N.A.	-
Component	2	Community WSS	11.22	53	N.A.	-
Component	3	Institution WSS	5.86	28	N.A.	-
<b>By Sector</b>						
	A	Urban	5.86	34	N.A.	-
		Rural	11.22	66	N.A.	-
	B	Water Supply	9.93	58	N.A.	-
		Sanitation	7.15	42	N.A.	-
	C	Institution	6.43	38	N.A.	-
		Community	10.65	62	N.A.	-
<b>By Category</b>						
		Personnel	12.30	58	16.81	66
		Procurement	8.17	39	7.60	30
		Training	0.61	3	0.60	2
		Other	0.00	0	0.58	2



### 3. COMMON SECTOR THEMES

#### 3.1 Relevant GOI Institutions

Historically the definition of counterpart arrangements with GOI institutions for bilateral or multilateral assisted WSS projects was simple and clear-cut. However, over the last ten years, and particularly the last five years when these three projects have been designed and implementation commenced, sector activities have become more sophisticated, and institutional arrangements more complex. Not only are there more institutions involved, at all levels of government, but also there is much more coordination required between them, physically, administratively and financially.

There are several texts, and recent AusAID publications, which describe the relevant institutions, their structures, roles and responsibilities, and the planning and budgetary processes within the GOI system. The interested reader should refer to these detailed descriptions. Included in this report are the names only of the major GOI institutions which have important roles for these three AusAID projects, to serve as a brief introduction to the subsequent discussions.

At the central/national level (Pusat) are:

- Bappenas, responsible for planning and coordination, especially budgets;
- Ministry of Public Works, Directorate General of Human Settlements (Cipta Karya, Dep PU), responsible for implementing major projects in WSS;
- Ministry of Health, Directorate General of Communicable Diseases Control and Environmental Health (CDC, DepKes), with environmental sanitation and water quality responsibilities; and
- Ministry of Home Affairs, Directorates General of Regional Development and Village Development (PMD, formerly Bangdes, and Bangda, Dep Dalam Negeri) responsible for local government and community organisations.

All have non-linked equivalents, and/or are directly represented at lower levels of government. For example, PMD has direct responsibilities for village development and representation at all lower levels; planning agencies, called Bappeda, exist at local government levels, but are attached to those government structures, with no direct central link; central Dep PU is directly represented, through Kanwil (and including P3AB for water supply and PLP for sanitation), but there are also local government equivalents, called Dinas PU; similarly for Health with DiKes. In addition, there is a strong determination to devolve responsibilities from central agencies, generally to district level local government agencies. Examples especially important for these projects are the water enterprises at district level, which are eventually to become self-sustaining.

There are slightly different structures of particular relevance to each project, but the main local government agencies with responsibilities of interest are:



At Provincial/ Local Government Level I (Tk I):

- Bappeda, reporting to the Governor;
- Kanwil PU, representing Dep PU directly and reporting to Pusat;
- Dinas PU, a department of the provincial government;
- P3AB (formerly PPSAB), directly representing Dep PU, Cipta Karya, Directorate of Water Supply, receiving funding from and reporting to that central agency, and responsible for implementing water supply "projects";
- PLP (or PPLP) as for P3AB, except linked to PLP in central Cipta Karya and responsible for sanitation (drainage, human and solid waste) "projects";
- DepKes, representatives strongly linked to Pusat programs in all health areas; and
- Bangda and PMD (Bangdes), providing the direct linkage from local government to central level.

At Kabupaten (District)/ Local Government Level II (Tk II):

- Bappeda, reporting to the Bupati (District Head);
- Dinas PU, often with incomplete structures at this level;
- Dinas Health (DiKes), providing direct interventions and support to lower level activities including sanitation and environmental health improvements;
- PMD (Bangdes), coordinating village development activities at this level;

and, most importantly, the water enterprises (PAMs), responsible for the long-term operation and management of (urban) water supply infrastructure, known as:

- BPAMs while they are still receiving direct support from Dep PU (Pusat); and
- PDAMs when they have achieved financial independence, at least to the extent that they cover operating and maintenance costs from revenue.

Below this are further administrative divisions into Kecamatan (sub-districts), Desa (villages) and Dusun (hamlets) which are not described in detail here. Of interest to the projects are the Village Self-Reliance Organisations (LKMD) which provide the structure for community managed activities, and the women's organisation for family welfare, PKK. Community health centres, Posyandu, based on trained volunteers and traditional practitioners also operate at a very local level.

The local government divisions do not follow the same nomenclature, but a similar pattern, in larger urban centres such as provincial capitals. Common terms are included in the glossary at the beginning of this report.

### **3.2 Evolution of Projects**

During its initial informal stage, the identification of possible projects for AusAID funding under the bilateral project assistance programme may take several forms, from a single discussion to quite detailed consideration of several alternatives over an extended period. In general, pre-selected projects must have a high correlation with the priorities and policies of both governments. Through clear statements of such priorities and preferences, for example, with respect to geographic location, scale, social and sector





focus, it is possible to influence and move the emphasis and balance of the programme over time. Formally, a project is identified in a request from GOI to GOA.

The consideration of the request may involve a field pre-feasibility assessment by AusAID, or a general request may be developed to an outline definition of a project without field investigation. Based on this outline, the feasibility of proposed elements is assessed, and the detailed definition of the project, including scheduling and costing of all contributions, is set out in a Project Design Document (PDD). This is an important document, which is subject to thorough review at several levels both within AusAID and within relevant GOI institutions, and may be required to be modified to more accurately reflect the views of all interested parties. When approved, the PDD forms the basis of two important steps towards implementation of the project:

- selection of the agents and agencies to be responsible for implementation, from both Australia (Managing Contractor) and Indonesia (Lead Implementing Agency and others); and
- the Memorandum of Understanding (MOU) which sets out the formal, detailed commitments of GOA and GOI for the duration of the project. As the legal instrument defining the contributions and methods for implementation, it is preferable that the MOU is signed before project commencement.

The project then physically commences. The time elapsed since inception of the concept is typically about two years, though this average period appears to be reducing, and in some cases may be as short as one year.

Normally, the first task of the Managing Contractor is to review the PDD and modify it as considered appropriate into what becomes known as the Project Implementation Document (PID). It is intended that any modifications to the PDD should reflect changes that may have occurred to the project setting since the PDD, as well as corrections due to assumptions made with limited field work during PDD preparation. It should be noted in this respect that, at the time of preparing the PID, amidst the pressures of mobilisation and project start-up, the Managing Contractor's understanding of the project setting, issues and priorities, may be less than complete. The PID, incorporating these changes, is then approved by AusAID and the GOI Lead Implementing Agency, and supercedes the PDD as the defining project document.

Each year thereafter, timed to coincide with the fiscal calendar, the Managing Contractor prepares an Annual Plan, detailing the activities and commitments for project implementation for the forthcoming year. In the Annual Plan it is possible to introduce further substantial changes to the project design, again to take account of changes in the project setting or other circumstances. Indeed, it is not necessary to wait for the Annual Plan to introduce project adjustments; as circumstances change at any time the Managing Contractor may propose modifications to project details. The Annual Plans and intermediate changes are subject to an approval process similar to that for the PID, except minor modifications which require the approval of AusAID only.

There are potentially both positive and negative aspects to this process of change. It is acknowledged that the setting and circumstances of a project will not remain static over



the several years of its implementation. It is essential that there be provision for the project to respond to this reality, and the process described provides the necessary flexibility.

It may be seen that, over the course of the first two or three years of the project, and beyond, though this process of evolution by increments, it is possible for the content and thus the direction of the project to change very significantly. Such gradual moves in emphasis are not easy to detect, or even consider by implication as each individual modification is proposed. Each relatively minor change may be justified in relation to dominant events or perceptions at the time, such that the original objectives of the project become obscured or lost altogether. In some cases this may be considered a desirable outcome, but the fact that it can happen almost without being noticed may give rise to some concerns.

There are at least three processes which can include checks against unwanted changes appearing:

- Firstly, when considering proposals for change, particularly those presented after the PID, the Managing Contractor and AusAID could make reference to the original design intent to ensure objectives are clear and consistent.
- Secondly, there are check-points included in the project schedule, such as a formal mid-term review, when decision-makers may have a more thorough, overall examination of the key issues and general direction of the project, making conscious decisions about modifications to project design parameters.
- Third are regular or sporadic review processes by independent external experts, such as a Technical Advisory Group, who could also be encouraged to adopt a broad perspective in advising the decision-makers mentioned above.

The appropriate measures for any project may involve all these measures, or variations of them. These checks need not impact on flexibility, but they should provide an assurance that project risks are properly managed.

### **3.3 Administration and Approvals**

Management for successful outcomes of projects such as these is quite complex. There are two very different government systems involved, operating to planning and budget timetables that are out of phase, with distinct requirements at each stage of activity. There has been considerable effort, particularly on the part of AusAID, to provide the flexibility and understanding necessary for the projects to be implemented at all.

The Indonesian planning and budgeting cycle is problematic in three important respects:

- its phasing in relation to the Australian fiscal year;
- the uncertainty of the amounts and timing of the release of funds so late in the year of each cycle; and



- the focus on "targets" and "projects" with the corresponding emphasis on new works, rather than rehabilitation and (most seriously) inadequate funding for routine expenditures on operation and maintenance of existing infrastructure.

The processes are more fully described in other AusAID publications. Even with a good understanding of the process, the planning and budgeting of the Australian contributions remains a difficult matter, particularly as the relative proportion of Indonesian contributions increases. For example, the fact that GOI funds may be available for only six months of the year is a significant constraint that requires ever more innovative approaches to allow continuity of project activities through the period with no GOI funds.

All projects have clearly had difficulties in this regard. To the credit of the Managing Contractors and the responsible AusAID personnel, after the first year or so the difficulties seem to have been considered routine and under control. However, as changes to project details are being considered, these matters need to be taken into account. A corollary issue is the format and frequency of reporting, and the corresponding allocations of project resources to such tasks.

A further common problem reported by all projects was with accreditation procedures for Australian staff. GOI policies and guidelines have tended towards increased participation and responsibilities for Indonesians, and increasing rigidity in enforcing the roles. Bilateral cooperation programs should enjoy some considerable relaxation of this approach. In theory, bilateral projects should have no accreditation problems at all. Nevertheless, from time to time there appear to be obstacles and uncertainties in the accreditation of all foreign staff for particular projects, or particular posts on all projects. One reported example is the denial of accreditation for expatriate gender and community specialists. Other examples include the current difficulties with two key adviser positions on the Flores project.

In response, Managing Contractors have made two types of changes to project staffing:

- elimination of most expatriate short-term specialist inputs, and extending the long-term Australian inputs; and
- converting both short-term and long-term expatriate positions into Indonesian staff inputs, generally on long-term conditions.

Not only does this significantly change the cost structure of personnel inputs (including travel and accommodation costs) but it also changes the skill inputs to the project. Examples may be found where there has clearly been a benefit to the project, as more appropriate skills have been identified, which have also been more convenient and cheaper. In other cases however, project designs and implementation have been significantly impacted.

Accreditation difficulties inevitably affect implementation schedules, and judgement is required in each case to assess the relative merits of perseverance and consequent delays versus abandonment or major changes to the inputs and team structure. Such decisions may be made and approved in haste or in desperation, without the benefit of the broad project perspective. Past experience would suggest that accreditation difficulties are not



static; sensitivities and priorities change with time. It may be advisable, where compromises have been made to the possible detriment of the project, that key posts are pursued with more vigour, with more frequent enquiries or re-applications.

The combination of budget coordination and accreditation difficulties has resulted in real delays in the initial stages of all three projects discussed in this report. The starting-up period has been longer and less productive than expected, placing increased pressure on the shorter period of maximum project activity. Thus five-year projects are effectively reduced to implementation periods of four years or less, including allowance during the last year for winding down and handing over.





## **4. EAST TIMOR WATER SUPPLY AND SANITATION PROJECT**

### **4.1 Part A Sector Issues**

#### **4.1.1 Gender**

In his comments on the Terms of Reference for the Technical Advisory Group (TAG) in August 1995 the Australian Team Leader (ATL) made the point that "ETWSS has no formal GAD objectives and to date does not have any staff dedicated to this task". This illustrates a common misunderstanding on the part of Australian contractors regarding their obligations in respect to AusAID's Gender And Development (GAD, previously known as Women In Development, WID) policies (see Annex C). There also seems to be a misunderstanding that GAD policies and objectives are in some way a separate component, rather than an integral aspect of all components of a project, to be addressed by all project staff.

At the time of the TAG visit, the ETWSS project had no specific workplan in place for encouraging the involvement of women. However, in discussion with the Australian Team Leader it became evident that some GAD objectives had already been addressed.

In the collection and analysis of baseline socio-economic survey data, GAD policy requirements are being satisfied.

Women have been encouraged to apply for positions, and positive discrimination has been practised in the recruitment of project staff. This has not resulted in a high ratio of female to male employees being reached, however, particularly with respect to field staff on the ETWSS project. There are certain cultural constraints which make it unrealistic to expect to achieve an equal ratio of female to male field staff. They include the fact that many women do not want to work in villages, and the low level of contraceptive use, which results in many women resigning due to pregnancy and childcare commitments.

In discussion with the ATL it was agreed that, in such circumstances, the objective of reaching equal ratios in staffing should be secondary to ensuring the maximum benefit for women beneficiaries from the project. The priority with those women who are suitably qualified and willing to work in the field, is to place them in Health Officer (previously known as Monitoring Officer) positions because of their role in health education activities. It is assumed that there is an advantage in having women in these positions, as they will find it easier than men to meet and communicate with women beneficiaries.

The GAD policy of encouraging participation of women in project planning, management and administration within GOI counterpart agencies was also discussed. The ATL pointed out, when commenting on the TAG's TOR, that this is largely dependent on who occupies the relevant positions in those agencies. It was agreed that while unable to directly affect GOI staffing policies, the project could encourage the adoption of a policy of positive discrimination for women by sending a formal letter to counterpart agencies stating the project's policy, and detailing how it is implemented.



In a number of other areas, however, GAD policies and objectives have not yet been addressed. In the Annual Plan for 1995/96 the only reference to gender is with respect to "gender analysis data" in the socio-economic base-line surveys. Since that report was written, however, the project has appointed a local Gender Specialist, having been requested to do so by AusAID. The Australian Team Leader indicated, in commenting on the TAG's TOR, that briefing on GAD objectives and how they might be achieved would be useful. The TOR and activities for the position of Gender Specialist suggested by the TAG are given in the Action Plan, Part B of this chapter.

While there are obviously problems of accreditation for short-term Australian consultants on the ETWSS project, it is unreasonable to expect the local Gender Specialist to adequately fulfil that role without some additional guidance, given her inexperience. None of the current long-term Indonesian or Australian consultants (with the exception of the ATL) have expertise and direct experience in either gender analysis or community management/ facilitation, and so are not qualified to offer that direction and support. It is strongly advised that a short-term Gender Analyst be appointed as soon as possible to address this need.

A cross visit by the Gender Specialist to the Flores WSS project is also advised, as that project has recently appointed a local Health/WID Specialist, who will shortly receive (or has already received) some on-the-job training from an international Health/WID Specialist. If an appropriate course can be identified, additional GAD training for the Gender Specialist might also be helpful.

The project has been advised that all activities carried out in addressing GAD policies and objectives need to be monitored, and documented in routine project reports.

#### **4.1.2 Health and Environment**

Early in the project management cycle ETWSS recognised the need to develop a hygiene communications program, linked to the community-managed activities and adjusted the project design to allocate the resources needed for such a program. The standard hygiene communications materials available to the East Timor Provincial Health Office were prepared in Jakarta with assistance from UNICEF and were assessed to be limited use in the province. These materials seemed foreign to local people portraying messages that used drawings of people with Javanese appearance and with unfamiliar landscapes. Furthermore, the messages were complex and often promoted technologies that were not applicable in East Timor.

The Provincial and District level Ministry of Health staff although recognising the limitations of the materials available had limited experience in developing a communications program. Furthermore, the District Health Office staff responsible for promoting hygiene had limited training and experience in community relations. Therefore the hygiene communications inputs from the ETWSS project were designed to increase the skills of Ministry of Health staff to develop and implement a hygiene communications program, as well as directly support project activities.



As a first step, baseline surveys were conducted in selected villages from the two project districts in late 1994. These surveys aimed to 1) describe the knowledge, attitude and practices of the community concerning water-use and hygiene, 2) assess management and maintenance of water sources, and 3) identify acceptable ways of communicating about water-use and hygiene.

Some of the main findings are listed below:

- The community has developed habits that are appropriate for an environment where water shortages are common. The main habits that should be targeted by programs that aim to improve public health through water-use and sanitation include: the way human faeces are disposed; personal hygiene practices; handling of waste water; the cleaning of cooking, eating & drinking utensils.
- In the past the methods used to introduce toilets into the community have ignored local habits and the situation confronting the community. This has resulted in low utilisation. In the 3 study sites only 44% of the households reported that adults used toilets but this dropped to 26% for children. Forty percent of children were reported to defecate in the household yard. Sixty-six percent of the mothers reported that the faeces of pre-school children were discarded as food for dogs and pigs and only 10% disposed them in toilets.
- There remains scope to increase community awareness and practice of hand washing. About 70% of the mothers reported washing their hands after cleaning a child who had defecated, and about 60% reported washing their hands after defecating themselves.
- Various channels have been used in the communities studied to provide health information aimed at changing water-use and hygiene behaviours. The main barriers to utilising these opportunities are the low literacy rate in the community and limited skills with the national language. Other barriers include the low level of income and limited mobility. Sixty-seven percent of women reported having never been to school. This low level of educational attainment of women is potentially a major barrier to effective hygiene communications.
- The community prefers the delivery of information through group meetings that provide the opportunity to directly exchange ideas. They also feel that it is easier to understand new ideas when explained with pictures. They also like the entertainment offered by showing films. The low level of radio ownership (30%) and the low level women reporting listening to these modifications.

A communications strategy was developed in a series of meetings in March and April 1995 in Dili with the Ministry of Health and other relevant government agencies. These meetings aimed to publicise the social marketing program, to identify the target audiences and main messages and themes and to plan the implementation of the activity. The results of the baseline studies were presented and working groups were formed to develop the communication strategy. The primary targets for the communication programs are mothers and primary school students. Secondary audiences include water



user groups, health cadres, project field officers, local community leaders and primary school teachers.

Four major themes for the communications program were identified: use of clean water, control of waste water, personal hygiene behaviours and food sanitation. Within each of these themes several specific messages were formulated, for example, within the personal hygiene theme "A healthy person always ensures their body is clean," and within the food sanitation theme "Wash your hand before preparing food to prevent attack from diseases." The main themes and messages were translated into the local languages (Tetun, Tetun Bunak and Tetun Terik). Several types of media were identified as being effective communication tools including posters, game cards, snakes and ladders board game and puzzles.

Prototypes of the media for the communications program were developed off-site and then evaluated in the communities in June and July 1995. Curriculum for use in primary schools and for training of trainers in the Ministry of Health were also developed at this time. The media were modified based on the feedback from the community, other project staff and Ministry of Health officials. The final versions of the media are being prepared at the time of writing this report.

A major risk for the success of this communications program would arise if the community process is unable to establish local community groups. The establishment of active community groups provides an opportune setting for a health education program. The process of group formation and the evaluation of community needs helps to sensitise the community and its leaders to new ideas about water use and sanitation. The trust developed by the community toward the project community facilitators also assists a community-based hygiene education program. The communications program will be most effective if the community team can facilitate the development of well established water-user groups.

The project has started to identify appropriate technologies for latrines and has established some demonstration sites in villages near Dili. Again this technology will only be effective if introduced through well established community groups and where the community itself has recognised the need for latrines.

#### **4.1.3 Community Issues**

There was insufficient time available to thoroughly explore the issues related to community groups and related activities during the four day TAG visit to ETWSS. Emphasis was given to addressing GAD objectives and activities. However, the general impression gained is that this is certainly an aspect of the project which will require further attention and monitoring. At the same time it is acknowledged that the project is implementing a community programme in a particularly problematic socio-political context.

The following points are made in respect to the Low Income Community Works component of the project, in response to statements on Significant Problem (Section 3.3) and Proposed Variations to Project Design (Section 3.4) in the Annual Plan for 1995/96.





The project proposes that, in order to deal with the problem of meeting targets, the community process be sped up. The documented cycle for the community facilitation process is already quite short, being only twelve month cycles. The project advises that, in practice, the actual times are between 18 and 24 months. It is suggested that project documentation be amended to reflect the actual implementation cycle. Instead of shortening the cycle time, it may eventually be possible for field staff to work simultaneously in two villages over the cycle period, increasing coverage without decreasing the potential sustainability of the activities.

While acknowledging that it will take time for Bia Hula to develop into a strong NGO, and having plans for a range of training activities, there does not seem to be any plan to appoint another Community Management consultant to assist Bia Hula and improve the community process. The professional and field staff have little or no experience in community management/ facilitation, and this imbalance of expertise on the project could be corrected by having additional short-term inputs by a consultant (Australian or Indonesian) with experience in this area.

Bia Hula was formed because of the lack of already existing NGOs capable of taking on the Low Income Community Works component of the project. This has been an important step in fulfilling AusAID's objective of increasing sustainability in the sector by improving local NGOs. However, this applies only to the Dili district (Kabupaten), and so far there is no NGO involvement in the community component in Covalima. It is not clear whether efforts have been made to identify NGOs in Covalima or other kabupaten which would be interested in becoming involved with the project. Given the limited experience and skills in community facilitation among project field staff, an NGO with such experience could assist the project, receiving in exchange from the project, enhanced technical capabilities in WSS.

In the Annual Plan it is suggested that the project design be changed to include a sanitation programme for rural communities, in the form of building toilets and micro-drainage facilities. Judging from the conditions observed during field visits near Dili, it seems very unlikely that toilets will be perceived as a high priority by people in these communities given their general level of poverty. The housing conditions are extremely poor and crowded. The highest priorities for improving health are in the area of sanitation behaviours (e.g. disposal of infant faeces, hand-washing, rubbish disposal, ventilation in houses - refer also to Section 4.1.2 above). As also identified above, the construction of toilet facilities will not bring health benefits unless linked to hygiene education and promotion, and the community perceive a need for them. There may be a higher perceived need for toilets and drains among urban communities of Dili than in rural areas, given the higher population density. However, these sites are no longer being selected for low income community works, and drainage presents a problem with respect to the installation of toilets in the Dili urban area.

As there are currently a number of changes of staff occurring within the teams which carry out the Low Income Community Works component of the project, this is an opportune time to revise the community process, and the field staff training. It is strongly advised that this be done as soon as possible, and with the assistance of a short-term consultant who has experience in community facilitation/ management.



In strengthening the capacity of the community teams to carry out the Low Income Community works, it may also be necessary to increase the level of support being given to this component of the project, in particular the allocation of staff resources. Well trained facilitators will still require considerable assistance in technical aspects, for example, when advising communities during the preparation stage, construction of facilities, and when carrying out training in operation and maintenance. It is important that there are sufficient technical resources available to field staff, and that those involved in providing the technical assistance are familiar with the community facilitation process and its objectives.

#### **4.1.4 Institutional**

There are two of the four project components which relate principally to GOI institutions:

- Component 1 - Institutional Development; and
- Component 2 - Major Urban Works

Both have changed quite significantly with the evolution of the project over the years, and further changes are presented in the current annual plan. To a large extent these revisions reflect the difficulties faced in attempting to implement activities which may not accord with the GOI institutions' priorities at the time.

The general approach has been to identify, within the prescribed functions and role of the institution, one or more discrete, practically-oriented activities which are presently either not being performed effectively or not undertaken at all. The project has dedicated the resources necessary to demonstrate all the steps involved in undertaking the activity, by actually doing it, generally over a reasonably sustained period. At the same time as providing the necessary physical resources and practical technical assistance, the Australian team trained the institution's staff and management so that they were capable and willing to adopt the activity and methods as routine practice using their own resources.

Two examples of this approach are the cleaning of municipal drains in Dili with the Mayor's office, and the repairs to the distribution network of the Dili water supply system with the BPAM. Both have involved modest GOA-funded procurement to initiate the activity, with significant inputs from Australian team members. Current indications are that, after a year or more of interventions, these activities have been adopted by the respective institutions to the extent that the GOA-funded inputs are already small and will disappear as the activities become fully funded by the institutions over the next year or two. That is to say, well within the life of the project, the activities will be seen to be sustainable by the institutions.

