Incorporating Stakeholder Perceptions in Participatory Forest Management

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"Q Methodology" for Mapping Stakeholder Perceptions In Participatory Forest Management

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I. Introduction

This report presents methodological issues and findings on an application of Q-methodology in the context of a larger research project examining stakeholder perceptions in participatory forestry in central India. The research project empirically tested the validity of an analytical framework that was developed to understand and describe stakeholder conflict in resource management. The project tested this framework in the context of participatory forestry programmes, focusing on Harda district in the state of Madhya Pradesh in central India. Traditionally, the most popular method for analysing perceptions has taken the form of what is known as Content/Discourse Analysis – a purely qualitative approach based on perceptions that have been elicited through focus group discussions, interviews, documents and media writings.

Q-methodology is seen as a method that provides researchers a systematic and rigorously quantitative means for examining human subjectivity. Originating in psychology, the method has increasingly been used by social scientists to investigate the perceptions of individuals on a variety of issues of social importance. More specifically, work on environmental discourses and environmental conflict has started using this method as a means of understanding stakeholder positions more rigorously. A diverse range of issues within environmental policy have been studied with the help of Q methodology - forest management, hazardous waste siting, civil aviation, global climate change and concern for animals to name a few (Addams and Proops (eds) 2000, Steelman and Maguire, Barry and Proops 1999). In the present study, Q-methodology was adopted as a means to identify and understand the similarities and

differences in stakeholder positions. The findings from the study provide insights into stakeholder perspectives on participatory forestry in India.

Q-methodology is considered to be particularly suited for the study of issues that are socially contested, argued about and debated. Hence, the use of Q-methodology becomes particularly relevant for the current study. The Harda model of Joint Forest Management (JFM) has been acclaimed as being a highly successful one by some stakeholders and at the same time been severely criticised by others as having failed to deliver in terms of social goals much of what had been promised. On one hand it was adopted by the Madhya Pradesh Joint Forest Management programme, as the ideal way to achieve village resource development simultaneously with forest protection. On the other hand there were claims of forced exploitation of labour, the persistence of unequal power relations between the tribals and the forest staff and molestation of women among other claims to support the view that villagers did not want the programme.

This was an obvious example of a field situation where divergent perceptions were present regarding the JFM programme. Some of the research questions that arose and could be potentially addressed through a Q analysis were as follows: Apart from the polarised positions that were adopted by the Forest Department and the Mass Tribal organisations (*sangathans*), what are the views of other stakeholders? Within any stakeholder group, what are the internal differences in views, such as those of senior forest department officials as compared to junior field level officials, between sangathan leaders and their workers. In particular, what were the village people themselves saying about these processes? Q helps in such a context by providing insights into the way people conceptualise environmental issues.

The outcome of a Q study is to identify attitudes among people regarding an issue. It does so by systematically identifying groups of individuals with a common attitude structure by looking at patterns of response across individuals. Thus, it also reveals unanticipated or underlying social discourses. By uncovering the discourses people use about the environment it shows a way forward for promoting dialogue among stakeholders. The discourses people use about the environment helps understand how individuals think about the environmental issue. This in turn contributes to our

understanding of what is socially and politically acceptable about the environmental policy, and also what is acceptable to which stakeholder. It does so by deconstructing the policy discourse into the various positions constituting it, an essential for successful conflict assessment and management. Q outlines areas of consensus and discord, revealing shared perspectives and differences in perspectives. Thus, it inputs into finding potentially mutually satisfying solutions among stakeholder groups.

II. Methodological Considerations in Adopting Q Methodology[1]

Background

Q − methodology was invented in 1935 by a British physicist-psychologist William Stephenson. What Stephenson was interested in was providing a way to reveal the human subjectivity involved in any situation. Most applications of the method have been within psychology, with some use in disciplines such as political science, and more recent applications by economists and public planners. The motivation for developing this methodology lay in the fact that it was felt that existing quantitative methods in the social sciences failed to take into account the standpoint of the individual concerned (Brown 1996). Q has been described as a methodology that "combines the strengths of both qualitative and quantitative research traditions" (Dennis and Goldberg, 1996). Thus, Q methodology is a method that provides researchers a systematic and rigorously quantitative means for examining human subjectivity. Subjectivity, for this purpose, is defined simply as a person's point of view on any matter of social and /or personal importance. The corollary to this conception of subjectivity, making it amenable for analysis, is that subjective points of view are communicable and are always advanced from a position of self-reference. Subjective communication thus lends itself to objective analysis in the Q method. As such, subjectivity is always anchored in self-reference, that is the person's internal frame of reference, and, Q studies from conception to completion adhere to the methodological axiom that subjectivity is always self-referent (McKeown and Thomas, 1988).

A respondent, or *subject*, in a Q study, models her viewpoints on a matter of subjective importance (e.g. appraisal of a participatory forest management

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[1] The methodological and theoretical discussion draws heavily upon the existing literature, especially from two sources: McKeown, B.F. & D.B. Thomas (1988) and Helen Addams (2000).

programme, experience of health care services). For this purpose, a set of purposively sampled set of stimuli[2], called a *Q sample*, is at first presented to the respondent. The respondent then systematically *rank orders* these statements according to a specific instruction, for instance, she maybe asked to order them in terms of those that are most agreed with to those that are most disagreed with. This set of ranked statements constitutes the *Q- sort*. From the entire set of Q sorts, each done by a different respondent, methods of statistical analysis are applied for extraction of a few typical Q sorts capturing the common essence of all the individual Q sorts. Finally, these typical Q sorts are interpreted, to arrive at the social discourses within the data, as indicated by the statistical analysis.

Q allows individual responses to be collated and correlated so as to extract "idealized " forms of discourse latent within the data provided by subjects involved in the study, helping in the identification of shared perceptions ie social discourses. In eliciting the variety of discourses about a particular discourse domain or theme, Q operates on the assumption of finite diversity[3]. Thus it is particularly suited to the study of social phenomena around which there is debate, conflict and contestation since the aim is to elicit a range of accounts and understandings and reveal the ordered patterns within the discourse domain. In the context of the present study, Q thus provides a technique to systematically analyze participant perspectives on participatory forest management in the Indian and more specifically, Harda context. It must be clarified at the outset, that in as much as Q provides a means for systematically examining human subjectivity, the results from the analysis are not meant to be statistically generalisable. Rather the focus is on well-selected samples to analyze variability across subjects in order to permit an in-depth portrait of the typologies of perspectives that prevail in a given situation.

Constructing and Designing the Q sample

It is worth noting that in Q-method, the variables are the people performing the sorts and not the *Q sample* statements. Q samples can be of different types. Thus, one can

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[2] This is most commonly presented to the respondent in the form of a set of *statements* relating to the problem that the researcher is interested in studying. Alternatives such as presentation of photographs showing alternate states of the environment for example have also been experimented with.
[3] For details see Barry and Proops, 1999.

distinguish between Q samples that are *naturalistic* and those that are *ready-made*. The design of the sample could be either *structured* or *unstructured*.

In the present study, the naturalistic approach is adopted whereby Q-samples are statements taken from respondents oral or written communications. In constructing the sample, statements made during interviews with key informants and focus group discussions were used extensively. Apart from these, any available written narratives of literate respondents, secondary sources such as newspaper editorials, expressions in different media, journals and related statements from real-world communication contexts were used as sources for the sample[4].

Q-samples are always representations of communication contexts. As such, the important question that arises next relates to what is selected for inclusion in the Q-sample. There are two ways of choosing items for the Q-sample. The first method is one of unstructured sampling where items are selected for the Q statements without undue efforts to ensure complete coverage of all sub-issues. It would aim for a "reasonably accurate survey of positions likely to be taken on an issue". Thus, there is a risk that some issue components may be over or under sampled, thus introducing bias into the final Q sample. The present study therefore opted for a structured sample, designed to overcome this bias. The sample was designed so as reflect the analytical framework, since the motivation for the larger study lay in testing this framework. Thus, the Q sample statements were assigned on the basis of conditions defined by the analytical framework[5]. Thus, the sample design was deductive in nature, being based on hypothetical and theoretical considerations.

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[4] For example, these include statements drawn from writings by Mr. B.M.S. Rathore who was a respondent in the study, and had earlier played an important role in building the Joint Forest Management programme at Harda, in his capacity as the Divisional Forest Officer, Harda (source : http ://srdis.ciesin.columbia.edu/
 cases/india-023.html); material circulated on the Jun Sunwai (Public Hearing) by Ekta Parishad, e-mail communications (DNRM postings) and publications by activists, researchers and statements made in newspapers were also used.
[5] The analytical framework was an outcome of a previous DFID NRSP project on CPR policy in India, Tanzania and Zimbabwe. The framework hypothesizes that different kinds of knowledge, namely, empirical knowledge, world views and knowledge of laws and institutions – are brought to bear on an individual's definition of a problem. Thus, differences in perceptions (based on differing knowledge levels and sources) can lead to conflicting problem definitions.

