

Water Supply System

in Dodota - Ethiopia

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Resources and the
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**Sida Evaluation 96/23
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CHAPTER 1 SUMMARY OF THE FINDINGS

1.1 SUMMARY

The Dodota Water Supply Project has against strong odds been very successful, and has been used as a model for a number of water projects in Ethiopia. In 1986, the completed plant was handed over to a women's political organization that ceased to exist in 1991. Since 1991 the "public water company" has had no owner and since 1986 all activities have been financed by the population in the connected towns and villages.

The purpose of this study is to investigate why the water still is flowing at the taps and to adapt the positive aspects of this project when planning and implementing new SIDA-supported projects.

We believe that the following factors are the most important:

- A good technical design

A gravity supply is independent of the power supply and the water will continue to flow as long as the pipes are in tact.

- An excellent training program for staff

Even when the owner disappeared, the staff continued to perform their duties. Water was sold, revenues were collected, pipes were repaired, accounts were kept in order. The job-oriented training and the direct focus on women-as-employees made this possible and are worth copying in other projects.

- A good administrative system

A salaried staff was employed from the beginning and fees were collected from the start of operations.

- Strong support from the villages

Some formal participation from the villagers was included in the original design. Villagers identified the need for water, they took part in the construction work, they paid a part of the investment, and from the start they understood that this was their project and that their assistance was needed if the water was going to continue to flow at the taps.

We have been very impressed with the willingness of local population to participate both with labour and money (in the form of higher water

rates). Some of this willingness can be attributed to the acknowledged need for the resource. It can also be attributed to the enthusiasm and involvement of local REWA associations and of the devotion of local women employees in the early stages of the project. We are afraid, however, that this eagerness to participate will be lost if the water supply system is taken over by the government.

The idea to use a political organization - REWA - as the owner has proved to be wrong. The model used in the Hetossa Water Supply Project whereby ownership is given to a local organization based on water committees in the PAs seems to be much more promising. That solution will probably further strengthen the local population's willingness to participate.

Management has been and is weak in Dodota. This crucial aspect of the organization was not included in the training program. We believe that a manager with at least a basic education in water supply must be hired and that both the manager and the board (or executive committee) must be given additional training in how to run the water company.

Purchasing of spareparts is now one of the major problems for Dodota. Spareparts of an acceptable quality are not available on the market in Ethiopia. As it is not reasonable to expect that a local water company shall be able to import parts needed for maintenance or rehabilitation of the plant, another solution will have to be found. In our opinion, it is not acceptable that a water company shall need assistance from a donor, or from the government, to obtain spareparts.

To solve this problem active participation from the Donors are required. The main priority, when purchasing, must be to secure future supply of spareparts not to minimize costs by international competition. Suppliers with local resources for future supply of spareparts must be given priority.

1.2 Lessons learned from Dodota that can be applied on future water supply projects in Ethiopia

A detailed plan for the organization for and the financing of future operations must be an integrated part of every Water Supply Project. The following questions will have to be answered:

- Who will be the owner of the water company?
- How will the water company be organized?
- What technical and financial resources will be required for future operations?

- What will be the sources of income for the water company?
- Will the water company have sufficient resources for future operation and maintenance of the plant. If not who will provide these resources?

As we have learned from Dodota the most important source of income for a water company will be water fees paid by the users. It is therefore natural that a local organisation of users will be the owner of the water company and will be responsible for future operation. This organisation ought to be created already at project start. The users must confirm that they accept the responsibility of future owners, and that they accept to pay required water fees.

The staff of the water company ought to be employed in the beginning of the implementation stage. They must be given both job-oriented training and on the job training of high quality. In Dodota the majority of the staff employed from the beginning were women from the villages, included in the project. This approach proved to be successful. Training must be given also to the future manager and to the members of the future "Board" or "Executive committee" representing the owner. This training shall include: Administration, Leadership, Methods for Economical and Technical planning, Purchasing etc.



CHAPTER 2 THE DODOTA WATER SUPPLY PROJECT: TOWARD RENEWAL OR STAGNATION?

2.1 Preface

In the Dodota plain in the Arsi region of the regional state of Orominia in present-day Ethiopia, lack of water has long been a severe problem. To deal with this, a gravity-fed Water Supply Project was constructed in 1986.

Today, in 1996, the water is still flowing and the Water System is in tact.

ORGUT Consulting AB has been requested by Sida headquarters in Stockholm to administer an 'lessons learned' evaluation of the Dodota Water Supply Project.

2.2 Background and purposes of this study

The Dodota Water Supply Project (DWSP) was completed by SIDA in late 1986. It was subsequently handed over to district representatives of the then-functioning Revolutionary Ethiopian Women's Association (REWA). REWA remained the official owner, manager and administrator of the Water System until the fall of the Mengistu government in 1991.

In the fall of 1988, SIDA conducted an evaluation of the Water System¹. The evaluation indicated in clear terms that SIDA had accomplished its general short term objectives: the Water System provided a large percentage of households in the lowland villages and towns in the district (awraja) of Dodota with clean tap water, and it provided project-oriented training for local women which enabled them to play an active role in the operation, maintenance and management of the Water System. (See Poluha, Engstrand, Idemalm, Melchert, Narrowe, 1989). The project was thus considered 'successful', and has since been regarded - indeed praised - as a prime example of a sustainable development assistance project.

¹ In our view, the Dodota Water Supply Project was concluded in 1986. At that time, REWA became the owner and manager of what we will regard as a self-governing, financially responsible Water Company or 'Water System'. We define these terms more fully below, section 2.4.

In the course of the years since the completion of the evaluation, however, widespread changes have occurred in the political and economic composition of Ethiopia. Most pertinent and decisive for the present functioning of the Water System is the fact that the Revolutionary Ethiopian Women's Association (REWA) which was the official owner and manager of the Water System is now defunct.

We therefore find it appropriate to ask three questions: first, what has happened in Dodota with regard to the Water System? How has this successful development assistance project fared in the face of major political and economic changes? Has the project generated a momentum and a sense of local responsibility so that it has been able to continue to function in spite of these changes? In other words, how sustainable was/is the Water System? What has the dismantling of the REWA and the change in government meant for the continued functioning of the Water System?

Second: what changes do various categories of Dodota residents - employees, customers - identify which they attribute to the functioning of the Water System? Sufficient time has passed to permit us to examine some of the outcomes of the project.

Third: what lessons can we learn from Dodota that can be applied elsewhere? This question has immediate relevance: The Bureau of Planning and Economic Development (BoPED) in Region 3 (Gojjam, Gondar, Wollo, West Shoa) is now collaborating with Sida to plan and implement a large integrated rural development project in the region. The project is expected to include the construction of water systems. This report is thus intended to contribute fresh information in the form of 'lessons learned from Dodota' which can be referred to and hopefully utilized in the planning of water supply interventions in Region 3.

2.3 From 'Water Project' to 'Water Company': a new framework

A water supply project is a brief period in the beginning of the lifetime of a water company. During this period the donor participates with expertise and money in order to assist in the starting up of a water company. For the operation of the water company to be successful and sustainable, it is not enough with participation from the users; they must take the full responsibility as owners.

The Dodota Water Supply Project was carried out between 1980 and 1986. It started with discussions in the villages about the need for water, and it ended when the completed plant was handed over by the donor to REWA in 1986. During this period several resourceful bodies did take part in the work (The Ministry of Natural Resources, SIDA, ARDU etc.)

After handing over, the local organization no longer had access to the donor's resources and was expected to be self-sufficient both technically and economically. In order to stress this dramatic change, we have chosen to use the term "The Dodota Public Water Company", or "Dodota Water Company", for the period starting with handing over.

2.4 Procedure and methodology: conducting the follow-up study

The field study team first met with Mr. Dag Skoog, first secretary of the Development Cooperation Office of the Embassy of Sweden in Addis Abeba. We were informed that contacts had been made with Mr. Junieidi Sado, Bureau Head, Oromia Water, Mineral and Energy Resource Development Bureau, requesting his permission to conduct a three week field study of the Dodota Water Supply Project. The purpose of the study as expressed in the request for permission was not to re-evaluate the water project; it was rather to identify the 'lessons learned from Dodota' in order to apply whichever of these are seen to be appropriate to the extensive integrated rural development project currently being planned by SIDA in Region 3.

Permission was granted. The study commenced on 12 February 1996, and was concluded on 7 March.

Participating in the study were Mr. Bror Olsson, Sida, water engineer and team leader; Mr. Negatu Asfaw, hydrogeologist, WMEB, Region 3; Ms. Judith Narowe, Sida, social anthropologist; Ms. Eneye Teffera, Community Participation Unit, WEWMEO, West Gojjam, Region 3; and Mr. Amsalu Negussie, country representative of Water Aid, Ethiopia.

The team conducted open-ended, non-structured interviews with the full spectrum of individuals participating in the Water System. Each team member consistently posed questions which related to his or her particular field of concern. Questions thus focused on the technical and managerial aspects of the Water System, on the views of the various participants (staff and customers) regarding the Water System's social and health-related consequences, and on the various ways in which the participants continue to contribute to or participate in the Water System. A meeting was also held with the women and men of several PAs who have not yet received water.

All discussions were held in locales most convenient for the participants. The team held regular 'summing-up' sessions during the field study. Statistics were collected and discussed where appropriate and available.

This report is organized in the following way: Chapter one is a summary of the findings. Chapter two is a presentation of the background and purpose of the study, the team and the methods used. Chapter three describes the Dodota Water Supply Project - 1980-1986. Chapter four, entitled The Dodota Water Company, reviews the operations of the Dodota Water Company since 1986. Chapter 5 presents in some detail the findings and observations made during the field study. Chapter six enumerates the 'lessons learned' from Dodota, and Chapter 7 concludes the report with several suggestions of measures which we maintain should be introduced in order to assure the continuing functioning of the Water System.

CHAPTER 3 THE DODOTA WATER SUPPLY PROJECT: 1980-1986.

The following description of the Dodota Water Supply Project summarizes the main points brought out in the evaluation conducted by Poluha, et al, 1989.

3.1 The start of the project

At a series of meetings with several groups of women from the woreda of Dodota in 1980, the participants declared that what they needed most was drinking water. After consultations between SIDA and the local Revolutionary Ethiopian Women's Associations, ARDU was asked to outline a project. Experts from ARDU did identify two springs at Fursa that could serve as a source of water for the villages on the Dodota plain.

Ardu submitted a project proposal and in 1982, SIDA agreed to finance the major part of the project.

3.2 Design and implementation

The population in the project area was estimated to be 28,000 persons in 1980. For the design of the project, a projected future population of 56,000 persons in 1995 was used. The present population is 70,000 of whom approximately 50,000 are served with water.

From its inception, the project was designed to serve this entire population, but due to the fact that implementation coincided with the former government's villagisation program, this did not occur. Farmers that were expected or ordered to move from the lowlands to the highlands did not move. For this reason, 20,000 persons that contributed both their labour and their money to the project have never been connected to the System.

The water demand in the 1995 was estimated to be 25 l/cap or 1400 m³/day. The actual consumption is 14 l/cap or 725 m³/day.