There are many positive features of this approach, and its acknowledged success to date, as illustrated in these two examples, warrants further analysis. An important feature is the modesty of the activity selected; another is its practical basis. By targeting a discrete function that is neither too ambitious nor too theoretical, and demonstrating with the institution how they can undertake it effectively, the process builds the confidence



necessary not only to sustain the activity but also to proceed with assimilation of further improvements. In its early stages this approach may not achieve significant physical outputs ("targets" or measurable benefits) for the inputs invested; however, if the confidence gained is applied to progressively broader and more complex activities, significant physical progress can be achieved and sustained.

A corollary caution is that the approach may be focused at a lower than optimum level. This may be reflected in either losing sight of the ultimate goal or selecting activities, particularly after initial successes, that are too modest. The result is that, although moderate success is recorded, the project fails to achieve its potential; the opportunity to achieve much more is not taken, and project resources are expended in this lesser result. It is a fine distinction between the selection of activities which are overly ambitious, with significantly increased sustainability risks, and those which are not ambitious enough. Additional judgement is required to ensure that optimum use is being made of project resources.

The project should be encouraged to resist any temptation to take the easier option in selecting activities to build upon the successes achieved to date. This perspective may be applied initially to the three principal areas of institution-based project activities:

- Urban water supply activities have attracted the major part of both physical (procurement) and non-physical (technical assistance) Australian-funded inputs to date. As the focus of the project moves away from P3AB more towards BPAM activities, there are likely to be difficulties related to the absorptive capacity of the BPAM. Consideration should be given to reallocating some Australian team resources from urban water supplies to other sectors, for example, sanitation and rural/community-based activities.
- In urban sanitation, there appear to be greater opportunities to capitalise on the success of the modest inputs to date. In addition to maintaining the practical assistance to rehabilitation and maintenance activities, the project could focus more attention on the larger issues of the Dili drainage system. Masterplanning activities could be extended to facilitation of the first practical steps in clearing and rehabilitating the existing large drains and sea outfalls. This is a complex issue, involving multiple agencies at all levels of government, and eventually also community groups. Although difficult, it is nevertheless essential to achieving any sustainable improvements in urban sanitation in Dili. A similar step-by-step approach could be applied, and is discussed further in the Part B Action Plans following.
- Financial, planning and management support to the BPAM represents a significant technical assistance activity of the Australian team. Frustrations and constraints have been reported, mostly related to the (absorptive) capacity of the BPAM to assimilate and adopt the practices currently undertaken to a large extent by Australian team members. Consideration may be given to the Australian-funded resources applied to this activity, and whether they are being utilised effectively. If a full-time expatriate adviser is not warranted, a part-time expatriate role or use of a lower-level Indonesian consultant may be more appropriate to this activity. In the case that the expatriate role became part-time,



inputs could be directed to other institutions such as Bappeda, or reallocated to community-based activities.

There are other areas of institution-based activities, including those which have been amended in the process of change over the history of the project, which may also benefit from reconsideration from this perspective. Examples include data collection and management, particularly in relation to water resources (such as data gathered from existing wells), and facilitation of planning, prioritising and implementation of project-related activities with physical inputs completely funded by GOI and others.

As the project is proceeding at present there are unlikely to be significant problems with the eventual winding down of the project and effective hand-over to GOI institutions. Issues related to this aspect may be considered in more detail at a later date.

The project has established links with a PDAM in Bali to provide formal training to BPAM personnel. While the content of these programmes was not reviewed in detail by the TAG, this approach is considered worthwhile and probably more effective than any alternative presently available. The PDAMs in East Java and Bali have attracted much support over the last twelve years, including World Bank and Australian-funded assistance, and are further advanced in their development than other water authorities in Indonesia. World Bank support is still on-going. There is also a large catalogue of training equipment and materials, including audiovisual, held in several locations. These key PDAMs are aware of much of what is available, and have selected and applied a range in developing their own training programmes. By directly accessing such PDAMs to provide specific project training, the Australian team can provide relevant training programmes efficiently and cost-effectively.

#### **4.1.5 Technology**

The technologies being applied to urban water supply installations are well selected and generally appropriate to the situation. The issue of improving their on-going operation and maintenance is institutional rather than technological; it is being addressed by the project and is discussed elsewhere. Similarly the technology selection in relation to urban drainage activities undertaken to date and planned for this year is practical and appropriate. Dili drainage inputs are aimed directly at rehabilitation, operation and maintenance.

The rural water supplies are installed under the community-based activities, with technical assistance being provided by the project to support selection of technologies among those alternatives which are technically feasible for each situation. In Kabupaten Dili the majority of rural community schemes selected have had piped systems installed. The central area of Suai town also has a piped system which has been rehabilitated and improved with project assistance. However, outside this area on the coastal plain in southern Kabupaten Covalima, improvements to groundwater sources are being assisted by the project, including training in appropriate manual well drilling techniques. Unfortunately the time available did not allow the TAG to visit Covalima at all, and only three rural sites in Kabupaten Dili just outside the city area.





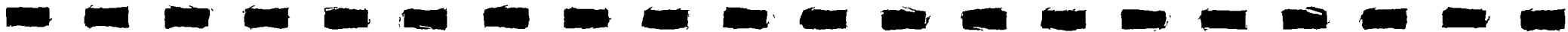
It is interesting to note the relative mix of technologies on this project, and the apparent high selection of piped systems, compared with, for example the GOA-assisted NTB ESWS project, in which the rural communities show a strong bias in favour of wells. The reasons for the preference for piped systems under the ETWSS project was not fully explored by the TAG, but it was understood that in most of the selected sites this was the technically preferred solution. The per capita capital costs of these schemes, with long pipe lengths for low population densities, are relatively high, and the technology is more complex than that for wells. This presents challenges for the team and the communities in implementation, and preparation of the communities for operation and maintenance. Provided the appropriate skills are developed, both in the community team field staff and imparted by them to the communities themselves, there should be no significant problems with the sustainability of this technology.

Rural sanitation activities are still in the developmental stage on the project. Field surveys and studies have been undertaken, including current knowledge, attitudes and practices (KAP) of sample communities and the technical suitability of a range of treatment and disposal technologies. The findings have been compiled into a report by Geoff Drew, suggested to be used as a technical reference document as discussed in the following. Demonstration latrines were under construction at two rural sites, and were inspected by the TAG. This work was intended to be a field trial of construction techniques, and generated much enthusiasm among those concerned with the activity.

While it is commendable to see the initiation of sanitation activities under the project, it was felt that more attention should be given to community preparation, as an integral part of the community process, together with water supply and environmental health education activities. As is mentioned elsewhere in this report, now might be an appropriate time to consider all of these aspects in an internal review and re-formulation of the community process, as there has been a reorganisation of the relevant key staff and a large proportion of the Bia Hula community team is about to be replaced due to expected resignations. Until this situation is resolved it is suggested that the latrine segment of the programme not be progressed. When it does recommence, in response to requests generated within the communities themselves, the Geoff Drew report will be a valuable technical reference, and possibly a training document for field staff. Field technologists will require special training in the new elements of the technology, and provisions made for communities to access the technology as required after project completion.

#### **4.1.6 Monitoring and Reporting**

No specific project monitoring and reporting systems were inspected or discussed in detail during the TAG visit. No significant problems were evident in the reporting of project activities, but they were not checked against indicators listed in the project logframe and in the previous Effectiveness Review report. This may be an activity to be actioned by the project in the coming semester. Much baseline data has been gathered in the community-based component activities, particularly related to health, and this will no doubt prove valuable in subsequent surveys to evaluate the effectiveness and sustainability of project interventions in this area.



Although the compilation and presentation of data is widely practiced in Indonesia, much available data is not reliable and not very useful for project-related activities. Improvements in the processes of data collection and management is included in the institutional strengthening component of the project. It is discussed in Section 4.2.2 of this report that greater attention could be given to these aspects, particularly in relation to practical matters such as water resources for water supply.

It is an AusAID requirement that projects establish a framework for monitoring the integration of GAD policies and objectives, and that they be reported on in progress reports, Annual Plans and the Project Completion Report (see Annex C, Section 6). To date the ETWSS project has only partially fulfilled this requirement.

## **4.2 Part B Action Plan**

### **4.2.1 Focus**

Part B of the Terms of Reference for the TAG identified four issues arising from the recommendations of the Effectiveness Review, with particular reference to the East Timor project. They were to:

- maximise the direct involvement of BPAM (water enterprise) personnel;
- examine and improve operational linkages with counterparts;
- review potential for increased involvement of Ministry of Home Affairs; and
- intensify efforts to formally involve women.

These were the subject of comments from project staff, management and others, and were reviewed by the TAG team in conjunction with the project team on site. There was evidence to support the view that some of these recommendations had either already been addressed or were no longer of concern in the development of the project over the intervening months since the Effectiveness Review team's visit to East Timor. Furthermore, it was considered that there were some additional aspects of project implementation that could be assisted by the TAG team.

The issue in relation to the water enterprise, for example, was not the direct interaction between the Australian team and BPAM personnel (which was seen to be strong and positive); instead it was felt that the TAG should look at the broader perspective of the sustainability of the BPAM itself and Australian project inputs aimed at improving it. Similarly the operational linkages with other counterparts were considered to be well developed, particularly in relation to the institutional components of the project, and the involvement of Ministry of Home Affairs staff in project activities was considered appropriate to the tasks, roles and capacity of both GOI and GOA-sponsored inputs.

Concerns had developed in relation to other issues not reported upon, or not seen at the time as being so important, by the Effectiveness Review. These were broadly in relation to the staffing of the community component activities, and difficulties in progressing issues of drainage, sanitation and health. There were aspects of these more recent concerns which overlapped a little with the earlier recommendations, but it was thought



more beneficial for the TAG to shift the focus of their attentions more towards the present concerns as expressed. The revised list of issues to be addressed by the TAG were jointly defined as:

- the sustainability of the water enterprise in Dili;
- strengthening the community process and teams;
- gender issues, in relation to both the project team and institutions/ beneficiaries; and
- drainage, sanitation and health issues.

The findings of the TAG, and suggestions for further actions arising, were discussed at a wrap-up meeting in Dili with key members of the Australian project team on 31 August 1995, and are presented in summary form in the following. Further comments have been received since the wrap-up meeting, and have been taken into account in this report.

#### **4.2.2 Sustainability of the Dili PAM**

The water enterprise in Dili is presently a BPAM, attracting subsidy funding through the central agency, but is scheduled to become a PDAM from July 1996. To maintain the status of a PDAM, the enterprise should be self-sustaining both technically and financially. Now that this change has been formally confirmed, it is clear that the aims of the Australian project are coincident with those of the GOI institutions involved. Although this transition will formally occur in nine months, P3AB has confirmed an undertaking to continue funding and executing capital works for Dili water supply for some years beyond 1996. The inputs of the Australian project are discussed below under the headings corresponding to the elements of the water supply system.

##### **Source Development and Main Transmission**

The project has successfully used the construction activities with GOA contributions to highlight issues of quality control with the P3AB and BPAM staff, as well as the contractors undertaking the works. While the extent of the GOA contribution of materials to the P3AB construction programme may be larger than originally envisaged, they do not represent a large proportion of the total P3AB investment over the period. The GOA contributions, as components of the overall construction programme, have been quite well selected, favouring items for which Australian suppliers have a comparative advantage over locally available alternatives. The influence of the Australian team has also been well directed towards issues of quality control of construction, and appears to have been effective. This is a very difficult issue in Indonesia.

The programme for the current year includes development of the Biddau well and additional system storage at Becora, both on the eastern side of Dili. This focus is endorsed by the TAG as the most socially-disadvantaged urban residents seem to be concentrated in the eastern, older section of town. The concentration of inputs in this eastern sector would be favoured over, for example, the development of a further well alongside the Comoro River (Comoro D) to serve the western sector, and where the



Comoro C augmentation has yet to become operational (these works were project-assisted, and were completed several months ago, but the installed facilities are still awaiting PLN electricity connection). The project may also seek to extend its influence with the BPAM and P3AB in the planning, prioritising, programming and implementation of works which are completely GOI funded. This is already occurring to some extent, and should be encouraged as confidence is gained in the advice and assistance being offered by the Australian team.

### **Water Quality and Treatment**

The efforts to bring the Lahane Treatment Works back into effective operation are commended. This was the principal treatment plant for Dili, serving the old network in the eastern and coastal areas of the town. Its rehabilitation has had an immediate impact on supply to these zones, making obvious the next steps in rehabilitation of the distribution network and the need for further source and storage development, which are being addressed by the project.

Treatment and Bemos and Benemauk is more difficult. Both these sites comprise standard Indonesian package plants, which have probably never been properly operational, nor are they likely to be completely effective at nominated design flows when the intake water is even moderately turbid (during the wet season). It would be a significant achievement for the project to bring these plants into routine operations by the BPAM. Initially, this will probably require the procurement of small items (e.g. replacement chemical mixers and dosing pumps), as well as the training of several operators. Both these activities are already incorporated in the project schedule. A greater challenge will be the encouragement of the BPAM to regularly purchase, stock and use the relevant treatment chemicals. The approach taken by the project team to other activities involving the BPAM has been to demonstrate good practice, and then convince the BPAM to adopt such practices. The application of this approach to matters of water treatment is to be encouraged.

### **Distribution System**

Following limited support to P3AB activities in distribution system construction, the project has concentrated on the operational aspects of the existing network with the BPAM. These efforts have been well focussed and effective, and show indications of being sustainable by the BPAM in the long-term. The demonstration of network definition and analysis, leakage detection, repair and rehabilitation seems to have been adopted to a significant degree by the BPAM. There is a significant problem in the technical capabilities within the BPAM at present, but indications of continuing support through P3AB are encouraging.

Currently the leakage detection team is funded and supplied with materials from the GOA project. The BPAM has committed budget allocations for one further leakage detection team and replacement of some materials from stock this year, and a further Rp 25 million allocation for leakage repair in its budget for next year. It is expected that the Australian project will continue to provide materials for repair and rehabilitation of the network for the remainder of the project, on a diminishing scale. This approach





is endorsed by the TAG, and is seen as being preferable to the supply of materials for the construction of more new works.

### **Financial/ Management**

There have clearly been considerable benefits gained from the technical assistance provided by the Australian project to the BPAM in financial and management strengthening activities. Some concerns have been expressed about the sustainability of these inputs, particularly given the extent of intervention, and possible dependency on its continuing, and the staffing problems facing the BPAM in its transition to PDAM. (As the PDAM is a local government institution, staff currently assigned to the BPAM from central government agencies may elect to leave the organisation to retain their links to their central agency.) Both these points are valid, but are not easily resolved. The suggestion to facilitate the establishment of a Working Group within BPAM and involving representatives of both the local and central responsible agencies, is endorsed.

One of the benefits to the project of having a team member so intimately involved in the affairs of the BPAM is that the negotiations of project contributions and related matters are very smooth. It is felt that this influence could be further extended to broader planning and management issues for the BPAM, particularly in raising the planning horizon as confidence is gained in the physical improvements to the BPAM's asset base and its effective use.

In general the focus of this institutional development input in the BPAM is endorsed, and it is suggested that it should continue at similar levels at least until the transition arrangements are set in place. If, in monitoring the effectiveness of these inputs, it is judged that time could be better devoted to other institutions, consideration could be given to similar support for the Bappeda offices at both provincial and district level.

### **Monitoring**

The concept of data collection for planning, design and management has been difficult to transfer to any of the agencies in the sector. Recent attempts have favoured the same practical approach as has been applied to other activities, but have met with little success to date. The importance of data for management purposes at least cannot be understated, and further encouragement from the project is considered a worthwhile endeavour.

For example, before any serious consideration is given to further development of groundwater in the Comoro area closer to the sea, much encouragement needs to be given to collecting data on the current characteristics and performance of the aquifer under the current exploitation regime. This may involve rehabilitation or re-boring of piezometer bores and supply of basic measurement equipment, training and re-training of operators in recording pumping data and depths reliably and consistently, and follow-up over a considerable period to ensure the sustainability of the activity. The method of storage and immediate use of this type of data is less important than its collection, but some effort may be required in this area by way of demonstration to the BPAM staff the value to them of such data.



Similar attention may be given to the collection of basic operating data for the treatment works, as and when they become operational. Such water quality data collection is intrinsically more valuable from a public health perspective than random testing in a "water quality programme". Data on the distribution system is somewhat more complex, as it involves routine testing at multiple sites. It is expected that much data on the existing distribution system will be collected with the BPAM and P3AB under project activities. This database would be a useful legacy in the event that the activities are not sustained, but it is nevertheless worthwhile continuing to encourage BPAM staff in such activities.

#### **4.2.3 Strengthening the Community Process and Teams**

Given the limited time available to explore the community component of ETWSS, these comments and suggestions are made tentatively. It is also acknowledged that the political and social context in which the project operates is particularly problematic, and has caused long delays and severe limitations with respect to implementing the Low Income Community Works component of the project. However, the impression formed during the TAG was that the community process is weak in terms of facilitation, and that there are problems with the functioning of the Bia Hula community team within the project.

During background briefing the ATL alerted the TAG to the fact that the low level of human resources, and inter-ethnic tensions among project staff, were impacting negatively on the effectiveness of the community team. From a preliminary examination of the design of the community process being employed, three indicators of possible weakness in it were identified:

- 1) the short duration (or other shortcomings) of training for field staff;
- 2) the technically-driven nature of the community preparation phase; and
- 3) the absence of health education activities as part of the community process.

These may contribute to a low level of sustainability, in terms of management and operation of facilities and the appropriate modification of high health risk water use and sanitation behaviours.

While it is agreed that lengthy, formal training for field staff is inappropriate given their education and experience, and that on-the-job training is a valid approach, additional training appears to be necessary. This could be carried out during monthly meetings and/or periodic follow-up training sessions, and could take the form of workshops where field staff discuss their achievements, problems, and possible ways of overcoming them.

The absence of health education activities in the community facilitation process to date is attributable to the delayed commencement of the health education program. As preparation of the health education material is now completed, and it is recognised that integration of these activities is important, it is planned that in future the health education program is to become an integral part of the community facilitation processes. If people do not understand the relationship between particular sanitation practices and the illnesses which they cause, there will be little incentive to change those behaviours.



For example, people are unlikely to want toilets if they do not perceive any benefits to be gained from them. Changing people's health beliefs and behaviours is a long and slow process, and health messages must be repeatedly delivered over a long period, using as many avenues as possible to be effective.

The Bia Hula Community Team is located in a separate building to the rest of the project team in Dili, and requires the assistance of technical staff located at the main ETWSS project office to carry out the physical components of the Low Income Works. It seems that this physical separation, and tensions between staff at Bia Hula and the main ETWSS project office, may be reducing the level of co-operation and support necessary for the effective functioning of Bia Hula and the community process. Also, given the lack of experience of Bia Hula management and field staff, they may not be receiving sufficient direction and assistance from those with expertise - technical, managerial, and in community development.

The following actions are suggested in addressing these problems.

- Identify weaknesses in the community process and field staff training, and draw up a workplan and schedule for addressing those problems. This may involve a re-allocation of professional and technical staff in favour of the Low Income Community Works component of the project.
- Revise aspects of the community process, in particular increasing the emphasis on community facilitation and health education. In doing so, it would be useful for the new Bia Hula Manager, Gender Specialist, and those involved in training field staff to visit the Flores WSS project.
- Given that many of the field staff have little experience in community facilitation work, it would be helpful to bring them together on a regular basis for follow-up training, and to allow them to discuss the problems they encounter in the field in workshop sessions. This process would also provide valuable feedback to those managing the community process.
- While accreditation is clearly difficult, it is strongly recommended that a short-term consultant (Australian or Indonesian) be appointed to assist the community teams in revising the community process and field staff training as soon as possible.
- Increase the frequency of meetings where professional staff of ETWSS, the Covalima Team and Bia Hula communicate and discuss their planned activities, so as to improve co-ordination and co-operation between them.

ETWSS is no longer selecting urban sites for the community component of the project. This decision was made because local government requested they be left to the BPAM, and the difficulty already experienced in working with these mixed and divided groups of people. This seems unfortunate given the obvious need to improve water supply and sanitation in these high population density areas, where people are more at risks from communicable diseases than those in sparsely populated rural areas. This may be a decision which requires reconsideration.



#### 4.2.4 Gender Issues

Areas in which GAD issues require special attention are in the creation of links with existing women's organisations, in project staffing, and in ensuring that women receive the maximum benefits from the project. A Gender Specialist has recently been appointed to the project to assist in addressing them, and the following Terms of Reference for that position were drafted during the TAG visit.

##### **Terms of Reference - Gender Specialist**

- Create formal links with women's organisations, including the PKK (Family Welfare Organisation) and religious groups concerned with women's welfare.
- Address AusAID GAD policies in project staffing, including recruitment, training and equity issues.
- Integrate and support community process and health education activities to enhance project benefits for women.

The following list of activities which might be carry out in meeting these terms of reference, were suggested in discussions with the incoming Gender Specialist.

Liaising with the PKK and other women's organisations, at Kabupaten and Kecamatan levels, with the possibility of the project being able to draw on additional human and material resources in their efforts to improve health conditions for women and their families. The PKK or other women's groups may have funds allocated to WSS and/or income generating activities for women, and may be able to benefit from the guidance of the Gender Specialist in coordinating their efforts with the projects in poor urban and rural communities.

The project already has a policy of encouraging women to apply for all staff positions, and of positively discriminating in favour of women in recruitment. However, as this policy may mean that the women hired as field staff may have less education and/or experience than the men, the Gender Specialist needs to ensure that they receive adequate training and encouragement in order to be equally effective in their work as their male counterparts.

In addressing equity issues for women employed on the project, the Gender Specialist would be responsible for dealing with cases of sexual discrimination. Such behaviour can range from treatment which undermines women's confidence and therefore their ability to effectively execute their duties, to sexual harassment. It is particularly important with respect to female field staff living in villages, as they will not wish to continue in those positions if they are made to feel unsafe or inadequate. Should the Gender Specialist be unable to resolve a problem of this nature, it may need to be referred to the appropriate Community Team Leader, and then to the Australian Team Leader if still unresolved.





Particular consideration may be needed in the placement of female field staff. It was the experience of the NTB-ESWS project that female field staff felt more comfortable, and therefore were more likely to continued in their work, when they had other women in their Kabupaten team. It was also more convenient and safer for them when travelling and staying overnight for training.

In order to raise field staff awareness of the role of women in WSS activities, and of the need and ways of including women in the community process, the Gender Specialist could provide initial and follow-up training on these subjects. The Gender Specialist could also monitor the activities of the field staff in this respect, reinforcing the training through supervision in the field.

With a view to ensuring appropriate WSS health messages are reaching women, the Gender Specialist might explore other avenues for their delivery (e.g. via religious leaders, traditional healers and traditional birth assistants). In consultation with the Health Specialist and Community Team Leaders, health education activities may be extended to include other people and/or methods.

As was clearly stated by the AusAID post officer during the TAG visit, achieving GAD objectives is the responsibility of all project staff, professional and field. It may be necessary to remind them of this periodically, as the concepts and implications of AusAID's GAD policies are often new to, and poorly understood by, project consultants and staff (Australian and Indonesian).

#### **4.2.5 Drainage, Sanitation and Health**

##### **Drainage in Urban Dili**

It is recognised that comprehensive improvement to the drainage system of urban Dili is an essential prerequisite for any sustained improvement in the sanitation conditions of Dili residents, particularly the low-income sector of the population. It is also recognised that:

- the cost of such comprehensive rehabilitation is likely to be large; much greater than could be contemplated under any AusAID bilateral project, and probably larger than would be able to be allocated under normal GOI budgets over a reasonable period; and
- the issues involved in maintaining the drainage system in an effective operational state are complex, involving several institutions at three levels of government, and community groups who are currently dependant on farming *kangkung* (water spinach) in the blocked drains and areas of very high watertables.

The project has made a start on the drainage problems in Dili in two principal activities: compiling a practical "Master Plan" which attempts to set out a partial plan to address several priority areas, and establishing a drain clearing team with the Walikota office. The master plan was a well conceived attempt to reactivate interest generated by an earlier master plan, but it appears to have reached an impasse in the process of having it



ratified by relevant authorities. The drain clearing concept is another example of the project demonstrating good practice at a very basic, practical level, and convincing the responsible authority to adopt it. As such it has been quite successful, with the Walikota's office funding a second team, and indicating continuing modest support into the future. Programming the work of these teams may need further guidance from the Australian project, with possibly greater attention being focussed on the low-income sectors of the town, but the scheme has already made an important impact on the issue within local government circles, with a very modest contribution from the GOA project budget.

