Participatory Forest Management and State Forestry Agencies: Modeling the Perceptions of Foresters

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Abstract

In transition to community-based forest management (CBFM) paradigm, transformation in the role of foresters from ‘controller’ to ‘facilitator’, is taken for granted. Given the militaristic culture of forestry agencies in most developing countries, this change is bound to face resistance. Using structural equation modeling technique, this paper examines two dimensions of resistance – disapproval of CBFM regime by the foresters at individual level and organizational level, and four categories of causal factors of resistance – personality traits, organizational factors, external environmental factors, and socialization factors. Study suggests that while members of four state forest departments of India, at an individual level have less resistance, but they show high resistance to implementation of CBFM by the organization. Results further suggest that fear of losing prestige and authority is major cause of resistance at personal level while hierarchical attitude is a primary causal factor of resistance to organizational level implementation.

Keywords: Organizational Resistance, Community forestry, India, Institutions, SEM

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1.0 Introduction

The ‘sustained yield timber management’ paradigm is increasingly getting replaced by the ‘sustainable forest management’. The new paradigm aims at the integration of social, ecological, and economic values of forest resources. Integration of social values and social sustainability of forest management, to a large extent, depends on appropriate institutional and organizational arrangements that can ensure direct participation of different user groups in forest management (Ascher, 1995; Peluso, 1992), and equitable distribution of benefits from the resource among these diverse groups (Lal, 1995). Hence, a number of developing countries are in the process of transforming their ‘blueprint’ strategies of forest management to people-centered management, commonly known as community-based forest management (CBFM). There are at least two principal stakeholders in this regime – the state, as represented by the functionaries of forestry agencies, and local communities, represented by the members of their collective decision making bodies. Most researchers working on CBFM regimes have tended to focus on issues from the perspective of communities (Baland and Platteau, 1996), and the role of the other partner – state forestry agencies – has received no more than passing reference.

In general, public administration in developing countries, forestry agencies being no exception, is highly bureaucratized and centralized, based on an authoritarian legal system (Haque, 1997). In these countries, state forestry agencies have, for many decades if not centuries, been implementing state-centered forest management policies, which are based on the principle that local people are the enemies of forests. In this process, foresters have developed an attitude of blaming local people for problems in the forestry sector. Now, under the CBFM regime, the same forestry agencies are responsible for the implementation of participatory approaches to forest management. The success of such a system, to a great extent, depends on mutual understanding and a cooperative relationship between state forestry agencies and local communities. For such a relationship to develop, the bureaucratic mindset of the foresters needs to be reoriented to achieve congruence between the working culture of state forestry agencies and the decentralized working ethos of CBFM regime. This process of role transformation requires forest agencies to give up some authority and decision-making powers to local communities. Given the militaristic culture of the organization, this process is a difficult one and bound to face resistance from the members of the state forestry agency. Unfortunately, policymakers and academic researchers have not dealt adequately with this issue of organizational change in forestry agencies, a prerequisite in a CBFM regime.

The transformation of a bureaucratic organization is not an easy task. There is consensus among organizational theorists working on ‘organizational change’ that organizations often have difficulty devising and executing changes fast enough to meet the demands of an uncertain and changing environment (Baum, 1996), due largely to ‘resistance to change’ existing in organizations. In this paper, we identify and assess various exogenous and endogenous causes of ‘resistance to change’, in the forestry agency (Forest Department) of India, with respect to the implementation of a CBFM regime and we provide a framework for understanding how to overcome this resistance. We propose a theoretical model that is based on two dimensions of

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33 Some of these researchers are Arnold, 1990; Ascher, 1995; Bromley, 1992; Chambers, 1994; Kant et al., 1991; Ostrom, 1990; Poffenbeger et al., 1996; and Robinson, 1995.
resistance to change – disapproval of the CBFM regime by members of Forest Department (FD) at the individual level and at the organizational level, and four categories of causal factors of resistance to change – personality traits of the members, organizational factors, external environmental factors, and socialization (demographic) factors. We empirically examine our proposed model using questionnaire survey data, collected from the members of four state FDs in India, and structural equation modeling technique.

A theoretical model, based on two dimensions of resistance to change and four categories of causal factors, is discussed in the next Section. Measures of the concepts of two dimensions of resistance and related causal factors, methods of data collection and data analysis are provided in Section 3. The estimated structural equation models are presented and discussed in Section 4, and finally we conclude with some policy implications.

2.0 A Theoretical Model for Forest Department’s Resistance to CBFM Regime

Public participation in policy planning and policy implementation, the essence of democratic civil society, faces many constraints in contemporary public governance systems. Besides poor planning and execution, bureaucratic administrative systems that are based upon expertise, professionalism and rational organizing principles, constrain the participatory processes. The most difficult to change are the structures and processes of administration due to inherent ‘resistance to change’ in the organizations. Even though adaptation theorists, such as Thompson, 1967; Lawrence and Lorsch, 1967, believe that organizations have an inclination to change, organizational ecologists, such as DiMaggio and Powell, 1983; Hannan and Freeman, 1984; Tushman and Romanelli, 1985, have brought organizational resistance or inertia theory at the forefront of organizational behavior literature. Resistance to change is not merely an objective issue; but being a function of the personalities of organizational members, it also is a subjective issue. Attitudes of individuals in an organization are substantially a function of their in-built personality traits, the organization’s culture, and broader societal culture. The resistance to change rooted in the size, complexity, and interdependence of the organization’s structures, systems, and formal processes, is termed ‘objective resistance’. However, in this study, we address the issue of ‘subjective resistance’ by which we mean the resistance to change emanating from the organizational members.

