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Selecting villages for impact in water supplies: an expanded role for the baseline study

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Success, and indeed sustainability, of water supplies stands to gain from careful selection that gives priority to villages that have an apparent need for improved and more convenient water supplies. Water supply planners should thus insist on more objective and painstaking selection procedures through refined selection criteria. As the justification for village selection differs between villages, the expected impact of improved water is also different. It is argued that a conceptual link should be made between village selection and expected village impact. Both selection and prediction of impact at village level could become part of baseline studies, which would then take on a wider purpose than such studies have at present. The baseline study envisaged should thus form a basis for need-oriented planning, and make a connection between selection and impact.

Despite the enormous need for improved water supplies at global level, evaluators making site visits in some villages cannot help wondering, "When resources are as scarce as they are, can we justify with hindsight such a large investment for this tiny village?" Or, along the same lines, "Why for these people, who appear quite able to look after themselves?" These questions are particularly pertinent when apparently more deserving villages in the same area have not been selected for improved water supply.

This paper first discusses the current practice of village selection in programmes known to the author, and points to possible shortcomings in the selection process. It examines the relevance of more objective selection criteria. It stresses the importance of selection as a process by actors who, at a later stage, are also involved in implementation and, later still, in operation and maintenance. Examples are given of points to guide village selection. The second part of the paper addresses the conceptual link between selection and future impact. Lastly these two points are taken together when an expanded role for baseline studies is proposed.

Village selection

Current practices in village selection

Village selection is generally the prerogative of the water authority, and in some cases also needs to be endorsed by local administration. Nationally agreed selection criteria are used in the process, but these tend to be so general that they allow room for manipulation. Village selection is highly political.

Lists that indicate which villages are in need of improved water supply are generally compiled well ahead of project or programme approval. Such lists are presented in preliminary documents; the number and names of villages are copied faithfully in every new round of documents during the, often protracted, phase that precedes project take-off. By the time a project starts, villages on the lists have become 'project villages'.

Responsibilities for finance are being rapidly decentralized. If lists for project villages were drawn up on the previous assumption of central funding support, then many of these project villages will have difficulty in sustaining the water supply. If local government is aware of its responsibility for generating or collecting funds for future maintenance, the estimated recurrent cost per user will be its concern. When it is not a partner in actual selection, its sense of concern is bound to be less.

When water agency teams go round selecting villages, expectations are raised in villages visited. However, the apparent willingness of

villagers to pay for services is not considered during the selection process. Neither are demands made on so called 'recipients' or 'beneficiaries'.

Summarizing the possible shortcomings of village selection (examples drawn from author's experience):

- Lists are outdated. Other programmes may have addressed problem villages originally listed; villages may have moved etc.
- Lists are drawn up with insufficient care, and often in a hurry, in order to have a document ready to present to the funding agency.
- Lists are political. Both politicians and those who draw up and approve the lists can bank on the electoral benefits of the promise of new water supplies.
- Commitment of the current local government is not sought. As a consequence room to negotiate local government's rights and responsibilities is lost.
- Selection criteria do not distinguish large problems from smaller ones, nor do they cover all issues. For example cost aspects of appropriate technical solutions are not addressed and neither are 'soft criteria' such as the apparent interest of potential beneficiaries.
- No conditions are imposed on future beneficiaries or on local governments during the selection process.

Why better selection?

There are a number of reasons why village selection is important. Two reasons follow from the above list. One is that high need villages should be given priority over less needy ones. The second reason – which is perhaps equally obvious – is that there should be fair and equal distribution.

A third argument, which would appeal to local decision-makers, is that lists of villages to be addressed by a programme change by the time implementation starts – some villages have disappeared from the map; some new villages have sprung up; and for others no suitable water resources are found. Feasibility, and particularly technical feasibility, will at times over-rule initial selection of villages.

A fourth reason applies to programmes that aim to cover large areas. Such programmes generally base their plans on population data. Selection criteria at village level are then helpful to fine-tune the plans and to incorporate concepts of equity and objective need.