The layout for the Q-sample was as follows. The stakeholders were classified into four categories – Forest Department; Mass Tribal Organisations and Non-Government Organisations (MTO/NGO); Villagers (other than those classified elsewhere); Others (including media personnel, legislators, etc). The three analytical dimensions of Change, World Views and Policy were to be represented for each of the above stakeholder categories in the selected statements. In order to keep the total sample manageable, 4 replications or statements were selected for each group. Thus a total sample of 48 statements was generated[6]. Box 1 summarises the characteristics of the Q sample.

Box 1 : **Q Sample**

- Naturalistic & Structured – Embedding the analytical framework
- 4 Stakeholder groups – Forest Department, Village, MTO/NGO; Other
- 3 Analytical dimensions – Change, World Views, Policy
- 4 Replications (statements) in each group

Therefore,
- Total Statements = $4 \times 3 \times 4 = 48$

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12 statements were thus selected out of the total statements made by forest department personnel during our interactions with the forest department and from available secondary material on views held by the forest department. Of these, 4 were concerned with policy issues, 4 with matters of change and 4 related to world views. In constructing the sample, the same process was followed in selecting 4 statements each on world views, policy and change, for each of the other stakeholder groups i.e. MTOs/ NGOs, Villagers, Others. This complete set of 48 statements was presented for Q-sort to every respondent who participated in the exercise. The statements are provided in Appendix I.

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[6] The Q-sample was pre-tested in the field several times, varying the number of total statements. The final choice of 4 replications for each category and a total of 48 statements, was based on the experience of the researchers administering the Q-sort. While it was felt that these 48 statements adequately covered the important issues involved, moving beyond 48 statements gave negative results in terms of inducing both researcher and respondent fatigue.

Conditions of instruction & Q sorting

Two sets of Q-sample were generated for the study. One set was in English. Each statement in the Q sample was also translated into the local dialect using appropriate terminology and words relevant to the local and specific study context. Each statement was printed on a separate card, and the whole set was presented at a time to the respondent. However before actual implementation of the Q-sort technique, the first step after the finalization of the Q-statements lay in building a common understanding of the content of each statement within the field team. Otherwise, this could become a potential source of bias introduced in the data due to the varying levels of understanding amongst the researchers i.e. field investigators and partners. Some of the Q-sorts were also administered by the team members (partners) particularly those with higher officials of the forest department, MTO and NGO leaders, etc. Repeated sessions of interaction between the field team members and the research team were held in order to arrive at mutually agreed upon definitions, meanings and locally relevant contexts for each of the statements. Appendix II summarises the definitions and explanations for some key words that were used in the Q-statements.

The condition of instruction to the subject was a simple request for agreement or disagreement. The subject (respondent) was asked to rank order the statements on a 5 – point scale, ranging from the most disagreed to most agreed with. The scoring pattern and a starting point for the possible distribution pattern for statements is depicted in Box 2. The question about the number of statements that can be placed under a particular strength of agreement has been discussed in the literature. While it was considered typical to assume a pyramidal structure for the distribution of the number of statements in each scoring category, it has been shown that this is an unnecessary restriction and is not required for the statistical analysis. In fact the shape of a Q-sort distribution is methodologically and statistically inconsequential (Barry & Proops 1999, McKeown and Thomas, 1988)[7]. In fact this is dispensed with during the implementation and subsequent analysis of the Q sorts in the present study.

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[7] Nor does this structure influence much the discourses that are elicited. The rationale for using a quasi normal distribution is provided by the Law of Error where it is assumed that fewer issues are of great importance than issues of less or no significance. Thus, fewer items are to be found at the extremes.

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│  Box 2: Distribution Pattern of Q score                                   │
│                                                                           │
│         ◄──────────────────────────────────────────────────►             │
│  Score:        -2           -1            0          +1          +2       │
│          (most disagreed) (disagreed)  (neutral)  (agreed)  (most agreed) │
│  Number of:     8           10           12          10          8        │
│  Statements                                                               │
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Following standard practise for such studies, the Q-sorting procedure was done in stages. At the first stage the respondent was asked to sort the cards containing the statements into three categories. Those to which she agrees, those to which she disagrees and those about which she is neutral or uncertain. The respondent was encouraged to maintain a left-centre-right relationship in sorting these cards at each of the stages. At the next stage, the respondent was asked to take up the agreement category. Out of these she classified the ones that she most agreed with. Then she was asked to turn to the disagreement category and classify the ones she most disagreed with. She was asked to then return to the agreement category and select the ones she agreed to with but not as strongly as the earlier ones. Again she was asked to return to the category that she disagreed with and select the ones she disagreed with but not as strongly as with the first set. Such a process of moving back and forth continued with the subject working towards the middle 0 position until all the statements were positioned from left to right. The respondent was told that she was free to change her mind and switch statements across categories at each step. At the end, the respondent was requested to review the sort and it was reiterated that she could rearrange and adjust the distribution of statements till she was convinced that the sort reflected her personal view to her satisfaction. It is to be noted that since the respondent ranks those items that hold positive or negative salience vis-à-vis other items in her opinion in the Q-sort, the middle score of 0 is not an average but a point neutral in meaning.

Subjects for the Q-sort

Since specific sampling techniques important in mainstream behavioural research are not necessarily relevant to sampling in Q, subject or respondent selection was governed by pragmatic considerations aimed at a judicious mix of theoretical

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However, this is more a matter of convenience than an empirical generalization (McKeown and Thomas, 1988).

considerations and practical ones such as availability of the respondent. Since the aim was to determine the variety of views on participatory forest management, extensive sampling was done in this study of "inter-subjectivity," the focus being on exhausting the full range of attitudes.

Care was taken to see that although purposive, the sampling was representative of the stakeholder groups. The respondents for the Q sort exercise at the village level, were drawn from across all the villages that were used in the study. The list of respondents therefore included villagers who resided in villages that met the various sampling criteria used for the study. Briefly, this implies that the Q exercise had representation from both forest and revenue villages, villages where the programme was funded by the World Bank as well as those where it was not so, villages where the predominant type of forest was "protected forests" as well as those of "reserved forests", villages which had "Forest Protection Committees" (FPC) and those which had "Village Forest Committees" (VFC), and those which had a significant presence of "Sangathan" along with those which did not have such a presence. Appendix III presents a detailed list of the villages and their salient characteristics.

Administering the Q-sort

The respondents in the Q exercise were classified into two categories – those who were literate and those who could not read the statements themselves. There were several among the village level stakeholders who came under the latter category. For such respondents, the statements on the cards were read out to the respondent by the investigator and the respondent was asked to arrange the card subsequently as per his desired agreement/ disagreement category. The categories were depicted in the usual manner, selecting objects such as flowers, leaves etc. of different sizes to represent differing strengths of agreement/disagreement. Subsequently, even for these respondents as well as literate respondents the procedure followed was as outlined earlier.

Appendix IV shows the composition of the final sample. There were a total of 155 orally administered Q-sorts, drawn from across 24 villages. A range of individuals participated in the Q exercise including anganwadi helpers, VFC/FPC office bearers, non-members, office-bearers of Self Help Groups, members of the Panchayat, forest

guards, MTO and NGO activists, etc. Community-wise representation was also ensured in the sampling with respondents from various communities including Gond, Korku, Patel, Vishnoi, Gawli, etc. communities. Although the aim was that at least one-third of the respondents in each village should be women, the final Q sorts had on average two women per village. Care was also taken to include both migrants and non-migrants in the Q exercise.

A total of 119 Q sorts were conducted with those who could read. These were conducted by respondents drawn from across stakeholder groups including Villagers (including forest department field staff), Forest Department (higher) Officials; NGO/MTO personnel, and Others [including Panchayati Raj Institutions (PRIs) and Media].

III. Analysing the Q Sorts

Statistical Analysis typically involves the sequential application of three sets of statistical procedures to the Q-sort data – correlation, factor analysis and the computation of factor scores. Each Q sort is correlated with every other Q sort in the analysis. The inter-correlation matrix is then factor analysed. Factor analysis enables us in finding patterns in the dataset. Subsequently, significant factors are extracted and rotated. A factor array or model Q-sort is generated for each factor, with factor scores that are compared in arriving at distinguishing Q sample items. The distinguishing Q statements are identified and the factors interpreted contextually[8].

