Community Based Water Supply

A handbook describing the ProAir implementation of the Indonesian policy, "Community Based Drinking Water and Environmental Sanitation".

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Foreword National Planning and Development Board Republic of Indonesia

Access to improved water supplies and sanitation is an issue of national concern in both urban and rural areas. In global issue context, presently, the access to water in Indonesia is still low, which matches the latest MDGs report. According to the report, 50 per cent of Indonesian population does not have access to clean water. This issue is indeed a serious challenge in achieving 2015 MDGs target.

To address this problem the Indonesian Government has made considerable investments, however, the water supply systems have not been properly maintained, and are often seriously damaged. Analyses of the situation has however highlighted the fact that water supply infrastructure should not be viewed merely as a question of investment costs. Issues of sustainable maintenance and management must also be considered.

The activities of ProAir in three districts of East Nusa Tenggara (NTT) province use a community-based approach that build upon the experiences of previous programs. ProAir places the beneficiary community in the centre of the planning and construction process of installing a water supply and sanitation system.

The experience made by ProAir, as described in this book, can serve as an inspiration to interested parties, such as decision-makers in local government or other community leaders who are involved in similar programs, where the focus of the activities lies on how the community and government can activiely participate in the process.

We would like to use the opportunity this book presents congratulate the ProAir management and extend our appreciation to the team of writers and resource persons who have contributed to this handbook. Hopefully, the lessons this book present can serve as a reference for the implementation of community-based water supply construction.

Jakarta, February 2011

Deputy for Facility and Infrastructure
National Planning & Development Board
(BAPPENAS)

Foreword
Ministry of Health
Republic of Indonesia

Viewed from the aspect of quality, service area of water supply facility in Indonesia is still very limited and it cannot keep up with the population growth. At present, it is estimated 100 million Indonesian people, who live in 30 thousand villages, do not have access to clean water. Based on a research conducted by WASPOLA, 94 million people in Indonesia, or 43 per cent of the total population, have not yet owned healthy latrines.

Additionally it has been estimated that there are 121 thousand cases of diarrhea every year, claiming more than 50 thousand lives. Nationally, annual health expenses due to poor sanitation, reach IDR 31 trillion, or IDR 139 thousand per person. Although according to MDGs report the development of sanitation access has reached 68 per cent, which means exceeding the MDGs target, many of those facilities are still below the requirements, in other words the quality is far from the expectation.

Experience has shown that most facilities and infrastructure that has been built do not function correctly and are not sustainable. This is often because the community members were not involved in the development process. Having learned the lessons the hard way, the government has changed their development paradigm for Water Supply Systems to a community-based approach, such as that conducted by WASPOLA and ProAir.

ProAir is one of the cooperation programs between the Indonesian Government and the Federal Republic of Germany, to overcome the problem of clean water in critical areas of Nusa Tenggara Timur Province. This program has brought about significant improvements on the provision of water supply and sanitation facilities.

We would like to welcome the arrival of this handbook and hope that the methodology described herein may become a reference for community-based water supply development. On this occasion, we wish to extend our gratitude to GIZ/ProAir Management who has sponsored the preparation of this handbook. We also would like to congratulate and thank the Writers and Resource Persons who have contributed their ideas and invaluable experiences for the development of water supply facility in Indonesia and, particularly, in the implementation of water supply programs in local districts.

Jakarta, January 2011

Director of Environmental Health
DG of Diseases Control & Environmental Health
Ministry of Health, Republic of Indonesia

Foreword ProAir

ProAir is a bilateral program between the government of Indonesia and the Federal Republic of Germany. This project implements community based water supply and sanitation in the East Nusa Tenggara province, Indonesia. ProAir has started its work in September 2002.

This handbook is written for everyone who is interested to learn how community based water supply can be successfully implemented and can function sustainably. The book should be understood as a "cooking recipe" which means that on the one hand, it explains the ProAir approach step by step and on the other hand, this book leaves the readers fully flexible to modify the approach according to their respective conditions. Additionally, the authors like to underline that all participative approaches need clear guidelines, rules and regulations and have some clear limitations. ProAir has never understood the "participatory approach" as a full acceptance of all demands and requests by the villagers.

This handbook focuses on the implementation process of water supply and only touches marginally upon the sanitation component. For ProAir this component is an accompanying activity during the post-construction phase. Until early 2007, ProAir subsidized the construction of family toilets; later on ProAir actively supported the national approach Community Led Total Sanitation (CLTS) and for this reason starting from 2007 ProAir has focused on hygiene and sanitation awareness campaigns only. Nevertheless, the authors like to emphasize that water supply should always be implemented together with a hygiene and sanitation component.

ProAir likes to thank the Indonesian Ministry of Health, the National Planning Agency, the Ministry of Home Affairs, the Ministry of Finance and the Ministry of Forestry for their great support during the implementation of ProAir. Furthermore, ProAir likes to thank the provincial government of Nusa Tenggara Timur (NTT) and the district governments of Timor Tengah Selatan, Sumba Timur, Sumba Barat, Sumba Barat Daya, Alor and Ende. In addition, ProAir likes to sincerely extend its deepest gratitude to all members of WASPOLA, who always had an open ear and lent a helping hand. ProAir also likes to thank all international and national NGOs who have cooperated with ProAir within the last nine years.

It is a pleasure having worked with and for the people in NTT. We met so many people and many of them became close friends. Thanks to all for the warm welcome.

Last but not least, we hope that the people in NTT will be able to enjoy the water supply and sanitation facilities for many years to come. We apologize for any mistakes we may have made during the implementation of the project.

On behalf of the whole ProAir team;

February 2011

Dr Dieter Brulez
Principal Advisor (GIZ)

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1 Introduction

In Indonesia, a large number of water supply and sanitation systems do not function properly. There are many reasons for this, such as poor construction quality, poor management, and a lack of community involvement during the planning and construction process. All of this has led to the following:

- Many communities have insufficient access to clean water.
- Being occupied fetching water, children have less time for school, and women are prevented from carrying out income generating and other activities.
- Poor hygiene and high risk of water born and communicable diseases.

ProAir's overall goal

"Communities are able to manage and maintain the water supply facility in a sustainable way."

