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sustaining rural water supply systems

socio-economic aspects of cost-recovery
operation and maintenance in Kerala

Prepared for presentation to the Indo-Dutch-Danish
Joint Review Mission September 26 - October 8, 1989.

The issues raised in this paper have been presented with a view
to improving the functioning and working atmosphere of the
organisation and are not meant to be taken as direct, indirect
or personal criticism of anyone within or outside SEU.

September, 1989

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position paper for kwa and review mission

september 1989

mdg. sa



EXECUTIVE SUMMARY

Dutch and Danish assistance, in combination with very substantial support from the Kerala and Indian Government and the World Bank is used to establish Rural Water Supply Systems in Kerala for those who need but can not afford them. The ultimate purpose is clear: improving the capability of Kerala's people to solve their problems of health and well-being. The first steps were clear too: design, planning, construction. So a large number of rural water supply schemes have now been established: around 1336. At high costs. Very high, as documented in this report.

The SEU project has now, one way or the other, functioned for over 2 years and has assisted in the initial steps of establishing such Rural Schemes. SEU has added a social dimension to engineering activities: central involvement of people in site-selection; communication with users, panchayats and politicians; teaching people a few lessons about the intricacies of water and health; learning many more from the creative ways in which people solve their problems. We now know that even that first, apparently straight-forward stage of construction is not so simple. But we suspect that the next stage will be even more difficult: ensuring continued functioning of the rural water supply schemes designed to serve people's need at affordable levels.

The data in this report suggest that, even after high initial capital investments and extensive outside assistance, the rural water supply schemes are running at cost-levels which can, under present arrangements, never be sustained by the KWA. Hence a tremendous deficit, loyally absorbed by the Government of Kerala. Kerala offers a progressive political environment where public resources are willingly committed to the common good - and to some extent with noticeable success. However, even such willingness should not distract from the fact that investments are only meaningful if the intended results materialize and can be sustained. The available data suggest that this is not always or fully the case. The costs of Operation and Maintenance for a number of rural water supply schemes are far beyond the actual revenue of the KWA. This leads inevitably to problems and malfunctioning. And to lower quantities of less safe water provided to a lower number of people than could have been the case with efficient and cost-effective O&M. Which in turn leads to less willingness of people to pay for the high costs of protected water. And so on.

The data suggest remarkable variation among rural water supply schemes in initial and recurrent costs, their performance and viability in economic terms. The report documents and analyses the various aspects of costs, performance and cost-recovery. Technical issues are not discussed, but analysis is presented from a socio-economic perspective. And from that perspective we identify some central problems, as listed on page 17:

"-lack of revenue due to:

- the low number of private connections
- poor collection
- poor payment by panchayats
- resistance against payment because of lack of users' understanding and users' appreciation
- lack of political support for realistic pricing

-poor O&M performance due to:

- lack of accountability KWA-staff to users
- inefficient repair arrangements at lowest level
- inadequate fault reporting
- lack of users's responsibility and involvement

None of these problems are unsurmountable. Both within and outside of the KWA a large number of bright ideas exist on possible solutions. Some are about issues of technology and physical design of the schemes. Some are on social, political, economic or cultural issues that affect continued and effective utilisation of rural water supply provisions. Some are in this report.

The second half of the report presents a number of rather specific, immediate options: what the KWA and/or SEU could do to improve the situation regarding operation, maintenance and cost-recovery. Or rather, as this is a pilot project: how to explore and test ways to do so. Firstly we have a number of suggestions which do not really involve SEU regarding steps the KWA could consider in connection with: (page 13 onwards):

- Managerial improvement
- Financial control
- Variation of service levels and designs
- Technical improvement
- Personnel management
- Privatisation of functions

Then we present a much more detailed list of suggested steps for SEU - in close collaboration with the KWA: (page 15 onwards):

1. Data collection by SEU

- Actual standpost utilisation
- Consumption under different payment conditions
- The costs of not having water
- Real willingness to pay
- Panchayats willingness/ability to contribute
- KWA-panchayats contacts

2. Experiments by SEU

- House connections campaigns
- House connections loans
- Group taps
- New collection methods
- Bulk payment by panchayat
- Establishing and training Water Committees
- Local repair under Water committees
- Fault reporting by water committees
- Public relations campaign for KWA

3. Steps by KWA

- Allow and support experiments
- Accept role Water Committees
- Pursue tariff revisions and Private Connections
- Improve financial monitoring on o&m
- Conduct PR campaign on water
- Educate and inform politicians.

This report should be read in conjunction with the other proposals and observations presented to the KWA and donors and against the background of our experiences in the last few years. We do not pretend to have special knowledge or unique answers. In fact, our understanding is very incomplete. But in this report we present some data and ideas, hoping to facilitate discussion and purposeful action. The SEU project is ready to explore and develop new steps with its partners or hosts. We hope to receive genuine and specific feedback from those involved, and the benefit of their ideas.

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SUSTAINING RURAL WATER SUPPLY SYSTEMS

1. Introduction

The occasion of the Review Mission of the SEU Project presents a good opportunity to discuss, design and decide about practical steps to ensure continued functioning of the Dutch and Danish assisted Rural water Supply Schemes. In the initial phase of the SEU project our efforts have been directed at the establishment of the schemes: mapping, surveying, site-selection, coverage, actual construction. And, according to our mandate, we have been especially concerned with the involvement of people in these issues: community participation, knowledge and attitudes of people, access to water, the way they might use water and sanitation facilities, hygiene education, etc.

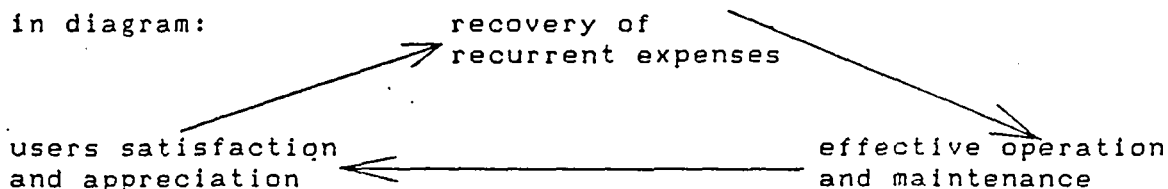
However it is obvious that this is, indeed, only the first stage. The second and possibly more crucial stage concerns the *continued functioning* of Rural Water Supply Systems. As most donor agencies have learned with regret, it is relatively easy to finance initial construction, but it is extremely difficult to ensure long term sustainability of RWS. Many schemes, perhaps especially the ones created with outside assistance, do not realize their potential of effective long term functioning and turn out to be an ineffective investment.

In a simple way one can consider the issue of sustaining the benefits of a RWS from three angles:

- a. the physical aspect: do the schemes continue to function properly? In practical terms: are the schemes effectively operated and maintained?
- b. the financial aspect: is there a steady and adequate source or local revenue to cover the recurrent costs?
- c. the social aspect: are the Rural water facilities accepted, appreciated and properly used by their clients?

The three are clearly interrelated: without money no proper O&M but also: without users' satisfaction no revenue. And the other way round: without adequate O&M no willing payment, so: no sound financial basis.

In diagram:



Ideally the institution which constructs a new Rural Water Supply scheme at the same time assures that adequate financial arrangements are made for future O&M and for a regular income which makes this possible, once the scheme is operational. This memo will look at these questions in the context of Kerala and, more specifically, from the Socio-Economic Units' point of view. Although there clearly are essentially technical and political issues at stake, our discussion will be mostly limited to the social, financial and institutional aspects of these issues. To put our discussion in a realistic context we will first present data on the actual financial situation of the KWA, as well as on a sample of Rural Water Supply Schemes. From

there we will present proposals for future SEU and KWA action towards improvement in regard to cost recovery and O&M. I trust that our technical colleagues are looking into the more strictly technical and operational details of these matters. We hope to receive feedback, advice and approval from the KWA and the donors for these proposals which will enable us to finalize our plans for the next stage of our project.

2. The macro view: political and financial factors

The first question to be asked is: how is water regarded by Indian society and specifically: what is the general opinion in Kerala about the availability and costs of drinking water?

1. water....a public commodity?

The general sentiment in India about drinking water is, that this is an essential ingredient of life and for life, which should be available to all. Clearly people have been making provisions for drinking water for centuries, with or without the involvement of public institutions such as government. More recently the Government has assumed the central responsibility for providing as many citizens as possible with safe water - and as necessary. Whereas the possibilities are constrained by financial and technical limits, it should also be acknowledged that most people, certainly in Kerala, manage reasonably well without government involvement.

To put this in perspective: while the great majority (approx. 76% in 1983) of Kerala's urban population get water from either a house connection (44%) or a public tap (32%), the figures for rural areas were, for 1983: 2% being served by houseconnections, 29% by public taps. This left the rural majority to the traditional sources, in particular: wells. With the present enthusiasm for mechanised water systems, we should not lose sight of the fact that private and public wells have been and still are a very acceptable solution for many people. They often are of decent quality, within reasonable distance and socially accessible. This is not deny the fact that for a very considerable number of people such sources are not available within reasonable distance or with sufficient safety. Especially the socio-economically weaker section does not have easy access to safe water, whereas the burden of fetching, boiling and storing is a very heavy one for many women in the State. Furthermore: the groundwater situation is rapidly deteriorating, which means that many wells are falling dry during steadily increasing parts of the year. These points are elaborated in much more detail in SEU Research Report nr.4.

And finally: in some parts of the State wells simply do not offer a feasible solution: either because they provide only brackish water (in the densely populated coastal areas) or because their yield is low (in the rocky and hilly inland zones this is in the order of 40m³ day).

All this means that mechanised water systems (ranging from handpumps on borewells to piped distribution or treated surface water) are an solution which is more and more demanded from Government. And Government accepted this role, hence the establishment of the PHED and its successor, the KWA. Attempts have been made to distinguish between the really needy areas, where government intervention is indispensable (the so-called problem villages) and the areas where

traditional sources are adequate. However as of today no master plan or general strategies for providing people with just the amount of assistance they might need have been prepared. And the forceful claims from people and their political representatives make it difficult to make such distinctions. These circumstances have certainly contributed to the easy assumption that only piped water would be an adequate solution - and that the KWA (and only the KWA!) has a duty in regard to ...water and sewerage works.

