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## **Participatory action research (PAR) on Community Management of Rural Water Supply**

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### Abstract

This article overviews some of the preliminary results of a four-year participatory action research program which sought to improve Community Management of water supply by rural communities in six developing countries. For three years now, six NGO's have been working with villagers from three continents in an ambitious attempt to develop a flexible research methodology and strengthen community water management. During this workshop I will present some of joint experiences in this process until now.

The article first set the context and will then focus on the research methodology and approach used by outlining the various phases of the research. It will give a vivid account of the different team outputs/results of these phases and how the outputs of one phase serve as an input for the next. Special attention will be given to the variations among the approaches applied by country teams that have emerged in the course of time, due to different cultural and political contexts.

Finalising the article we will identify some preliminary conclusions from the experiences with this approach in different cultural settings. Looking into reasons we will try to identify the implications for action research and community management.

# **Participatory action research on Community Management of Rural Water Supply - experiences from Kenya, Cameroon, Nepal, Pakistan, Guatemala, Colombia.**

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## **I Introduction**

At the Earth Summit<sup>1</sup> in Rio de Janeiro in June 1992, world leaders committed themselves to a comprehensive programme to bring sustainable water supply and sanitation services to the hundreds of millions of people who currently lack them. At the summit all States and support agencies were urged to implement activities aiming for universal coverage outlined in **Agenda 21**, a strategy for sustainable development in the 21st Century.

A guiding principle of Agenda 21 is: "Community management of services, backed by measures to strengthen local institutions in implementing and sustaining water and sanitation programmes." The activity list includes numerous measures to bring about effective community management.

Why is community management of water supply and sanitation systems seen as a fundamental part of national programmes for sustainable development in the future? What basis is there for believing that community management will be any more successful in achieving widespread and sustainable coverage than the top-down approaches which have proved so difficult to sustain in the past?

Experience in many developing countries during and since the International Drinking Water Supply and Sanitation Decade (1981-1990) shows that even the best run water agencies cannot successfully implement, operate and maintain a network of widely dispersed water systems without the full involvement and commitment of the users. Despite the best endeavours of central agencies, staff, transport and budgets

become overstretched, leading to broken down systems, dissatisfied consumers and demoralised agency personnel.

At the same time, evidence is accumulating that properly supported communities have both the ability and the willingness to manage their own water systems. Agencies who make the transition from being providers to facilitators can divert resources currently swallowed up in the provision and maintenance of inefficient services and use them to bring greater cost-effectiveness and more widespread and sustainable benefits. Reducing the need for reconstruction or rehabilitation of broken-down systems means more satisfying and more productive work on new schemes.

As a result there is a growing trend in most countries in the South to encourage rural communities to manage their water supply schemes. Support agencies also promote decentralization and greater community involvement in decision making and management. As a result many governments are trying to change their role from "provider" to "facilitator" and place more emphasis on water resources management on the lowest appropriate level.

Community management does not imply that communities must take care of everything or pay the full costs. The idea of partnership allows scope for sharing responsibilities between supporting agencies and communities. The functions to be performed by local management organizations can thus vary considerably, depending upon the agreed division of responsibility between the agency and the community.

Decentralization and stronger user's involvement, however, faces a lot of constraints for both NGO's, agencies and communities. On the side of the agencies there is a strong tradition and focus on construction of water supply systems. Still little emphasis is put on the establishment of management capacity at local level for lack of experiences and strategies. On the community side, there is often a lack of experience with management of water supply systems and a lack of tools to cope with their operation.

Although community-managed water supplies still can be improved considerably, experiences reveal a significant potential within user communities to take up management roles. Supporting a more prominent role for communities as managers of improved water supply systems has several advantages. It can lead to greater efficiency in system performance, improve cost-effectiveness for both communities and agencies and has better prospects for the long-term sustainability of water supply systems.

The understanding of community management is not fully established and weaknesses and gaps exist preventing communities to benefit from their water supply systems.

Problems include: insufficient knowledge of indigenous management systems, partial coverage of user populations, lack of effective and equitable financing systems, insufficient capacity building, absence of suitable management tools, environmental degradation of watersheds and absence of proper gender balance in planning for, contributions to and control over the established water service.