The water sources are the Fursa springs located in an upstream mountain. The total capacity of the springs was in 1982 estimated to be more than 1500 m³/day. Approx. 50 % of this capacity is now delivered to consumers through metered connections.

A pipeline system was built from the springs for distribution of the water. The total length of these pipelines is 100 kilometres.

Construction was started in 1983 and the system was completed in the spring of 1986.

3.3 Community participation

In addition to participating in identifying the actual need for the project, each household in the area paid 12 birr in advance for the water project thus financing approximately 10 % of the cost of the project. Moreover, each adult member of the communities dug one meter of the trenches, thus reducing the cost of implementation another 5%.

The staff for the Dodota Water Company was recruited locally.

3.4 Training of staff

The Dodota Water Supply Project was a women's project. It was specifically meant to be managed, administered and maintained by women residing in the participating PAs and towns.

131 women were elected by the local Women's Associations to attend courses given in ARDU's training centre in Assela. Three rounds of courses in the following subjects were given:

- Home economics
- Technical courses (one month) including
 - Pipefitting, pipelaying and maintenance
 - Administration
 - Accounting
- Intensive job-oriented training (two months).

Some trainees were then chosen for employment by the Dodota Water Company. Twelve years later, nearly all those who started are still working with the Dodota Water Company.

3.5 Impact on the population in the villages

The impact on the lives of people in Dodota was discussed in depth in the evaluation of 1988. There is no possibility to measure the impact on health other than interviews, as no statistical data on mortality rates exist.

However, we can state that before the project was implemented, 5-10 million man- and womanhours were used for carrying water from the river each year. These same hours can and are now be used for other

purposes. But it is not difficult to understand that the impact on the quality of life for women and children, in the villages, has been dramatic.

3.6 Financing and costs

The project was implemented between 1982 and 1986. The total investment of SEK 9 235 300 was financed by:

SIDA	SEK	7 675 000
Population in Dodota	SEK	1 069 300
ARDU	SEK	281 000
REWA	SEK	210 000

3.7 Handing over

One of the key factors for the success of the Dodota Water Supply Project was probably that handing over and the creation of a Water Company was planned within the project. In addition to the technical plant, a complete organization, including a trained staff, a system for financing of future operations and an administrative system was handed over to REWA.

3.8 A women's project

The Dodota Water Supply Project was initiated when local Dodota women - those traditionally responsible for providing the household with water - identified water as their greatest need. Because of this, the Project was deliberately and consciously designed to be both by and for women: it was to be administered, maintained and owned by locally based women, and it was meant to alleviate the workload of women as well as to improve the health of all Dodota residents. It was therefore a project which specifically focused on development for women, and it was a project which involved women in development: it provided training and jobs for a small number of women, it provided piped water close to home for all others², and it relieved all women of the need to walk hours to fetch (often unpotable) water.

The majority of the staff employed were and are women. We have noticed that the women employed at the start of the project have stayed with the organization and are doing a very good job.

² The exception is the women of the 18 villages not connected to the System.

CHAPTER 4 THE DODOTA WATER COMPANY

The Dodota Water Company was created in 1986 in order to operate the Water Supply System built by the population and SIDA. Until 1991, the water company was owned by REWA. Since 1991 the company has had no owner and its legal status is unclear. Since 1994, the zonal office of Bureau of Water, Mines and Energy (WME) in Assela has been supervising the activities but the government has not yet taken over the complete and formal responsibility.

4.1 Organization

Executive committee			
Manager			
Secretary			
Administrator			
Property Store	Transport	Technicians	Guards
2	2	6	7
	Cashiers		
	2		
	Accountants	Meter readers	Tap attendants
	2	2	30

The gender breakdown is as follows:

office workers:	12 women, 1 man
technicians:	1 woman, 5 men
tap attendants:	30 women

During the interim period, two of the three women technicians originally working for the System opened their own businesses or went to work for other technicians.

4.1.1 1986-1990: The REWA period

During this period the executive committee consisted of representatives from the REWA organization at the regional, awraya and woreda levels. To our knowledge, the members of this committee did not receive any specialized training in how to manage a water company. The responsibility for auditing was carried by the regional REWA.

4.1.2 1990-1994: The interim period

During this period an executive committee did not exist. Water committees were elected at the PA-level. One representative from each PA was appointed to the Huruta Water Committee or the Dhera Water Committee. These committees did not have the power to act as an executive body and served only as a link between the Water Company and its employees, and the population in the villages and towns.

4.1.3 1994-present: The partial take-over by the government

In 1994, the zonal WME office appointed a technical advisor to the water company. The technical advisor is today acting as manager of the company. The zonal WME is acting as the executive committee. All decisions not concerning the day-to-day operation of the plant are now made by the zonal office of WME.

4.2 Economy

4.2.1 Sales

Since the start of operations in 1985, water sales have been increasing. The sales in 1985 were 102,000m³, in 1990, 160,000m³, and in 1995, 264,000m³. Thus, during the life of the water company upwards of 1,700,000 m³ of water have been sold.

4.2.2 Revenue

In 1984 the water rate was fixed to 0.5 birr for 1,000 litres of water. In spite of inflation and in spite of the strong recommendations by SIDA's evaluation team in 1988 to increase the water rate, the rate was kept on the same level until 1992. In 1993, however, the rate was raised to 0.75 birr for 1000 litres.

Collection of fees has been excellent during the whole period. Since 1984, the customers have paid a little more than one million birr for water delivered by the Dodota Water Company. The total income in 1995 was 211,000 birr: 192,000 birr is from water sales, and the remaining 19,000 birr is collected mainly from house connection fees.

4.2.3 Costs

In 1995, the running costs for operation were the following:

Salaries	birr	89004
Allowances		19650
Huruta office		14196
Dhera office		6632
Vehicles		26778
Spareparts		3849
Other		13899
Total		174008

The balance at the company bank account thus increased by 37,000 birr to 96,000 birr. The economical status of the organization might look acceptable but in view of the fact that nothing was invested in rehabilitation or improving the plant the increase is insufficient. To make it possible to replace ageing parts, the difference between revenue and running costs ought to have been at least 200,000 birr which equals 2% of the estimated value of the plant.

4.2.4 Proposed budget

For 1996 we estimate that a water rate of 1.4 birr per m³ giving a total income of 388000 birr would be enough to make the company sustainable.

Revenue	388,000	Costs for operation	174000
		Depreciations	200000
		Profit	14000
Total	388,000	Total	388000

The positive cash flow ought to be used for investments in new spareparts and for rehabilitation of the technical plant. This would enable the company to increase the capacity of system and/or to connect additional villages to the system. The present cash reserve is in our opinion big enough.

4.3 Technical resources

Very few new resources have been added since the water company was created in 1986. Spareparts, tools and vehicles are the same as those bought at the start of the project. New spareparts are urgently needed in order to make it possible to improve the strength of the lines when repairing them, instead of weakening them - as is done now.

Equipment to protect expensive parts of the system, such as water meters, is also missing.

4.4 Level of services

The upstream parts of the system (near Huruta) have an excellent supply with very few interruptions. The downstream parts (Dhera and villages far from Huruta) suffer on the other hand from frequent low pressure and water shortages.

Of a completely different nature and scale than the problems in Dhera and downstream PAs is the fact that there are 20,000 people living on the Dodota plain who still have no water supply. It is probably too big a task for the water company to solve this problem but if allowed to utilize the willingness of villagers to participate both with labour and higher water rates, the water company would be able to take a substantial part of the responsibility to solve this problem.

4.5 Staff

The training given seems to be adequate for the daily running of the system. It is very noteworthy that few of those trained in the mid-1980's have left the organization. In many projects, staff departure is a big problem - it is quite common that the trained staff leaves for other jobs. The method used for recruiting staff for Dodota - the women were elected by the local Women's Associations of REWA - has been very successful and ought to be copied. The number of staff is small and as far as we can judge no resources are wasted.

4.6 Community participation

As will be recounted in the following pages, it is obvious that the communities want to participate. In our opinion this interest is not at all utilized by the Water Company management. Formal water committee meetings have not been held during the last two years. Still, in some PAs the local water committees are kept alive and the villagers assist with guarding the lines and with labour for repairs when asked for.

4.7 Management

As mentioned above, training in management was not included in the preparations for the creation of the Dodota Water Company. When the system was new, the drawback of this was not noticed. However, already in the evaluation in 1988, it was pointed out that no analysis of the economic results of the activities was made and that economic planning was non-existent. When later problems with water shortages and with unsupplied villages did arise, it became apparent that the Water Company did not have the competence to take any serious action. They were trained to manage (administer?) the system built by the donor in 1984 and nothing else. A system or a society that is not able to adapt to changes will always have a limited lifespan. The Dodota Water Company has neither a competent manager nor an owner. The technical adviser now assigned to the company does his duty, but he is neither trained to nor permitted to act as a managing director.

4.8 Some conclusions

In the view of the study team, the problem in today's Dodota Water Company is the lack of an efficient management system. Only minor decisions can be made locally; major decisions - purchases of spare parts and other financial decisions - must be made by the zonal authorities. And such decisions are not forthcoming.

The Water System today is therefore working in a vacuum: there is no clear owner, no committee or board representing the users who can make important decisions regarding tariffs, breakage, new spare parts, new taps for the 18 unserved PAs.

Yet the System continues to work! It was designed to last until 1995 with no major input and it has been functioning thus far fairly successfully. The statistics of water delivery are impressive: since 1986, the DWSP has delivered some 85 million enseras of water to 56,000 people, and the water is still flowing at 18 l/sec from the two Fursa springs through five main reservoirs and 100 kilometres of (ageing) pipes.

But today, the Water System is leaking; its pipes and other parts have been repaired and repaired and repaired. It is both the target of vandalism by some water-hungry farmers, and the focus of creative solutions by others. The vandalism and breakage and the creative solutions can be seen as 'messages' which 'say', very clearly, that immediate and definite measures must be taken to save the Water System.

The team observed in many contexts that members of the larger Dodota community are involved in and concerned with improving the functioning of the Water System. And for good reasons: the only alternative for the people living in the lowlands is going back to the river. Clearly, such an alternative is unacceptable and - in view of the essentially sound construction and success of the Water System, it is also unnecessary. What is needed now are longterm, imaginative managerial solutions which are specifically directed toward addressing the present and future problems of the customers.



CHAPTER 5 INTERVIEWS AND OBSERVATIONS DURING THE FIELD STUDY

The purpose of this chapter is to describe and summarize in some detail the content of interviews and observations made during the field study. Interspersed throughout the chapter are comments and analyses made by the team.

First, however, we begin with a dismal contrast - an account of a meeting held with villagers from four of the 18 PAs in the lowlands which have not been serviced by the Water System.

We have pointed out that these PAs were included in the original Dodota plan. Their members contributed both funds and labour to the Project. However, shortly after project start in 1984, they were told that they were soon to be moved to villages in the highlands in accordance with the government's then-functioning villagization program, and that there was therefore no need to connect them to the Water System.