Whereas panchayats occasionally construct and maintain public wells or ponds, the general feeling is that the "real" work in this sector is to be done by the KWA (which is now also taking over the distribution systems in the urban areas which are, as yet, under the municipal authorities).

The situation is that the KWA operates 1336 rural schemes: 255 (19%) using (and treating) surface water, 397 schemes (30%) tapping groundwater through borewells and 549 schemes (or 41%) using groundwater without borewells. 35% of the schemes are very small (below 50,000 liters daily), 22% medium sized (50 to 100 Kliter daily) and the remaining 43% provide between 1 and 20 Lakhs of Liters daily. Together all these schemes are providing approx. 7 million people with supposedly safe water at a cost of approx. Rs 1350 million (13.5 Crore) in the 7th Five Year plan State (which incidentally makes for 49% of the allocation to the water and sanitation sector). The allocation to the total sector (so including urban and sanitation intervention) amounts to around 7% of the plan.

Before we look at the figures in more detail, it might be interesting to notice that, at a national level the allocation to the rural drinking water has actually decreased as a percentage of the last three Five Year Plans: from 2.25% in the 6th Plan to 1.975 in the 7th, and that for the 8th Plan some 8000 crores is proposed - for all of India.

2. the cost of water production

Let us now look at how much it costs to construct, operate and maintain drinking water schemes in Kerala's rural areas. It is difficult, if not impossible, to come to reliable and accurate estimates, as the KWA does not publish any over all figures. In fact the KWA apparently does not even present consistent figures for the total number of schemes, beneficiaries and the related expenses. What follows is a distillation from a variety of reports which might contain some errors and incompleteness.

The essential facts are these:

the KWA's budget for 88/89 does not make a distinction between urban and rural schemes, but distinguishes between capital and revenue account, which roughly seems to mean: all expenses to keep the KWA going (i.e. recurrent expenses) and capital investment (incl. related staffing costs):

	receipt	expenditure
opening balance	0.4 crore	
revenue account	34,2	28,3 crore
capital account	56,7	55,1
repayment of loans		3,8
debit, deposits	5,75	7
closing balance		2,8
total	<hr/> 97crore	<hr/> 97crore

So per every Keralite some Rs 34 is spent on drinking water and (to a very small extent) sanitation in 88/89. However, it should be realised that the revenue is mostly a grant by the GOK to cover the huge deficit in this account: 19.5 Crore, whereas only 4.08 crore is expected from local bodies. O&M charges (without staff expenses!!) come to 13.2 crores and salaries and establishment charges for this category would add another 12 crores. The total O&M expenditure for both urban and rural schemes: 28.3 crores (2.8 crores added for interest payments). The best available estimate for O&M charges for the 1336 rural schemes is given in report prepared by Lavan Consulting engineers: 5.9 crores. This implies that most of the O&M expenditure (79%!) is in fact incurred on behalf of urban consumers: 22.4 crore.

Before we look at the results of these expenses, it might be of interest to compare expenditure on O&M with capital expenditure in the present budget:

almost exactly twice the amount is spent on capital investments: 55,1 crore versus 28,3.

And one more interesting figure: of the 28,3 crore spent in the revenue account 42% goes towards salaries, 46,6% to O&M charges proper. And of that last amount almost half goes to power charges, 20% to repairs, 13% to consumables..

3. Who pays?

It was expected to cost 32,1 crores in 88/89 to keep the urban and rural schemes as well as the KWA going: the 28.3 given above plus another 3,8 crores for various administrative expenses. We will leave the 55.1 crore in the 88/89 plan for capital investment out of further discussions, as we want to concentrate on recurrent costs. However, before we do: two remarks: it should be noted that most of the capital investment is carried out with loans (in fact 22 crore or almost 40%), which clearly will present an increasing burden of repayment.....(in 88/89: 7 crores or 21% of the revenue expenses went towards interest and loan repayment; and this while exemption was obtained for repayment to the GOK). And, perhaps even more relevant in our discussion: constructing new schemes today means: adding future O&M costs to the expenses at an approximate rate of 7% per year for the amount of capital once invested. So in more than one way it is self-deception to distinguish too strictly between the two categories.

However the question now is: who is paying for these recurrent costs, whatever their nature might be? Again the 88/89 figures tell part of the story:

REVENUE RECEIPTS 88/89: <i>in crore:</i>		
domestic consumers (house conn.s)	3,3 crore or	9.6%
non domestic consumers	1	2.9%
industrial consumers:	3.3	9.5%
	<hr/>	<hr/>
total from connections:	7,6	22.2%
payment local bodies	4.1	12%
miscellaneous incomes	.9	2.5
grant fr. government	21.6	63.3%
	<hr/>	<hr/>
grand total:	34.2	100%

In other words: the Government of Kerala is paying an amount which is equal to the total of all O&M charges for materials plus almost all of the salary bill for O&M..... Whereas the urban and rural consumers jointly pay roughly 40% of the total recurrent costs. And more specifically: payment for water provided through public taps is expected to be only: 4.1 crores.... from the local bodies (municipalities, towns and panchayats). While the O&M charges for rural water supply alone, (including salaries) come to at least 5,9 crore. And while an even larger amount is needed for the urban consumers. To put things bluntly: the various local bodies pay nothing of the capital costs and at best 12% of the recurrent costs of the water supplied to the public.

4. subsidy and cross subsidy

It is not uncommon for water supply and in particular rural water supply to be subsidized by Government. In fact, to my knowledge this is happening all over India. However, three comments might be made:

a) the capacity of National or State Governments to continue such subsidizing is increasingly limited. The obvious reason is that there are even more urgent claims on decreasing public resources. It is likely that the next National Five year plan will make this point clear: users are supposed to shoulder a larger share of the recurrent costs.

b) It could be socially and politically acceptable that Government is subsidizing drinking water supply. But then it is essential that such subsidies go only or mainly to those who really qualify: those people who can not solve their drinking water needs because solutions are too expensive for them. That can be either because they lack the financial resources (i.e. they belong to the poorer sections) or because only expensive solutions are available (i.e. the physical situation requires sophisticated technology, like in coastal areas). However, as noted above, it is absolutely unclear whether the actual subsidies are given on such considerations. From the available evidence it seems that much subsidy is in fact spent on urban consumers - and on those who have hometaps in rural areas. Clearly the most well to do groups in Kerala....

c) While subsidy by the State might be appropriate in a number of situations, it should be investigated to what extent cross-subsidizing is feasible and appropriate. Many water supply schemes have a built in mechanism which makes especially the owners of private connections pay more than their share, while the users of public money pay less than the recurrent costs. From the available evidence it is impossible to say whether this is happening. But it looks like in fact the opposite is happening: public resources are used to subsidize the house connections. In 87/88 the KWA had to divert one third of the capital budget towards O&M. Even the World Bank objected to that, saying that *"the result is a perverse subsidy where the more well-to-do population who have connections do not pay an adequate rate and funds from the KWA and GOK are constrained in extending water supply to new areas without service or to public standposts from which poorer people can get water free"*.

This seems to be a persistent pattern in the KWA's financial system: Government funds are used for O&M of existing schemes in stead of constructing new water supply systems. To those who have will be given....

When politicians and others make their claim that water should be free of costs and that tariffs can not be raised, this sounds pleasant and sociable. However, this in fact means that public funds are mostly spent on those who have the influence to attract initial KWA's investment: the urban dwellers and local bodies who have the right connections. It means that two thirds of the rural population does not get any government help towards improved water supply but that they are subsidizing (through taxation) those who have.

5. How to pay?

Apart from government subsidies there are, essentially, only three ways in which revenue can be collected by the KWA:

1) from Municipalities: for the water supplied to them. In such cases the KWA produces the water and supplies this either in bulk (Cochin, Calicut) to the municipality or also distributes the water. The municipality collects money from users and is supposed to pass this one to the KWA, deducting for collection and, where appropriate, distribution. This system could work well if only the municipalities would indeed hand over the money. In many cases this does not happen and the KWA does not have any legal or political means to press for payment. The arrears for Calicut for example amount to 6,5 crores....

2) from private users: the KWA can bill people directly for the water they are using, with or without a metering system. In fact this is happening: so-called domestic consumers are supposed to pay 3,3 crore in 88/89. There are many complications in this system, notably the production, placement and maintenance of reliable meters, the reading of the meters, billing and collection. It is estimated that at least 20% of the presently used meters are not working properly. The World Bank is willing to assist the KWA in looking into this problem. Then there is the problem of meter reading itself: in rural areas an employed meter reader adds at least another 1500 Rupees to O&M charges, for which he/she can read up to 500 meters per month. So: another Rs 3.- per meter per month (in the case of monthly meter reading), whereas the actual revenue from such connections varies between Rs 241 and Rs 5 per year (see table 11)!! Then there is the problem of actual collection: estimated at approx. 70% of what is billed only. And the last problem is the most sensitive one: tariffs. As we will discuss in the next section, the present tariffs do not even cover the production costs of water, even if all water would be paid for according to those tariffs!! The World Bank has taken note of this problem and has proposed the following tariff structure in 1990 prices:

rupees per 1000 liters

domestic users (monthly consumption):	
under 5000 liters	1.00
5000-15000 liters	1.50 - 2.00
over 15000 liters	2.00 - 2.25
commercial users:	2.00 - 2.25
industrial users:	3.00

Tariff studies suggest that such amount would actually cover recurrent expenses. The bottleneck will be the political will to raise present tariffs to such amounts. These tariffs are

now: between 0.50 and 0.75 per 1000 liters. The GOK has been in possession of proposals to raise tariffs for quite some time now. It is not clear whether the coming elections might lead to further delay in decision making. No politician wants to go into the election by confronting people with such clearly unpopular measures. However, the GOK and the KWA are on record as having agreed to the World Bank to adopt appropriate new tariffs and charges by 1 April 1990, taking into account the findings of the statewide cost and revenue study. However, as long as people do not realize how costly it is to produce and distribute safe water, as well as how essential such water is to their well-being, so long will there be political constraints towards charging higher amounts. Especially so when consumers are also dissatisfied with the quality of the service...

c) from panchayats: the panchayats are, in a way, the guardians and representatives of rural people. They are expected to look after the interests of their constituency and to arrange basic services - directly or through other institutions, such as the KWA. And they are expected to pay the KWA for the actual costs of O&M in connection with the water provided to the panchayats public taps. For this the panchayat can collect a special tax or cess from its people or, alternatively devote maximum 12,5 % of the total annual panchayat revenue from all internally generated resources. The idea makes sense, the practice is extremely disappointing to the KWA: since the KWA became a so-called statutory body (as distinct from a government department), it has become extremely difficult to collect revenue from panchayats. The arrears for the last couple of years amount to at least 16 Crores as per March 88! To put this amount into perspective: total O&M charges for rural water supply systems throughout Kerala for 87/88 are estimated at 4,4 crore without establishment charges and 5,9 crore inclusive of establishment. And this leaves out depreciation!