Since 1994, a team from a Dutch international research institute, of which author has the overall coordination, started together with research teams from six NGO water supply agencies in respectively Cameroon, Kenya, Nepal, Pakistan, Colombia and Guatemala a participatory action research programme. The programme deals with community management and develops approaches, methods and tools to enhance the capacity of rural communities to manage their own water supply systems with appropriate back up support and guidance.

The twenty-four communities in the project which whom we have experienced this approach have various types of water supply systems and service levels and represent a range of environmental, socio-economic and cultural conditions as well as variations in managerial performance.

The programme is being undertaken over a four years period, until the end of 1998.

From the programme experience lessons are being drawn on improved strategies, innovative methods and tools for building management capacity in communities. The teams involved have experienced the need for human capacity development in their respective organizations and the strategies and tools which can help to implement a participatory methodology to water supply system management, flexible enough to adjust to the varying local conditions.

Sharing findings and experiences on the approach, the activities, process and results of the project with organizations in the countries concerned and training water sector staff of a wider international audience will very much contribute to the general development of effective community management in rural water supply. Hopefully, this will help to design and implement more sustainable projects.

## **II PAR: a research methodology offering usable knowledge**

An essential requirement for this research programme is a methodology which is sufficiently flexible and compatible with the task at hand. It needs to enable rural communities and supporting agencies to share, analyse and enhance their understanding of conditions and allow them to plan and implement problem-solving action. Thus it needs to offer usable and relevant knowledge for practitioners' demands. At the same token there is the need for a common framework for the comparison between the different experiences, meeting standards of appropriate rigor without sacrificing relevance.

The contribution of action research is important in this respect. Action Research, in particular, has challenged the myth of a static notion of research and inquiry. It argued for 'acting' as a basis of learning and knowing<sup>2</sup>. This formulation of Action Research, going back to the work of Kurt Lewin was recaptured in Latin America and subsequently became the basis for the formulation of Participatory Action Research<sup>3</sup>. It emphasised the notion of action as a legitimate mode of knowing, thereby taking

the realm of knowledge into the field of practice. From Lewin is the sentence: "If you want to know how things really are, just try to change them"<sup>4</sup>.

In the tradition of participatory action research, as developed in social science circles of Latin America, there is a strong relationship between theory and practice. PAR aims at responding to concrete needs of a group, a social sector or a community. It aims at finding solutions to concrete problems and conflicts.

This approach of participatory action research (PAR) offers a methodology in which research and action are closely linked and all involved contribute to both the planning and the action which is subject of the research. In PAR the relationship is stressed between research, training and action in the solution of social problems, in the identification of needs for change and in the working out of improved knowledge, technology and patterns of action in meeting these needs<sup>5</sup>.

The simplest description of PAR is that it is a way of doing research in which all those involved contribute both to the creative thinking that goes into the undertaking and to the action which is the subject of the research.

In participatory action research some of the people of the community under study participate actively with the 'professional researchers' throughout the research process from the initial design, through data gathering and analysis to the final presentation of results and discussion of their action implications<sup>6</sup>. So some of the members of the community are actively engaged in the quest for information and ideas to guide their future actions. These practitioners are involved as both subjects and co-researchers.

The distinction between researcher and the objects of research diminishes. Dialogue between researchers and grass-roots people is an important feature. Research is seen as a learning process for all involved, learning from experiences of social action.

Participatory action research offered in our view an effective and powerful strategy for the type of interdisciplinary research needed. It can be of importance both for the advancement of social practice and at the same time contributes to a better understanding. It allows rapid adjustment to the different local conditions in the six countries in both Africa, Asia and Latin America. Especially by applying a short feedback mechanism it can stay close to reality.

The research methodology we developed has placed strong emphasis on participatory and gender-sensitive appraisal and needs assessment approaches. It has used both qualitative and quantitative data collection on system performance and service, such as distribution problems, breakdown rates, costings, demographics, local organization, socio-economic characteristics of served and unserved households.

