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Are some 'participatory' techniques culturally biased? (Or: are we hooked on mom's apple pie?)

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A number of pictographs, such as the histogram, trend line and pie chart, have been borrowed from conventional statistical presentation and adapted to become part of the RRA, and later PRA, suite of techniques. It is not always entirely clear why we have opted for such modes of information gathering, analysis and depiction. Although subconsciously at least part of the motivation might just possibly be an attempt to lend an aura of statistical respectability to what to the sceptical eye often looks like a pretty unscientific 'touchy-feely' methodology! Putting this unworthy suspicion aside, however, it could reasonable be argued that, while histograms and trend lines (in common with many other RRA/PRA techniques) are abstract representations of reality and as such relatively free of cultural bias, it would be difficult to make the same case for the pie chart.

Conventional statistical presentation itself ran the risk of being accused of becoming 'touchy-feely' when it introduced the homely concept of pie-charts. Everyone is familiar with a pie or cake cut radially into wedges of varying sizes. (For 'everyone' we should read everyone in the West, where this pictograph was developed). Probably as a result of sibling rivalry, westerners learn from an early age how to gauge the relative size of a cake- or pie wedge and how to compare it visually with another so as to assess whether or not there are grounds for an appeal.

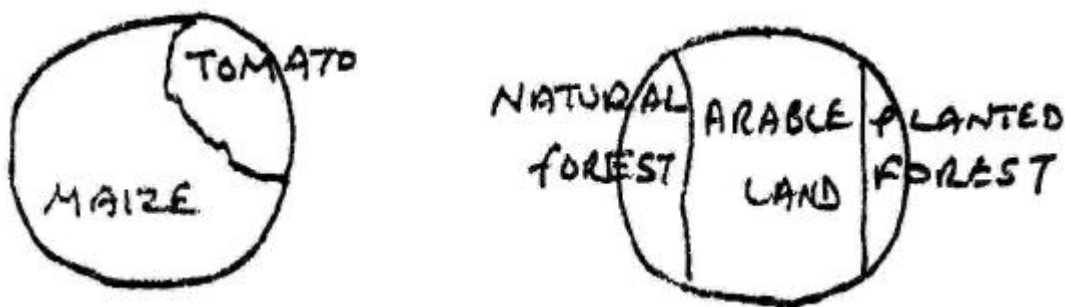
But in the rural areas of the developing world it is difficult to find an example of a pie- or

cake-like object forming part of the traditional diet.¹ Of course there are circular cereal-based products, like *injera* in Ethiopia and *chapatti*, *roti*, *puri* and *paratha* in various parts of South Asia, but these are usually consumed by tearing off a portion and using this to scoop up a sauce or curry, or else eaten wrapped whole around some other foodstuff. The concept of a pie or cake cut into wedge-shaped servings is quite alien to such societies (except, of course, to the urban elite - the upper crust, as one might say).

In our RRA/PRA activities in Nepal we have unquestioningly tried to use pie charts, persisting in the face of obvious and often frustrating difficulties.² I have personally watched farmers, obviously perplexed, adding lines (often not radially) to a circle drawn in the dust or on paper, rubbing them out, trying again, rubbing them out again ... and again. The diagrams below, which are copies of actual specimens from the field, exemplify the nearest approximation to a true pie chart a group of farmers can usually manage.

¹ Someone, somewhere, is bound to come up with the exception that proves this rule!

² 'We' refers to a research network established with the help of the program the present author coordinates. The members are based in various locations across the Nepal *Tarai* and they use PRA techniques for purposes of agricultural policy analysis.



When a nice neat-looking pie chart does emerge, on investigation it often transpires that either (a) the frustrated interviewer has taken the farmer's 'raw data' and transformed it into pie chart format, or (b) the interviewer has added some construct, for example quartering the circle, in an attempt to get the concept across to the farmer. The validity of the results may be open to some doubt.

As a consequence of such experiences, we have begun seriously to question our previous unthinking loyalty to this technique, and look for something more appropriate. In doing so we feel we have come up with a method of measurement that is both indigenous, and therefore more easily grasped, *and* more precise than the pie chart.