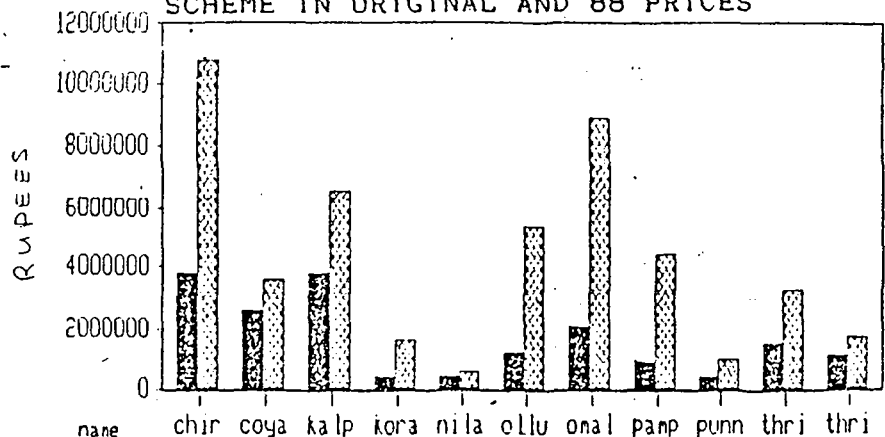
3. THE MESO VIEW: FINANCIAL PERFORMANCE OF SCHEMES

After the general overview in the preceding section, let us now look at the real-life costs and revenue of a sample of schemes. The Lavan report has collected reasonably reliable financial and technical information about a sample of schemes. As explained in their report this is supposed to be a sample out of the total of 1336 schemes, with an over representation of medium and large sized schemes (because those are supposed to be more relevant to the intentions of the donors). For details about the selected schemes, see annex 1. In the following paragraphs we will look at the real costs for constructing and operating and maintaining the selected 12 schemes. The costs are as of 87/88.

1. capital costs

Table 1 present the total capital costs for the various schemes, both the original amounts as well as these amounts converted into 1988 prices.

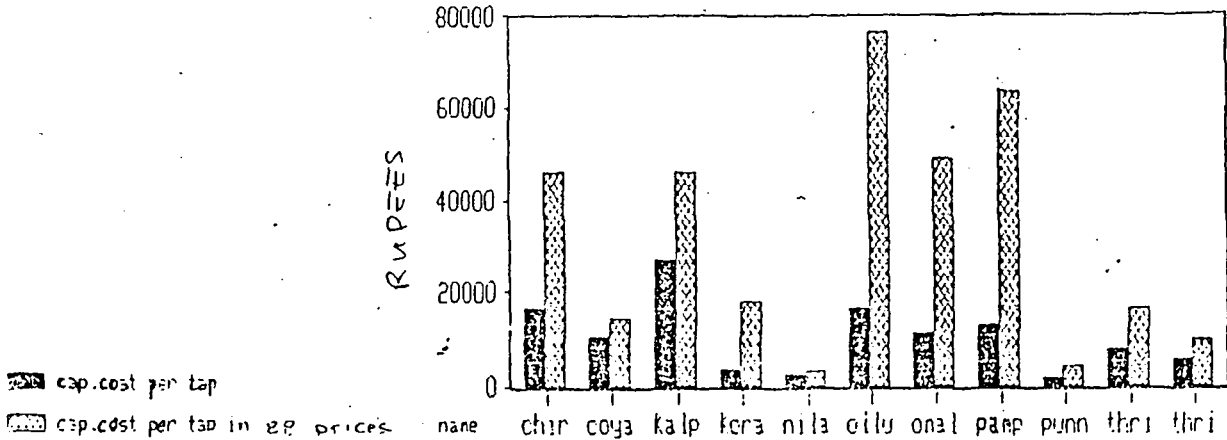
TABLE 1 TOTAL CONSTRUCTION COST PER SCHEME IN ORIGINAL AND 88 PRICES



■ actual cost

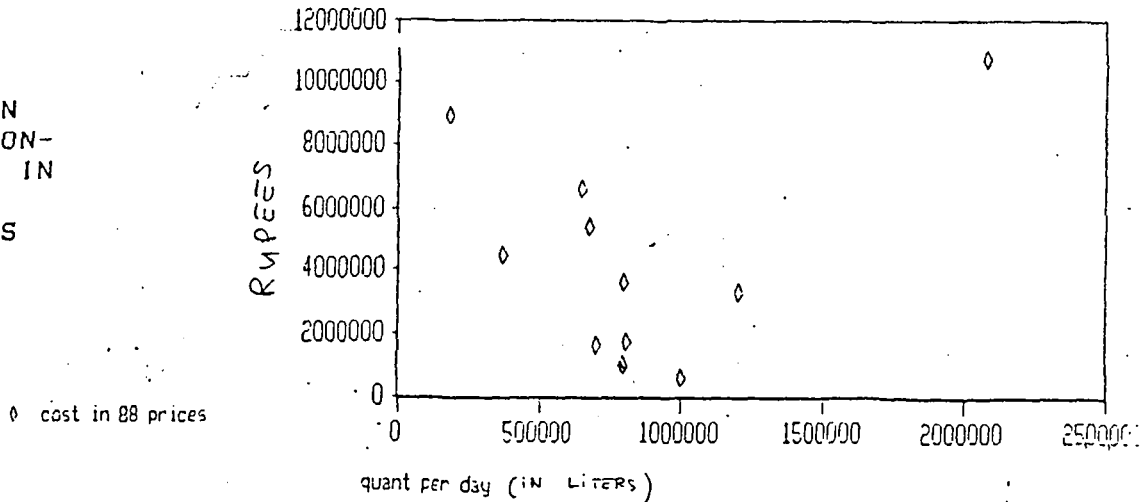
▨ cost in 88 prices

Of course, the schemes are of different sizes and ages. To compensate for the variation in size table 2 presents the figures PER PUBLIC TAP. So: the total capital costs divided by the number of public taps in that scheme. The actual costs for each scheme are presented in two ways: actual, original costs as per the year of construction and costs recalculated towards 88 prices.



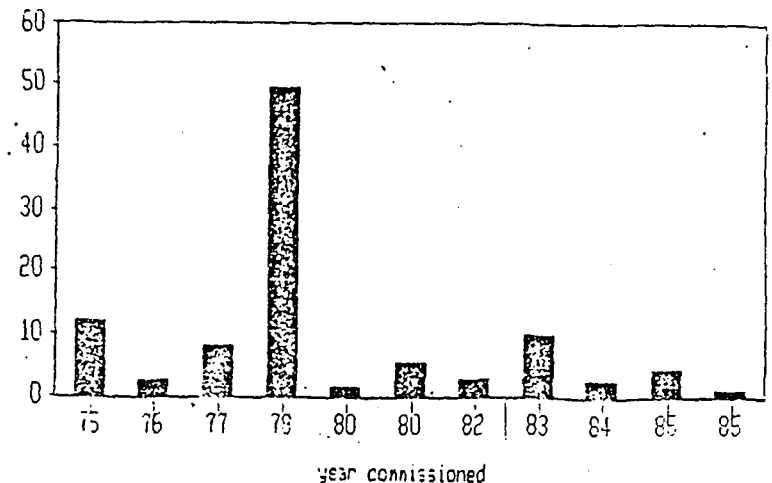
The most striking aspect is the huge variation in initial costs. One might suspect that the size of the scheme would explain this variation (assuming that larger schemes are cheaper for a given quantity of water) but no it does not. The following graph shows the total lack of relationship between the capital costs (in 88 prices) and the quantity of water produced.

TABLE 3
DAILY PRODUCTION
IN LITERS AND CON-
STRUCTION COSTS IN
1988 PRICES FOR
SELECTED SCHEMES



And neither does the year of construction explain anything. The construction of new Rural Water Supply Schemes certainly does not get cheaper, even if we control for inflation as well as quantity produced.

TABLE 4
CONSTRUCTION COST
IN 1988 PRICES
PER 1000 LITERS OF
DAILY OUTPUT AND
YEAR OF
CONSTRUCTION



2. o&m expenses in detail

Now the more crucial issue: recurrent costs. Again we can observe an unusual variation in the costs per 1000 liters. The following graphs shows actual O&M costs, split up between direct costs (materials, staff), depreciation of the scheme's capital outlay and establishment charges. The next table (6) gives only the O&m costs per 1000 liters.

