



Universiteit Utrecht

**Sustainable collective action in
Joint Forest Management, Maharashtra, India**

*A comparative analysis of the
influence of external actors*

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आभार

माझा संशोधनाच्या सुरुवातीच्या प्रक्रियेत मला माहित नाहव्ते कि प्रताक्षपणे किती लोक ह्या मध्ये सहभागी होतील आणि मदत होईल कितेक जणांची. सर्व प्रथम मी महाराष्ट्रातील विधाभाचा लोकांचे धन्जावाद देऊ चाहते, ज्यांनी मला त्यांचा मूल्यवान वेळ देऊन माझा प्रश्नाचे उत्तर देऊन सहयोग केला आणि वास्तविकता कसे काम पार होते हे समजावून सांगितले. गोंदिया मधील ग्रामीण विभागातील लोकांचा आदरातीत्यामुळे आणि वन विभागाचा अधिकाराच्या खुलेपणामुळे आणि दोन एनजिओचा सहभागामुळे मी माझा संशोधन पूर्णच नाही तर तो अधिक ज्ञानवर्धक आणि वाचमय बनवू शकले. त्यांच्या खुलेपणामुळे आणि आंतर्दुष्टीमुळे मी प्राप्त केले कि माझा प्रत्यार्थीमुळे मला माझा निर्णय निनावी ठेवता आले.

माझा संशोधनाचे पर्यवेक्षक, फ्रँक वैन लेरहोवेन यांनी मला सतत समर्थन, मार्गदर्शन आणि प्रोत्साहन दिले संपूर्ण प्रक्रियेत .त्यांचा उत्तेजक प्रश्नासाठी, व्यावहारिक मार्गदर्शनासाठी आणि आश्वासनासाठी मी त्यांची अत्यंत आभारी आहे.

मी विशेषतः खूप आभारी आहे रुचा घाटे आणि प्रत्येकजण जो शोध शी संलग्न आहे: अनुसंधान और विकास संस्थान, नागपुर अतिविशेषतः मुकुंद कुलकर्णी, सुरेश घाटे आणि परिवार आणि रामदास ज्यांनी सतत रुची व समर्थन केले निरनिराळे रूपाने. ह्या संशोधांसाठी प्रेरणादायक महत्व भेटले रुचांचा सक्षम अनुभवाची आणि स्थानिक मार्गदर्शनाची .हा एक विशेषतः पुरस्कृत अनुभव होता कि अशा प्रेरणादायक लोकाकडून शिकण्याचा व अनुभव घेण्याचा .मला अजून माझा मैत्रिणींचा विशेष रूपसाठी धन्यवाद द्यावे वाटते विशेषतः निदा, परीनिता आणि डोरीन कि ज्यांना मी नागपूर भेटले, त्यांचा समर्थनासाठी आणि रुपांतर मध्ये मदत करण्यासाठी . मी अजूनही खूप आभारी आहे प्रणय अदेचे जो नेहमीच तयार असायचा रुपांतर मध्ये मदत करण्यासाठी आणि व्यावहारिक व्यवस्था बरोबर त्याचा स्थानिक मार्गदर्शन आणि प्रेरणादायक विचारासाठी. मी अजूनही अतिविशेष धन्यवाद द्यावयासे वाटते प्रशांत बर्जे यांचे कि, ज्याचामुळे माझा संशोधनाचे मराठी सारांश आणि संशोधनाचे एकत्रित सारांश चे मराठीत रुपांतर करता आले, ज्यामुळे मी खात्रीलायक निश्चित आहे कि, माझे संशोधन योग्य रीतीने समजेल माझा उत्तरार्थी आणि सर्व इच्छुक मंडळी आणि लोकासाठी जे महाराष्ट्रातील आहे.

शेवटी , मी आभारी आहे इंग्लंड मधील माझा परिवारांचे आणि दोस्तांचे आणि मी नीदरलँड असताना त्यांनी धैर्य, समर्थन आणि प्रोत्साहन दिले ध्यान केंद्रित करण्यासाठी, विशेषतः सुरुवातीचा काळात आणि प्रक्रियेत.

क्लेअर बार्नेस

रॉटरडैम, नीदरलँड्स

Abstract

The Joint Forest Management (JFM) policy was implemented across India during the 1990s with the vision of combining forest conservation and rural livelihood improvement goals through creating local level partnerships between the Forest Department and the local villagers. The difference between the rhetoric and the reality has been widely documented, as has the great variety in outcomes of JFM seen in forests and villages across India, raising the question about the reasons for such diversity. In this research the departure point of forests as a common pool resource (CPR) is taken, central to which is the concept of collective action through which forest users devise rules to manage the forests. Collective action lies at the heart of the JFM policy. One reason for the variety in outcomes of JFM at a local level could be the differing levels of involvement of external actors- seen here as individuals and organisations other than the local forest users, with the key external actors being the Forest Department and NGOs. This research uses a comparative analysis of four cases in which collective action is functioning and two cases in which collective action is not functioning, with the level of key external actor involvement varying across the cases. The influence of external actors is measured through the independent variable indicators: provision of relevant knowledge, management and social skills, communication channels and financial support. The sustainability of collective action (the dependent variable) is assessed using the indicators: the functioning of collective action, the level of understanding of JFM policy, awareness and involvement of forest users, connections with external actors, confidence in future benefits and the perceived ability to independently manage JFM. The main conclusion is that external actor involvement is not a pre-requisite for functioning collective action, however external actors do occupy a central and powerful position to influence the level of sustainability of collective action. Whilst there are individual positive cases of external actors influencing individual indicators, there is no clear correlation between external actor involvement and the indicators for sustainability of collective action, indicating that their involvement does not necessarily lead to more sustainable collective action. The influence of external actors is determined at an individual, rather than an organisational level and is limited due to a lack of policy knowledge, limited efforts in outreach towards marginalised groups, poor communication between external actors themselves and the low level to which JFM is institutionalised within the Forest Department. The study concludes with policy recommendations for external actors at a local level to strengthen the sustainability of JFM in Maharashtra.