However, it was felt that the Australian project could make a much more significant and sustainable impact on the overall drainage problems in Dili. Without being over-ambitious in terms of scope, time and costs, efforts of the Australian team could be directed towards the facilitation of the first steps of a practical rehabilitation programme. These larger issues were discussed with members of the Australian team, to outline a strategy with discrete steps which would be achievable in the life of the current project. The first steps would include:

- determine the responsible institutions and agencies to be targeted for support in the range of "priority" activities, **for example**:
  - Water Resources (*Pengairan*) Directorate of Rivers, for the cleaning out of the "rivers" - the natural drainage lines which should outfall to the sea;
  - PLP for the rehabilitation and maintenance of primary and secondary drains; and
  - Walikota office for the tertiary and quaternary drainage system;(or others, to be determined through consultation).
- identify current and probable planned investments under the programmes of each of the relevant institutions, and possible means of coordination of same to maximise their impacts (based on the existing master plan, or other criteria);
- define clear project objectives, which may be ambitious but achievable in a defined period; for example, to facilitate the initial cleaning out of all components of the existing drainage system for the 1996/97 wet season;
- facilitate the incorporation of suitable budget allocations in each of the responsible agencies, to enable the initial project objectives to be met;
- facilitate the establishment of long-term responsibilities, particularly at the municipal level;
- continue the project programme of practical demonstration works such as the cleaning teams (with possibly more emphasis on eastern Dili) and the planned jetting of the blocked inlets to the old drainage network in central Dili; and



- determine specific actions for addressing upstream works, including a possible community component to deal with micro-drainage in areas of very high watertable, and the issue of the *kangkung* farmers.

Other activities may include, for example, the parallel promotion of the master plan to secure multilateral funding for more major works programmes. Members of the project team and staff of the responsible agencies may have further constructive, practical suggestions which could be considered for the action plan.

It was agreed at the wrap-up meeting that the Australian project team would consider these concepts further, with a view to confirming a definitive plan which is to be incorporated as a revision to the formal project documentation. It should be cost-neutral, and may require reallocations of project resources, most likely from other institutional activities and/or conventional water supply works. A deadline was not defined at the time, but it is considered that a draft of such a plan could be presented to AusAID in a relatively short time.

### **Sanitation and (Environmental) Health**

It is recognised that, to be sustainable, sanitation and environmental health improvements must be community driven. Inputs towards this end are to be incorporated within the community facilitation process. Aspects related to sanitation and environmental health are therefore dealt with also under the heading of community inputs, in Section 4.2.3 above. The following are intended to reinforce and complement the actions suggested in that section.

Considerable effort has been directed towards data collection, which is useful in defining appropriate approaches and methods for implementing sanitation and health activities, and providing baseline data for measuring the impact of such activities over time. It was not possible for the TAG to thoroughly assess the health-related aspects of the community programme, as training activities were in progress in Covalima during the TAG visit, and the implementation of the health education component activities had not yet commenced. Some of the findings of the data collection and subsequent processes are described in Section 4.1.2 above. While this phase was clearly separate from the community facilitation in progress, it is the stated intent that in implementation health-related activities are to be fully integrated with the other community-based processes. The TAG endorses this intent.

The TAG visit occurred shortly after the departure of Mr Geoff Drew, a short-term specialist who had compiled a comprehensive technical report on sanitation systems, including preliminary assessments of the facilities likely to be appropriate, in technological terms, for application in selected project areas. Construction of demonstration latrines was under way in two villages, MotaUlun and Chapel, each of which had recently completed a water supply system with project assistance. While there was much enthusiasm expressed by all involved in this activity, the TAG expressed some doubts about the readiness of the community to adopt the use of the latrines as a sustained change of attitude and sanitation practice.



The TAG suggested that the incorporation of sanitation and health into the community process may involve some reassessment of the whole process, as mentioned in Sections 4.1.3 and 4.2.3 above. Specific points to be considered in this respect may include:

- possible slowing down of the process, to allow communities more time to assimilate and adopt the new concepts being presented to them, such that the need for improvements is felt to originate from the community themselves (the increased time allowed for each site need not affect total coverage, as the facilitators could work in more than one site at a time);
- the exercise of caution in the application of sanitation technology, which may involve rescheduling of the stages at which technologists (engineers and/or trained field technologists or technical officers) have direct contact with the community;
- the need for re-training of community workers, to be more thoroughly aware of the issues involved in their increased responsibilities (topics to be covered in the facilitation process);
- the specific application of Geoff Drew's report (it was suggested it remain an office document for the time being, while the community process issues are resolved, and possibly beyond as a useful reference and source for training of field technologists or technical officers);
- possible separate training of DepKes staff, or their inclusion in whole or parts of the re-training of project field staff; and
- a de-emphasis of the official "target-oriented" approach towards the process and outcomes most appropriate to the communities, to maximise sustainability (noting that it is not the perception within AusAID that project "success" is measured in terms of target coverage achievements, though sustainability is an issue of continuing concern).

To stimulate and facilitate this review it is further suggested that a cross-visit be arranged to enable key staff from the community team to visit the Australian-assisted project in Flores, where similar problems are being encountered, and slightly different approaches have been put into place there, which may have some application to the situation in East Timor.





## **5. FLORES WATER SUPPLY AND SANITATION PROJECT**

### **5.1 Part A Sector Issues**

#### **5.1.1 Gender**

GAD objectives have been integrated into the design of the Flores WSS project to the extent that there is funding for inputs by both a national and international Health/WID Specialist. While there are clearly logistic advantages to having the same consultant working on both health and gender issues within the project, it may be difficult to find consultants who have expertise in both areas. Once again, there is also the danger that meeting WID/GAD objectives will be seen as a separate activity, rather than an integral part of all project activities, or that gender issues will be subsumed by health issues.

The position of national Health/WID Specialist has recently been filled, and the person selected is suitable in many ways, but will require guidance and assistance from international consultants. During the TAG visit the TOR for this position was discussed with the national Health/WID Specialist, and some suggestions were made regarding activities which might be carried out in fulfilling them. These are described in the Action Plan, Part B of this chapter.

While the project is only now formulating a workplan for the involvement of women, there has clearly already been attention given to meeting GAD objectives within the rural component. The description of the Community Management Approach in the Annual Plan mentions the role of women. Judging from the brief field trip made during the TAG visit, and discussions with a number of the female Community Facilitators, it seems that efforts are being made to involve women in all phases of the community process, and that they have been successful in doing so to date. The fact that women in Flores are relatively assertive, and the PKK is strong and active in most villages, has obviously contributed to the projects success in being able to involve women.

The workplan for the involvement of women will also address meeting AusAID's GAD objectives within the urban and project management components. Suggestions in respect to these were made by the TAG in discussion with the ATL, the Co-leader and the Institutional Specialist, and in discussion with the national Health/WID Specialist. These are described in the Action Plan, Part B of this chapter.

In the area of monitoring and evaluation, it may be helpful for Flores WSS staff to review the NTB-ESWS project experience, where particular attention has been paid to gender disaggregation in their data collection, and they have created a system for quantitatively evaluating the benefits of the project for women. While the quantity of data collected has probably been excessive, there may be some useful lessons to be learnt from the problems they encountered in its collection, handling and analysis.

Finally, the activities carried out by the project in addressing GAD policies and objective need to be monitored, and reported on in progress reports and Annual Plans.



### 5.1.2 Health and Environment

The Flores project is just beginning to implement community based activities and a major concern for the project should be that a balanced set of interventions are introduced in the project communities to ensure the maximum health impact. The community team will need to recognise the different WSS interventions and have an appreciation of their relative contributions to health. The process of community development will need to consider the need for these interventions in each community. It may not be necessary to implement all interventions at each project site and the community team should have the capacity to support the communities assessments of its needs and the selection of interventions.

The most important intervention will be to increase the volume of water available for household use. Hygiene practices are critically dependent on the quantity of water available to a household. Reducing the time needed to fetch water changes where and how water is used by household members. When greater volumes of water are available in the household it is more likely that the proportion used for hygiene will increase. Studies of the time required to collect water indicate that the health benefits of new water supplies decrease rapidly if it takes more than 5 minutes to collect or reach a water source. New water supplies should therefore be brought as close to the home as possible to increase the amount of water used. Finally this increased availability of water will also make it feasible to introduce toilets in the community.

The second major intervention involves increasing community demand for toilets and the selection of appropriate technology to meet this demand. Care will be needed to match the toilet technology with usual practices in the community and the desire of the community to change their practices. If solid materials are commonly used for anal cleaning, it may be difficult to change these practices even if the project increases the amount of water available for personal hygiene. Therefore an important technical consideration will be to match toilet technology with the usual anal cleaning practices in the community. Another critical choice in respect of toilet technology will be whether to use individual family toilets or communal toilets. Experience in other WSS projects indicates there are considerable difficulties in making community facilities operational. Most projects seem to have more success with individual family toilets.

The third major intervention is hygiene education, marketing of water use and appropriate sanitation practices. Water and sanitation projects that involve the establishment of community groups provide an opportune setting for a health education program. The process of group formation and the evaluation of community needs will have sensitised the community and its leaders to new ideas about water use and sanitation. The trust developed by the community toward the project community facilitators will also assist a community based hygiene education program. Social marketing of water and its benefits might also help to increase the sustainability of a water supply system by increasing community demand for the service especially with pipe systems.

The Flores project is well positioned to develop an effective community process. It has experienced community team leaders and a well documented community process for WSS activities based on previous experience in WSS project managed by CARE



Indonesia. The contents of the "Community Management Modules" that will be used by the community facilitators cover all the major groups of WSS interventions. However, the components on health education and how to develop a communications strategy need strengthening. Detailed suggestions on how to develop such a communication program are provided in the action plan in Section 5.2 following, and in Annex C.

### **5.1.3 Community Issues**

As the Flores WSS project has not yet begun construction of facilities, it is not possible to comment on activities for ensuring the sustainability of facilities in the rural component. However, from the Community Management Approach described in the Annual Plan it seems that considerable attention will be given to operation and maintenance over a long period. Given the length of the cycle in each village (i.e. sixteen months, then ongoing follow-up), it seems reasonable to predict that there will be a high potential for sustainability of facilities. The high quality of field staff, the community facilitation training they have received, and supervision and management within the rural component, also point to this conclusion.

An issue which was not investigated during the TAG visit with respect to the rural component, and which might require further attention, is the involvement of local GOI agencies (i.e. DiKes and PMD at Kecamatan and village levels) and NGOs in project activities. While the project is still in the early stages, some thought needs to be given to the links and structures which will be created during the implementation of the project, with a view to maximising sustainability of facilities and the community process when the project finishes. The recruitment of Community Facilitators from local NGOs has been an appropriate action taken in addressing this issue.

### **5.1.4 Institutional**

The structure of the Flores project provides two active components: one each for urban and rural works, and a project management component. The statement of objectives of both the urban and rural components include "to strengthen and support" institutions (relevant government departments and local water authorities for the urban component, community groups and local agencies for the rural component). An important element of the implementation strategy is that the project timetable is split into two. For the first half of the project (Years 1 to 3) the project is part of the Flores Emergency Relief Project, under the Reconstruction Management Team (RMT) led by the central Ministry of Public Works (PU). For the second half of the project life, from 31 March 1996, the RMT is scheduled to be dissolved and the project will have a new lead executing or coordinating agency. This transition is significant to the remainder of the project, and is one of the issues addressed in more detail in the following, Section 5.2.2.

GOI institutions, and the relationships developed by the project with the relevant institutions, play a particularly important part in the urban activities of project. For urban water supplies, during the initial phase when activities are predominantly related to the construction of new facilities, the principal relations are with P3AB. As the construction phase slows, and throughout the second phase, the project is planned to



provide increased support to the water enterprises (PAMs) which will be ultimately responsible for the operation and management of the water supply systems. This is a sound approach and is commended. It is also pleasing to note that the project has not ignored the PAMs during the initial construction phase, and has made considerable effort to involve them in the planning, design and construction of the new facilities which they will have to take over.

The issue of the sustainability of the PAMs is seen as being of central importance to the sustainability of project outputs under the urban component. The problems associated with such water enterprises are common throughout the country; they are complex and remain intractable despite considerable technical assistance over the last ten or twelve years. Because of their importance to the sustainability of this project, the issue is discussed more fully in the following Section 5.2.3. Also discussed under Section 5.2.6 is the possibility for the project to move its focus more quickly and more effectively towards the PAMs, and the suggestion that the project may include some urban sanitation activities through closer liaison with the provincial PLP office.

GOI institutions are a feature too in the rural activities of the project, which particularly involves coordination with agencies at Local Government Level II (Kabupaten, or Tk II, and below). While these linkages were not reviewed in detail by the TAG, it was evident that appropriate consultation had taken place during the selection and planning stages of the community process, good relations were well established with at least some of the key institutions, and the importance of coordination with the formal GOI institutions was well recognised by the community team leadership and field workers.

### **5.1.5 Technology**

In the urban component, the technologies being applied are commonplace throughout the sector. Although elements of the technology are not well understood, particularly by PAM personnel, this is not a reflection of technology selection; in most cases the approach, materials and methods used are the most basic possible to accomplish the required result. Wherever possible the project has incorporated standard Indonesian designs, for example, for storage reservoirs, and where appropriate has recommended more robust materials than are readily available locally for the GOA-funded contribution, for example, using ductile iron for selected main transmission pipelines. These selections are generally valid and appropriate. Variations of detail may be introduced in the design stage, which has been less well supported by the project to date, and is discussed elsewhere in this report.

The technologies employed on the rural works were not able to be inspected by the TAG. In discussions with the team, concerns were expressed at the coverage "targets" which might be achievable, largely because, at the selected sites the preferred solutions heavily favoured quite extensive piped systems, with correspondingly high per-capita costs. The concerns were in relation to costs, and not a reflection of difficulties with the technology choice. In fact the community team appeared well supported with technologists at professional and field level, and there was confidence that the required skills would be transferred to the communities. This will need to be verified as schemes





are completed, and there are provisions being incorporated into the project's internal monitoring systems.

To share the relative strengths of component activities, and assist the exchange of ideas between the AusAID-funded water and sanitation projects, it is proposed that cross visits be arranged between the Flores and East Timor projects as outlined in 5.2.7.

### **5.1.6 Monitoring and Reporting**

Project reporting appears concise and accurate. Project monitoring and evaluation data systems are presently being developed, and current proposals were discussed in some detail with the TAG. In general the proposed system was thorough, to the extent perhaps of being too ambitious and collecting data in excess of requirements. Constructive suggestions were offered by the TAG team for modifications to the process and forms. The specific comments are not reported on within this document; they will be further considered by the project team and reflected in the appropriate revisions. The project may also benefit from the NTB-ESWS experience, as referred to in Section 5.1.1 above. It is planned for this formal monitoring system to be implemented over the next six months, such that it will be fully operational on the transition of the project to the new counterpart arrangements.

## **5.2 Part B Action Plan**

### **5.2.1 Focus**

Arising from the recommendations of the Effectiveness Review, Part B of the Terms of Reference for the TAG identified five issues of particular importance to the Flores project; they were to:

- initiate dialogue with PERPAMPSI (Water Enterprise Association);
- develop a work plan for the involvement of women;
- develop Flores-specific promotional and operation and maintenance materials;
- foster water enterprise linkages with communities; and
- ensure regular progress reviews with stakeholders.

These points formed the basis of the TAG team's initial discussions with the Australian project team on site. While the relevance of particular points to the project at its present stage was questioned, there was much enthusiasm expressed for the concept of the TAG, and many related and new issues were raised for consideration for TAG assistance. The two nominated issues which were ranked as least important were the last two listed. It was amply demonstrated to the TAG that effective communications existed across project activities and with all levels of counterparts and participating groups. The communications between the water enterprises and communities, in as much as it is relevant to project activities, was considered appropriate at the present time.



There were more general concerns expressed about the water enterprises (PAMs) than the particular issues included as the first and fourth points above. Linkages with the national association and the development of a service culture were seen to be peripheral issues in the overall theme of sustainability of the water enterprises as PDAMs. It was decided that the TAG should look at the more general issue of PAM sustainability in the first instance, to assist the project team in the definition of priorities for Australian-sponsored inputs. This also overlapped with a parallel concern with the focus and allocation of Australian project resources, not only in relation to the water enterprises but also in the wider urban context and in the rural component activities as well.

One issue arising for the project is the impending transition of status from part of a disaster relief programme, under the Reconstruction Management Team (RMT), to a normal bilateral development project, under a water and sanitation project Working Group (FWSS-WG). This transition is scheduled to occur by 31 March 1996, less than seven months from the TAG visit, and is somewhat imminent in institutional terms. Given the importance of the transition, and the new institutional arrangements, to the success and sustainability of all project activities, it was considered useful for the TAG to focus the attention of all concerned on the necessary steps towards that smooth transition and effective arrangements to serve the project objectives into the future.

In synthesis, the issues to be addressed by the TAG were jointly defined as:

- the transition arrangements from counterpart coordination with RMT to FWSS-WG;
- the sustainability of the PAMs, and Australian project inputs to enhance it;
- a work plan for the involvement of women;
- health promotion and related training materials for the community process; and
- the allocation and focus of Australian project resources in urban and rural sectors.

Comments and suggestions were also sought from the TAG on other matters, such as the project's proposed monitoring and evaluation data systems and staffing in relation to gender and health. These matters were generally acted upon directly by the project team, and will be reflected in immediate actions; as such they have not been reported separately in this document. In relation to the agreed issues listed, the findings of the TAG were discussed in a wrap-up meeting in Maumere with key members of the Australian project team on 4 September 1995, and are presented in summary form in the following.

### **5.2.2 Transition Arrangements**

In institutional terms, the project is currently functioning as part of the earthquake reconstruction "project" under the RMT, which is itself a collection of central government agencies under Ministry of Public Works (PU) specially formed to coordinate the reconstruction. Thus the lead implementing agency nominated in the Memorandum of Understanding (MOU) covering the project during the first phase is also PU. This was always intended to be an interim arrangement to 31 March 1996 when the RMT is scheduled to be disbanded. The arrangements beyond this date were not clearly defined in the project documentation, as it was thought that some flexibility should be retained to maximise potential benefits to the project.



There is an opportunity now to be pro-active, or at least attempt to facilitate the preferred arrangements being put into place for project implementation beyond March next year. There are two aspects to be considered: the practical and logistical arrangements involved at the local level, and the formal institutional arrangements at central and inter-government levels including possible amendment to the MOU. The steps likely to be involved are presented under separate headings below, though they are of course interdependent.

### **Local Level**

- Office Accommodation. It would be most desirable for the Australian project team to remain where they are currently located, and take over some additional space (across the corridor in the same building wing) as it becomes available, to consolidate the team in this location. This may require that the building, in whole or part, is handed over under the formal transfer arrangements on dissolution of the RMT.
- Counterparts. A representative from Bappeda Tk I has been identified (Karrol Unu) as the most likely candidate for the position as Indonesian Project Manager, and counterpart for the Australian Team Leader. This arrangement is to be confirmed. The roles of the five Ketua Bappeda Tk II are also to be confirmed, and one or more may be nominated as the principal counterpart for the Australian Deputy Team Leader.
- Coordination with Other Implementing Agencies. Arrangements with
  - P3AB for all major water supply construction will remain unchanged, though the emphasis will move to the PAMs as discussed in the following; and
  - PMD Kabupaten Sikka for implementation of all the rural programme has been officially confirmed, though coordination may have to be re-defined under the new arrangements after transition.
  - PLP (Tk I) has no defined role nor budget at this stage, but has expressed interest in coordinating with project activities at a later date.
  - DiKes Tk II has a role in rural health education, to be more specifically defined in relation to project activities.

The need is also foreseen for regional coordination of all relevant Tk II agencies, and with Tk I and Pusat agency programmes. This would be expected to occur through the counterpart linkages mentioned above. No special additional training programmes are planned; the Australian project emphasis will continue on "training by doing".

### **Central Level**

- In terms of changes to the MOU arrangements, there seem to be two alternatives:



- Bappenas being nominated as the Lead Coordinating Agency; or
- Bangda (as the central representative of the Governor/ Local Government) replacing PU as the Lead Implementing Agency.

It is felt that either could serve the project well. Attempts at the former for other projects were not completed, so AusAID projects in this sector have no experience of Bappenas in this role. Nevertheless, it is probably the alternative more favourable to the Australian project interests.

- With the involvement of the AusAID Post, the project should clarify the preferences and intentions of the GOI in this respect, raising the transition as an urgent issue with the relevant agencies now, to ensure the appropriate action over the next six months. The suggestion of establishing a coordinating committee with central and local agency representation, to highlight the necessary decisions and actions, is endorsed. This may be raised at the inaugural PCB meeting in October 1995, and be established under the membership of the project AICC, or national and regional Working Group; it would need to meet soon, and regularly over the next six months, to be effective.

### **5.2.3 Sustainability of the PAMs**

As in most other Provinces in Indonesia, the water enterprises in Flores (currently BPAMs in four of the five Kabupaten, and a nominally independent PDAM in one District) are technically and financially weak. Formal qualifications of personnel are low, experience and training levels are very low, and levels of service from existing facilities were low and deteriorating before the earthquake. There is an understandably high level of dependence by the PAMs on P3AB, for technical assistance in all areas, and particularly for construction of new and replacement capital works. There are examples of poorly implemented works which illustrate that P3AB itself has had difficulties, even with the additional resources available under the earthquake reconstruction programme. The Australian project has limited resources, and needs to maximise the impact of their application, in terms of both the short-term improvements and their sustainability in the longer term. These are discussed below for each of the two phases of project activities.

#### **Construction Phase Activities**

The service levels and reliability of water supplies throughout Flores at the commencement of the project were very low. The main focus of inputs to date has been on the reconstruction and augmentation of major supply systems in the Kabupaten and Kecamatan towns, with source development, very basic treatment, transmission and main distribution pipeline works. The GOA contributions have been quite well selected, though the geographical spread across all five Kabupaten has stretched project resources with logistical difficulties.

The review, and in most cases complete revision, of existing "Master Plans" for each scheme was an essential first step, and implemented in a practical manner most appropriate to the constraints and needs of the project. The facilities and systems that





have been implemented and are being established for the procurement and handling of materials and equipment have yet to be proved, but appear to be sound and appropriate. The proposed staging of physical GOA-funded inputs under the project is a good concept, and the TAG supports the efforts of the project team which will be required to make it work.

As has occurred successfully on other Australian-assisted projects in the sector, the project is using the schemes with GOA material contributions to highlight issues of quality control in construction. The influence of Australian team members has already extended to portions of works with no GOA physical contributions, while the first shipment has been awaited. Coverage is limited by the resources of the Australian team, and will be stretched further as construction activities increase. It is also acknowledged elsewhere in this report that quality control in construction is a difficult issue throughout Indonesia. Nevertheless, the Australian project inputs have been effectively applied to date and will continue to be a worthwhile activity. The team's efforts to involve the PAM staff in all activities, continuing through construction, are also commended.

A possible shortcoming in the process of scheme development is in the design phase, which is being undertaken by P3AB (presumably using local consultants) with no advice or supervision being provided by the Australian team. The available technical resources of the Australian project team are fully utilised in construction-related activities, which is considered most appropriate. However, it is suggested that intervention in the design and documentation phase may also reduce the scope for difficulties during construction. To do so would require an additional Short Term input to strengthen the Australian project team, with person-month adjustments to non-technical inputs to keep the revision cost neutral. As designs and documents are currently under preparation, such an input would need to commence as soon as possible.

### **Post-Construction/ Operation and Management**

During this phase of activities, project attention will be focussed directly on the PAMs, with practical measures aimed at making possibly small but sustainable improvements to PAM performance. For example, the proposed production of "as-constructed" records of GOA-assisted component works is a good first step. It is suggested that these inputs using the Indonesian engineers on the team could be extended to produce full details of the existing systems, beginning with those on which the Australian team has been involved. This would be of considerable practical and lasting benefit to the PAMs, most of which have no reliable records of their existing water supply infrastructure. Such records are an essential prerequisite to understanding their systems, and attempting even basic operation and management improvements in the future.

