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NEW INITIATIVES IN WATER SUPPLY AND SANITATION

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NEW INITIATIVES IN WATER SUPPLY AND SANITATION:

PROJECT SUCCESS AND SUSTAINABILITY

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NEW INITIATIVES IN WATER SUPPLY AND SANITATION:

PROJECT SUCCESS AND SUSTAINABILITY.

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1. INTRODUCTION

Water supply and sanitation projects are an important means of achieving humanitarian, equity and growth goals. Yet often the potential gains from such projects are not realised because projects are not sustained upon completion. Increasingly, donors are trying to find ways to achieve more lasting benefits from their projects.

This is not easy. The purpose of this publication is to share some of the lessons learnt to date from the Australian experience with water supply and sanitation (WSS) projects.

This document describes two new initiatives in WSS which are supported by the Australian Government in Nusa Tenggara Barat Province, Indonesia.

Both projects take new steps to address the problem of eventual sustainability of water supply and sanitation facilities upon completion of construction. Both projects involve participation of the communities in WSS facilities, one in the context of rural water supply and sanitation, the other for small town water supplies. In each case, attention is also given to institutional strengthening and assessment of environmental sustainability.

What are the strengths and weaknesses of the new initiatives? Which are the key elements of design which are likely to contribute to eventual success and sustainability? One of the projects has been developed and tested since 1985; the other is still in a trial pilot stage. Yet both examples yield useful ideas.

Lombok Rural Water Supplies and Sanitation Project.

This project is the most developed and tested of the two new WSS initiatives.

From the commencement of Phase I in 1985, this project has focused on developing a model for the participation of rural communities in the planning, construction and maintenance of their own WSS facilities. The model falls within the general guidelines of the Government of Indonesia, and also draws upon government resources at national, provincial and kabupaten levels. The model has become known as the Lombok RWSS "pattern of work" (*pola kerja*).

Some 90,000 people in the dry "critical area" of Lombok Tengah received improved WSS facilities during Phase I. The costs were divided between the Government of Australia ($3.6 million); the Government of Indonesia (Rp773 million) and the rural communities themselves (estimated contribution valued at Rp61 million). This Phase was reviewed by the two Governments in 1989.

A further 160,000 people in Lombok Tengah will receive improved water supplies under Phase II, 70,000 from a large piped system and 90,000 from point sources. Institutional strengthening, improved sanitation, water quality surveillance, health education and community development also form part of the proposed activities for Phase II.

Eastern Indonesia Ibu Kota Kecamatan Water Supply Project: Bima Pilot Project.

A new approach is being developed for providing water supplies to IKK (Ibu Kota Kecamatan, or sub-district capitals) in Kabupaten Bima, on the island of Sumbawa in Nusa Tenggara Barat Province.

The new approach is a kabupaten-based (district) strategy for providing water supply and sanitation improvements based on community participation and institutional strengthening.

The Bima trial (May 1989 to June 1990) cost the Australian Government $2 million and the Government of Indonesia Rp610 million. In addition, IKK communities are contributing to the construction and operation of facilities.

The Bima trial provides new water supply facilities to five kecamatan capitals serving a population of approximately 15,000. In addition, the project provides institutional strengthening to Government agencies, establishes water loss task forces and supplies system improvements for four existing water supplies serving a population of approximately 50,000 in three kecamatan capitals and the kabupaten (district) capital of Raba-Bima.

2. THE CHALLENGE: WHY ADDRESS SUSTAINABILITY?

Why donors fund water supply and sanitation projects

Water is a basic need, essential for survival. Clean water in sufficient quantities improves health; and these gains can be increased by environmental sanitation and health education. Reducing mortality and morbidity from water related diseases, together with time savings from more accessible facilities, leads to better quality of life and increased economic productivity.

Water sector projects allow donors to support humanitarian, equity and growth goals in the one project. If they are designed and implemented well, such projects can have important linkages with other key aspects of development, including environmental improvement, broad health gains, community development, basic education; and can enhance the position of women in development, as women are so often the drawers and bearers of water.