But for several reasons, the 20,000 people remained in the area and pipes were never laid to these villages.

PAs Without Water: "We are the abandoned ones"

We had met with several village leaders to prepare for our visit. On the morning of the meeting, well over 150 persons - women, men and children from 4 'waterless' PAs assembled outside the school. The head teacher of the school chaired the meeting and served as translator from Oromia to Amharic. One team member translated further into English.

After formal greetings, an elderly spokesman from one of the villages stepped forward from among the group of men and said: "Our only problem is water. We were supposed to move, but we didn't. We have lived here for generations....We participated in this project; we contributed our labour - we dug the ditches and paid our money. The project was supposed to include us. And we were abandoned.

During the dry season, we walk 15 kilometres to the Kalata river. Some of us have donkeys, some do not. There is a river somewhat closer, but it is filled with waste water from local industries. The pond we use now is filled with the waste water from Itaya town. So we're weak and sick and dying from dirty water."

One woman stood up from among the group of seated women, and continued: "We have to ask God for water for our crops, even more for drinking water. The water from the pond (which is close by) is rationed; we can take only one ensera a day. But there is even urine in the pond. The pond is our source, and we know that the dead donkeys are there, the dogs and the urine, but we have no choice. The clinic in Dhera tells us that our children's diseases need treatment from Addis, but our crops are not sufficient to pay for this....

Our backs are aching from carrying water. Bika (a PA) is four hours away - and once we get there, we wait for hours in line. One woman left her children behind at home all day, they were burned in the fire.

Water is our women's problem. We ask God, we pray and our prayers are not answered."

The head teacher continued: "Our tasks are to teach³ and to involve ourselves in community development. So we planted 2000 trees here, but only 100 survived.... There is no water, no food for the children here at school; they sit here eight hours a day and faint sometimes. The Ministry of Education asked us why we didn't talk to the regional water office - we did of course apply, but conditions are chaotic. We try to bring jerry cans (with water) here from Dhera (8 km); they cost 2 birr each, and we can't supply 272 children..."

A youngish man continued: "Our productivity here is low, water would add to the food supply. Our crops are not reliable so we depend on cattle. And even they are dying. The water shortage affects our whole lives.... These are the hopeless people, the others have gone.... We can't even wash our dead, our great obligation. And a woman who has given birth can't wash herself."

Another man came forward: "You can check how long it takes to get to the river by driving there.... We save the water for our small children to drink. There's a lot of scabies. Even the donkeys are dying..."

One team member asked what the villagers had done to try to change the situation. The reply:

"We've never stopped asking the government. We have been to Assela three times. They said they'd visit here, but they never came. We contacted Water Aid too - so far no one has come. The Hetossa project (close by) said we weren't part of their plan, they said we were part of Dodota and Dodota would have to do it."

The first spokesman spoke again, rather slowly: "I have mixed feelings about this meeting. We have spoken about the water, but we hope something will happen. I have a vision that water is coming. Is it dreaming or will water come here? Is your arrival a sign that my vision is right?"

Clearly moved, the team thanked the assembled people for the information. We were then shown the school's withered saplings, carefully protected from animals. We also walked together with our hosts to look at the pond a kilometre away. Clear to the naked eye was the difference between this water - muddy and filled with algae - and the clear water flowing from the taps in the villages and towns of the Dodota system.

With this contrast and the plight of these villages clearly in mind, we turn to our field study of the Dodota Water Company.

³ 272 children from 4 PAs attend this school: 241 boys and 31 girls in grades one to six.

5.1 Interview with Mr. J. Sado, Bureau Head, Oromia Water, Mineral and Energy Resource Development Bureau

The team members asked how the Dodota Water System is currently being managed.

Mr. Sado: There is a strong relationship between the water dept and Assela. All projects are done the zones. We coordinate between government and zones. The Operation and Maintenance person from Assela - the zonal capital in Arssi zone, which is one of ten zones in Oromo regional state - is caring for the administration and management of the WS. They used to have their own bank account. The Huruta people need help because the project is getting bigger. They get it from the Assela regional water supply office. The extra money from the project - over and above operating costs - goes to the head office. The water office at the project level talks to the zonal office to made extra expenditures. The region wants to coordinate the various projects.. T- here is a steering committee which is overlooking the present technical advisor. They question whether this should continue or whether we should find a new structure.

The DWSP is a lovely project; it's given us a light for our rural water supply projects. If the topography permits, gravity-fed systems are to be preferred. Water Aid is doing the same, also in Hetossa and in Siraro near Shashamane because there's no ground water there.

Team: What else do you think is good about the project?

Mr. Sado: REWA started it and owned it. We need to control the project. It's a complicated project. We need to interfere, to check the bookkeeping, the bill paying... And this about community participation: we want to know how do they feel about the water supply. Are they responsible? Does the whole community come to meetings? Do people pay their bills?

Team: Do the woredas have the authority to punish people who cut pipes, for instance?

Mr. Sado: The legal authority is the water company, even though the woreda can embarrass them. Our (region 4) structure is the following:

bureaus (regional state): water, health, plus 17 others

department head

zonal council (this includes our community participation section)

woreda council

PA

PA

PA

PA

There are not many women represented here in the PAs.

Water used to be run without sanitation. About 7 years ago, we began to put them together. We are assigning people from the Department of Health to help and teach. We communicate with DoH people. We are employing sanitation engineers as much as possible. Today we can't do water without sanitation.

Team: Is the price for water the same everywhere? Is there any difference between the tariffs?

Mr. Sado: This is our biggest problem. It depends on many things...but people in Huruta won't let the project die. They love it.

He mentioned that he was born and brought up in Huruta town, and that he has very strong memories of children dying and constant funerals for them. He pointed out that the child mortality rates have certainly decreased considerably in the area as a result of the Water System.⁴

5.2 The Huruta office of the DWSP

The team was greeted by Ato Weya Gomechu, the current technical advisor of the WS. He is employed and salaried by the zonal Water Department. Present as well were Ms. Asnakech, head of the financial department of the project since 1984, and Ato Senbetta Lemma, currently in charge of community participation for the Hetosa Water Supply Project.⁵

Ms. Asnakech reiterated the daily functioning of the Water System: there are 72 water taps in the PAs and in the towns of Huruta, Dhera

⁴ The team could find no statistics from the regional health department in Assela regarding under-5 mortality rates for this area. The clinic in Huruta services 23,500 people in Huruta town and 12 surrounding PAs - six with, six without piped water. The health officer reported the following: the highland villages which use spring water (not piped) have a low incidence of diarrhea; there is a great deal of diarrhea in the lowland villages without water; PA's with piped water have higher incidence of diarrhea in the rainy season when people use roof water. The lowest rates of diarrhea are in Huruta town.

⁵ Ato Senbetta was formerly employed as an agricultural extension worker in ARDU, and acted as the interpreter for the training component of the Dodota evaluation of 1988.

and Awash. These are serviced by 30 tap attendants - all of whom were trained at ARDU in the years preceding the completion of the project - 1984-86 - and most of whom have been employed by the Water System since then.⁶ Each attendant services two taps and several attendants service three. The women work for four hours in the morning and three in the afternoon - though there appear to be some variations.

Once monthly, the attendants receive a book of coupons worth 50 birr from the Water System office in either Huruta at the southern end of the system or Dhera at the northern end. They sell each coupon for 5 cents. Each coupon entitles the buyer to three jugs, enseras of water - that is, 60 litres.

This price is higher than that charged in 1988 at the time of the evaluation. The price was raised during the 'interim period' between 1991 and 1994. During these years, after REWA, the official owner of the project had left, questions of ownership of the project or water system were left unanswered. No governmental nor private organization claimed ownership. Decisions were made by the manager who had previously been employed by and had worked under REWA and who continued to receive his salary from the project. One such decision was the raise in price.

Prices are adjusted for enseras and other containers (jerry cans, rubber innertube sacks) which contain more than 20 litres. Each sale is indicated by a slash on the coupon. Three slashes thus conclude the coupon.

The attendants settle their accounts with the cashier in the zonal office at least once a month. Monies are deposited once monthly in the Commercial Bank of Ethiopia in Huruta. Withdrawals must be co-signed by Ato Weya Gomechu, Ms. Asnakech and the cashier.

At every tap there is a water meter which is read once monthly by the WS administration. Consumption is checked against the payment made by the attendant. If consumption exceeds payment by more than 4%, the difference is covered by the tap attendant - unless there are clear indications of leakage.

Individuals or households with private connections pay a subscription fee of 1 birr per month.

⁶ Several women employees moved from the area, two quit when they were transferred out of their areas, another changed her original job as a tap attendant and became first a water meter reader and then a cashier in the Dhera office. All were replaced by other trained attendants.

The project has been fully operative since 1986. As according to the project plans, 56,000 residents of the Dodota lowlands and in the towns of Huruta, Dhera and Awash are serviced by the WS. However, some 20,000 residents of the lowland area in the woreda of Dhera are not serviced by the Water System.

Data on customers were exhibited on a colourful chart in the Water System office:

NUMBER OF PRIVATE CONNECTIONS

GOVERNMENT OFFICES	21
PUBLIC SERVICES	28
HOUSEHOLD PRIVATE CONNECTIONS	941

NUMBER OF PUBLIC WATER POINTS - URBAN

HURUTA	12
DHERA	7
AWASH	6
TOTAL	25

NUMBER OF PUBLIC WATER POINTS - RURAL

HURUTA AREA	39
DHERA AREA	8
AWASH	0
TOTAL	47

It was pointed out that the number of private connections is increasing and there is a sizeable backlog of applications. There are currently some 600 private connections in Dhera town alone. Forty of these connections include 25 cubic meter reservoirs.

We spoke of the 18 PAs and 20,000 people in a dry area quite close to the main Huruta-Dhera line who are not serviced by the WS. Although they contributed both labour and financial input into the WS in the early years of its construction, they were expected to move into villages, as was the policy of the government, and to be serviced by the WS in their new villages.⁷

Asnakech continued: "The source is still serving water to the customers. There is however, much breakage - often by farmers near Dhera. Before, we repaired the pipes. Now, we inform the government authorities and they punish the offenders."

Team: "The government where?" Asnakech: "We contact the regional office in Assela. They set the rules with the PAs. The PA must pay for the damages if the breakage occurs in the PA. That was the system when the old government was here. Now, people feel more free. No one says anything and the punishment has stopped. People go to Dhera and complain (that there is no water) but it's..."

Team: "Why are people breaking the pipes?"

Ato Weya: "There are more people here now than when the project was established. The peasants who break the lines are desperate. Breakage occurs mainly in the lowlands near Dhera because of the shortage of water."

'Shortage of water downstream' is thus the main concern of the farmers in the lowlands and the main cause for deliberate breakage. The team: "Why not increase the price of water for people with private connections?" One team member reminded us of a saying which is widely heard in Ethiopia today: *Yal wuha b'amestin lela neger mezzgat ayechalem*; the only thing that still costs five cents in Ethiopia is water!