The range of RRA/PRA techniques was developed partly in response to the fact that most of the rural people from whom we wish to learn are non-literate. In designing these techniques, it has also tended to be assumed that the level of such people's numeracy tends to lie towards the ordinal, rather than the cardinal, end of the scale. While it is certainly true that a high degree of accuracy in counting and measuring has not usually been found necessary, there is one important exception. In all but the most remote parts of the developing world, farmers and others have become to some extent commercialized and have thus become familiar with money and how to count it. Given their poverty, they do so very carefully.

More importantly, some of them have gone on to make systems of analogy whereby the subdivision of non-monetary quantities is expressed in monetary terms. For example, when there were still sixteen annas to the rupee, farmers in many parts of South Asia adopted this analogy to describe the state of

their crops. A bumper harvest, for instance, was a 'sixteen anna' crop, an 'eight anna' crop was around average, and so on³. I have come across farmers in Bangladesh, India and Nepal who still use this system today, even though their currencies have been decimalised for decades. No doubt the same happens in other parts of the Sub-continent, and possibly elsewhere in the developing world.

We have now begun adopting and adapting this approach wherever we find confusion among farmers as to how to make a pie chart. If success continues, we will probably drop this pictograph altogether. In adopting the monetary analogy it seems unnecessary to stick to the sixteen anna system, since: (a) many farmers, particularly the younger ones, are unfamiliar with the old hexadecimal division, and (b) anyone who can grasp the principle can presumably apply it to a decimal currency equally well. Since the Nepalese rupee has long been divided into 100 *paisa*, we use this system. Thus, in asking farmers to quantify the area under various wheat varieties, the question is put in a form such as: "Imagine the total area under wheat this year is like one rupee. How many *paisa* are under *Sonalika*, *Siddhartha*, *Vinayak*, *Triveni*, etc" (the farmers having previously listed the varieties locally grown). Where we have used this approach we have found that farmers understood the analogy immediately and could easily share the information. In one very accessible area, the money analogy was dropped and straight percentages asked for and understood (e.g. "If the entire wheat area is 100, how much is under ..."). In future we intend to bring along a bag of 5-*paisa* coins

³ This seems a natural human propensity. For example in current US slang it is common to disparage someone's intelligence by saying he or she is 'only 98 cents to the dollar'.

(the lowest denomination now minted in Nepal) and if there is difficulty with any of the more abstract constructs we will hand out twenty of these coins at a time, asking the farmers to sort them into piles of appropriate size.

One of the beauties of this approach is that not only is it more truly participatory than pie-charting, but it is also inherently more accurate, as it exploits an already established understanding of percentages. Even if this is reliable only to the nearest five per cent or so, one suspects the results will be far more accurate and reliable than some arbitrary set of lines superimposed on a rough sketch of a pie by someone who has never even seen one. 'Appropriate imprecision' works both ways!

Incidentally, the money analogy has also been successfully used by one of our network members as a substitute for the bar chart in seasonal rainfall diagrams. Here the farmers were asked to name the month which generally has the highest rainfall. This was reported to be *Shrawan* in the local calendar, and the farmers were then asked to imagine *Shrawan* rainfall as being 'like one rupee'. They were then asked to name the month with the second-highest rainfall, and to say how many *paisa* of rain fell in that month. The farmers easily grasped the analogy and reported that the second-highest rainfall generally occurred in *Ashadh* and amounted to around 90 *paisa*. This process was repeated for the other ten months and no difficulties were encountered in the process.⁴ The major drawback with the substitution of money for histograms, at least in seasonality diagramming, is that the rainfall chart forms such a useful visual focal point for exploring relationships among crop calendars, food stores, the incidence of sickness, labour peaks and so forth. To substitute a more abstract form of representation might in these circumstances be tantamount to throwing out the baby with the bathwater.

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NOTE

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⁴ Ashok K. Paudyal, personal communication.