Clearly, WSS projects can represent a good use of aid funds. However, donor experience shows that many projects are not sustained or sustainable. Sustainability means maintaining the flow of benefits upon completion of the project. Non-sustainability may be due to adverse policy factors, a weak institutional framework, lack of local participation, socio-cultural incompatibility, lack of recurrent cost financing, poor technology choice, or environmental imbalance, reducing the capacity of the water resource to provide water of good quality and quantity.

If the water supplied is not used, or if quality, quantity and reliability are not maintained, then the initial investment is wasted and expected benefits in terms of improved health, time savings and quality of life will not be achieved.

For these reasons donors and recipients alike are searching for project strategies which will enhance the prospects for eventual sustainability.

Australia's Experience in Water Supply and Sanitation.

Australia has spent A$248 million in bilateral aid funds on water

sector projects over the period 1978/79 to 1987/88, constituting 13 per cent of total bilateral expenditure during the period. Funding for WSS increased sharply after the declaration of the 1981-90 decade as the International Drinking Water Supply and Sanitation Decade (IDWSSD).

This experience has been analysed in an AIDAB publication ***AIDAB and Water Development: Sector Review*** (1990).

The sector review found that, in order to be successful, WSS projects must have clear objectives, specific development goals and formal project designs.

Australian water sector projects in the past have been dominated by technical concerns, often in response to a request for "state of the art" structures and techniques from the recipient government. This has had adverse effects for achieving sustainable projects.

- In many cases, the physical construction of works was considered a more important indicator of development than the actual utilisation of these works by the people;
- Water projects have rarely addressed the issue of sustainability in their goals or design;
- Projects had rarely attempted to involve communities in planning, design, implementation and operation;
- Projects had rarely attempted to involve or benefit women specifically in operations, although women are usually the principal water drawers and carryers, responsible for household water use, child care, sanitation, hygiene and food preparation;
- Projects had assumed that improving the quality, quantity and management of water would lead to improved health, even though it is difficult in practice to establish this relationship. However the achievement of health benefits for WSS projects requires interlinked components which include health education, nutrition, food hygiene, environmental sanitation and medical care;

- Projects had rarely attempted to address environmental issues in their goals or designs, for example the sustainability in quality and quantity of surface or groundwater supplies; or the management of waste water.

So in the past projects have not necessarily been designed to enhance prospects for sustainability in social, institutional or environmental terms upon completion. The study found that the construction of WSS facilities in isolation is inadequate, and that the design of WSS projects requires attention to broader issues:

- country water sector studies can be prepared and utilised, in order to draw upon existing strategies, experience and knowledge;

- social and community involvement, especially of women, in all phases is important for eventual sustainability;

- education, training and institution building is important in building local institutional capacity;

- environmental assessment and resource evaluation are necessary to ensure water resource sustainability;

- complementary health packages (of health education, nutrition, housing, and medical care) are essential if the health benefits of WSS are to be achieved.

These concerns have implications for project design and implementation. Longer inception phases are needed which incorporate community and institutional processes; allow time for the preparation of baseline studies, and the design of appropriate monitoring and evaluation systems which can address the issue of sustainability.

The methods for financial and economic assessment of WSS projects used in appraisal and evaluation should be carefully applied, taking account of essential human resource developments and the long-term self-sustaining elements of project success. Where benefits are difficult to quantify and value, cost-effectiveness analysis and recurrent cost financing approaches may be more appropriate.

3. NEW INITIATIVES.

New AIDAB projects are attempting to address these issues. Two such projects are assessed in this publication.

A. Lombok Rural Water Supplies and Sanitation Project

The Lombok model

The Lombok model involved the creation of a "pattern of work" *(pola kerja)* which has four principles:

- a community process;
- management which is oriented to the people;
- appropriate and affordable WSS technology which is maintainable on completion;
- planning based on a strategy for resource use at four levels: central, province, kabupaten (district) and local levels.