The Terms of Reference for the proposed Management Adviser were reviewed by the TAG. They appear to be very ambitious; it is suggested that they be revised into discrete, practical and achievable objectives and activities, for which the outputs would not be reports. Consideration could be given to a consequent delay in the inputs, and their possible separation into staged strands of activities, in technical, financial and management areas. For example, one technical aspect may involve the setting-up of supply zones in one or more principal systems with each PAM, and tracking water through one such zone with the staff of the responsible PAM; one financial activity may



involve establishing a basic (formal) accounting system to be used as a management tool by the PAM (software developed under the NTB ESWS project may be a useful starting point in this endeavour).

This adjustment of focus may involve a shift of emphasis of the GOA-funded project inputs, as discussed in the following, which may be better implemented after the transition. In the meantime the difficulties with GOI approvals and accreditation of the two principal adviser positions need to be resolved, such that total technical assistance levels for sustainability are not compromised.

The training of PAM staff under the project will probably be the only direct involvement of the Institutional Specialist with the PAMs. In the light of the calibre of current PAM staff, it is unlikely that a comprehensive Training Needs Assessment will be required. Experience from other similar projects would indicate that the current emphasis on on-the-job training, as in the construction phase activities, will prove the most effective, and that supplementary formal training should be limited and practical in content. There is much training material available; however the project may consider linkages with the more established and successful PDAMs in Bali and East Java, some of whom are able to provide experienced trainers and proven courses to suit identified needs.

The need for technical assistance in all the PAMs is considerable, but with their existing staff resource base, their absorptive capacity is limited. The Australian project resources are also limited. The sustainability of GOA project inputs in the long-term is heavily dependant on the sustainability of the PAMs as the agencies responsible for the operation and management of the facilities. Support to the PAMs which is practical and targeted in recognition of these limitations is therefore considered a very worthwhile project activity.

#### **5.2.4 Work Plan for the Involvement of Women**

The project is developing a work plan for the involvement of women, and is appointing a national Health/WID Specialist to direct its execution. The areas which will require attention are: 1) counterpart agencies and in creating of links with women's organisations, 2) in project staffing, and 3) in ensuring that women receive the maximum benefits from the project.

The following suggestions are made in respect to the first of these areas.

- The project could encourage the GOI to adopt a policy of positive discrimination for women by sending a formal letter to all counterpart agencies stating the project's policy, and detailing how it is implemented.
- The Health/WID Specialist could make formal connections with the PKK at Kabupaten level. Kabupaten Team Leaders and field staff could liaise with the PKK at the Kabupaten, Kecamatan and village levels, encouraging their inclusion on committees, and maximising their involvement in project activities.



- The Health/WID Specialist might locate and assist LSMs, particularly those run by and for women, and assist them in developing proposals for activities in the health education area, with a view to improving environmental sanitation and thereby health. It would be particularly valuable in respect to urban and peri-urban areas where the project has no community component.

The following suggestions are made in respect to the second of these areas.

- That positive discrimination in the recruitment of project staff continue to be practised. As there are many experienced and educated women in Flores, this policy presents little problems in terms of overall quality of CFs.
- That women staff be treated with equity in respect to their working conditions, including consideration for promotion.
- That all project staff be informed that sexually discriminatory behaviour, ranging from that which undermines women's confidence to sexual harassment, is unacceptable. Also that women staff can report such incidents to the Health/WID Specialist to be dealt with informally, and if still unresolved, referred onto the Australian Team Leader or the Indonesian Co-leader.

After discussions with women Community Facilitators (CFs), and observations and discussions with women in the field, it seems that Flores is not a culturally difficult context in which to facilitate the involvement of women in community projects. While the female CFs are clearly conscious of doing so, it was their opinion that it will be necessary to train the male CFs, and to reinforce that training, in order to raise and maintain their awareness about facilitating women's involvement. This is because they are generally less conscious of women's roles and needs than the women CFs.

While the Community Management Approach of the rural component of the project is clearly very strong and effective, the health education aspect of it could be strengthened so as to maximise the health benefits from the project.

The following suggestions are made in respect to addressing these possible weaknesses in the third area to be covered by the work plan to involve women.

- The Health/WID Specialist could carry out training for all field staff to raise their awareness of women's role in water use and sanitation, and ways to involve them in the CMA.
- The Health/WID Specialist, working with the project Co-leader and the Community Facilitators, might identify the sanitation and water use behaviours which present the greatest risks to health in each village. Then a few simple and specific health messages appropriate to the conditions of each village could be developed, and ways of delivering them to women, children and men explore and develop.



## **Next Input by International Health/WID Specialist**

As the Terms of Reference for the national Health/WID Specialist covers a wide range of activities, it is probably better that some of these be carried out by the international Health/WID Specialist. For example, the project has plans to initiate health education activities, in both rural and urban areas, in addition to those carried out through the CMA. These might be implemented through the primary schools and teachers, the PKK or other village women's groups, Posyandu, the PKM sanitarians, PKM and PKM Pembantu nurses and midwives, and/or traditional healers and birth attendants. Accessing these alternatives, and formulating a programme, would be better carried out under the direction of the international Health/WID Specialist, with the assistance of the national Health/WID Specialist.

Therefore, the following is offered as a suggested Terms of Reference for the forthcoming one month input by the international Health/WID Specialist.

- Advise the national Health/WID Specialist on ways of implementing the work plan for involving women as outlined above, and in the development of appropriate health messages, materials, and methods for delivery for the rural component.
- Assess existing health education materials as to their usefulness in the delivery of health messages by CFs.
- Explore other avenues for health education, and formulate a plan for developing appropriate health messages and their delivery.

### **5.2.5 Health Promotion and Training Materials**

The project has a number of important resources that are already available to support the development of a health communications program. The community team is strong with experienced leaders and community facilitators who have had prior work experience in community development. This team has a well documented system of community management training modules including modules specifically related to hygiene promotion. The inclusion of CARE Indonesia in the project team has brought considerable institutional experience in water and sanitation projects including hygiene promotion and thus potential to support the development of a hygiene education program in Flores. The project team leader and other key project staff clearly recognise the importance of hygiene communications as part of a water supply and sanitation project. Finally the project has recruited a strong local candidate for the community health/ women in development position who has had previous field experience in health education.

During the TAG consultation the project team requested some specific suggestions on what might be done to develop a hygiene communications program as part of the project activities. The following are possible steps that the project could consider in formulating a hygiene communications program.





- Increase project staff understanding and knowledge about the relationships and linkages between various water supply and sanitation interventions and illness. This knowledge will help them understand why particular messages are given a high priority. Annex C.2 to this report outlines the main health benefits from water supply and sanitation projects and how to maximise these benefits.
- Training of project staff especially community facilitators should start by focusing on their own personal hygiene and domestic water use behaviours since these staff are likely to reflect local community practices. You need to convince your own staff of the need for change before going to the community.
- Compile an inventory and collect examples of existing hygiene education and promotional materials from the Department of Health and other local community groups active in the field.
- Conduct a rapid assessment of the strengths and weakness of the key materials collected. What organisations use them?  
Do the health workers understand the material themselves?  
How do they use the materials in their work?  
What has been the experience of those using the materials in the community?  
What do women in the community think about the materials and what messages do they think the materials convey?  
Are the messages and the media for communicating them acceptable to the community?
- Conduct a rapid qualitative assessment of water use, and personal and domestic hygiene practices and beliefs. This qualitative data is needed both to determine the range of possible high risk behaviours in the community, to provide new ideas for training of the community team and to identify key behaviours and beliefs that should be targeted in an education program.
- Conduct surveys of selected communities to quantify patterns of water use and personal and domestic hygiene practices both as a source of information for designing a health education program and to form the basis of an evaluation of the education activities. The questionnaires for these surveys should be developed based on the findings from the qualitative assessment. This data could be collected from deliberately selected communities as case studies. This step might be omitted if the project team does not have the skills to conduct a survey.
- Conduct a seminar with the local partners involved in developing the communications program to review the findings of surveys and assessment of existing materials and to begin to define the communications strategy for the new hygiene education and promotion program. These locals partners should include staff from the Provincial and District Health Offices and local non-government agencies that have been active in the sector.
- Develop a communications strategy and plan of action.



- Identify who in the community will be the primary target of the communication program and who will be secondary targets either to disseminate the messages or to provide local support and endorsement.
- Identify who will distribute the messages.
- Plan how to create a slogan and logo for the communications program.
- Identify the key themes and primary messages for each theme.
- Plan how the draft materials will be produced and how they will be field tested.
- Plan training programs for those who will disseminate the materials. Identify the particular training needs of each of the groups involved.
- Plan the development of a system to monitor the effectiveness of the communications program.

The project might want to try and access existing Department of Health resources including foreign technical consultants who are working in the province. The Third Community Health Nutrition (CHN3) Project from the World Bank has an epidemiologist and health planner located in the NTT Provincial Health Office and has a health communications consultant assigned to the province.

A particular problem that the project will need to resolve is how to implement hygiene communications activities in the urban areas. It might be best to consider working with a partner LSM to develop and implement such a program.

## **5.2.6 Focus of Australian Project Resources**

There are several balances to be achieved in the allocation of resources under the project, such as between the urban and rural sectors, between water supply and sanitation activities, and between physical materials and non-physical technical assistance inputs. The competition for the limited resources may appear to be stronger at initiation, but is in fact maintained throughout the life of the project. As the project is about to enter a transition, it was considered worthwhile for the TAG to review the overall direction of the project from the GOA perspective, and offer some comments and suggestions as to where changes of emphasis might be made. As changes are to be cost neutral to GOA, and commitments for most GOA project expenditure are firm, the discussion is about emphasis more than substance, and is presented under the headings of urban and rural to reflect the component structure of the project.

### **Urban**

Under the circumstances of the initiation of the project, the high priority given for GOA-funded inputs to the construction of replacement and new water supply facilities was valid. However, the project setting is not static, as reflected for example in recent



substantial increases in GOI budgets for project-related activities. It may be possible under these circumstances to shift the emphasis of GOA-funded inputs away from materials towards technical assistance, and in the supply of materials to favour those for operation and maintenance (PAM activities) rather than new construction (P3AB activities). The shift towards technical assistance could direct additional inputs in construction-related activities to those works being funded entirely by GOI, and to extending the institutional activities aimed at strengthening of the PAMs, as discussed in Section 5.2.3 above.

The TAG would endorse the move in focus from P3AB activities towards more direct PAM activities. This may involve a shift in GOA-funded procurement to favour, for example, spares for the rehabilitation of distribution networks, water meters, leakage detection equipment, pipe locaters, fittings for house connections etc., rather than further source development and main supply systems for more towns. It is recognised that this emphasis is unlikely to coincide with the target and "project" focus of GOI agencies, particularly at central level, and may require some delicate determination on the part of the project team to achieve even small changes. Inputs by the Planning/ Institutional Specialist may be useful in effecting such a shift.

Similarly the focus on quality control of construction is considered useful and effective, as discussed elsewhere. As the scheduled input of GOA-funded material contributions decreases, it is expected that the influence of the Australian team will be appreciated to the extent that it may be extended to supervision and construction advice on GOI-funded contracts.

It is also suggested that the project maintains contact with the provincial PLP. They currently have no budget for any Kabupaten in Flores in the urban sanitation sector, but have expressed interest in coordinating with project activities. They have no representative resident in Flores, and even the Kupang office may require some technical assistance in establishing priorities, and encouragement to include allocations for Flores sanitation projects in future budgets. Without such assistance from the Australian project team, there are unlikely to be any urban sanitation works executed during the life of the project.

### **Rural**

Some reservations were expressed by the project team about the coverage figures which might be achieved under the project. This is largely a function of the per-capita costs of the facilities in the selected sites being higher than originally envisaged, revealed as the nominated sites have been studied in more detail and found to be predominantly difficult (and expensive) sites to develop. It is suggested that, as the GOA budget is considered fixed, the project might look more closely at the relative GOI and community contributions. In doing so they may consider:

- the GOI contributions are not to include any PU-contracted component, in keeping with the endorsed approach of the project (modifying the official WSSLIC approach);



- the community contribution level may be flexible, also in keeping with the endorsed project approach as above, and recognising that any increase in community contribution may be more difficult and slower, but is likely to enhance prospects of sustainability;
- to look particularly at the relative water supply - sanitation investments and contributions, and possible increases in the GOI and community contributions in relation to each separately.

There may also be some flexibility in the final selection of sites to be implemented under the project; easier sites would have cheaper per-capita development costs.

It was the view of the TAG that the target figures being quoted in relation to project coverage were meaningful but not rigid. Experience would support a stronger emphasis on sustainability than achieving targets. Achieving target coverage in the life of the project is important, but not more important than the effective use of project-related facilities being sustained well into the future.

#### 5.2.7 Cross Visits

There has been one cross visit arranged between the three Australian-assisted WSS projects in the eastern islands, when staff from the East Timor and Flores projects visited the NTB project. It is suggested that further cross visits be arranged, specifically as follows:

- key staff involved in the urban component activities of the Flores project should visit their counterparts in Dili on the East Timor project; and
- key staff involved in the rural/ community component activities of the East Timor project should visit their counterparts in Flores.

The visits should be of several days duration at least in the former case, and more than a week in the case of the latter, and include the majority of time in the field with their counterparts.





## **6. NTB ENVIRONMENTAL SANITATION & WATER SUPPLY PROJECT**

### **6.1 Part A Sector Issues**

#### **6.1.1 Gender**

In terms of quantitative data collection, every effort has been made on the NTB-ESWS project to monitor the involvement of women in project implementation, as project staff and volunteers. Documentation on the community process and the training of field staff also indicate that attention has been given to fulfilling this GAD objective. In addition, quantitative data and a qualitative survey have been used to evaluate and demonstrate the benefits of new and rehabilitated facilities for women. However, given the limited time available to the TAG in NTB, it was not possible to gain any sense of the degree to which Community Facilitators have been active or successful in involving women in the community process.

The GAD policy of involving women's organisations, including the PKK and NGOs, in the planning and implementation of the project, did not receive any serious attention in the NTB-ESWS project until recently. The ATL, writing in response to the draft TAG report (20 September 1995) explained that this was the result of "inherent personal bias on the part of several team members (including Australian and Indonesian)" and that those attitudes "largely disappeared following personnel changes." Over the last year the PKK has been involved with the project, most particularly in Kabupaten West Lombok where they play an important role in implementation. The GAD policy of encouraging the inclusion of women on joint committees with GOI counterpart agencies has been addressed by including a PKK representative at all meetings at the kabupaten level.

In discussion with the ATL and the Planning and Institutional Specialist, the TAG suggested that GOI counterpart agencies might be encouraged to involve more female government employees, in addition to PKK representatives, on committees. The ATL rejected this idea, and responding later to the draft TAG report, explained the reasons for this rejection.

"I believe that such policy statements should go into Design Documents and MOUs and be agreed by both parties at signing. Without such prior official imprimatur, it is unlikely such statements would be acknowledged or that much notice would be taken of a local Project Team directive, in whatever form it might take." (ATL, 1995)

In the early phase of NTB-ESWS most long-term Australian and Indonesian consultants had a very limited understanding of GAD issues. There were inputs by a short-term Gender Analyst included in the design of the project, but the TOR for that position was very general. Three inputs took place before accreditation ceased in late 1993, during which the emphasis was on involving women at village level in the community process, in order to maximise the benefits for them from the project. At about the same time as these inputs ceased, AusAID began to formulate its GAD policies more precisely. Many of these had already been addressed (e.g. sex disaggregated data collection, staffing



policy) and, in the absence of a Gender Analyst, those which had not become the responsibility of long-term consultants, and began to be more generally integrated into project planning.

The inclusion of a short-term Gender Analyst position in the design of the NTB-ESWS project proved to be of limited value. The appointment of a short-term consultant to advise on Gender (or any aspect of a project) carries with it the danger that it will be treated as a separate component, and not be fully integrated in all relevant areas of project implementation. Given the brevity of short-term inputs, the recommendations arising from them will only be implemented if long-term consultants take them on board, or they are followed-up by AusAID.

AusAID's GAD policies and objectives are now far more focussed and well-defined than they were when the NTB-ESWS project began. Therefore, the ability of contractors to understand and translate GAD policies into project activities has improved considerably over the past four years. Similarly, AusAID's ability to direct, monitor and evaluate them has also improved. However, not all AusAID's GAD policies will necessarily be considered appropriate, and therefore practical, in the cultural context in which a project is being implemented. The latter may well be the case with respect to involving women on committees in the NTB-ESWS project. In general, assessment of the degree to which AusAID's GAD policies and objectives have been integrated into project activities, needs to be based on the efforts made rather than the outcomes achieved.

### **6.1.2 Health and Environment**

The NTB-ESWS project has a balanced set of interventions that have increased the supply of water to village communities and reduced the time required to collect water for household use, improved existing water sources to reduce contamination of the water source itself and the surrounding environment from waste water, organised community activities to improve environmental sanitation such as improved garbage disposal and relocation of animal tethering yards, increased community demand for toilets, and responded to this demand with the provision of appropriate family toilets. The project has also developed hygiene education activities including screening of health education films, village hygiene campaigns and training of village volunteers. The combination of these interventions is likely to have a substantial effect on the health of project communities especially reducing the rates of serious diarrhoeal diseases in children and reducing child mortality.

A key WSS intervention with implications for health is the improvement in the disposal of human faeces in a community. In studies that have compared the relative health benefits of improved water supply versus sanitation usually the greatest benefits were derived from improved toilet facilities. Furthermore, the effects of sanitation interventions were greatest in high risk groups including children of illiterate mothers. However, improvements in toilets are amongst the most difficult of the water supply and sanitation interventions to effectively implement. Community demand for water supply is usually high but this is not often the case with toilets. Acceptance of toilets will



depend in part on the technology offered and the existing community practices for excreta disposal.

It is not difficult to find evidence of earlier sanitation interventions in rural villages in NTB that were either only partially successful or outright failures. An inspection of villages that have been the focus of previous intensive campaigns to install toilets will often reveal numerous pit latrines that have never been used. Often in these areas the local community health centre staff are aware that the intervention has failed, and ascribe this to a lack of time to work with the community to increase demand for the intervention.

The key to success with improved sanitation lies in understanding the local toilet practices, having an adequate preparation of the community with effective communication methods and the provision of technology that is sustainable and that matches community needs. The level of effort and the time required to successfully implement these interventions may vary considerably across different communities in a single province or project area. For example it appears much easier to successfully introduce toilets in Sumbawa than in Lombok and that this is related to differences in the local cultures between these neighbouring islands.

Attempts to improve the disposal of human faeces will only be effective if the community demand for toilets can be increased. Toilet facilities built without an appropriate community approach are unlikely to respond to community needs and are unlikely to be used. Clearly, one of the major achievements of the NTB ESWS project has been the increase in the demand for toilets in rural project communities and the effectiveness of the project's response to this demand with appropriately designed toilets.

The project monitoring data (Project Information NTB ESWS September 1995) indicates a substantial increase in the number of new or rehabilitated toilets constructed in the community in each cycle. There was a very large jump in this demand for toilets between the first and second cycles, suggesting a learning process by the project on how to effectively implement this intervention in the field. By the third cycle it appears that the proportion of families in project areas with a toilet ranged from 45% to 92%. Furthermore, a spot survey of usage of toilets installed during Cycle II indicated that over 90% were being appropriately used. This would imply that on average about 40% to 80% of the households in the community are using toilets after the project intervention. This compares with an average of about 14% for toilet coverage prior to project intervention. The level of community adoption of family toilets is high enough to have a major impact on environmental sanitation and to create an ongoing community pressure for use of toilets. Anecdotal evidence from direct observations by project staff and from spontaneous comments by members of the community indicates that many areas in the village that were previously severely contaminated with human faeces are now clean.

The project does not have a specific communications program to promote toilet usage. So what accounts for this increased demand for toilets? The key element in this success is almost certainly due to the community team and the appropriate process they are using to engage the beneficiaries in water supply and sanitation development activities.



This is an important aspect of the NTB ESWS project that could be of benefit to other WSS projects. Namely that many hygiene education goals can be achieved through the community process with trained community facilitators. This process is likely to be even more effective if the facilitators have appropriate communication tools and skills when they work in the community. Another element contributing to the project's success in increasing coverage of family toilets has been the close coordination with GOI agencies responsible for WSS especially at the district and sub-district level. This has allowed GOI agencies to plan for increased allocations of resources for toilets to match the increased demand generated by the community development process. A real danger that could arise would be to increase community demand but not have in place the resources to respond to this demand.

It is unclear as to how long the community in NTB will have an altered demand for toilets and how long they will continue to appropriately use the toilet facilities built with assistance from the project. These questions could be examined by the NTB-ESWS project by repeated sample surveys of toilet use and related hygiene behaviours, perhaps even after the main project activities have ceased. This would give some indication of the sustainability of this increased demand, based on the community process used in the project. This information would be of use to those planning future WSS activities in Indonesia.

An effective community development process can have a large impact on hygiene behaviours and the demand for services. The increased demand for toilets in NTB provides an illustration of the extent of change in community perception about sanitation that can be provoked by community facilitators. It indirectly provides evidence of the likely extent to which water use and personal and domestic hygiene behaviours could be altered during this period of sensitisation of the community, if projects have in place an effective hygiene communications program.

Although the NTB-ESWS project has demonstrated substantial success with generating demand for toilets, overall the hygiene education activities are diffuse and not clearly focused at the community level. The project has developed a slogan that translates approximately as "I always try to be clean." This slogan is visible in the community but the supporting messages have not been clearly defined by the project. This was reflected in the response of one village volunteer who, when asked what was meant by "clean" in the slogan, could only identify improved garbage disposal. This may have been an unrepresentative spot sample; more extensive documentation of these problems can be found in the Fourth Progress Report for Gender, Health and Social Anthropology, November 1994. In part the problem lies in the lack of a well formulated hygiene communications strategy for the project. The project should have identified key health messages and developed an approach on how to communicate them in the community. Usually these communication strategies involve the selection of a few key messages and the delivery of these messages through a variety of channels (including village volunteers, school teachers, Health Department staff) by interpersonal communications, often in group meetings. The project has recently provided the community facilitators with training on how to train others. These skills should be used to deliver a set of key health messages during the remainder of the project.





### **6.1.3 Community Issues**

Mechanisms have been developed for preparing communities to be responsible and capable of carrying out the operation and maintenance of facilities constructed with the assistance of the NTB-ESWS project. The involvement of NGOs with continuing community groups activated by the NTB-ESWS community process has increased substantially over the past nine months, and according to the Annual Plan will continue to do so over the final year of the project. The involvement of local government counter-part agencies in the implementation of the project has also increased substantially. These issues are discussed in more depth in the Action Plan, Part B of this chapter.

### **6.1.4 Institutional**

In common with the two other projects and discussed in the earlier chapters, the NTB-ESWS project has a principal component dealing with institutionally managed activities, and there is a second component of community managed activities which includes elements relating to development of both GOI and LSM institutions. The most important issue facing this project currently is the proper planning for termination of the project in approximately one year, and arranging for the smooth transfer of responsibilities for all continuing activities to these institutions. As such this was the main focus of the TAG visit, and is reported upon in detail in Section 6.2.2 following.

### **6.1.5 Technology**

The major part of the project's physical interventions had been implemented or committed at the time of the TAG visit, so there was little to be gained by a review of technologies employed on the project. Nevertheless technical issues did arise in discussions with the project team and on site visits, and alternative approaches were reviewed. These were mainly in relation to large piped schemes involving communities, where difficulties had been encountered and there was some reluctance for the project to become involved in further such schemes. In fact the difficulties were not so much technical as organisational, and solutions were well developed.

The sanitation programme, and particularly the materials and facilities provided as GOA contributions under the project, includes examples of appropriate technology which illustrate the difference between least-cost and cost-effective solutions. The space-age-plastic squat plates of the NTB-ESWS project may have attracted initial criticism, but the total package, including the appropriate community facilitation and technical assistance, although more expensive per-capita than other programmes, has proved in data reviewed to date to be much more sustainable than the lower cost alternatives.

In general the project has been adequately staffed with technical expertise to assure that technology selection will not be a major sustainability issue. This will be verified in the review of monitoring data being collected in the final year of the project. Of more concern are the institutions responsible for maintaining the larger water supply facilities, as discussed in more detail in the following.



