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Summary

Sustainability of Drinking Water Supply and Sanitation Projects

Report on the 6th AGUASAN Workshop
Gersau (July 2 to 6, 1990)

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S U M M A R Y

1. The Workshop in general

28 project field workers, specialists and consultants active in the field of drinking water supplies and sanitation met from July 2 to 6, 1990 in Gersau, Switzerland. The purpose of this meeting was to share the experiences they have gathered in sustaining these projects. Relevant inputs in the form of various short lectures were presented, and then deepened through group discussions based on the personal observations of the participants. The Helvetas Cameroon Project, now "completed" after 25 years, was the uniting theme of the workshop. (An evaluation of this project is available as a separate report.) The present report summarizes the meeting and describes the results in such a way that they can also be useful to non-particpants. A comprehensive bibliography is included.

2. A possible definition of sustainability

The concept of sustainability for projects of development cooperation is relatively new, and thus there are no definite or generally-accepted statements on the subject. The following is meant to be a contribution, and an attempt to approach a definition. Sustainability is the continuing improvement of the social, economic and ecological conditions in a region. It implies that the measures which were initiated are effeciently maintained, that they are effective, and that they have a lasting impact.

3. Guidelines on sustainability of various institutions

Institutions such as SDC , WHO or the IRC have formulated general recommendations for the furthering of sustainability. They include: the use of more open planning concepts; the encouragement of sponsorship; participation of beneficiaries on the basis of self-responsibility; community-based decision-making and management. Although these concepts are surely important indicators, it is difficult to translate them into a specific application for the project in its daily use.

4. The structuring of sustainability into various divisions

The starting point is a simple one. Sustainability only becomes

a problem when it is lacking, when a drinking water supply is no longer maintained. In seeking the cause, a complexity of details becomes evident: why did the project not succeed? is the village not interested? is the plant technically too complicated? is the water supply even superfluous, without a "felt need"? or are the causes to be found elsewhere?

The concept of sustainability thus becomes a "catchment" for everything being put into question. For the purpose of the workshop discussions, this catchment was structured into socio-cultural, institutional-organizational, technical-economic, and ecological spheres which are both interrelated and even interdependent.

The very important technical-economic and ecological questions were partly addressed in earlier AGUSAN workshops. The present report is thus emphasizing the socio-cultural and institutional-organizational aspects. A systematic structuring has been less important than the definition of as many of those factors which signficantly influence sustainability as possible. In this sense, the following report devotes somewhat more attention to the socio-cultural aspect.

4.1 Socio-cultural sustainability

The following six hypotheses on the socio-cultural sustainability of drinking water projects were postulated:

Hypothesis 1: Water as a resource: "Water can only be considered a resource when it is available for use by people on the basis of their culture and their communal living conditions (social organization) with their normative rules and authority. Culture in this sense comprises knowledge, technology, and economy."

Sustainability requires a cultural knowledge which enables the long-term use of a water source. Viewed in a comprehensive way, culture consists of four interrelated elements:

- the realm of knowledge: cultural knowledge (the ability of people to understand and to relate the facts and conditions which are relevant to their surroundings and culture)
- the realm of control: concept of legality (norms, rules and authority in which power is vested to ensure that members of a society comply with its rules)
- the realm of organization: social organization
- the realm of economics: system for usage (economic forms and technology)

A development project which seeks to improve the water supply must take into consideration the existing cultural elements in all of the four areas mentioned above.

Hypothesis 2: Socio-cultural sustainability and the reproduction of culture: "Socio-cultural sustainability is based on the mechanism of culture re-producing itself (by transmission or by re-establishment). The imparting of knowledge is an important element."