The discussion continued. One team member raised the question about incentives for employees. Ato Weya: "There is no responsible body who will answer this. And people are complaining. This lady Asnakech has been here for many years..." Asnakech continued: "When REWA was here, we complained and we used to get a salary increment every two years. We even started to pay 4% to the pension fund and the govern-

7. On two occasions during the field study, these villages were mentioned: first, in conjunction with discussions with the chairman of the woreda council about the water supply situation in his woreda - these people had no access to piped water in their area; and second, in the course of discussions with members of the PA at Bika. The latter pointed out that residents of these very dry areas walk some two or three hours to buy water from taps in Bika.

ment paid 6%. When the government changed, that stopped. No one answers our questions." She mentioned that two years ago, several employees had travelled to Addis to report their problems to the government pension office. Once there, they were referred to the zonal office in Assela. Once back in Assela, however, and having submitted the proper papers, they were reminded that the project is not a government project and they are therefore not entitled to government pensions.

Again, the basic question of 'who owns Dodota' was raised - here in the concrete context of salaries and pensions of the employees. The question was raised in other contexts as well, particularly with regard to decisions regarding finances for purchases and reparations. In every case, approval for any financial transactions over and above daily operating costs must come from the zonal water office. Thus, while there is no official acknowledgment of government ownership, the project is in fact currently being managed by the regional government in the zonal office. And yet, when the question of pensions is raised, the employees are told that they are not 'governmental employees and are thus not eligible for government pensions'.

Again, the team asked 'Who is the owner?' Ato Senbetta: "It is the community." The team members responded immediately: "and who are 'the community'?" and what do they contribute financially?" Ato Senbetta continued: "The users, the PAs. The project is community-based and community backed. It was at first a women's project - REWA owned it and it was self-sufficient. The project was administered by people trained by the community. But there should have been a higher body solving problems and contacting the government if they needed help. But this has not happened yet".

He spoke of the organization of the nearby and recently completed Hetosa project managed by Water Aid, and compared it to the organization of the Dodota project. While there was - and is - clearly widespread community participation in the construction, operation and administration of the Dodota System, there was no specific water-system-oriented organization in the PAs when REWA operated the system. There was therefore no committee representing the PAs which could elect a 'water system management board' which in turn could 'own the company'. In short there was no mechanism for the transformation of the 'project' into a company. Once REWA left at the close of the 'interim period' (1991-1994), the government stepped in, employed the 'technical advisor' and today controls the system.

5.3 A visit to the springs at Fursa, to the taps in Huruta town, a visit from two women from the PA at Anko to the Water Supply office, and a visit to the PA Huruta Gardebossa

Early in the day, Ato Weya and the team visited the springs near Fursa. We drove first through Huruta town, then through the prosperous PA of Fursa, and finally turned toward the springs. At one point on a high, dusty hill, we parked the car, and stopped for a long moment to gaze at the immense expanse of now-bone-dry space before us. Far in the distance, we could make out the tall tufts of lush greenery which surround the capped springs. From these springs, water gushes (and has been gushing for twelve years) through 100 kilometres of pipe from here to the lowlands. The scene was awesome and powerful; it sufficed to convince us of the inherent, natural logic of gravity-fed systems and of the technical challenges such water systems present. Though probably the ultimate in efficiency, they are surely not - as is commonly maintained - 'simple'.

As we approached the springs, somewhat warmed by our 40 minute walk, we noticed that one of the springs had started to by-pass the spring cap, and that some farmers had blocked the pipelines in order to get more water for irrigation. We also noticed farming activities too close to the spring. Both were signs that the Water System had deprived local farmers of their traditional water supply. No compensation has been made for their loss.

We returned to the Huruta office to find two women from Anko, a PA some two hours walk from Huruta, seated on a bench. They had come to complain that they were not getting their water. The lines near their PA had been damaged for the fifth time and the faucets were broken. They were then told that they - the PA - would have to pay for the repairs - some 660 birr - or for the new parts. When the women left, Ato Senbetta mentioned once again that this was further proof that the 'community' was not involved, that they had to 'become aware', to take 'responsibility' and to feel that they owned the project.

The team found the administration's assumption of deliberate breakage somewhat questionable, especially in light of the fact that pipes here are repaired with methods (heating pipes to fit into each other, coupling pipes with glue) which make further breakage almost predictable. The team: "It's hard to tell what caused the break... it could be that the pipe might was not buried deep enough, it could be that it was poorly repaired."

We then stopped at several public taps in Huruta town. As elsewhere at tap time, the site was crowded: women and girls were lined up to collect water in their enseras, young boys and many men were filling their jerry cans and loading them on the backs of donkeys. While we only observed

one man carrying an ensera (though not on his back), it is obvious that men in rural Ethiopia are carrying water. They often do so (they say) for commercial rather than household purposes, and always on the backs of donkeys and not their own.

Customers in Huruta speak up about their plentiful supply of water and of the changes brought by the availability of piped water - the children have less diarrhoea, women have more time for other tasks. An increase in price, they say, would be no problem: one tap attendant pointed out that 'water sellers' - people with private connections - are selling water for 5 cents per ensera from their homes. When asked about repairs at the water taps, another attendant brought up a theme referred to many times in the 1988 evaluation: she was trained at ARDU to do maintenance work, but has never been given the tools she needs to do so. She thus must 'call the office if there is a problem' and cannot perform what one team member termed 'preventive maintenance'.

Evidence of maintenance problems reappeared regularly in the course of the field study. In two days, we learned of breaks in two of the main lines. Eight such breaks were said to have occurred during the past six months.

That afternoon, we met Ato Ndalama Gizaw, chairman of the Huruta municipality. His view was made clear from the start: "There are no water problems here, only in the rural areas." His lack of knowledge about and lack of interest in the Water System would seem to confirm the fact that in Huruta, water is no problem. Huruta town - with its population of 7,761 people - abounds with new buildings and hums with agricultural activity. Some of this wealth can be - and is - attributed to the presence of plentiful piped water.

We stopped in Huruta Gardebossa, a PA just outside of Huruta town. The water taps here are well protected with a live fence, and there is a properly constructed hut for the tap attendant. We asked how the Water System was functioning. "There has been some leakage here since July" explained one woman. We also asked whether the administrators of the Water System check the taps every Saturday - as we had been told in the office. The assembled group of people knew of no such regular checks. Nor, said the tap attendant, did the tap attendants meet regularly to discuss their work as they did during REWA days: "We usually see each other informally when we go to the market on Saturdays."

5.4 Dhera, the water shortage, and animal fattening schemes

We met the newly elected chairman of the Dhera woreda at the woreda administration office. The chairman described the present situation as a crisis: "The main problem is that there is a shortage of water in the woreda and at some times, the pressure is painfully low. The population

is growing faster than the water supply - there is greater demand than supply. There are also those 20,000 people in 18 PAs in the lowlands in this woreda who have no piped water - they are poor and they need help. And there are also fattening schemes going on here in Dhera which use much water. Some people are collecting water at night and selling it during the day at higher prices. We are discussing whether we should forbid this or what. The project was planned for the rural areas, but now the towns are expanding."

Animal fattening schemes are a regularly seen and referred to as a source of increased income in the area. They are certainly one reason for the increased consumption of water. The altitude and temperature of Dhera suits the conversion factor of the animals and enables them to gain maximum weight with minimum feed. In Dhera town alone, there are thirteen licensed fattening farms which can keep 100-200 animals each. 50% of the 600 families in Dhera who have private water connections own a mini-fattening farm in their compounds. We were also told (and saw much evidence of this) that an estimated 50% of the Dodota farmers living in villages with piped water have small-scale fattening farms.

The animals are brought from Bale (300 km from Dhera), are then sold at the Dhera market, fattened for 3-4 months and then resold. They are fed a mixture of oil crop cake (available in Dhera due to the presence of an oil pressing mill and a sugar processing plant in nearby Wanji), wheat straw, and the residual of sugar cane mixed with water. Each animal uses an average of 5 litres of water per day but there is no limitation on the amount of feed an animal can or should consume.



Data from the Water office in Dhera indicated that the water consumption of one fattening scheme with a population of 200 animals used 1299 m³ or 1.233 million litres in three months.

People are not willing to discuss their income from these schemes. We were told by some observers, however, that a farmer can make a profit of 500-600 birr per animal. Each animal also produces dung which can be sold for 1-1.5 birr per day. Men take the purchasing and feeding responsibilities, and women do the cleaning and collection and sale of cow dung. We did observe Dhera town and in several PAs that women also feed the animals.

The woreda chairman continued: "the woreda has the responsibility to look after the needs of (the villagers without water.) We have been to Huruta twice to discuss these problems and to discuss the condition of the springs, but they do not answer us. We are planning to establish committees in the PAs to find solutions. We will also help with breakage and leakage..."

The team was then told that a meeting had been held for the first time the day before to which some 200 people from the woreda had been invited. Eighty people came⁸ - mainly those owning hotels and businesses in Dhera as well as those involved in fattening schemes. Three of nine invited PAs were represented. Also present were some members of the zonal council who were formerly members of this woreda council. Not surprisingly -in light of the fact that they have no water problem - there were no representatives of the Hetosa woreda. The assembled body passed several resolutions: because the main problem is the shortage of water in the lowlands near Dhera, most of the subsequent leakage and breakage occurs in this area. The water office must thus move from Huruta to Dhera and the pick-up truck must be stationed in Dhera to attend to these technical problems. Finally, the woreda has demanded that 10,000 birr collected in this woreda would be used to strengthen the retaining wall near the spring.

Another issue was raised - one that the team had heard referred to several times. It was pointed out that farmers living near the Fursa springs were diverting water for irrigation, sometimes blocking the pipes to do so. "They don't really need the water..."; "they use rain-fed systems and they have enough water." These springs are, however, a traditional source of water for them, and thus far they have not been compensated for their loss.

⁸ The chairman pointed out that the low attendance was due to the fact that a 'gender workshop' had also been held the day before. Many of the people invited to the 'water meeting' had gone to the 'gender workshop'.

Also mentioned was the fact that when the Water System was constructed, Dhera was getting its water from the river at Awash. The "Fursa system" (as the woreda council secretary called it) replaced this. It would be possible, he said, to reactivate this system - but only for animals. To make the water potable would require great investments - chemical processing plants - which are not feasible here.

As we rose to leave, the former chairman of the woreda council - who had chaired the previous day's meeting - told a story: it seemed that one man met another man carrying a huge sack of salt. "How can you carry such a sack? Is not it terribly heavy?" asked the first man. "I can manage this heavy load", replied the second, "because poverty is heavier." To which the first nodded.

Our next meeting was with the deputy city council member in Dhera. He is well acquainted with the water sources because he was born near Fursa. His analysis: "The weakness is the administration of the Water System. They don't control breakage and leakage, and the farmers do not get the water where they need it and then they break the lines." The team: "Is there any committee to change things?" "We tried to help, formed a committee of elders and went to the springs. There we found that the farmers had blocked the pipes and caused an overflow for irrigation....We need to put guards at the springs 24 hours a day. The woreda administration should teach the farmers."