Subsequent to the TAG visit, there has been a research report published indicating some concerns with water quality in drinking water wells in parts of Lombok Island. AusAID and the Contractor are aware of the report, and will follow-up its findings as they may be relevant to project activities.

### **6.1.6 Monitoring and Reporting**

The project monitoring and evaluation data systems have been thoroughly reviewed by others, and have been operational for several years. Given the timing of the TAG visit, it was not considered appropriate to devote the TAG's attention to these systems.

## **6.2 Part B Action Plan**

### **6.2.1 Focus**

The following four points were identified from the Effectiveness Study Report recommendations in relation to the NTB-ESWS project, in Part B of the Terms of Reference for the TAG:

- the transfer of responsibility and involvement of GOI agencies;
- to increase monitoring of sustainability indicators;
- operation and maintenance documentation for community groups; and
- to increase the involvement of women on committees.

In accordance with the TAG approach, these were reviewed by the TAG with members of the project team on site, and it was felt that some of these recommendations could be dealt with very simply without the assistance of the TAG, and/or that the TAG should look at broader perspectives than these within the general areas of expertise of the TAG team. For example, the issue of women on committees was not well understood, but it was considered that the GAD specialist could benefit the project by assessing broader issues of community and gender in relation to project activities. Similarly an assessment of the health education issues by the health specialist may have been useful to the project team.

The overall issue of most concern was the winding down of project activities in a neat and orderly way, such that the project could finish on schedule with minimum abruptness and maximum smoothness and goodwill. The clarification of all issues in relation to this central theme was the main focus of the TAG visit.



## 6.2.2 Wind-down and Transfer

Much discussion within and outside the project concerned possible avenues for extension of AusAID involvement in the project and project-related activities. This is understandable given the history of previous AusAID projects and extensions to them, and also that this project is generally perceived as being well-executed and successful. The project has itself generated considerable interest and willingness, such that approaches are regularly being made to the project by organisations and community groups wanting to participate in project activities.

There is no more AusAID money for extensions of this project. This is the firm position of AusAID, and the project team was asked to propagate this message in response to all future inquiries. This is no reflection of AusAID's view of the project, nor implied criticism; it is merely a reflection of the fact that there is strong competition for funds within the AusAID bilateral project budget for Indonesia, and that the water and sanitation sector has been well-supported over recent years. It is suggested that the attention of all organisations involved in the project be focussed on the known end date, proper consideration be given to hand-over procedures, and these procedures be put into place with maximum possible anticipation.

### **Institutional Component**

The project has worked closely with the broad range of institutions at central, provincial and district level in the implementation of jointly funded activities. There is a high level of integration apparent, for example, in the implementation of piped water supply schemes, particularly the construction of new schemes (Type A) through P3AB. There have been difficulties, expressed by project staff, in coordinating with some of the counterpart agencies and in having any significant influence in the mainstream activities of others.

In its final year, it is suggested that the project pay more attention to the institutions with potentially highest impact on long-term sustainability, in preference to those with shorter-term roles. This means in general terms that those project activities focussed at the district level and below will become increasingly important and those with representative offices of central line agencies less important. This is in keeping with the project programme, and is mentioned here to reinforce that plan.

In relation to Type A water supplies, this means that the role of the project with P3AB will diminish, and the support given to institutional development of the PDAMs will increase substantially. Practical support to PDAMs has been upgraded with the addition of the Construction and Operation Adviser to the Australian team, and in terms of management with the presentation of computer software to the PDAMs. However there is scope for more project resources to be directed towards the water utilities in the relatively short time remaining. With the continuing close involvement of PDAM personnel, examples of activities the project could facilitate include:

- preparation of "as-constructed" details of existing water supply systems for which the PDAMs are responsible, perhaps starting with the elements supported under the project, but extending to whole networks;



- establishing water supply zones in each system, and together with responsible PDAM personnel, tracking the supply of water through sample zones:
  - physically, as part of the current UFW programme,
  - financially, through billings and collections, and
  - at management level, through data management, efficiency measures etc.;
- improvements in the financial management practices of the enterprises:
  - at field level, converting water into revenue, and
  - at management level, extending the assistance with accounting to issues of financial autonomy for the enterprises.

This may affect the priorities of several of the key staff of the project team, with potential inputs from five of the six long-term Australian project staff and possibly five of the Indonesian project staff. Some of the issues are known to be sensitive, and will require special skills to progress them. The proposed re-arrangements with the Planning and Institutional Specialist position could be used to increase the focus on the water utilities. In the final procurement budgets it may be possible also to increase the allocation of materials towards repairs and rehabilitation (PDAM activities) in favour of construction of new Type A or "Type B" facilities (P3AB activities).

### **Community Component**

NTB-ESWS has liaised with GOI departments at all levels, and with respect to the community aspect of the project, most particularly with Kabupaten and Kecamatan levels of Dinas Kesehatan and Pembangunan Masyarakat Desa and PKK. At the village level, the sanitation and water supply section of the LKMD has been actively involved in the implementation of the project. While it is difficult to predict what degree of sustainability has been achieved in terms of on-going community development in respect to environmental sanitation and water supply, it seems that all possible efforts have been made in creating the impedes for activities in this sector to continue.

Considerable effort has been made to identify and liaise with LSMs and small credit agencies throughout NTB, and a number of projects and schemes have been initiated involving the community groups formed through the facilitation process carried out by NTB-ESWS. These efforts are on-going, indicating that by the end of 1996 there will be set in place a considerable number of structures for the transfer of skills and community development activities. In addition, it seems that some new LSMs may be formed by project staff when NTB-ESWS ends, and, given their skills and experience, it should not be difficult for them to access funds from government and/or non-government sources.

### **Other Issues**

A common feature of the wind-down of aid projects is the manner of final distribution and hand-over of project assets such as vehicles, computers, office equipment and field equipment. In an attempt to inject some dignity into this process, the project plans to be proactive in drawing-up draft lists and allocations of such equipment. The general principle to be applied is that the assets will remain where they are currently assigned under the project; however it is recognised that such matters are rarely so simple.





Actual inventories are presently being prepared for discussion with the AusAID post staff and others, and selective distribution for suggestions amongst participating institutions.

In response to the requests which are continuing to be directed to the project, a procedure will be implemented soon to record and catalogue such requests which will not be met within the life of the project. This will complement the information also under preparation by the project, to be presented to each participating community (and presumably also interested inquirers) detailing the sources of further information and possible assistance after the project. In this way it is intended to facilitate continuing work and access by communities in particular to resources which may continue to be available in the GOI system.

### **Operation and Maintenance Documentation**

The emphasis in the area of operation and maintenance in NTB-ESWS has been on hands-on training. Given the low level of literacy in many of the communities targeted, this is a sound approach. However, the community team is planning to produce simple booklets which document the community facilitation process, and these will be given to all the relawan/relawati (volunteers) who participated in the project. The technical aspects of operation and maintenance has been transferred through Tukang Training, that is, practical training for local tradesmen who constructed and/or rehabilitated facilities. In addition, for those sites where small piped water systems have been installed, the project intends to compile simple manuals for use in the village, with a map and set of instructions for repairs. They will produce a more detailed plan and set of instructions for these pipe systems for the Kecamatan office.

It may be useful, in terms of sustainability indicators, if these booklets and manuals were completed and distributed soon in Cycle Three villages, so that their effectiveness can be monitored over the last year of the project.

### **Involving Women on Committees**

NTB-ESWS has liaised with the PKK, and they now have a representative on every Kabupaten committee when project staff meet with GOI departments at that level. Given the very short time available to observe the NTB-ESWS project, it can only be said that the community team seemed conscious of the need to involve women in the community process, and felt that they had made every effort in training their CFs to facilitate women's involvement. However, it was noted that in some areas cultural factors have been an impediment to achieving this objective, and that in such cases it has been considered more important to focus on maximising the benefits for women from the project.

### **Health**

No specific health question was identified for examination by the TAG team. The following are some observations about the current hygiene communications activities in the project and some suggestions of possible actions to focus these health activities during the final phases of the project. The project has an effective community team and



well developed process for introducing water supply and sanitation activities into the community. Furthermore this team has recently completed a training program on how to train village volunteers. These project resources should be used to increase the dissemination of hygiene messages to the project communities.

The health resource materials used by the community facilitators are most probably too complex and do not guide facilitators on how to select and communicate important health messages in the community. Although the health materials produced by the project include important and relevant health messages, it appears that the process of dissemination is too diffuse at the community level. During the field visits of the TAG the only message that was clearly visible in the community was the project slogan. A random spot sample of one village volunteer (relawan/relawati) was not aware of a set of key hygiene messages, nor know how to communicate hygiene messages in the community.

The following actions might be considered by the project to increase the focus of health education activities during the final year of project activities.

- Work with the community facilitators to identify five key health messages that need wide dissemination in the community. This might be best done separately in each district and encourage the field staff to select the messages most relevant to those communities they work in.
- Develop strategies, specific activities and an action plan to disseminate the selected messages, involving District Health Office staff in these processes as much as possible. Try to identify a role for them in the planned community activities.
- Work with the district level WSS planning committee and the sub-district WSS team to increase their awareness of the role of hygiene communications in WSS activities and to encourage them to allocate resources to this component of WSS activities in the district or sub-district.



## 7. CONCLUSIONS

The nature and purpose of activities such as the Technical Advisory Group requires the focus of attention on issues of concern and difficulties to be overcome. As a consequence the TAG visit, and this report, have tended to concentrate on the negative aspects of the program. This may give the reader the impression that these three projects are largely unsuccessful, or almost total failures. Such an impression would be incorrect.

In fact, viewed together as a group, these projects would be assessed as a successful development cooperation programme, worthy of commendation rather than condemnation. The approaches and technologies applied are appropriate to the circumstances, and the projects are being implemented efficiently and cost-effectively. The balances of physical (materials and equipment) and non-physical (technical assistance and training) inputs are also appropriate to the dual objectives of improving the social and economic conditions of large target populations in the short-term, while maximising the prospects for sustaining the benefits in the longer term.

Significant outcomes which have already been achieved, or in some cases are realistically expected to be achieved under the projects include:

- the development of strong linkages with the counterpart agencies involved in implementing project activities;
- well-selected physical contributions of materials and equipment, coordinated with complementary contributions from GOI and communities, at levels and proportions appropriate to maximising sustainability objectives;
- effective and appropriate technical assistance and training, to improve the quality of facilities installed under the project, including those funded largely or wholly by others;
- technical assistance and training to strengthen the institutions which will be responsible for the operation, maintenance and management of the larger, more complex water supply systems, and sustaining them effectively into the future; and
- the facilitation of communities to fully manage their own water supply and sanitation improvements, through all phases from planning and construction of facilities through to their adequate operation and maintenance, and effective use, also assuring long-term sustainability.

An example to illustrate the success of this community-based approach was its use as a model for the development of a large country-wide programme sponsored by the World Bank. The WSSLIC project is now held as a standard approach for community WSS in Indonesia, and has at least part of its heritage in the developments of the AusAID WSS projects. There are also technical and institutional advances made under the AusAID programme, which have been adopted as standard practice or have strongly influenced sector activities on a broad scale.



Of course there are elements of each project which have been less successful than might have been expected. Some difficulties are common to all activities in this sector, and are shared by all the projects. The more important of these common themes are:

- the inherent weakness of the water enterprises (PAMs), and their importance to the sustainability of project outputs;
- the prevalence of low standards of construction by local contractors;
- the "project" and "target" orientation of water supply and sanitation (central) agencies largely responsible for implementing physical works;
- coordination of the planning and budgeting processes, and the difficulties in securing allocations for routine (maintenance) expenditure; and
- the need to enhance appreciation, implementation and achievement of AusAID's GAD policies and objectives.

Most are well recognised and are being addressed by the projects. Where appropriate, further actions have been suggested by the TAG, and are discussed in more detail in the main text of this report.

Each project also has an individual setting with its own difficulties to be overcome. These are also discussed in the main text of the report under headings such as gender, health and environment, community issues, institutional, technology, and monitoring and reporting. They are addressed specifically in relation to each project, and are not repeated in this Chapter.

Arising from, or in addition to these are issues for which action plans were discussed with each project team. Some of these issues and actions relate to overall direction, some to specific current situations. Again, they are specifically addressed in the preceding Chapters, and not repeated in detail here.

To illustrate, examples of individual project issues include:

For ETWSS: drainage, sanitation and health, and the staffing of community inputs

For FWSSRD: transition arrangements upon dissolution of the counterpart agency arrangements at mid-term, health promotion, and the focus of future inputs in urban and rural sectors

For NTB ESWS: the winding down of project activities and transfer of responsibilities.

In most cases these issues were identified jointly with the project teams, and the approach to defining actions was undertaken in a cooperative and constructive way. Indeed, many of the actions have already been initiated by the projects prior to publication of this report. The report will provide background and reference as necessary.





The TAG was considered a worthwhile activity. The project teams were quick to capitalise on the availability of TAG members as an additional resource, to assist in the identification and resolution of important project issues. In many cases both AusAID and project staff were aware of the issues, or at least the symptoms, and were appreciative of the additional perspective provided by the TAG. It has been proposed that a similar exercise be undertaken in approximately six months, to visit ETWSS and probably FWSSRD projects, but not the NTB-ESWS project as it is approaching completion at the end of next year.

This type of activity may also assist in the definition of future AusAID initiatives in the sector. It may be seen from the general success of these projects, especially compared with past and current involvement by AusAID and other bilateral and multilateral agencies, that they contain many ingredients for replicability. Some are summarised above. It would also be concluded that the balances within each project are both necessary and appropriate, such as:

- physical and non-physical inputs
- working with both institutions and communities
- activities in both urban and rural sectors
- both water supply and environmental sanitation components.

It is the combination and balance that works so well; ignoring one side of each of these equations has led to unsuccessful outcomes. Other attributes and trends which contribute to the success of the AusAID WSS program include:

- maintaining strong technical assistance inputs funded directly by GOA, with expatriate and Indonesian project staff
- training and influencing by doing, not just talking about what should be done
- decreasing the proportion of Australian contribution to total project costs
- recognising Australian comparative advantage, such as for project procurements
- more direct targeting of project inputs to beneficiaries.

The program is being managed efficiently and cost-effectively.



## **Annexures**



# **Annex A**

## **Terms of Reference**



**INDONESIA**  
**AusAID WATER SUPPLY AND SANITATION**  
**TECHNICAL ADVISORY GROUP (TAG)**

**1. INTRODUCTION**

The Australian Agency for International Development (AusAID) is providing funding for three water supply and sanitation (WSS) projects in cooperation with the Government of Indonesia (GOI) with a combined on-completion value of approximately \$A80 million. The three projects are located in Nusa Tenggara Barat (NTB), Nusa Tenggara Timur (NTT), and Timor Timur (East Timor):

- NTB Environmental Sanitation and Water Supply project
- East Timor Water Supply and Sanitation project
- Flores Water Supply and Sanitation project

In October 1994 AusAID undertook a comprehensive Effectiveness Study of the three ongoing projects in the WSS Sector. The study took account of a number of the difficulties encountered in the effective implementation of WSS projects in the Eastern Islands which included.

- Weak project-GOI (Central and Local) relationships,
- The existence of conflicting and often mutually exclusive sector objectives, eg. meeting development targets versus using appropriate technology and implementation methods;
- Inefficient and less than fully effective use of NGO resources in WSS projects,
- The choice and continued use in some instances of inappropriate/inferior technology;
- On-going difficulties with piped system installation and maintenance;
- Poor performance of water enterprises (PDAMs);
- Institutional impediments to replication;
- Continued consumer ignorance of prerequisite good practices, eg water conservation;
- The choice in some instances of inappropriate target areas/communities; and
- Inadequate project implementation responsiveness and flexibility.

The objective of the Study was to ascertain whether the high risk profile of the WSS sector could be reduced by changes to project design, implementation and monitoring practices. The Study concluded that the primary constraints to the effective delivery of WSS facilities involve factors relating to institutional capacity and co-ordination; community understanding and appreciation; and project design and implementation. The Study put forward a number of sectoral and project specific recommendations to manage project risk.

AusAID now intends building on these findings by funding a Technical Advisory Group (TAG) to review and advise on the recommended strategies to enhance project effectiveness and sustainability proposed by the WSS Study.





## **2 PURPOSE**

The purpose of the TAG is to review and prioritise the risks that have been identified by the WSS Study in-so-far as they impact on AusAID assisted projects, and to prepare project specific strategy papers in response to the WSS Study recommendations.

Whilst AusAID will expect recommendations on alleviating project design problems and issues (as necessary), the team will not be required to redesign, wholly or in part, any of the projects nor to negotiate with the project contractors variations to design and/or implementation .

## **3 SCOPE**

The objective of the TAG is to promote the effectiveness and sustainability of the three projects in the water sector in response to the recommendations of the WSS Study. The TAG is not to duplicate the investigations undertaken by the WSS Study team in 1994. The TAG will advise AusAID on appropriate strategies to minimise risk in the sector.

A. At a minimum the TAG will advise AusAID of appropriate action to be undertaken in the following areas:

### **Gender -**

- capacity of projects to involve women effectively in all aspects of project planning and implementation both as project participants and as beneficiaries ( including utilisation of gender survey data);
- degree to which GAD objectives are integrated in project design (Annual Plans) and reflected in performance indicators;

### **Health and Environment**

- appropriateness of technology and location of facilities to ensure optimal use of sanitation facilities;
- adequacy of hygiene communications program;
- appropriateness of the mix of interventions to maximise health benefits;

### **Community Groups/ Community Related Activities**

- mechanisms to develop community capacity for sustainable operation and maintenance of water and sanitation facilities;
- mechanisms to improve involvement and contact with LSMs (NGOs);
- training of Community Facilitators and Technical Officers and mechanisms for the handover of responsibilities to GOI;



## **Institutional**

- mechanisms to facilitate project handover to GOI and to maximise the involvement of local government
- adequacy of training programs to meet areas of key skill shortages in counterpart agencies

## **Technology**

- appropriateness of technology for ongoing operation and maintenance

## **Monitoring and Reporting**

- adequacy of project performance indicator-based monitoring and reporting systems

**B.** The TAG is to review the WSS recommendations and after consultation with AusAID and the Australian Team Leaders prepare strategy papers that address the project specific recommendations. (Following consultation a revised list of project specific issues may be endorsed as the basis for strategy papers). The WSS Study project specific recommendations are as follows.

### **NTBESWS Project**

- Transfer of responsibility and involvement of GOI agencies;
- Increase monitoring of sustainability indicators;
- Operation and maintenance documentation for community groups; and
- Increase involvement of women on committees.

### **ETWSS Project**

- Maximise direct involvement of BPAM (water enterprise) personnel;
- Examine and improve operational linkages with counterparts;
- Review potential for increased involvement of Ministry of Home Affairs; and
- Intensify efforts to formally involve women.

### **FWSS Project**

- Initiate dialogue with PERPAMSI (Water Enterprise Association);
- Develop work plan for involvement of women;
- Develop Flores specific promotional and operation and maintenance materials;
- Foster water enterprise linkages with communities; and
- Ensure regular progress reviews with stakeholders.

In addressing both the sectoral issues and the project specific recommendations the TAG is to differentiate between the urban and rural components of WSS projects. The TAG is to take account of the varying stages of implementation and the different operating



environments for each project. Particular attention is to be given to the difficult circumstances in East Timor.

Strategy papers are not to be limited to inputs from individual specialists. Under the direction and coordination of the Team Leader and WSS Institutional Specialist all TAG members are to provide input to the formulation of strategy papers.

#### 4 METHOD, DURATION, AND LOCATION

The study will require:

- a review by all team members of assembled and other relevant documentation;
- a one day briefing for study team members in Denpasar;
- a two week in-country mission including field investigations and consultations, liaison and consultations with AusAID Jakarta officers and GOI officials as appropriate;
- finalisation of reporting requirements, approximately 5-10 days.

The study activities should not exceed two months. The in-country mission is scheduled for the last week of August and the start of September, 1995.

#### 5 STUDY TEAM

An AusAID led team of four, will undertake the study.

- *AusAID team leader* - will be responsible for managing the conduct of the study, developing an effective working relationship with project staff and GOI officials, planning and coordinating the work program of team members, and ensuring the quality of the study outputs.
- *Gender analyst and community development specialist* - this specialist will develop project specific strategies to promote project effectiveness and sustainability in respect of gender, community-based and community-related activities. Experience in gender assessment in developing countries, preferably in Indonesia and an understanding of the community management process are essential. Working knowledge of Bahasa Indonesia is desirable. Under direction of AusAID Team Leader and WSS Specialist prepare strategy papers and provide input into TAG report.
- *WSS and institutional development specialist* - this specialist will develop project specific strategies to promote project effectiveness and sustainability in respect of technical and institutional activities. The consultant will be a qualified engineer, with Indonesian WSS project experience. A familiarity with and understanding of relevant Indonesian institutions and other sector stakeholders is essential. In consultation with the AusAID Team Leader the consultant will be responsible for the drafting and finalisation of the TAG report and for coordinating the inputs of other TAG members. Conversational capability in Bahasa Indonesia would be an advantage in this position.



- *Health specialist* - this specialist will be engaged in-country, and will develop project specific strategies to promote project effectiveness and sustainability in respect of environmental health activities. Under the direction of the AusAID Team Leader and the WSS Specialist prepare strategy papers and provide input into final TAG report.
- AusAID Post officers will also join the mission for in-country project site visits and for consultations. Monitoring visits to ETWSS and NTBWSS are scheduled to be undertaken during the TAG visit.

## **6 REPORTING**

A study report is required, detailing the results of consultations and investigations undertaken, and findings. The report will provide project specific strategies that respond to the recommendations of the WSS Study and address the key areas of risk. These will be presented in a draft report to AusAID within two weeks of return from the in-country mission. A final report will be presented to AusAID within two weeks of the receipt by the team of comments from AusAID on the draft report. The WSS Institutional consultant will be responsible for this report, under the direction of the AusAID team leader, and with assistance from other team members.

The estimated length of the report is 50-60 pages. Three copies of the draft report and five copies of the final report are to be provided to AusAID.

## **7 OTHER**

The Contractor shall perform such other services as are incidental or ancillary to the Consultancy Services and which are mutually agreed between the parties.





**Annex B**

**TAG Itinerary and Persons Met**



## ANNEX B

### AUSAID INDONESIA WSS TAG

#### ITINERARY

Friday 25 Aug 95	pm	SW, RH, JG travel to Denpasar
Saturday 26 Aug 95	am	NC, MD travel to Denpasar TAG briefing
	pm	TAG briefing
Sunday 27 Aug 95	am	TAC travel to <b>Dili (ETWSS)</b>
	pm	Orientation - urban Dili
Monday 28 Aug 95	am	Meet GOI Monitoring Team Issues Meeting with Australian team
	pm	Site visit - urban WS in Dili (SW,RH) Discussions with Bia Hula (JG)
Tuesday 29 Aug 95	am	Meetings with GOI at Bappeda offices Site visit - urban drainage and sanitation
	pm	Site visit - Community WS and Sanitation Mataulun
Wednesday 30 Aug 95	am	Meeting with BPAM Dili Discussions with Australian team members
	pm	Review records and discussions at project offices Report preparation
Thursday 31 Aug 95	am	Wrap-up meetings with GOI and Australian team
		TAG travel to Denpasar
	pm	
Friday 01 Sept 95	am	Report preparation TAG travel to <b>Maumere (FWSSRD)</b>
	pm	TAG briefing, issues meeting with Australian team
Saturday 02 Sept 95	am	Site visits to East Flores (full team, all day) Wailolong, Mokantarak, Larantuka, Letomatan



Sunday 03 Sep 95	am TAG meetings with Australian team - monitoring and evaluation
	pm - urban component activities - rural component activities
Monday 04 Sept 95	am Meetings with GOI - Bappeda, PMD, PDAM Sikka/P3AB, Health Discussions with Australian team members
	pm Report preparation Wrap-up meeting with Australian team
Tuesday 05 Sep 95	am TAG travel to <b>Mataram (NTB-ESWS)</b> pm (via Bima, Denpasar...)
Wednesday 06 Sep 95	am TAG briefing and issues meeting with Australian team Site visit - piped WS, Lembar
	pm Meeting PDAM Lombok Barat discussions with Aust team members
Thursday 07 Sep 95	am Site visit - community piped WS and sanitation in north Lobar Jantong, Sumur Pande
	pm Meetings with Australian team members Report preparation
Friday 08 Sep 95	am Wrap-up meeting with Australian team TAG disperses



## MEMBERS OF TECHNICAL ADVISORY GROUP (TAG)

Susan Wilson	AusAID Canberra	Team Leader
Richard Hopkins	Connell Wagner	Engineer
Jocelyn Grace	Murdoch Univ	Social/GAD
Michael Dibley <sup>(1)</sup>	Univ. Gadjia Madya	Health

Parallel monitoring activities by:

Neil Collins <sup>(2)</sup>	AusAID Jakarta
Ray Lloyd <sup>(3)</sup>	AusAID Jakarta
Hilda Winarta <sup>(3)</sup>	AusAID Jakarta

and GOI officials listed with Persons met.