A fifth and perhaps less obvious argument for better selection is the following: many projects and programmes apparently look on community participation and health education as essential components for successful implementation. When villages do not cooperate, or lose interest in self-help, this is regarded as one of those things one has to cope with – by more and strenuous extension efforts. However, the faith in extension as an instrument to convince or manipulate is ill-founded.[1] Conversely, experience tells us that villages are much better working partners for water supply projects when there is an expressed need for water that can be verified objectively. Box 1 summarizes the argument for better village selection.

Box 1: Why better selection?

- To enable selection of most needy villages.
- To enable an equitable distribution.
- To balance feasibility and need for improved water supply.
- To link macro and micro planning.
- To use extension inputs efficiently.

The above leading to:

- Higher impact and sustainability.

The last point is hard to validate. An evaluation report[2] in a Zambian rural water supply project notes:

> "Experience in similar projects led the evaluators to believe that proper selection in the initial stage goes a long way in safeguarding future sustainability. And, *mutatis mutandis*, that if communities have been selected on shallow grounds, even the most intensive extension efforts will not succeed in instilling the attitudes that are necessary for a village to sustain its well."

For obvious reasons programmes that did not use a selection procedure in the past cannot produce detailed data substantiating village selection. The evaluators of the Zambian project tried to circumvent this problem by asking staff familiar with the pre-project situation of project villages firstly "to make an estimate of the score a village would have had, if an assessment had been done in the past" and secondly to estimate sustainability expressed as "probability of villages' ability and willingness to arrange for

maintenance in future, assuming district capacity to provide technical back-up''. The probability was scored as a percentage, and 100 was thus the highest possible score.

In the Zambian example, 79% of the 86 villages selected in the past would have passed the present selection procedure. However, the predictive value of a satisfactory score for a 50% or higher chance on sustainability was only 63%, and thus over a third of villages satisfying present criteria were considered to have a bad prognosis for sustainability. A plausible explanation was considered to be the low cut-off point in the scoring system enabling a high proportion of villages to pass.

In the example given, the selection criteria appeared to be able to sift out the likely failures quite well: of 18 villages which would have had a low score had they been assessed in the past, some 14 (78%) were now reckoned to have a bad prognosis for sustainability.

It appears, then, that the plea for selection criteria is justified, but that the set of criteria needs to be thought through carefully in order to become a useful instrument.

Village selection, how to do better

It is self-evident that future success depends on selection. Yet selection is seldom used in practice. The above Zambian project derived its selection criteria from a project in a neighbouring province, the Washe project in Western Province, which itself developed criteria in the face of apparent maldistribution of completed project water supplies. The Washe project operated as an integral part of the Department of Water Affairs, and aimed to construct some thousand communal wells - shallow dug wells with windlasses, or drilled wells with handpumps - to serve the province's rural population living mostly in small and dispersed settlements.

The Washe project selection format (see Box 2) was an attempt at a rough and ready assessment which could be completed in a half-day visit by experienced extension staff. Factors such as "health hazard" and "felt need" were rated in quantitative terms resulting in a total score between 0 and 100. Subjective aspects were given a lower weight than factors which could be measured objectively, such as distance and quantity of water provided by the current supply.

The assessment was carried out by a group of six project staff who had been trained together. They did most of the assessment in pairs addressing clusters of villages within the administrative boundaries of wards (sub-districts).

The forms were useful particularly in sorting out the extreme ends of the range: to identify the high priority villages at the upper end of the scale, and to get some written evidence on low scoring villages that clearly did not satisfy the norm, but which nevertheless were pushed as political priorities. Villages with a score just below the cut-off point usually needed to be revisited to decide which of those villages were to be given project assistance in the face of a limited total number of allocations based on population data of the area concerned. (Some of the non-qualifying villages could then be offered assistance with a self-help low cost technology option.)

The Washe project thus did the field work leading to village allocation: project staff visited all villages for which improved water supply was requested by the local authorities and project staff drew the lists of qualifying villages which were then presented for approval to the District Washe Committees formed within the District Councils. The small size of villages, and the fairly straightforward technology choice helped to make selection a fast and uncomplicated exercise in the hands of experienced and impartial staff.