For the research a combination of various methods and tools have been used partly emanating from the tradition of participatory rural appraisal, such as semi-structured interviews; observation; participatory mapping for social, demographic and water resources maps and sanitary surveys; community walks and transects; seasonal and other diagrams of flows, causality, quantities and trends; Venn diagramming of local organisational relationship; scoring and ranking; estimates and quantifications; brainstorming; key probes, and portraits or case studies.

Implementation followed a sequence, starting with a joint preparation of a common framework for the research and method design (**Preparation, Training of trainers/facilitators**), and selection of the communities (**Area selection and problem identification**). This was followed by a participatory situation analysis, needs assessment and problem identification and an identification of possible solutions (**Diagnosis of problems and potential solutions**), leading to the joint development and field testing of problem-solving strategies, methods and tools (**Experimentation and evaluation of possible solutions**).

The last part of the project still to come in 1998 will focus on dissemination and sharing of project findings and the planning and coordination of further work in order

to sustain the process (**Sustaining the process and evaluation**). This will not only include the countries concerned but will be planned at a larger scale.

Most partner organizations in the project did not have experiences with the design and implementation of participatory action research. They needed training, support and backstopping in developing and executing this type of participatory studies.

In the following chapters a vivid recording of the process followed, and experiences gained will be released. This chapter describes how participatory action research becomes a philosophy and a means of working with people to promote people's empowerment towards changing their immediate environment on their own behalf. It describes some of the successes and failures towards making such a combined research and training fruitful.

### **III PAR in practice: knowledge more valuable than gifts<sup>7</sup>**

Villagers in Nkoundja, Cameroon visited the neighbouring village of Nyen to find out how people there are solving their problems in managing, operating, and maintaining their water systems. One man reacted after the visit: "The knowledge we gain from this research is much more valuable than gifts. It is something that we keep for life".

The visit had an immediate effect on Nkoundja's water caretaker who, after seeing how his counterpart in Nyen behaved, realized that he had to change. "We had discussed this over and over again and his behaviour never changed", said Mr. Issiaka Njankouo, one of the community research team members. "Now his attitude has changed radically, and he is working really well".

Such 'exchange' visits have proven to be very useful components in this participatory action research project. In each country, an NGO water supply agency is supporting local research on how four villages deal with improved management of their existing water supply.



Through this, and together with the communities concerned, the NGO's are strengthening the capacities of the villagers to manage their water and sanitation systems.

A PAR team from each of the six countries together with elected men and women from rural communities, a national reference group in each country, and an international reference group, are consolidating and sharing the lessons learned from the communities' experiences in managing the maintenance, finance and use of their existing water supply systems, provided either by the government or through an NGO.

The action research project has a primary objective: to develop and document a participatory research and support methodology which both the agencies and communities can continue to use in other situations and which, when faced with problems in the future, they can share with fellow water organizations and colleagues. The project also aims to establish a structured exchange of know-how between every water agency dealing with rural water management in the six countries represented, plus strengthening operational policies on, and support for, community water management. And, at the international level, the group is attempting to increase the expertise of all organizations working towards bringing about effective community water management systems.

In less than two years, the process and empirical results have thrown up real insights, both into what comprehensive, gender-sensitive community management of local water resources and domestic water supply can achieve, and about which agency approaches and tools are effective in helping both rural communities and their local water management organizations to obtain and preserve an effective water supply service.

## ***Research teams***

In 1994, the partner organizations - all NGO's - established national participatory action research teams. Each PAR usually comprises two or three men and women with the relevant technical and social science experience. The PAR teams' work began later in the year with the preparation of a situation analysis on local management of rural water supply systems in their countries. The team reviewed relevant documents, and interviewed the staff of all the agencies working in the rural water sector, asking them what their policies, and strategies were for the local management of rural water systems after their work was completed. Each team also carried out an in-depth case study of the attempts of one rural community to manage its improved water supply system.

These country studies provided the backbone of a planning and training workshop at which the researchers developed a design for the action research process, for selecting communities, forming local research teams and assessing and analysing local management practices and results.

Aided by three regional<sup>8</sup> skill-development workshops in early 1995, each team then facilitated the selection of four 'partner' communities, based on their demonstrable interest of becoming partners in the proposed action research. The communities were also chosen on the basis of how representative they were of their country's particular water management and socio-economic situation. Building rapport with the population and the existing community organizations was an important aspect of the first visits. Joint village walks and explanatory meetings were very useful in that respect.