In the context of CBFM regimes, subjective resistance, resistance on the part of members of the FD, has two dimensions: the extent to which members of FD resist the implementation of CBFM regime by the FD as an organization, and by themselves as individuals. We incorporate both dimensions in our model denoted by the two constructs of resistance to change, ‘resistance-1’ and ‘resistance-2’, respectively, as shown in Figure 1.

Resistance to change is a complex and multi-faceted phenomenon (Waddell and Sohal, 1998), and numerous causal factors have been used to explain it. Broadly, the causal factors for resistance to change can be grouped into endogenous and exogenous factors. A member of the FD is surrounded by three types of environment: (i) an organization’s internal environment in which he works all the time; (ii) an external environment which exists outside of the organization; and (iii) a social environment in which he has been brought up and is part of outside office hours. The causal factors from these three environments are respectively called organizational factors, external environmental factors, and socialization factors. The possible interactions between these three categories of exogenous causal factors, two personality traits, and two constructs of subjective resistance are shown in Figure-1. On prima-facie grounds, it also seems reasonable that the members, who have higher resistance to the implementation of
CBFM by themselves, will also have higher resistance to the implementation of CBFM by the FD. Hence, we also hypothesize a positive path from ‘resistance-2’ to ‘resistance-1’.

### 3.1 Personality Factors:

Many organizational theorists argue that the explanation of resistance to organizational change is fundamentally psychological (e.g. Watson, 1969; Kazlow, 1977), and treat resistance to change as a function of the personality traits (including elements such as attitudes, motives, values, needs, and habits) of individuals working in an organization (Durbrin and Ireland, 1993; Griffin, 1993; Hinings and Greenwood, 1988). In the context of public agencies, Downs (1967) and Presthus (1962) argue that organizational members pursue their own ambitions, goals, and interests within the organization. On the basis of degree of change orientation (traditionalism) among organizational members, they have identified different personality types within public agencies.

Classic bureaucracy theory argues that the purpose of rules, regulations, policies, procedures, and precedents is to serve as guidelines to the employees. However, generally these guidelines, in a bureaucratic organization, become habits for the individuals and are relied on for both guidance and protection (Mealiea, 1978) resulting in over-commitment to rules, regulations, and precedents (Saxena, 1996). Such employees do not feel comfortable in a changed environment and therefore, show high resistance to organizational change. The state forest departments of India are examples of a true bureaucratic organization, and hierarchical functioning according to well established rules, regulations, and standardized practices, is a dominant feature of these organizations. Hence, ‘traditionalism’ is one of the key personal traits of the members of the FDs, and we hypothesize that this traditionalism not only has a direct positive influence on both kinds of resistance but also channels the influence of other variables discussed later.

Another aspect of personality, related to resistance to change, is the employees’ aspirations and expectations from working in a given organization. Individuals within complex organizations, over time, develop vested interests, in addition to or even in conflict with the objectives of the creators of organization (Meyer and Zucker, 1989). Organizational members deriving benefits from the existing organizational arrangements are less likely to tolerate changes (Kaufman, 1971; Meyer and Zucker 1989). In addition, people tend to feel comfortable and secure with that which is familiar, and uncomfortable or insecure with that which is unfamiliar (Williams, 1969). If, in the change scenario, employees perceive a possible threat to their job status, job security, their sense of autonomy or control, or prestige, they respond defensively, with resistance. Fear of failure in changed environment is another factor which makes people resist change. They disapprove of being treated as novices in the organization in which they once have been regarded as experts.

In the present regulatory framework of state FDs, foresters up to the field level, enjoy considerable powers, the discretionary use of which is an important source of prestige and authority. In a CBFM regime, there will be a reduction in these means of control, as the participatory ethos of decentralized forest management envisages clarification and simplification of procedures and stresses greater transparency. This implies that organizational members, afraid of losing prestige, authority, control and promotional avenues in the CBFM regime, will resist its implementation. Hence, the second personality trait and mediating variable in our model is ‘fear’ – a concept dealing with the extent of fearfulness among members of the state forestry agencies.
Figure 1: Theoretical model of subjective resistance of the members of Indian State Forest Departments to CBFM regime.
3.2 Organizational Factors:

Members of an organization, during their long period of service in the organization, acquire different skills, face diverse situations, and experience success as well as failures, and the degree of all these features as well as individual competence varies among members. Generally, less competent employees resist change while more competent employees welcome change and are more willing to see inefficient procedures altered or eliminated (Blau and Scott, 1962). Employees, who possess the requisite skills and knowledge for success in the changed condition, will be less resistant to change. Further, the ability to evaluate and exploit novel ideas is largely a function of the employees' level of prior related knowledge. If they have successfully worked in similar circumstances earlier, it helps them gain skills and knowledge and also makes them confident of success. Hence, we hypothesize that individual skill levels of members of the FD in peoples' participation ('skills'), their prior experience ('cbfm_exp') or voluntary efforts ('cbfm_eff') involving local communities in forest management, the degree of success they achieved in these efforts ('succ_exp'), and their awareness of success stories ('succ_str') of CBFM, will help mitigate fear and thus, will reduce both kinds of resistance to CBFM systems.