One team member pointed out: "Even if guards are there, the community won't do anything unless it feels responsibility for the system. You don't usually guard water sources, and guards won't help if the community doesn't believe in the system. The community are the best guards. These farmers near the lines are angry - they also have to be beneficiaries of the system." Another team member: "Do you have guards here (in Dhera)?" "We have a patrol - 14 people between 6pm and 6am. But the springs are not protected and our technician found out that the farmers are causing the overflow by blocking up the lines, so we fixed them."

Asnakech interrupted angrily, and pointed out that - in fact - the Water System Office had done this job. Then, a team member: "How often don't the taps work here in Dhera?" "There are two kebeles in Dhera. The taps in the second one (connected to a branch line, and not to the main Heruta-Dhera-Awash line which gets more flow) don't work 70% of the time. This was brought up at the meeting yesterday. People are losing hope with the public points. That is why they are buying more private connections." Team member: "Would it be better if you would open the public points earlier in the morning to get the flow from filled reservoirs?" "This is a problem. The reservoir here is small, and the people with the fattening schemes use the water during the night."

The discussions show clearly that the communities most affected by the water shortages are working hard to rectify the problem. There is also some minor response from the administration. But the administration in Huruta has neither the power nor the authority to make major decisions - increasing tariffs, increasing salaries, purchasing new spare parts to amend the ever-increasing technical mishaps - in short, managing the Water System so distribution would be more equitable.

5.5 Back to Huruta some days later

We asked Ato Weya: "What is your view of what happened at the woreda meeting last week"? "There is always a shortage downstream especially in the late afternoon. Use in Huruta has decreased the supply. That's the cause of the shortage - but there's no absolute shortage. We must make a program for more equal distribution of water. It might be good to start a shift schedule...I know that the meeting decided to move the pick-up and the office to Dhera, but I don't agree. There is more control here in Huruta."

We asked about the activities during the 'interim years', 1991-94, that is, between REWA and the present administration. It appears that the Water System was managed by the manager who had worked for REWA. He was well-acquainted with the system, was paid by the Water System, and the amount of new input was considerable. A grain mill was procured, though the plan was conceived during the REWA period as an income-generating activity. One source at the spring was reactivated with help from the Natural Resources Department. One new water point was built and the pipeline was extended 5 kilometres. The tariff for water was also increased - from 5 cents for 100 litres to 5 cents for 60 litres. The decision to increase the tariff was occasioned by much breakage. It was made by a committee (now disbanded) which consisted of the woreda administration, a member of the zonal office, representatives of the PAs and a member of the Natural Resources Department. Team: "How did the people feel about the raise in price?" "There was no complaint. The representatives of the PAs made the decision." Team: "Are there any plans for a new committee?" "We need it. We want to work with the woreda."

Dissatisfaction and breakage is greater today. Ato Weya: "We report to the zonal office. They have done studies..." Team: "Is there any budget to plan new water points - particularly for the PAs without water?" "The budget is at the zone. We discuss it here and send it to the zonal office for approval."

5.6 Visits to two PAs near Dhera

On our way to Anko, a PA in the lowlands, we stopped at the reservoir.

At its base were some cattle, obviously enjoying what we learned were the results of an overflow.

Ato Weya explained that the farmers here block the lines at night and thus cause the overflow. Some boys who came by explained that the reservoir overflows by itself. Whatever the truth, the problem still had to be solved by the Water Company.

At Anko, the discussion began with reports about shortages and breakage. One farmer explained they try to do something about it: "We know how to repair damages...That pipe over there, for instance. We want to connect it to the main line to get more water. The pressure here is very low." He then emphasized: "We can contribute our labour and even pay higher water rates, if that is what is needed."

We then visited Bika, a dusty, windy PA. We were particularly interested in seeing the grain mill which REWA had bought and placed here for income-generating purposes. As we stopped at the water taps, one elderly man was filling his jerry-cans and placing them on his donkey: "I must help my wife," he explained, when we asked him whether he collects water often, "she is very busy at home in the kitchen."

One farmer spoke to us about the PA's water-oriented activities. There are three taps in the village, but the Water System will only pay a tap attendant for two of them. To activate the third - which is needed particularly during the dry season - the PA had met and voted to contribute 2 birr per family to pay the salary for the third tap attendant.

Instead of a trained attendant, they chose a local man who had no training: "It's not a matter of training, it's a matter of trust," someone explained. This deviates from the praxis of the Water System where tap attendants are women. When given a choice (as was not the case at the start of the Water System), it would seem that PA men chose men. The women's project 'spirit' which REWA spread during the REWA period is not present today.

Bika has a water committee consisting of five men. They report to the Water System office when there is a problem. They also regularly check the line and back up the tap attendant. The PA also assigns four men to watch the lines every day. The farmer explained that during the dry season, animals and children and others break the pipes. If the lines are broken and no one is seen doing it, the entire PA is responsible for paying the damages. He mentioned that the PA once had had to pay a 1000 birr fine, and "if that person is caught, he will have a problem!" Any persons caught breaking the lines are "captured" and reported to the zonal authorities (?) and fined.

Have such committees been formed in other PAs? "They were formed in 10 PAs - near Dhera. I was the chairman - there was a vice-chairman and a secretary. We each sent one person to the executive committee. Nitzane (the manager during the interim years) organized this from the office and we attended meetings. It's not working any more, Ato Weya has another system with the woreda administration."

We asked what he would like to see here. "More staff - the lines are too long." Many of the customers at the third tap are people from PAs in the lowlands who are not served by the Dodota system. They walk some two to three hours to the tap.

We also asked what 'people' are doing with the time saved by having taps in the village. "We are producing mud blocks for building houses." He pointed to the many piles of newly cut mud blocks drying in the sun and the many houses constructed with them. The technique is facilitated by a plentiful water supply.

We also asked about the grain mill. The farmer in charge of the mill operation and sales took us to the building where the grain mill is housed. He explained that the mill is good source of income for the Water System (earnings: 1000 birr/day when the mill is operating) but they receive too little gasoline to keep it running constantly.

5.7 An interview with the officials of the Oromia Water, Mineral and Energy Resource Development zonal office in Assela

Ato Amasalu Negussie, the designer of the Dodota system and several other gravity-fed systems in Arssi, joined the team. We began the discussion with the zonal directors by asking about the functioning of the Dodota Water System. "We have a project manager there who is responsible for the project site and water service from the source to Dhera. We have heard of some problems..." Team: "The steering committee?" "The committee was important during construction, now we need a water users' association." Team: "Do they have to go to you if they want to raise the price?" "No, we have a water tariff committee at the regional level. They study and decide."

Amsalu pointed out that water prices are decided locally; there is no standard tariff. He mentioned that the rate in Dodota had been increased by the PAs and REWA to make up for decreased income from water sales during the rainy season." The team: "If there would be a steering committee in Dodota, would it be able to make decisions?" The answer: "The community and the water board would have to come to us with the proposal, then we decide. Technical issues are also presented to higher officials. To extend to other villages, we'll have to find a donor." The team again: "Can't tariffs be used for that?" Answer: "It's never enough for a major extension. We have to have a proposal, we need to order pipes."

The discussion shifted somewhat. Team: "What is the relationship between Ato Weya and the Dodota Water System? Did the community participate in choosing him?" "We cannot find such a person in the community. We assigned a manager to facilitate the functioning of the scheme. Major jobs can be channelled to us. And the scheme cannot afford to pay him ...In the future they might be able to."

Amsalu interjected: "But the previous person was paid by the project! Now the decision is here. Perhaps it was not deliberately done. After REWA, the government took over the property of older governmental organizations. A commission tried to decide what to do - and did nothing. The manager that REWA had hired, and who had had REWA to look up to, now had no one.⁹ Then a technical advisor was assigned with a government salary - this indirectly put the System under the government. But there is still no formal decision by this office, and the risk is that there is too much control from this office. We need the government only as an advisor - for tariffs and accounting, but the Water System should pay the salary of the manager."

The response: "The government wants to have community-owned projects where the government assists with technical advice, materials...The government is only for problems, trouble and policy. We'd like to pull out and not pay the manager. The trouble is that there is no well-organized board that could make decisions."

One team member asked what the zonal office has done with regard to employee's salaries and increments. Again, the reference to the need for a board: "We told them to form a committee and submit a proposal, but you need a board, a decision-making body. So we decided...we are not sure it's correct. There are no guidelines." Amsalu's suggestion: organize a workshop to develop guidelines.

We asked about the strength of the Dodota System. "The interest for water was already there...Most impressive was the community participation in management, labour and training, and that one organization was responsible for this. This eases handing over - the community knows about the project." Amsalu agreed: "ARDU's training scheme resulted in local people who knew how to work with development - to plan, implement, even manage."

⁹ This is a reference to the 'interim period' 1990-94, discussed above.

5.8 Conversations with office personnel and tap attendants¹⁰

5.8.1 The office in Dhera

We visited the Dhera Water Supply office and spoke to the two women who work there - the Dhera area cashier and the bookkeeper. They have worked here since 1985 and have received no training since the courses at ARDU. One of the women had progressed from tap attendant to meter reader to cashier - mainly because her predecessor had quit. Otherwise, they said that the staff is the same as 1986. We spoke about what they do with broken meters, with other technical problems they cannot solve with the 'company' technician. "The project is the same as in 1986. We still get 26 days leave a year and 40 days for maternity leave. But there are some changes: we no longer have regular meetings - we combine our market days and reporting. And we are no longer paid pensions as we were when REWA managed the project." They too had been to Addis to the Pension Office, had received no answer and had gone to Assela with some paper. The team asked: "Why don't you go to your employer?" The answer: the Water System's technical advisor - in reality a kind of manager - lacks the power to make decisions regarding salaries, tariffs, etc.

The team asked the women what they thought about their jobs. One of the women, the accountant for this area, answered: "When we began, we were working hard. Our aim was to provide clean water. Now our people are dissatisfied. What they want is not there. We want to maintain the system - but we have a shortage of tools, the tools are old." We asked: "And why not buy new tools?" Their answer: "No one does this."

5.8.2 Asnakech and personnel in Huruta

We asked Asnakech, the head of the financial department at the Huruta main office about her personal experience with the Water System. She has been working with the Water System since 1984, was sent by REWA to be trained at ARDU after having worked for a year. "In the beginning, I did everything - administration, finance, even read water meters. REWA wanted to be sure that the income would be enough. Then when the (male) manager was hired from ARDU (in 1988), I only did finance." She pointed out that REWA really tried to find a woman for the manager's job but none were to be found with the technical competence required. "I think REWA played a monitoring role - not so much management. They had to approve the budget but we had a committee here who prepared an estimate of needs, and if we could justify the items, they were approved."

10. Discussions with Ato Weya Gomochu, the technical advisor if the Water System, have been referred to above.

"The system was transparent; we knew whom to ask. We had regular staff meetings, we had access to REWA. Now there's no relationship, decisions are made by someone we don't know. It's much harder for the staff now."