Socio-cultural sustainablity is largely dependent upon tradition. A good deal of time and energy are used to convey cultural traditions to the next generation. This transmitting of culture is always related to the social organization of economic activity. Traditions can be passed on by teachers, clerics, civil servants, technical experts, or elders. Those who transmit culture are vested with authority. And this authority should be dependent upon the fact that a person who has acquired knowledge, and with it power, in turn shares it with others rather than monopolizing it. To do justice to these aspects, the following points should be clarified with the future beneficiaries of a water supply plant before its installation:

- the knowledge required for the use of an improved water supply
- the rules and the social organization relevant to its use
- the cost for construction and maintainence
- the authorities who are reponsible for conveying know-how and the rules petaining to it

Because each society is in a state of flux, the socio-cultural sustainability of a water supply system can only be furthered by encouraging the competence of its users to solve new problems. Cooperative projects should combine both the acquisition and the sharing of know-how in their formative stages.

The more sub-cultures which the planned water project includes or overlaps, the more pre-planning is necessary to negotiate between the various authorities and their culturally-related fields of knowledge (a typical example being cattle breeders and crop growers using the same water source). Here an important roll is played by the so-called mediators, or "brokers", who act as go-betweens for the target groups and advisors.

Hypothesis 3: A water supply requires centralization: "The building of a centralized water supply in a village whose inhabitants have previously used water from decentralized sources, requires the introduction of an organizational scheme which is more intensive and of a larger complexity. In non-egalitarian communities, this can mean that the underpriviliged or discriminated segment of the population may tend to loose its right of usage."

The building of a central water supply in a village in which the villagers have previously used decentralized sources, requires a a more complex organizational scheme and increased cooperation. It is well possible that various cultures and subcultures in a village get their water from the same supply. Conflicts can arise between these groups. The underpriviliged users often have less

chance of working together with the governing authorities. If they are to be able to continuously use the water, it is important for them to be included, through their organization, in both preliminary studies as well as in the planning, building and maintenance of the improved water supply.

If existing organizations are to become sponsors of a water project, it is adviseable that the water project be integrated into these organizations before it is built.

Hypothesis 4: Shifting of risks: "A water project is a cultural intrusion which transforms ecological risks into socio-cultural risks. In doing so, the existing socio-cultural risks related to the water supply can be replaced or englarged by new ones."

The construction of a drinking water supply brings security in the form of a regular supply of water and a diminished danger of sickess. However, the reduction of risk on the ecological side requires a more complex, or even new, form of organization for the use of water, and often a new technology. This can create new risks for the four realms of culture mentioned above.

To assure a lasting water supply for the population, it is important that all of the users develop a cultural identification with the water project and one which will enable them to cope with the newly-emerging socio-cultural risks. This will increase the security for all water users.

Hypothesis 5: Water supplies as new technologies: "Every technological element is at the same time a symbolic and cultural element. Sustained use requires both new know-how, and rules regarding the transmission of this know-how."

New technologies imply new know-how, new norms, and new rules for transmitting know-how. The sustainability of a water project can be furthered if the technical solution can be associated with the cognitive (knowledge and perception), social, normative, and economic elements of the existing culture.

Hypothesis 6: Project evaluation: "Within the sphere of socio-cultural sustainability, the actual construction of a water project is only one brief moment between the pre and post building periods. But it is the time in which the culture - know-how, social organization, norms, authorities, and economic structure of the water users - becomes decisive for the future sustaintablity of the water supply plant".

One possible procedure to enable a more careful consideration of

these socio-cultural aspects in the planning and execution of drinking water supply projects is the following:

- pre-evaluation: assessment of the existing water usage and the relationship of its know-how to the various user groups.
- problem definition: through participation, problems in relation to previous water usage can be defined and analyzed as individual elements.
- proposed solutions: various solutions to these problems should be discussed with the future users of the water plant (with each solution being considered within the context of know-how, organization, norms, and economic forms).
- sponsorship: after a decision-making process on the part of the participants has led to their acceptance of one or the other of the solutions, an organization should be determined to assume responsibility for the lasting use of the project.
- planning before the actual construction: the project should only be realized when the future users of the water supply are certain as to how a lasting usage in the four areas mentioned above can be attained, and after they have clearly accepted the proposed solution to the problem.
- public knowledge: it is important for planning to be done openly. Norms for water usage and maintenance should be announced, resposibilities assigned, and authorities offically confirmed in their offices in a public manner.

