

6th WEDC Conference: March 1980: Water and waste engineering in Africa

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EXPERIENCE OF COMMUNITY DEVELOPMENT DEPARTMENT AND SATA -HELVETAS WITH RURAL WATER SUPPLIES AS SELF-HELP PROJECTS IN WEST CAMEROON

PAPER on CD/SATA for the

6th WEDC Conference: 25-26th March 1980
WATER AND WASTE ENGINEERING IN AFRICA
at Ahmadu Bello University, Zaria, Nigeria

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CAMEROONIAN GRASSFIELD

INTRODUCTION

The Community Development Department (CD) - integrated in the Ministry of Agriculture - assists the rural population in the improvement of their conditions of Life. Its Technical Section provides the villages with the required technical assistance for the construction of their infrastructural projects, mainly water supplies.

The Swiss Association for Technical Assistance (SATA-HELVETAS) is a private non-profit making humanitarian organisation, subsidized by the Swiss Federal Government, assisting developing countries in the improvement of their rural areas. SATA-HELVETAS sends out experts to work mostly in the framework of the Ministries and Departments concerned. In Cameroon, vast experience could be gained in the fields mentioned below due to sixteen years of cooperation.

Beside the field-offices, CD/SATA also maintains a Building Training Center in Kumba, South West Province.

COMMUNITY PARTICIPATION IN PROJECTS

The community participation is the central idea of CD/SATA. The participation consists of the following activities:

1. Initiative: The village has to raise the project. It has to apply for technical and administrative support with the Community Development Department. CD and SATA-HELVETAS only take action where the initiative and the application for help is carried out by the community.

2. Administration and Organisation of the community with view to the project. The village has to form a project committee which will take over the further responsibilities. The committee will organise the collection of the cash contribution, keep an account, and transfer the money to the project account of the divisional CD office.

The committee is also responsible for the organisation of the community members on the community work days. Additionally, the committee carries out some administrative work such as organising meetings and writing the minutes.

3. Contribution in cash and in "kind": There are more or less fixed percentages of the overall cost of the project which have to be contributed by the communities concerned. The "kind" contribution mainly consists of labour like clearing of bush and forest, digging of pits and trenches for water supply projects, removing of the top soil for road projects, the supply of local materials like sand, stones and timber, the planting of grass and trees in the catchment areas, and of the administrative work of the project committee as mentioned above.

For further information concerning the cash and "kind" contribution, I should like to refer to the paragraph "FINANCING OF THE PROJECTS".

The importance of the community participation

Community participation in the realisation of a water supply project is enormously important, especially with view to the future maintenance of the scheme. The lifetime of a project is basically depending on the insight of the population into the necessity for maintenance.

Insight into this necessity can be promoted by engaging the people already during construction time. If there is participation, the people see with their proper eyes, and perceive with their proper hands what has to be undertaken to execute a project. And this experience might further the interest and the insight into maintenance work.

To some extent, the special engagement of a few persons, mostly teachers, reverend fathers, midwives and other educated people, is the most efficient "community participation". These persons are leaders together with the traditional leaders for the motivation and education of their co-inhabitants. They thus represent often the key-positions in the committee.

If there are no influential people representing the villagers in the committee, there will never be informative motivation and never a well working maintenance. Our experience shows that the personality of some committee members is the guarantee not only for a good co-operation between community work and the skilled workers during construction time, but also for the future functioning of the maintenance. In the North West Province there are water supplies which are a dozen years old. Most of them are working well, while others are totally out of use due to lack of maintenance.

Our experience also shows that the execution programme has to be based on the output of the community. It is by far better to suspend work on a project if the community participation is neglected in order to give time for further motivation, than to continue and complete work without any support by the community.

The project might be realized in a shorter time if the programme would not be based on this participation. It therefore seems that it would be even more economical not to base on participation, but on paid labour. Only, if we consider the significance of participation for the motivation and education of the villagers, the participation promotes the insight into the necessity of maintenance. Finally, if the lifetime is considered, only a well working maintenance, keeping the scheme running for decades, produces the best possible cost-benefit ratio of a project.

TECHNICAL STANDARD AND MAINTENANCE

The technical standard of a water supply project and the extent of its maintenance are connected with each other. Therefore, the two fields cannot be separated from each other.

