

Participatory Mapping and Modelling

Notes for the Workshop on Participatory Micro-watershed Development convened by the Aga Khan Rural Support Programme and the Ford Foundation at Ahmedabad, 4-5 April 1990

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Recent Origins and Experiences

India is unusual in the absence of readily available maps with a scale between on the one hand a 1:50,000 series, and on the other detailed but usually out-of-date village maps which show individual farm plots, each with its survey number. It is also difficult to obtain aerial photographs. This has prevented the participatory aerial photograph analysis which has proved powerful and popular for mapping natural resources, ecological zones and social boundaries in other countries such as Ethiopia, Kenya, Nepal, New Zealand, Papua New Guinea and the USA. Lacking appropriate maps and aerial photographs, there has been an incentive and need to find other ways of identifying and presenting spatial information at the village level.

This note reports on some resulting developments and experiences in India in late 1969 and early 1970. While so much RRA/PRA, this has come to appear not a bad thing but, best, useful whether ordinary or extraordinary. These activities are not new, and no doubt much other experience has been gained with them in other parts of the world. All the same, it is hoped that the participatory mapping activities concerned - notably MYRADA based in Bangalore and Youth for Action based in Hyderabad - will help and encourage others to have a go and also share their experiences. Developments that I have personally observed have taken place in four exercises.

1. Kalmandargi village, Gulbarga, Karnataka

First, a MYRADA team undertook a five-day participatory rural appraisal (PRA) in Kalmandargi village, Gulbarga District, Karnataka. The objectives were both PRA training for staff, and participatory watershed development in an area of about 400 hectares. The outside team, of about 15, camped in the village on a hill next to the temple.

On the third day the idea of making a physical model of the watershed was discussed with farmers with whom the outside team had been working. About five male farmers and one woman, helped by boys from time to time, enthusiastically took to the task. They chose a flat piece of ground that was easy to dig up, close to a point where there was a good view of the watershed. They shaped an area of about 5 metres by 3 metres, showing nallas, hills, roads, the village, forest, a dam, temples, the school, electricity power lines, and other details.

The whole was coloured with rangoli powders, to show roads (white), cultivated land (green), fallow land (brown), paddy fields (blue), and nallas (maroon). The villagers did almost all the layout and work, and were responsible for the accuracy of presentation. The outside team made models for the two temples. The outcome was astonishingly detailed and as far as one could tell accurate. It was also a colourful sight. One farmer said that all his life he had been wanting to do this sort of thing. Throughout, the absorption of those taking part was almost total.

2. Kistagiri village, Mahboobnagar District, A.P.

Youth for Action organised a 4-day PRA in Kistagiri Village, Mahboobnagar District, Andhra Pradesh. The objectives were to identify a joint programme of action by the villagers and YFA focussing on natural resources development. The outside team, of about 12 persons, camped in the village school for four nights.

On the first day, the team started with the villagers at about 1500 hours, meeting just outside the one-roomed school. The Sarpanch (village headman) and leading farmers were present. The Sarpanch was asked to draw in the outline of the village resource area on a 1:50,000 map. This was very small, and could only be seen by a few people, but it may have helped to establish to shape of the area in his mind. A large sheet of paper was then put up on the wall, The Sarpanch used a pencil to draw the outline of the village, and then to insert details. Some of these were verified by farmers before a team member inked them in with coloured pens. Farmers became active and animated in pointing out what was missing and should be put in. In less than half an hour a map had been drawn which included the four main land use types (residential Village, wetland, dryland, and forest), and all the wells in the village, distinguishing the better wells from those that were worse. This participatory mapping led naturally into walks with villagers as guides. After dividing into four groups, and walking for two to three hours in four different loops through the village land, the outside team was able to meet and share a great deal of information, including ideas about problems and opportunities. All this had been gained in less than five hours,

Later, two more maps or diagrams were made by the villagers on the ground, using rangoli powder to colour them in. One was a social map or model of the village, showing all the houses, coloured differently according to caste of occupant, and with shops, temples, roads and other details. The other was a resources map of the village area, with details similar to the earlier participatory map, but not copied from it.

The resources map was made on ground which sloped in the opposite direction to the reality. Villagers said this did not matter, and maintained the orientation of the map, corresponding with the reality, and sacrificed the slope.

3. Talavadi, Periyar District, Tamil Nadu

In January 1990, MYRADA organised a training workshop on Rapid and Participatory Rural Appraisal at Talavadi, Periyar District, Tamil Nadu. Some 40 middle and senior staff took part. Slides of the Kalmandargi model and the Kistagiri map were shown on the first evening, and the following morning before breakfast 8 teams of 4 or 5 each went to village, where MYRADA has been working for at least 8 years, and facilitated participatory mapping. 4 teams initiated social maps of the residential area of the village, and 4 initiated resource maps, for the larger whole village area. Some maps were drawn direct onto paper. but most were first created on the ground, and then copied.