Asnakech described the organization during the interim period, 1991-94. Upon a request from the employees, a committee was formed consisting of Huruta and Dhera woredas administrators and town elders. The Water System employees chose one person to represent them on the committee "instead of all of us going and shouting." The committee's mandate was to approve the budget, to decide upon salary increases and increases in water rates. The committee was also mandated to adjudicate when an 'unjust' decision was made by the manager. Asnakech mentioned two such cases both involving transfers (of office personnel). In both cases, the committee voted in favour of the manager, and in both cases, the women quit.

Other staff crises occurred during these years. In conjunction with the devaluation of the birr, Asnakech and the manager had decided on a raise in salary to 105 birr for tap attendants. Four months later, the manager reported this to the region. The region refused to approve the raise: "you can't do this, you don't have the resources."

Asnakech denied that this was so: "we paid for fixing the spring, our income was good, of course it fluctuates." She concluded: "We could solve our problems if we could get together. We can't do it alone - this office used to keep us together."

5.8.2.1 Kebenesh and a crisis meeting of office staff

Kebenesh is a mechanic who has been employed as a technician by the Water System for 12 years. She makes 160 birr a month now, and made 80 when she started the job. She is 28 years old, has three children, and learned welding at ARDU. She has taken no courses since. Nor has she seen any changes in the System during these years: she is still using original parts, has never seen new parts, but is skilled enough, she pointed out, "to replace anything." She feels that no one recognizes her skills.

She and the four other technicians consider themselves a group. Their only contact with other personnel is with regard to repairs. Nowadays, they have no general staff meetings. There was, she said, more contact during REWA's time.

Kebenesh and the other office personnel are angry and disappointed with the Water System, particularly with regard to the lack of concern with their pensions. They took the occasion of our visit to present their case to one of the members of the field team (now acting as their sounding board) and questioned whether it would not be better for them to give

the Water System officially to the government and thus become government workers. They would thereby be entitled to pensions, etc. A long discussion followed; the team member pointed out that their qualifications might not comply with government regulations, and that they might not in fact retain their jobs. Moreover, the government is far away, not really aware of local needs and conditions, and purchasing and ordering procedures are complicated and time-consuming. The team member suggested forming a local board elected from the user-communities who would own the System. Such a board would take both staff and customer interests seriously.

Somewhat calmer, the assembled personnel left the office.

5.8.3 Tap attendant Ejigajon

Ejigajon is 34 years old, has six children and has been working as a tap attendant in her PA for ten years. Her salary - "better than the other women in the PA" - is needed for her big family but it also enables her to send her boys to school and to invest in some sheep.

She sees no major problems with the Water System, but if there is breakage and/or no water she cannot help her customers. "I've also learned a lot - the first year there was a lot more than 4% spillage, and I paid a lot for it. Then I got some experience, and now there's no wastage!"

"The biggest change (caused by the Water System) is that we don't go to the river. We have time....The women participate more with the harvest, we do weeding. There are families who are doing cattle fattening at home. And the women are preparing **talla** beer and **oraki**. They make about 15 birr when they make one batch of **talla** and 30 birr with **oraki**. It's all due to the water."

5.8.4 Tsahai

Her colleague **Tsahai** works at the taps in Huruta town, and has been doing so since 1984. She spoke of the early days of the Project: Her husband was in the militia during the Mengistu government, she had no income and was childless so the local REWA chose her to go to the training centre. She especially enjoyed the bookkeeping courses and would like to do more of this.

She then spoke of the present administration of the Water System. "Vacancies must be announced, we must be able to advance, to do something else. I'd like to be a meter reader. I want to be able to compete...but there's no forum for discussion. I want to be part of the organization. Ok, we collect money and serve the people, but we have no influence. The decisions are made elsewhere... We don't know what they decide nor why....Maybe it's better to stay at home out

of the sun. We can make money in other ways. It's demoralizing - the cost of living is high, our salaries haven't kept up with it...my salary doesn't pay the rent. We know our organization is making money, and I want the organization and its needs to come first, but we want to be included in the decisions."

"I realize that my life is better than those who have no jobs - I can plan how much I save, how much I spend on the family - but there are some women here in Huruta are doing very well.

"During REWA's time, management was more effective. The manager listened to REWA because REWA was close by. Now management is so far away. This has also had a bad effect on the customers - the town is growing, we need more water points, but there's no one around to make the decisions. People are buying water from private connections - and paying 5 cents per ensera. We staff members want to discuss these community problems. We're not only interested in our salaries."

5.8.5 Gete

Gete is 35, has just had her fourth child and is a tap attendant in her PA at Bika. She attended the first courses at ARDU and has been selling water for twelve years. "I enjoy this job for two reasons. First, my education is limited, but with this limited knowledge, I have a permanent job and a permanent income. And second, I'm working with water and I'm a part of this community - I know our problems and how important the water system is."

We asked about her working conditions. "They're not good. There's no small hut here for protection - and I have to have my baby with me, and there's no protection from the sun. And we should have a fence around the water taps...I applied to the office about this, but they told me that the farmers should do it. Actually, the farmers took the fence away because they needed the wood...." She added: "It's not my place to ask the farmers. The office must do it."

In the dry season, Gete works at two taps and finishes three books of coupons a week. She thus sells water for 150 birr which amounts to 9,000 enseras or 180,000 litres a week. She spoke about some of the changes she has experienced in the course of the years.

"There was some confusion after REWA left - after all the system was REWA's property. There was a committee formed - representatives of the Huruta and Dhera woreda administration and some elderly people. There wasn't anyone from the PAs. The committee took the responsibility because water is our basic need and cannot be compromised, and they drew up guidelines."

And today? "There's no committee now. The staff doesn't meet either... The government gave us a raise in salary but they took it away. I make 115 birr a month (compared with 56 birr in 1984).

What has this job meant for your life? "I have a job, I received good training, I'm exposed to office workers. Look, I have a pen and paper in my hand." She spoke of the problems - even crises - in the early days: "When we were selected for the training, people here were suspicious of me so they just sent me away. Now they wish they had my job. They respect me and there is the feeling that they regret that they didn't do it."

5.8.6 Shewaye

Shewaye has been a tap attendant in the PA of Badosa Ademera for twelve years. She was concluding her morning shift when we arrived at the taps, and invited us to her home to discuss the Water System. We accompanied her on the path - walking beside her as she carried her ensera. As we neared her house, her two year old daughter and two older children shrieked with joy when they saw us coming.

I asked Shewaye what had happened since we last met some eight years ago.¹¹ "There are no major problems, but a minor problem is that the response of the office is reduced. During the dry season, farmers from other areas come here. The lines are terribly long, there are too many customers, and I can't manage collection of the fees. If someone slips through the line, I have to pay from my own pocket. This has cost me as much as 50 birr."

"And the meter readings are irregular. It's hard to trace the problem. We used to have regular staff meetings and discussions. But we haven't had a staff meeting in two years. We only see each other when we go to the office to pay. There's no one to listen; all we get are excuses why (the office people) are not here and why they can't do anything."

She added: "I think the situation is getting worse. The staff is disappointed in the management and maintenance is not done properly."

She spoke about her early days with the Water Project. "My first husband left me when I got back from the training. The farmers had spread rumours about me and he asked me for a divorce. I chose my job instead of him. One of the other women did the same thing, but it wasn't common. Some of the husbands did complain but they didn't leave. Actually, working was unusual then. Women were supposed to

11. Both Gete and Shewaye participated in the 1988 evaluation of the training component of the Dodota Water Supply Project.

5.9 Conversations with customers

5.9.1 In Huruta town

We sat in a home near the taps and discussed the benefits of the Water System with a group of women. The women commented that some people are gardening nowadays - growing particularly papaya and tomatoes, they are washing clothes more often, they are fattening cattle. "And we simply drink more water - which promotes better health. This is the most important thing - even chickens need water to survive." One woman who had recently moved to Huruta spoke about her kidney condition - which had been caused by dirty water. She felt much better here. One woman added - and all nodded in agreement: "And most important, 9 out of 10 of our children survive. It's like comparing heaven and hell..."

The women brought up the issue of saved time. They spoke about having more time for household chores, for brewing talla, for growing vegetables. Then one woman summarized: "I just remember climbing up that hill from the river...We have a more relaxed life now....Even to rest from the idea of travelling is rest!"

They focused on the effects on the community. "Many families have private connections, they grow vegetables which are sold here. So there are more vegetables available - that is good for the community. And we construct houses more efficiently, just connect the hose to the tap and mix the wattle. And many women are making good money from brewing talla." ¹³

How did/does/could the community help? "We helped pay for it, we in fact built it - we dug the ditch twice. I was pregnant then so my husband dug my first meter and I picked up the soil, then he left so we paid someone else to dig my second time. We'll help as much as possible - the problem is that no one asks us."

When we brought up the possibility of a price increase, one woman explained: "I lived here before the Water System was built. Then we had to buy water from the water seller - but you only got water if you knew this person. And one jerry can could cost 10-50 cents. Now it's for everyone - so you can see that there's no problem with price."

13. We had a somewhat sad laugh a few minutes later when we spoke of the typical working day of a man and a women in Huruta. One of the women said that the men in Huruta "are so different. They leave before breakfast to drink talla, and they don't come home..." "Yes," someone else pointed out, "but it's not so serious - that's our income!"

Did the women want to identify any problems with the Water System? "Very few. The taps are open when we need them, the tap attendant is from here and she's good - even works extra." The team noted that problems with pressure, broken pipes and insufficient quantities of water - immediately identified in downstream PAs - are not mentioned in this upstream (and upbeat) town.

The group of Huruta men listed the following benefits: "As individuals, we avoid water-borne diseases, including diarrhoea for our children, and our child mortality rates are lower¹⁴; there are fewer accidents with older women who used to break their bones and break their enseras when they carried water; and we - especially our women - save time."

They also pointed out the positive effects on the community: there is a high rate of construction because of the water, standards of the booming hotel business are constantly improving, and people who used to refuse to invest in Huruta or even move to Huruta are now doing so - indeed, the population is growing.¹⁵ And one man added "We have a green picture in our community - people are planting trees, people have gardens." Another summarized:

"There's another very important change. Before the Water System, there wasn't a single tree around our St. Mary's Church. Huruta was too poor and too dry to observe this very old and important tradition. Now, we have water enough to be able to plant trees around St. Mary's Church."

Another man concluded: "This Water System is our system, our property, so we'll protect it from the spring to the taps. One of the reasons it works is because the tap attendant is from here - we help her and she helps us. And there is an office and the people are paid....Just ask us what to do and we'll do it."

A youngish man stood up to leave, then said: "Look, I wouldn't have come here today to discuss anything else with you - I'm too busy. But I'll always come to discuss the water system..."

14. We could find no reliable statistics for this area.

15. All of these qualities or facts are immediately apparent in Huruta. There is a constant rumble of trucks passing through the town's main road (over)loaded with sacks of grain, there are countless numbers of hotels and businesses being constructed, and - while its significance must be examined further - there are equal numbers of boys and girls in one of the three elementary schools in the town.

5.9.2 At the PA at Bika

Eight men had assembled for our discussion. They began by describing their contributions to the Water System - they dug ditches and paid their fees. "We were suspicious about gravity systems at first, but now the other farmers should see this system. Just ask us to tell them how good it is!"