Some members of the FD also get opportunities of working with non-government organizations. Generally, non-governmental organizations, unlike public bureaucracies, are innovative, adaptable, and socially concerned (Midgley, 1986). Therefore, experience of working with non-governmental organizations ('ngo_exp') will also affect negatively the FD member’s resistance to CBFM regime. In the long run, organizational actors construct around themselves an environment that constrains their ability to change further in later years (DeMaggio & Powell, 1983), and this results in organizations frequently misreading the demands made by the environment, largely due to selective perceptions (Pfeffer & Salancik, 1978). Training is an important strategic tool which helps organizational members to re-enact the environment around them. This implies that the more frequently the members of an organization are imparted training in the area of change, the more receptive they should be to the change process. Hence, we hypothesize that training focused on aspects related to community forestry ('trn_cbfm') should directly decrease resistance among organizational members towards the CBFM regime.

Finally, job satisfaction is an important organizational factor related to resistance to change. Job dissatisfaction induces unwillingness to cooperate and contribute to the organizational goals (Bernard, 1938), and results in feelings of alienation among members who are less willing and less able to promote necessary organizational change (Whetten, 1987). Job dissatisfaction is reported to be strongly correlated to active resistance to change (Mangioni and Quin, 1975; Torenvlied and Velner, 1998). Therefore, we include the level of job satisfaction ('jobsatsf') as one of the causal factors, and expect that it will have a negative effect on resistance to change toward CBFM systems. In addition, we also hypothesize that the respondents’ length of service ('service') and mode of recruitment ('rec_mode') will also affect their resistance to CBFM systems.

3.3 External Environmental Factors:

All organizations and organizational members are integral components of a social system, and engage in interactions with the external environment. These interactions play an important part in bringing about change in any organization, especially those which are sensitive to external environmental pressures (Armenakis et al., 1993; Miner et al., 1990 Young, 1991). In the case of CBFM regime, the members of forest department interact with the representatives of the people, non-government organizations, and the media, in addition to interacting directly with
the member of local communities. Hence, with respect to FD resistance to a CBFM regime, we

group external environmental factors into two categories: direct pressure from local community

members (‘ppl_prs’), and other pressures, from representatives of the people, NGOs, and media

(‘env_prs’). In addition to these two factors, interest on the part of communities in forestry

activities (‘comm_int’), their capability to undertake forest management activities (‘comm_cap’),
and level of awareness about CBFM (‘comm_awr’) will also influence the interactions between

local communities and members of the FD. Hence, these variables are also included as causal

factors of the resistance to CBFM regime.

3.4 Socialization Factors:

People have differences in their values and assumptions. Thus any change may be ‘good’

for some and ‘bad’ for others, based on their value orientations and assumptions (Williams,

1969). The socialization process has a significant impact on the development of general human

values, attitudes, and personality (Chackerian and Abcarian, 1984). We focus upon adolescent

socialization (i.e. between the ages of 12 to 18 years) as ‘adolescence is the first time that the
human being consciously tries to conceptualize himself and consciously works to change
himself’ (Campbell, 1969:825). The variables whose relationships with both kinds of resistance,
directly or through two mediator variables, we propose to examine are level of education of
respondent’s father (‘fath_edu’) and mother (‘moth_edu’), size of place where respondent grew
up between the ages of 12 and 18 years (‘city’), economic condition of the respondent’s family
(‘econ_con’), the family atmosphere with respect to liberty of expression (‘fam_atmp’), and the
extent to which the respondent’s family was dependent on forests (‘dep_frst’) when the
respondent was between the ages of 12 to 18 years. In addition to these factors associated with
the family of the respondent, the level of education of the respondent (‘resp_edu’) is also
expected to play an influential role in his/her conceptualization of change.

Given the lack of previous theoretical and empirical studies on relationships among our
chosen socialization variables and some inconsistencies reported in the literature, our
examination of these variables is heuristic. That is, our examination is aimed at generating
hypotheses rather than testing formal hypotheses.

3.0 Data Collection, Measures, and Data Analysis

3.1 Data Collection: A questionnaire survey was used to collect data regarding two types of
resistance to CBFM systems as well as different resistance factors. On the basis of social,
economic, political variability, and discussion with forest department officials and non-
government organizations, four states – Andhra Pradesh (AP), Haryana (HR), Himachal Pradesh
(HP), and West Bengal (WB) – were selected for the survey. The universe included forest
officers from the apex level i.e., Principal Chief Conservator of Forests, to the junior most field
functionary i.e., Forest Guard.

At the senior and middle level management, all officers were included in the sample. At the
junior level 10% of the staff working in each cadre (Forest guards, Block Forest Officers, and
Range Forest Officers) of each state was included in the sample. A varying number of forest
divisions, in each state, were selected randomly so as to ensure the stipulated number of junior-
level staff in the sample.