The community process was developed in the following way:

- A *desa* (village) fund was established at the kabupaten level from AIDAB and Government of Indonesia funds for constructing WSS facilities. Each village was informed that it would receive an equitable share of the funding on a population basis. The money was to be "theirs" rather than the projects;
- A local non-government organisation was established to recruit and train community organisers to live in the village and facilitate the process of participation and to work with official government structures;
- The villagers were invited to participate in the planning of WSS facilities. They discussed the social, economic, health, and water resource features of the community and its environment; defined their own needs; and decided upon a village WSS plan;
- The villagers could match funding available against their own WSS plan, and rank priorities. The villagers decided how to spend their share of the desa fund;
- The villagers decided on additional resources of

labour, land, materials and cash which they could provide to supplement the *desa* fund for construction costs;

- The villagers discussed the WSS plan with project technical staff and the community organiser, to ensure environmental sustainability and appropriate technology choices for WSS facilities which could be operated and maintained relatively easily at village level. Where necessary, the technical staff suggested changes in the WSS plan;

- The plan was used as the basis for construction. Villagers could monitor expenditure of their part of the *desa* fund as work proceeded;

- The community organiser helped the villagers to identify and form water user groups to take responsibility for the WSS facilities and participate in health training.

- The community organiser helped to identify additional development activities, principally in women's income raising, which could be funded through the project.

Community self survey methods of problem solving (*mawas diri*) were introduced subsequently in a few communities. *Mawas diri* allows communities to define problems, assess their causes, plan strategies to overcome the problems, and implement activities which can then be monitored for their effectiveness. The method helps communities to conceptualise problems and solutions in the areas of family and community welfare, including a healthy environment, a healthy way of life and socio-economic conditions. Female health and community workers are trained in the use of the method, and their role is to assist the community to plan and monitor activities. Each community can set the aims and agenda which meet its own needs and conditions, and can program activities at a pace which is attainable yet challenging. Communities can request assistance from the village leaders and local government officials if they so wish.

Review Findings

How successful has this model been in providing sustainable WSS facilities?

The findings of an AIDAB review in 1989 are summarised below.

1. Project Performance

(i) Community Participation.

The model for the planning, design, construction, operation and maintenance of rural WSS facilities was developed during Phase I and is being consolidated during Phase II.

A local non-government organisation was formed during Phase I and community organisers were trained to mobilise community resources through village-based work. The community organisers trained village volunteers in the organisation of water-user groups.

The community organisers attempted to form water user groups for each WSS facility, with a role in operation and maintenance as follows:

- For wells, sanitation and bathing facilities: the water user group organises the community to clean and repair the facility through voluntary labour or fundraising; and secures agreement on use if water rationing is necessary during the dry season.

- For standpipes connected to the reticulated water systems: the water user group organises the community to meet tariff charges payable to the water enterprise; and to clean and repair taps, distribution pipes and drains as needed. Tariffs are reduced if the water user group maintains that standpipe.

In addition, water user groups were the focus of health education activities.

The *desa* fund was established, comprising all donor and Government of Indonesia funds allocated to the construction of WSS facilities. The fund is administered at the kabupaten level, but each village is informed of the total amount available (calculated on a population basis). Each village is able to plan on the basis of a firm figure, which can be supplemented by community resources, and monitored. Some initial problems with funds diversion occurred because officials and leaders did not understand the importance of community level planning. These problems had to be resolved

through explanation and education of the individuals involved. Subsequently, this system has worked well as a basis for community financial planning.

*(ii) **Technology and construction.***

The WSS facilities developed have largely met the essential criteria set for technical works:

- simple and suitable for manual implementation using local materials and local expertise;
- acceptable to the community;
- low cost, easy to operate and maintain;
- environmentally sound.

This meant that, in cases where the technical specifications developed by project personnel to meet community needs differed from the official specifications, special permission had to be obtained from local authorities.