Based on such experiences, the Indonesian Government has changed its development paradigm for water supply and sanitation systems to a community-based approach. Now the beneficiaries (community groups) are recognized as the key actors of development. Since 2003, this new paradigm is known as the National Policy for Community-Based Water Supply and Environmental Sanitation, which is facilitated nationally by the Water Supply & Sanitation Policy Advice (WASPOLA).

In parallel to the development of the national policy AMPL-BM, the Indonesian

Fetching water at illegally made holes at the transition pipe of an existing system. This happens because community members were not involved in the construction of the systems and feel they don't belong to them.

In NTT, a great number of households experience poor water supply. As the culture in the region dictates, water-fetching is the responsibility of women and children. They perform the job on foot, or with buffalos and horses. The water sources are usually located far away, so children often don't attend school.

and German governments agreed on a new water and sanitation project in the NTT province. This project, called "ProAir", began implementing the national policy in 2002. The aim of ProAir is to enable communities to manage and maintain water supply and sanitation systems sustainably. Sustainable access to water and sanitation will result in a reduction of water related diseases.

As the Executing Agency, the Ministry of Health represents the Indonesian Government in coordinating the implementation of the ProAir project. The Federal Republic of Germany is represented by the Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) for community empowerment and institutional capacity building, and the Kreditanstalt für Wiederaufbau (KfW) for the construction of the facilities.

For sustainable results, ProAir sees the community as the subject and object of the project, and fosters their sense of ownership, through an intensive process of assistance throughout the planning, implementation and post-construction stages.

ProAir – An overview

ProAir works for and with 70 thousand beneficiaries in six districts in the NTT province: East Sumba, West Sumba, Nortwest Sumba, South Central Timor, Alor and Ende.

The guiding principle of ProAir is that "community members are the key actors." ProAir supports the development of a sense of ownership among facility users. This ownership in the ProAir communities is fostered through:

- Intensive participation of community members during all stages of the project implementation: 1. Construction Preparation; 2. Execution of the Construction Works; 3. Post-Construction Support Activities.
- The collection of an Initial Maintenance Savings Fund (in-cash) in the average amount of IDR 25 thousand (USD 2.78) per head.
- Community participation through the provision of labor and construction materials (in-kind) for the water supply system.
- The formation of 137 water user groups including management boards for water supply systems, who are responsible for ensuring sustainable operation and maintenance.
- Establishing management rules for the water supply systems by developing the statutes of the water user groups, validated by a notary public.
- Collection of a monthly contribution fee in the average amount of IDR two thousand (USD 0.22) per head. The collection begins with the validation of the group's statutes.
- The availability of a technical tool package, donated by ProAir, to each group management board at the project's final hand-over.

To date, all ProAir water supply systems are managed, operated and maintained by the communities; some have even been operated by the communities for more than four years.

Houses in traditional Sumba village.

This woman has to fetch water from the river because of limited availability of water.

In NTT, vast areas of dry and barren land make it more difficult to find clean water.

2
Working with ProAir Principles and Requirements

ProAir has defined several principles and requirements in order to co-operate with communities for the implementation of water supply and sanitation systems. The overall aim is to ensure that the communities develop a sense of ownership for the water supply system in order to strengthen its operation and maintenance. For this reason, ProAir provides training to community members so that they can perform regular maintenance and repairs of the systems.

2.1 ProAir Principles

2.1.1 The Community Is the Key Player

In a proactive way, community members should be the initiators, planners, executors, owners, supervisors, operators, and keepers of their own water supply and sanitation facilities.

2.1.2 Responsive to Community Needs

ProAir is a project practicing an approach that is responsive to the needs of the community. Decisions on which community can receive ProAir assistance in developing a water supply system, depend on the results of feasibility studies of the potential of water sources. Those are conducted by ProAir and enable the analysis of the potential of any given water source (in terms of type, water flow, ownership, etc). Hereafter, ProAir expects a proposal developed and sent by the community.

2.1.3 Involvement of Women

Women need to be involved in the process of development and management of Water Supply and Sanitation Facilities as, according to the local custom in rural areas, women are responsible for providing water.

2.1.4 Comprehensive Approach

The choice and construction of the water supply system needs to consider a comprehensive picture of the community, including social aspects, the households' economic situation and environmental safeguarding.

2.1.5 Water Is Free but Water Supply Systems Can Be Expensive

Water is a basic need, but only available in limited volume. In principle, water is free but to be able to have access to a sufficient volume and to have it closer to homes investments are needed, as most good quality surface water sources are located at a distance from settlements. Transporting water to homes requires financing for the construction and maintenance of water supply systems. One can say that water has both social and economic values.

2.2 ProAir Requirements

2.2.1 Management

Previous experience has shown that countless water supply systems did not functioned sustainably due to a lack of proper management. For this reason, ProAir facilitates communities with the formation of their own management board for their water supply system. This management board is elected democratically by the members of the service area. ProAir provides training to the communities so that they can fulfill the duties and responsibilities which are associated with the proper management of their water supply system.

2.2.2 In-Cash Contribution

Experiences also show that many existing water supply facilities are out of order as there are no funds for operation and maintenance. To address this problem, ProAir requires the communities to establish an operation and maintenance fund prior to construction.

The capability of a community to fulfill this requirement indicates their desire to receive the water supply system and ensures the sustainability of such facilities. The in-cash contribution, or initial maintenance savings fund, is not used as investment money for the construction, but as a start-up fund for operation and maintenance.

The in-cash contribution is determined based on a four per cent-calculation of the total estimated investment cost for the water supply system. This money needs to be paid by the community of the service area and should not be subsidized by other parties. The community stores the collected money in a bank account under the name of the temporary Management Board.

2.2.3 In-Kind Contribution

To strengthen the community involvement in the construction process, ProAir requires an in-kind contribution from them. This in-kind contribution consists of labor and the provision of local construction materials. The volume of the required material depends on the system being constructed. The value of the in-kind contribution from the community is 11 per cent of the total investment for the construction which can first be known after the completion of the Detailed Engineering Design.

2.2.4 Water User Group Statutes

In the past, management rules have not been foreseen for rural water supply facilities. This is another reason why these facilities have never functioned sustainably. To avoid such a significant shortfall, ProAir supports the community in establishing charters and by-laws, also known as the Statutes of the Water User Group, legalized by a Notary Public.