In all, 1641 (response rate- 84%) questionnaires were returned, of which 1524 had complete
information. One item in the questionnaire was aimed at testing the respondents’ level of
knowledge about CBFM regime. Of 1524 responses with complete information, 212 (14%)
indicated a low level of knowledge about CBFM regime. These responses were not included in the analysis; thus, leaving 1312 effective responses for final analysis. Ages of respondents included in the final analysis range from 22 years to 61 years with a mean age of 45.4 years. These respondents have experience of working in the organization ranging from 1 year to 40 years with a mean value of 19.3 years.

3.2 Measures: The questionnaire consisted of a list of structured statements which, according to classical measurement theory, serve as measures of the conceptual components (observed variables or indicators) of the major constructs. The reliability of these items was tested within the framework of test-retest method. Our hypothesized model (Figure-1) consists of 26 latent variables of which four – ‘resistance-2’, ‘traditionalism’, ‘fear’, and ‘env_prs’ - have more than one observed variable. The remaining variables are extracted from their respective single observed variables.

Resistance-1: Four items, rated on a 5-point (1 = Strongly agree, 5 = Strongly disagree) Likert type scale were developed to operationalize this construct. The internal consistency estimate (Cronbach’s alpha) for the scale is 0.72. The mean of the ratings of the items provided an index of resistance, with higher score indicating greater resistance.

Resistance-2: This resistance was measured using three conceptual components: ‘Disapproval of the CBFM’ (extent to which respondent does not agree with the positive outcomes of the CBFM system), ‘Support of the CBFM’ (to what extent the respondent supports a CBFM regime as a criterion of performance evaluation in the organization), ‘Disapproval of implementation’ (extent to which the respondent disagrees to implement CBFM regime). These three conceptual components were measured using four (Cronbach’s alpha =0.83), two (Cronbach’s alpha =0.81), and one questionnaire item, respectively. All of these items were rated on five point (1 = Strongly agree, 5 = Strongly disagree) Likert type scale with higher score indicating greater of particular concept.

Personality Factors: Two conceptual components: ‘Hierarchical Orientation’ (extent to which respondent believes in working as per rules and regulations) and ‘Stability Orientation’ (extent to which respondent tends to rely on standardized practices and precedents), serve as observed variables for the latent construct ‘traditionalism’. Three questionnaire items (Cronbach alpha =0.69) were used to operationalize ‘Hierarchical Orientation’ and two items (Cronbach alpha = 0.71) measure ‘Stability Orientation’. All these items were rated on five point (1 = Strongly agree, 5 = Strongly disagree) Likert type scale with higher score connoting greater of a particular concept.

The latent construct ‘fear’ was extracted from three observed variables. Of these, two variables – ‘Fear of losing Prestige’ and ‘Fear of losing Promotions’ – were measured using two questionnaire items each (Cronbach alpha =0.74 and 0.67, respectively ), rated on five point (1 = Strongly agree, 5 = Strongly disagree) Likert type scale. The third observed variable – ‘Fear of Failure’ – was assessed using one questionnaire item, rated on a similar scale.

Organizational Factors: Three organizational background variables: experience in CBFM (‘cbfm_exp’), personal efforts in CBFM (‘cbfm_eff’), and experience in an NGO (‘ngo_exp’) were coded 1 (yes) and 2 (no). Number of trainings in CBFM (‘trn_cbfm’) was coded as 1 (none), 2 (1-3), 3 (4-6), 4 (7-9), and 5 (more than 9). Recruitment mode (‘rec_mode’) of the respondent was coded as 1 (direct recruitment) and 2 (by promotion). The variables ‘skill’ and ‘workload’ were measured using one and two questionnaire items (Cronbach’s alpha = 0.84), respectively. These items were rated on five point (1 = Strongly agree, 5 = Strongly disagree) Likert type scale. Similarly, one questionnaire item, rated on a 5-point (1 = Highly Successful, 5
A Highly unsuccessful) Likert type scale, was used to measure successful experience in CBFM ('succ_exp'). Length of service in the FD ('service') was coded as a continuous variable consisting of the number of years the respondent has served in the department.

To measure level of job satisfaction, we followed the procedure used by Torenvlied and Velner (1998). Respondents were asked their opinion regarding ten aspects of their job. For each of these ten aspects, respondents were to indicate the extent of importance they attach to that aspect on a five point scale varying from ‘very important’ to ‘not important at all’. They were also asked to indicate their level of satisfaction on each of the ten aspects on a second five point scale varying from ‘very satisfied’ to ‘not satisfied at all’. Scores on the two scales were multiplied and aggregated. Mean of the aggregated score serves as job satisfaction index.

External Environmental Factors: ‘env_prs’ construct was assessed using three observed variables: ‘Pressure from peoples’ representatives’, ‘Pressure from non-governmental organizations’, and ‘Pressure from media’. Each of these observed variables was measured using a single item on the questionnaire. The remaining four external environmental constructs were extracted from their respective single observed variables. Of these, two constructs - ‘ppl_prs’ and ‘comm_awr’ – were measured with one item each, and the other two – ‘comm_int’ and ‘comm_cap’ – with two questionnaire items (Cronbach’s alpha = 0.81 and 0.76, respectively) each.