Many workshop discussions centered around these six hypotheses. The question was often asked as to how far socio-cultural correlations can be analytically approached, and to what extent empathy is required. It is necessary to find a middle way. In addition to many others, a further point of discussion was water as a "felt need". In this context, the FIKRIFAMA project in Madagaskar, in which drinking water is only the first step of a comprehensive development program, is interesting.

4.2 Institutional and organizational sustainability

Institutional and organizational questions are strongly related to social and cultural situations, and thus various relevant and important aspects have already been discussed in the previous chapter. The self-help organizations which are essential to sustainability can be divided into three types:

The existing organizations of a culture: These have already been discussed in the hypotheses outlined above.

Crisis network to assure subsistence: As long as there is no crisis, the social network of relationships is maintained. At the moment subsistence or its producers are threatened (poor harvest, serious illness), the other partners are obliged to help the less fortunate ones. If misfortune effects several members of the group, or the group as a whole, then the members must come

together and request help from outside sources. When the emergency situation has passed, the members of the group return to their normal routines. The goal of this type of self-help organization is not to change the status quo through innovation but rather to re-establish it.

Social movements: They are aimed at initiating changes in thinking, attitudes, and in social relationships. There are three consecutive phases of social movement:

- In the first or ideological phase, a hope is awakened within the people. It is usually centered around a charismatic leader, or even a broker.
- In the second phase, those convinced of a project organize themselves into a group for which the common goal is placed above the interests of the individuals.
- The movement becomes hierarchical in the third phase. This results from its need to resist the tensions and crises which arise when confronted with resistance from the existing socio-cultural order. In order to realize its goal, it adjusts it to prevailing conditions and/or reverts to the use of force until it is in power. In a further effort to maintain its power, the movement takes on a rigidity. An overly-organized institution, into which new social movements can no longer be integrated, is the final outcome. Subsequently, new cycles of social change emerge.

Other important aspects of sustainability which were discussed include communication within the project, the participation of women, and the possibilities for aid organizations to exert their influence.

4.3. Technical and economic sustainability

The general goals of the concept of "appropriate technology" have been essentially accepted. However, "appropriate technology" alone can not assure the permanence of a drinking water project. The Cameroon Project has made this clear. It was even postulated that solid "appropriate expert solutions" could inhibit the learning process which is necessary for sustainability.

It was suggested that maintenance costs be borne by those who directly benefit. Otherwise the assurance of sustainability remains the function of the financial backers. The example of Lesotho was used to illustrate one financing model. The search for a middle way between the construction of a new water supply plant and the assurance of the maintenance for the existing ones, combined with the increasing scarcity of funding, was also discussed.

4.4 Ecological sustainability

Ecological considerations often conflict with other interests such as government planning, the need for greater efficiency, demands to participate, and the rivalry between financial sponsors. Three hypotheses were postulated with reference to ecology:

- the capacity of water resources should be maintained and if possible improved
- fountains and their catchment areas should be protected
- an ecological conscience should be furthered

5. Translation into practice

As this brief summary illustrates in its excerpts, a large number of ideas, guidelines, individual examples, questions, and theories on the theme of sustainability were discussed during the Workshop. The main question now is whether the participants can use and apply this information in their fieldwork, at their headquarters, or in connection with an advisory task.

Various discussion groups were formed within the Workshop to examine concrete projects or specific questions. Most of these discussions dealt exclusively with the respective subject matter. For those directly involved, they provided an opportunity to examine their daily experiences together with other Workshop participants, and to gain ideas for a possible operational improvement of at least some of the aspects required for sustainability. Special attention was given to the future of the Helvetas project in the Cameroons, and to the so-called "local level operation, maintenance and managment". This report also summarizes those discussions.