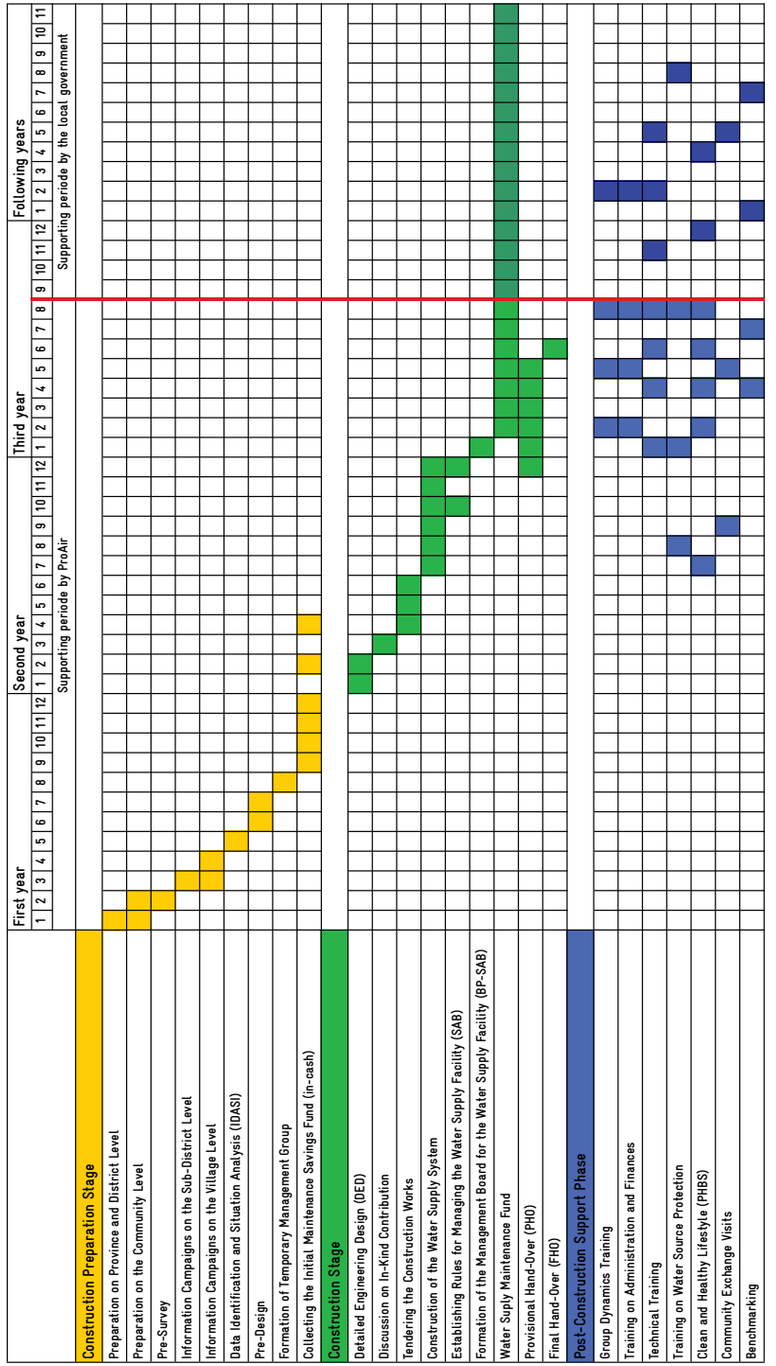
2.2.5 Monthly Subscription Fee

Even though all members of the water supply system service area have paid their in-cash contribution, the money will not be sufficient to guarantee the sustainability of their water supply system. Therefore, ProAir stipulates another requirement, namely that all service area members are to pay a monthly consumption fee. This fee is combined with the in-cash contribution already deposited in a bank account. Both of these sources of income (in-cash and monthly consumption fee) are used for the operation and maintenance of the system.

Acceleration process

In order to speed up the process of constructing the system, ProAir determines that every person is obliged to pay, on average, IDR 25 thousand, for the initial in-cash contribution.

2.3 ProAir Implementation Process



3 Implementation of Water Supply Systems

3.1 Construction Preparation Stage

3.1.1 Preparation on Province and District Level

At the beginning of activities, ProAir carries out an information campaign explaining the project approach, the objective, the principles and the requirements for cooperation to the executive and legislative branches of the government. These campaigns include the formation of Coordination and Implementation Teams on the province and district level. Members of these teams are government officials only.

Furthermore, the members of these two teams agree on their responsibilities during the implementation process, which include:

- The formation of the Coordination and Implementation team.
- The appointment of a civil servant to represent the government in ProAir's Project Implementation Unit.
- Recruitment of village facilitators/motivators.
- Provding a budget for:
  - Establishing of a project office.
  - 10 per cent of the investment costs.
  - Training activities.
  - Salary and operating costs of the village facilitators.
- Data collection.
- Distribution of information/awareness campaigns.
- Regular meetings and monitoring of the activities on site.

Water & Sanitation Working Group

In the future, the role of Coordination and Implementation Teams might be replaced by the Working Group for Community-Based Water Supply and Environmental Sanitation.

3.1.2 Preparation on the Community Level

Community preparation is an activity aimed at improving community understanding and at encouraging their full involvement in the implementation process. Good community preparation serves as a solid ground for achieving ProAir's overall goal. For the community preparation, the following stages are considered:

A Pre-Survey

The Pre-Survey is only necessary, if the government cannot provide accurate data about water sources and their coverage area.

During the Pre-Survey, the project collects primary and secondary data. Therefore, the project needs to carry out a transect-walk at every location considered to have a potential water source for the development of a water supply system. The Pre-Survey clarifies technical and social-economic data. Through the results of the Pre-Survey the project knows firstly which water source has the potential to be exploited for a water supply system and secondly, the project can carry out a first rough calculation of the service area. The Pre-Survey generates the description of data and information as shown in Table *"Pre-Survey Data Description"*.

During the Pre-Survey, community members measured the water flow before establishing a water supply system. Water flow rate data is one technical requirement for the community when completing their written proposal to ProAir.