Based on the differences in the method of administering the Q-sorts, it would be methodologically consistent to analyse the data for the literates and the orally administered separately. Thus at the first stage, the entire set of respondents were divided into these two distinct categories. Each dataset was then separately statistically analysed. At the next stage, for understanding within stakeholder differences, the data from the forest department, the MTO-NGOs, and PRIs were analysed as separate datasets. Finally, the data was re-classified in terms of the sampling criteria as mentioned earlier in order to find out whether there were

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[8] The software used for the Q analysis was PQ Method. (Source: http://www.rz.unibw-muenchen .de/~ p41bswk/qmethod/downpqx.htm)

differences in discourses across these categories. For example, it was of interest to see whether discourses of literates from forest villages differed from those of literates in revenue villages; whether discourses of orally administered differed significantly across World Bank funded and non-World Bank funded villages, and so on. Appendix V presents the distribution of subjects (Q-sorts) as classified by the different criteria.

In the following paragraphs the statistical analysis is explained with the help of the analysis and results from the Q-sorts of the pooled data of all literates in the study.

The first step in the analysis is the construction of the correlation matrix between sorts. In the case of literates in our study, this matrix gives the inter-correlations among all the 119 Q sorts. At the next step, factor analysis is performed on the correlation matrix in order to condense the information systematically and search for family resemblance among the Q sorts. Thus, factor analysis seeks correlations between variables in the data attempting to reduce multivariate data down to a small number of dimensions or factors, thereby facilitating analysis and interpretation of the data. To recall, in Q it is the participants performing the Q sorts who are the variables being correlated and subsequently factored. Factor analyses thus identifies distinct factor types which represent distinct patterns of response or discourses.

The question that arises next is on how to decide the optimal number of discourses that one wishes to extract from the analysis. In other words, what is the right number of factors to extract? One statistical criterion commonly used in such cases is the eigen value criterion. Thus, the selected factors must have an eigen value greater than or equal to 1. Another statistical criterion is to see at which point the cumulative percentage explained variation levels off. Further, in the context of Q studies, a rule of thumb that has been suggested is to accept factors on which a certain pre-determined number (with a minimum of 2) of Q sorts load significantly. Theoretical criteria may also be called for in certain cases. Thus, theoretical significance for determining number of factors to be extracted can be justified because factor size is "affected by the variables (persons) which are included in the study"… (Brown 1980).

For the analysis of literates, the first criterion used was the eigen value criterion. The eigen value criterion was satisfied by all 8 factors that PQMethod revealed. Therefore,

we introduced a second criterion of the stage at which the cumulative percentage explained variation by the factors levels off - this occurred at 4 factors. Further, we also considered a third criterion that has been described variously in the literature as "rule of thumb" or "theoretical" criteria. Given the relatively large set of sorts being considered, the rule adopted was that at least 5 % (i.e. 6 in the case of literates) of the total Q- sorts should load distinctly and significantly on each factor. Application of these criteria led to the identification of 4 'discourses' or attitude types for the group of literate subjects. It is to be noted that for the factor analysis, there are an infinite number of potential rotations. We follow the standard procedure of a varimax rotation. Varimax rotation retains the assumption that the factors are orthogonal to each other and have unit variance while it attempts to minimize the number of variables with high loadings on each factor.

Appendix VI presents the factor matrix after the varimax rotation for the literate respondents. This table shows the distribution of Q-sorts in the rotated factor matrix. The entries in the table are called *factor loadings*. These are effectively correlation coefficients indicating the degree to which each Q sort (numbered 1 to 119) correlates with each factor. Or in other words, the extent to which a Q sort is associated with the viewpoint of a particular factor. The sorts which load significantly on a factor are marked by an X. This means that 54 participants had significantly pure loadings on factor 1, 23 on factor 2, 15 on factor 3 and 7 on factor 4. Thus, these people represent unique factor types, corresponding to unique attitudes[9]. The thing to note is that, 20 remaining Q sort provided by these people was unique and unrelated to Q sorts of others. Thus, these are persons who either due to error or because of their individuality of attitudes are idiosyncratic with respect to other respondents and should therefore be considered separately or not at all so as to avoid error or distortion in the research. Accordingly they were left out of the subsequent analysis.

Individuals who are positively significantly loaded on a factor are assumed to share a common perspective with one another while those who load negatively on the same factor hold opposite views. The higher a respondent's loading on a factor, the more

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[9] If there were participants with significant loadings on more than one factor (does not happen in this case, where each participant loads on only one factor) it would have meant that these people represent two or more factor types and normally would not be used in the further analysis.

representative she is of that factor. If there were no participants with significant loadings on more than one factor, it would imply that there was no one representing more than one factor type.

For determining significance of loadings, the rule of thumb is that some elements of the correlations matrix (of the subjects loading significantly), should exceed 0.30 while none should exceed 0.90. In order to interpret the table of factor loadings the usual notion of statistical significance is used by defining a cut-off point to establish the significance or insignificance of factor loadings[10]. PQ method uses two conditions for identifying significant loadings (or *defining sorts*): (a) the 5% level of significance and (b) the condition that the factor explains more than half of the common variance i.e. $(loading)^2 > h^2 / 2$, where $h^2 = \Sigma (factor\ loadings)^2$.

The next step was to calculate *factor scores* on the basis of the defining sorts for each factor. A factor score is the score gained by each statement of the Q set (48 statements) as a kind of weighted average of the scores given to that statement by the Q sorts associated with the factor. In the weighting process (of the Q sorts of different respondents associated with a particular factor) more weight is given to the Q sort scores of those participants who have higher loadings because they are more representative of the factor type. The result is a table of factor scores, arranged as *factor arrays*, showing scores obtained by each statement for each factor. Each factor array shows the best available whole description or model of the "viewpoint", after washing out specificity of individual Q sorts. Q interpretations are generally based on these factor scores and factor arrays (Addams 2000).

Since the number of Q sorts loading on a factor varies from factor to factor, the weighted scores were normalized (as z scores). These normalised scores were subsequently converted into equivalent Q scores for ease of interpretation, and the score for each statement was expressed in terms of the original Q frequency distribution of (-2 ,–1, 0, 1, 2). The more persons defining a factor, the higher the

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[10] If standard error (SE) = $1/ \sqrt{N}$ = x, say, then at the 0.05 level, loadings exceeding $\pm (1.96x)$ are significant; at the 0.01 level, loadings exceeding $\pm (2.58x)$ are considered statistically significant.

reliability; higher the reliability lower the magnitude of errors associated with that factor's scores. This is borne out by the composite reliability data in table 1.

Table I   Factor Characteristics for Literate Respondents

	Factors:			
Characteristics:	**1**	**2**	**3**	**4**
Number of Defining Sorts	54	23	15	7
Composite Reliability	0.995	0.989	0.984	0.966
Standard Error of Factor Scores	0.068	0.104	0.128	0.186

In interpreting these factors, as far as statistical criteria are concerned, we concentrate on two points: firstly we consider statements with normalized factor scores which are significant at the 5% level for a factor. Further, we concentrate on those statements which have high scores for a particular factor, i.e. +2 and –2. Differences in score of two or more are also considered significant and used to identify distinguishing statements for each factor. By using these criteria, one is thus able to associate each attitude type (factor) with a sub-set of distinguishing statements. For the 4 factors that were extracted for the literates, 27, 30, 24 and 23 statements were found to be distinguishing statements respectively.

Finally, while factor analyses helps in identifying distinct factor types which represent distinct patterns of response or discourses, some items of the Q sort have similar scores across all factors and thus point to areas of consensus or agreement across all the factor types or discourse types. It is of interest to look at these as well as consensus statements. Appendix VII lists the distinguishing statements and consensus statement along with the factor scores for the literate respondents.

The final step is of course the actual construction of the discourse. This essentially entailed several rounds of detailed discussion among the research partners as they sought to arrive at a description of the viewpoint in a manner that best integrates all the distinguishing statements associated with a particular attitude type. Rather than dismissing statements that did not seem to fit on an initial reading, every effort was made at trying to integrate them into the overall perspective of the distinct viewpoint.

IV. Findings: Discourses on Participatory Forest Management

This section presents the participant perspectives that were obtained through the Q exercise. These represent idealised forms of social discourse which were latent within the data and indicate shared perceptions and contestations among the respondents in each category of response.

The Q-analysis[11] was done for different sub-groups of the data, as mentioned earlier. In this section we present discourses from the 2 merged data sets, namely, considering all the orally administered and all the literates. We also present findings separately for major stakeholder categories. These include the Forest Department (both front line staff and higher level officials), MTO and NGO sector and PRIs. Appendix VIII presents discourses for Q-sort respondents by other sampling criterion such as whether they belong to villages with World Bank funded programmes or not, whether the respondent belongs to a village that falls within a protected forest or reserved forest category, whether the respondent resides in a forest or revenue village, and whether her village has an FPC or a VFC. For each of these categories, consistency is maintained in the analysis by considering literate and orally administered sorts separately.