Bika farmers have organized their water-activities. They have recently employed a new attendant to service their third tap, and have also assigned a guard to watch the pipelines. Breakage, they point out, is due both to human and animal factors: the PVC pipes cannot resist animal pressure.

"The reason the Water System is a success is because we take the responsibility. When there is a breakage, the whole community helps. The office is there in Dhera, there is a system (emphasis theirs). There's an independent organization to follow-up, it's led by educated people. The administration in Dhera encourages us."

We asked how they would regard a price increase: "Our problem is not the cost of water. Our problem is how to distribute the water equitably downstream. This is not being done efficiently."

They reiterated the benefits they derive from the Water System: the community's general health has improved, there is less diarrhoea, fewer worms, more time, less money is spent on donkeys to carry water - "even the donkeys have a rest!" The general economy of the PA has improved: "we contribute to the national economy by selling quality animal skins." One man pointed out that the water has brought more birds to the area; he saw this as an important improvement in the environment.

They pointed out other benefits. Farmers in Bika have begun to mass-produce mud blocks for building purposes - clearly an improvement over wattle construction. Lucrative cattle-fattening and chicken-raising are also proceeding at an increasing rate.¹⁶ One farmer summarized: "My father had ten cows, they gave milk for one. Now I have one cow which gives the milk of ten! That's I'med, development - it's the maximum use of minimal resources."

A group of 7 women then sat down to talk. "Water we mainly use for drinking and washing dishes, clothes and ourselves. That's most important. We also produce mud blocks - that's a new concept. We need to do this because of the wood shortages here. And we mix water and cow dung to plaster the floor with - and of course we brew talla."

16. See above, section 5.4 for a description of animal fattening.

They pointed out that when they got water from the pond, they had to dig out five sacks of silt for every ensera they took home. It was back-breaking. Now, they "don't walk" and they can use their time for making mud blocks, making children's clothes and making baskets.

And I'med'?', we asked. On woman answered: "For us, it's that life is easier. We have our ready-made flour for instance. And for me, it's also being in front of people, not only at home. I say what I want in front of the community, just like my husband."

5.9.3 A meeting with some men at the downstream PA at Aminya Daba

We arrived to find the men of this PA situated on the extreme downstream end of one of the two branch lines both angry and disturbed: water pressure here was unacceptably low. A PA close by had 'caused' the stoppage; "We are the poor ones, no one cares about our problems." The pipe, it was said, is too narrow and too weak at this point on the line; 'the sun bursts it, the animals step on it'. Once again, the importance of local responsibility but also of strong management was emphasized. "During REWAs time," one man said, "people were punished immediately. Now little happens. Not only the pipes, but the System itself is weaker."

CHAPTER 6 LESSONS LEARNED

6.1 Introduction:

6.1.1 The Dodota Water Supply Project; key facts

- SIDA and Ethiopian authorities and the people of Dodota have invested 3 000 000 birr in the Dodota water supply project.
- Since project start, 1 700 000 000 litres of pure water have been delivered to the beneficiaries.
- This delivery equals 85 000 000 enseras of water NOT carried from the river.
- The investment made equals 3 cent for each ensera of pure water delivered.
- The system is still functioning; 25 enseras of water are delivered to the customers each minute every day and night.
- Each birr invested has in our opinion been well-used in this project.
- Due to actions by the former government, the 18 PAs that contributed to the project and were promised to get water have not yet been connected to the system. This is embarrassing.

6.1.2 Summary of Opinions recorded in discussions in connection with the field visit in February 1996

6.1.2.1 In the villages

The willingness to contribute to the defense of the system is impressive. The answers to our questions were identical in several villages: "We will gladly accept a doubled water rate if that is required to keep the water coming at our tap;" "Just tell us what to do, we are more than willing to contribute with our labour." In the village of Bika the PA has voluntarily chosen to employ a tap attendant during the dry season, in part to avoid queuing when people from villages without taps come to collect water. The additional income goes to the water company but the PA pays the salary. Bika PA had also arranged a patrol of four men to check for leakage and to protect the lines. COMMUNITY PARTICIPATION AND INVOLVEMENT IS NOT A PROBLEM in Dodota. The villagers will participate as much as they are allowed to.

6.1.2.2 In Huruta municipality

Huruta village has received excellent service from the Water Company since 1984. In Huruta it is natural that water is always available at the taps. For this reason there are no water committees in Huruta and the water supply has not been discussed in the municipality. Townspeople do acknowledge, however that the Water System has had a decisive influence on the growth of the town.

6.1.2.3 In Dhera municipality and Dodota Woreda

Dhera now suffers from water shortages. One of the reasons for this is that water consumption is increasing rapidly. The pipelines conveying water to Dhera probably do not have sufficient capacity. (This is a guess that will have to be verified). The Woreda administration repeatedly stressed that it is their responsibility to secure the water supply to the people. They have taken the initiative to call meetings to discuss the problem and they have put pressure on the Water Company to find a solution. Just as in the villages, Dhera town would also accept an increase in the water rate. The market price for water in Dhera charged by private water sellers varies from 5 birr to 12 birr for one cubic meter. This ought to be compared with the 83 cents charged by the Water Company.

6.1.2.4 In the Water Company office

The office staff and the tap attendants speak of the "good division of labour" in the Company. They express, however, some dissatisfaction with the present organization of the company. Their concern with pensions and with working conditions (tap attendants) has not been seriously addressed by the management. They also miss their regular meetings and the "transparent" lines of communication and authority which existed between them and the REWA owners. They thus refer to "now not knowing whom to talk to", and "not getting answers to our questions." Several office workers and tap attendants also spoke of their need for better working conditions, more training, and their desire to "contribute to the Water Company's future" and to be included in discussions of its growth.

6.1.2.5 In WME-zonal office

Those responsible at the office expressed a positive view on community participation but did question whether the committees shall have the power to decide about the use of funds, water rates, salaries, etc. They also did not think that it is possible for a rural water company to charge high enough rates to be able to rehabilitate or extend the system. The

rates shall cover running costs and if any investments are required they will have to be financed by a donor or by the government.

6.1.2.6 In WME-regional bureau

The bureau has started an investigation of the future of Dodota water company. As we understood it, the plan is to transfer the company to a governmental body. This means for example that all incomes over running costs will be transferred to the government. If investments are needed they will then be compared to other needs in the region and priorities will be decided by WME-regional bureau.

6.2 Organization

6.2.1 Need for independence

We understand that the authorities feel a need for central planning and control. On the other hand, we have noticed that the communities are willing to participate both with money and labour if they feel that they will benefit directly from their investment. This feeling will be destroyed if all resources are placed in a central basket to be distributed by government decisions. In spite of the obvious advantages of central planning, we still believe that a water company of this type must be independent in order to be able to respond to employee and community needs and to utilize the power of strong community participation.

Because water is given high priority by the population, the water company will be economically strong. It is most important that the resources of the company are protected from outside interests by a set of rules in an original agreement.

6.2.2 Need for strong management

When a system is new, operation will follow the routines outlined in the project. What we have learnt in Dodota is that sooner or later some unforeseen event will happen. The water consumption in a part of the system might increase more than the system can handle, or some original technical solution might prove to be insufficient. In such cases the management will be forced to make decisions they have not been trained for. To make such decisions, a manager that understands the technical and economical consequences of a new situation and has the strength to make big decisions is needed.

Formally important decisions ought to be taken by an executive committee elected by the consumers. However the members of this committee will need a manager with the ability to explain in an understandable way the consequences of whatever decisions are made.

6.2.3 Need for community participation

6.2.3.1 Before a project is started

Participation from the consumers is a matter of life or death for a rural water project. It is important that a project be started with a strong request from the villages and that an agreement is made which specifies the contributions that will be expected in the following steps of the project.

6.2.3.2 In the planning and design stage

Water committees should be created in the villages already before construction starts. These committees ought (together with the designer) to decide the location of water points and can advise the designer concerning location and depth of trenches required to protect the lines from agricultural activities etc.

6.2.3.3 In the implementation stage.

The water committees shall be responsible for recruiting a workforce from the village in accordance with the agreement before project start. To strengthen the feeling of ownership, it is important that all households contribute with cash to the investment.

6.2.3.4 In operation and management of the water company

The lack of a formal structure for participation from the villages is in our opinion a weakness in Dodota Water Company. In this respect we believe that the Hetossa project described below is a much better model. The water committee created in each PA will elect a representative to the water management board. This board will in turn elect an executive committee. The Water Management Board will be the highest decision-making body in the water company.

Still, even without this structure, customer concern has generated many goal-oriented activities in Dodota; it has led to, for example, pipe-guarding committees in the PAs and community-wide meetings in Dhera worda. Some villages have utilized or revitalized extant PA structures in order to safeguard and protect the WS.

These activities have not included the once-active Women's Associations. These were constituents of a top-down political structure, and they - like REWA, the 'mother' organization - have not survived the changes. While their contribution to the Water Project was crucial and consisted of recruiting trainees for the courses, it seems that they never became locally supported organizations nor integrated components of the social landscape.

6.2.4 Need for external contacts

The water company will need support by technical specialists. Channels for purchasing imported spareparts must be established already at project start. These matters must be discussed and planned for already at project start.

Until now, water projects in Ethiopia have been carried out by the government or by donors in cooperation by the government. Pipes and fittings have been imported by the donor or by the government. As far as we have learnt, imported material for water supply systems of an acceptable quality is not available on the Ethiopian market. For the Dodota Water Company this is now a big problem. Most of the spareparts included in the original project have already been used and they cannot get new parts on the market. This means that the water company can not survive without government support.

6.2.5 Need for job-oriented training and for collaboration between staff and management

The training in basic skills given to the staff employed for Dodota is in our opinion one of the most important reasons why it has been operating successfully for 12 years. This training ought to be used as a model for future projects.

Also important was the regular cooperation between the field staff and REWA, the owners of the Water System. One significant consequence of this cooperation is that almost all those trained have stayed with the water company. This indicates that the method to choose and to train the staff was very successful. Our discussions with staff members indicate a strong (though increasingly critical) commitment to the System. Staff members indicate as well a clearly articulated consciousness and identity as employees.

What was missing in Dodota, however, was training for management.

6.2.6 Need for a focus on women

In the plan of the Project, women in Dodota were targeted and trained as employees whenever possible. Indeed, until 1991 when REWA left, the REWA presence imbued the Water Company with a definable spirit, identity and ideology - that of a 'women's project.'

This particular spirit or ideology is no longer referred to nor mentioned by anyone. The women who years ago headed and operated what was openly defined as a 'women's project' and who deliberately spread this ideology have been replaced by a "manager who doesn't listen" and a

far-away government bureau. The change in the institutional structure has meant that the 'women's project' has become a 'general company', and the 'women' who administer and work for the project now see themselves and are seen as employees of a company. As such, they are highly regarded and appreciated: villagers and townsmen- and women alike readily acknowledge that "our women do a fine job".