Standpipes for reticulated water were of a simple and appropriate design. However, the water reticulation systems overall were unable to meet all the demands for increased volumes of water through the extra outlets constructed. The water enterprise, which has responsibility for operating and maintaining the systems, suffered from technical, management and financial problems which limited its ability to distribute water to potential consumers.

There were some problems with well construction due to expansive clays which easily crack the well aprons, but these seem to be within the communities' abilities to manage.

The construction and coverage achievements were:

- Non-piped water supply systems: 648 facilities were completed and functioning serving an estimated 65000 users, which is more than double the project target. These include new wells, rehabilitated wells and spring captions.
- Piped water systems: 247 standpipes were constructed but only 147 were operating, serving 14,700 users or 60 per cent of the project target.
- 27 sanitation and 67 bathing facilities were constructed, but targets had not been set.

*(iii) **Health Education***

Health education materials were prepared during Phase I. Health education was integrated into the community education process by means of the community organisers and volunteers. They attempted to ensure that water user groups had a reasonable knowledge of hygienic personal and domestic behaviour by creating a demand for latrines, developing an interest in productive use of water, effective rubbish disposal, cattle yarding, and increasing the demand for safe water. The success of these efforts is unknown, as public health processes were not formally being monitored.

Assistance with health education materials and teaching methodology was given to the health department, but lack of resources has limited the effects.

The introduction of community self survey (*mawas diri*) seems to represent the most promising prospect so far of introducing health education initiatives at the village level in a self- sustaining way. This is because it allows communities to prepare and monitor their own plans to improve environmental sanitation, health and hygiene, through both physical outputs (drains, latrines, cattle yarding, etc) and through behavioural change (boiling water, washing hands, etc).

*(iv) **Training.***

Training has been divided into two categories:

. Model specific activities, which were designed to provide project and community personnel with the skills and understanding necessary to work with the model. Some initial resistance to the idea of community planning and management amongst administrative staff at all levels of the government structure had to be overcome. This was achieved through education and demonstration of possibilities for achieving results, through staff workshops and meetings for provincial and kabupaten personnel. The non-government organisation developed an extensive training program for newly recruited community organisers in community mobilisation skills. This was also extended to village volunteers.

Project-specific training was provided to increase the technical and managerial competence of project staff, consisting mainly of in-country and overseas fellowships, computer training and English language training. Kabupaten staff received on the job technical training.

Non-community training activities began in an ad hoc manner. In Phase II a new focus was beginning to emerge for managerial and technical training of staff in key government agencies outside the principal counterpart agency, but this needed to be strengthened and targetted.

*(v) **Institutional Strengthening.***

This occurred during Phase I primarily with the principal counterpart agency, the Health Department; and with the non-government organisation. The project succeeded in creating a management framework supportive of the community process.

However, there are a range of agencies at provincial and kabupaten level with responsibilities in rural WSS (including the Departments of Public Works, Health, Home Affairs, and the Bappeda); and the division of responsibilities changed during the project life. The project was less successful in clearly defining the roles of the key agencies as they interacted with the project; in identifying areas of institutional weakness for targetted project support; and in developing good working relations between key agencies.

This was particularly true in the case of the water enterprise which has responsibility for managing the reticulated piped systems in technical and financial terms, but which had only marginally been involved in planning and developing piped water supplies under the project. Management and technical resources within the water enterprise were weak, but the project institutional strengthening program had not addressed them.

A financing system, which included user contributions to construction, operation and maintenance, was successfully developed for non-piped water supply and sanitation facilities. Water user groups organise community contributions for repairs and maintenance as they are required. Yet the project was not able to develop systems for

financing operation and maintenance of piped systems during Phase I. There was confusion over the tariff structure, the water charges and the method of payment to the water enterprise.

A new focus on strengthening and increasing co-ordination between key agencies in areas such as financing, technical development and management was endorsed by the review team.

(vi) Monitoring and Evaluation.