As mentioned earlier, various statistical and theoretical criteria were used in identifying the optimal number of discourses. It is to be noted that the Q-sorts are reasonably well-distributed across attitude types in all these categories. Further, a separate Q-analysis for Q-sorts that do not load significantly on attitudes for a specific category, yielded discourses which were combinations of the 4 'parent' discourses identified previously in the analysis of the full dataset. Thus, for example, attitude 1 for the sub-group of literates who did not load significantly on any factor in the primary Q-analysis for literates, was found to be a combination of the distinguishing statements made in the 1st and 3rd parent discourses for literates. Table 2 lists the total number of respondents, the optimal number of discourses and the number of sorts that did not load significantly on any factor, for the major stakeholder categories.

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[11] The details of the analysis and results for each of the subject categories are available with the research team.

Table 2   Q - Characteristics of Respondent Categories

			(in number of …)
Respondent Q - Categories	Respondents	Optimal Discourses	Non-significantly Loading Sorts
Literates	119	4	20
Orally Administered	155	4	49
Forest Department	43	3	6
NGO/MTO	34	3	0
PRI	36	3	6

The discourses that were identified by applying the Q-methodology to the data are labelled and summarized below for each of the major stakeholder (respondent) categories.

Discourses from the Orally Administered Sorts

Discourse I : Pro-Forest Department, Departmental view – This is a view that is somewhat sceptical of participation and people's role, while being sympathetic to the front line staff of the forest department (FLS); they are not necessarily in favour of the way JFM has been functioning; are critical of its impact but agree on the concept of JFM; not communitarian or participatory either in their approach; critical of PRIs; guarded/neutral on some controversial issues

Discourse II : Anti-establishment – This attitude is Pro-people, anti-JFM, and anti-Forest Department; it is more informed by world views and change aspects; is primarily concerned with rights based issues

Discourse III : Strongly pro-JFM and pro-Forest Department - (more strongly so than discourse 1) ~ an attitude that holds up the participatory process as a success; is positive on social outcomes from the JFM process(empowerment, relationship issues); more neutral on tangible economic outcomes

Discourse IV: Complex position, more pragmatic – This is a middle path approach ~ it is fairly critical of the forest department (not enamoured by it as an institution); but, recognises some positive impacts of the JFM process. It does not take a communitarian position despite recognition of local rights, and despite being critical about functioning of existing local institutions.

Discourses from Literate Q-respondents

Discourse I: Establishment view – This is a pro-JFM, pro-Forest Department, and anti-community (in matters of control over forests) attitude; it is neutral on controversial political issues (particularly regarding issues of control, authority and management). It seems to be reflecting an administrative/status quo mindset.

Discourse II : Anti-establishment ~ This view is critical of the manner of current functioning of forestry establishment and its institutions; it is also anti-forest department, anti-JFM, while being pro-community but not outrightly communitarian in its approach.

Discourse III: Locally-rooted, pro-state – This position supports local institutions and their functioning, is pro-FD, and believes that there is good local co-ordination between the FD and other bodies. However, it recognises that the impacts of JFM have been limited. It acknowledges that tribals have valid claims/rights over the forest, but is not communitarian, or overtly political. It is ambivalent about the role of donors.

Discourse IV: Disenchanted with formal institutions, but supportive of local FD staff – This position recognises problems with JFM, and is critical of Panchayati Raj Institutions and donors. It does not acknowledge the validity of tribal rights, but sees that they have livelihood needs. It sees the local state (FD) as performing a complex role, having taken over tribal lands and rights but delivering some benefits in forest villages and through JFM. It does not have a strong view on the local role of higher FD officials, but is sympathetic of the difficult balancing act performed by the local beat guard. It is not communitarian or political.

Discourses from the MTO & NGO Sector

Discourse I : Moderates, not supportive of JFM ~ This is a primarily anti-JFM attitude (both as a social process & in terms of impacts)

Discourse   II: Pro-Establishment ~ This is a pro-partnership and participation, supportive of JFM & Forest Department; not in favour of PRIs

Discourse III: Anti-establishment but not communitarian ~ They are critical of current institutions & JFM, but not in favour of community-based solutions*Discourses from the Forest Department*

Discourse I : Favours a Forest Department led developmental model, with inter-departmental co-ordination under the DFO – the Harda model approach? This viewpoint recognises people's rights but at the same time feels that forests are not to be handed over to people; a cautious stand on JFM

Discourse II : Pro-participatory approach with greater recognition of community ~ This view favours collaborative partnerships, including people and village institutions; more communitarian but not anti-JFM in terms of impacts

Discourse III: Statist, more inward looking approach - A rather "status quo" attitude; pro-Forest Department; pro-state (nationalization of forest produce is an issue); lays emphasis on role of money

Discourses from PRI Sector

Discourse I: Pro-Forest Department, status-quo – This attitude takes a positive viewpoint on the Forest Department and JFM, particularly in matters of change-improved relationships & village/people's development; it is also pro-institutions(JFM, PRI)

Discourse II: Anti-FD, pro communitarian – The views held here are negative on the Forest Department and the JFM with regard to all aspects including policy, change and world views dimensions; it is in favour of a communitarian approach

Discourse III: Mixed, neutral position – This is an attitude which is neutral on questions of power/control; is negative in its opinion on PRIs and is not communitarian;
It acknowledges the role of Forest Department in protecting forests but at the same time has concerns about the non-democratic functioning of Forest Department.

V. Conclusion

The application of Q- Methodology in understanding perceptions of stakeholders in participatory forest management was an intellectually exciting research experience for the research team. However, it was not without its challenges, particularly in aspects concerning its actual implementation in the field. To the best of the researchers understanding, this was the first time when Q was being adapted for application to non-literate respondents. Designing of the q-statements in local dialects in an easily

comprehensible manner, achieving a common understanding among researchers involved in implementing Q-sorts, and the appropriateness of interactions with respondents were all immensely challenging tasks. Particularly so since the existing literature on Q has little to say on these aspects, which become critically important in implementing the Q sorts in rural areas of developing countries. This study, in its own right is a major contribution in this sense.

The richness of the discourses that were ultimately extracted from the Q-sorts, and the statistical robustness of the results obtained during the analysis of the data are reassuring in terms of the relevance of the researchers choice of this methodology in examining perceptions of stakeholders. It is also an indicator that the implementational issues have been dealt with in a reasonably acceptable manner. Although no doubt there is scope for improving on these aspects – something that would evolve hopefully if there are more studies applying the methodology in similar circumstances for developing country contexts.

Certain problems that are inherent in any study of perceptions would of course remain. These include issues of posturing by respondents and the fact that the researcher could potentially bias the respondent through the inter-personal interactions even prior to the sort. It is to be expected that the level of awareness among respondents about the issue (or a specific statement) would have implications for the extent to which the sorts can be used for purposes of analytical comparability.

To sum, the application of Q methodology contributed by identifying diverse perspectives (attitudes across and within different stakeholder groups. From the distinguishing statements for each attitude type, it also becomes clear that the discourses are influenced to varying degrees by knowledge of change, worldviews and policy.

The consensus and conflict statements provide policy relevant insights. They also serve to identify potential coalitions. For example, two of the statements which emerged as consensus statements across different stakeholder groups were as follows:

o *'Money is a key part of partnership with the people'*

o*'Forest protection is possible only if the overall level of village development improves''*

The identification of distinct discourses provides insights on the areas of contestation and the areas of commonality across stakeholder groups, opening up possibilities for dialogue, to explore common ground and move beyond the current situation.

References

Addams, Helen (2000) "Q methodology" in "Social Discourse and Environmental Policy: An Application of Q methodology," edited by Helen Addams and John Proops, Edward Elgar, UK.

Addams, H. and J. Proops (eds) (2000). "Social Discourse and Environmental Policy: An application of Q methodology," Edward Elgar, UK.

Barry, J. and J. Proops (1999) "Seeking sustainability discourses with Q methodology," *Ecological Economics*, 28, 337-345.

Brown, S.R. (1996). "Q methodology and qualitative research," *Qualitative Health Researc*h, *6,* 561-567.

Brown, S. R. (1980). "Political Subjectivity: Applications of Q-Methodology in Political Science," Yale University Press, Yale.

Dennis, K.E. & Goldberg, A.P. (1996). "Weight control self-efficacy types and transitions affect weight-loss outcomes in obese women," *Addictive Behaviors, 21,* 103-116.