- (1) Flores and NTB sites only
- (2) East Timor and NTB only
- (3) Flores only





## **OFFICIALS MET BY THE TAG TEAM**

### **EAST TIMOR WATER SUPPLY AND SANITATION PROJECT**

Sri Endah Suwarni, SKM	Dit Pair, Depkes
Ir Soedarto	Ketua Bappeda Tk I
Drs Mustafa Kamal	Project Manager, ETWSS, Bappeda
Iyus Ilyas B.E.	Kepala BPAM, Dili
Dr Waipan Widaya	Kanwil Kesehatan
Luis Amaral, SKM Dinas Kesehatan Tk I	Kepala Bidang PKL
Ir Hancurto Dipl HE	Pimpro P3AB
Ir Togap Hutagalung	Pimpro PLP
Trimo Sukandar	PMD
Drs I.G.N. Rai	Dit Pair, Depkes
S.H. Harahap	DitJen Anggaran
Jose Mestre	Kotif Dili
Ir Susi MDS Simanjuntak	P3AB
Dr Samuel Munaiseche	Kakanwil Kesehatan

### **FLORES WATER SUPPLY AND SANITATION PROJECT**

Ir Zaini Basri Msc	Project Director, Public Works (RMT)
Ir Yandi	Assistance for FWSSRDP, Public Works (PIU)
Ir Somba Tambing	Project Director, Province Public Works (PLP)
H. Wijoyono, Msc	PHR Directorate Staff, Health Directorate
Ibu Theresia Mukin	District Team Head, PKK



Martinus Boli Hayon	Chairman, Bappeda
Elisabeth Niron	Director, Yayasan Abdi Masyarakat
Dores	Office Head, Bangdes/PMD
Nobertus Touran	Sub-district Head, Larantuka Sub-district
Edy Lelupere	PMD Section Head, Larantuka Sub-district
Seron	Environment Health Section Head, District Health office
Rafael Heba	Office Head, PU Cipta Karya
Hengki Mukin	Staff, District Bangdes
Paja	Staff, District Bappeda
Yohanes D. Hurint	Chief, Wailolong Village
Paulus B. Hurint	PPABS Head, Wailolong Village
Antonius Lebu Maran	Chief, Mokantarak Village
Sina Werang	PPABS Head, Mokantarak Village
Alexius Hadjon	Technical Section Head, BPAM
Frans	Water Resources Section, BPAM
Jhon	Mechanical & Electrical Section Head, BPAM
Petrus	Transmission & Distribution Section Head, BPAM
Blasius	Planning Section Head, BPAM
Yoseph	Water Resources, BPAM
Drs Landoadus Mekeng	Chairman, Bappeda
LukasLaka Apelabi, SM	Agriculture Section Head, Bappeda
Drs Sabinus Nabu	Office Head, Bangdes/PMD
Drs Apolonius Anton Yosep	PUGR Section Head, Bangdes/PMD
Drs Damianus Adoe	Development Section Head, Bangdes/PMD



AM Da Lopez	Economic Section Head, Bangdes/PMD
Sintus Soge, BA	PUED Sub-section Head, Bangdes/PMD
Nikolaus Rawinto	PMD Staff, Bangdes/PMD
De Ignatius Henyo Kerong	Office Head, District Health Office
Yohanes Siga Office	Environment Health Section Head, District Health Office
Aloysius Yoseph Rada	TTU Health Sub-section, District Health Office
M. Magnalena Ola	PL Sub-section, District Health Office
Salvius Sintu	Director, PDAM
Pius Bliong	Technical Director, PDAM
MC Da Silva, Dra	Finance Director, PDAM
Lambertus Lette, BE	Planning Section Head, PDAM
Anton Toni Minggu	Distribution Section Head, PDAM
Ajustus Ariston	Logistic Section Head, PDAM
Stefania Anna Jembro	Billing and Cashier Section Head, PDAM
Elisabeth Yasintha	Personnel Section Head, PDAM

**NTB ENVIRONMENTAL SANITATION AND WATER SUPPLY PROJECT**

Drs H Abd. Rahim	Director, PDAM Lombok Barat
Dr R. Santoso	Indonesian Project Manager, ESWS



# **Annex C**

## **Reference Material**





## ANNEX C.2 - HEALTH

### NOTES FOR FLORES WATER SUPPLY AND SANITATION RECONSTRUCTION AND DEVELOPMENT PROJECT

#### 1. Resources already available to the project:

- a. Strong community team with experienced leadership and community facilitators with prior work experience in community development.
- b. Well documented system of community management training modules including modules specifically related to hygiene promotion.
- c. The inclusion of CARE Indonesia in the project team brings the considerable institutional experience of CARE in water and sanitation projects and hygiene promotion at these sites in Indonesia and the potential for support for the program in Flores.
- d. There is a clear recognition of the importance of hygiene communications as part of a water supply and sanitation project by the project team leader and other key project staff.
- e. The project has recruited a strong local candidate for the community health/women in development position who has had previous field experience in health education.

#### 2. Steps the project should consider in formulating a hygiene communications program:

- a. Increase project staff understanding and knowledge about the relationships and linkages between various water supply and sanitation interventions and illness. This knowledge will help them understand why particular messages are given a high priority. An annex attached to this report outlines the main health benefits from water supply and sanitation projects and how to maximise these benefits.
- b. Training of project staff especially community facilitators should start by focusing on their own personal hygiene and domestic water use behaviours since these staff are likely to reflect local community practices. You need to convince your own staff of the need for change before going to the community.
- c. Compile an inventory and collect examples of existing hygiene education and promotional materials from the Department of Health and other local community groups active in the field.



- d. Conduct a rapid assessment of the strengths and weakness of the key materials collected. What organisations use them? Do the health workers understand the material themselves? How do they use the materials in their work? What has been the experience of those using the materials in the community? What do women in the community think about the materials and what messages do they think the materials convey? Are the messages and the media for communicating them acceptable to the community? This step might require focus group discussions with health workers including sanitarians and other community health centre staff, local primary school teachers, and men and women from different communities in Flores. Another approach might be to display the materials at water sources and interview local people about their reactions to the materials as they visit the site.
- e. Conduct a rapid qualitative assessment of water use, and personal and domestic hygiene practices and beliefs. The starting point for a hygiene communications program should be an understanding of what the community in Flores does and believes about water use, and personal and domestic hygiene. "Educational messages are meaningless if they are not grafted onto what people already know and do". The data required can be collected by a number of rapid qualitative methods including in-depth interviews, brief participant observation with structured observation lists and focus group discussions.

Qualitative data collection is needed both to determine the range of possible high risk behaviours, to provide new ideas for training of the community team and to identify key behaviours and beliefs that should be targeted in an education program. This data collection step is important because previous studies comparing recall of sanitary knowledge, attitudes and practices compared poorly with direct observations. Reliance solely on the traditional knowledge attitudes and practices (KAP) questionnaire survey may result in the design of an education program based on faulty data.

The qualitative methods needed are well established and some of the data could be collected by trained observers recruited from the local university graduates or students. However the investigators will need a clear picture of how different behaviours might link to risk of disease. Therefore a team approach will be essential to ensure valid data is collected with a close interaction and dialogue between the health social scientist and the public health physicians involved. The data for these evaluations could be collected within a month.

- f. Conduct surveys of selected communities to quantify patterns of water use and personal and domestic hygiene practices both as a source of information for designing a health education program and to form the basis of an evaluation of the education activities. The questionnaires for these surveys should be developed based on the findings from the qualitative assessment. This data could be collected from deliberately



selected communities as case studies. The selected communities could include villages that will receive inputs early in the project as well as communities that might only receive inputs later or not at all. This design would provide a basis for repeat surveys to measure water use and behavioural changes and to compare the communities receiving and not receiving project inputs. This step might be omitted if the project team does not have the skills to conduct a survey.

- g. Conduct a seminar with the local partners involved in developing the communications program to review the findings of surveys and assessment of existing materials and to begin to define the communications strategy for the new hygiene education and promotion program. These local partners should include staff from the Provincial and District Health Offices and local non-government agencies that have been active in the sector.
- h. Develop a communications strategy and plan of action.
  - i. Identify who in the community will be the primary target of the communication program and who will be secondary targets either to disseminate the messages or to provide local support and endorsement?
  - ii. Identify who will distribute the messages. I am assuming that it most likely that the main media for communication will be direct interpersonal contact since the penetration of mass media to the village community is likely to be low.
  - iii. Plan how to create a slogan and logo for the communications program.
  - iv. Identify the key themes and primary messages for each theme.
  - v. Plan how the draft materials will be produced and how they will be field tested.
  - vi. Plan training programs for those who will disseminate the materials. Identify the particular training needs of each of the groups involved.
  - vii. Plan the development of a system to monitor the effectiveness of the communications program.

**3. What might be the key elements of the communications program?**

- a. A motto and symbol or logo that appeared on all the media produced.
- b. A list of 5 to 10 main themes each with a priority message and possibly other less important messages. All project staff and local partners should know and clearly recognise these key messages.
- c. A clearly stated strategy and plan on who to disseminate these messages in the context of the project and in the future after the project has ceased.



- d. A set of media or materials that can be used by the different communicators involved in the program.
- e. Trained communicators who use the materials. The key personnel would include the project community facilitators and District Health Office staff most probably the sanitarians.
- f. A functioning monitoring system to identify the need for further training of the field team, the need to modify the materials and to track the level to which the materials and messages are disseminated in the community.

4. **Skills and consultants needed to develop a hygiene communications program.** The project should clearly differentiate between those skills and personnel needed for designing the program versus those needed to implement it.

- a. The skills that are likely to be needed to develop and implement a communications program are listed below. Existing staff may already have some of these skills or local community groups may have them allowing the project to use them in short term inputs.
  - i. Capacity to conduct rapid assessments of hygiene behaviours and hygiene education materials using qualitative data collection methods. The methods likely to be needed include focus group discussions, in-depth interviews with key local informants and focused brief participant observation in communities. A key skill would be the capacity to interpret and draw conclusions from the qualitative data.
  - ii. Skills to design and conduct simple surveys and to do basic analyses of survey or monitoring data.
  - iii. Capacity to conceptualise a communications program and to know how to make the program attractive and to link the various elements of the program.
  - iv. Creative skills to develop visual media and to produce these materials.
  - v. Training skills to develop a creative and effective training program for community facilitators and District Health Office staff about hygiene and the specific media developed for the Flores community.
- b. Consultants that might be useful to develop such a program. Some of these roles might already be covered by other project personnel with different position titles or some of these roles might be combined depending on the training and experience of an individual consultant.
  - i. Health Social Scientist: This person would be responsible for the collection of the qualitative data needed to design the health education program and to monitor its implementation. An





important role for this individual would be to periodically review the activities of the members of the community team as they related to health to identify needs for further training or modification of health education materials. Approximately 3 months of consulting time would be needed to collect the qualitative data and to participate in training programs. Subsequently biannual visits for a few weeks would be needed to visit project sites to monitor the health education activities. Additional time might required if the community team needed more training.

- ii. Health Education or Social Marketing Consultant: This person would design the health education program and be responsible for the development and production of the education materials, training programs on how to use the materials and the monitoring and evaluation of the education program. From 2 to 3 months of on-site consulting work per year would be required. Additional efforts may be required off site depending on where the education materials were to be produced.
- iii. Public Health Specialist: A public health specialist could help develop health education basis for the health education program, design and develop project monitoring activities, design the quantitative surveys and analyse the data and report the results, support the development of the water quality surveillance system, develop materials on public health relevant to the training needs of the community team and provide technical advise to the long term community health officer.
- iv. Other Short Term Inputs: Other short term inputs might include graphic artists to develop the education materials. Efforts should be made to involve provincial and district Ministry of health Staff in the process of developing the health education program. They might be able to participate in training programs, contribute in workshops to develop health education messages or participate in the field research needed to formulate the messages.

## **5. Strategies or Questions to Consider when Developing the Communications Program**

- a. The project might want to try and access existing Department of Health resources including foreign technical consultants who are working in the province. The Third Community Health Nutrition (CHN3) Project from the World Bank has placed an epidemiologist and health planner in the NTT Provincial Health Office. Also CHN3 has a health communications consultant assigned to the project for the province. Further details about this consultant and the technical support that might be available could be obtained by contacting Dr. Barry Karlin in Jakarta on 021 5264258. The project could access these resources by assisting the District Health Office prepare an appropriate proposal for technical support.



- b. Develop as much of the hygiene communications program in collaboration with the District Health Office especially the Health Communication Section to ensure they understand the process used and feel ownership of the materials and program.
- c. Consider developing a program where the majority of the materials are obtained directly from the community. Examples of this approach might include using a community based competition to identify the program slogan, conduct a poster competition with school children maybe have village or household level environmental cleanliness competitions.
- d. A particular problem that the project will need to resolve is how to implement hygiene communications activities in the urban areas. It might be best to consider working with a partner LSM to develop and implement such a program.
- e. Careful attention will also be needed to work out how best to disseminate communications materials in the District Health Office and what are the most appropriate training programs for Health Department staff.



## **CA1 ARE THERE HEALTH BENEFITS FROM WATER AND SANITATION PROJECTS?**

Effective water supply and sanitation projects have far reaching benefits that result in an overall improvement in the quality of life of the recipient communities. One of the direct benefits of these projects is an improvement in health especially that of children. Maximal health benefits will only occur if the facilities provided continue to function properly and are well utilised by the community.

This section briefly summaries the major findings from health impact evaluations of water and sanitation projects in developing countries conducted during the 1980s. The health benefits of the various components of water and sanitation projects are highlighted and related to different diseases commonly found in Indonesia. Much of the material in this section was obtained from the review of this topic by Esrey 1990.

### **CA1.1 Types of Water and Sanitation Interventions**

In reviewing the health impact of water and sanitation projects the roles of five categories of interventions will be considered: excreta disposal, personal hygiene, domestic hygiene, water quantity and drinking water quality. The way in which these interventions affect different diseases is reviewed in the following sections.

Sanitation refers to proper disposal of human excreta and the interventions might range from construction of pit latrines, flush toilets to alterations in behaviour such as appropriate disposal of faeces of infants and young children.

"Personal hygiene" refers to use of water for cleaning the body including washing of hands, face, eyes and bathing.

"Domestic hygiene" refers to the use of water to keep the home environment clean and includes washing of clothes, floors, cooking and eating utensils. Both personal and domestic hygiene require a supply of water and improvements in hygiene practices usually need increases in the quantity of water available. However increasing the quantity of water available to the community may not always result in improved water use and improved personal and domestic hygiene.

Water quantity refers to the amount of water irrespective of its quality that is available to a household. Both the amount of water available at the source and the distance from home to the source affect the quantity of water in a household.

Water quality includes the chemical and bacteriological content of the water. In Indonesia the critical aspect of water quality is usually the bacteriological content. Improved water quality refers to reduced faecal contamination of water.



## CA1.2 Impact on Diarrhoeal Disease Morbidity and Mortality

Diarrhoeal diseases remain one of the leading killers of children in Indonesia especially in eastern Indonesia province and account for about 25 to 35 percent of deaths of preschool-aged children. Diarrhoeal disease agents are transmitted directly via the faecal-oral route and do not require intermediate hosts. The cycle of infection involves defecation of the pathogens which are then ingested by consuming contaminated food, water or by oral contact with dirty hands or other contaminated objects. The number of pathogens consumed will influence whether or not the individual becomes ill with diarrhoea. Some pathogens require the ingestion of thousands of organisms (e.g. Cholera) while others require the ingestion of only tens of organisms (e.g. *Sigella*). The immune response of the individual consuming the pathogens will also influence the severity of the diarrhoea. Children who are malnourished are more likely to experience more attacks of severe diarrhoea due to an impaired immune response.

Once diarrhoea strikes, the child is weakened by dehydration and loss of electrolytes. In addition fever, malabsorption of nutrients, and anorexia all contribute to slower growth of the child. Repeated attacks of diarrhoea in preschool-aged children can result in malnutrition.

Appropriate disposal of faeces, improved personal and domestic hygiene, and improved water quality are the major interventions that interrupt the transmission of diarrhoeal pathogens and lead to reduced diarrhoeal disease morbidity and mortality and improved child nutrition. The size of the reduction in diarrhoeal diseases is related to the combination of interventions provided and the underlying health characteristics of the target population. The effects of different combinations of water supply and sanitation interventions on childhood diarrhoea are outlined below. Estimates of the magnitude of impact are derived from a review of a series of evaluations of water and sanitation projects conducted in the 1980's.

### *Sanitation*

The provision of improved toilet facilities resulted in a median reduction in diarrhoeal disease morbidity of 36%. In studies that compared the relative health benefits of improved water supply versus sanitation usually the greatest benefits were derived from sanitation. Some studies have reported that the method of excreta disposal is related to the magnitude of impact on diarrhoeal diseases: flush toilets reduced diarrhoeal disease mortality more than pit latrines, nonetheless pit latrines were protective in comparison to no sanitation facilities. Finally the effects of sanitation interventions were greatest in high risk groups including non-breastfed infants and children of illiterate mothers.

### *Water quality*

The provision of a "pure" water supply versus a bacteriologically contaminated water supply resulted in a median reduction in diarrhoeal disease morbidity of 15 percent. This finding should not be surprising since there are numerous transmission routes for diarrhoeal disease, and drinking water constitutes only one of many. In communities where environmental faecal contamination was high, there was little or no impact on childhood diarrhoeal disease from improved water quality alone. No





association has been found between water quality and childhood diarrhoea mortality in developing countries.

#### *Water quantity*

The provision of increased amounts of water independent of its quality resulted in a median reduction in diarrhoeal disease morbidity of 27 percent. When studies compared the relative importance of the quantity of water versus the source of water inevitably the amount of water used was more important for reducing diarrhoeal disease. No studies have examined the relationship between water quantity and mortality.

#### *Hygiene behaviour change*

There have been few evaluations of the impact of hygiene interventions with most of the work being conducted in the late 1980's and early 1990s. Hygiene education interventions independent of other water and sanitation interventions have resulted in a median reduction in diarrhoeal disease morbidity of 33 percent. Some of these hygiene education interventions have focused on promoting handwashing while others have tried to change a group of high risk behaviours including disposal of household waste and child faeces as well as handwashing. It is not clear at this stage as to how long behaviour is altered following an intervention nor whether there are universally important behaviours that should be addressed by all projects.

### **CA1.3          Impact on Acariasis**

Acariasis is caused by a parasitic worm which follows the faecal-oral route of transmission. It is endemic in Indonesia and most probably infects about 20 percent of the population. The parasite is not transmitted directly from person to person. The parasite eggs are excreted and require about 2 weeks in the soil to become infective. The eggs can remain viable in the soil for months or even years.

If the eggs are ingested by humans, they migrate from the small intestines through a well defined path in the body and re enter the intestines in a mature phase after about a month. Most infections are symptomless though occasionally severe infections can result in intestinal obstruction. More important are the less severe infections which are widespread and contribute to malnutrition especially of children by interfering with absorption of proteins, fats and vitamins.

The provision of water supplies or water supply and sanitation facilities have been reported to reduce Acariasis prevalence by about 30 percent over a 2 year period and reduce egg excretion by 60 percent. There does not appear to be much difference between the impact of water supply alone versus water supply and sanitation on *Ascaris* indicating that increased water use is critical in the prevention of infection with this parasite. It is likely that personal hygiene practices, for example hand washing, are more important in preventing transmission than containment of excreta.



#### **CA1.4 Impact on Hookworm**

Hookworm is endemic in Indonesia and in poor rural communities as much as 80 percent of the population will be infected. It is a parasite which is passed in stools and develops in the soil over a period of one to two weeks. The potentially infective larvae migrate in the soil to the highest point covered by moisture and extend their bodies into the air seeking a human host. The worm infects individuals by boring through the skin especially of the feet. Infection produces lethargy and anaemia through blood loss. The severity of the symptoms is closely related to the extent of the infection.

The primary strategy to control hookworm is the correct disposal of faeces. If faeces are not deposited on the ground then the worm will be unlikely to reach people's feet and the rate of transmission will be reduced. The disposal of faeces in fields creates an ongoing cycle of infection for farmers and agricultural workers. Improved water supply has little role to play in educing hookworm infections. The parasite can be treated by chemotherapy but this is of little public health impact in the absence of changes in the disposal of excreta. Studies of the impact of sanitation projects on hookworm indicate that improved excreta disposal mainly results in less severe infections rather than reducing the rat of infection. Increased use of shoes and improvements in household environments are needed to effectively reduce the rate of infection.

#### **CA1.5 Impact on Nutritional Status of Children**

Reducing the frequency and severity of diarrhoeal diseases should lead to an improved nutritional status of children. However this effect has not been consistently demonstrated in evaluations of water and sanitation projects. The magnitude of the effect on nutritional status may be dependent on the rate of the diarrhoeal diseases in the project community. If malnutrition in a community is mainly related to the burden of infectious disease experienced by the children then nutritional status should improve following an effective water and sanitation project. However if malnutrition in the community is the consequence of a limited flood supply rather than a high morbidity load than a water and sanitation project will have little effect on nutritional status.

#### **CA1.6 Impact on Health of Adults**

No studies were identified that looked at the effects of water and sanitation projects on adult health. Although adult mortality rates are unlikely to be influenced by improved water and sanitation it is possible that there will be health benefits and increased productivity. Reductions in the rates of infection with watery diarrhoea, dysentery, hookworm, ascaris could reduce the time lost for productive activities and reduce anaemia. The reduced workload for women from a more conveniently located water source could improve the nutritional status of women.



### **CA1.7 Cost Effectiveness of Water Supply & Sanitation as a Health Intervention**

Water and sanitation projects have an important impact on health especially on childhood diarrhoeal disease mortality. However there are other interventions that have an equally large impact on diarrhoeal disease mortality. The use of oral rehydration fluids to treat children with watery diarrhoea can effectively prevent death from dehydration. If this method is promoted in the community as well as in clinics childhood diarrhoeal disease mortality rate can be substantially reduced. Although this method does not prevent diarrhoea it is a very cost effective way of reducing deaths.

Other cost effective interventions for diarrhoeal disease includes measles vaccination and the promotion of breastfeeding. Both of these interventions are more cost effective in preventing diarrhoeal disease deaths than water and sanitation projects. In conclusion water and sanitation projects are usually not justified solely for their health impact. On the other hand, if the decision is made to improve water supply and sanitation, efforts should be made to maximise the health benefits from the investment.

### **CA1.8 Summary of Health Impact of Water and Sanitation Interventions**

The relationship between different components of water supply and sanitation projects and various infectious diseases are noted in Table 1. The most important of these diseases is diarrhoea which accounts for about one third of childhood deaths in most developing countries. Improvements in the disposal of faeces and increasing the quantity of water will have a larger impact on diarrhoeal diseases than improvements in water quality, especially in communities with highly contaminated environments. Increasing the quantity of water available in the community may not automatically result in an increased use of water, and hygiene education is an important component of a package of water and sanitation interventions.



Table 1

Relationship Between Water and Sanitation interventions and Morbidity From Selected Diseases				
Disease	Improved Water Quality	Increased Water Quantity		Excreta
		Domestic Hygiene	Personal Hygiene	
Diarrhoea	+	++	++	++
Acariasis	+	++		++
Hookworm				++
Skin & Eye Infections		+	++	

+ *Pluses indicate relative strength of impact of different interventions, blanks mean little or no impact.*

The likely reduction in various disease rates from effectively implemented water and sanitation projects are presented in Table 2. These expected reductions in disease rates are only approximations. The expected health impact in any particular project will be influenced by how well the facilities are installed, the extent of community participation in the process, the effectiveness of maintenance of the systems, the overall health status of the project population, the presence or absence of other environmental factors related to infectious disease transmission and the extent to which the community changes its behaviour and makes use of the new water supply and sanitation facilities. However substantial health benefits including significant reductions in childhood mortality rates will be obtained from effectively implemented water and sanitation interventions.