Pre-Survey data description

No	Data Description	Remarks
1	Type of water source	Spring, ground water, river, etc
2	Name of the water source	
3	Owner of the water source	Individual, tribe, public, etc
4	Location of the source and service area	a Geographical coordinates, elevation
		b Forest, garden
		c RT/RW (neighborhood units), hamlet, village, sub-district
5	Rate of flow	… liter/second
6	Physical qualities	Colour, odour, turbid, taste
7	History of the water source	When did it become available, if it is available every season, fluctuation in flow rate
8	Estimated population increase	Number of households … / … inhabitants
9	Est'd future service area population	Number of households … / … inhabitants
10	Current use of the water source	Irrigation, drinking, cooking, bathing, livestock, unused
11	Data/Information on existing SAB	Type, condition and history of former water supply facilities

B Information Campaigns on the Sub-District Level

In every sub-district with a potential water source, ProAir invites all village heads and key village personnel to attend an information campaign. In this campaign, ProAir explains its objective, principles and requirements for a co-operation between the community and the project, and informs all attendants about the results of the Pre-Survey. Subsequently, ProAir and the community in a village with a potential water source agree on a schedule for a ProAir information campaign at village level.

C ProAir Information Campaigns on the Village Level

In these information campaigns, ProAir invites all village administration personnel, village members and representatives from every household of the service area. This activity provides both an opportunity for discussion and clarification of the working method of ProAir, and ensures that the villagers know the project approach. Typical queries raised by the communities are usually to understand the reasons behind:

- Collecting the in-cash contribution.
- Involving the community in contributing their manual labor and local construction materials (in-kind) during the construction.
- Collecting monthly consumption fees for operation and maintenance.
- Forming a Water User Group with a Management Board.
- Establishing statutes for the water supply system.

Only those communities, who accept the ProAir approach may submit a written proposal. ProAir accepts that only some villagers – the community initiators – prepare, write and submit the proposal. Every proposal should fulfill some minimum requirements, such as:

Community members in Watulonda (Southwest Sumba) explaining their planned service area at ProAir's office when submitting their proposal.

Community initiators

Community Initiators are people from the candidate community who voluntarily prepare the community's proposal, including all relevant data/information and submit them to ProAir. These Initiators are the ProAir's contact persons before the group's Management Board of Water Supply Facility (BP-SAB) is democratically elected through plenary meeting of service area members.

The written proposal

The preparation and the submission of the written proposal is one of the milestones of the ProAir approach. With the written proposal, the communities underline their willingness to co-operate with ProAir. Only if receiving such proposals, ProAir will continue its field activities.

- An outline of the village.
- A list of attendance during the discussion.
- The signatures of at least 75 per cent of the households of the service area.
- A letter stating the release of water source ownership, signed on a legally stamped letter by the owner.

D Data Identification and Situation Analysis

Data Identification and Situation Analysis improves the understanding and awareness of the community through focus group discussions. This encourages the community to participate in the construction of their water supply system. Therefore, ProAir explains the project approach to the villagers in sub-villages and hamlets. In addition, ProAir, together with the community, conducts data verification resulting from the pre-survey and community proposals. The following should be obtained from this analysis:

- A map of the estimated service area of the water source.
- An estimated list of probable service area members.
- A calendar of the community's activities.
- Data on the inter-relations of village organizations.
- Data on the type and infection rate of diseases.

E Pre-Design

Pre-Design or initial technical system design, should be done by technical experts using the Pre-Survey data and the results of the Data Identification and Situation Analysis. A field survey is only necessary if the designing process encounters lack of data and information. The Pre-Design generates:

- The type of water supply technology that suits the potential water source, topography of the area, and resources of the future users.
- An initial sketch of water supply technology selection to determine the limitations of the service area.
- An estimated cost budget plan for the water supply system as the reference to determine the amount of in-cash contributions.

During the Data Identification and Situation Analysis, ProAir visited communities submitting written proposals for a physical verification of the locations.

MPA/PHAST

One possible method forData Identification and Situation Analysis is the Participatory Methodology/Participatory Hygiene and Sanitation Transformation Approach (MPA/PHAST).

This approach is compiled by the International Water and Sanitation Center (IRC) and the World Health Organization (WHO). For further information on MPA/PHAST:

http://www.irc.nl
http://www.waspola.com

Study on Knowledge, Attitudes, and Practices

ProAir conducts KAP-studies on health condition and access to clean water, which helps to compare communities' knowledge, attitude and practices before (KAP I) and after (KAP II) proper access to water is secured.

During the implementation process, Proair explains the project approach to all stakeholders.

F Formation of a Temporary Management Group

Parallel to the Pre-Design the communities need to form a Temporary Management Group, which functions as ProAir's implementation partner. Its tasks involve the following topics:

- Preparing the labor and other necessary issues during the Detailed Engineering Design.
- Collecting data on the service area members (number of households and individuals).
- Establishing a concept of basic rules as a guidance to manage the system and as the necessary document for tendering the construction works.
- Performing a data investigation on the community's productive labor (in-kind) to validate the its readiness to participate in the construction.
- Opening a bank account to deposit the in-cash contribution, under the name of the Temporary Management Group.
- Collecting the in-cash contributions and depositing them in the bank account.

G Collecting the In-Cash Contribution

The collection of the in-cash contribution (Initial Maintenance Savings Fund) is one of the basic requirements for collaboration with ProAir. Only after the community has provided its in-cash contribution can ProAir continue its implementation activities.

The amount of this fund is four per cent of the Planned-Cost Budget. This is calculated according to the pre-design.

The collected money is stored in a bank account under the name of the Temporary Management Group and stays there as the initial capital for the operation and maintenance of the facility during the post-construction period.

The in-cash collection in Gaura

After ProAir approved the proposal from Gaura (West Sumba), the stigma of being a remote village was gone. The villagers were proud.

566 villagers (115 households) managed to collect the big amount of IDR 14 million (USD 1550) within only two and a half months. Every villager was obliged to contribute IDR 25 thousand (USD 2,75).

The swift collection of in-cash was inspired not only by a high demand for water, but also by a motivation to wipe out the stigma of being undeveloped. This resulted in a good co-operation between the local administration and Gaura's community.

3.2 Construction Stage

3.2.1 Detailed Engineering Design

Detailed Engineering Design (DED) is a series of activities that includes measuring and drawing the supply network in detail, as well as calculating the construction costs. DED is prepared based on the pre-design data and information. It also involves detailed on-site surveys using reliable tools such as GPS, theodolite, and certain computer programs. This activity requires technical construction experts.