सारांश

संपूर्ण भारतभर १९९० च्या दशकास/सुमारास संयुक्त वन व्यवस्थापन राबविले गेले .त्या अंतर्गत स्थानिक पातळीवरील वनखाते आणि स्थानीय ग्रामीण जीवन पद्धती यामधील भागीदारी ज्यात संयुक्त रित्या वने / जंगल बचाव आणि ग्रामीण जीवन पद्धती बाबत सुधारणा करण्याबाबतची दृष्टी दिसून येते .अलंकारयुक्त आणि वास्तविक यातील फरक लेखी पुराव्यानुसार सिद्ध केलेला आहे आणि संयुक्त वन व्यवस्थापनेतील अनेक प्रकारच्या विविधतेचे निष्कर्ष संपूर्ण भारतभर वन आणि ग्रामीण विभागातील विविधतेचे भिन्नातेची कारणे निर्माण होतांना दिसून येतात .या संशोधनातून वनासंबंधीचे मुद्दे सोडून देण्यासंबंधी जसे केंद्रीय /मध्यवर्ती एकत्र करण्याचे साधन ठरते कि जे सामुदायिक कृतीची कल्पना ज्याद्वारे वनाचा उपयोग करणारे नियम वनासंबंधीचे व्यवस्थापन करतात .

संयुक्त वन व्यावस्थापनेच्या हृदयात एकत्रित कृती समाविष्ट असते एक कारण . असे कि संयुक्त वन खाते व्यवस्थापनेच्या अनेक विध निष्कर्ष स्थानिक पातळीवर वेगवेगळ्या प्रकारचे पातळीवर बाह्यपणे अंतर्भूत कृती करणारे असतातया शिवाय या . ठिकाणी व्येयाकीकरित्या व संघटनात्मक रित्या दिसून येतात.

बाह्य कृती करणारे वनखाते व एन गी ओ याशिवाय जे स्थानिक वनाचा उपयोग करतात जे वयैक्तिक रित्या व संघटनात्मक रिया दिसून येतात या संशोधनाचा उपयोग चार प्रकारच्या . प्रकणात तुलनात्मक दृष्ट्या, पृथक्करण / वगरे करण्यात येतेकि . ज्यामध्ये संयुक्तिक एकत्रित कृती कार्य / करते आणि दोन प्रकणात संयुक्त कृती कार्य/ करीत नाही ज्या बरोबर बाह्य कृतीचा समावेश ओलांडून अनेक विध प्रकरणात केलेला आहे - - बाह्य कृतीचे स्वतंत्र बदलणारे सूचनाफलक स्वतंत्रपणे मोजले जातात संबंधित . ज्ञानाची तरतूद व्यवस्थापन आणि सामाजिक कौश्याल्य, पत्रव्यवहार आणि आर्थिक पंठीबाची तरतूद आहे एकत्र कृतीचे स .हनशीलतेचे आधार ठरवताना) चंचलतेवर अवलंबून असणारा संयुक्त वन . फलकाचा उपयोग करावा करांची आकारणी करताना सूचना (व्यवस्थापनाचे धोरण जे एकत्र कृतीचे कार्य त्याबाबत समजुती बाबतचा दर्जा वनासंबंधीच्या उपयोगाबाबत जागृतता आणि गुंतागुंत असणे , भावी फायद्याबाबत पूर्ण विश्वास बाह्य कृती करण्यासंबंधी जवळीक असणे , कि स्वतंत्रपणे संयुक्त वन व्यवस्था पनेचे व्यवस्थापन करण्याबाबतच्या ज्ञानाबाबत सक्षम असणे , या बाबी ठरवितात . शेवट असा/महत्वाचे अनुमान कि बाह्य कार्यकर्त्यांचा सहभाग पूर्वापेक्षित एकत्र कार्य करण्याची कृती होत नाही. असे असतांनाही बाह्य कृती करतांना मध्यवर्ती आणि प्रबळ हुया या बाबत समाविष्ट केलेला असतो कि ज्या एकत्रित . कार्याबद्दल नैतिक बळ देण्याचा दर्जा व आधार देण्याची एकत्रित कृती असते जो पर्यंत बाह्य कृती करण्याचे . नैतिकतेबद्दल वैयक्तिक सूचना फलक नैतिकतेचे बळ सामर्थ्य/्य देते बाह्य कृती करण्याचा सहभाग आणि सूचना . दर्शक यांच्या एकत्र कृतीची सहनशिलता एकत्र कृती . या दोघांमधील परस्पर संबंध स्पष्ट नाही - करण्याबद्दल असे दर्शविते कि त्यांच्या अधिक सहभागाबद्दल नेतृत्व आवश्यक नाही . काही अंशी वास्तविक पाहता संघटनात्मक असलेला दर्जा पेक्षा काही अंशी नैतिक बळ हे व्यक्तीक्षा बाह्य कृती करण्याबाबत ठरविले जा तेआणि . ज्ञानाबाबताच्या कमतरता असलेल्या धोरणामुळे मर्यादा येतात. जे संघटनेचे कार्यकम, मर्यादित परिश्रम जनतेसाठी सेवा उपलब्ध करतात. ज्यांच्याकडे जमावाचा सल्ला महत्वाचा नसणे,

ज्यामध्ये कमी दर्जाचे दळणवळणपरस्पर / देवाणघेवाण दोघामध्ये बाह्य कृती करण्यामध्ये स्वतःच आणि कमी दर्जाचे असणेकि . जे संयुक्त वन व्यवस्थापनेचे संस्थाविषयी वनखात्या अंतर्गत असतात .

या अध्ययनाचा शेवट करतांना स्थानिक पातळीवरील बाह्य कृतीचे महाराष्ट्रातील सं -युक्त वन व्यवस्थापनेचे आधार देण्याबाबतच्या धोरणास बळकटी आणण्याची शिफारस कारणे .वीकरा /

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Chapter 1: Introduction

1.1 JFM: the rhetoric and the many realities

In India decentralisation of forest management has been operationalised through the Joint Forest Management (JFM) policy which came into effect across most states in the 1990s. JFM aims to forge partnerships between Forest Department (FD) officials and local communities to protect forests through the creation of Joint Forest Management committees comprised of local forest users and a representative of the FD. This policy represents an opportunity to move towards cooperation and empowerment of civil society whilst improving livelihoods and protecting and regenerating forests. However criticisms have been raised about the gap between the rhetoric and the reality (Nayak and Berkes, 2008). In practice the impact of JFM across India is mixed including in Maharashtra state, the location of this research. Success stories are marred by numerous reports of non awareness amongst local communities, elite capture, unequal power relations between the FD and the communities, low levels of community participation, initial enthusiasm quickly fading and the indifference of many local FD officials towards the policy. There is general confusion surrounding the new rights, entitlements and responsibilities amongst actors directly and indirectly involved in JFM. Indeed the number of active and functional JFM committees is perhaps around 40% of the total JFM Committees (Pai and Datta 2005: p1).