TABLE 5 RECURRENT COSTS IN 88 PRICES PER 1000 LITERS, SPLIT BETWEEN ANNUAL DEPRECIATION, ESTABLISHMENT CHARGES AND ACTUAL O&M COSTS

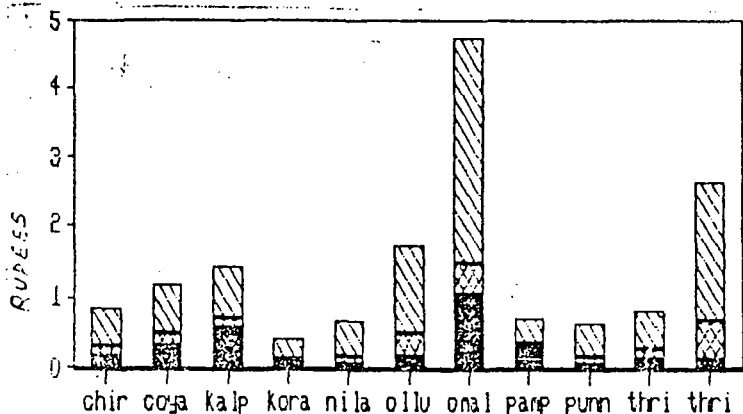
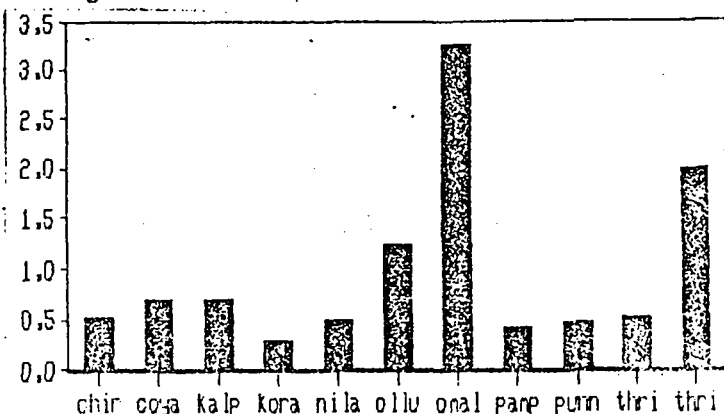


TABLE 6 ACTUAL EXPENSES ON O&M PER 1000 LITERS (so exclusive of depreciation and establishment charges)

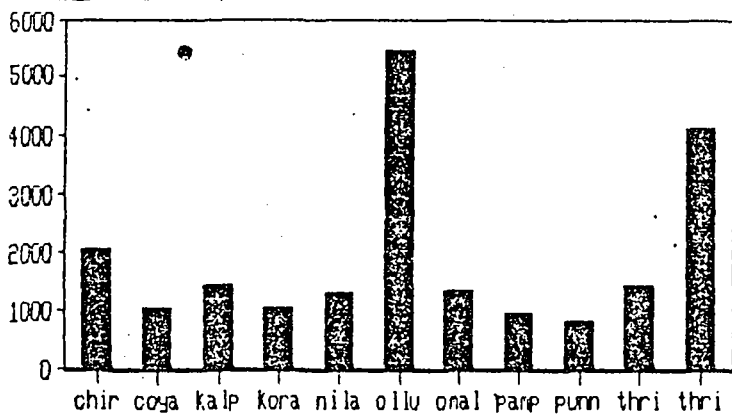


■ annual depreciatio ■ annual establ.cost ■ O&M direct costs p

■ O&M direct costs per 1000 liter

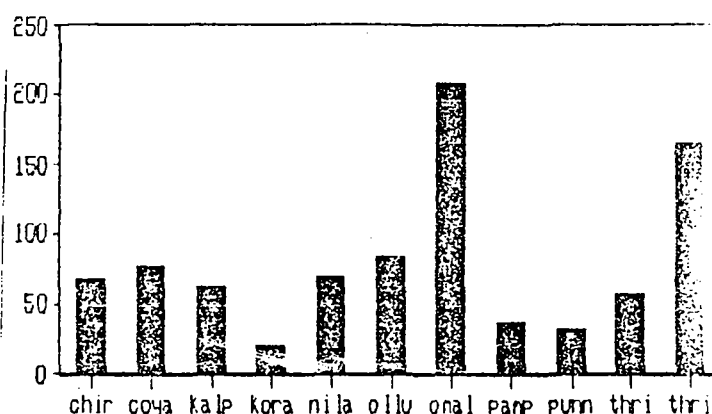
It might be of interest to consider annual O&M charges per streettap and per household served by the scheme. Table 7 gives the real O&M expenses per public tap, assuming all O&M expenses are borne by the public taps (the prevailing condition in most schemes). Table 8 gives the annual costs per household, that is: the annual O&m costs on the assumption that the actual expenses are equally spread over all households within the scheme's area and taking 6 as the average household size.

TABLE 7 TOTAL O&M COSTS (INCL. SALARY COSTS) PER PUBLIC TAP PER YEAR IN RUPEES



■ total o&m per tap per year

TABLE 8 ANNUAL EXPENSES ON O&M PER HOUSEHOLD UNDER EACH SCHEME IN RUPEES

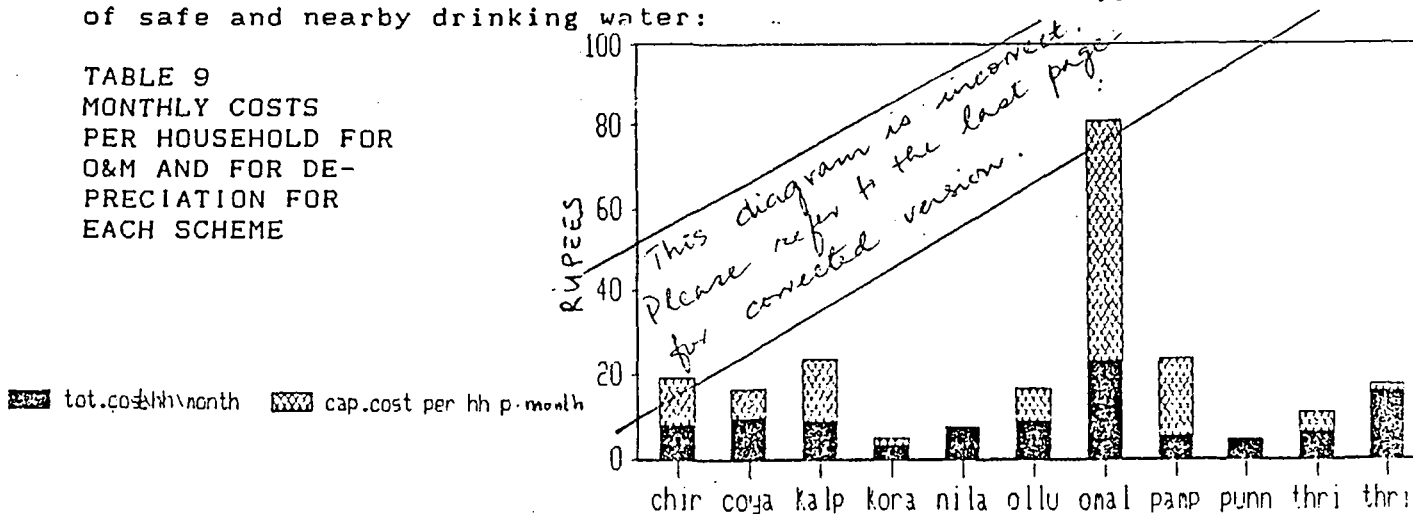


■ total o&m per Hh per year

And finally: the recurrent costs per month per household on the assumption that there are no (paying) house connections in the scheme and that the costs are evenly spread. Again we make a distinction: with or without depreciation of the original capital investment. But it perhaps most realistic to take the figure without depreciation to come closest to the real recurrent costs per public tap, per household, per month. This is, as the Americans say, "the bottom line": the money required to continue providing users with water. If it is not available, the system will malfunction and finally fail. Someone has to pay for this:

And someone is converting those payments into a more or less effective service; ideally: a sustained and reliable supply of safe and nearby drinking water:

TABLE 9
MONTHLY COSTS
PER HOUSEHOLD FOR
O&M AND FOR DE-
PRECIATION FOR
EACH SCHEME



3. the revenue from private taps

Part of the money required for sustaining the system can and should come from private taps or house connections. How much in fact comes from this potentially very rewarding source?

The figures for the studied schemes are disappointing:

The number of private taps per scheme is given in table 10a, but the more telling percentage of households within the scheme having a private connection is given in 10b

TABLE 10.A
NUMBER OF ACTUAL
HOUSE CONNECTIONS
FOR EACH SCHEME
AS PER 1988

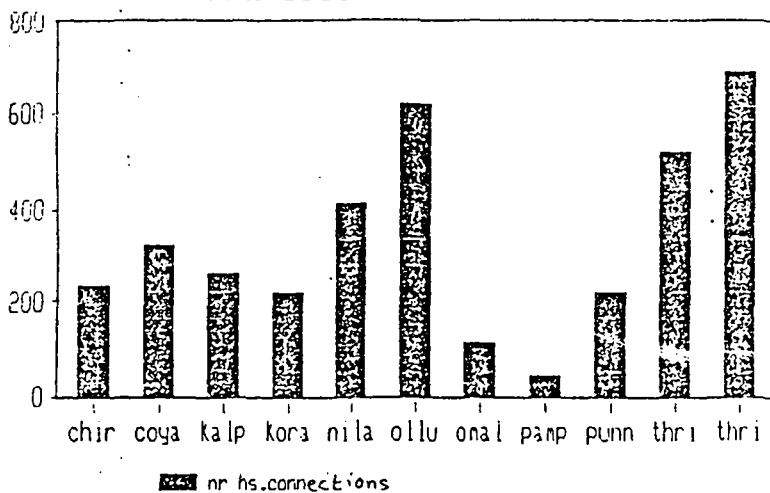
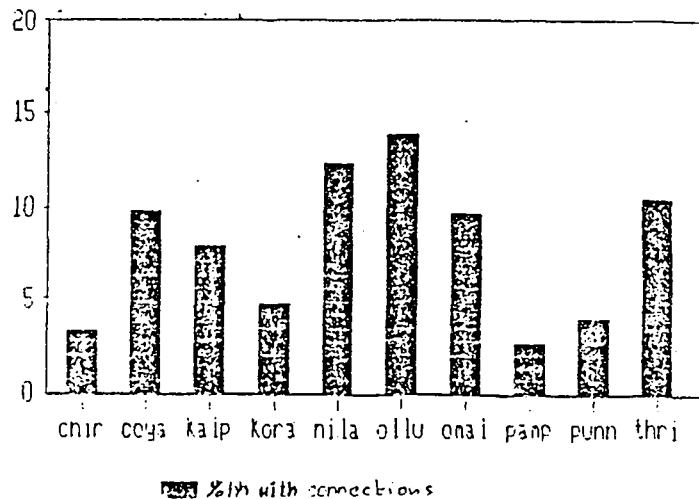