These activities had been informal and action-oriented, providing immediate and useful feedback to project staff. However, there was no systematic attempt to collect comprehensive data for assessing developmental effectiveness and impact.

(vii) Expenditure and Benefit-Cost Performance.

The project was completed within time and almost within budget, with relatively small budget increases due to increased pipe procurement and construction costs.

Community contributions were valued at about 2 per cent of the total project cost for Phase I, and were increasing steadily during Phase II.

The economic rate of return had been calculated at between 15 an 33 per cent based on the value of time women saved in collecting water, turned to economically productive activities; but these figures needed to be substantiated by a sound time allocation data base.

2. Project Effectiveness.

The model has been most successful in developing a community participation process, and appropriate, affordable WSS technologies, although problems remain with the standpipes connected to the piped systems.

The model effectiveness can, however, be improved by developing smoother working relations between key agencies; by clearer definition of the roles of these agencies with respect to WSS; and by directing project resources towards clear institutional development targets within these agencies. A financing plan for the water enterprise, targetted training programs, well-defined handover plans and a focused monitoring and evaluation system are essential.

Point water supply facilities amply met the original coverage targets. However, effective coverage in the piped systems had been limited to only 60 per cent of targets by technical and institutional problems. This has damaged community perceptions of the project, reinforcing feelings of community powerlessness over essential facilities, rather than community control. Technical and resource problems limited the construction of sanitation and bathing facilities during Phase I.

Piped systems proved to be, initially at least, a less effective water supply option than non-piped systems. They are nearly three times as expensive to construct, provide water at a higher price and the operation and maintenance is largely outside community control, in the hands of the water enterprise. Piped supplies may, however, be the only environmentally sound choice where groundwater supplies are inaccessible or saline.

The model effectively mobilised communities to contribute cash, labour and materials for the construction and improvement of WSS facilities. The level of community participation seems to have increased as the model developed, when measured in terms of the monetary value of the community inputs to the total cost of WSS facilities constructed, from an average of 24 per cent per village in Village Selection I, to 58 per cent per village in Village Selection 3, in Phase I. Early figures from Village Selection I in Phase II show that the average value of the community input per village has reached at least 51 per cent, and may go higher.

These community investments have stretched government funding further.

There are good grounds for optimism that most of the non-piped facilities provided will be sustained. A sample of 10 per cent of wells constructed in Phase I showed 85 per cent in good condition. Sixty-four per cent of wells had functioning water user groups. Yet this needs to be checked again in an ex-post evaluation.

Whilst the project pursued the goal of increasing the social participation of women, it has been difficult to involve women equally in the non-government organisation and in the formal village level organisation of water user committees, due to traditional

ideas about gender-appropriate behaviour. Informally, however, women take much of the responsibility for maintaining wells.

The *mawas diri* method of community self-survey gives better prospects for the project to engage in the practicalities of women's lives. Female volunteers use the method so creating a significant role for women. The method generates behavioural change related to safe water use which is meaningful to women and therefore offers good prospects for being self-sustaining, and for contributing to health improvements.

There is no doubt that women, as the principal users, are benefiting from the provision of more abundant, clean water close to their homes.

Contrary to what was hoped, there is no real evidence that the water user groups have become a focus for generalised development activities, but this may change as Phase II places greater emphasis on tying water user groups to established village level institutions which are supported by government.

3. Developmental Impact

The model has a powerful demonstration effect in presenting an alternative method of generating community participation in development which could be adapted to other government programs. Plans for replicating the pattern of work elsewhere in Indonesia are well advanced; but the relatively high costs of the model as currently conceived mean that this is more likely to happen with donor support.

Community participation in development has been endorsed by the Government of Indonesia and has some prominence under Repelita V. Often, however, participation is conceived as meaning that villagers provide labour for programs designated by government officials. In contrast, the Lombok model offers more genuine scope for real community input into planning and implementation, with better prospects for generating a sense of community "ownership" of the facilities.