Drawing from the literature written specifically on JFM and the wider literature on the subject of governance of common pool resources, one factor which could (at least partially) account for the wide variety in the local level outcomes of JFM, is the variation in external actor involvement. External actors are defined here to be individuals and organisations other than the local forest users that have an influence (positive or negative) on the sustainability of collective action at the local level. For example, the involvement of the Forest Department could range from minimal support in registering a JFM committee to regular contact in order to discuss forest management techniques, solve disputes and arrange relevant trainings. Similarly, Non- governmental organisations (NGOs) have been named in the Government Order of 1990 and guidelines of 2002 produced by the Ministry of Environment and Forests (MoEF) as having a supportive role to play in 'motivating and organising village communities for the protection, afforestation and development of degraded forest land' (MoEF, 1990, extended to include all forest land in 2002). However their involvement varies from community to community. Does this variation in involvement have any influence on the sustainability of the collective action which lies at the core of JFM?

1.2 Conflicting interests in forests?

Forests are a source of many, sometimes conflicting, environmental, social and economic services at a global, national and local level. At a global level, forests are understood to play essential roles in maintaining biodiversity and sustaining global ecosystems whilst their vital position in the global carbon cycle is also being given increasing attention (Sunderlin et al., 2005). In developing countries the conversion of forest land to other land uses such as agriculture has been seen as synonymous with development, however the importance of forests for the livelihoods of local people has not wavered even as economic development has taken place. Indeed Sunderlin et al. (2005: p1384) states that 'Severe rural poverty and

remaining natural forests in developing countries tend to share overlapping space'. Forests can therefore be seen to be simultaneously important on a global level for conservation, and a local level for livelihoods (Agrawal, 2007). Chaytor (2001) asserts that the most important issues in relation to forests currently are: addressing the causes of deforestation, conserving forests as a whole (not just for timber), equity of forest dwellers, effective intergovernmental institutional support and fully implementing existing legal instruments. It can be seen that these issues are multi-level and multi-actor and therefore present a complex set of policy problems.

1.3 Forests as a common pool resource

Forests are a common pool resource (CPR) which is defined here following Ostrom (1990) as man-made or natural systems that generate finite resources such that they are subtractable, meaning once removed by one user they are not available for the following user, and that preventing potential users is difficult though not impossible. Examples of CPRs are forests, fisheries, groundwater basins, irrigation systems and grazing lands (Varughese and Ostrom, 2001). The conventional view of forest management was that they should be controlled by the state in order to avoid them being used unsustainably as an open access system by the local people (Ostrom, 1990, 1999). This view was manifest in India by the British rulers through a strong centralised power managing forests solely for their economic value as a producer of timber for development (Kumar, 2002). However since the 1980s a vast amount of empirical research has found that users of resources in a wide variety of settings have devised their own rules and regulations for managing CPRs through collective action and that under certain conditions local user institutions can pose a viable alternative to externally imposed rules (Balland and Platteau 2000, Ostrom, 1990, Ostrom 1999, Poteete and Ostrom 2004). Indeed across the world there is an increasingly large area of forests under community control as governments face a number of pressures such as: fiscal deficits; funding from international donors linked to participation of local resource users; bottom-up pressure from groups seeking to manage their land and evidence of communities managing CPRs in a more sustainable and cost effective manner than those managed by government agencies (Agrawal, 2007). These pressures have led to a general trend in decentralisation of natural resource management, seen in India by the 1988 National Forest Policy which laid the foundations for the introduction of Joint Forest Management across the country.

1.4 The JFM Policy

JFM is the most common operational form of the National Forest Policy of 1988 which introduced people centred decentralization to forest management in India (Ghate, 2009). Currently JFM covers 22 million ha of forest across 28 states of India and union territories, and comprises 106,482 JFM committees (Bhattacharya et al., 2008). However it is widely acknowledged that the implementation of JFM has faltered in many cases. It is pertinent to note that the concepts behind JFM, namely decentralisation of natural resource management and participation of local people in managing forests, are not themselves being questioned. Consequently a move away from JFM or a similar policy is highly unlikely, especially given the pressures on governments outlined previously. It is therefore important to understand the reasons why implementation has not been as successful as it may have originally been expected. A further significant observation from the literature on JFM is that there is great variation in the success of JFM both in terms of livelihood improvement and of forest cover

and quality, even within the same state (Lele, 2000). Further empirical research into the implementation of JFM at a local level is therefore required in order to better understand why such variety in success has occurred.

1.5 The focus on external actors

This research will focus on the influence of external actors on collective action which, according to literature on the governance of common pool resources, is relevant for sustaining CPRs and therefore could at least partially account for the variation in success between JFM cases (Nayak and Berkes, 2008). Collective action is central to the success of JFM as under the JFM policy, collective action should be taken by the forest users together with a representative of the FD to determine and enforce rules on forest management and make decisions on forest related activities such as plantations or water and soil management. Therefore sustainable collective action can be seen to be an integral component of a successful JFM case. The literature on common pool resources identifies many variables that are relevant for sustaining CPRs, which can be divided into four clusters: i) characteristics of the resource system; ii) the user group; iii) institutional arrangements; iv) external environment (Agrawal 2001, 2007). The influence of external actors is an important variable relating to the external social, economic, political and administrative environment in which the JFM case is located.