The DED activity produces all documents required for the construction of the facility. The documents consist of detailed drawings of the system network and the Planned-Cost Budget that are needed to:

- Determine the value of the community contribution in-kind, i.e 11 per cent of the total investment value.
- Launch the tender process in obtaining executing contractor.

3.2.2 Discussion of In-Kind Contribution

Villagers' in-kind contributions, such as labor and providing locally available building materials, is another basic requirement for the collaboration with ProAir. Therefore, ProAir organizes village meetings where the community agrees on the type and volume of their in-kind contribution.

The community's readiness to cooperate is documented by the signing of an official agreement on the community's responsibility and the working schedule for its labor.

The use of "in-kind" agreements in each community before constructing water supply facilities is an indispensable lesson. It aims to foster a sense of ownership within the community.

3.2.3 Tendering the Construction Works

Although ProAir practices a community-based approach, it recruits contractors for the construction works. Firstly, this guarantees minimum quality standards and secondly it saves time.

The tender or auction system adheres to a presidential ruling: KEPRES No 80/2003 and is conducted in a transparent manner for local and national contractors. For this reason, ProAir announces all tenders in the print media.

3.2.4 Construction of the Water Supply System

Before construction begins, ProAir organizes and facilitates a pre-construction meeting between the contractor and the community groups. In this meeting, ProAir introduces the contractor to the groups, and vice versa. ProAir, together with these two parties, agree to build a water supply system with reference to the schedule and cooperating mechanism. This implies respective authorities and responsibilities that both parties must observe. ProAir assigns a Site Inspector to supervise the works and construction quality of the system. The Contractor appoints a Site Manager to organize and supervise the contractor's executing personnel. Community groups organize and execute their in-kind works.

3.2.5 Establishing Management Rules for the Water Supply System

Parallel to the construction works, ProAir assists the communities in clarifying the formulation of their Statutes, which later results in the charter and by-laws of the Water User Group.

Firstly, the Temporary Management Board formulates the key-topics, which they would like to include in their statutes. ProAir facilitates and guides this discussion to ensure that the villagers do not forget any essential aspect. At a minimum, the following issues should be included in the statutes:

- Identity of the Water User Group.
- Function and Organizational Structure of the Water User Group.

Detailed Engineering Design activities

DED is done and prepared in a thorough manner by project experts, which include the profile of every component of the facility and Planned-Cost Budget.

For instant, a DED for gravitational piping system consists of the following component:

- **Water Source Catchment**
- **Transmission Pipe Network**
- **Reservoir**
- **Distribution pipe network**
- **Water access points**

Community participation in the tender process

ProAir as a government to government project abides by the Indonesian rules and regulations on tendering projects. Following KEPRES No 80/2003 the selection of the contractor needs to be done by all stakeholders who will later sign the contract. For this reason, the communities were not involved in the selection process of the contractor.

Government representatives, together with the temporary Management Board explained type and share of in-kind contribution to community members.

It is difficult to obtain enough clean water from nearby sources in Palla (Southwest Sumba), so the community members there were very enthusiastically performing in-kind (communal) work. In this picture, the community members collect rocks for a reservoir construction. They managed within three hours to transport by hand 93 cubic metres of rocks all the way up to the reservoir location on a hill.

- Funding Source and Financial Management of the Water User Group.
- Environment around the water source.
- Prohibitions and penalties.

Secondly, ProAir facilitates the Temporary Management Board to compile all issues to the first draft of the group's statutes.

During the next step, the Temporary Management Board organizes information campaigns on the hamlet level. There, every villager gets the opportunity to contribute to and comment on the draft version of the statutes. This guarantees a wide acceptance of the statutes and strengthens the sense of ownership for the water system.

The legalisation of the charter and by-laws is carried out in a community meeting after the Temporary Management Board has included and finalized all requests and comments of all the community members.

ProAir's role during the establishment process of the statutes

During this process, ProAir plays various roles. ProAir is facilitator, observer and from time to time advisor. It is essential to accompany the villagers during the whole process, because:

- **Villagers are not experienced in formulating statutes.**
- **Not all villagers have the whole project set-up in mind or understand the consequences of their formulated goals, rules or penalties.**
- **Some villagers do not speak or are able to write proper Bahasa Indonesia.**

3.2.6 Formation of the Management Board for the Water Supply System

A short while before construction is completed, the Temporary Management Group needs to be reorganised, as experience shows that there are members who lose motivation during the implementation process. For this reason, all members of the Temporary Management Group need to step back so that a new election can be carried out. ProAir facilitates the reelection based on the principle: "the structure follows the function".

All community members who have provided an in-cash contribution before construction started are automatically members of the water user group. Now the elder of these members elect the new Management Board of the Water Supply System.

The board consists of a Chairperson, a Secretary, a Treasurer, Technicians, several Chairpersons of service sub-areas and an Auditing Board. Only the technicians are not elected, but selected directly by the community.

A Water Supply System will function longer if it is backed up by clear and assertive management rules. Here, water users living around the water tap are prohibited to bathe, do their laundry, and connect a water hose on the premisis.

In NTT, many pipes from the existing water supply facilities are left uncovered above the ground. These pipes are either corroded, out of function, or broken. ProAir facilitated the involvement of community members in communal works to bury those pipes.

The highest body of the water user group is the meeting of all community members living in the service area. The graphic *"Structure of ProAir's Water Supply Management Board Model"* gives an example of how the management structure may look.

After the community members have elected the new management board, there is an official inauguration ceremony. If possible, the ceremony should co-incide with the validation of the statutes. The ideal moment is around the time of the Provisional Handing Over.