Later in 1995, community research teams were established in each participating village, elected from the community water management organizations and the water users. The community research teams received training in analysing the water situation and, in particular, in identifying problems and appropriate solutions.

Early 1996, a second round of regional training workshops<sup>9</sup> involving the national PAR teams took stock of the preliminary research findings. The main topic was: how could the community groups' proposals be included in the next phase - experimentation with the communities? The workshop participants analysed the role of the teams in field-testing, and the skills necessary for the next stage was strengthened.

Most of the community research teams have developed their research agendas late 1996. Experimentation and field testing of the problem-solving strategies, methods and tools - as well as monitoring and evaluation - takes place during 1997.

### ***Community Selection***

Not surprisingly, given that PAR projects do not promise poor communities tangible rewards - no new water supply or latrines - gauging their 'interest' in the research project posed a real challenge. How does one 'sell' community management capacity to a group of villagers? Is it realistic to try and interest them in an abstract idea such as a 'participatory action research process to enhance community management capacity'?

Dealing with these questions called for intensive negotiations between agency staff and community representatives. In Colombia and Guatemala, researchers 'sold' the process with the aid of established participatory techniques, such as mapping and newspaper on the walls which enabled them to initiate discussions on the local water situation and what people considered to be the important management capacity requirements. In Nepal, the research team used a poster of a chicken hatching an egg to explain that, although the hen (the research team) will provide warmth and energy, it is the chick's (the community) responsibility alone to hatch and grow.

In most of the communities, people were very enthusiastic about enhancing their management capacity in this way. Whereas the partner selection criterion of 'a genuinely interested' community proved to be perfectly valid, most country teams

added their own criteria. For example, Colombia looked at the level of poverty, while Kenya and Cameroon tried to reflect the cultural diversity of their communities, which has a mayor bearing on how water supplies are managed locally. In Nepal, the research team was particularly anxious to achieve a good diversity of implementing agencies.

### ***The community research teams emerge***

In order to work towards capacity building at community level, each community selected a research team. The creation and role of these teams was much more than a "methodological step" towards ensuring community involvement; they can be viewed, justifiably, as indispensable actors and agents of change, both in implementing action research, and in putting the findings and recommendations into practice.

In La Sirena, a community in the hills of the Columbian city of Cali, research team members were chosen for their relevant experience and aptitude for community work. For the villagers of Ceylan in Colombia's Valle District, famous for its agro-industrial development and coffee plantations, the most important qualifications were having appropriate training and clear leadership potential. As a result, they picked a 16-year old student who, they felt already possessed the right qualities to become an effective community leader.

In the Quiche zone of Guatemala, where educational standards are poor, the community put the bonus on individuals' willingness to participate. A good proportion of older, illiterate people are actively involved in the team, helping to give LRTs the popular image of reliability. Gender segregation was an issue in Pakistan, so separate men's and of women's teams were established.

Overall, there is a broad agreement among the communities in all three continents that, to be an effective research team member, an aptitude for community work, leadership skills, and some knowledge of local history are more important attributes than educational qualifications.

### ***Training community research teams***

As soon as they have been elected, the local research team members receive training in diagnosis and research techniques. The ten women and thirteen men making up the Cali team were trained together at a two-day workshop, where they had the opportunity to talk about what they understood by the terms 'participation', 'community organization', 'gender', 'indigenous knowledge' and 'community diagnosis'. The participants felt that the PAR techniques left a lot to be desired and modified them to suit local circumstances.

After the workshop, the local teams prepared a report, incorporating line drawings and photographs. The reports provided useful methodological guidelines for planning the next stage - the community diagnosis - which the researchers now felt they could carry out systematically. They were proud to be known as 'the water and sanitation researchers'.

### ***Diagnosing the problem***

In the Guatemalan village of Belen, early identification of both water problems and short-term solutions was the ideal entry point for involvement in a more general community diagnosis.