The literature on JFM gives limited attention to variables relating to the external environment, focusing mainly on the incentives for the local forest users to participate in the program (Matta and Kerr, 2007). This is also true of the wider literature on CPRs where more attention has been given to institutional factors rather than the external environment (Agrawal, 2007). Such a focus on the institutions through research of successful design principles or factors affecting the incentives of local people to form collective action institutions, does not give sufficient attention to the real-life complexities facing external actors on the ground. Where reformist state actors or well intentioned market or civil society actors (seen here as external actors) wish to promote community forest management programs such as JFM, their working location selection criteria is unlikely to be based on the theoretical literature surrounding design principles. They may be equally drawn to (or contracted to) work in villages that do not present characteristics which would deem them likely success stories according to the current literature. In relation to JFM, poverty and concerns over deforestation are likely to form the main criteria for NGOs to select villages to work in. They should be able to consult literature that includes a broader analysis of the external environmental influences on collective action, and which should include a critical discussion of their own role. In his research in Andhra Pradesh, Behera (2009) reports that JFM communities are not selected by the FD based on a proper assessment of the potential for collective action, resulting in unsuccessful forest management and therefore the waste of public and donor funds. This example highlights the disparity between the selection of communities in practice and the literature on successful collective action. Behera highlights the advantages that could be gained by FD officials having access to and using theoretical literature on collective action in their selection of JFM communities. However the external actors are also operating in villages that do not have the characteristics for successful collective action. Understanding their roles as external actors is deemed here to be equally as important as identifying optimal situations for collective action.

Recently there have been an increasing number of studies into the perceptions, motivations and incentives of Forest Department officials towards JFM (see Matta et al. 2005a; Matta et al., 2005b; Matta and Kerr, 2007) however these studies do not analyse the actual influence of the FD at the local level. Where comparisons between JFM cases based on variation in actor involvement have been conducted, it is common to differentiate cases based solely on which actor initiated JFM (see Sarin, 1996 cited in Sundar, 2000; Ghate 2008). Whilst it is accepted that this is an important aspect on which to differentiate, this research will take a process approach to differentiate cases based on the level of involvement of external actors beyond the point of JFM initiation. In this way the influence of the external actors on the sustainability of collective action from the point of initiation until the present will be analysed. It is proposed that this approach is useful considering that a high percentage of JFM cases are initiated by the FD yet there is great variation in their success, pointing to the need to consider actor involvement beyond the point of initiation. In addition, this research adds to the current discussions on the influence of the external environment on the governance of CPRs. As Agrawal (2007) notes, the amount of forest area managed through common property institutions as opposed to top-down state governance has increased over the last two decades and therefore understanding how policies such as JFM are implemented on the ground is increasingly important.

This research follows the interpretation of sustainable development as a process of societal change rather than a fixed outcome as stated in the Environmental Governance for Sustainable Development Research Program of the University of Utrecht. JFM can be seen as a policy aimed at putting into operation the concept of sustainable development through creating institutions at the local level. This research encompasses many aspects that are central to the research program. These include the attention to the multilevel and multi actor nature of environmental governance which recognises the importance of relationships between state and civil society and the potential role of civil society actors in the provision of public goods, in this case the forest as a natural resource. Here, the definition of governance given by Rhodes (1997a: p109) cited in Kjaer (2004: p31) is taken, 'Governance means there is no one centre but multiple centres; there is no sovereign authority because networks have considerable autonomy.' In addition JFM is seen in this proposal as a part of the decentralisation efforts of the Indian national government which is part of a trend of downwards shifts in governance as recognised in the research program.

1.6 Research Outline

This research aims to develop greater understanding of the influence of external actors on the sustainability of collective action in JFM through case study research conducted in Maharashtra state, India. Through careful case selection with a diversity of external actors present, knowledge will be gained about the specific influence of external actors on the sustainability of collective action during the existence of JFM at each case location. The knowledge gained is most applicable to the Vidarbha region of Maharashtra state (see Figure 7) as the resource characteristics as well as the social, economic and political environment will be most similar in a smaller geographical area. However, the research may also raise issues relevant to the wider theoretical study of CPR governance concerning the influence of external actors on the sustainability of collective action. To this end, the conclusions and recommendations drawn from this research will be compared with the literature on CPRs and

JFM in particular to determine the extent to which this study supports or challenges conclusions drawn from studies in different locales.

This research objective allows the following research question to be formulated:

In what ways does external actor involvement in Joint Forest Management in Maharashtra, India influence the likelihood of sustainable collective action at the local level

External actors are defined here to be individuals and organisations other than the local forest users that have an influence (positive or negative) on the sustainability of collective action at the local level. Although the JFM Government Resolution in Maharashtra (MoEF, 1992 and 2003) states that a representative of the FD should be the secretary of the JFM committee, FD officials are seen here as external actors as they represent a state agency and their influence may or may not extend further than attending committee meetings and taking records. Other external actors could be state bodies at different levels, local and national NGOs, international funders or businesses in NTFPs.

1.6.1 Dependent variable

In order to determine the extent to which sustainable collective action is present in each case, a matrix will be developed which will encompass indicators on both the functioning of the collective action and its sustainability. According to Poteete and Ostrom (2004) examples of functioning collective action (CA) are characterised by: regular meetings; the presence of rules on entry, harvesting and monitoring and the presence of a system to enforce the rules. In addition a qualitative measurement of the sustainability of collective action will be made based on the following indicators:

1. Level of understanding amongst external actors and forest users of the JFM policy (amendments, entitlements and responsibilities)
2. Level of awareness and inclusion of all forest users
3. Level of connections with external actors and other communities of forest users that will allow for knowledge transfer in both directions, concurrence on conflicts of interest, building trust and reciprocity
4. Level of confidence amongst forest users that their actions will benefit them in future
5. Level of perceived ability amongst the forest users to manage their own JFM without depending on the knowledge and skills of external actors

The sustainability indicators are drawn from the literature on collective action, as will be discussed in the following Literature Review.

1.6.2 Independent variable

The influence of external actors on the likelihood of sustainable collective action will be determined by analysing three indicators. These independent variable indicators have been drawn from literature analysing the influence of state agencies, NGOs and other external actors on local collective action as well as research on JFM in respect of the requirements of forest users to successfully undertake collective action (as will be seen in Chapter 3).

1. The provision of relevant knowledge by the external actors;
2. The provision of management and social skills by external actors;
3. Establishing communication channels between the forest users and external actors;

4. Direct financial support or financial support in kind.

It is important to state here that each independent variable indicator may be manifest in different ways at each case location and may have changed during the existence of JFM in each case. Therefore each indicator of external actor influence cannot be quantifiably measured rather they will be used to guide analysis of the influence of external actors, as will be seen in Chapter 3.