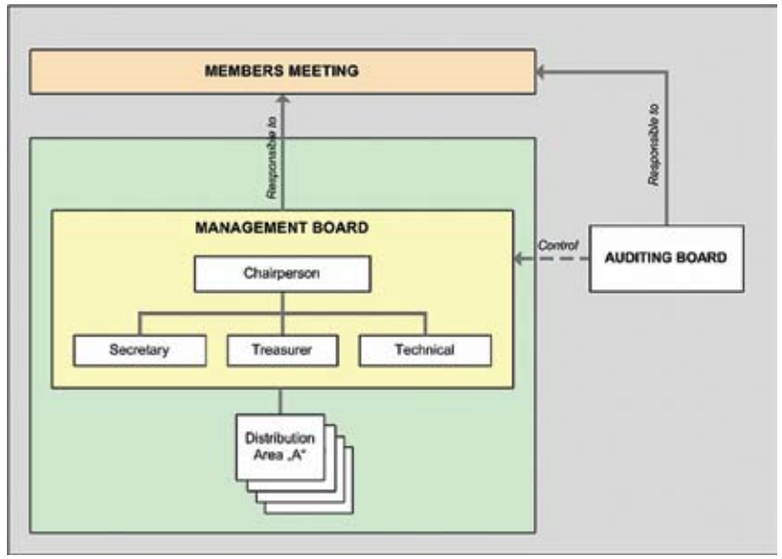
3.2.7 Water Supply Maintenance Fund

During the discussions of the charter and by-laws of the Management Board for the Water Supply System, all members living in the service area agree to pay a monthly water consumption fee after the Provisional Handing Over. The management board has recorded the amount of the consumption fee in the by-laws. In the ProAir project areas, the monthly fee of aound IDR two thousand (USD 0.22) per person.

The management board combines this fee with the in-cash contribution. The funds are used for the operation and maintenance of the water supply system.

3.2.8 Provisional Handing Over (PHO) and Final Handing Over (FHO)

PHO dan FHO are parts of the construction contract. PHO takes place after the contractor reports to the project management that he has finalized the construction; FHO takes place after the end of the contractor's guarantee period. To verify the contractor's report, ProAir organizes a team, which evaluates the contractor's work. Hereinafter, this team



Structure of ProAir's Water Supply Management Board Model.

Learning from Pili village

The performance in managing their water supply system has turned Pili into a learning center for the successful implementation of community based water supply throughout the province.

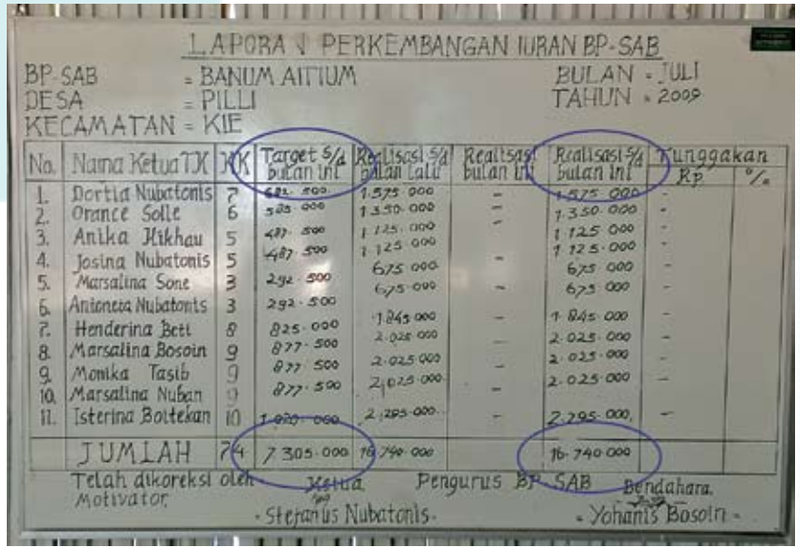
"Banum Aitium" Water Supply Management Board in Pili Village, South Central Timor district in NTT, has been facilitated and assisted by ProAir since 2006. The gravity fed system in Pili is serves 74 households, or 314 persons.

The monthly subscription fee, amounting to IDR 555 thousand (USD 62) per month, for operation and maintenance was agreed by consensus at a Members Meeting. Total value of the monthly subscription fee that every service area member has to pay is IDR 7,500 (USD 0.83) per month per household.

The members are very consistent with the consensus stated in the Charter and Bylaw of the Water User Group. They keep the surrounding of their taps clean, they organize regular meetings and they always pay their share of monthly consumption fee; sometimes even for more than one year in advance.

This impressive performance is possible due to good leadership, honesty, and firmness of the management in running the facility, as well as obedience of the service area members toward the rules. In addition, the use of wastewater has become a supporting factor in productive home gardening, growing vegetables.

Participation of women in the construction progress.



LAPORAN PERKEMBANGAN IURAN BP-SAB

BP-SAB = BANUM AITIUM
DESA = PILLI
KECAMATAN = KIE
BULAN = JULI
TAHUN = 2009

No.	Nama Ketua TK	KK	Target s/d bulan ini	Realisasi s/d bulan lalu	Realisasi bulan ini	Realisasi s/d bulan ini	Tunggakan Rp	Tunggakan %
1.	Dortia Nubatonis	7	682.500	1.575.000	-	1.575.000	-	
2.	Orance Solle	6	585.000	1.350.000	-	1.350.000	-	
3.	Anika Hikhau	5	487.500	1.125.000	-	1.125.000	-	
4.	Josina Nubatonis	5	487.500	1.125.000	-	1.125.000	-	
5.	Marsalina Sone	3	292.500	675.000	-	675.000	-	
6.	Anioneta Nubatonis	3	292.500	675.000	-	675.000	-	
7.	Henderina Beti	8	825.000	1.845.000	-	1.845.000	-	
8.	Marsalina Bosoin	9	877.500	2.025.000	-	2.025.000	-	
9.	Monika Tasib	9	877.500	2.025.000	-	2.025.000	-	
10.	Marsalina Nuban	9	877.500	2.025.000	-	2.025.000	-	
11.	Isterina Boitekan	10	1.020.000	2.295.000	-	2.295.000	-	
	JUMLAH	74	7.305.000	16.740.000		16.740.000		

Telah dikoreksi oleh Motivator

Ketua
Stefanus Nubatonis

Pengurus BP-SAB

Bendahara
Yohanis Bosoin

In Indonesia, a water supply system don't last long. One reason is lack of funds to purchase damaged parts. Learning from this experience, ProAir facilitated the establishing of in-cash contribution by members of the service area, and of payment of a regular, monthly consumption fees for the water they use.

is named as the PHO/FHO Team and consists of representatives of the District Government and ProAir Consultants.