Socialization Factors: Level of education of the respondent (‘resp_edu’) was measured with a categorical questionnaire item ranging from 1 (High school) to 6 (Doctorate degree). Similarly, the items used to measure the level of education of the respondent’s mother (‘moth_edu’) and father (‘fath_edu’) were coded 1 (Illiterate) to 9 (Doctorate degree). The economic condition of the respondent’s family (‘econ_cond’) was assessed using one item rated on seven point scale (1 = Very poor and 7 = Very rich). One questionnaire item with a scale ranging from 1 (Very strict) to 7 (Very free) was used to measure the respondent’s family atmosphere (‘fam_atmp’). Size of the place (‘city’) where the respondent grew up from age 12 through 18 years was coded 1 (Village) to 5 (Metropolitan city). To assess how far respondent’s family was dependent on forests (‘dep_frst’), the questionnaire item was coded 1 (Not dependent), 2 (Somewhat dependent), and 3 (Highly dependent).

3.3 Data Analysis: The data were analyzed with structural equation modeling (SEM) technique using LISREL 8.52 software (Joreskog and Sorbom, 2002). Following the convention in structural equation modeling (Anderson and Gerbing, 1988; Joreskog and Sorbom, 1993), the latent model was analyzed in two separate stages. Stage 1 involves assessment of a measurement model and following acceptance of this, stage 2 provides an estimation and assessment of the hypothesized structural model.

Considering the large sample size in our analysis, we used Root Mean Square Error of Approximation (RMSEA), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), and Normed Fit Index (NFI), in addition to the traditional chi-square test34 to assess the model-fit. The value of most of these indexes (e.g. GFI, AGFI, CFI, and NFI) can vary between zero and one. A judgment of close fit can be made to the extent that these indexes approach unity.

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34 The value of chi-square is sensitive to variations in sample size. In large samples, the chi-square test detects even trivial differences between the hypothesized model and the data, leading to rejection of the model (Bollen and Long, 1992; Browne and Cudeck, 1993; Hayduk, 1987, 1996; James et al., 1982).
4.0 Structural Equation Models of the FD Members Subjective Resistance

Test-retest reliability coefficients for the questionnaire items used to measure the observed variables range from 0.76 to 0.92, and are statistically significant at a 1% level of significance. Model fit indexes of the measurement model and the structural model are reported in Table 1, and parameter estimates of different paths are given in Table 2.

Overall, the goodness of fit indexes support both the measurement and the structural models. Although chi-square values for both models are significant (p = 0.00), which means that the models fail to pass the exact fit test, the values of all other fit indexes fall within acceptable limits indicating approximate fit between the models and the sample data. The value of RMSEA is well below the cut-off limit of 0.06 and the values of GFI, AGFI, CFI, and NFI are above 0.90.\(^{35}\)

4.1 Measurement Model

In order to examine whether the observed variables are reliable measures of their respective latent variables, a confirmatory measurement model was tested. The initial measurement model had a chi-square value of 623.39 for 192 df (p = 0.00). On the basis of the modification indexes generated by LISREL, three error terms were permitted to co-vary. The modified measurement model fits the data significantly better than the initial model (RMSEA=0.038, SRMR=0.031, NFI=0.96, CFI=0.97, GFI=0.98, AGFI=0.93). Acceptable results of the measurement model confirm that the observed variables are reliable measures of their respective latent variables.

| Table 1: Goodness of fit indexes of Measurement Models and Structural Models |
|-------------------|-------------------|---------|---------|---------|---------|---------|---------|
|                   | Chi-square        | RMSEA   | SRMR    | GFI     | AGFI    | NFI     | NNFI    | CFI     |
| **MEASUREMENT MODELS** |                 |         |         |         |         |         |         |         |
| M1: Original model | 630.63 (199)     | 0.04    | 0.03    | 0.97    | 0.92    | 0.96    | 0.92    | 0.97    |
| M2: Model with three correlated error terms | 557.23 (196) | 0.03    | 0.03    | 0.98    | 0.93    | 0.96    | 0.93    | 0.98    |
| **STRUCTURAL MODELS** |                 |         |         |         |         |         |         |         |
| S1: Original Model | 759.21 (217)     | 0.04    | 0.03    | 0.96    | 0.91    | 0.95    | 0.91    | 0.96    |
| S2: Model after removing insignificant paths and adding modifications | 774.37 (257) | 0.03    | 0.03    | 0.97    | 0.93    | 0.95    | 0.92    | 0.96    |

\(^{35}\) Hu and Bentler (1999) suggest a value of 0.06 or lower for RMSEA, and a value close to 0.90 for GFI and AGFI for a good model fit.
4.2 Structural Model

Next, following acceptance of the measurement model, we included paths between latent constructs as hypothesized in our theoretical model. The initial model with all the paths as hypothesized resulted in a chi-square value of 759.21 for 217 degrees of freedom (df). All fit indexes, reported in Table-1, indicate good fit between the model and the sample data. However, there were quite a few insignificant paths in this model. Next, we removed these insignificant paths (one at a time) and tested the modified model. The modification indices and standardized residuals of this model suggested the variables ‘envprs’ and ‘pplprs’ have an indirect effect, instead of a direct effect, on ‘resistance-1’ through ‘traditionalism’. In addition, modification indices also suggested a direct path from ‘traditionalism’, ‘comm_cap’, and ‘comm_int’ to ‘fear’. Removal of insignificant paths and acceptance of suggested modifications improved the model substantially as reported in Table-1. Fit indexes (RMSEA=0.039, NFI=0.95, CFI=0.96, GFI=0.97, AGFI=0.93) suggest that model explains the sample data well. Hence, this model is used to explain further results.