The 8 resulting maps were presented and compared later in the day, with villagers commenting on them. The details on the maps corresponded closely. Villagers were able to point out their own houses on the residential maps.

One person in each team later reported on the process of creating the map or model. One group which had encouraged drawing by pen direct onto paper said that when they had finished they knew changes were needed, but did not want to spoil what they had done.

A woman made a very detailed map on the ground of her village, and showed greater skill in the fine application of rangoli powder than had men.

One MYRADA staff member who had been working in the village for 8 years said that he had never seen the village like this before, and his view of it had been changed.

Later in the training, a team led by Bernard used PMM very effectively in a topic RRA. They set out to investigate aspects of schooling, including advantages of children not going to school. They chose a village with 55 households, and asked villagers to diagram their village, showing all houses. They then asked, and marked in, details of households, indicating those households whose children of school age did not go to school. They were then able quickly to find key informants.

4. Seeganhalli village, Kolar District, Karnataka

This was a four day PRA concerned with tank and catchment rehabilitation in Seeganhalli village. It was hosted by

Jimmy Mascarenhas of MYRADA, with an outside team of about 15, including *some* experienced MYRADA staff.

Haps. On the first night, under a street light, a villager who was met casually was asked to draw on a large sheet of paper a social map of the residential village. This he did, with almost no changes or corrections, during a period of about an hour. The map was presented later in the night (the session began at 2240, this being a typical Mascarenhas exercise). Two days later, another map was drawn in chalk on the floor of the meeting room. A resource map of the catchment was also drawn on paper, showing a lot of detail.

The Neerganti (water man), Gangappa Chinappa, made a remarkable map of the paddy fields below the tank. It happened like this. He was discussing mapping with one group when he was called to another for a discussion about water distribution. When he arrived, the group was busy, and a chapatti (Venn) diagramming exercise was in progress. Gangappa sat down and began to arrange bits of papers, including circles, on the floor. When asked, he said he was mapping the command area. Jimmy Mascarenhas then followed Gangappa's instructions in cutting out additional pieces of paper to represent fields. The final patterning of paper was left at lunchtime, and found disturbed afterwards. Undeterred, and with complete absorption, Gangappa sat down and himself cut out new pieces of paper, remapped the whole command, and then stuck the pieces onto a large sheet of paper. Later he presented the outcome, with justifiable pride, to the whole PRA team of villagers and outsiders. Five farmers who were asked to identify their fields did so without difficulty.

Models. On the second and third days, villagers, led by Chinamma and facilitated by Prem Kumar of MYRADA, made three ground coloured ground models. All were about 8 metres by 5 metres.

The first model was a work of art, and showed the land below the tank, both wet and dry, and the village, but little of the catchment of the tank. Women and men took part in making it, and added loving detail. Special care was taken over the temples.

The second and third models showed the catchment of the tank. The second presented it as it had been fifty years ago. The forest was thick over the hills and valleys, and there was no erosion. The third, next to the second, showed the catchment as it is today, with erosion gullies in some detail, and almost no tree cover. A colour code was used to indicate where conservation works were suggested. The model served to focus discussion and planning, and in more specific detail than had occurred at Kalmandargi.

Later discussions were held in small groups including villagers and outsiders to list the relative strengths and weaknesses of mapping on the ground and on paper, and these were reported back to plenary discussed and recorded. Villagers and outsiders both emphasised the greater ease of participation and understanding of ground models for those who are illiterate.

Other Experiences

At the time of writing (mid March 1990) other experience is being gained fast. Two examples especially deserve note:

- i. James Mascarenhas (pers, comm) initiated participatory modelling of a watershed with some Tribals in Karnataka. They did this opposite the watershed, at a vantage point where it could be seen. First, villagers made a model of the watershed. Then, following discussion, they made a second model to show what it could look like after watershed development, in some 20 years time. Finally, they made a third model to show what it would look like if nothing were done. One farmer said that the third model did not look bad enough, and went to his house and brought back ash and scattered it over the model.
- ii. KC John (pers, comm) initiated participatory diagramming of a region of chauris (large low basins which hold water for much of the year) in Bihar in the drainage area of the Gandak Irrigation Project. Farmers and fisherpeople diagrammed about 40 square kilometres, showing the drainage patterns. The model was used to help farmers analyse potential impacts of drainage proposals for the Gandak Project. Subsequently, an official map was obtained. The correspondence between the farmers' and the fisherpeople's diagram, and the official map, was close.

Ground and Paper Compared

There has been a lot of debate about the relative pros and cons of the ground and of paper. Some have felt that using the ground is demeaning for educated villagers, such as school teachers. Others, the majority, have discounted this, and favour the ground initially. In one workshop, a North American commented that his father, a graduate and a farmer, often diagrammed on the ground in discussions with other farmers, then took a photograph of the diagram with a Polaroid camera, and went home and drew on to paper from the photograph.

