



Robert Chambers

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"IN ONE village in India where I was working with a Kenyan colleague, Elkanah Odembo, we asked a young farmer if he could plot the local rainfall month by month. He plotted the last year's rainfall, using lines of seeds on the ground for the rainy days in each month. The chart showed the number of days in rain, but not their frequency, so we asked him to include this. 'I can do that,' he said, 'but I'll need more seeds.' Elkanah and I looked at one another: to us the request made no sense. But we found more seed and he used these to make each of the four rainy months into a line of 30 seeds. Then he started taking them away for the days when it didn't rain, leaving those when it did. To cap that, he then took a new kind of seed and contrasted a normal year alongside it."

The speaker is Robert Chambers of the Institute of Development Studies at the University of Sussex. What he is describing is one aspect of Participatory Rural Appraisal (PRA) an intriguing new way of tackling problems of development and environmental improvement. PRA is very different from the orthodox "top-down"

approach to rural development planning, where outside specialists get information from field workers and fit it into an official plan of action in which locals are only then invited to participate. Instead, PRA "facilitators" hand the planning initiative over to local people. They are encouraged to use their first hand knowledge and expertise of practices and priorities to construct charts, maps and matrices, all of which yield information making it easier to plan for the future. This analysis often uses highly visual pattern languages unique to particular communities. In many cases, the problem-solving strategies that result are innovative, successful and sustainable.

Jules Pretty, who heads the Sustainable Agriculture Programme of the International Institute for Environment and Development (IIED), believes PRA has much in common with soft systems methodology, a concept taught in progressive business schools. Both ideas operate on the premise that problems are endemic and don't stand still; they can't be conclusively solved by blanket techniques or exercised for good by troubleshooters. The solution in both

## Designs on life

Throughout the developing world, aid workers are encouraging local people to build their own maps and models to tackle everyday problems

Map making: villagers from Bihar in India map their homes and land with coloured chalk, using seeds to represent families from different castes

Seeing the wood. . . A map of the local forest made by Indian farmers show levels of degradation in different coloured powders. It will be used to discuss access and rights

cases is to equip people who face such problems with the confidence to tackle them as a group through an organised process of inquiry. The resulting knowledge can be applied without further involvement from outsiders and adapted creatively to suit changing circumstances.

PRA methods travel under various names and take different forms. Many give local people an opportunity to make maps and models of their surroundings, emphasising the details that matter to them. These maps—of villages, farms, community resources and relations—then become a basis for further analysis to show, say, the flow of essential resources such as water and food into and out of the communal pool. While constructing their diagrams, villagers identify key problems and new ways to tackle them. The process emphasises environmental care and sustainable living.

#### Nature's paper and ink

The first thing that strikes a casual observer about PRA diagramming is the elegance of its design. Paper and ink could be used but more often the diagrams are made with sand, sticks, seeds, chalk, leaves or any other materials at hand, and arranged in a village square or other public place. The structures of some diagrams reflect local decorative art styles, while others draw on schoolroom maths. At their simplest they can be made by



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anyone with very basic numeracy and imaging skills.

Chambers is unwilling to pigeonhole them as applied science, art or social science. "They are creative: most people seem to take to them readily and find it easy to express what they know. And they're levelling because they can empower the non-literate and the weak to express what they know and want."

By far the most important attribute of these designs for living, however, is that they work. The maps provide a framework for people to plan and monitor innovations in farm management, agroforestry, resource distribution, community health care and so on. By putting local people in the centre of the picture—their own picture—PRA helps them set and achieve their own management standards working within local means.

A model example of PRA was started in 1987 in several areas of Kenya where flood, drought and erosion damage constantly threaten farmers' livelihoods. Before PRA was introduced,

#### Drawing on local knowledge

THE Marappans are a farming couple who live and work in Dharmapuri, a drought-prone district of Tamil Nadu, India. For many years, crop diversification has been one of the methods by which farmers in this area have guarded against the risk of crop failure. In their seven agroforestry and farm plots, the Marappans grow up to 16 different crops in varying combinations.