The project has assisted rural people in Kabupaten Lombok Tengah, one of the most impoverished parts of Lombok with particular water supply problems during the long dry

season, on an island which is generally disadvantaged in comparison with Indonesia as a whole.

Yet it was not possible to assess developmental impact definitively, partly because of the conceptual difficulties inherent in measuring health impacts, partly because it is too early for some impacts to appear, and partly because the project itself is not systematically evaluating impact.

It appears that villagers, particularly women, are saving time which would have been spent collecting water, but as yet there is no clear picture of what the time savings mean in terms of health benefits; or productivity and income gains; or how these gains may be distributed through village society.

There have been positive institutional strengthening impacts resulting from the project, particularly for the lead agency (during Phase I), the Department of Health; for the non- government agency created especially for the project; and for community leaders and groups who have been involved in planning, constructing and operating facilities. Several changes in lead agency policy and operations which make WSS planning more flexible are at least partly attributable to the project. Yet institutional strengthening needs to be broader in its impact; and will need continuous revision as responsibilities change (especially with Repelita V) and new agencies need to be brought into the pattern of work.

Prospects for sustainability of wells, sanitation and bathing facilities look promising in view of the levels of community participation in planning and construction, and based on the limited survey data. Some communities are actually replicating WSS facilities on their own initiative. The problems of sustainability of the piped systems needs to be tackled forcefully, in the context of strengthening the performance of the water enterprise.

Adverse environmental impacts have been limited:

- increased sullage has been largely contained by drainage facilities;

- increased pressure on the water table during the dry season means that water rationing is often needed; but this is preferable to wells completely drying up as in

the pre-project state. So far, the wells seem to be recharged during the wet season, but this needs monitoring;

- salinity of water from wells occurs in the older settled areas where bare and compacted soil conditions have been established. This needs further investigation to develop counter measures (such as village gardens to use sullage).

B. Eastern Indonesia Ibu Kota Kecamatan Water Supply Project: Bima Trial Pilot Project.

In contrast to the Lombok model this project focuses upon small towns, and initially on the provision of water supplies only. The project is a trial for a new model for IKK WSS. It tests all assumptions made about the likely nature and levels of community support; the rate of progress in improving the performance of the water enterprise; the viability of the new tariff system; and the technical viability and environmental soundness of the systems being installed. Scope for review and planning is included in the later stages of the phase. The key features are presented here in summary form only.

The project aims to improve the quality of life through infrastructure improvements leading to health and development benefits.

Water supply component

Five IKK towns have been selected for construction and commissioning of new water supply systems. These are all designed as reticulated systems, involving source development of springs and bores; transmission to town through gravity pipelines and pumping systems; water storage for pumped systems; distribution within the towns through pipeline networks; and connection to consumers through house connections or community group tanks.

The nature of this project might seem to allow little scope for community participation. The systems are relatively complex compared to simple point sources, with more sophisticated technical planning, design, operation and maintenance requirements. Water enterprises are required to manage the systems on completion. In addition, the people to be served are urbanised. Indeed, water source development, transmission and storage construction is undertaken by government

appointed contractors. However, the project design incorporates direct involvement by the communities in construction of pipelines, individual house connections and community tanks, as paid and unpaid labour, on the grounds that:

- employment of local labour by the contractors provides some financial return to the community from the development;
- involvement of the community in construction increases their sense of responsibility towards the water supply;
- the value of the community contribution extends government funding and so means that larger capacity systems can be constructed, which benefits consumers;
- local labour will be more careful in construction, because they are the eventual users;
- community involvement in construction is likely to lead to greater awareness about the system, and so to higher demand for connection. The more users, the better the prospects for a financially viable system.

In addition, rehabilitation work in four other towns is being trialled.

Community Participation Component

This component aims to establish a sense of community responsibility for and rights over the water supply system, so leading communities to maximise the potential economic, social and health benefits of improved water supplies, including improved domestic sanitition and drainage.