The final model has two noticeable features. First, two kinds of resistance – the resistance of the members to the implementation of CBFM by the FD (‘resistance-1’) and the resistance of members to implementing CBFM by themselves (‘resistance-2’) – are two independent constructs (correlation coefficient = 0.06). This means that the members of the FD who themselves intend to implement CBFM system in their areas do not support it as an organizational objective of the FD, which is contrary to our hypothesis. Second, of the two personality traits (endogenous variables), only ‘traditionalism’ has a direct significant impact on ‘resistance-1’, while ‘fear’ has a direct significant effect on ‘resistance-2’, and ‘traditionalism’ affects ‘resistance-2’ indirectly through ‘fear’. Hence, a primary causal factor for ‘resistance-1’ is ‘traditionalism’ and for ‘resistance-2’ is ‘fear’.

Direct, indirect, and total effects (un-standardized and standardized estimates) of different causal factors on two kinds of resistance are reported in Table-2. In the next section we discuss the results of ‘resistance-1’, followed by results of ‘resistance-2’.

4.2.1 Subjective Resistance of the FD Members to the implementation of CBFM regime by the FD (‘Resistance-1’) and Causal Factors

The mediator variable (‘traditionalism’), as expected, has the largest positive influence (0.733). This indicates that the hierarchical working attitude of foresters, combined with their tendency to follow well established practices of forest management, are the major causal factors for FD’s members’ disapproval of the adoption of CBFM systems by the FDs.

Of four external environmental factors, two (‘comm_int’ and ‘comm_awr’) have significant direct effects (-0.080 and 0.205) on ‘resistance-1’. The remaining two environmental factors (‘env_prs’ and ‘ppl_prs’) influence ‘resistance-1’ indirectly through ‘traditionalism’ (0.188 and -0.084). This suggests that with an increased interest on the part of communities in forestry activities, members of the FD would tend to favor CBFM regime. In contrast, the level of community awareness has a large positive effect on the degree of ‘resistance-1’, i.e. the more aware communities are about CBFM regime, the greater the resistance among foresters to its implementation by the FD. This result, at first glance, seems perplexing. However, the underlying logic becomes clearer if one looks at the implications of the CBFM regime. In the
new regime foresters are required to work as ‘facilitators’, not as ‘controllers’. The more the communities are aware of their rights and privileges in a CBFM regime, greater the threat the foresters perceive to their authority and control.

Another external environmental factor which shows sign contrary to our hypothesized model is the pressure from media, non-governmental organizations, and peoples’ representatives (‘env_prs’), which has an indirect positive influence (0.188) on ‘resistance-1’. This indicates that as pressure from these agents increases, respondents tend to more rigidly follow rules, regulations and standardized practices. As ‘traditionalism’ has a positive impact on resistance to CBFM regime, increased pressure from these components of the external environment results in greater resistance. On the other hand, direct pressure from local peoples (‘ppl_prs’) shows an indirect negative impact (-0.106) on resistance by negatively affecting ‘traditionalism’. Again, a deeper understanding of the bureaucratic psyche of foresters, especially in developing countries, is required in order to fully appreciate this result. In general, foresters heed demands raised directly by local people but ignore the same demands if voiced through a mediating body such as the media or a non-government organization. Direct pressure from local people for their involvement in forest planning and management leads to a lessening of hierarchical, standardized working practices of the respondents, which in turn results into lower resistance towards implementation of CBFM regime by the FD.

Three organizational factors: length of service (‘service’), recruitment mode (‘rec_mode’), and the number of trainings on CBFM attended by the respondent (‘trn_cbfm’), are found to have significant effects (-0.111, 0.091, and -0.077) on ‘resistance-1’. Respondents with greater length of service in the FD appear to have a less hierarchical working style, which in turn leads to lower resistance to CBFM regime. However, respondents who are in their ranks by virtue of promotion rather than being directly recruited, show greater tendency to follow rules, regulations, and standardized practices and thus, greater resistance. Training on CBFM systems seems to play a positive role in respondent’s acceptance CBFM concept as an organizational goal.

Of the socialization factors, only the respondent’s education level (‘resp_edu’) and family atmosphere during childhood in terms of liberty of expression (‘fam_atmp’) have significant negative influences on resistance to CBFM regime. These effects are indirect and are channeled through ‘traditionalism’. Respondents with a higher education level reflect a less hierarchical attitude and thus, less resistance to participatory methods of forest management. These results suggest that liberty of expression in the family during childhood leads to the development of a liberal attitude to working. In sum, the results indicate that inclination of members of the FD to follow hierarchical and standardized working practices (‘traditionalism’) is the single major cause of resistance to adoption of CBFM regime by the FD.