Visiting PRA facilitators from Tamil Nadu Agricultural University worked with the Marappans to determine which combinations of field and tree crops had served them best over recent years—including 1989, when the area was hit by severe drought.

The matrix, drawn up by the Marappans on their doorstep, was made using a coloured powder for the diagram's lines; the flowers of a local plant acted as counters to record farm income. Seventy cells were defined in the main matrix in which the years 1982 to 1991 (written on cards)

formed the vertical axis. The horizontal axis showed the main crop combinations in the seven plots, represented by the leaves of the crops themselves. The diagram was later transcribed onto paper to keep it safe from unwary feet and marauding hens.

Starting from the immediate past, the Marappans filled in the cells, row by row, until they had completed scoring for each crop or crop combination in terms of its cash yield over the decade. The finished diagram showed that the mango and groundnut agroforestry combination was preferred over other combinations because it provided a consistently high cash income and the mango stood up to drought years better than coconut, which was also recognised as a good cash crop. A combination of coconut, mango and paddy rice was ranked second in preference because it provided a staple food for domestic use as well as a marketable surplus of coconut and mango. In terms of bringing in a quick income, however, coconut and cotton came out on top in years of high rainfall.

Among annual crops grown mainly for household consumption, such as black and

green gram, no strong preference emerged. During the severe drought of 1989, none of the farms in the area yielded crops. The Marappans drew on savings from previous good years which they had invested in a fertiliser business. But poorer farmers with fewer options had to migrate to the city as wage labourers. However, these poorer farmers did better than the Marappans the following year, when rains were still erratic, as they were farming on a smaller scale and had fewer outlays.

These diagrams reveal how much detail farmers like the Marappans remember about their harvests over the years. In this instance, 10 years of production were recorded in just a few hours, and a range of practical management options was set out so clearly that the information could be picked up at a glance.

Greater diversification of crops is often a consequence of PRA-based development. In this case, PRA helped suggest how farmers living in an area prone to severe drought might learn to plan ahead and so benefit fully from a knowledge of the strengths and weaknesses of various crop combinations.

visiting specialists and extension workers from the Soil and Water Conservation Branch of Kenya's Ministry of Agriculture had been running pilot trials. Their aim was to encourage selected "contact" farmers to adopt soil conservation and anti-erosion practices in the hope that lessons learnt from them would be imitated throughout the district—usually with a little help from subsidies—until they caught on.

But this approach was proving counterproductive because erosion control structures set in place on one farm, were simply diverting waste water on to neighbouring land. Even the contact farmers were not being involved in the process. "I talked to one farmer who told me he woke up one morning to find extension workers and consultants changing all the dams and ditches on his farm," recalls Pretty. "He asked what was happening and was told to go away and come back when they'd finished!"

By 1987, ministry officials realised that the only way to banish such problems was to deal with water catchments and the communities served by them in their entirety. Since 1988, and with long-term backing from the Swedish development agency SIDA, IIED has helped train Kenyan extension workers to become PRA facilitators. Mobilised by these facilitators, village analysts from all sectors of the community first assess local physical and social conditions—such as rainfall and irrigation facilities—using maps, seasonal calendars, diagrams, activity profiles and matrices. After several days of analysis, the findings are made public at a *baraza* or neighbourhood meeting. Here the whole community checks the findings. Then they decide together what problems need to be solved and make a communal plan of action that reflects their priorities. Often the decision favours diversification of land use and crop mixtures. Catchment committees are then elected to steer the plan and liaise with local people and officials.