In Nepal, the teams began their research by organizing exchange visits between villages. The Rangapur team spent two days with their neighbours in Gajedi so they could assess the villagers' needs and make some suggestions about their water problems. After a briefing on the various water supply and sanitation schemes, the Rangapur researchers visited all the village standposts, where they talked to the users and their families. Then, at an open meeting they discussed their findings with the villagers and made some valuable suggestions for change. Not long after, it was the turn of the Gajedi group to visit Rangapur.

A 'village walk' launched the diagnosis in the neighbouring villages of Nyen and Mbemi, in Cameroon's English speaking, western province. The PAR team, together with the village water-committee members and some district officials, spent three hours walking around both villages. They identified particular features, evaluated the performance of the water supply system, listened to people's complaints about the service and learned more about local palm and raffia tree industry which, while providing the community its main source of income through the production of oil, wine, baskets and bags, swallows up a sizeable amount of its water.

The village walk not only established contact with the villagers, it also acted as a launch pad for the village mapping. 'In the afternoon when we were making up the two maps, the group of participants was considerably bigger. This continued the next day when (the villagers) all drew the Venn diagram to show the key individuals and institutional relationships for water supply decision making', said Mr. Amouye of the Cameroon PAR team.

Community diagnosis is designed and planned by projects teams in collaboration with local research teams. They select a specific set of PRA techniques to facilitate the collection and the sharing of qualitative and quantitative data. Diagnosis deals with the socio-economic, technical, managerial, and hygiene believes and practical aspects of the existing water supply and sanitation facilities. During the diagnosis, women and men express their feelings, interest, and viewpoints using drawings, mappings and matrices.

All of this data takes into account the different roles and expectations of women and men, whether it concerns water supply, water resource management, water use or local management; the depth of the diagnosis depends on the individual community. The countries' experience so far suggests that diagnosis is a continuous process: communities will continue to identify new problems, as well as resources and social changes, irrespective of the stage reached by the research project.

### ***Problem solving strategies***

Since early 1997, the communities are developing their own strategies, methods and tools to address managerial problems, and to monitor the effects of any reforms on service performance. Next, they will put these problem-solving strategies to the test.

The country research teams continue to play a supporting role: helping to strengthen local capacity in areas such as skills development, group building, confidence building for women and men, in forging links with other communities or organizations. They also contribute to the improvement of maintenance, payment systems, and water source protection; a small budget allows to fund some technical improvements to the community water supply system itself.

One of the main management skills to be strengthened is effective monitoring of both the research process, as well as impact. Close, continuous monitoring facilitates adjustments of the strategies, methods and tools based on local findings and requirements.

The monitoring approach is being developed with the partner organizations and the communities to ensure that it provides for the best possible learning opportunity for everyone.

Early 1998, the team will be able to carry out its final evaluation of the process, and its concrete achievements. After being summarized and complemented with by up-to-date news of the latest developments, these findings will be analysed jointly with the respective communities and agencies.

#### **IV Some preliminary conclusions of this worldwide PAR**

Participatory action research undertaken by the research teams from the NGO's in representative communities have strengthened their own capacities and effectiveness. It has enhanced the problem-solving capacity of both community and supporting organization. During the process the role of the researcher was clearly changing to that of a convener, a colleague, a catalyst and sometimes of a consultant, who brought in new ideas or experiences unknown to the grass-roots organisation.

Training during the PAR became a dynamic and creative educational process, not only leading to skills development, but also building up the critical consciousness of community members, sometimes examining their values and attitudes. The research-teams from outside should be able to turn research into an educative experience for people at the grassroots as they jointly search for creative solutions and get to know the process of inquiry.

PAR is a learning process for all involved and is linked directly to the identification, development and testing of specific problem-solving activities and tools together with men and women in the communities concerned (the `action' element).

Research throughout the process is not a neutral, value-free activity, but an active, questioning process leading to improvements for the communities as well as to new insights for the sector.

At the level of the communities through PAR local theory has been developed. This is the most direct, simple, context bound explanation of cause-and-effect relations in a given situation that makes sense to those with local experience. Such a local theory is situation specific but is generated in part from general knowledge and the rules of scientific inquiry<sup>10</sup>. However, the construction and generation of local theory is empowering because those who create it learn why things are as they are, and this leads naturally to ideas about change.