It is unusual for projects to be in a position to steer village selection in the way described above. For example, in the case of piped schemes an area approach, which includes low need "*en route* villages", is more likely to be applied. Project input into village selection may also be unacceptable for other reasons which have to do with local power and authority. As pointed out above, most projects will face a list of villages decided upon well before the start of the project, and interventions to over-rule such decisions are often unwelcome. Projects can, however, aim to have priorities set as to which villages on existing lists should be addressed first. Box 3 sets out possible steps in prioritizing villages for improved water supply.

Box 2: Department of Water Affairs Western Province

CRITERIA for allocation[1] of water supply in rural areas.

Grid reference: ..... District: ..... Village: .....

comprising ..... settlements and/or Institution: .....

Date: ..... Signed (print): ..... Well request through: .....

Service centre: ..... SCORE for this village

I	WATER NEED (40 out of 100)			
	1. Existing supply			
	- sufficient			0
	- insufficient in dry season			10
	- insufficient in wet and dry season			15
	2. Quality existing supply considered (by users)			
	- reasonable			0
	- bad			5
	3. Water considered health hazard (by professional)			
	- no			0
	- sometimes/probably			5
	- yes			10
	4. Distance to existing water resource in dry season (single journey)			
	- less than 15 minutes walk			0
	- 15-30 minutes walk			5
	- more than 30 minutes walk			10
II	DEVELOPMENT POTENTIAL (20 out of 100)			
	1. Institutions			
	- none			0
	- planned on existing local court, market, depot, etc.			5
	- Health Centre, School			10
	2. Income generating activities			
	- low or unknown			0
	- obvious (specify: .....)			5
III	TECHNICAL FEASIBILITY (20 out of 100)			
	1. Number of households which new supply would serve all year within walking distance to present water source			
	- less than 15			0
	- 15-30	(specify:.....)		5
	- more than 30	(specify:.....)		10
	2. Nearest reliable service centre			
	- more than 10 km (more than approx. 2 hours walk)			0
	- 5-10 km (1-2 hours walk)			5
	- less than 5 km (less than approx. 1 hour walk)			10
IV	SOCIAL FEASIBILITY (20 out of 100)			
	1. Felt need			
	- request expressed by representative population		no	0
			yes	5
	2. Participation			
	- community can be expected to fulfill preparatory work (roadworks etc.)		no	0
			yes	5
	- community has proven to be able to work together (e.g. women's club active)		no	0
			yes	5
	- responsibility for maintenance and recurrent costs accepted		no	0
			yes	5
	TOTAL SCORE			ADD ____

Remarks (local leadership; different ethnic groups to use the same supply):

.....

.....

[1] Choose the correct score and write in the second column. Add to get the total score.

Box 3: Proposed steps in screening each village on list

- Not addressed by other water supply programme.
- Nationally defined criteria satisfied.
- High priority on list of problem villages from professional point of view.
- Regarded as high priority by local government.
- Technical solution possible at acceptable cost.
- Technical solution possible at acceptable recurrent cost.
- Eligible from socio-economic point of view e.g.:
  - willingness of local administration to participate in decision making;
  - acceptance of weaker classes as beneficiaries on an equal footing;
  - local input in operation and maintenance efforts accepted;
  - preliminary discussions on locally acceptable options for recovery of recurrent costs held;
  - presence of local structure or organization able to guide community management and health education.

Firm selection and flexible design

If it is accepted that village selection has to do not only with need, but also with demand expressed as willingness to pay, with availability of resources and with technical feasibility, then perhaps water service levels should reflect these aspects as well. The key word here is flexibility.

Thus for situations that differ regarding physical, financial and institutional resources, different scenarios can be suggested. These scenarios should feature a limited range of technology alternatives and, in the case of piped schemes, a range of service levels out of which a choice is to be made.

Here there would be a major role for local government and possibly NGOs in helping to decide for each scheme or village what proportion should be reserved for private or group connections and to work out a water levy system which would cover the running costs.