Even though ProAir is a community-based project, community representatives are not in the PHO/FHO Team, because the community does not take part in the signing of the work contract for the water supply system construction. However, as the water supply system belongs to the user-community, ProAir facilitates a Joint Monitoring by involving the community before the PHO/FHO Team conducts the evaluation on the contractor's works.

The PHO is validated when the contractor and the PHO team sign the PHO report. The signing of PHO report is the start of the maintenance warranty period. This period ends with the signing of the FHO report.

Joint monitoring

ProAir adds an activity of joint monitoring, which is carried out before the signing of PHO and FHO report. Here the villagers, the District Government, the contractor and ProAir Consultants are evaluating the whole construction starting from the spring catchment to all public taps. This Joint Monitoring gives the community the opportunity to highlight everything that is still lacking, according to their understanding.

Occasionally, the activities of Joint Monitoring and PHO/FHO take place at once.

Community representatives listen to ProAir Information Campaign in a sub-district. ProAir explains the principles and requirements that community members need to fulfill before a co-operation can start.

ProAir together with community members inspecting the pipe network, before conducting PHO and FHO. This is carried out so that everyone are ensured the work was conducted according to the design specifications.

As the community has agreed on the in-kind contribution, their members are excavating the area for the reservoir foundation.

One factor supporting the longevity of a water supply system is its quality. This applies both to the physical quality of the construction, and to the design.

This picture shows a reservior control chamber, which need to be easily accessible to the technicians in order to measure and regulate the water volume.

3.3 Post-Construction Support Phase

When construction is completed, ProAir continues to support the community for a minimum period of nine months (six months for the maintenance warranty period and a further three months after the FHO), to ensure that the water user group has the ability to manage their system in a sustainable manner. In addition, ProAir consultants support the regional government in continuing to assist the community. Ideally, it is the water working group which takes over the responsibility of the post-construction support.

Recommendation for the post-construction periode

The necessary time for post-construction support depends as well on the knowledge and ability of the community as on the quality and intensity of the provided trainings. ProAir's experiences show that a post-construction periode of nine months is not sufficient for the existing situation in NTT. ProAir provides post-construction support for up to two years.

3.3.1 Group Dynamics Training

Rural communities may often appear slow in adopting new behavior and adapting to change. This is often compounded by their limited access to information and knowledge. It is therefore important to support rural communities in taking a pro-active approach to leadership, group cooperation, initiative, and developing a sense of responsibility for the facility.

ProAir organizes group dynamics training for the water management board. This training develops a better understanding of the role and duty of each member of the board. It also transforms the group into a more dynamic organization, which, in turn, makes the group more responsive towards solving problems that relate to the management of the system in a sustainable manner.

Every year there is a mission carried out by KfW, GIZ and the Indonesian government on national level to monitor the implementation progress of ProAir. We see the Country Director of KfW branch office in Indonesia and the Director General of PP&PL/Environmental Sanitation, from Ministry of Health, opening the door of the reservoir control room of "Watulonda" water supply system in Watukawula village, South Wewewa subdistrict, Northwest Sumba district.

List of Water Supply Management Books

Administration Books:

- Data on Service Area Members
- Minutes of Meeting
- Activity
- Inventory
- Incoming/Outgoing Letters
- Statutes of Association
- Record of routine water measurement at source

Financial Books:

- Transaction Receipt
- Cash
- Cash Recapitulation
- Financial Statement
- Bank Book
- Members' Monthly Contribution Card
- Recapitulation of Monthly Contribution Fee

3.3.2 Training on Administration and Finances

In order to support proper administration by the water supply management board, ProAir organizes administration and finances trainings. The trainings are available once the water supply management board has been reorganized and the collection of the monthly consumption fee has started.

The table *"List of Water Supply Management Books"* shows the required administrative and financial books as the targets and results of administration and finances trainings provided by ProAir.

3.3.3 Technical Training

Following PHO, ProAir facilitates technical training for the operation and maintenance of the water supply system. The core participants are the group's technicians, who are selected by the community living in the service area.

During the contractor warranty period, the community is only allowed to repair minor damages around the water post. Every major damage remains the responsibility of the contractor. For this reason, at the first technical training ProAir only facilitates the technicians on how to keep the environment of the water post clean and how to replace the taps.

A short while before the FHO takes place, ProAir facilitates a complete technical training. This training consists of the following four modules:

- General Information on Water.
- Measurements of Water Discharge and Analysis on the Need for Water.
- Principles of Gravity Fed Systems.
- Operation and Maintenance of Water Supply Systems.

Another factor that prevents a water supply system from longer operating cycle is the unavailability of working tools to perform repairs, if any part of the system is damaged. In addition to trainings, ProAir provides the village technicians with working tools, which matches the respective needs of the system.

In addition to controlling, analyzing, and repairing the system, technicians received trainings on how to maintain their tools, such as pipe spanners, thread-making device for pipes, etc.

Generally, a water supply system don't last very long. One cause is lack of sufficient maintenance personnel. Learning from this, prior to handing over the management to community members, ProAir provided trainings for technicians, who should always be available to control, repair, and perform necessary parts replacement for the system.

ProAir's community training

ProAir regularly monitors the ability of the water management boards. If ProAir observes any lack of understanding, ProAir will intervene and repeat the necessary training until the water management board carries out the trained aspects independently.

Recommended tree species for spring protection

Not every tree species has automatically a positive impact on the spring. For instant Mahogany and Teak are unsuitable species for spring protection. For NTT, ProAir recommends local species, like Beringin, Gamalina and Asam.

3.3.4 Training on Water Source Protection

The management of any water supply system would lapse, if the spring and its vicinity are not properly preserved. The logical impacts that may occur are polluted water, a decrease in water flow or even the source running dry.

For this purpose, ProAir provides training to the water user groups on source protection and its associated benefits. Together with the district governments, ProAir supports the communities in planting trees as contribution to mitigate negative impacts on the spring.

Law No 23/1997

Environmental Act No 23/1997 regulates environmental management within the spring vicinity:

"The area should be free from all kinds of activities, at least 200 metres from the spring."

3.3.5 Clean and Healthy Lifestyle

Clean and healthy lifestyle training is facilitated by ProAir in order to promote the proper use of water for drinking, cooking, bathing, and laundry. ProAir even includes the productive use of wastewater in this training – for example, the watering of vegetables planted in house yards. The clean and healthy lifestyle training focuses on community members, mainly women, and schoolchildren.