Progress is monitored—using PRA as a self-evaluation method—to highlight which approaches have proved most effective. In three out of six pilot sites, natural springs, long regarded as defunct, reappeared. Successes, which include higher crop yields as well as resource regeneration, are most notable in catchments where committed and active individuals work well as a team. In some areas, communities mobilised through PRA have achieved annual agricultural growth rates of 15 per cent or more, using only ordinarily available resources. Moreover, neighbouring communities not included in the original catchment scheme have begun to copy these practices.

It is no surprise that the Kenyan authorities are now thinking of extending PRA to around 600 new catchments a year, placing

**'Government agencies are quick to appreciate the benefits of PRA. It takes less time, is usually more accurate and makes fewer costly mistakes than standardised planning routes'**

the emphasis countrywide on local decision making. "If the Ministry goes ahead, we could soon be looking at agricultural regeneration on a truly remarkable scale," says Pretty. He expects this to be achieved using local resources, with virtually no outside help in the form of fertilisers, pesticides or subsidies.

What has impressed Pretty most is the way that communities are constantly inventing new applications for PRA. Health mapping, for instance, was invented by a voluntary community health care group in India which had heard about PRA in general terms and had assumed it was a system for improving health care. Now its medical applications range from assessing demand for (and obstacles to) family planning and immunisation projects, to identifying the kinds of health care

and nutrition programmes that are best suited to local needs. All this is achieved through diagramming techniques such as matrix scoring, "preference ranking diagrams" that highlight priorities and seasonal calendars.

"Nothing you'd read in any textbook could reveal innovations like these," says Parmesh Shah, who has helped pilot the PRA approach in many parts of Asia and Africa—starting with the Aga Khan Rural Support Programme in India. This international organisation aims to get village communities and official or government agencies working together to manage natural resources more efficiently, equitably and sustainably.

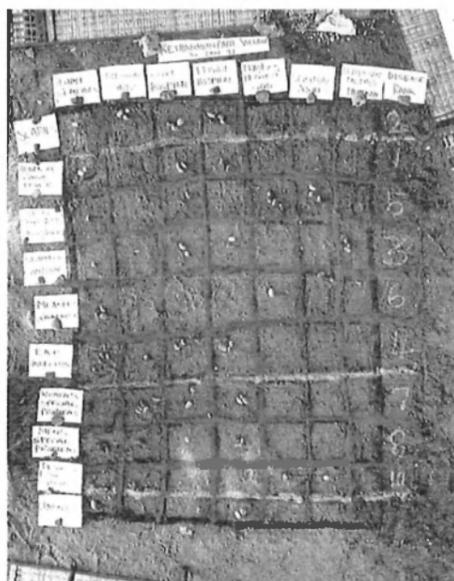
### Seeing the benefits

In Shah's experience, official and government agencies in developing countries are quick to appreciate the benefits of PRA once they see it in action as it takes less time, is usually more accurate and makes fewer costly mistakes than standardised planning routines such as questionnaires or aerial surveys. "Plans based on PRA can count on strong sustained take-up and follow-up," says Shah. "Local communities can provide many, if not most, of the materials and skills needed to implement them. Not unnaturally, they feel they own a direct stake in seeing through strategies which they themselves debated and steered from the start."

Shah can cite myriad PRA success stories, particularly in India where methods are now being used by local

volunteer facilitators to appraise, plan and monitor programmes for soil and water management in several states. Programmes for soil and water conservation in these areas now cost 30 to 40 per cent less than those they replaced, yet are more effective.

Shah recently helped introduce PRA methods to an area of Vietnam to assess the impact of a proposed transfer of state forests to private hands. Here, locals anticipated that the main problem would be finding alternatives to shifting cultivation that



Getting the treatment: this grid shows the diseases afflicting people from a village in Tamil Nadu and how they choose to treat them

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Jeremy Hartley/Panos Pictures

Talking heads: women in Senegal discuss the setting up of a cereal bank

would bring them steady incomes once the land was fenced off into private holdings. Shah also found that local people used their own, highly accurate soil quality ratings to calculate the value of different parcels of forest land. "They were also well aware of the precise worth of non-wood forest products like fruits, resins and fibres," he says.