Specific objectives are to:

- maximise the number of people who are able and willing to pay for connection to the new system;
- improve the future financial viability of the water enterprise through the maximum number of house connections, and reduced incidence of tampering, non-payment of accounts and illegal connections;
- improve community acceptance of the inherent technical limitations of the

water supply system whereby zoning will control and ration water use;

- foster and sustain links between the community and the water enterprise which runs the system;
- improve the technical, organisational and management skills within the community;
- improve household hygiene and water storage practices;
- achieve construction and maintenance of domestic sanitation and drainage;
- increase community use of improved water supplies to derive other social, economic and health benefits.

The program has three elements; an information and customer relations program; a community participation program; and an education and training program. Each kecamatan town has a working group established which includes formal and informal community leaders. The group is supported by the water enterprise, a consultant advisory team and sanitarians.

The community process outlined here is clearly more restricted in its scope than that of the Lombok example. There is little liklihood that a direct Lombok-style sense of "ownership" by the communities can eventuate. Much depends upon the quality of the kecamatan working groups, and the nature of relations established with the water enterprise. The extent to which flow-on benefits from WSS can be achieved and sustained through this process is being carefully monitored.

Institutional Strengthening Component

The sustainable operation of the IKK schemes depends upon their effective operation by the water enterprise, but in Bima the water enterprise needed strengthening.

The institutional development aims, therefore, are to improve the capacity of the water enterprise to:

- liaise with local communities;
- develop the management and technical skills to operate and maintain the IKK systems;
- achieve financial viability through introduction and

management of a modified water supply tariff structure.

A new tariff system has been developed which meets the following criteria:

- provides a minimum basic supply of low cost water which is affordable by the majority of households;
- allows cross-subsidisation of the basic supply whilst generating sufficient overall income to meet operation, maintenance and depreciation costs;
- high volume water consumers are charged more to reflect the limited capacity of the systems;
- provides equality of value to all consumers, whether they are located in IKK or kabupaten capitals.

The new tariff structure has different charge rates for various consumption levels, obviates the need for fixed meter and administration charges, and gives a reduced connection fee to customers who provided construction labour.

A training program has been developed within the water enterprise to address these aims.

4. SUMMARY OF KEY POINTS FOR SUSTAINABILITY.

This section summarises key features from both project examples which show good prospects for improving the sustainability of WSS projects.

A Supportive National Policy Framework

The directions set out in Repelita V, the 5th, 5-year development program for Indonesia (1989-1994) are conducive to the approaches taken in both examples. This includes the focus on decentralisation of planning, budgeting and income generating responsibilities to provincial and kabupaten levels; the emphasis on rehabilitation and integrated planning; the support for community participation, institutional strengthening and improved WSS coverage.

A Focus on Institutional Strengthening for Key Agencies

The need to address directly institutional development goals was graphically illustrated in the Lombok model where standpipes built by communities did not produce water because of institutional and technical weaknesses

within the water enterprise and system. Where government agencies play a key role in operation and maintenance they must be built up to effective levels.

Institutional change is also needed to generate positive support amongst officials for interaction with communities, for example through allowing communities to plan, manage and monitor funds without interference (as in Lombok); or through developing a sense of responsibility to consumers (as in Bima).

There is also an institutional role for local organisations, including non-government organisations, in mobilising and developing community support, and in facilitating the community-government interface.

Establishing Mechanisms for Local Participation in Project Design

Establishing genuine community participation requires a clear strategy and sufficient time, both to mobilise communities to the point where they can define needs, plan and manage facilities; and to engender support from the government structure, especially key agencies. In Lombok, the model development, testing and refinement took approximately three years during the course of Phase I. The Bima trial was developed on the basis of extensive local assessment; and is taking place over a 14 month period, so that key assumptions can be tested.

There was greater scope in the Lombok model to develop a sense of real community "ownership" of facilities. Space was given to communities to plan, and most of the technologies were developed to support community requirements and maintainance abilities. There is considerably less scope for communities to influence system planning and design in Bima, but still scope for community involvement in construction, choice of connections and in interaction with the water enterprise upon completion.