This approach, when carefully executed, has several advantages: villagers' opinions are sought and carry weight in decision-making; local government takes part in deciding on technical solutions and is aware of implications regarding future recurrent costs; technically oriented staff investigating water resources work together with non-technical staff from the very start, creating mutual understanding; village organizations are involved and their potential to participate in future project activities is assessed.

Relating firmness in selection with flexibility in design is less difficult than it seems provided cost recovery and water resources are the guidance. After a village has satisfied the basic criteria, the most appropriate design is decided upon. The most appropriate water supply – which need not always be the best possible from the technicians' point of view – has a recurrent cost that the villagers concerned are prepared to pay, and that nature can replenish.

Village selection and village impact

Few rural water supply programmes endeavour to measure their impact.[a] Many aim to do so, but are discouraged by the reputation that such studies have – impact studies, and notably health impact studies, are known to have methodological traps and ambiguous results which have become the subject of many papers.[3,4]

Another reason for the ambiguous outcome of impact studies could be a simple one: such studies tend to measure the same type of benefit for all villages in a project area irrespective of the water supply problem that justified village selection. Clearly, impact evaluation should be in terms of the objectives for which the water supply was built.

For example, when distance to existing sources is the justification for selection of a particular village, the expected impact of water supply is time gained and reduced effort for the drawers of water. When, on the other hand, high fluoride levels are the main problem, reduction of dental and skeletal fluorosis is the main benefit to be expected in the long run. It would be inappropriate to evaluate both village supplies only in time savings or only on reduced incidence of fluorosis.

There are admittedly situations in which suitable indicators for impact are not so obvious and one has instead to measure the effect of water supply at another level – as utilization or functioning of water supplies. In addition there are situations in

[a] Impact is used throughout in the original sense i.e. as a measure of success in achieving the ultimate goal of a project such as 'improved health' or 'socio-economic benefit'.

which new supplies cannot be expected to give substantial benefit, but where villages are nevertheless taken up (for example the *en route* villages in piped water schemes).

What is important, however, is that the effect is predictable at the time of selection. It follows that later monitoring and evaluation can consist of reviewing whether the effect predicted for individual villages has come true, and to identify the factors bringing about success or failure.

This appears to be a more relevant outcome of impact evaluation studies - to donors, planners and field staff alike - than studies of less specific health or socio-economic impact.

An expanded role for baseline studies

Baseline studies as they are

Terms of reference of programmes demand that baseline studies are executed. Baseline studies are meant to generate baseline data to enable comparison with future impact studies. However, as indicated above, experience warns us to be careful with the design of impact studies.[5]

One major problem has been the difficulty of identifying the type of data - the indicators - on which later impact studies could be based. What usually happens in the early phase of a project is that far too many data are collected which nevertheless turn out to be of limited use for valid and unbiased impact studies. Chambers' remark of 1979 still holds:[6]

> "Thus, elaborate baseline surveys continue to collect data that will never be used, thereby pre-empting scarce research resources and generating mounds of data and paper, which are an embarrassment to all until white ants or paper shredders clean things up . . ."

The interpretation of the term 'baseline study' has become somewhat degraded in practice: in some situations the 'baseline' is merely a long list of departments and institutions that provide services; in other settings the baseline gives a qualitative picture of life and work of the target group. A third variant the author came across was a baseline study that took a team of researchers seven years to complete, but which failed to provide data on indicators against which changes related to improved water supply could be measured.

Baseline studies have a few things in common though: they are executed by a group of professionals detached from planning or implementation responsibilities and they result in documents that may make for an interesting read, but which too often are of little practical use to planners.

Baseline studies as they could be

Baseline studies, in the author's opinion, should serve a wider purpose than they do at present. Issues addressed above - village selection and the ensuing prediction of village-specific impact - could become part of baseline studies. As one of the first things to be done in the preparation phase of programme activities, the baseline should be the base for later monitoring and evaluation and should facilitate better planning and implementation.