Such products are the very kinds of local resource that professional foresters and agronomists tend to view as "grey areas", because they are too diverse and variable to fit into standard development plans. Yet inflexibility on the part of professionals is often what accounts for their inability to put a value on products the indigenous population regard as important and useful. Local people will almost always have feasible ideas about how to manage and account for the value of these resources, but then development planners rarely consult the very people their plans are supposed to benefit.

### Startling results

Chambers suspects limitations like these have hampered many development efforts in the past and only now, as participatory thinking spreads, can there be any hope of problems being properly solved. "We'd grown so used to going into problem situations and wagging the finger, holding the stick. We simply didn't know how damaging that can be," he says. "When we first saw the mapping approach being tried, the results were so startling we thought it was a one-off. But we've since had to admit time and again that things we think we have to do as knowledgeable specialists are very often done better and more accurately by the local analysts themselves."

Of course, some local mappers prove more adept than others, using their own versions of matrix scoring, Venn diagrams and other techniques to enviable effect. Even social science graduates would hesitate to use them as creatively. If there are so many talented planners in the local communities, what role can there be for professionals in the PRA scheme of things? Chambers sees their job as getting the mapping process started, then listening to proposed strategies, learning from them and doing what they can to ease their implementation. "We may start the PRA process off, but it's vital we don't try to second-guess where it's going or insist people do it this way or that," he warns.

Outsiders can also help by ensuring that consultations are not

dominated by high-ranking or more outspoken members of a community. One way to do this is for analysts to work in several small groups of not more than 15 individuals. Different groups can make different maps, and different analyses, each using the design language that suits its purpose best. "This gives cross-checks on information," says Chambers, "and it can also be used to empower weaker groups. Women, for instance, often have different ideas to men and different priorities but they're often debarred from pressing their case eyeball-to-eyeball with the men," says Chambers. PRA's democratic and visual methods can make it easier for women to put across their point of view, he believes.

Despite its many strengths, PRA does have limitations. According to Shah the problem of whether you can scale PRA up is the trickiest. "The paradox is that PRA actively seeks out localised diversity and makes the most of it," he explains. "How do we equate that with large-scale development programming and resource management strategies to be applied over the length and breadth of needy areas?" Shah believes this contradiction will resolve itself over time as bigger patterns emerge through the pooling of knowledge from many sites. This knowledge should feed into and provide a stronger base for plans and projects, the management of which should pass increasingly into local hands.

More international and regional development organisations and research centres in both the official and independent sectors are starting to use PRA methods. But many development professionals are still wary of PRA, and it will have to win these doubters over if it is to play a major part in development methods in the future.

Pretty sees no reason for conflict between standard development practice and PRA. "I see them as complementary," he says. "They're there to sharpen one another up, not compete". Chambers, meanwhile, notes an internal dynamic developing: "As these ideas spread I think we'll see more barriers fall. Development agencies are now taking village volunteers to train their own staff to do PRA. Is this the last domino? I doubt it."

The user-friendly PRA revolution has attracted nothing like the media attention a major breakthrough in tropical medicine or mega-dam development would command. Yet it is, in its quiet way, a leveller of world significance. PRA focuses a community's eye on the environment it knows best, then mobilises local talents to balance its frailties and strengths. Development professionals are often told they should be careful not to raise community expectations too high. "Why not?" say Pretty. "Communities need high expectations if we expect them to handle their own future." □

**Robert Lamb** was formerly science editor for the UN Environment Programme and the World Conservation Union. He currently advises the School of Art at the University of Brighton on converging trends in art and environment practice.

A PRA bibliography is obtainable from Helen McLaren, Institute of Development Studies, University of Sussex, Brighton BN1 9RE. A periodical, RRA Notes, is published by IIED, 3 Endsleigh Street, London WC1H 0DD.