	<u>GROUND</u>	<u>PAPER</u>
Access and ownership	Popular. More people create and own	Elitist. Fewer people create and own
Outcome is	"Theirs"	"Ours"
Visibility	Greater during creation	Less during creation
Corrections	Easier. "Rubbing out". Successive approximation	Harder. Tends to instant finality
Intelligibility and analysis	Easier	Harder
Play and creativity	More	Less
Can show relief	Yes	No
Use of colour codes	Easier	Harder
Portability	Fixed	Portable
Durability	Very low	High
Play and creativity	More	Less
Empowering to those with less education etc	Yes	No

Some Dos and Donts

Dos:

- Take rangoli (coloured) powders. **White is useful as it can be mixed with other colours to make different shades.**
- * Encourage participants to use local materials.
- * Start **on** the ground, and then copy **on** to paper, or **if** starting direct on paper, use pencil before inking **in with pens.**
- * Choose **a public site** where people can see what **is being** done, and can make spontaneous corrections and additions
- Ensure that ground diagrams are **immediately** copied on to paper and/or photographed. (**They** tend to disappear fast from wind, trampling by animals etc, and "trees" of leaves wilt fast)

- Encourage additions and corrections
- Always assume that people are capable of diagramming and adding detail until proved otherwise
- Encourage participation by people who might otherwise be left out - women as well as men, landless as well as farmers, Scheduled castes as well as caste Hindus, etc

Donts

- Do not dominate or direct the activity. Beware of driving out or inhibiting people's creativity. Start a process and then support it in a low profile way. Encourage ideas from villagers.
- Be cautious about using pens direct on to paper, except when copying a ground diagram on to paper. Pens are rather final.
- Do not tell people how to orient their map or diagram.

Reflections

These experiences give rise to many observations and reflections. To mention but a few:

- i. orientation. To my knowledge, no paper map has yet had north at the top. In any one village, all villagers appear to see their village the same way up when presented on paper. It is too early to have more than hypotheses about this, but one is that higher ground tends to be put at the top.
- ii. relative sizes. The residential village has often been represented as larger on the diagram or map than in reality, but this has not been universal.
- iii. who maps or models? Women have tended to be left out, partly because of their many duties which call them away, preventing the sustained attention which is usually needed. A special effort to improve them is required. Some people have an aptitude and fascination for mapping and modelling, and they have tended to come forward. So allowing people to select themselves is important.
- iv. speed. The more participatory the mapping or modelling, the faster it is done. The Kistagiri map probably holds the record, taking less than half an hour, partly because detail was added so quickly and enthusiastically by quite a number of farmers.
- v. catalytic style. PMM is sensitive to the style and approach of the facilitator or catalyst. PMM is usually enjoyed by all concerned. The element of play and fun is part of its attraction and secret of its success. A dominant interviewer can unwittingly kill spontaneity

and curb freedom of expression. The ignorance of the dominant outsider can then induce apparent ignorance on the part of a villager, who produces a formalised or stilted model or map. Just as listening, not lecturing, applies is crucial in interviewing, so watching, not directing, applies with PMM.

vi. questions to answer. There are many questions raised by PMM, and many opportunities which it presents for research and learning. Some of these are:

- how different groups of people see the same physical realities
- * what other subject matters, methods and materials lend themselves to PMM
- how robust BM is in the face of different outsiders' styles, especially those common in government agencies
- processes of analysis and action which follow on from BM (which is so photogenic and fulfilling that it is in danger of being regarded as an end in itself not a means)
- * the utility of PMM in training outsiders (teachers, trainers, students, extension staff, soil conservation staff, NGO workers etc)

vii. *future*. The scope for PMM in rural development appears large. Done well, it establishes good rapport. It provides crosschecked information rapidly. It encourages analysis and learning by villagers as well as outsiders. It is a good way for outsiders "into" a village. It is an excellent education for outsiders, teaching them how little they know about a village, and how much the villagers know. It elicits villagers' creativity. That sensitive and supportive NGO staff can catalyse and facilitate PMM in favourable conditions is evident. The big question now is how readily government staff can do this. Could and should PMM become part of standard practice in government organisations concerned with soil and water conservation and concentration, and with village development in general? Could and should it become a widespread, even universal, preliminary to village level planning by the people?

Appeal, Apology and Foolhardy Offer

These notes have been written in the hope that others will contribute to this subject either by writing up and circulating their experiences separately, or by amendments and additions to what is reported here.

I apologise to two or three people who have sent me experiences which are not incorporated in these notes. I also know that others - Jimmy Mascarenhas, Prem Kumar and K.C. John in particular - have a lot to add to the above. There is also a literature on this to which I have not referred.

I am considering preparing a small pack of slides and notes to illustrate PMM. If you would like to use one, please write to me, together with a short statement of how you would use it, with whom, and with what benefits in mind. I cannot do this for many people.

Anyone reading these notes who has experience with PMM, or who knows of further sources of relevant information, please write to me:

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Let us try to share experiences and ideas informally, quickly and efficiently.

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