McKeown, B.F. & D.B. Thomas (1988). "Q methodology," (Quantitative Applications in the So-cial Sciences series, Vol. 66). Newbury Park, CA: Sage Publications.

Steelman, T.A. and Maguire, L. A. "Understanding Participant Perspectives: Q Methodology in National Forest Management."
(source: http://www.env.duke.edu.faculty/maguire/env316/q5.htm)

Stephenson, W. (1953). "The study of behavior: Q-technique and its methodology," Republished: Midway edition, University of Chicago Press, 1975.

Note*: Each statement in English is followed by its translation in Hindi*

A1. Forest department, Policy
1. JFM is the only way to ensure the protection of forests.
Samyukta Van Prabhandhan se hi vano ka samrakshan ho sakta hai.

2. Nistar should be made available only to those people who take part in the programmes of the forest department.
Nistar ki vyavastha sirf un logon tak seemit rahni chahiye, jo van vibhag ke karyakram mein bhag lete hain.

3. All encroachments on forest land are illegal.
Van bhoomi par sare atrikraman najaayaz hain

4. The control of forest villages should remain with then forest department.
Van gramon ka niyantran van vibhag ke paas hi rehna chahiye

A2. Forest department, Change
1. The lives of the villagers have improved due to JFM.
Samyukta Van Prabhandhan se gaon walon ki zindagi mein sudhar aaya hai.

2. Beat guards have built a good rapport with the villagers.
Nakedar aur gaon walon ke beech mein bahut acche sambandh hain.

3. Forest committees have created an equal relationship between the villagers and the forest department.
Van Samitiyon ke dwara gaon walon aur van vibhag ke beech mein barabari ka rishta ban gaya hai.

4. The decisions of the EC are the decisions of the entire VFC.
Karya karini (EC) ke liye gaye nirnaya poori Samiti ke nirnaya hote hain

A3. Forest department, World views
1. The forest department is learning the language of democracy.
Van vibhag loktantra ki bhasha seekh raha hai.

2. The forest department respects the knowledge of the adivasi communities.
Adivasiyon ke gyan ka van vibhag samman karta hai.

3. The beat guard faces pressure from both sides – the higher officials as well as the people.
Nakedaar dono taraf se maara jaata hai – afsaron se bhi aur logon se bhi

4. Without the forest department, the forests would have been destroyed.
Van vibhag nahi hota to jungle ka sarvanash ho jaata.

B1. MTOs/NGOs, Policy
1. JFM was introduced mainly to get foreign funds.
Samyukta van prabhandan ka mukhya lakshya videshi paise ki vasuli hai.

2. Tribals have not been given rights over forests, only concessions.
Adivasiyon ko van par adhikaar nahi, riyayaten dee gayi hain

3. All forests should be handed over to local communities.
Sab jungle sthanik janta ko saunp dene chahiye.

4. The Gram Sabha is the best institution for managing MFPs.
Vanupaj ke niyantran ke liye Gram Sabha sabh se uchit sanshta hai.

B2. MTOs/NGOs, Change
1. Appropriate action has not been taken against corrupt forest officials.
Bhrasht van karamiyon ke khilaf *uchit* karyavahi nahin ki gayi hai.

2. JFM has increased conflicts among people.
Samyukta vaniki se logon mein jhagde badhe hain.

3. Wage labour has been the only benefit that people have derived from JFM.
Samyukta vaniki se logon ka faayda mazdoori tak hi seemit hai.

4. The oppression of local people by the Forest Department has continued in spite of JFM.
Samyukta vaniki ke hote hue van vibhag logon par atyachar kar raha hai.

B3. MTOs/NGOs, World views
1. The Forest Department has usurped tribal lands and rights.
Van vibhag ne adivasiyon ki zamin aur haq ko zapt kiya hai.

2. Dependence on foreign funding for forestry increases corruption.
Van kshetra main videshi paise ki vajah se bhrashtachar badhta hai.

3. These days people do not have a sense of ownership of JFM.
Aaj kal logon mein sanyukt vaniki ke prati apnatwa nahin hai

4. Meaningful change is not possible without gaining political power.
Asli parivartan rajnaitik shakti ke bina mumkin nahin hai.

C1. Village, Policy

1. Nationalisation of forest produce has broken people's relationship with the forest.
Vanupaj ke rajjiya karan se logon ka jungle se rishta toot gaya hai.

2. Local people have the first right over forests.
Vano par sthanik janta ka pratham haque banta hai.

3. The forest department illegitimately exploits the poor's labour in the name of *shramdan*.
Shramdan ke nam se van vibhag logon se najayaz mazdoori karata hai.

4. It is impossible to protect the forests without participation of the local people.
Logon ke sath ke bina vano ki suraksha karna asambhav hai.

C2. Village, Change

1. JFM has improved the relationship between the forest department and the villagers.
Samyukta vaniki ke karan van vibhag aur gramvasiyon ke sambandh mein sudhar aya hai.

2.Closure of forest areas has given rise to inter-village conflicts.
Vano ka hissa band karne se gaon gaon mein vivad khade huye hai.

3. JFM has curbed the rights of the local people over forests.
Samyukta vaniki karyakram ke karan logon ke vano par adhikaro par rok lagai gayi hai.

4. JFM has empowered the community to take decisions related to the forests.
Samyukta vaniki karyakram ne logon ko vano ke bare mein nirnay lene ke liye saksham banaya hai.

C3. Village, World views

1. The forest department is the real enemy of the forests.
Van vibhag hi vano ka asli shatru hai.

2. Today's forester is less knowledgeable than in the past.
Aaj ka forester pehle ke apecha kam jaankar hai.

3. Under JFM, the people will protect the forests but the real benefits will be reaped by the Forest Department.
Samyukta vaniki ke antargat log raksha karenge, lekin uske phal to van vibhag hi chakhega.

4. Money is a key part of partnership with the people.
Logon ki bhagidaari ka ek ehem hissa paisa hai

D1. Others, Policy
1. Panchayat institutions can exercise scrutiny over government expenditure.
Panchayat ki sansthaon dwara sarkari kharch par nigrani rakhi ja sakti hai.

2. The presence of the World Bank has boosted the JFM programme.
Vishwa bank ke aane se sanyukt vaniki ko bal mila hai

3. The FD and other departments cooperate in undertaking developmental activity at the village level.
Van vibhag aur sarkar ke anya vibhag gaon ke vikas ke liye mil kar kaam karte hain.

4. In forested areas, the DFO should be given the highest position in district government.
Van kshetra mein zila sarkar mein DFO ko sarvopari kar darja dena uchit hai.

D2. Others, Change
1. FPCs have helped collectors get a better price for forest produce.
Van samitiyon ki vajah se logon ko vanupaj ke liye bahtar daam mile hain.

2. JFM has empowered the villagers.
Sanyukt van prabandh ne gaon ke logon ko sashakt banaya hai.

3. JFM has helped in village development.
Sanyukt vaniki se *gaon* ka vikas hua hai

4. There is no coordination between the panchayat bodies and the forest committees.
Panchayat ki sansthaon aur van samitiyon ke beech mein koi taal mel nahin hai.

D3. Others, World views
1. The non-governmental sector is more corrupt than the government.
Gair sarkari sansthaon mein sarkar se zyaada bhrashtachar hota hai.

2. The Panchayat bodies are dominated by elites.
Panchayat ki sansthaon mein gaon ke takatvar logon ka bol bala hai.

3. The creation of committees has increased problems associated with forests.
Kametion ke gathan se jungle se judi samasyaein badhi hain.

4. Forest protection is possible only if the overall level of village development improves.
Vanon ki stithi bahtar tabhi hogi jab gaon main vikas hoga.