1. General technical standard for rural water supply projects of CD/SATA: On the one hand, the technical standard of our water supply projects is extensively determined by the local possibilities concerning the availability of building materials and of labour. E.g. in the North West Province, where good quality of Basalt stones and Granit can be found everywhere, but no gravel, most of the buildings are constructed in masonry. Even round storage tanks up to 100 m³ are built in stone masonry and covered with an arch dome in concrete. Whereas in the South West Province where stones can hardly be found

but where gravel is available, we apply concrete work.

On the other hand, we choose an appropriate technology which reduces future maintenance to a minimum. Therefore we try to design water supplies where the water runs by gravity, from the catchment through treatment stations, the storage tanks and right to the public taps of the distribution net. Wherever possible, we avoid to install pumps or even turbines. In some of our projects where gravity schemes are not possible, a hydram successfully replaces a pump. The maintenance of a hydram is by far not as pretentious as it is for a pump, generator or turbine. Gravity schemes use to run throughout the whole year, whereas supply schemes which require pumping use to break down from time to time, or for ever, due to lack of fuel or spare parts.

The technology of the tap stations should also be adequate to the public use in remote areas. Both, the construction and the hydraulic installations, need a careful and strong design. On our projects, we apply the following four types of public tap stations:

- public standpipes
- public washplaces
- public fountains
- public shower houses.

All of them are standardized according to the experience made in the past years of application. Standard plans which have been worked out help to construct robust buildings whose quality was improved according to the gained experience. Standardized buildings also have the advantage of simple control of the execution work.

To the most sensitive parts of the hydraulic installations belong the taps. Up to now, the traditional bip cock has proved to be the best solution, if it is of a strong quality. Soaking hoses we never apply due to hygienic inadequacy. Self closing taps have been installed since a few years however. They might be the best solution for very low pressure where no waterhammer has to be expected.

At the beginning, the piping was done mostly with asbestos pipes. But in various projects the aggressivity of water against cement was strong enough to gradually destroy asbestos pipes. Therefore PVC pipes are used more and more. They additionally have the advantage of being very light. Therefore transports are easier than with asbestos pipes, and furthermore, pipes are spoiled less.

2. Operation and maintenance: For the first projects realized some fifteen years ago, no special care was taken for the maintenance, as it is the case for so many programmes in developing countries. Especially some small supplies like waterpoints show now a poor state, mostly caused by an insufficient drainage of the places. Also a few larger

projects broke down almost completely due to lack of maintenance. When we became aware of that, the following measures were taken:

- In each village where a water supply is to be built, a villager will be engaged on the project throughout the whole construction time. He will become the future caretaker.
- This man will not only be trained by the plumber on all the plumber work, but also by masons in masonry work.
- Additionally, the department organizes short courses for caretakers in its Building Training Center. There, the caretakers also learn some theory about water supplies and caretaking.
- "Regulations on Maintenance" were worked out by the engineers and the administrative personnel. As soon as the regulations will be approved by the Ministry, they can be applied within the Department.

The caretaker's work consists of the following:

- control of the intake and catchment areas,
- control, cleaning and repairs of all the chambers, operation rooms, basins, sedimentation and storage tanks,
- running the slow sand-filters if existing,
- control, cleaning and repairs of the pipe network including the low and high points,
- control and maintenance of the public taps.

In his weekly work, the caretaker is supported by the community. So, the responsibility for the clearing of the surroundings of the public taps is always with the quarter concerned.

Technically, the caretaker gets support by the technical staff of the Department whenever he needs help. The Technical Section of the Department supervises the caretakers' work in the villages.

3. Water quality and water treatment in remote areas

(please compare the sketch attached)

Usually, water treatment is suggested if the water has to be taken out of a stream. But if a skillful maintenance of treatment stations cannot be guaranteed constantly due to lack of adequate staff or lack of purification chemicals etc., the water quality might alter again and again (5). While the water quality is better than the WHO standard in case of proper maintenance (5a), it might be reduced to the original poor quality far below the standard in case of breakdowns (5b). Yet, for the health of the consumers it is generally better to supply water of a medium quality permanently (4) than to get the people used to purified water over a certain period (5a), and suddenly to supply them again with polluted water (5b).

To sum up:

- In remote areas where no spring can properly be caught the streams available shall be caught as far as possible from populated

areas and from grazing areas in order to get the purest possible water.