1.6.3 The case studies

The unit of analysis is the village population which is also seen as the potential population for a single JFM case. The cases were carefully selected from examples of functioning CA in order to have a variety of levels of external actor involvement, whilst holding other possible influences of the sustainability of collective action as constant as possible (as will be explained in detail in Chapter 3). The cases selected are based on the involvement of the two key external actors identified in literature, namely the Forest Department (FD) and NGOs:

- A:** Forest protection and JFM is self initiated by the forest users with high FD and high NGO involvement
- B:** Forest protection and JFM is self initiated by the forest users with high FD involvement and low NGO involvement
- C:** Forest protection is initiated by forest users, JFM is initiated by FD and there is a low level of FD and NGO involvement
- D:** Forest protection and JFM is initiated by an NGO with international funding and minimal FD involvement

In addition, these cases are supplemented by two smaller case studies where CA is not functioning and where the key external actors are present. In this way it is also possible to compare external actor involvement between examples of functioning and non functioning CA and analyse whether the external actors have also had an influence on the non functioning of collective action.

1.7 Organisation of the thesis

Figure 1 outlines the structure of the thesis. The following chapter will provide a review of the literature and place this thesis within the current debates on common pool resources. Drawing from the literature a conceptual framework for this research will then be presented and the research design and methodology will be outlined. To bring the focus onto forest management in India, a background section will follow which will introduce forest management in India and the JFM policy in particular, and will give the location of this research. The results of each case will then be presented and analysed, followed by a comparative analysis of the results which will highlight the influence of the external actors on each indicator of sustainable collective action. The final chapter will use the comparative analysis to answer the research question and draw conclusions from the research. A discussion of the issues raised by this research will be given and a reflection on the research design and methodology used. Finally, the conclusions will be used to make policy

recommendations for the key external actors and suggest how future research can take the academic debate on external actor involvement in CA further.

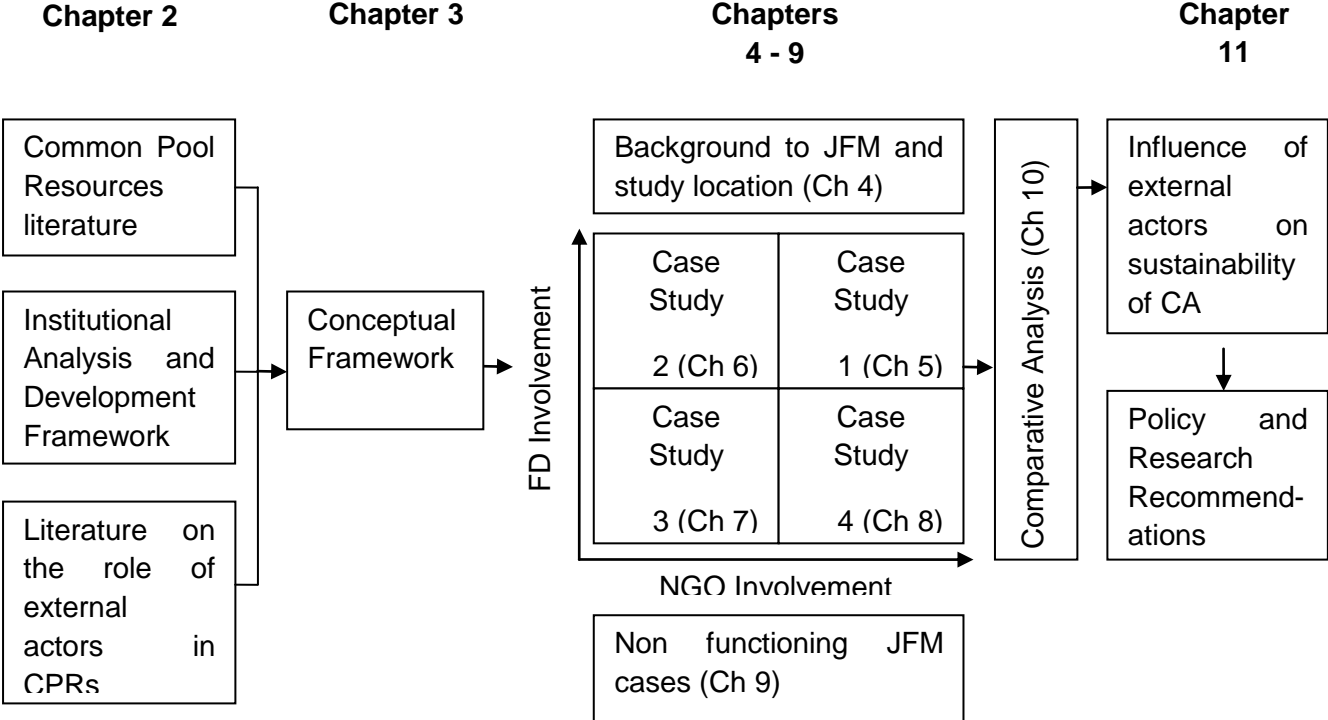


Figure 1: The structure of the thesis

Chapter 2: Literature Review

The research will be supported by the current academic discussions on common pool resources (CPRs) and institutional analysis, specifically the Institutional Analysis and Development framework designed by Ostrom (2005) which supports the focus on multi-level actors. In addition, empirical research on Community Forest Management and the role of external actors will be drawn upon. This chapter will outline the theoretical and empirical developments to date and place this research within current academic discussions.