4.2.2 Subjective Resistance of the FD Members to the implementation of CBFM regime by themselves (‘Resistance-2’) and Causal Factors

In the final structural model of ‘resistance-2’, the latent construct – ‘fear’, is an endogenous variable which, in addition to exogenous variables in the model, is influenced by another endogenous variable – ‘traditionalism’. Though the direct path from ‘traditionalism’ to ‘resistance-2’ is not supported, all exogenous variables affecting it, also affect ‘resistance-2’ by having an indirect effect on ‘fear’.

‘Fear’ has the largest positive effect (0.246) on ‘resistance-2’, while knowledge of success stories about CBFM regime (‘succ_str’) has the largest negative impact (-0.636). ‘Fear’ is
positively affected by ‘traditionalism’ (0.664), ‘workload’ (0.240), place where respondent grew up – ‘city’ (0.011), and training on CBFM – ‘trn_cbfm’ (0.089), and it is negatively affected by knowledge of success stories – ‘succ_str’ (-0.440), capacity of local people to manage forests – ‘comm_cap’ (-0.139), level of interest of local people in forestry activities – ‘comm_cap’ (-0.159), economic condition of respondent’s family during socialization – ‘econ_cond’ (-0.104), and mode of recruitment – ‘rec_mode’ (-0.175).

Inspection of the parameter estimates shows that none of the hypothesized direct negative effects of external environmental factors on resistance-2 is supported. However, four environmental factors have an indirect effect on ‘resistance-2’; two: ‘comm_cap’ (-0.034) and ‘comm_int’ (-0.039) through ‘fear’, and two: ‘env_prs’ (0.042) and ‘ppl_prs’ (-0.010) through ‘traditionalism’. These results suggest that higher capability and increased interest on the part of local communities in forest management mitigates resistance to CBFM systems among foresters. Interpretation of the effects of other two environmental factors in this type of resistance is similar as in the case of ‘resistance-1’.
Table 2: Direct, indirect, and total effects of different causal factors on two kinds of subjective resistance of the members of Indian State Forest Departments to CBFM regime

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Note:

1. Blank cells in the table denote insignificant paths or paths not included in the model.
† Est.: Parameter estimate & Std.: Standardized parameter estimate
* Significant at 10% level of significance
** Significant at 5% level of significance

Of the organizational factors, ‘skills’ (-0.129), ‘succ_str’ (-0.636), ‘succ_exp’ (-0.083), and ‘ngo_exp’ (-0.114) have a direct effect on resistance; that effect is, as predicted, a negative one. ‘succ_str’ also affects ‘resistance-2’ indirectly (-0.108), by mitigating fearfulness. Increase in workload in the new regime of forest management (workload) positively affects ‘resistance-2’ indirectly by increasing fear. Mode of recruitment affects resistance indirectly through fear (-0.043) as well as traditionalism (0.020). Respondents working in their present rank by virtue of promotion show a greater tendency to adhere to rules and regulations, but feel less threatened in CBFM regime. Experience of working in CBFM (‘cbfm_exp’) or voluntary efforts in adopting a participatory approach (‘cbfm_eff’) is not found to have any direct or indirect effect on the resistance-2. However, if voluntary efforts are successful (‘succ_exp’), it helps in increasing acceptance of CBFM systems.

Training in CBFM concepts (‘trn_cbfm’) does not have any direct impact on ‘resistance-2’, but it increases resistance indirectly (0.022) by increasing fear of losing authority, control, prestige, and promotional avenues in CBFM regime. The direction of influence of training is contrary to what we hypothesized in the theoretical model. In addition, we also expected a direct path from training to ‘resistance-2’ which is not supported by the empirical results. As stated earlier, the most important implications of participatory forest management, from the perspective of the forester are: reduction in authority, control, and sense of autonomy. If training focuses heavily on explaining only these implications, and not the positive outcomes of peoples’ participation, it may foster a biased attitude. It seems that trainings, by making respondents aware of the underlying consequences of CBFM regime, are having adverse impact on its acceptability by foresters.

Level of job satisfaction (‘jobsatsf’) has a direct negative impact (-0.059) on the degree of ‘resistance-2’. This suggests that higher job satisfaction leads to increased acceptance of implementing CBFM regime.

Of the socialization variables, the respondent’s family’s dependence on forests (‘dep_frst’) is the only variable which shows a direct negative effect (-0.085) on ‘resistance-2’. This means that people who have grown up in the vicinity of forests and have been dependent on forests in some ways are more in favour of participatory approaches of forest management. The size of place where the respondent grew up (‘city’) shows positive effect on fear, i.e. the larger the place, the more is the fear of losing promotions, authority, prestige, and control, which in turn increases resistance to CBFM systems. The effect of remaining socialization factors (‘resp_edu’ = -0.112; ‘fam_atmp’ = -0.004;) on ‘resistance-2’ is channeled through ‘traditionalism’ to ‘fear’, and the interpretation of these effects is the same as in the case of ‘resistance-1’.