Table 2

Expected Reduction in Morbidity & Mortality from Improved Water Supply and Sanitation	
Disease	Median Percentage Reduction
Diarrhoeal disease morbidity	22%
Diarrhoeal disease mortality	65%
Acariasis	28%
Hookworm	4%
Overall impact on child mortality	60%





## **CA2            HOW TO MAXIMISE HEALTH BENEFITS FROM WATER AND SANITATION PROJECTS**

Wide reaching and important health impacts affecting all age groups can be expected from improvements in water and sanitation in Indonesia. However the importance of these impacts on health, and particularly child health, is often overlooked in the design of water and sanitation projects. Efforts should be made to optimise the health benefits if the full development impact of these projects is to be achieved.

### **CA2.1            Increasing Quantity of Water Used**

Hygiene practices are critically dependent on the quantity of water available to a household. "Reducing the time and effort to collect water usually increases the amount of water fetched and may change the pattern of where the water is used, at the source or at home. The proportion of domestic consumption used for hygiene will vary as consumption increases. Furthermore the 'efficiency' of hygiene-related water use will change as water availability improves; water that is reused several times for handwashing when water is scarce will more likely be discarded after a single use when water is close and plentiful" (Van Derslice, 1991).

Studies of the time required to collect water indicate that the health benefits of new water supplies decrease rapidly if it takes more than 5 minutes to collect or reach a water source. A health impact evaluation in Zaire found that the median incidence of diarrhoea was halved in children who lived in households located less than a five-minute walk from the public standpipe, or in households using more than 50 litres of water a day (Tonglet, 1992). Furthermore there was a strong inverse relationship between distance to water source and the quantity of water used. New water supplies should therefore be brought as close to the home as possible to increase the amount of water used.

### **CA2.2            Role Health Education and Marketing of Water Use**

Supplying increased amounts of water, clean drinking water and better methods of excreta disposal will not automatically reduce disease unless the new facilities are used appropriately and unless new behaviours are adopted. Hygiene education and social marketing of water use are essential components of water supply and sanitation projects to ensure sustainability after the project is completed and to maximise health impact of the new facilities.

Water and sanitation projects that involve the establishment of community groups provide an opportune setting for a health education program. The process of group formation and the evaluation of community needs will have sensitised the community and its leaders to new ideas about water use and sanitation. The trust developed by the community toward the project community facilitators will also assist a community based hygiene education program. Social marketing of water and its benefits might also help to increase the sustainability of a water supply system by increasing community demand for the service.



### **CA2.3           Relative Importance of Different Interventions**

The relative importance for health of different components of water and sanitation projects will vary depending on the underlying household environmental conditions. On the whole in Indonesia improvements in excreta disposal and increases in the amounts of water available for personal and domestic hygiene will have a greater health impact than improvements in the quality of drinking water.

Water quality is less important in highly contaminated environments where children have many different routes to become infected with diarrhoeal disease pathogens. However in communities with relatively clean household environments and where many households have safe methods of excreta disposal improvements in water quality will have a more significant impact especially on diarrhoeal diseases.

It is therefore likely that water quality will be more important in district and provincial towns than in the poorer rural villages. In some of the rural sites water shortages are critical and just increasing the amount of water available to the community will have important health effects even if water quality is not perfect. In communities where faecal related diseases are common, especially where cholera outbreaks have been reported, the combination of improved sanitation and better water sources will be critical.

### **CA2.4           Importance of Culturally Acceptable Interventions**

Cultural beliefs and practices relating to water use and hygiene should be examined to see if the proposed technologies to be introduced into the community will be acceptable. Well constructed hardware is of no benefit if the community does not want to use it. The development of village water use and sanitation groups by community facilitators will increase the likelihood that technologies introduced are acceptable. However rapid anthropological evaluation of water use and hygiene behaviours is critical in the development to effective evaluation of water use and hygiene behaviours is critical in the development of effective hygiene education and may in some instance influence the choice of facilities to be offered to the community. For example, with toilets it is important that the technology match the method of anal cleaning used by the community. If water is scarce solid materials maybe the preferred method and these materials could rapidly fill pit toilets. The community might still choose toilets that are most effective with water cleaning but request a coordinated hygiene education program.



## CA2.5 Interaction of Water and Sanitation Interventions

The maximum health benefits of water and sanitation projects will be achieved by a combination of interventions including increased water supply, improved sanitation facilities, improved water quality, hygiene education and social marketing of water use and its benefits. It may not be necessary for a single project to implement all these components however the project planner should assess local activities in all these areas before deciding to focus on a particular group of interventions.

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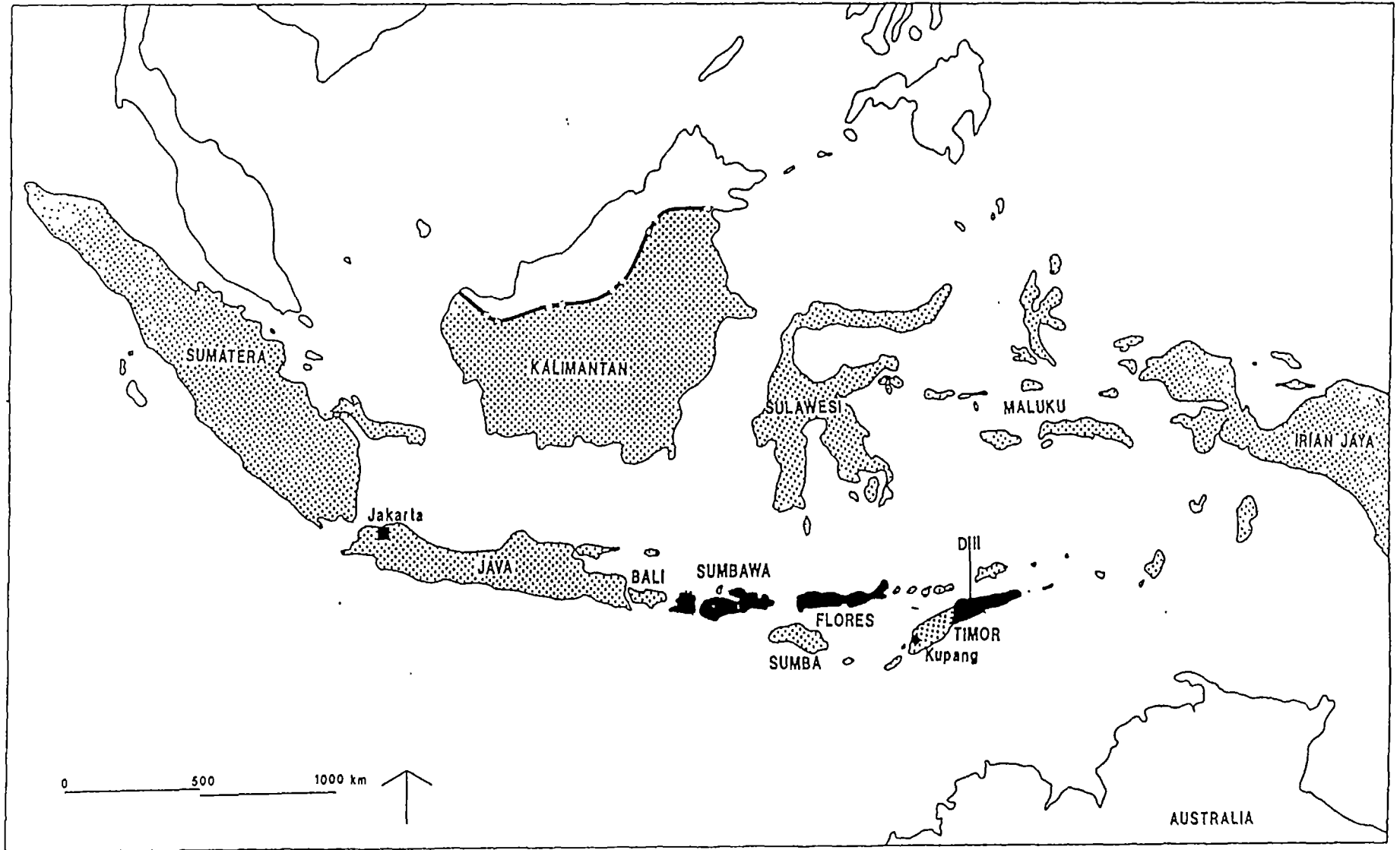




**Annex D**

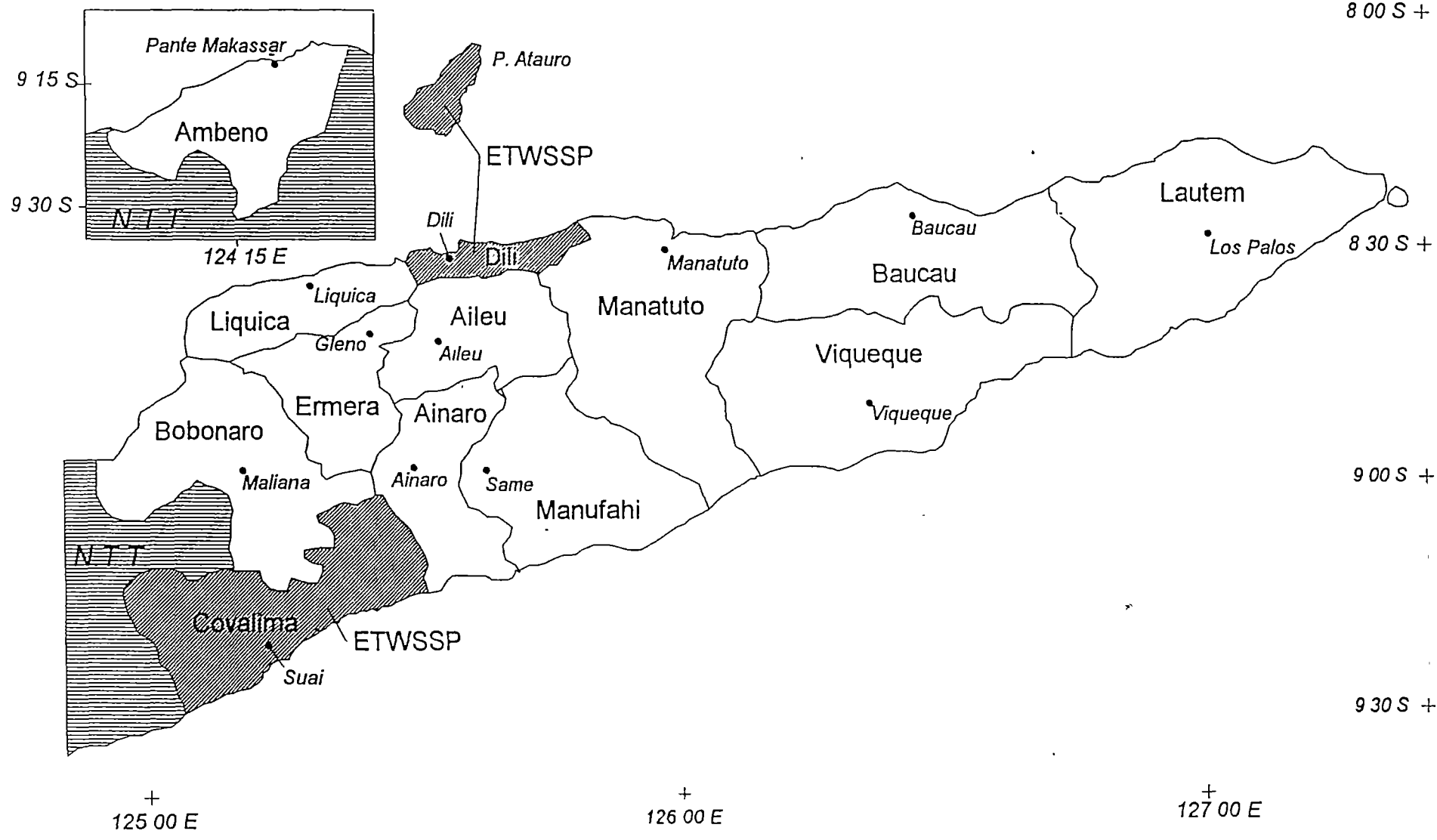
**Maps**







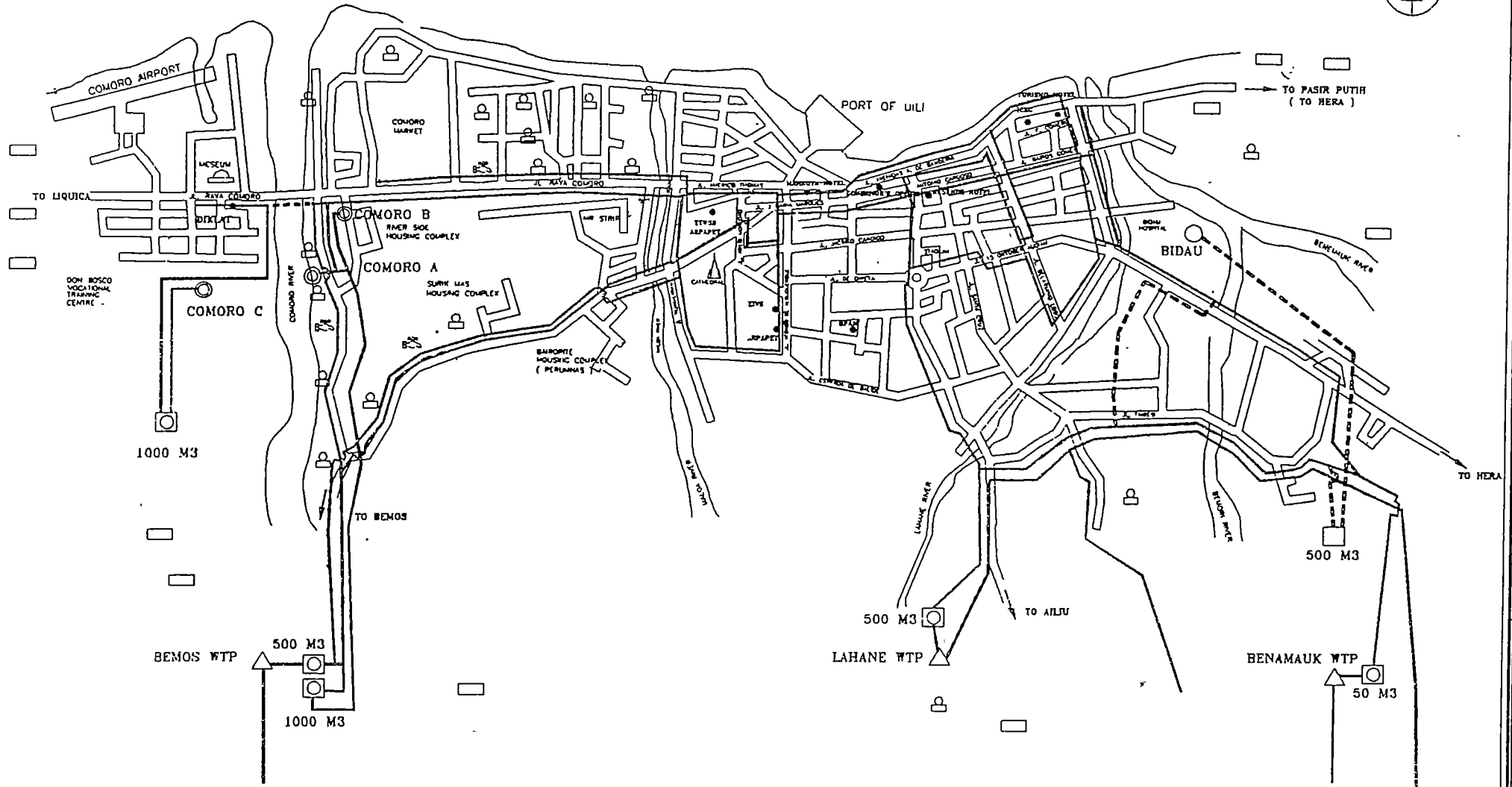
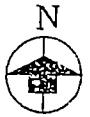
# East Timor Province





# MAP OF DILI

## OMBAI STRAIT



**KETERANGAN**

- TERMINAL AIR
- KRAN UMUM
- HIDRAN UMUM

- TRANSMISSION
- MAJOR DISTRIBUTION
- WTP
- RESERVOIR
- WELL

- PROPOSED MAIN
- PROPOSED WELL
- PROPOSED RESERVOIR



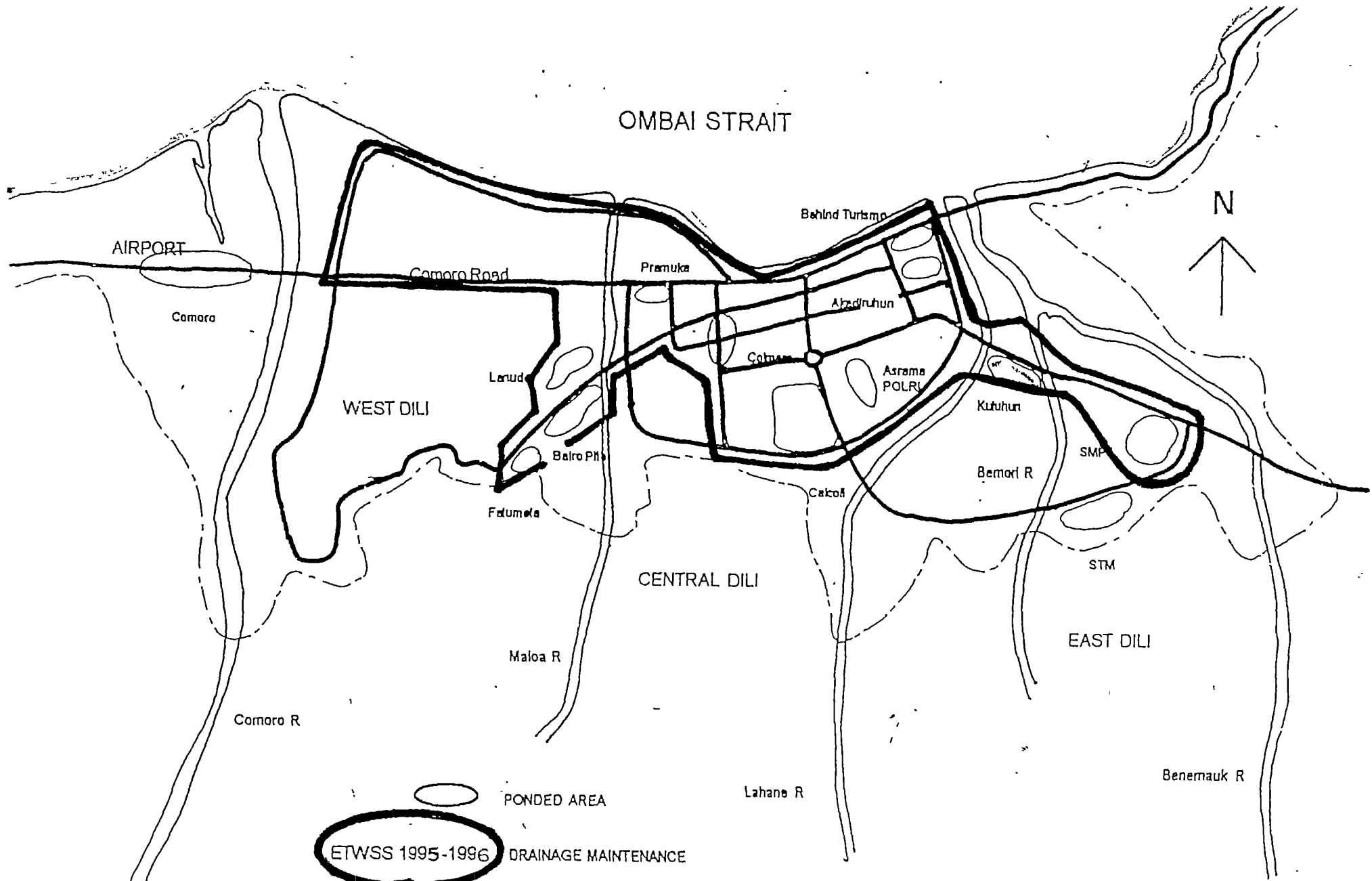
PROYEK PENYEDIAAN AIR BERSIH DAN  
PENYEHATAN LINGKUNGAN PEMUKIMAN  
TIMOR TIMUR

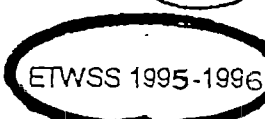

**DILI WATER SUPPLY  
MAJOR DISTRIBUTION NETWORK**

SYALA	DIGAMBAP	DIPENCANA	DIPERIKSA	DISETUJUI	NO. GBR







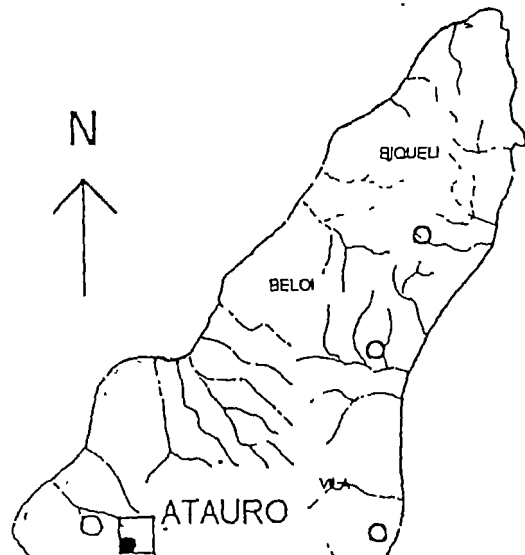
 **ETWSS 1995-1996** DRAINAGE MAINTENANCE  
 **PONDED AREA**

- ADB 1995 -1996 IMPROVEMENT - CENTRAL DILI
- ADB 1998 -1997 IMPROVEMENT - EAST DILI
- ADB 1987 -1988 IMPROVEMENT - WEST DILI
- ADB 1998 -1999 IMPROVEMENT - WEST DILI