Appendix II: Definitions and explanations for some key words used in the Q statements

Key-words	Definitions
Sanrakshan	Suraksha, Bachana, Raksha
1.Nistar 2.Karyakram	1.Jalau, Charai, Baans, Balli 2.Van vibhag ke sabhi karyakram
Atikraman	Kabza
Niyantran	Anumati se, Dekh-bhaal
1.Lakshya 2.Videshi paisa	1.Irada, Neeyat 2.Desh ke baahar ka paisa jo byaj ke saath lautana padta hai
1.Adhikar 2.Riyayatein	1.Jise apni ichcha se upyog kiya jaye, bina kisi dar ke 2. Ahsaan thode samay ke liye
Sthaniye Janta	Gaon ke log
1.Vanopaj 2. Niyantran	1.Laghu-mahua, tendu, ityadi 2. Khareed farokht
Vano ka rashtriyakaran	Thekedaari pratha ki samapti
1.Sthaniye Janata 2.Adhikar	1.Jungle ke aas paas rahne wale log 2.Haq
1.Shramdaan 2.Najaayaz	1.Bina paise liye kiya gaya kaam 2.Galat
Panchayat ki sansthaon	Panch, sarpanch,janpad ewam zila panchayat sadasya ewam adhyaksha, gram sabha, koshadhyaksha, gram sabha ki aathon samitiyan
Zindagi mein sudhar	Rahan sahan, khan-paan, shiksha ewam swasthya mein
Barabari ka rishta	Ab darte naheen hain
1.Bhrasht 2.Uchit Karyawahi	1.Badmashi kartein hain, paise khate hain 2.sarkari dand
Attyachar	Begaar, Pitai, Darana, Dhamkana, Gaali-galauch, pareshan karna
Vivaad	Ladai-jhagde
Vano ke bare mein nirnaya	Kis prakar ke kaam hona hai? Kahan hona hai? Kaise hona hai? Log apni marzi se nirnaya kar sakte hain.
Vanopaj	Laghu vanopaj
sashakt	jagruk
Vikas	Faida, road, bijli,paani,shiksha,swasthya
Janata ki awaz	Logon ki marzi
Gyan	jankari
Sarvnaash	Nasht, barbad
1. Haq 2. Jabt	1.Adhikaar 2.Kabze mein lena ("Zameen ko japt kiya hai, aur adhikaron ko kam / samapt kiya hai.")
1.Sanyukta Van Prabandh 2. Apnatwa	1.Samiti bana kar jungle ki suraksha karne ka tareeka 2. Logon ka lagaw, jaise apne ghar pariwar se hota hai
Parivartan	Badlao (gaon ko behtar banana hai to rajniti karni paregi)
Forester	Nakedaar, deputy ranger, DFO
Phal	Faida

Bhagidari	Van sambandhi karyakram ewam anya sabhi karyakram
NGO	Gair sarkari sanstha jaise CARE, Eklavya, Ityadi
1.commetteeyon 2.Samassyain	1. Jungle ki samiti 2. Charai, avaidh katai, bhumi par kabza, Jalau/Imarati bans/lakdi lane mein dikkatein

Notes: *The table reports words drawn from the local dialect since both the words and the corresponding definitions had to retain their exact nuances and meanings in the specific context of the study and the study area.*

Appendix III : Characteristics of villages where Q-sort technique was applied

Name of Village	Village Type (Forest/Revenue)	World Bank Funded	Predominant forest type (RF/PF)	FPC/VFC	Sangathan Villages
Deedmadha	Forest	Y	RF	FPC	Y
Keli	Revenue	N	PF	FPC	Y
Lodhidhana	Forest	Y	RF	FPC	N
Rawang	Revenue	N	PF	FPC	Y
Dheki	Revenue	N	PF	VFC	Y
Uchan	Revenue	N	PF	VFC	N
Udhal	Revenue	N	PF	VFC	Y
Badjhiri	Forest	N	RF	FPC	N
Jhapnadeh	Revenue	N	PF	FPC	N
Jamnya khurd	Revenue	N	PF	FPC	N
Bheempura	Revenue	Y	PF	VFC	Y
Chikalpat	Revenue	Y	PF	VFC	N
Richharia	Revenue	Y	PF	VFC	N
Gangradhana	Forest	Y	RF	FPC	Y
Siganpur	Revenue	N	PF	FPC	N
Keljhiri	Forest	Y	RF	FPC	Y
Aamba	Forest	N	RF	FPC	Y
Bori	Forest	Y	RF	FPC	Y
Bothi	Forest	Y	RF	FPC	N
Manaasa	Forest	Y	RF	FPC	N
Dhega	Forest	N	RF	FPC	Y
Dhanpada	Revenue	N	RF	--	N
Kukdapani	Revenue	N	PF	--	Y
Salai	Revenue	N	PF	--	N

Notes: Y – Yes, N – No, RF – Reserved Forest, PF – Protected Forest, FPC – Forest Protection Committee, VFC – Village Forest Committee

Appendix IV: Composition of the Subject Sample

	Illiterates	*Literates*
<u>Village</u>	**141**	**71**
Forest Deptt.	**0**	**16**
NGO-MTO	**14**	**20**
PRI sector	**0**	**6**
Media	**0**	**6**
Total	**155**	**119**

Appendix V   Category-wise Distribution of Subjects

Subject (respondent) Category	Number of Q-sorts
Total Literates	119
Total Orally Administered	155
Literate from Villages	71
Orally administered from Villages	141
Forest Department	16
Non-Government Organisation / Mass Tribal Organisation	34
Panchayati Raj Institutions	6
Media	6
Literate from Forest Villages	32
Literate from Revenue Villages	39
Orally administered from Forest Villages	71
Orally administered from Revenue Villages	70
Literate from World Bank Funded Villages	27
Literate from Non World Bank Funded Villages	44
Orally administered from World Bank Funded Villages	68
Orally administered from Non World Bank Funded Villages	73
Literate from FPC Villages	96
Literate from VFC Villages	33
Orally administered from FPC Villages	47
Orally administered from VFC Villages	14
Literate from Protected Forest Villages	36
Literate from Reserved Forest Villages	35
Orally administered from Protected Forest Villages	71
Orally administered from Reserved Forest Villages	70
Literate from Sangathan Villages	36
Literate from Non Sangathan Villages	35
Orally administered from Sangathan Villages	72
Orally administered from Non Sangathan Villages	69

Note: All the above categories are not meant to be mutually exclusive. Rather these are alternative ways of looking at the data with reference to the criteria that were used for sampling villages.

Appendix VI : Rotated Factor Matrix for Literate Respondents

Note: *Entries in the table are factor loadings; a loading marked*
with an X indicates a defining sort.

QSORT	FACTORS			
	1	2	3	4
1	0.5719X	-0.1735	-0.0426	0.4222
2	-0.0036	0.1344	0.4775X	-0.1666
3	-0.0591	0.2796	0.6946X	-0.0199
4	-0.0572	0.078	0.4272X	-0.4143
5	0.3895	0.0276	0.4861X	-0.2054
6	0.4958X	-0.3822	0.1888	-0.1534
7	0.5762	-0.2524	0.5238	0.0072
8	0.5232X	-0.0955	0.4033	-0.0212
9	0.6435X	-0.3445	0.4147	-0.2023
10	0.0767	-0.0553	-0.2121	0.5947X
11	-0.0209	0.0017	0.2431	-0.5235
12	0.5766	-0.4949	0.343	0.1139
13	0.2242	-0.0369	0.7700X	-0.1547
14	0.3803X	0.0167	0.1216	-0.1247
15	0.7581X	-0.4544	0.0586	-0.0492
16	0.7753X	-0.2053	-0.1302	0.1624
17	0.6055X	-0.1887	-0.0626	0.1023
18	0.0838	0.219	0.2057	0.3328X
19	0.0561	0.1179	0.6335X	0.239
20	0.1573	0.3025	0.1028	-0.5278
21	0.5819X	-0.3932	0.1996	0.1929
22	0.5598X	-0.356	0.2474	-0.2161
23	0.6231X	-0.3473	0.109	0.2036
24	0.2131	0.0534	-0.1652	0.0767
25	0.6545X	-0.3477	0.1756	0.0894
26	0.6018X	-0.5145	0.2059	0.1333
27	0.4454	-0.4966	0.0804	0.04
28	-0.0635	0.6733X	0.0934	-0.1836
29	0.5242	-0.4795	0.2428	-0.0783
30	0.5911X	-0.2254	0.2963	0.1924
31	0.1454	0.5911X	0.0019	-0.1026
32	0.3336	-0.1769	0.4809X	-0.0989
33	0.3796	-0.1992	0.4655	0.3004
34	0.6410X	-0.438	0.281	-0.0471
35	0.6477X	-0.2561	0.4791	0.1518
36	0.5225X	0.1585	0.418	-0.1042
37	0.7002X	-0.3372	0.3104	0.1037
38	0.1142	-0.0407	0.2289	0.3595X
39	-0.2721	0.7456X	0.1285	-0.2661
40	-0.299	0.7419X	-0.0435	0.0454
41	-0.268	0.7119X	-0.1143	0.1098