The study should thus give insight into relevant demographic data, as it always does, but be careful not to overdo the level of detail, as it tends to. An inventory of complementary services that can be expected to enhance the effect of water supply in each village, or in each cluster of villages, is useful. Water resources and technical options are naturally examined - but now these are matched with service levels for which people are willing to pay, and which local government is committed to manage. Lastly, as argued above it is a natural step for such studies to make the connection between selection and expected impact. The baseline issues are thus broadly as set out in Box 4.

Box 4: Summary of issues for 'baseline study' of a village

1. Justification for selection of village (Boxes 2 and 3).
2. Indication of relevant demographic data (no details).
3. Availability of services that can be complementary to water and sanitation efforts (PHC/ schools/income generating/social forestry etc.)
4. Water resources and technical options.
5. Water supply service levels required.
6. Expected impact (utilization) of improved water supply in villages selected.

The sequence in which the above points are dealt with is important. As was the case in the fairly

straightforward setting in Zambia's Western Province, there will be villages that pose no problem, because both selection and technical options are undisputed. In other villages, data will have to be collected while there is no certainty on an eventual agreement with the village concerned. The level of detail sought is partly a matter of common sense: when it is obvious that a village does not satisfy the basic selection criteria, detailed discussions on service levels should not be held.

The appropriate methodology for data collection on most of the above is a rapid rural appraisal. In one state in India recent surveys that broadly addressed the first three points took 6–8 weeks for an NGO team of two people covering over a hundred villages. The fourth point is dealt with in any case, and can at times be identical for a cluster of villages. The fifth point – service levels – is likely to be the most time-consuming, particularly when the participatory approach is followed to the letter.

The feasibility of the sixth point – forecasting the effect of improved water supply – is yet to be proven and details of how to make this operational remain undefined.

The question of who should execute the baseline study cannot be answered unequivocally. In some settings an NGO together with departmental staff of the implementing agency could form a team. In other settings programme staff in cooperation with local field staff, such as health assistants, are the suitable choice. The role of local government has already been stressed in preceding sections. Endorsement of proposed lists by steering committees at a higher level is essential.

Conclusions

Selection implies sifting out lower priorities from higher ones. There are many good arguments for doing so. One cannot, however, pretend that simply sticking to more and better criteria is sufficient. Selection will never be totally fair and objective, but this paper argues there are good reasons to try harder.

When the justification for selection determines the indicators of impact, one is forced to visualize the benefits that villages are likely to have – benefits which are always implied but never made explicit in current selection procedures.

It is not unreasonable to expect that, once the expected benefits are made explicit with the help of programme staff, it will become more of a challenge for such staff to review the achievements in selected villages from time to time – Are villagers benefiting as expected? Should the approach change? – External evaluations could also become more meaningful when fed with results of such internal evaluations.

A baseline that comprises selection and at the same time is an 'open-ended feasibility study' encourages one to think and rethink in every village what the conditions are and what options would tip the balance in favour of pursuing improvement of water service levels in the best suitable way.

It is not unethical to make cost recovery a guiding principle in this process, and it is at the time of village selection that conditions on this can be imposed. It is good practice, however, to offer wherever possible a choice of technologies with different service levels and, as a consequence, with different user fees.

References

[1] Burgers L, Boot M and van Wijk C. 1988. *Hygiene education in water supply and sanitation programmes*, Technical Paper 27. IRC, The Hague.

[2] Harnmeijer J H, Mbewe I and McCarty D. 1990 (unpublished). Rural Water for Health Project, Evaluation Report. Solwezi, NW Province, Zambia.

[3] Blum D and Feachem RG 1983. Measuring the impact of water supply and sanitation investments on diarrhoeal diseases: problems of methodology. *International Journal of Epidemiology* **12**: 357–65.

[4] Imo State Evaluation Team. 1989. Evaluating water and sanitation projects: lessons from Imo State, Nigeria. *Health Policy and Planning* **4**(1): 40–9.

[5] Briscoe J, Feachem RG and Rahaman MM. 1986. *Evaluating health impact*. International Development Research Centre, Ottawa.

[6*] Chambers R. 1979 'Rural development tourism, poverty unperceived'

* incomplete

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Biography

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