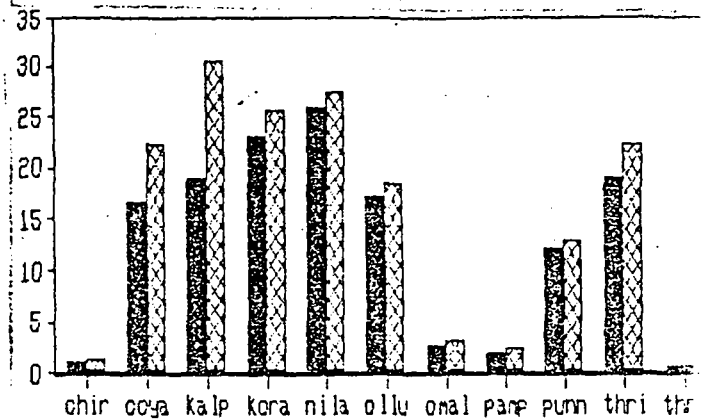
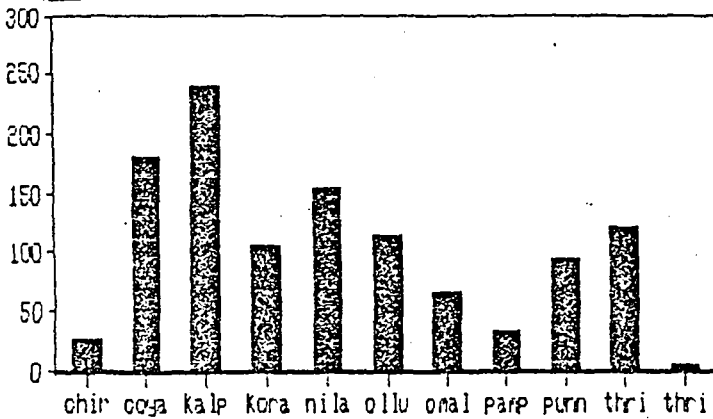
TABLE 10.B
PERCENTAGE OF ALL HOUSEHOLDS
WHO ACTUALLY HAVE A PRIVATE
CONNECTION, PER SCHEME IN 88



But, more distressing even: the amount of money ACTUALLY collected from these private taps or hose connections: Per connection in table 11. The average amount PER house connection PER YEAR comes to a pitiful 11.57 Rs. Talking about subsidizing water! And as a portion of the recurrent costs (the money actually spent to provide these households with water at their door step in table 12: on average 14%!

TABLE 11
ACTUAL REVENUE PER PRIVATE CONNECTION IN EACH SCHEME IN 1987/88

TABLE 12
ACTUAL REVENUE FROM PRIVATE CONNECTIONS PER SCHEME AS A PERCENTAGE OF TOTAL ANNUAL COST AND OF ANNUAL O&M COST



■ rev.p.hs.connection

■ rev.as % of total ■ rev.as % of o&n cost

4. THE MICRO VIEW: USERS' EXPERIENCES AND WISHES

1. Users' experiences

No systematic survey has ever been done to assess the reality of KWA's performance at the users' level. The only effort of this nature is the SEU's Utilisation Study (Research report nr 4). The essential complaints from users questioned by SEU were:

-non availability of water during (large) parts of the day (eg: in one panchayat only a few hours daily - or rather: nightly! - throughout the year, in another: in summer only 2-3 hours in the morning, 1 hour at noon and 2-3 hours in the evening).

-small quantity of water
complaints have been expressed about pressure and flow: it takes long to fill a bucket or pot and so people have to wait long until every one has taken their share.

-irregular supply
breakdowns and power cuts make supply irregular (apart from the more predictable part-time supply situation)

-quality of the water
many users complain about taste or smell (30% of those questioned by Lavan consultants), turbidity (45%) or other aspects of quality (25%).

-delay in repairs
As every traveller in Kerala can observe: many public standposts are in very poor shape - and have been so for a long time. Leaking taps are very common, broken platforms as well. Around

many standposts stagnating water or muddy pools form a health hazard and nuisance. In some cases there is no platform at all left: just a tap at the end of a pipe. In many cases drainage has been wrongly designed or has broken down.

All the above data are only based on impressionistic research and do not necessarily describe the situation correctly or completely. The only more solid facts we have on down time are collected by Lavan consultants and based on KWA staff reports:

The proportion of time the studied 12 RWS were down during 87/88:

due to distribution problems:	7 hours or	.6%
due to machine failure:	14.6 hours or	3.1%
due to power failure :	3.2 hours or	12.3%

These are the figures presented by KWA staff and as hours of respectively supply duration and pumping duration (which explains the different calculation). To what extent these failures translated in similar hours of NO SUPPLY is not clear.

2. Users interest in KWA water

Earlier in this paper the fact has been noted that most people in Kerala still rely on well and pond water for their daily supplies. There seems to be a (small) majority who prefer piped water for a variety of reasons: safety, convenience, reliability, status. Of course the interest in KWA supplied water depends mostly on the availability and quality of alternative sources. This leads to the obvious variation in demand and interest through the seasons. For quite a number of people piped water is essentially an *emergency supply* during the summer. For others it is a supply of water *for a specific use* (eg bathing), next to other sources preferred for other needs (eg well water for drinking), for others piped water is simply *the only reasonable option* (esp. coastal areas). These factors might determine to what extent people are willing to pay.

3. users willingness to pay

Again, only impressionistic data are available, while we are waiting for the outcomes of the Danida sponsored study on "willingness to pay" as well as on the SEU Baseline survey. The casual data are again reported in SEU's Research Paper 4 and can be summarised as follows:

Between one third and one half of the people are interested in a private connection, for which

2%	are not willing to pay anything at all
17%	are willing to pay below Es 10 per month
30%	Rs 10 to 15 per month
38%	16 to 20 per month
13%	more than Rs 20 per month.

Other casual data suggest that, as a rule of thumb people in Kerala are willing to contribute around 2% of their income to drinking water. For the below poverty line households this means: upto Rs 11 per month. (Please note that if all households currently using KWA water would indeed pay Rs 11 per month, all O&M expenses would be covered: over 15 crore would be available!)

These amounts relate to the monthly charges. However the expense for obtaining a private connection is much more substantial: this of course depends on the specific situation (esp. distance to the distribution line), but seems to vary between Rs 1200 and Rs 2000. For most people in the lower income category this is an unsurmountable obstacle. For households with middle and higher incomes it clearly is not and many panchayats staff have assured us that there would be a large number of people willing to take a private connection as soon as possible.

5. POSSIBLE INTERVENTIONS BEYOND SEU

SEU does not have the expertise, mandate or information to recommend detailed technical improvements and we trust that staff of the KWA and the Dutch and Danish technical advisers will present suggestions for improving the KWA's financial and maintenance performance. However, we would like to mention very briefly a few practical options which have come to our attention as possible steps towards lower costs and higher quality.

1. Managerial improvement

Perhaps the most needed approach is towards improved management and more effective control. The impression exists that the large manpower resource of the KWA (6000 employees!) is not utilised with optimal efficiency. In most regards the KWA still functions as a government department, where centralised decision making, strict obedience to rules and promotion on seniority prevail over functional flexibility, promotion on performance and cost-effectiveness. In fact the conversion of the former Public Health Engineering Department seems not to have brought any substantial improvement in terms of operational flexibility, creativity or cost-awareness (while it has resulted in the loss of easy access to government funds).

One area which seems to present itself for scrutiny and tightening of managerial control is the amazing differences in capital costs and recurrent costs among the various schemes. Of course, in many cases there might be sound explanations for such differences, but perhaps not always. As detailed in the Lavan report there is an amazing variation among O&M practices, frequencies of testing, numbers of house connections, amounts collected from such connections, down-time of schemes, composition of O&M charges and so on. Setting clear objectives of reliable and cost-effective service delivery and subsequent monitoring the various divisions on such criteria might lead to major improvements and increased accountability.

2. Financial control

For any such improvements to be visible (and so: enforceable), it will be necessary to have an accounting system which meaningfully relates costs, returns and revenue. As we understand the situation now it is almost impossible for engineers "in the field" to monitor the performance and costs of the respective schemes under their responsibility in these terms. And there is not really any incentive for such an engineer to put much effort into raising local revenue from a scheme, as the proceeds will only disappear in the books of the KWA. If an engineer would be encouraged to raise revenue towards matching (or better: exceeding) actual O&M expenses for the specific schemes and if he could directly apply such revenue for those schemes, there would be a real incentive for revenue generation as well as O&M improvement (an essential precondition to make users pay regularly). Only a decentralised accounting system, organised towards optimal monitoring of actual cost recovery and cost control per produced units of water would make this possible.

3. Variation of service levels and designs

It has been repeatedly observed that piped water systems are not the only or even the most logical response to circumstances in Kerala. In spite of their technological glamour, political attractiveness and professional challenge, they might simply be too expensive to build and not affordable to maintain in many parts of Kerala. In stead of aiming at a service level which will, at best, be available for a minority of Kerala's population (and at worst: a permanent drain on the State's resources), one

could think of an approach where service levels reflect the truly different situations in Kerala. As noted, in some parts of Kerala there is no doubt: only piped water schemes are (cost) effective. In many parts a much more efficient and cost-effective strategy could be: expansion and upgrading of local wells, the development or improvement of springs or the placement of handpumps. In some locations a piped water scheme should be conceived only as an emergency system during the dry seasons. Perhaps much money can be saved and many more people could be assisted if those differences are taken into account and if the KWA would develop a more diverse approach. Nothing is gained by ignoring the many so-called traditional sources of drinking water or by pretending that those are inevitably deficient.