42	-0.0812	0.7665X	0.0561	-0.0615
43	0.3829	0.3122	0.279	0.0447
44	-0.341	0.5068X	-0.1606	0.1119
45	-0.092	0.6743X	0.0272	0.2667
46	0.2591	0.299	-0.1713	-0.1808
47	-0.2109	0.6159X	0.0366	0.0557
48	0.6027X	0.1376	-0.0975	0.2674
49	0.7021X	-0.1122	0.3057	-0.0224
50	0.7243X	-0.2964	0.1208	0.0356
51	0.7179X	0.0235	0.2114	-0.1633
52	0.6842X	-0.3528	-0.0143	-0.15
53	0.7608X	-0.2474	0.138	0.0501
54	0.7229X	-0.4783	0.1812	-0.1548
55	0.3513	0.4018	-0.0568	0.2233
56	0.1988	0.1085	0.226	0.1839
57	0.7478X	-0.2503	0.1012	-0.0466
58	0.0947	-0.0564	0.5450X	-0.098
59	0.7124X	-0.3783	0.2387	-0.0268
60	0.3982X	0.0437	0.0988	0.322
61	0.5752X	-0.4945	0.0912	-0.0446
62	0.5576X	-0.2899	0.171	-0.1168
63	0.26	-0.1949	0.6552X	-0.0221
64	0.3852	-0.3927	0.2062	0.243
65	0.4588X	-0.1901	0.3295	0.0743
66	0.2765	-0.3052	0.098	0.1048
67	0.4448	-0.456	0.3183	0.0985
68	-0.0426	0.134	0.0185	0.5854X
69	0.3650X	0.1358	-0.0411	0.1505
70	-0.1167	-0.1248	0.5045X	0.0846
71	0.372	0.0822	0.2628	0.421
72	0.7354X	-0.2992	0.2748	0.1278
73	0.2815	-0.1246	-0.0001	0.2477
74	0.2398	-0.1528	0.5415X	0.1006
75	0.3664X	0.0016	0.2418	0.1268
76	0.4818X	-0.0414	0.1266	-0.2525
77	0.4482X	0.0692	-0.0842	0.0801
78	0.2588	-0.3026	0.3753	-0.1131
79	0.6241X	0.147	0.2801	-0.0609
80	-0.2315	0.0385	-0.1337	0.3197X
81	0.6254X	-0.0536	-0.253	-0.2797
82	0.5139X	0.3519	0.0816	0.2307
83	0.047	0.1774	-0.2077	-0.3815
84	0.4964	-0.5487	0.1953	-0.013
85	0.6228X	-0.4452	0.0867	-0.0235
86	0.6206X	-0.2161	0.1571	0.1357
87	0.0618	-0.0538	0.4267X	0.0939
88	0.2307	0.1069	-0.1107	0.3405X
89	0.3978X	-0.1212	0.231	0.1117

90	0.0764	0.6661X	-0.0708	-0.0193
91	-0.1619	0.6348X	0.1561	0.0984
92	0.5826X	-0.1079	0.0461	0.3507
93	-0.231	0.8159X	0.0423	0.0626
94	-0.1904	0.8007X	-0.0028	-0.0281
95	-0.2148	0.7244X	0.0194	0.0891
96	-0.3348	0.8536X	-0.0283	-0.0218
97	-0.2375	0.6886X	0.1914	-0.0943
98	0.0872	0.6086X	-0.0353	0.2082
99	0.102	0.6073X	-0.0306	-0.0839
100	-0.2298	0.7525X	-0.1543	-0.0681
101	-0.0678	0.6477X	-0.023	-0.0001
102	0.4138X	0.1291	-0.0829	0.2626
103	-0.3452	0.7373X	0.0312	0.1418
104	0.0323	0.6833X	-0.2498	0.1329
105	0.8077X	-0.0302	0.0507	-0.0232
106	0.6240X	-0.5141	0.3488	0.005
107	0.7287X	-0.2931	0.2173	0.0986
108	0.7090X	-0.4255	0.2679	-0.2409
109	0.6680X	-0.1402	0.2863	0.0635
110	0.5884X	-0.4842	0.3146	0.0983
111	0.6012X	-0.3214	0.0318	0.3288
112	0.6622X	-0.0707	0.0256	0.0787
113	0.5610X	-0.1138	-0.011	-0.0108
114	-0.1532	0.5964X	-0.0498	-0.4768
115	0.2561	0.0188	0.4451X	-0.1939
116	0.1778	0.1315	0.4920X	0.3304
117	0.0304	0.2437	0.1182	0.4671X
118	0.4811X	0.2211	0.1666	0.0866
119	0.4274	-0.0055	0.4384X	-0.0824

Appendix VII: Distinguishing and Consensus Statements for Literate Subjects

Note: *The rank is the normalized factor score expressed in terms of the original Q distribution*

Distinguishing Statements for Factor 1	RANK
JFM has empowered the villagers	2
Presence of World Bank has boosted JFM programme	2
JFM has helped village development	1
Decision of the EC are the decision of the entire VFC	1
FD respects the knowledge of the adivasi communities	1
FPC have helped collectors get better price for produce	1
Local people have first right over forests	1
In forested areas DFO should be given highest position	1
Control of forest villages should remain with FD	0
Tribals have not been given rights only concessions	0
Meaningful change is not possible without political power	0
Gram Sabha is best institution for managing MFPs	0
Nistar only for people taking part in FD programs	-1
The NGO sector is more corrupt than the government	-1
Appropriate action not been taken against corrupt officials	-1
Creation of committees has increased problems with forests	-1
Wage labour has been the only benefit from JFM	-1
JFM has increased conflicts among people	-1
JFMwas introduced mainly to get foreign funds	-1
JFM has curbed the rights of the local people over forests	-2
Nationalisation of forest produce has broken relationship	-2
FD has usurped tribal lands and rights	-2
Under JFM people protect forests but real benefit to FD	-2
All forests should be handed over to local communities	-2
FD illegitimately exploits poor in the name of shramdan	-2
Oppression of local people by FD has continued	-2
FD is the real enemy of the forests	-2

Distinguishing Statements for Factor 2	RANK
JFM has increased conflicts among people	2
Tribals have not been given rights only concessions	2
Oppression of local people by FD has continued	2
Meaningful change is not possible without political power	2
Closure of forest areas has lead to inter-village conflicts	1
Creation of committees has increased problems with forests	1
Nationalisation of forest produce has broken relationship	1
No coordination between Panchayat bodies and forest committ	1
JFMwas introduced mainly to get foreign funds	1
FD has usurped tribal lands and rights	0
Gram Sabha is best institution for managing MFPs	0
Today's forester is less knowledgeable than the past	0
All forests should be handed over to local communities	0
Without FD forests would have been destroyed	0
Presence of World Bank has boosted JFM programme	0
Jfm only way to ensure protection of forests	-1
FD and other departments co-operate in village development	-1
Decision of the EC are the decision of the entire VFC	-1
FPC have helped collectors get better price for produce	-1
The NGO sector is more corrupt than the government	-1
All encroachments on forest land are illegal	-1
JFM has empowered the community to take decisions	-1
In forested areas DFO should be given highest position	-1
Beat guards have built a good rapport with the villagers	-1
JFM has helped village development	-2
JFM has improved relationship between FD and villagers	-2
JFM has empowered the villagers	-2
Nistar only for people taking part in FD programs	-2
Forest committees created equal relationship among villager	-2
FD respects the knowledge of the adivasi communities	-2

Distinguishing Statements for Factor 3	RANK
FD and other departments co-operate in village development	2
Gram Sabha is best institution for managing MFPs	1
Tribals have not been given rights only concessions	1
Meaningful change is not possible without political power	0
Decision of the EC are the decision of the entire VFC	0
JFM has helped village development	0
JFM has empowered the villagers	0
JFMwas introduced mainly to get foreign funds	0
JFM has curbed the rights of the local people over forests	0
FD is the real enemy of the forests	0
All forests should be handed over to local communities	-1
Presence of World Bank has boosted JFM programme	-1
No coordination between Panchayat bodies and forest committ	-1
FD illegitimately exploits poor in the name of shramdan	-1
In forested areas DFO should be given highest position	-1
Nistar only for people taking part in FD programs	-1
The beat guard faces pressure from both officials & people	-1
Creation of committees has increased problems with forests	-2
Oppression of local people by FD has continued	-2
JFM has increased conflicts among people	-2
Today's forester is less knowledgeable than the past	-2
FD has usurped tribal lands and rights	-2
All encroachments on forest land are illegal	-2
The Panchayat bodies are dominated by elites	-2

