



Rural water supply systems, an alien body for the public good: case study of Indonesia, 1990-2000

All photos have been taken by Pam Minnigh

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In this article two concepts, 'alien bodies' and 'generations', are applied to discuss water supply interventions in rural communities accentuating their obvious and intrinsic consequences. The discussion is limited to simple gravity-fed systems as these are relatively complex compared to traditional rural supplies.

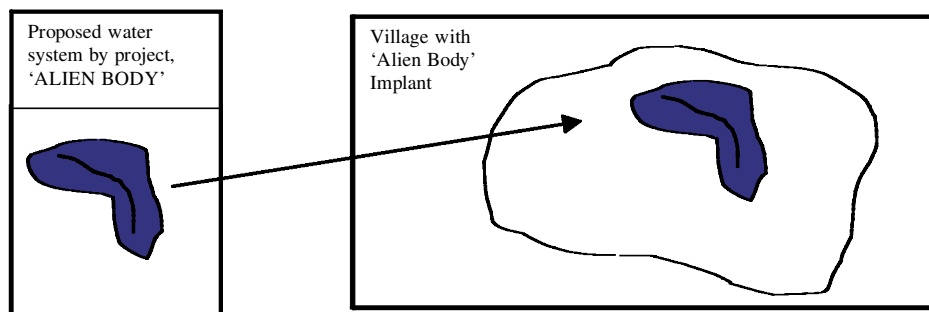
Project interventions: what happened with the investments in rural water supply?

Over the last 20 years many donors have invested heavily in the provision of water supply systems (WS systems) as a basic need and right, and more recently as an economic good. Goals were clear: improved access to water, acceptable water quality, improving health conditions leading to healthier and more productive communities. In line with the trend of rural development projects in general, the implementation of water supply and sanitation projects has increasingly involved community members in all phases of the project. While physical construction is still the main and most expensive component of these projects, over the years more attention has been aimed at preparing, involving and training the communities in all aspects from design to actual construction. Not only operation and maintenance but even the total water supply and sanitation management is entrusted to village committees

to improve its sustainability.

After the project is completed, the community is required to manage the system on its own. However, independent from initial project donors and approach(es), only an estimated 10 to 20 percent of villages are able to manage their system in a more or less sustainable way. Why is it that with all the additional support and training during the last 10 to 20 years, the results for gravity-fed systems remain the same, i.e. slowly declining operation and capacity of the WS systems and lacking sustainability? What can be done to improve these WS systems, these 'alien bodies' coupled to an alien concept of management? At best such alien bodies are adapted and incorporated in the local structure through a slow process of mutual adjustment. Thus the construction of a WS system is not the end but the beginning of a process which evolves in phases which we call 'generations'. The evolutionary passage through these generations and the possibilities for

Figure 1
Implantation of an alien body in a village



Water supply projects introduce 'alien concepts'

Although we were aware that we introduced a new system, did we consider the impact of this intervention in the village?

new technology	By introducing this new technology, we also changed the way of living and routines of community members. Water supply and sanitation
routines	requires daily, weekly and/or monthly routines; cleaning, checking and maintaining, administration and management. This is very different from the flexible seasonal routine of rural community members. A WS systems
cooperation	also requires the users to cooperate, not only the village board members but also the members of tap committees and the individual users. In general people in rural communities socialize willingly but cooperate only
priority	where benefits are clear and direct. What priority has a WS system in the village, especially with public taps and hydrants? Water supply and sanitation projects forces them to work together for the benefit of all. People
public interest elite and status	willing to sit on water boards are usually the elite within the village with other activities, priorities and interests. It is difficult to transfer this position and status to villagers with more time to spare for the actual work.
administration fee collection	The administration requires written records and control especially concerning financial matters and collecting the necessary financial contribution is quite a tedious task to be repeated every months, often by women.

All these aspects are 'alien', not part of the social structure of the village before project intervention. Furthermore, WS systems are introduced as social enterprises where community members are asked to work on a voluntary basis for the public good. Training helps people to understand the concepts, but it does not make them professionals.

post-project outside support, determines the sustainability or rather the continuum of the existence of the WS system in the villages.

WS systems as alien bodies

Even relatively simple systems such as gravity-fed systems are complex in nature compared to the traditional way of rural livelihood. The introduction of WS systems is therefore similar to the implantation of an alien body, something abnormal and incongruous (see figure 1). Thus, even though tested for feasibility and appropriateness, prepared for with community awareness and training, it remains an alien body, which can be accepted, adopted and absorbed in the overall structure, tolerated and (partially) used or rejected and expelled.

'Generations', evolution phases in the development WS systems

The incorporation of an alien body and its concepts is a matter of time extending beyond the lifetime of a project, determined by local conditions including priorities, political and power relationships. Our experiences and observations suggest an alternative time frame of the development of WS systems, which can be

grouped per generation.

First generation, the creation and operation of the WS system

The first generation is the period of start-up activities related to preparation, design, construction, operation and maintenance. Project designers, donors, non-Governmental Organizations (NGOs) and the project management usually focus all their attention and funding on this phase. After construction the project is concluded and handed over to the community. The community is now left to deal with any problems often without help from donors, government or even NGOs.