In this regard it might be relevant to point out the tremendous potential of people and institutions which could be involved in improving such traditional sources (in stead of being marginalised by the increasing professionalisation of drinking water management). Panchayats have an immediate interest in providing their people with good water - and many are involved with public wells, sanitary inspection, repairs of handpumps. A multitude of voluntary agencies are keen to improve the local water situation. (SEU has received requests for assisting such agencies in the development of springs and improvement of wells) limited resources of the KWA. Training, advice and assistance would help to mobilize such resources, which would then add to the necessarily limited resources of the KWA.

4. Technical improvement

The Lavan report lists a number of practical steps for improvement of O&M which do not need to be repeated here. The only point which can be added from our perspective is the suggestion to more systematically consider financial implications of these steps and the underlying technologies. The point is not only to improve preventive or corrective maintenance. At least as important are short term and long term financial implications. In stead of introducing new general rules about such matters, it might be more effective to present engineers with a range of options and clear guidelines on intended levels for service, cost and revenue. A larger degree of freedom for these engineers to choose the specific steps for realising those clearly set criteria, in combination with a system which monitors actual operational and financial performance, would make the job more interesting for the engineer. But at the same time higher level management can monitor the scheme's (and the engineer's!) real performance and act accordingly. In other words: technical improvements should not be seen as isolated goals, but as steps towards measurable objectives.

5. Personnel management

This is a sensitive issue in the context of Kerala, but considering the extremely high portion of manpower expenses in the KWA's revenue account (42%!!) it is an inevitable one in this discussion. We do not have comparable figures from other parts of India, but it might be worthwhile to investigate the economic soundness of an arrangement where so many people are mostly busy instructing, supervising and paying outsiders. The KWA's high level of manpower cost should be judged in combination with the fact that almost all of the "real work" is done by outside contractors. Construction, repairs, all production and transport of materials, pipe-laying, water testing, the establishment of private connections, in cases even revenue collection and design of installations are all contracted out... The 6000 KWA staff

seem to be mostly involved with general design, investigation and planning, supervision of execution of new schemes, actual operation of existing schemes, negotiation and control. It could be interesting to assess the required manpower and most effective arrangements for these tasks.

Even more sensitive is the issue of the still existing character of the KWA as a government department. The formation of the Authority has not changed anything in this regard. Employment conditions are entirely along the Kerala Service Rules, with their emphasis on life-long employment, automatic promotion and entitlement to a range of benefits regardless of performance. It would be revolutionary in the Kerala context to challenge any part of this. However for the KWA ever to become a cost-effective and efficient organisation which would at least meet its recurrent expenses, it might be essential to change its manpower policies and practices. Drastic streamlining, flexible appointment policies, performance oriented assessment, direct recruitment (i.e. not through the Public Service Committee) and strict application of sanctions on corruption, malpractice and under-performance would change the character of the KWA drastically. But not only that: this would also change the cost and productivity level of the KWA drastically!

6.Privatisation of functions

The last revolutionary suggestion towards improved O&M and cost-recovery: handing over specific functions to private institutions. If private companies are considered to be so competent and reliable in construction, production, repairs, pipe-laying they might be efficient in other matters as well:

Bill collection could be handled by private agencies (on a fee for services basis as is the case with panchayats and municipalities now). Even operation could be handed over, at least on a trial basis, to the company actually constructing the scheme. And instead of spreading construction works over a multitude of contractors, one could consider a turn-key approach, whereby one private company accepts the legal and financial responsibility for the complete process of procurement, construction, distribution works, etcetera, within a specified time-frame and along very clear criteria of service level, design, quality, durability etcetera. It has been shown elsewhere in India that it is possible to hold private companies to such contracts and, by doing so, to shift the burden of management, labour, logistics to institutions more proficient in this than a Government Department. If initial negotiation, ongoing quality control, legal provisions for penalties (in case of delay, etc.) are dealt with in a sharp manner and if the responsible company has to live with the consequences of its own efforts (e.g. by being responsible for the first 5 years of repairs), this could be an attractive proposition to try.

6. POSSIBLE INTERVENTIONS THROUGH SEU

We can now present a number of suggestions for SEU. At this stage these proposals can only be presented in a very rudimentary form. Once we have received initial feedback from the KWA and the two donor agencies we can and will elaborate those proposals which seem to be most practical. With the Review Mission we would like to agree on a time table and procedures regarding this elaboration and subsequent decision making. In that context the financial and manpower consequences of the various proposals need to be looked at carefully.

Three kinds of suggestions are given:

1. Data collection by SEU
2. Experiments by SEU
3. Steps by or through KWA

1. Research by SEU

First of all we need to know and understand more than we now do. On most subjects we have, at best, estimates and impressions. And on many we simply don't know at all. SEU is a pilot project and only now embarking on activities related to O&M and cost-recovery. So there seems to be a valid case for careful collection and analysis of information before we take further steps on those matters that are unclear or controversial. The following topics seem to be most relevant.

a) actual standpost utilisation

No one really knows what amounts of water are actually taken from public standposts - in the varying circumstances of Kerala and throughout the seasons. All plans are made on assumptions which have never been investigated and on very global calculations. It would add some realism to our plans if we know more about this basic fact. It seems to be surprisingly easy to collect the relevant data: by installing (tested!!) water meters at a number of public taps and arranging for weekly registration of the meter reading by a nearby household or other local person (against a symbolic payment). We could include taps in different ecological zones, in wards with and without wells, in situations of dispersed and concentrated habitation, etc.

b) consumption under different payment conditions

Present thinking seems to be in favour of the use of water meters in the case of house connections, in spite of the fact that such meters add a very substantial financial, administrative and logistic burden to the KWA and the user. It would be worthwhile to monitor actual use under the two conditions: payment on the basis of metered consumption versus payment of a flat rate. The question is: does consumption and especially: abuse of water really increase in the case of a flat-rate system (ie without a meter). The test could be simple.

c) The costs of not having water

The usual argument in favour of safe water is, of course, improved health. And people might be convinced that it is worth contributing money for that purpose. However, a supporting argument is: saving in time and money because of improved water supply. Again, this is a subject on which many guesses are made, but hard facts are lacking. We know that in some districts people are paying as much as Rs 50 per month to water sellers. In other places a very substantial part of the time of domestic servants goes into the fetching of water. In many places at least one hour daily of the housewife's time is spent on fetching water. But beyond all these direct costs, there are indirect costs of not having safe and readily accessible water: the expense on doctors, medicines, time to visit a doctor and the productive time lost because of water borne diseases. It is worthwhile to investigate the various dimensions of the expenses related to unsafe or distant water. The findings will help SEU and the KWA in a more realistic marketing approach towards safe water.

d) real willingness to pay

We are still waiting for the findings of global study on "willingness to pay", conducted one and a half year ago. Perhaps that study will give us the detailed information on real willingness to pay, which will enable the KWA and SEU to set more realistic tariffs and collection systems. However if the results of that study remain as elusive as they have been as yet or if they are not sufficiently clear and relevant for most parts of Kerala (the study was done in North Kerala, which is rather special), it might be worthwhile to collect information on household ability and willingness to pay - and the varying conditions for such willingness.

e) panchayats willingness/ability to contribute

The point has often been made that the panchayats should pay for the costs of water provided to their constituency. The point has also been made that these panchayats are not willing and/or not able to do so. It would again make future approaches more realistic if we collect rather detailed information on the present and future ability of panchayats to pay for protected water. The impression now exists that indeed many of the panchayats within the project area simply do not have the funds for such payments - and will not have in the foreseeable future.

Other panchayats might have the ability to raise this money but might lack the administrative machinery or political will to do so. Again: nothing is gained by continued guessing and by basing expectations on the present vague impressions. Data on the panchayats present financial situation and spending patterns can be easily collected. Careful interviews with administrative and political leaders of a sample of the 73 panchayats will help to point out what the real obstacles and opportunities might be towards future revenue collection and transfer to the KWA.

f) KWA - panchayats contacts

Any future improvement of local revenue collection and O&M arrangements will involve intensified and more positive contacts between the KWA and the various panchayats. We now have the impression that such contacts depend largely on the inclination of the local engineers, the political situation and coincidence. It would be useful to investigate this and to try to establish a more regular and consistent pattern of interaction between KWA and panchayats, probably with assistance from SEU. For us to design such assistance (training, workshops, instructions?) we need to know the present situation and mutual sensitivities.

2. Experiments by SEU

We now come to the for SEU most crucial suggestions: suggestions for particular field level activities which will hopefully help to solve the most serious problems in regard to cost recovery and O&M. To summarize what we consider to be the most central problems from the SEU perspective:

-lack of revenue due to:

- to the low number of private connections
- poor collection
- poor payment by panchayats
- resistance against payment because of lack of users' understanding and users' appreciation
- lack of political support for realistic pricing

-poor O&M performance due to:

- lack of accountability KWA-staff to users
- lack of efficient repair arrangements at the lowest level
- inadequate fault reporting
- lack of users's responsibility and involvement

So let us do something about these problems in the next few years. Again: SEU is in an excellent position to develop, test and document approaches. Experimentation will be required, because we do not only lack data, we also lack tested methods to improve the situation. And so: the only sensible approach appears to be: careful experimentation. Obviously this needs active collaboration from the KWA, good monitoring from SEU's side and willingness among the donors to give SEU the required time, funds and support.