Further, this training provides the community with information on personal hygiene and environmental cleanliness, particularly around the water posts or wells. The cleanliness of water posts needs particular attention in order to prevent spilled water from collecting and stagnating, which can provide a breeding ground for diseases, such as malaria.

Especially for schoolchildren, ProAir, in cooperation with schoolteachers, focuses the training on personal hygiene, for example promoting a routine schedule of bathing, the importance of hand washing with soap, tooth brushing, nail cutting and the importance of wearing clean clothes and not walking barefoot.

Dirty surroundings and water puddles are perfect breeding places for mosquitos. These women, trained by ProAir as clean and healthy lifestyle promotors, are cleaning the area around water taps. This sets a good example for other members of the service area.

Availability of sufficient water nearby is expected to encourage clean and healthy lifestyle among members of the service area. ProAir consider schoolchildren agents of change that should receive trainings with materials promoting clean and healthy lifestyle. They will be ambassadors for clean and healthy lifestyle for their families and neighbours.

The water supply system now provides sufficient water for the villagers' household needs, which is a great relief in their daily lives, particularly for women and children.

One of the factors that prevented school children from being punctual for classes, is that they had to help their parents fetching water. Now, the kids are happy because the access to water is better. They arrive to school clean, and their attendance is improving.

3.3.6 Community Exchange Visits

In addition to regular trainings, ProAir also facilitates regular community exchange visits. This supplementary training approach has the following potential capacity enhancement impacts on the community:

- Proper organization management.
- Proper administration and finances management.
- Sustainable operation and maintenance of their water supply systems.
- Enforcement of the statutes (charter and by-laws of the water user group).
- Motivation to promptly pay the monthly contribution fee.
- Protection of the spring by planting trees.
- Maintenance the environmental cleanliness and sanitation.
- Involvement of women in the management of the water user groups.

Impact of community exchange visits

Gradually, the community exchange visits have begun to yield positive results with an improvement and enhancement in capacity, which can be seen from the active community participation in meetings, prompt payment of consumption fees, and observation of the groups' statutes.

3.3.7 Benchmarking

In NTT, people are generally not accustomed to managing a public facility. This often leads to two situations:

- The general assumption in the community that a correctly functioning water supply system requires no further monitoring.
- The disappearance of the initial enthusiasm over time.

As these two issues endanger the sustainability of the facility, ProAir organizes benchmarking between the communities once the systems are in operation in order to encourage continued activity and interest.

ProAir has benchmarked the following aspects: *Routine monitoring; regularity and reliability of consumption fee payment; condition of the water-collection points, engagement of the management board; completeness of the administrative documents; regular cleaning of the water supply system; routine meetings; and the frequency of measuring spring discharge.*

Active participation of community members in the construction of water supply systems ensures that the community will develop a sense of ownership and for this reason will operate and maintain the built system. This results in a cleaner environment and better personal hygiene.

4 Recommendations on Exit Strategy

In principle, all ProAir water user groups have the money and knowledge to operate and maintain the built facilities, but they still need regular support from an external agency. Why is that?

- A water user group is a dynamic element. ProAir has trained the members of the water management board of the water user group, but not the whole community. If one or even some members step back, fall sick or leave the village, the whole set-up could collapse.
- Water supply systems need regular monitoring and repair works. This conflicts with the human habit of becoming less observant when everything functions well.
- The tools provided by ProAir for the water user groups are designed to repair minor damage to the distribution line only. If there is serious damage or problems with the transmission line, the groups need external support.

The only constant agency in any region is the government. For that reason, it must be the government, which takes over the responsibility for the post-construction support. Another reason is that the government has contributed 10 per cent of the investment cost, which means the government has a strong interest in taking care of the built facilities.

Over the course of the project, ProAir facilitates discussions with the district governments

A firm handshake between the head of East Sumba district and ProAir Advisor (GIZ) marks the hand-over of ProAir water projects to the local government.

with the aim of developing and strengthening their capacity. This facilitation is always directed towards the following aspects:

- Formation of community-based water supply and environmental sanitation working groups.
- Formulation of the water working groups' strategic plans.
- Encouraging the government to provide sufficient funds at all times through routine budgeting.
- Performing advocacy work at district government level to adopt the community based approach model in the region.

The established water user groups and the built water supply systems contribute to this facilitation in showing best practices on how to implement the national policy on community based water supply.

To ensure sustainability of the built systems, ProAir recommends the following:

- Even though every water user group has a notarized charter and by-laws, an official recognition of the water supply management boards in each location through village and regional government regulations, would clearly strengthen the standing of the water user group.
- The government needs to monitor the water user groups regularly.
- The government has to train the members of the water management board in case the monitoring results show some weaknesses.
- Community-based development cannot keep up with the government's annual budgeting system, as it requires longer-term interventions (a time-consuming characteristic). Therefore, ideally, the required time to construct a water supply system can be broken down into several budgets and their corresponding years (see table at page 17: *"ProAir Implementation Process"*).
- Considering the official Indonesian regulation and policy on regularly moving and replacing government employees, it is necessary to establish an umbrella organization, which only focuses on the sustainability of water supply systems. This organization could be a government initiated working group on community-based water supply and environmental sanitation, or any different public service board for water supply.
- The local governments may consider adopting the ProAir working model, which adheres to principles, requirements of community-based water supply.

"Village with Water" is one strategic programme of the Northwest Sumba regional government for 2009–13. Therefore, the head of Northwest Sumba, Dr Kornelius Kodi Mete (left), and his Deputy, Jacobus Malo Bulu (centre) monitor progress in the field.

First year	Construction Preparation Stage
Second year	Construction Stage
Third and following years	Post-Construction Support Stage

ProAir

AHT GROUP AG
Management & Engineering

AHT GROUP AG (AHT) is a privately owned consulting firm which was founded in 1960 under the name Agrar- und Hydrotechnik GmbH.

We offer management and engineering services in our core fields of competence, namely:

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- Waste Management
- Decentralisation and Good Governance

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AHT Group AG has implemented the capacity development component for the rural water and sanitation programme ProAir on behalf of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in the years 2002 until 2011.

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