Generating a sense of "ownership" seems to enhance dramatically prospects for maintaining WSS facilities on completion of the project. Yet what about the attitudinal changes which are essential if public health benefits are to be achieved?

The Lombok project has addressed this difficult question by introducing the *mawas diri*

method helping communities to define and monitor their own strategies for achieving a healthier environment and healthier lives. This method complements institutional strengthening in the Health Department.

The Bima trial relies more on traditional survey approaches to defining health and sanitation needs. Community processes of mobilisation which will lead to real participation in achieving lasting health and social benefits are less developed.

These examples show the need for a clearly defined "community process" to be included in the project design. The design should show the strategy, scheduling, resource needs and organisational dimensions of the community process which is to be trialled during the early stages of project implementation. Key community inputs into planning, implementation and subsequent operation need to be highlighted. In the Lombok case, this approach meant that the technical parameters of the project could not be finalised in the initial design document, but have been consistently developed and tested in parallel with the community process.

Special efforts may be needed to ensure that women, as the principal water users, actually participate in the community process.

Gender analysis is a design tool which can be used by design teams, by institutions and by communities themselves in a process of self-survey in order to establish the division of labour relative to WSS, constraints to women's participation, and possible design options to maximise benefits to women.

Achieving Socio-cultural Compatibility

Where the technical inputs accompany a community process, socio-cultural compatibility can be achieved through interaction between communities and technicians (for example the sensitive issue of designing acceptable bathing facilities in Lombok). Where WSS systems are more sophisticated in technical terms (as in Bima) there is still a need to ensure that the design of user facilities (taps, connections, community tanks, sanitary and drainage arrangements); and the arrangements for payment and maintenance; are acceptable in socio-cultural terms.

Minimising Demands for Recurrent Cost Financing

Recurrent cost financing is often problematic, as pressures from donors and recipient governments alike divert scarce resources to meet new development targets.

WSS facilities should be designed to minimise recurrent cost financing requirements. On Lombok, the aim has been to ensure that communities independently have the knowledge, materials and resources quickly and easily to remedy breakdowns. This seems to be working well for all non-piped facilities. This helps to minimise the extent of recurrent cost funding, although government programs still have responsibility for technical backup, water quality monitoring and on-going health services.

Where official agencies operate more complex WSS schemes (as in Bima) the tariff structure becomes a crucial factor in minimising demands on recurrent cost financing. In Bima, cross-subsidisation and increasing charges relative to consumption ensure minimum levels of affordable, low cost water to consumers whilst generating sufficient revenue to cover system operation, maintenance and depreciation costs.

In addition, the efficiency and effectiveness of water enterprise operations needs to be improved where these agencies are essential for operation and maintenance, to provide value for money to consumers.

The eventual aim is for the water enterprises to operate efficiently on a cost-recovery basis, requiring no recurrent funding support.

Ensuring Environmental Sustainability

Water resources are often fragile and vulnerable to overuse, to salinity and pollution, all of which affect the quality and quantity of water supplied. Good drainage, sullage disposal and environmental sanitation are all essential components of environmentally sound and sustainable WSS management.

These issues need to be examined in feasibility assessment, addressed in project design and closely monitored during and after implementation.

Monitoring and Evaluation

The design of project monitoring and evaluation systems must allow assessment of progress towards sustainability in social, environmental, institutional and financial terms. This necessitates a clear delineation of project goals in which sustainability is made an explicit aim.

Then the project can monitor progessively whether the WSS facilities being installed are also being maintained.

In WSS projects, where specific health outcomes are so hard to guarantee, quantify and value, there is a need to monitor process as well as output. This includes key areas such as:

- attitudinal change in institutions, amongst officials and leaders towards community planning and management;
- changes in knowledge, attitude and practice relative to health goals amongst community members;
- participation of women in organising and benefiting from improved WSS facilities;
- environmental effects relative to the sustainability of the quality and quantity of the water resource.