But the deliberate focus on women and perhaps the elan of the 'women's project' which were so explicit during the start of the Dodota project AND WHICH WE MAINTAIN ACCOUNT FOR SOME OF ITS SUSTAINABILITY are gone. When the Bika PA hired a third tap attendant, they hired a man: "We believe in trust rather than training," they said. Thus, women are not yet employed as a matter of course, though their participation and work are lauded and appreciated. THE LESSON LEARNED HERE IS THAT A DELIBERATE AND CONSCIOUS FOCUS ON 1. RECRUITING WOMEN, 2. JOB-ORIENTED TRAINING, AND 3. ENCOURAGING AN IDENTITY AS EMPLOYEES, MUST BE CONTINUED. DODOTA SHOWS THAT WOMEN SO TRAINED STAY ON THE JOB. IT IS THIS COMBINATION WHICH ACCOUNTS IN LARGE PART FOR THE SUCCESS OF THE DODOTA COMPANY.

6.2.7 Protection against sabotage

Dodota suffers from intentional destruction of the lines. The action taken to prevent this has been to make each PA responsible for the lines within its boundaries. This method has only been partly successful. As we understand it, the people destroy the lines for two types of reasons: either they have no other way to get water or they think that the water has been stolen from them. For the first category, additional water taps could perhaps be a solution. For the other category, farmers who before project start used the spring water for irrigation could perhaps receive financial compensation. Most important, we believe, is that the farmers' needs be recognized and that negotiations between them and project be carried out.

6.3 Economy

Each year that a technical plant is operating a part of its original value is used up. Some parts will have to be replaced already after 5 years, others after 15 years, others after 50 years. To compensate for this usage of capital, the income for a sustainable Water Company must cover the running costs and approximately 2-3% of the calculated actual value of the technical plant. The revenue collected for depreciation shall not be collected at a bank account. Instead it ought to be used for investments in new plants for improvements of the system, for replacement of aged parts and for investments in new equipment facilitating maintenance.

The good news from Dodota is that the customers are willing to pay water rates high enough to make the system sustainable. They must be permitted to do this.

The actual situation in Dodota is that 25-40% of the original investment is consumed due to ageing and that very few new investments have been made. The deficit up till now for Dodota can be estimated to over two million birr in the present cost level. If, however, the water rates are increased to 1.5 birr per cubic meter already in 1996, we believe that the company still can be saved. In the future, the water rates ought to be revised once a year.

To make it possible to estimate required water rates, the company ought to have on-going 5-year plans for improvement, rehabilitation and extension of the technical plant.

6.4 Technical plant

The technical solution used for Dodota with gravity supply from springs has been a success. The system has proven to be cost efficient and reliable.

6.4.1 Hydraulic design

In Dodota, gravity is used as the source of energy for the transport of water from the springs to the consumers. This means that errors in the hydraulic design will be very difficult and expensive to correct. When the pipes are laid and the reservoirs are built, the ultimate capacity of the system is decided once and for all. Because it is very difficult to foresee the water demand in the future, a lot of spare capacity for future needs ought to be built into the system at the start.

6.4.2 Pipe material

The PVC-pipes with cemented joints chosen for Dodota are cheap but require a great deal of maintenance. The alternative chosen for Hetossa - polythene for small dia pipes and PVC pipes with rubbering joints for bigger dia pipes - will be much more reliable.

6.4.3 Supply of spareparts

Purchasing of spareparts is a big problem for the Dodota Water Company. It is in our opinion not realistic to expect a rural water company to import spareparts. Planning for future supply of spareparts must be a part of every project.

6.4.4 Monitoring equipment

Flow meters and pressure gauges to facilitate optimization of the operation of the system and for leakage control were discussed at an early stage in the design of the Dodota Water Supply Project. However this equipment was later excluded for financial reasons. Today when we see the problems with shortage of water, this decision seems to have been wrong. However this equipment can be installed now.

6.5 Hetossa Water Supply Project

The Hetossa Water Supply project is an improved version of the Dodota project. It has been financed designed and implemented by Water Aid together with the beneficiaries and governmental authorities. The project has a steering committee in which are represented the donor, the water committees and the zonal offices of the water and health departments.

The water sources are the Bukito springs with an estimated capacity of 19.4 litres per second. These springs will serve a design population of 71,000 living in 3 towns and 28 villages. The completed pipeline system will have a length of 130 km. Nineteen reservoirs with a total volume of 575 m³ and 122 water taps are also included. The total cost for the project is estimated to approx. 10 million birr or 150 birr/person.

6.5.1 Organization

In each village a water committee with 7 members - four women and three men - will be elected. Each village committee will elect one representative to the Water Management Board that will have the power of the owner. The management board will elect an executive committee that will make all operational decisions together with a hired manager. The manager and all members of the staff will be chosen from the population in the project area. They were chosen and trained already in the beginning of the construction period (three years). They have since been given on-the-job training within the project.

6.5.2 Lessons learned from Hetossa

In Hetossa, Water Aid has tried to use positive experiences from Dodota and to improve details that have been less successful in Dodota. It is too early to judge if they have succeeded but for future projects it will be very interesting to follow what happens in Hetossa. It will be of particular interest to see how the ownership and management organization, chosen for Hetosa, will work.

7.3 Spareparts

A great number a water supply projects have been carried out in Ethiopia by different donors. The Donors purchase pipes and fittings outside Ethiopia, thus destroying the possibilities to create a local market that could be used by local water companies. It is now necessary that the donors and the Government meet to find a solution as to how to make it possible for all the new water companies to buy spareparts in Ethiopia. If this problem is not solved, all projects will sooner or later fail.

7.4 Management and ownership

As mentioned in this report we have experienced an eagerness to give support to secure the water supply. If a donor undertakes financing of the water supply to the as yet unsupplied villages, this project could be extended to support the creation of and training of local water committees that could take over the ownership of the Dodota Water Company. Furthermore, the donor could assist with recruitment and training of a new manager and with economic planning for financing of the rehabilitation of the Water Supply System.

DRAFT - TERMS OF REFERENCE FOR EVALUATION OF THE DODOTA WATER SUPPLY PROJECT IN ETHIOPIA

BACKGROUND

The Dodota project was an experimental pilot undertaking implemented between 1982 and 1986. The main objective was to provide the population of the Dodota woreda (56.000 inhabitants) with safe water through a gravity scheme covering the Dodota plain. The project was organized as an income-generating women's project, with a strong commitment to community participation. A special training programme was carried out in order to enable women to play an active role in the planning, execution and management of the project.

EVALUATION 1988

An evaluation of the project was carried out in 1988 and the main findings were:

Impact on Dodota Population

The Dodota Water Supply Project incorporates approximately 40.000 people, i.e. two thirds of the present population. The remaining part has not yet been reached by the project. The reason for this is an adaption of the scheme to governmental resettlement and villagization plans. These plans now appear to be finalized so the time has come for the scheme to be completed to supply water to the whole population.

For those people receiving water within the scheme the objectives set in the Plan of Operation have been achieved. They now have close access to safe drinking water, the consumption of which is increasing. According to people's own perceptions of their health, it was greatly improved since the water came. Water related health problems have been reduced. Children grow better and women are stronger and healthier from having shorter distance to walk and fetch water.

As a result of time saved women can now pay more attention to other tasks including education and social gatherings.

The price of water is not an obstacle to increased consumption. The water from the scheme has improved people's economy by being cheaper than it used to be and has led to better health and savings in labour time. Gardening and raising of small stock have been facilitated.

Training Impact

The water supply system in Dodota points to what might become a new model in the area. Consultations with members of local communities led to the identification of local priorities. The responsibility for implementation was delegated to those most directly affected. A training component was introduced which enabled those who were responsible to carry out their responsibilities. It also provided jobs and salaries for those taking the responsibility.

Trained female technicians have come to act as models for other women in the community.

These now see training and subsequent employment as something worth striving for.

Technical Impact

Technical deviations from the original project plan have been found to be appropriate to prevailing conditions and requirements. Future extensions if required can easily be accomplished. Where completed the programme has led to a considerable rise in water consumption.

Operation and maintenance are as simple as possible and the project personnel adequately trained. Preventive and corrective maintenance are functioning well.

Financial Impact

Project personnel have not fully realized the scarcity of resources and the need of replacement. At present an adequate budgeting system for the Dodota Water Supply Project is missing. If the trend continues the project will after a few years not be able to cover its costs.

However, it should be underlined that the project may be among the most cost efficient water projects that Sida has been involved in. Total cost per person is SEK 210.

A Successful Project

Factors related to responsibility and concern have been vital to the success of the project.

Therefore, at the inception of new projects it is recommended that attempts should be made to enable different categories of beneficiaries to make priorities with which they can identify and to shoulder the responsibility for the projects once started.

PROPOSED EVALUATION (FOLLOW-UP) STUDY, 1995

Several years have passed since the completion of the evaluation in 1988. It is now time to ask most generally, what has happened in Dodota with regard to the water project? How has this successful development assistance project fared during the passed years of great political and economic changes in Ethiopia?

A proposed evaluation (follow-up study) should specifically analyse and focus upon the following aspects:

1. How has the project affected the lives of the women who are/were employed by it? (Changes regarding e.g. marital status, position in society, health and hygiene, relationships, participation in communities, political perspectives).
2. How do the women evaluate the training provided? Was it adequate for them to perform their tasks? Any initiation of innovations? Seeking for further training? Have these women served as role models for other women to seek training in one or another field? Are there any income-generating consequences?

3. How - if at all - has the project affected other members of the communities? How do these people view the project?

4. Has the water supply scheme been extended (source, distribution net)? How many people are provided water from the supply? Present operation of the scheme compared to the operation in 1988? Present maintenance (preventive and corrective) compared to maintenance in 1988? What is the rate of water consumption? How is the situation concerning transport, tools and spare parts? Are there any environmental impacts as a consequence of the water supply scheme?

5. Financial aspects (budgets, cost recovery, revenue collection, etc.).

6. With reference to paragraphs 1-5, introduce and discuss viewpoints on the water supply project and relevant issues given by beneficiaries and other people concerned.

7. Which lessons can be drawn from the Dodota Water Supply Project to be used for, i.e. a proposed Sida-supported integrated rural development programme in Region 3?

The 1988 evaluation and earlier documents will be used as a baseline for the identification of changes in statistics, behaviour and attitudes.

The evaluation team should include a water engineer with relevant economic competence, a social anthropologist and a local consultant familiar with the programme. The evaluation will require totally six weeks by each member, whereof about 4 weeks in the field.

The evaluation shall be carried out during the period February-March 1996. Field work is planned to start February 12, 1996.

In the course of their duties the consultants will be under the authority of the Swedish Embassy in Addis Ababa.

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- 95/2 Agitators, Incubators, Advisers - What Roles for the EPU's? Joel Samoff
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- 96/1 The Beira-Gothenburg Twinning Programme. Arne Heileman, Lennart Peck
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- 96/2 Debt Management. (Kenya) Kari Nars
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- 96/3 Telecommunications - A Swedish Contribution to Development. Lars Rylander, Ulf Rundin et al
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Department for Central and Eastern Europe



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