Given a good job is done, the possible solutions are frequently self-evident. Theory testing becomes a natural next step in learning. Participants test their theory in action, by experimenting with different possible solutions. This action means testing and improving the local theory. Evaluation of results leads to new, improved local theory. Reflection and action in PAR form a spiral process that gradually improves knowledge and creates useful results.

This testing or experimenting in all cases has been a collective action. For the main idea behind PAR is building up more democratic forms of organisation and management. Thus consensus at the level of the community has been sought about the cause and effect relationship and about what possible solutions are to be tested. The goal is to solve practical problems and develop new or improved knowledge and theory. Before each important step in the process the broadest consensus of community members is sought.

Thus research becomes a process of getting to know and interpret social reality, with the aim of gathering sufficient knowledge to allow for the reproduction, transformation and induction of new processes in society.

At the same time it is apparent that knowledge and knowledge acquisition are dynamic developments which are never finalised nor definitive. That is why it is important, as part of PAR, for the outside research teams to clearly identify and explain throughout the process each step and each phase, in such a way that it is understood by the members of the grass-roots organisation. Thus the PAR experience can also be used for other and different problems facing the communities in the future, sustaining the process of knowing. Research is not looking for the ultimate answer, the definitive solution, or the final truth. It is much more a continuous process of theorising, acting and reflecting.

The challenge is how to support such a continuous process, knowing that 'each place, situation, and experience needs its own specific approach'. It became clear that adapting the general approach and general principles to each situation is depending on the experience of the research team.

From their very conception in the early 1960's, the first participatory action research activities in rural Latin America and India proved to be effective tools for raising people's awareness and empowerment.

The early experiences of this 1990's project reinforces the argument that PAR methodologies do enhance management capacity in the water and sanitation sector. The communities in Cameroon, Colombia, Guatemala, Kenya, Nepal and Pakistan are becoming far more involved in making important decisions while, at the same time, supporting agencies are learning to facilitate and empower communities.

For more information about the project and approach:

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## NOTES

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- 1 . The United Nations Conference on Environment and Development (UNCED), Rio de Janeiro, Brazil, June 1992.
- 2 . M.P. Lammerink and I. Wolffers, "Some selected examples of participatory research", The Hague, 1994, page. 10
- 3 . O. Fals Borda, "Knowledge and people's power", New Delhi, Indian Social Science Institute, 1985
- 4 . K. Lewin, "Resolving social conflicts", New York, Harper, 1958
- 5 . M.P. Lammerink, "Aprendiendo juntos, vivencias en investigacion participativa", Managua, Nicaragua, 1995, page. 2 and page. 283
- 6 . W.F. Whyte, "Participatory action research", London, 1991, page. 7
- 7 . Information on the practice of PAR are based on the project's internal reports send by the participating country project teams: Agha Khan Foundation in Pakistan, SER/Agua del pueblo in Guatemala, CINARA in Colombia, Netwas in Kenya, NEWAH in Nepal and PAID in Cameroon, as well as on field visits. The account was earlier prepared by Eveline Bolt, Norah Espejo and Marc Lammerink and presented by representatives of each country team at the World Congress of Participatory Action Research in Carthagena, Colombia from June 1 to 5, 1997, during the Garden of Proposals.
- 8 . These workshops were conducted in each of the three continents: in January 1995, February 1995 and June 1995 respectively in Katmandu, Nepal for the teams from Nepal and Pakistan; in Yaounde, Cameroon for the teams from Kenya and Cameroon; and in Cali, Colombia for the teams from Guatemala and Colombia. The first workshop focused mainly on methods and tools for problem identification and diagnosis.
- 9 . The second round of regional workshops took place early 1996 and focused mainly on the phase of experimenting. These were organised in Islamabad, Pakistan; Nairobi, Kenya; and Quetzaltenango, Guatemala. A third round of regional workshops is envisaged early 1998 focusing mainly at the documenting and systematising aspect.
- 10 . M. Elden and M. Levin, "Cogenerative learning - bringing participation into action research ", in: W.F. Whyte (ed.), "Participatory action research", London, 1991, page. 137, 138