Evolution towards the second generation, dealing with new and reoccurring problems

After the initial enthusiasm of possessing a new asset in the village, a period begins when maintenance and other problems start to occur. In addition there is growing pressure to expand, as often the system does not cover the whole village, there is no equity in access or amount of water available per capita. Conflicts arise, wealthier members wanting private connections, some people do not pay their dues, or no action is taken when pipes are blocked. Wrong system designs become evident, and people have to find ways to cope in order to continue service. These problems and issues are complicated requiring timely

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Traditional water collection in Bena Area, West Timor, 1997

and appropriate solutions, and due to their relative complex nature demand specific knowledge and craftsmanship, which is not necessarily available in the village.

By this point most projects have closed and the government does not have a role and/or does not have the means nor the ways to be involved in this kind of village affairs. The village is on its own but in the meantime village life has resumed with everybody concentrating on their own livelihood. This new period is called the second generation.

Growing up, the third generation and the responsibility for the continuation of the WS system

Villages have somehow coped with the problems in the former generations, but are now facing the future of their WS system as well as their own livelihood, the third generation has begun.

Apart from smaller and larger scale repairs, the village is facing growth and increased demand for access to water. Establishment of new hamlets requires extensions or even the use of new sources. Besides, all water system construction parts have a certain operational lifetime which, can be prolonged through careful operation and maintenance, but they eventually do break down. Although the community was warned to reserve funds for replacements, rehabilitation and reinvestments, the need was not apparent in the early days. Monthly contributions have always been and are still a problem, especially with public facilities like public taps and hydrants. Moreover these contributions have often been established by the community based on their estimated capacity and willingness-to-pay, not on the requirements of the system. Therefore,

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Government official inspects a modern methods, island of Buton, 1999

hardly anywhere has a reserve been created, and the most frequently used solution for donors and governments is to ignore the former system and start a new project to build a new system.

Recently the issue of ownership of sources and land has become more relevant, especially related to multi-village systems. Former agreements become weak when people die or power structures change. In addition, the recent acknowledgment of 'adat' or traditional law claims might cause uprooting of seemingly fixed agreements. Other parties like the PDAM's (district water enterprises) are also looking for new opportunities of investment outside urban areas, and ask for or take sources in villages based on the rule allowing water resources to be tapped in the public interest. In addition, Indonesia is in the process of developing regional autonomy, whereby each district will be responsible for its own development. Consequences for the villages communities are still largely unknown.

Third generation problems are also related to the decline of water resources. Catchment area protection is still an alien concept. At national level some inventories of natural resources have been made, but in the local context these data are usually not available. Even when villagers have observed a decline of the yield of their sources mainly due to disturbances in the water catchment area and/or the

wrong construction of spring protection or other catchments, they lack the power to change this situation.

Limits to the capacity of all stakeholders

It is a sad fact that financial considerations allow donors and their governmental counterparts to intervene only during project preparation and actual implementation. With so many villages and such a wide area of responsibility and with its limited routine funding and staff capacity, the Government of Indonesia is incapable of further intervention in villages already serviced. The only two governmental organizations equipped for support, the Public Works Service and the PDAM (District Water Enterprise) are not directly accessible for villagers. Both agencies have limited resources and already too many problems to be able to pay much attention to smaller and larger problems in remote villages. NGOs were established to support communities in their development, but in order to survive themselves are forced to assist only in existing projects and have often neither the capacity nor the resources to be of service to villages outside of their scope of work.

At the same time, communities are faced with an ever-increasing demand on their participation. While financial limitations have forced the government to acknowledge the role of the communities in the operation, maintenance and even the management of their water systems, they are hesitant to give them the full power of authority. Community organizations and craftsmen are professionals in their own right, but this is not the same as being able to fully cope with 'alien technologies and concepts' beyond their capacity. In urban areas money buys a house connection and service for them, but villagers need to know everything of their system, they need to pay too and on top of that they are responsible. Why

should they have to be smarter than their brothers and sisters in the city? Is it really only a matter of money?

A 'Help-Desk' the way to guarantee their future

'What else is 'Sustainability' but the wish of donors for the beneficiaries to use the provided system continuously'.

Therefore, although required by donors, the use of the term sustainability seems inadequate. Systems are in constant flux, they develop and change according to the situation in the villages and around, they evolve based on demand, via a type of 'generation timeline' rather than remain stable and unchanged.

The observations above show that keeping a WS system alive and growing is hard to achieve. Yes, it is hard but not impossible if we are prepared to face the occurrence of the unwanted 'project cycle' and ignore obvious needs for assistance. The challenge is to see in what way rural areas can be effectively supported. While 'water for all' is a good point of departure, apart from creating facilities like a 'feeling of ownership' and 'willingness to pay', one has to consider the real situation, private and political priorities, limitations, social, economical and financial context as well as technical capacity.

One of the solutions proposed during a workshop by village members themselves, is to give communities access to an agency, a 'Help Desk', who can answer their questions, provide information, give assistance including technical support and help with access to credit. It is envisioned that such a help-desk will be, independent, accessible to all and responsive to real needs of the community. Preparations for implementation are underway for the year 2001. The working name proposed for this agency is the District Information and Resource Centre (DIRECT), an independent body to provide a pilot with action research activities to be reviewed by interested parties in Indonesia and the Asia-Pacific region.

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