Distinguishing Statements for Factor 4	RANK
The beat guard faces pressure from both officials & people	2
FD has usurped tribal lands and rights	2
Control of forest villages should remain with FD	1
Creation of committees has increased problems with forests	1
JFM has increased conflicts among people	0
Oppression of local people by FD has continued	0
Impossible to protect forest without local participation	0
JFM has improved relationship between FD and villagers	0
Jfm only way to ensure protection of forests	0
In forested areas DFO should be given highest position	0
Decision of the EC are the decision of the entire VFC	-1
Under JFM people protect forests but real benefit to FD	-1
JFM has helped village development	-1
JFMwas introduced mainly to get foreign funds	-1
Tribals have not been given rights only concessions	-1
JFM has empowered the villagers	-1
Meaningful change is not possible without political power	-1
Gram Sabha is best institution for managing MFPs	-2
Local people have first right over forests	-2
Panchayat institutions can exercise scrutiny over govt exp.	-2
Presence of World Bank has boosted JFM programme	-2
Nistar only for people taking part in FD programs	-2
All forests should be handed over to local communities	-2
Consensus Statement	RANK
* Money is a key part of partnership with the people	1
* Forest protection is possible only if village development	2

Appendix VIII   Summary of Discourses in Alternative Groupings

4 factors for illiterates from non-funded villages

Factor 1 :
Anti-FD; Anti-JFM; Neutral; Not pro-communitarian either

Factor 2:
Pro- FD; Neutral on issues of rights, control; Not Communitarian

Factor 3:
Pro- FD; (Acknowledges its role); But anti- the JFM programme specifically; Not Communitarian

Factor 4:
Mixed picture; Issue-based opinions; A theoretical position

4 factors for literates from non-funded villages

Factor 1:
Pro- FD; Not Communitarian; Pro-status-quo

Factor 2:
Pro-PRI; Anti- other existing institutions; but not communitarian;

Factor 3:
Communitarian; Anti-FD; Neutral on the relationship & rights issues; But definite that no outright positive impacts from JFM;

Factor 4
Not pro-Communitarian; Nor pro-PRI; Anti-establishment; No easy solutions; but believes JFM has negative impacts.

4 factors for literates from funded villages

Factor 1:
Not Communitarian; Pro-participation; Pro-JFM;

Factor 2:
Hard liners (in principle) against such an FD run programme; Pro- PRI;

Factor 3:
Communitarian; Acknowledges role of community in JFM without it having led to major positive benefits

Factor 4:
Theoretical position

<u>4 factors for illiterates from funded villages</u>

Factor 1:
Pro-JFM; Pro- FD; Not Communitarian; Pro-participatory framework (change & empirical)

Factor 2:
Anti-JFM; anti FD(conflicts; exploitation, economic issues, development)
Neutral on issues of empowerment, relationship, democracy; Anti- establishment but no options such as outrightly communitarian.

Factor 3
A slightly theoretical perspective; Overall pro-JFM.

Factor 4:
Cautious (neutral) on Community based approach; More concerned with rights & relationship issues-- Pro- FD; Pro-JFM; Overall pro-participation.

<u>4 factors for illiterates in revenue villages</u>

Factor 1:
Pro-JFM & Pro- FD(all aspects); Neutral on funding & encroachments; corruption Not Communitarian;

Factor 2:
Communitarian; Anti-JFM & anti-FD in most matters except empowerment;

Factor 3:
Pro- a Participatory process involving people & FD; Not outright Communitarian; Experience of JFM a mixed one.

Factor 4:
Neutral on corruption; Anti-JFM as a programme but not communitarian either;;
But feel need for change esp. in social impacts

<u>4 factors for literates in revenue villages</u>

Factor 1:
Pro- JFM & pro-FD

Factor 2:
Anti-establishment; No easy solution (not communitarian; not PRI);

Factor 3:
Comfortable with existing; Pro-FD;

Factor 4:
Emphasis on change in economic & power dimensions; Anti JFM and anti communitarian as well; Sees role for participatory process involving FD.

4 factors for literates in forest villages

Factor 1:
positive on JFM(village development; relationship, conflicts, economic); neutral on rights.

Factor 2:
Communitarian; anti foreign funding; neutral on PRI's; not anti JFM but not pro-either on all fronts esp. economic.

Factor 3:
Anti- JFM(conflicts); Neutral on relationships, empowerment; Not PRI

Factor 4:
Anti- FD; Not Communitarian; Not PRI; Participatory but improvements in JFM required on social aspects.

4 factors for illiterates in forest villages

Factor 1:
Pro-people; Some achievement through JFM; More to be achieved by being Communitarian

Factor 2:
Anti JFM & anti-FD (rights, Empowerment village development; democracy); Neutral on relationship, encroachments.; No outright emphasis on Communitarian approach.

Factor 3:
Pro-JFM; Pro-FD; But not pro-PRI; Not Communitarian

Factor 4:
Neutral on Empowerment rights; not PRI; Jfm-pro-participation in economic terms; not in social terms impacts.

4 factors for literates from reserved forest

Factor 1:
Pro-JFM & pro-FD (in all aspects);Pro-establishment but neutral on PRI institutions & community.

Factor 2:
Corruption issue important; Pro-local community; pro-participation;

Factor 3:
anti-establishment & existing institutions; but no alternative solution seen either in PRI or through communitarian approach.

Factor 4:
Not anti FD as such but more power to locals(PRI maybe)

<u>4 factors for illiterates from protected forest</u>

Factor 1:
Pro-JFM in all aspects both social and economic (including world views, policy & change) - Village empowerment, rights, conflicts, democracy; Belief in existing participatory mechanisms inc. PRI; Not communitarian;

Factor 2:
Anti-JFM & anti-FD (world views; change, policy); Rights based view;
Pro- PRI partially but no outright preference for communitarian.

Factor 3:
Anti-PRI; Pro – participation between FD & community; Not only communitarian;
Scope for improvement in JFM (village dev; empowerment; relationship)

Factor 4:
More pragmatic; pro people; Neutral on rights; controversial issues?
Sees JFM has poorly in terms of empowerment, exploitation.

<u>4 factors for literates from protected forest</u>

Factor 1:
positive JFM ; positive FD (rights; relationship; empowerment; economic benefits);
not at all communitarian;

Factor 2:
Communitarian; Anti- JFM ; anti-FD(increasing problems ; empowerment, control, relationships).

Factor 3:
Sees some benefits from JFM? Anti-FD(control) as compared to PRI?

Factor 4:
Anti- JFM in terms of empowerment & village development; Pro-people(?) & anti-establishment & seeks more participation for people in the participatory process.

<u>4 factors for illiterates from reserved forest</u>

Factor 1:
Improvement in JFM & FD((relationship with locals, conflicts); But prefer a total communitarian approach;

Factor 2:
More Anti-FD; Anti- JFM(rights based); But neutral on alternatives to management of forests; (anti PRI also).

Factor 3:
More focused on tangible economic benefits; Neutral on commercial issues of conflicts, rights, relationships; Not anti FD.

Factor 4:
Pro-JFM (relationships; empowerment, benefits, conflicts); Neutral on money & community rights;

4 factors for literates of FPC

Factor 1:
Less consensus among literates then illiterates(for both FPC & VFC); pro FD; Pro JFM (control, empowerment & develop) - "economic" & "social"; neutral on locals (PRI; rights); not communitarian;

Factor 2:
communitarian; neutral on FD impacts; not negative on JFM but prefers communitarian;

Factor 3:
rights based ; Anti- JFM; anti FD; not PRI; or community either.

Factor 4:
Similar to 3 in some matters; not Anti- JFM;

4 factors for illiterates of FPC

Factor 1:
Pro-existing institutions (PRI-Management; JFM-protection, development); Cautious on FD as only alternative.; Pro-FD (in matters of change & policy) - (conflicts; oppressions; etc).

Factor 2:
Anti-FD & anti-JFM (rights based approach)

Factor 3:
Pro-FD (policy) –issues of control; democracy.; Not communitarian.

Factor 4:
Realist ; distinguishing between rights & capabilities/objectives; Cautious on alternatives to FD; More policy & worldview based;

<u>4 factors for illiterates of VFC</u>

<u>Factor 1:</u>
Pro JFM (social processes); Not communitarian; Pro existing institutions; Not Anti-JFM or FD (conflicts; problems)

<u>Factor 2:</u>
Anti FD; But not communitarian; careful on that; Lots of scope for improvement in JFM;

<u>Factor 3:</u>
Anti JFM (as social process) but not communitarian; Neutral on social stuff.
(sort of "realistic" position); looking at the totality.

<u>Factor 4:</u>
More rights-based (world views); Pri?

Consensus: pro- participation ; Pro role of FD in protection; but also stressing role of village & locals.

<u>4 factors for literates of VFC</u>

<u>Factor 1:</u>
Pro-existing "participatory" framework.

<u>Factor 2:</u>
Anti FD(& anti-JFM) (rights based); but not communitarian in terms of management options;

<u>Factor 3</u>
JFM not achieving some of its major objectives.

<u>Factor 4</u>
Mixed feelings!

Consensus:
Overall see the positive impact of JFM as a programme.