The most relevant experiments seem to be the following:

- a) House connections campaigns
- b) House connections loans
- c) group taps
- d) new collection methods
- e) bulk payment by panchayat
- f) establishing and training Water Committees
- g) local repair under Water committees
- h) fault reporting by water committees
- i) public relations campaign for KWA

All suggestions are discussed briefly below.

a) House connections campaign

In close collaboration with the responsible engineers and the local panchayat the three units will each select one or more panchayats where the technical and social circumstances seem to make a large number of private connections feasible. This means: the scheme has been commissioned, has sufficient capacity, the design (esp. of the distribution system) is adequate, the KWA staff is willing, the panchayat can take an active role, sufficient local licensed plumbers can follow up on applications and finally: there is a high level of users interest. In such circumstances the Unit, Executive Engineer and Panchayat conduct, jointly, a high profile campaign inviting people to take a house connection. The costs involved are made known (and can be considerably lower than usual if the KWA will process applications in greater numbers), the procedures are straightforward (suggested to give the panchayat a central role and arrange for a one-stop application system), there is no delay in technical scrutiny, approval and implementation. We expect that the net result will be a large number of house connections, possibly as many as 40% of all households in some panchayats.

b) House connection loans

Obviously for many possibly interested users the initial costs (between Rs1000 and Rs 1500) are a serious obstacle. We have firm indications that selected banks are willing and able to issue loans at low interest level (DRI loans) for this purpose and SEU can, with these banks and the Water Committees work out a suitable system for application, screening and follow-up. It might be interesting to also explore the option of issuing loans through a revolving loan fund administered by the KWA directly, as done in the World Bank supported schemes. Gradual repayment for these loans can easily be combined with the regular

payments for actual water use. Before we embark on this approach it would be useful to study the experiences of this WB sponsored scheme:

c) Group taps

This idea has been discussed in detail with a number of panchayats and engineers (in particular in the Central Region) and great interest seems to exist. In essence this is a private connection owned and paid by a defined group of people. In our experience many people are not in a position to take a house connection, but they would like a higher service level than the public standpost (to be shared with at least 25 other households). Or: a group of households does not qualify for a public tap (as their number is too low, i.e. currently below approx. 20) but they are, of course keen to have safe water as well. The option we would like to create is for such households to form a group for the practical and administrative purpose of jointly having a private connection. This group (of for example 10 households) would share the initial costs (in this example coming to around Rs 150 per household), as well as the payment for use (possibly coming to 4 or 5 rupees per month per household, depending on usage and tariff). And the donors could again consider to create a special fund to cover the initial installation costs - on a loan basis.

d) new collection methods

The tremendous costs and complications of the usual revenue collection system have been discussed. We would like to experiment with other, possibly cheaper and more efficient methods. In stead of appointing full time meter readers, meter reading (if at all!!!) can be done by panchayat staff (who visit houses anyway), by members of the Ward Water Committee, by voluntary agencies or by private institutions. In all these approaches the meter readers need, of course, to have an incentive for doing their work and the easiest would be a percentage fee on the amount actually collected. The other experiment can be the flat-rate system, which has been recommended before. In that case no meter reading and invoice calculation are required, only regular, fixed payments. And again: the panchayat seems to be the obvious institution to carry out the administration and logistics of this activity.

e) bulk payment by panchayat

Perhaps the most far reaching innovation we would like to test is the complete devolution of all revenue responsibilities in connection with water to the panchayat according to the following system: the total quantity of water supplied to a particular panchayat is monitored through a bulk meter, placed at the point where the distribution system enters that panchayat. The KWA is committed to reliable supply of adequate quantities, the panchayat is committed to pay directly to the KWA for all the water supplied to that panchayat, at a rate of, say Rs. 0.5 per Kilo Liter. (In an average panchayat, completely covered with public standposts this would come to around Rs 15.000 per month if per capita consumption is 40 LCPD). It is then up to the panchayat to raise this money: either through water cess or taxes or through private connections, or (most likely) a combination of the two approaches. This is more feasible than one might suspect: if the target of 40% private connections would be reached, and if these households pay Rs 1 per Kilo Liter (still less than average production costs!!) these households alone would pay monthly between Rs 20.000 and Rs 28.000 (depending on consumption). Which would actually result in a positive balance for the

panchayat. Clearly the situation would be advantageous for ALL: the KWA has an assured source of revenue without any of the complications., Private households have a much better chance of obtaining a house connection at reasonable cost and without too many hazzles. The panchayat has two major benefits: the political support for providing such a service level to its constituency and...an income. The obvious risk is that the service to and through public standposts could be neglected, if there is such a premium on private conections. This risk can be taken away by appropriate design, sound site-selection procedures, setting an d enforcing over-all criteria on public water supply and, most of all: by the mobilisation and representation of those users. Other suggestions are dealing with that issue (as do the present SEU activities in regard to comunity participation). But the suggested bulk supply to poanchayats meanwhile is an approach which can and should be tested in a few places. In our contacts with panchayats we have found a lot of enthusiasm for the idea. More though is required to work out the details and to carry out such experiments. But we now request the KWA and donors to give us the go ahead for an experiment along these lines.

f) establishing and training Water committees

In our documents on Community Participation and in the Manual for Water Committees we have outlined our approaches towards the establishment of Comittees at Panchayat and Ward level and we refer to those ocuments for details. The point now is to get a firm and clear response from the KWA in support of such committees and to have more detailed discussions with the various levels of the KWA about the exact role and expectations regarding such comittees. We feel strongly that these committees, representing the users as well as the local administration, should be taken as the most important interface between KWA and users. We have already established a large number of such committees at both levels and we are now planning to train the committee members - andperhaps the KWA staff dealing with them. These comittees can only become effective if they are taken seriously by the KWA and the Panchayat, if they learn the skills required for their functioning and if they receive the practical support they need. The first aspect requires a KWA commitment to collaborate loyally, to liaise regularly with these committees and to avoid other forms of contact between the KWA and users. The two other aspects simply require adequate resources for SEU: to design and give the training, to back-stop and advise, to organize and monitor. We have found (and report in research report nr 2) that there are no examples of such users involvement in connection with piped rural water supply systems. Virtually all field experience relates to handpumps. Other agencies throughout India are very keen to observe what we are developing in this regard. So we request to be given the mandate and resources to embark on this task.

g) Local repairs under Water Committees

We recognize the special complications of users involvement in O&M in the case of piped water schemes. The technology of such systems is such that most operational and repair activities can only be done by specialised staff. Operation and maintenance for the central intake and treatement installations will remain an immediate KWA responsibility. Likewise for most repair jobs in the distribution system. However, there are two areas where users involvement can and should improve matters:

-maintenance and repair of standposts the last stage of the distribution network.

-operation of minor works (like booster stations or spot sources) Clearly users have a much stronger commitment to have these elements promptly repaired than the (centralised) KWA. As discussed elsewhere it simply is too time consuming, costly and inefficient for engineers to respond quickly to each and every breakdown at the standpost and ward level. And let us not forget: those repairs are not carried out by the KWA anyway but are arranged mostly through contractors or plumbers.

We would like to experiment with handing over the responsibility for looking after the platform, tap and immediately connected pipes to the local Water Committees. The water committee will first of all be responsible for the cleanliness of the standpost and surroundings, but can also be made responsible for (minor) repairs of tap, platform and pipe. Most of these repairs can be done by local standpost attendants (male or female), after minimal training. The most common problems are probably: leaking tap, replacement washer, tightening bolts. Problems going beyond this could be looked after by the local plumber - under the supervision of the Ward Water Committee - or the Panchayat Water Committee (depending on the scale and place of the problem).

Regarding payment, two systems are conceivable (and can both be tested):

- the Water Committee collects (small!) contributions from users to pay for such repairs
- the panchayat makes available up to a fixed amount to the Committee - out of local revenue, collected for public water.

One step further would be for the panchayat to have a part time or fulltime water mechanic in its employ working under supervision of the Water Committees. This is only a possibility if and when the KWA agrees to hand over all local level responsibilities for repair to the panchayat. From the available facts it seems that such an option could be cheaper as well as more effective for all involved. However, this requires good contacts and collaboration between panchayat.

Regarding the operation of very small works: at the moment the pattern is to appoint fulltime KWA staff for each and every activity. Whether it is switching on and off of a booster pump, the operation of a pump to lift water from a well, the inspection of a stretch of pipe, all of such activities are done by paid staff. Staff who, in quite a number of cases are not at all full time activ. This is no fault of theirs but the nature of their task. It seems to be such a more (cost)-effective approach to arrange for local involvement for such part time responsibilities. Where a competent local Water Committee exists training can be given to a local attendant for such matters and a minimal payment for *actual* activity can be given - under immediate supervision of the responsible water committee. This would save costs and improve functioning (as monitoring will be easier - and by those who have an immediate stake in functioning!). Obviously this will lead to redundancy for some the KWA's 669 shift operators or 127 pump operators....

h) fault reporting by water committees

As noted, much of the O&M of piped water schemes is beyond the skill and control of local Water Committees. However, that does not mean that users would not have meaningful comments about this and that mutual communication would not improve matters.

We suggest that Water Committees will officially get the task to

monitor the actual performance of the water scheme within their territory and to report to the KWA if malfunctions happen. For this SEU can assist in developing simple checklists on quality, quantity, continuity, down-time, etcetera and train the Committees in these matters. Likewise we can assist in establishing simple communication systems between the PWC or WWC and the KWA (using telephone, post cards and monthly charts). However, communication should not be only one way. KWA-staff can and should inform and educate the Water Committees about the technical and financial issues related to "their" schemes. Monthly or bi-monthly meetings between KWA-staff and Water Committees will help make it possible for the KWA to understand and appreciate users' needs and complaints, but also: for the users to understand and appreciate the efforts of the KWA. Such meetings will certainly help in creating a more positive image of the KWA among the users. At the moment not many people in Kerala realize how difficult and expensive it is to produce and distribute safe water. And subsequently not many are willing to pay for the costs involved. KWA staff can play a central role in explaining local water committees what steps and expenses are involved. And at the same time they can receive feedback from users' representatives about the way their schemes function. Such contact will strengthen the position of the Water Committees and at the same time will make their demands more realistic.