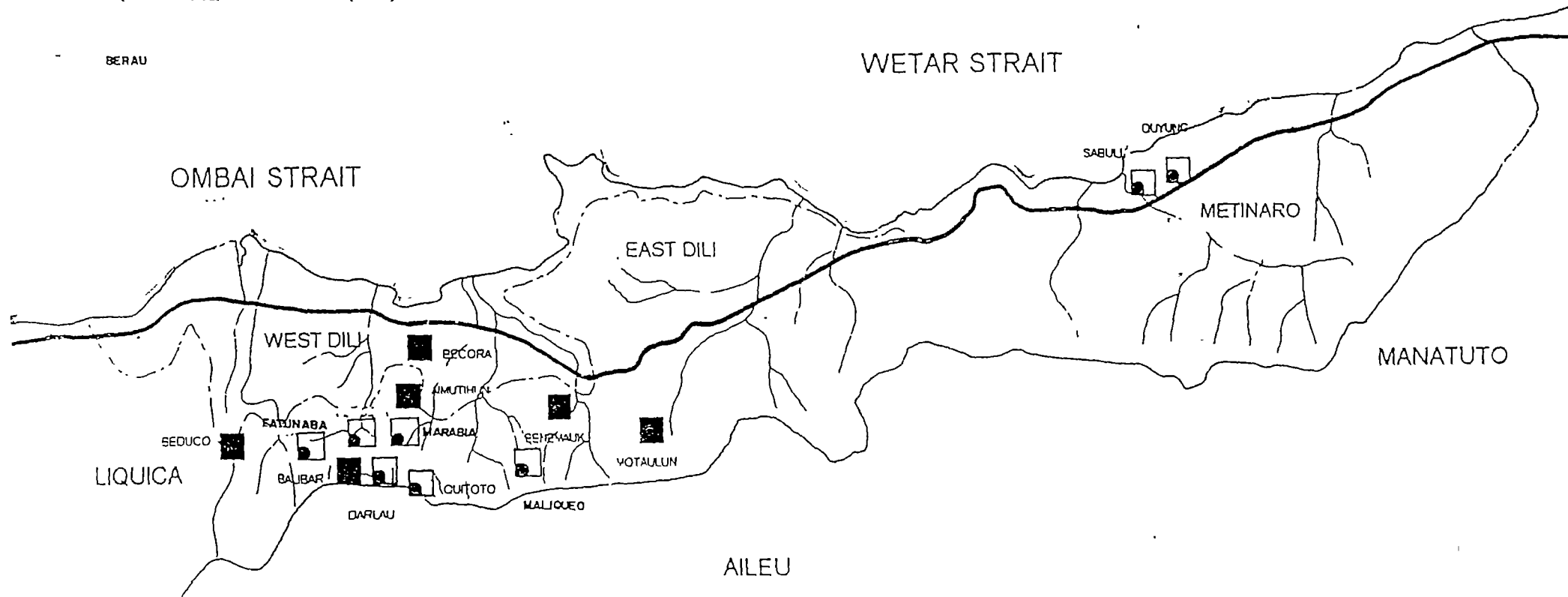


ETWSS PROJECT  
COMMUNITY PROGRAM - DILI

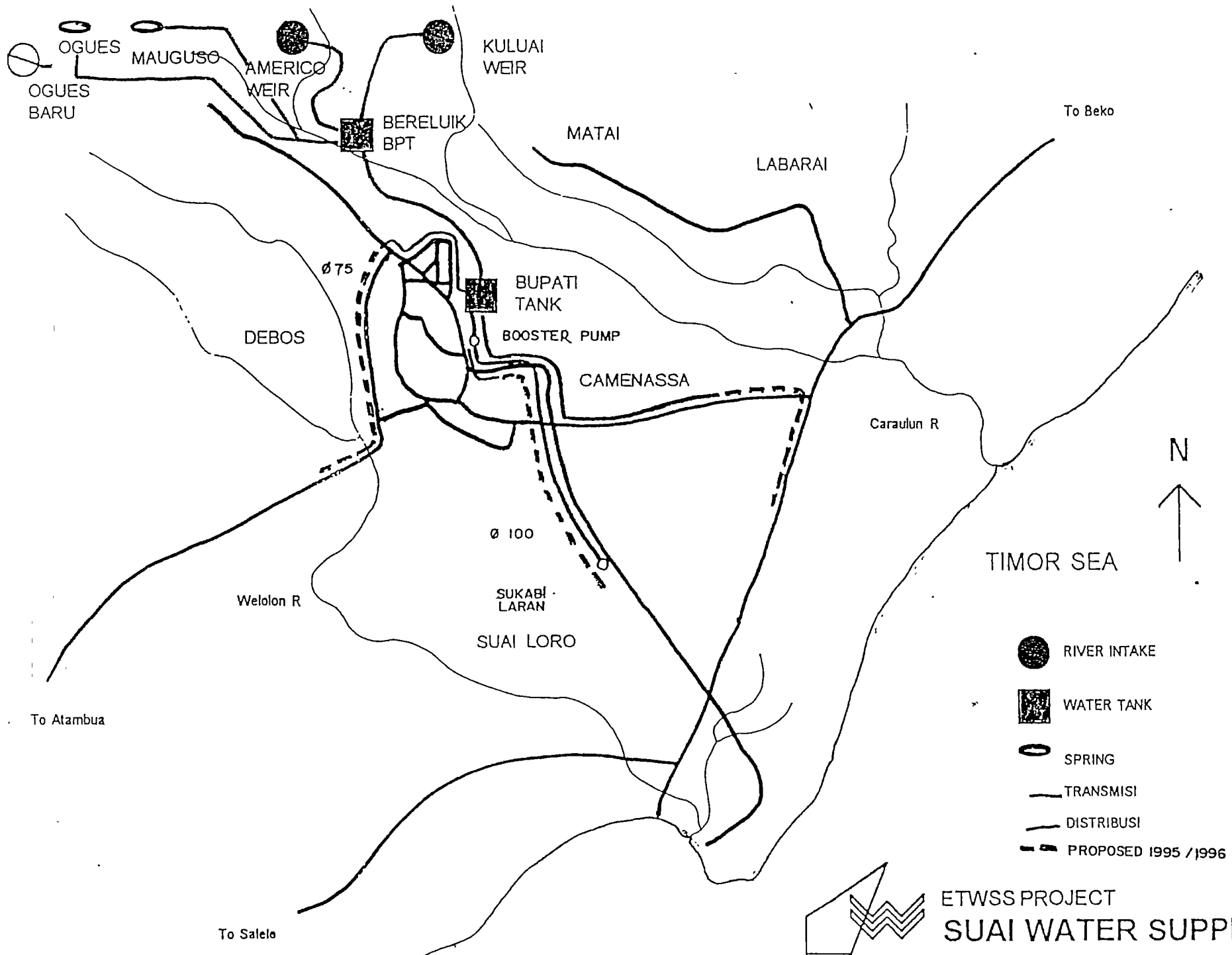



 COMPLETED

 CURRENT







-  RIVER INTAKE
-  WATER TANK
-  SPRING
-  TRANSMISI
-  DISTRIBUSI
-  PROPOSED 1995 / 1996



ETWSS PROJECT  
**SUAI WATER SUPPLY**

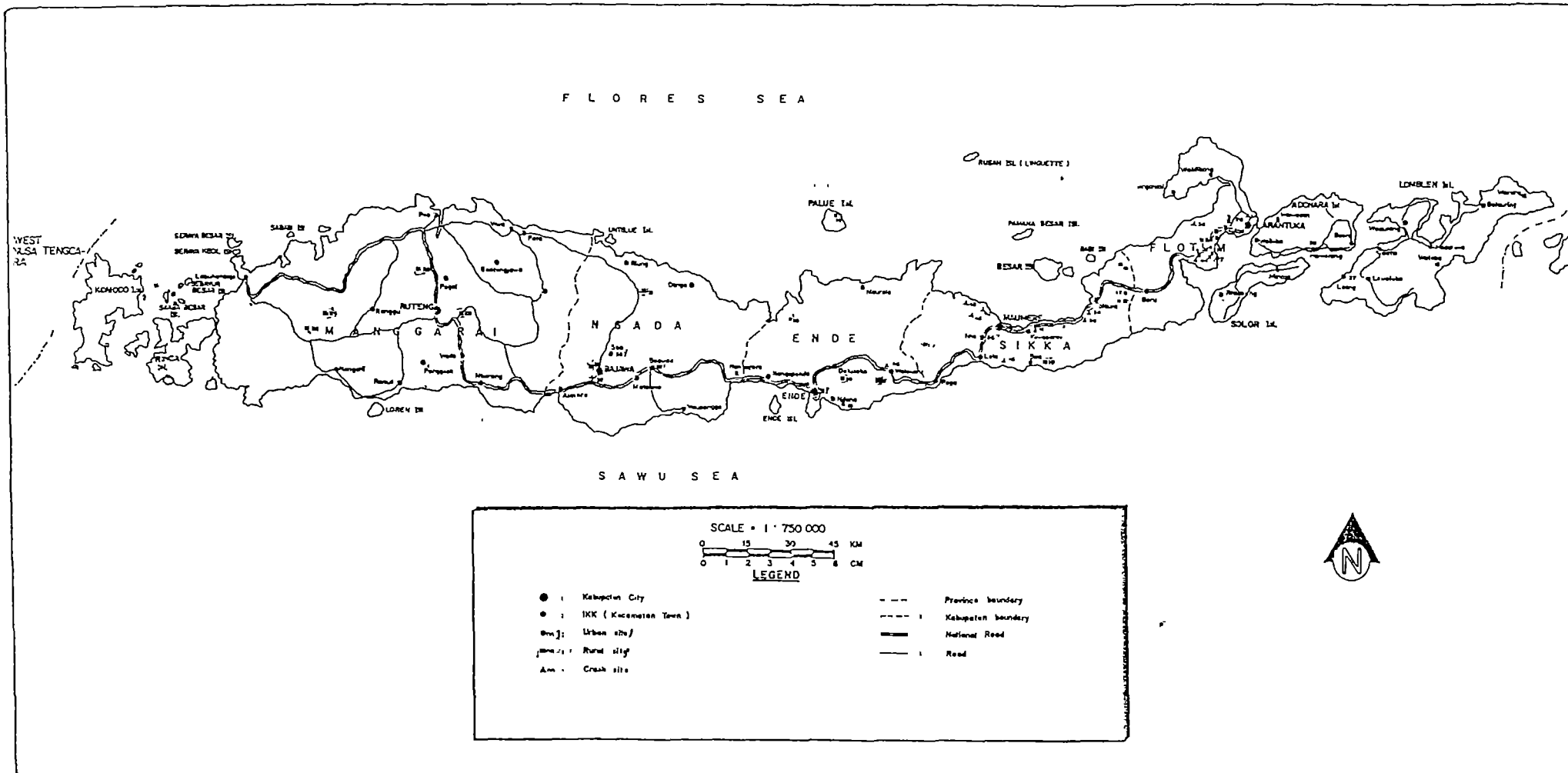






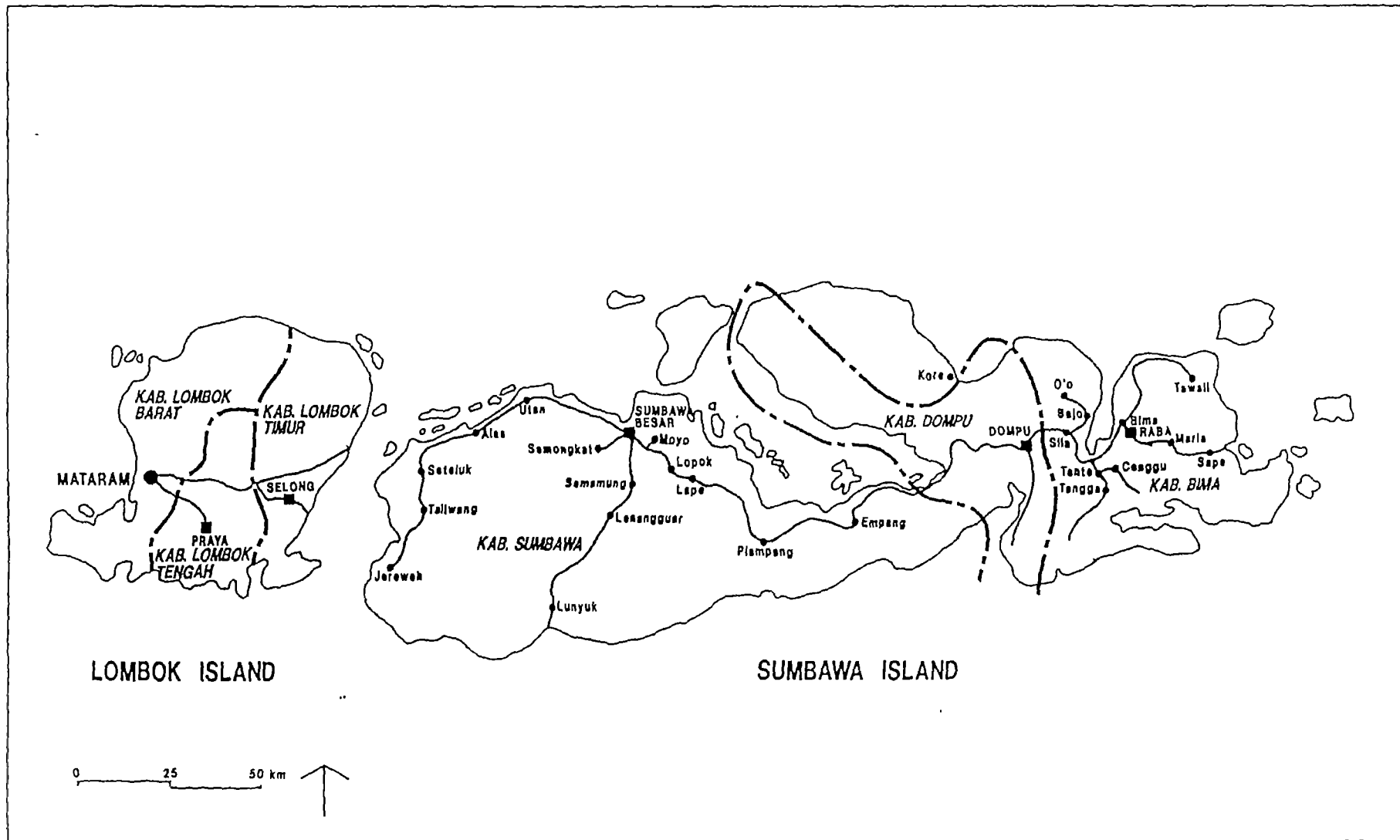


# FWSSSRDP FLORES MAP OF ONGOING AND COMPLETED SITES



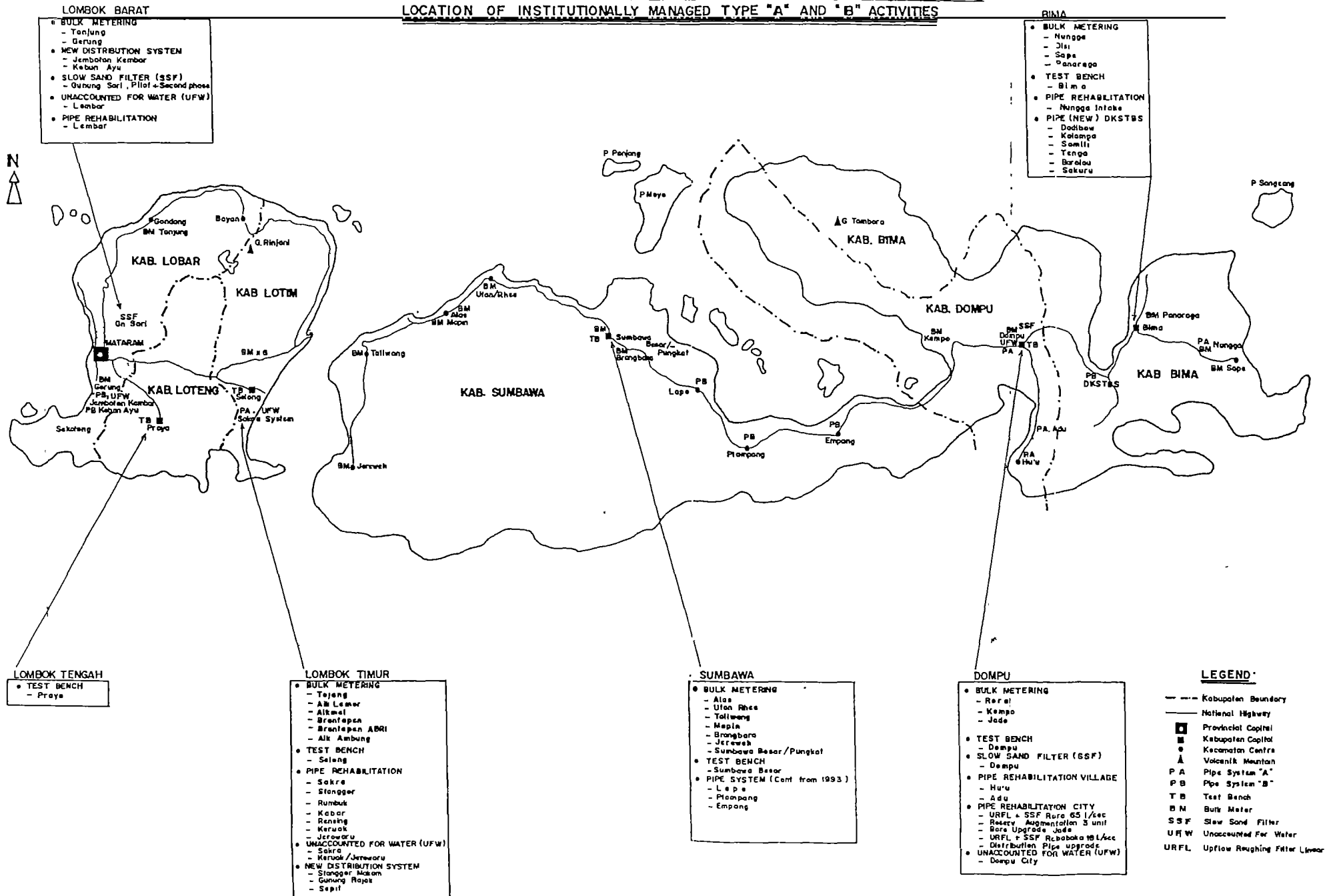


# MAP OF PROVINCE OF NUSA TENGGARA BARAT



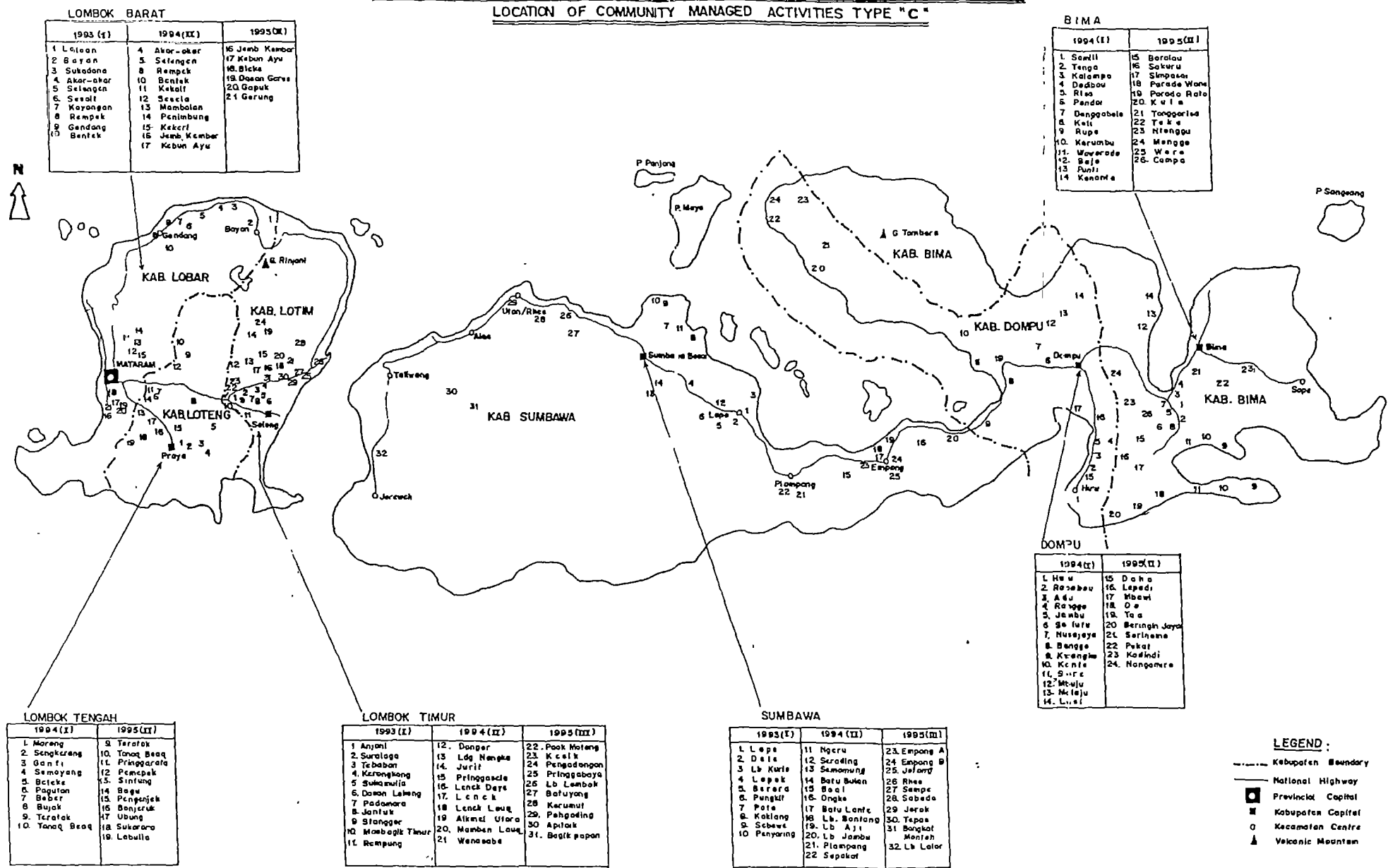


**NUSA TENGGARA BARAT ENVIRONMENTAL SANITATION AND WATER SUPPLY PROJECT**  
**LOCATION OF INSTITUTIONALLY MANAGED TYPE "A" AND "B" ACTIVITIES**





**NUSA TENGGARA BARAT ENVIRONMENTAL SANITATION AND WATER SUPPLY PROJECT**  
**LOCATION OF COMMUNITY MANAGED ACTIVITIES TYPE "C"**



**LOMBOK BARAT**

1993 (I)	1994 (II)	1995 (III)
1. Lelisan	4. Akar-okar	16. Jemb Kamber
2. Bayan	5. Selengen	17. Kebun Ayu
3. Sukadana	8. Renggek	18. Blicke
4. Akar-okar	10. Bentak	19. Ogean Garwa
5. Selengen	11. Ketali	20. Gapuk
6. Sesalit	12. Seacia	21. Gerung
7. Koyongan	13. Mambolan	
8. Rempak	14. Penimbung	
9. Gandang	15. Kekeri	
10. Bentak	16. Jemb Kamber	
	17. Kebun Ayu	

**BIMA**

1994 (I)	1995 (II)
1. Semli	15. Beralau
2. Tenga	16. Sakuru
3. Kalampo	17. Simpasa
4. Dadabu	18. Parada Wana
5. Risa	19. Parada Rata
6. Pandar	20. Kuli
7. Danggabala	21. Tangarisa
8. Keli	22. Teke
9. Rupe	23. Ntenggu
10. Kerumbu	24. Mengge
11. Mawarade	25. Wera
12. Bala	26. Campa
13. Punji	
14. Kanama	



**LOMBOK TENGAH**

1994 (I)	1995 (II)
1. Mareng	9. Taratak
2. Sengkrang	10. Tanaq Beaq
3. Ganfi	11. Pringgarata
4. Semayang	12. Pemepak
5. Blicke	13. Sinting
6. Pagutan	14. Baga
7. Beber	15. Penjenjek
8. Buak	16. Benjurus
9. Taratak	17. Ubung
10. Tanaq Beaq	18. Sukarona
	19. Labulla

**LOMBOK TIMUR**

1993 (I)	1994 (II)	1995 (III)
1. Anyoni	12. Dangar	22. Paok Motang
2. Suralaga	13. Ldg Nangka	23. K celi
3. Tebaban	14. Jurit	24. Pengadangan
4. Karonyang	15. Pringgasale	25. Pringabaya
5. Sukamulia	16. Lenek Dars	26. Lb Lombok
6. Dawan Lalang	17. L c n c k	27. Batuyang
7. Padanara	18. Lenak Lewi	28. Karumul
8. Janluk	19. Alkani Utara	29. Pahgodang
9. Slangger	20. Mamban Lauq	30. Apitak
10. Mawabagik Timur	21. Wenasaba	31. Bagik papan
11. Rempung		

**SUMBAWA**

1993 (I)	1994 (II)	1995 (III)
1. L Lapa	11. Nguru	23. Empang A
2. Dala	12. Scradang	24. Empang B
3. Lb Kuris	13. Samomung	25. Jelarang
4. Lepak	14. Batu Bulan	26. Rhee
5. Barera	15. Baal	27. Sempe
6. Panglit	16. Ongke	28. Sabada
7. Pote	17. Baru Lantc	29. Jerak
8. Kaktang	18. Lb. Bonlang	30. Tepas
9. Sebawa	19. Lb. Aji	31. Baglat
10. Penyaring	20. Lb Jambu	32. Lb Lalar
	21. Piampang	
	22. Sepakat	

**DOMPU**

1994 (I)	1995 (II)
1. Hew	15. Daba
2. Rasebau	16. Lepedi
3. Adu	17. Mbawi
4. Rago	18. O e
5. Jambu	19. Ta s
6. Sa luti	20. Beringh Jaya
7. Nusajaya	21. Sarlisme
8. Bange	22. Pekat
9. Krangim	23. Kasindi
10. Kania	24. Nangamra
11. S r r c	
12. Mtuju	
13. Nkaju	
14. Lusi	

**LEGEND :**  
 - - - - - Kabupaten Boundary  
 = = = = = National Highway  
 [ ] Provincial Capital  
 [ ] Kabupaten Capital  
 O Kecamatan Centre  
 ▲ Volcanic Mountain