2.1 The changing governance of common pool resources

There is an extensive debate in the literature on common pool resources (CPRs) defined here following Ostrom (1990) as man-made or natural systems that generate finite resources such that they are subtractable, meaning once removed by one user they are not available for the following user, and that preventing potential users is difficult though not impossible. Academic discussion on the management of CPRs has continued to develop rapidly since Garrett Hardin's influential article entitled 'The Tragedy of the Commons' from 1968. His argument was based on the underlying premise that i) users of commons will take out more from the resource now as they are not sure it will be there tomorrow and ii) they bear only part of the cost of its destruction (Ostrom, 1990). Following this conventional argument presented by Hardin, the individually rational strategy of taking as much from the resource as possible leads to a collectively irrational outcome. This logic leads to the argument that individuals are trapped in a situation which overexploits the resource and that an external authority is needed to impose rules to prevent the overexploitation (Ostrom, 1999). This view is still found in contemporary policy analysts who advocate the management of CPRs through top-down measures (Ostrom, 1999). However, since the 1980s a vast amount of empirical research has found that users of resources in a wide variety of settings have devised their own rules and regulations for managing CPRs and that under certain conditions local user institutions can pose a viable alternative to externally imposed rules (Balland and Platteau 2000; Dietz et al.; 2003, Gibson et al. 2004; Ostrom, 1990, 1999; Poteete and Ostrom 2004).

A related development since the 1980s is the increasing attention given by many governments to more decentralised and participatory governance arrangements of CPRs, although as Agrawal (2001) states, it cannot be claimed that research on common property has led to this policy shift. Decentralisation is defined by Agrawal and Ostrom (2001: p488) as 'any act by which a central government cedes rights of decision making over resources to actors and institutions at lower levels in a politico-administrative and territorial hierarchy'. Decentralisation of natural resource management is especially prominent in developing countries (Ribot, 2003), although as Nagendra and Gokhale (2008) state, despite the investment made in programmes of community empowerment and devolution of management, the 'rhetoric of decentralisation seems to be louder than actual practice'. The arguments for decentralisation are based on the relative closeness of the decision makers to the resource and the cost saving this can entail. One such argument is that forest users know more about the resources than the central government decision makers (Ostrom, 1990). Additionally forest users have more interest in preserving the resource as they rely on them for their livelihoods. This should mean that they are both willing and able to make better decisions about rules to govern the forest. It is also argued that decentralising forest

governance to the local level reduces costs as they have lower overheads and operating costs (Agrawal and Chhatre, 2007). In addition the failure of international agreements to curb deforestation and degradation rates is widely cited (Dimitrov, 2003; Ruis, 2001; Visseren-Hamakers and Glasbergen, 2006) as is the disappointing outcomes of central governments' efforts to manage forests (Ostrom, 1999). From the central government's perspective, decentralisation has also been argued to be beneficial as it reduces their costs and efforts required in managing a resource and can be seen as an extension of their power into areas of society they may previously have had little influence upon (Agrawal and Ostrom, 2001). The pressure for decentralisation in India came from many sources. Environmentalists were concerned about the increasing rate of deforestation under centralised management, the FD was facing difficulties enforcing conservation, international donors included participation mechanisms as a precondition of funding, social movements and NGOs increased pressure for participation and there were positive examples of local forest governance from West Bengal and Orissa (Agrawal and Ostrom, 2001). As a result state agencies in both developed and developing countries are choosing or being pushed into cooperating with communities and treating them as equal partners in the governance and development process (Kumar and Kant 2006, Agrawal and Ostrom, 2001, Matta et al., 2005b).

Participatory forestry originated in South Asia and is now also widely known throughout the world as social forestry, community forestry or joint forestry (Ito et al., 2005). Bhattacharya et al. (2008) state that participatory forest management has been observed in Asia in Nepal, Pakistan, Indonesia, Philippines, Cambodia, and Vietnam as well as India. In Africa experiments in participatory forestry have been undertaken in Uganda, Congo, Gambia, Ghana, Kenya, Niger, South Africa, Mali and Mozambique (Potters et al., 2002 in Bhattacharya et al., 2008). It is however acknowledged in the literature that no single form of governance (government, private or community) can be said to uniformly succeed or fail in tackling deforestation (Dietz et al, 2003, also see Varughese and Ostrom, 2001, Ballabh et al., 2002). Nevertheless, where communities do manage CPRs through collective action, the degradation of CPRs is not a guaranteed outcome (Poteete and Ostrom, 2004). Therefore the work of Ostrom and others has been directed towards identifying the conditions required for local level collective action to be a viable alternative to nationalisation or privatisation of natural resources (Balland and Platteau 2000, Ostrom, 1990, Ostrom 1999, Poteete and Ostrom 2004).

2.2 Design principles for robust CPRs

A major research area has been in developing design principles for CPR institutions, which are essential elements or conditions taken from empirical research into robust CPR institutions that help to account for its success in sustaining CPRs and gaining compliance of the rules over generations (Ostrom, 1990). Originally proposed by Ostrom in 1990, scholars have been reviewing the principles and adding further principles from empirical research all over the world since then. The eight initial design principles are: 1) Clearly defined boundaries; 2) Congruence between appropriation and provision rules and local conditions; 3) Collective choice arrangements; 4) Monitoring; 5) Graduated sanctions; 6) Conflict resolution mechanism; 7) Minimal recognition of rights to organise and 8) Organised in multiple layers of nested enterprises (Ostrom, 1990). Agrawal (2001, 2007) states that there are up to 35 factors that have been identified as relevant to the successful governance of the commons and which are grouped into four clusters of variables: i) characteristics of the

resource system; ii) the user group; iii) institutional arrangements; iv) external environment. Whilst there has been a great amount of research conducted into these variables, far less is understood about their relative importance or the ways in which they interact with each other and contextual factors. The current challenge policy analysts face is to move beyond the quest to identify the few institutional arrangements that are effective for all commons dilemmas (according to Agrawal, a questionable goal in itself) and work out which factors are the most important at a local level (Gibson et al. 2004).

2.3 Institutions

Central to the academic developments outlined above is the attention given to institutions as a framework to understand local level actions. North (1991: p97) states that “institutions are the humanly devised constraints that structure political, economic and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights).” Ostrom (2005: p3) develops this further by adding that the “rules affecting one situation are themselves crafted by individuals interacting in deeper-level situations”. Institutions are considered important in CPR management as they reduce transaction costs and limit uncertainties and therefore can lead to collectively optimal situations. Consideration of the informal rules is especially important when researching CPRs in the developing world context where formal rules may not be present yet informal rules structure the behaviour of CPR users (Quinn, 2006).