- No purification except sedimentation shall be provided.
- The whole intake area of the stream shall be protected, and trees planted.
- Slow sand filtration might be foreseen if adequate personnel for maintenance and supervision can be guaranteed permanently.

ON-THE-JOB-TRAINING OF SUB-PROFESSIONALS

1. Locally trained caretakers

As already stated under the paragraph "Maintenance", we locally train caretakers on the very project for which they will take care in future. It might be, indeed, a good sample of a sub-professional trained on the job site. On CD/SATA projects, these people first work within a mason group, under the leadership of an experienced headmason or foreman. During that time, he gets accustomed to concreting and masonry work. More importance of course we attach to the training within the plumber group. The future caretaker joins the plumber group as soon as an experienced plumber starts his job on the caretaker's water supply project.

Now he learns the dicing of steel pipes, the laying of the PVC-, steel- and asbestos-pipes respectively. He gets to know all the necessary fittings, where to put and how to join them. He will be present and he will cooperate when all the installations inside the control and operation chambers of the catchments, interruption chambers, treatment stations, and storage tanks are fitted. He gets to know the importance of low and high points, of aeration pipes etc. Thus, he learns all the practical work he has to execute himself in future.

Since these caretakers will be dependent on themselves to a large extent after completion of their projects, CD/SATA trains them not only on the job. From time to time, a special course is organized by the Building Training Center of the Department. This course lasts a few weeks and is directed by the plumber instructor of the Building Training Center. The participants are trained again in theory and practical work. Yet, special importance will be attached to the understanding of a water supply scheme as a working unit which has to run without any breakdown. The special duties of a caretaker are explained and exercised.

This combined training, both in practice and theory, has shown very good results. Of course, as everywhere, there will be some people who fail. But almost all of the caretakers, trained in this way up to now, are doing a very good job.

A similar way of training is applied e.g. to masons. Especially in the villages of the North West Province, there are young people

who do a traditional apprenticeship with an experienced mason. During two years, they learn the handicraft by working on projects.

2. The Building Training Center of CD/SATA in Kumba

People who completed such an apprenticeship and also others who fulfill certain conditions may attend courses at the BTC. There are two types of courses, some of them organized periodically, others only from time to time according to need.

Periodically organized are the following courses which end either with Trade Test or CAP (Certificat d'aptitude professionnelle):

- A two years course for masons, ending with Trade Test III.
- A two years course for building constructors, joining the two years mason course and ending with the CAP test which is equivalent to City and Guilds intermediate.
- A two years woodworker course, ending with CAP.
- A two years plumber course, ending with CAP.

All these courses consist of a theoretical and a practical part. For its practical training which is not only organized in the BTC's workshops, but mainly on CD and private projects, the BTC is very well known in the South West and North West Provinces of Cameroon. The high demand for such BTC people by private companies is proof of the quality of results reached with such on-the-job-training.

Organized according to need are on the one hand not only the caretaker courses mentioned before, but also courses for locally trained masons having completed an apprenticeship. If they are willing to improve their knowledge and their skill they will be sent to such a course by the engineer of the department.

On the other hand, there are the following courses, also organized according to need in the Community Development Department:

- Headmason / Foremanship course
- Surveyor / Draftsman course
- Road overseer course
- Supervisor / Technician course.

FINANCING OF THE PROJECTS

The financing of Community Development Projects is part of the CD/SATA policy. The agreement between the Government of the United Republic of Cameroon and SATA-HELVETAS states that "the general principle applied to the financing of major community development projects (...) shall be as follows:

- voluntary contributions by foreign organisations and HELVETAS: 40% of the overall estimated cost of the project.
- Contribution by the committee concerned: 20% of the overall estimated cost of the project (10% in cash, 10% in "kind")
- State contributions by the United Republic of Cameroon: 40% of the overall estimated

cost of the project."

1. The application for grants by the foreign organisations is generally written and followed up by SATA-HELVETAS. However, the longer the more this administrative task is being handed over to the Community Development Department. There are many organisations and countries supporting CD/SATA projects again and again, as e.g. Bread for the World and MISEREOR, Germany, OXFAM England and United States, NOVIB Netherlands, Dutch-, Canadian- and US Embassies. Since the technical standard and the quality of the projects are well known to these donors due to many years of co-operation and support, these grants are normally paid immediately after having forwarded the necessary reports on the progress of work.