6.0 Policy Implications and Conclusions

The study confirms the existence of two types of subjective resistances among foresters: members’ resistance to implementation of a CBFM regime by the FD and resistance to implementation of a CBFM regime by themselves. Our results indicate that the two types of resistance are independent of each other, i.e. acceptance of CBFM regime at the level of individual member may be insufficient for its successful implementation at the organizational
level. Similarly, our results suggest that ‘traditionalism’ is a primary causal factor of ‘resistance-1’ and ‘fear’ of ‘resistance-2’, therefore two different approaches are necessary to deal with these two resistances.

‘resistance -1’ is critical for the national-level or state-level success of the CBFM regime. Hence, the Indian forest policy makers should assign high priority to dealing with ‘resistance-1’. The most significant causal factors, in addition to ‘traditionalism’, which increase ‘resistance-1’ are pressures from media, non-governmental organizations, and representatives of the people (‘env_prs’), and the level of community awareness about CBFM (‘comm_awr’), direct pressure from communities (‘ppl_prs’), the level of the community’s interest in forestry activities (‘comm_int’), and the numbers of trainings (‘trn_cbfm’) received by foresters on CBFM are the most significant factors that reduce ‘resistance-1’. It seems that in the interest of promoting CBFM regimes, the media, non-governmental organizations, and representatives of the people should change their strategy of directly attacking the Forest Department for its non-participatory approaches, and should instead work through local communities.

In the early stages, traditionalism or hierarchical and conservative attitudes of foresters are influenced by socialization variables and entry-level training, and thereafter are reinforced by organizational structure and culture. The recruitment procedures for foresters should be examined and modified to filter out applicants with undesired conservative attitudes. The entry-level training should focus more on social issues of forestry, and should aim at equipping trainees with skills in two-way communication, eliciting community participation, participatory decision making, analysis and understanding of peoples’ values, customs, and traditions etc.

In-service trainings, in addition to exposing trainees to new technical knowledge, provide opportunities for interactions among foresters from different states, academicians, and members from non-governmental organizations, as well as for sharing experiences of successes and failures from different parts of the country. The results of this study indicate that in-service trainings decrease resistance to CBFM regime at the organizational level but increase resistance to CBFM regime at an individual level. The beneficial effects, at the organization level, of trainings are most likely due to the enhancement of community forestry skills of the foresters, while the negative effects, at the individual level, are likely due to exposure of trainees to underlying implications such as devolution of power, transparency of actions, and accountability of the members to communities, which contribute to fear on the part of participants. Hence, these factors need to be accounted for while designing in-service training programs, and only selected training institutions and trainers with excellent skills in designing and delivering optimal community participation programs should be entrusted to conduct CBFM related in-service training programs.

In CBFM regimes, local communities and FD are equal partners, and training the local communities is as important as training the foresters. Local communities need to be exposed to global forestry issues and basic forest management principles. These communities, once capable of managing forest resources in partnership with forestry agencies, are expected to show an increased interest in forestry activities. This, as shown in this study, will directly mitigate disapproval of the implementation of CBFM by FDs.

The resistance on the part of foresters to implementation of CBFM regime at an individual level (‘resistance-2’), also requires the attention of policy makers, specifically due to a different primary causal factor - the ‘fear’ of losing authority and control. Risk of failures
aggravates this fear. Knowledge of cases of successful implementation of participatory approaches is the single most important factor to show a mitigating effect on this resistance. Awareness of the feasibility of CBFM regime and its impact on forest rehabilitation generates confidence among foresters. Success stories are most effective at demonstrating that the participation of the people is attainable and will have positive impact on forest resources. Hence, efforts should be made to disseminate success stories of CBFM systems at every level of hierarchy in the FDs. Experience of working in NGOs has been found to have a positive impact on acceptability of CBFM systems. Hence, foresters at all level should be encouraged to serve some part of their service career in NGOs.

In summary, the present status of CBFM regimes seems to be in a mode of co-optation of local communities into a state dominated forest management regime in which the state is trying to reduce its obligation towards forest management without concomitant transfer of decision making authority and equitable resource sharing arrangements. In Andelson’s (2000) terminology, it is ‘decentralization without empowerment’. In such a mode, communities may get some benefits which were not available in the strict state regime, but these are not realized through co-operative efforts as per the mandate of CBFM regime; and communities remain dependent on the state with the usual ‘top-down’ transfer of resources. Hence, appropriate interventions to reduce resistance on the part of foresters have to receive the priority attention from all involved – policy makers, NGOs, and representatives of the people.

Finally, these findings may be highly relevant to a number of other developing countries which have many features of forest management similar to those in India. Adoption of the CBFM paradigm, in most of these countries, has been accompanied by very few organizational reforms (Lindsay, 2000), and foresters in these countries may demonstrate similar patterns of resistance to CBFM regimes. Hence, forest policy makers, in these countries, should initiate similar studies and use the outcomes of these studies to plan and implement organizational reforms and other interventions to reduce resistance to CBFM regime.

Literature Cited:


Food and Agriculture Organization of the United Nations and RECOFTC, Bangkok.