Agrawal (2001: p1650) states that ‘Empirical studies of sustainability of the commons mostly have an implicit sense of successful institutions as those that last over time, constrain users to safeguard the resource and produce fair outcomes.’ (Agrawal, 2001: p1650) It is imperative for researchers to view sustainability in this way as programs such as JFM have been project driven and therefore they measure success on physical and financial targets (Bhattacharya et al. 2008), rather than seeing robust institutions as an end in itself. Indeed Martin and Lemon (2001: p594) argue that ‘target orientation has meant that robust institutions have not yet developed’.

2.4 Collective action and social capital

Under a system of decentralised resource management the collective action of many individuals and organisations is required in order to manage the resource in a sustainable manner. The individuals can represent a variety of interests and may use the resource for different purposes. The successful management of the resource depends on cooperation and coordination between these individuals. A related concept at the centre of collective action is that of social capital. Putnam (1993: p167 cited in Fox, 1997) defines social capital as the ‘stock of norms and reciprocity and networks of civic engagement’. Gibson et al. (2005: p274) states that a ‘well-known argument asserts that high levels of social capital, as commonly understood, should decrease both the uncertainty and costs (transaction costs) to individuals and so increase the odds of reaching and maintaining a collective solution’. Participatory institutions can develop social capital which leads to a restructuring of relations within society (Martin and Lemon, 2001), indeed local institutions have been referred to as ‘the seedbeds of civic virtue’ (Eberly, 2000: p17). In addition, Behera (2009) found in his study in Andhra Pradesh that social capital, which was measured as the number of active community based organisation, had a positive effect on forest growth outcomes.

2.5 Institutional Analysis and Development Framework

A related theoretical framework has been developed by Ostrom (2005) to support institutional analysis. This takes the form of a multilevel conceptual map centred on the action arena which is where an interaction between the action situation and participants takes place. Action arenas can be found at any spatial level and will interact with each other across levels (Ostrom, 2005). At the *local level*, the operational rules directly affect the decisions taken by users of a resource, in this case decisions taken by forest users in how to utilize the forest resource. Here this would mean the local norms and the rules drawn up under JFM that determine forest use. At the *collective-choice level* actions taken affect the operational rules on the ground. This is where policies are determined that structure the rules at the operational level. At the *constitutional level* attention is given to decisions that shaped and continue to shape the policy making process. Figure 2 shows the Institutional Analysis and Development framework (Ostrom, 2005) as applied to forest use at the local level.

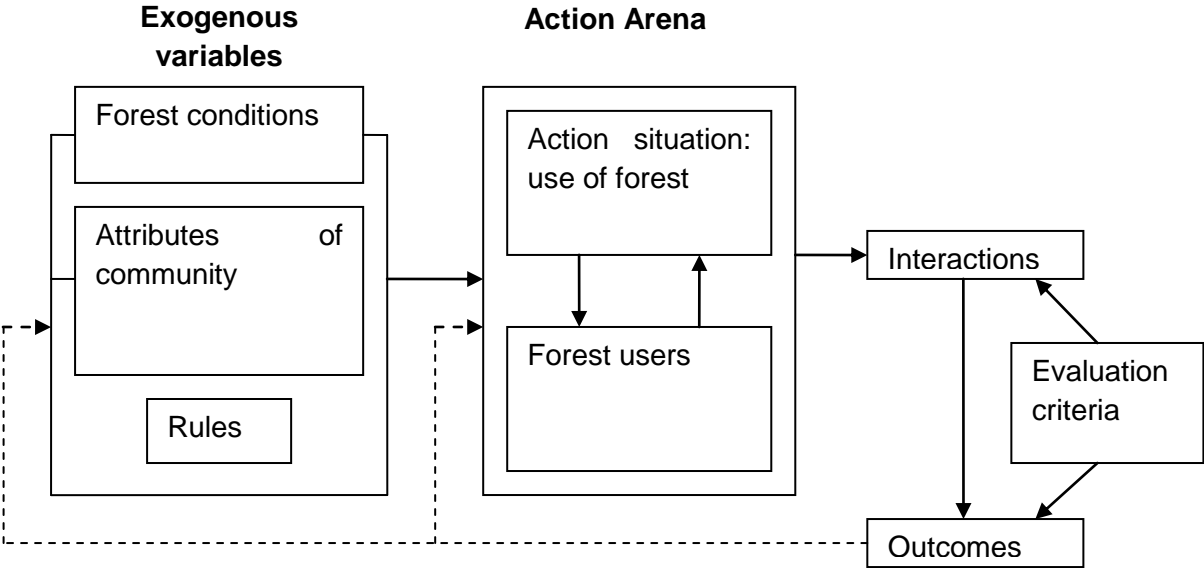


Figure 2: The IAD framework applied to forest use at a local level (following Ostrom, 2005)

The purpose of the framework is to assist social scientists in their understanding of multilevel complex systems. Following Schlager (1999, cited in Koontz, 2003, also see Ostrom et al. 1994) the IAD framework is seen here as a scaffolding to give a coherent structure to the research through specifying the variables of interest. The exogenous variables are: biophysical conditions (seen here as forest conditions); attributes of community and rules affect the structure of the action arena. The action arena interactions with other action arenas and produces outcomes which in turn may loop back to affect the action arena or exogenous variables. The IAD framework is useful to support this research through encouraging an understanding of interactions between actors at different levels (local, collective-choice and constitutional levels) identified by Fox (1997) as an important approach in order to capture influences between actors. Through linking multiple levels of governance, the Institutional Analysis and Development framework can be used to analyse policy gaps (Clement and Amezaña, 2009). The multilevel, multiple actor nature of the IAD framework also highlights

that policies are not implemented on a blank slate but are introduced into a complex situation of differing social, economic, and environmental features (Martin and Lemon, 2001). As Fox (1997: p121) states, 'associational life does not unfold in a vacuum: state or external societal actors can provide either positive incentives or negative sanctions for collective action'. In relation to forest policy, this means that there may be actors already involved in creating forest institutions at multiple levels, and this may not be so obvious from casual observation. The IAD framework can be used to support research which attempts to isolate and understand how one variable can affect the action arena whilst appreciating the complexities of the context in which a policy such as JFM is implemented, which according to Agrawal (2007) has not received as much attention from CPR scholars as institutional factors.