2. Community Contribution: The CD officers and CD assistants are supporting the committees in their administrative duties as e.g. the collection of money among the villagers. The collected money is paid into the project account which is maintained by the CD of the Division. To start a project, it is very essential to have at least 50% to 70% (if not 100%) of the community cash amount to be paid into the project account; the first instalments from foreign organisations and from the Government are only paid after a certain time, due to the administrative proceeding.

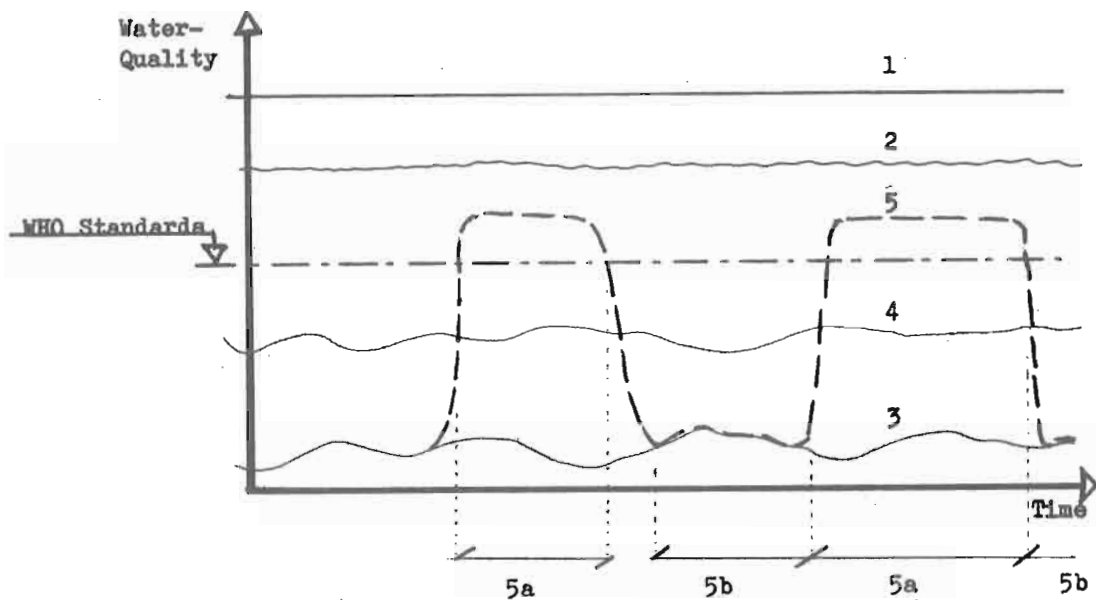
3. Contribution by the Cameroonian Government: The 40% contribution by the Government also consists of a cash and a kind contribution, being around 20% each of the overall estimated cost. There are grants to projects which are part of the annual budget of the CD Department, there are further national grants as FONADER (Fond National du Développement Rural), and MRI (Minor Rural Equipment), and grants by the Rural Councils concerned. The grants distributed on national level are directly assigned to the various projects. Since in the annual programmes the money available is distributed to many projects in order to serve as many villages as possible, the individual instalments are generally not high enough to guarantee the best possible construction programme. There are efforts made by the Department to get the grants assigned to the Divisions, while the distribution to the various projects shall be done on Divisional level.

The contributions by the three parties are suggested by the responsible officers in charge of the project, based on the shares mentioned above. The percentages may vary to a certain extent, depending on the financial power of the communities concerned. The number of tax payers living in the village gives a clue to the cash amount to be collected by the community. The community shares are discussed with and have to be accepted by the project committee.

Villages in extremely remote areas may contribute less in cash than the average, whereas others in fertile areas with relatively good access and cash-crop cultivations may pay a cash contribution of more than 10% of the overall estimated cost.

The shares may also vary depending on the type of project. E.g. a road built with labour intensive method, causing a comparatively high amount of community work, its value raising above the 10%, may require a smaller cash contribution from the village. On the other hand, with a water supply consisting of wells where it is impossible for a community to supply unskilled labour to a large extent, the cash contribution might amount to 20% of the overall cost.

3. Water quality and water treatment in remote areas



- 1 Good spring source, high quality
- 2 Spring source of inferior quality
- 3 Water from a stream flowing through or near a village, very poor quality
- 4 Water from a stream flowing high above populated, and far from grazing areas, poor quality
- 5 Water from a stream with insufficient purification