1) Public relations campaign for the KWA

Finally: the image of the KWA and general understanding of the importance and costs of safe water should be greatly improved. The general public simply does not know or has been exposed only to negative information about the KWA. One can look at this in terms of marketing. There is a product, a producer, a price and a demand. We would like to create a more favorable climate for the product and especially greater willingness among the (prospective) users to use water responsibly and properly and ...to contribute to the costs of water. This means that the general public should become more aware of the health benefits of safe water, the role of the KWA and the legitimate expenses involved. Not many people in Kerala would realize that the real cost of keeping an average public tap running amounts to as much as Rs 3000 per year....every year. Or that it takes between Rs 20.000 and Rs.80.000 per tap to build a Rural Water Supply scheme (including treatment plant, distribution system, etc.).

And still not enough people realize that more than half of all diseases can be prevented through proper utilisation of safe water and sanitation facilities. And that the efforts of the KWA to provide safe water to more and more people in the State are part of the explanation for the amazingly high health status of Kerala's people.

So we would like to suggest a much more active joint campaign for SEU and KWA to project a more positive image of the KWA, to create a greater awareness of value and cost of water and to bring about a stronger sense of responsibility among people regarding drinking water - and its costs. Some of this we have been trying to do in the past year through the use of radio, newspaper, TV, school programmes, etc. We would now like to agree with the KWA and the donors how we can tackle these issues more forcefully and effectively. And as a separate but crucial activity we would like to develop activities towards Kerala's politicians. They are the one who will sanction - or block revision of tariffs and who will support or obstruct new steps towards sustainable rural water supply systems. They need to be informed, exposed and educated.

7. ACTION BY THE KWA

In the above sections many suggestions involve the KWA. This ranges from activities entirely depending on loyal KWA support and collaboration to merely approval from that side. We will not repeat the technical, managerial and financial measures on which the KWA could possibly act to improve its performance in terms of cost-recovery and O&M.. However the following list summarizes the practical points on which SEU needs KWA support and agreement

1. allow and support experiments

It is obvious that many, if not all experiments need KWA endorsement. We request the KWA leadership at the various levels to consider our suggestions and to discuss with us to what extent and how such experiments can be carried out. We strongly feel that it is too early to make or suggest drastic changes in the rules, procedures and systems of the KWA. But we feel that much can be gained from careful experimentation. For this official permission is required - for selected places and activities. If wanted, we can suggest the particular places (usually panchayats) and specific activities we would like to explore first of all. We would very much appreciate if at the appropriate level KWA staff is selected with whom we can design, elaborate and implement the various experiments. However, the starting point will be official support for this approach..

2. accept role Water Committees

The Water Committees at Panchayat and Ward level have already received some official support from the Minister and KWA staff in the field. We would now like to move to the next stage and have official KWA sanction for these committees, as well as instruction from Head Quarters to the engineers to work closely with these committees on all relevant activities. We would appreciate if the KWA leadership indicates to us and KWA staff how such committees can be supported and assisted. We can sit down with the relevant Superintending and Executive Engineers to work out the practical implications of having these committees.

3. pursue tariff revisions and private connections

The general issue of tariff systems is presently under discussion between the Government of Kerala and the KWA. We would appreciate if the KWA makes an effort to have these issues decided at the earliest. Assuming it will take some time before policies for all of Kerala will have been determined, we request preliminary directives for tariff setting in selected places, in line with the suggested experiments. We need the KWA's most active involvement in regard to expanding the number of private connections as well as the suggested bulk supply to panchayats. Again, we hope that the KWA has the flexibility to undertake such steps soon.

4. improve financial monitoring on o&m

This report has now provided initial impressions on O&M expenses in selected schemes. we would like to closely collaborate with the KWA staff on O&M issues in connection with the Dutch and Danish assisted schemes. Some of these schemes will be commissioned in the next few months and quite a number in the course of 1990. In our joint campaign for recovery of recurrent costs, we would like to be involved in studying the economic performance of those schemes and in informing the appropriate bodies (in particular panchayats and Water Committees) about the actual costs of the water supplied to them. For this it is necessary to establish financial monitoring systems for each schemes which makes these issues clear and understandable to the public.

5. conduct PR campaign on water

If we want to convince the people of Kerala about the value, cost and benefits of safe drinking water and of the valiant efforts of the KWA to provide such water, we can do so only in close collaboration with the KWA. The Authority has a PR officer and with this officer and others we would like to design appropriate activities through the media.

6. educate and inform politicians

The point was noted that, if we ever want protected water to be properly dealt with, better understanding among Kerala's politicians is needed. Water has now often been merely a shallow campaign issue, without politicians or their constituencies realizing all implications - especially the financial ones. We believe that Kerala's politicians can be informed and involved in a more realistic approach and we feel that such involvement is essential at state and panchayat level. At state level to pursue sound policies on tariffs, O&M arrangements and the identification of new schemes, sanitation and related issues. At panchayat level their involvement is important for establishing effective arrangements to involve communities and to have active support from panchayats as well as users for Water Committees.

8. CONCLUSIONS

The choices are now for the KWA and donors to make. We hope that this report has presented a correct and clear picture of some of the problems, as well as some useful ideas on possible solutions. Although we do not claim to have in-depth understanding of the technical issues behind Operation and Maintenance, we feel that we have a contribution to make on social and economic issues. After having worked closely with a large number of communities in the various parts of Kerala our conclusion is that people in Kerala are concerned about safe water. They appreciate the benefits and they are keen to have access to such water. They realize that in many cases they need outside assistance, in particular from the KWA, to have a regular supply of protected water. And they would be willing to contribute some portion of the expenses, provided they feel that a reasonable price is asked for a reliable and effective service.

What exactly is reasonable, reliable and effective is a matter of information, expectations and comparison. SEU can address itself to some of these issues. We would like to develop ways of involving users in practical and financial management of their drinking water resources. We believe that only through their immediate involvement it is possible to ensure proper, sustained utilisation of rural water supply schemes. However, such involvement is only possible if genuinely accepted by the KWA and if users and KWA treat each other as partners. For that the KWA needs to be credible to users: in its general approach, style of operation and financial performance. While users need to be organised, well-informed and willing to take up *their share* of the burden. Separately each of them can make Rural Water Supply systems fail: by abuse and neglect or by poor O&M and lack of financial viability. Jointly the users and the KWA can fulfill the practical, financial and social conditions for sustained, effective water supply and utilisation. We request the donor agencies and the KWA to review how such conditions can be fulfilled at least in the 11 Dutch and Danish assisted Rural Water Supply Schemes in particular. And we request them to guide us regarding SEU's possible involvement in this adventure.

martin de graaf

(senior adviser seu-kerala)

RURAL WATER SUPPLY SCHEMES SELECTED FOR STUDY:

NAME SCHEME	YEAR COMPL.	ACTUAL COSTS	COSTS AT 1988 LEVEL	QUANTITY PER DAY IN L.	POPULATION SERVED
chirakadavu	80	3827073	10734114	2075000	43000
coyalmannam	85	2572027	3613513	800000	20000
kalpetta	83	3790000	6558010	650000	20000
koratty	76	326000	1525769	700000	28000
nilambur	85	391900	550591	1000000	20000
ollukkara	77	1156577	5317005	675000	27000
omalloor	78	2059301	8888460	180000	7000
pampady	75	911331	4453057	368000	10800
punnapra	80	326418	915533	798000	33000
thrikkadavo	82	1521379	3283327	1200000	30000
thrikkovilv	84	1097848	1716188	810000	27000

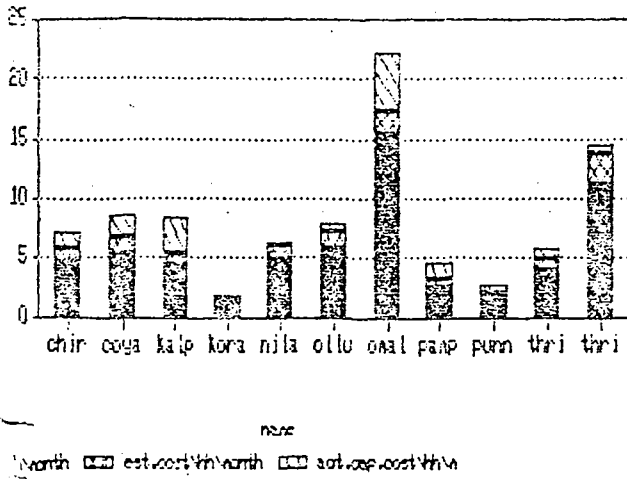
ANNEX 2.

O&M as % of capital cost of RWS in 88 prices schemes categorized by daily quantity in liters

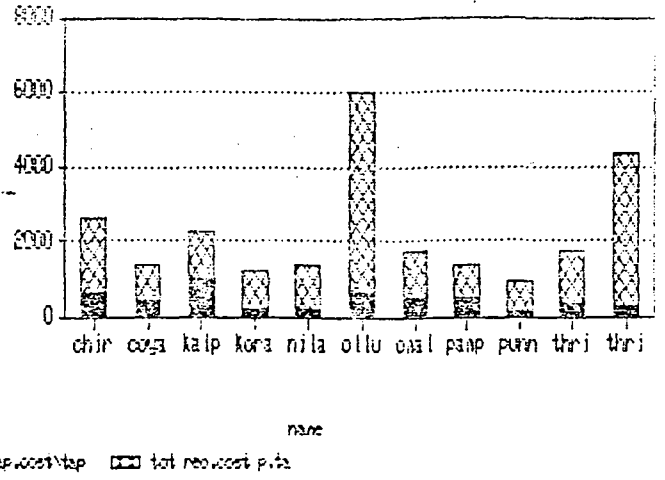
	quant per day					ALL
	0 TO 50	500000	1000000	1500000	2000000	
n chiraka					4	4
a coyalma		6				6
n kalpett		3				3
e koratty		5				5
nilambu			33			33
ollukka		6				6
omalloo	2					2
pampady	1					1
punnapr		15				15
thrikka			7			7
thrikko		34				34
Average	2	11	20		4	10

Please note that table 9 in the Report is not correct. Herewith the correct one.

CORRECTED TABLE 9
cost per household per month



COSTS PER STREETTAP IN EA
SCHEME
yearly capital and recurrent costs per tap



capital and recurren cost per 1000 liters