2.6 Applying the IAD framework to JFM

Empirical research on JFM in India supports the theoretical literature in indicating the importance of considering multi-level actors and decisions made at higher levels. According to Sundar (2000: p276), 'Attention to reorganising the functioning of the forest department or NGOs is at least as important as reforming local institutions'. Martin and Lemon (2001) also consider clarification of the roles of the state as well as the community as paramount for improving the implementation of JFM. There is also a need to further understand the relationship between the external actors. For example, Matta et al. (2005b) found that one of the immediate motivations of the FD for expanding their efforts in JFM is the financial support from the Japanese Overseas Economic Cooperation Fund (OECE). Matta and Kerr (2007) argue that there should also be a wider outlook taken to involve the many stakeholders in JFM as other agencies, interest groups, politicians and state departments also influence the role the FD plays.

In addition, there are numerous examples of the present canvas of institutions being ignored or overlooked during the implementation of JFM. Sundar (2000) gives examples from Orissa where the rules already made by existing committees at the local level were not accepted as they do not fit into the state resolution. There are also examples of new presidents chosen by the Forest Department (FD) replacing existing committee leaders. Furthermore, there is also the possibility of new policies conflicting with existing procedures and policies. Sundar (2000) gives an example of a plan for afforestation in a village in Gujarat which could not be implemented as under the working plan of the FD (which gives the detailed plans of the FD for a 20 year period) that particular village was not yet due for afforestation work.

Naturally, joint working between the external actors and the forest users leads to influence being exercised in both directions. It can be seen from research how the lowest action arena also affects decisions at higher levels. For example, Martin and Lemon (2001) state that it should not be assumed that villagers have no influence over the FD. Through their long history of conflict with the FD channels of communication and resistance have been created, adding to the slate upon which JFM is to be implemented. Similarly, Ballabh et al. (2002) states that grassroots activism persuaded the Ministry of Environment and Forests (MoEF) to consider the position of tribal communities living in forests. Simultaneously the MoEF is struggling to remain in control of forest management by not allowing the Ministry of Tribal Affairs to gain a position in the debate.

In addition to the need to consider actors and policies directly related to forest governance, the IAD framework promotes a wider approach in order to consider interactions with other

action arenas at national, state, district and local level that may indirectly affect the outcome of a new forest policy. As Clement and Amezaga (2009: p463) state 'Actors can simultaneously be involved in several institutional arenas'. Empirical research again supports this approach. Matta et al. (2005a) found that other development activities being carried out in the same village in Tamil Nadu, India changed the JFM situation through providing alternatives to fuelwood and fodder. Also actors at higher levels were also seen to be influential by Ballabh et al. (2002) whose comparative case study research in India found that encroachments and pilferage were common in JFM villages largely due to delays in resolving conflicts in the administrative and judiciary departments and rent-seeking by government officials.

It is therefore clear that the IAD framework can be used to support researchers exploring the wider external environment that affects collective action at the local level. The application of the IAD framework to creating a conceptual framework for this research will be returned to in Chapter 3. The following section will turn to the theoretical and empirical research conducted to date into the influence of external actors on local level collective action.

2.7 Theoretical discussion on the involvement of external actors

The logical argument following on from the discussion on decentralisation and collective action would appear to be that minimal interference from external actors in local collective action would be preferential for the sustainability of collective action. Indeed a high level of autonomy and discretion in decision making is one of the original design principles which has been supported by further research (see Baland and Platteau, 2000; Ostrom, 1999; Sekher, 2001; Vedeld, 2000). Aside from concerns about the appropriateness of externally imposed rules to the local conditions, Ostrom (1994) also argues that they are more likely to be ignored or may cause conflicts. This is supported by Agrawal and Chhatre (2007) who state that imposed rules lead to lower levels of cooperation compared to situations where rules have been made by the resource users themselves. In their study in the Indian Himalayas Agrawal and Chhatre (2007) found state involvement in JFM to be negatively correlated with forest condition and pose that the power differences between the FD and the community mean that when interests diverge, the presence of the FD will dominate over the preferences of the community.

However, there are also arguments posed in the literature that the involvement of external actors can support the development of social capital, central to collective action. According to Fox (1997) social capital can be developed in three ways; 1) state-society convergence, 2) coproduction between local groups and external allies in civil society, 3) independent bottom-up production in the absence of external support. In addition, Fox (1997) argues that external actors can offer resources for local collective action that can provide either a positive incentive or an anti-negative incentive. Positive incentives can be material enticements or rewards for participation or leadership whereas anti-negative incentives refer to protection from retribution imposed by other external actors for participating in collective action. In addition, through consciousness-raising these incentives can have a multiplier effect on building social capital.

What is therefore apparent from the literature is that external actors may have a negative influence when involved in rule making and enforcement, but do have the ability to generate social capital. It is also interesting to recognize that the collective action theory which is

mostly built upon pure, voluntary collective action may not be fully applicable to participatory systems that have arisen from decentralisation policies. Management regimes set up under new decentralization policies around the world invariably prescribe some involvement of central agencies. Ghate (2008) highlights the difference between voluntary collective action which evolves due to shared objectives and participation in programmes such as JFM in which the villagers do not have full autonomy to create their own rules and in which the FD has been seen to have a dominating position. Considering this difference between the theory on collective action and the participatory decentralisation policies in place in natural resource management (NRM), it is pertinent to examine the empirical research on the processes and outcomes of decentralisation programs in which external actors have certain preconceived roles.

2.8 Empirical research on participatory decentralisation policies in NRM

The empirical evidence does not show clear support for the theory that the involvement of external actors is detrimental to collective action at the local scale. Some researchers do argue that the problems associated with JFM are due to it being imposed from above (Jewitt, 1995). For example, Behera (2009) argues that JFM is more likely to be successful if it is demand driven rather than a government supply driven or sponsor-driven approach. However, Behera includes NGO initiated JFM as part of the demand driven approach, though it could be argued that this could also be a form of supply driven approach. Regmi (2008) found in his study of agency managed irrigation systems in Nepal which required the initiation of a water user group, that users needed to be confident that external authorities would not interfere in the rule making, implementation and enforcement activities. The presence of external actors also influences the demands of the communities. Sundar (2000) gives examples of communities moulding their own demands based on what they think the project can deliver. For example, even if villagers feel natural regeneration is sufficient for regrowth of a degraded area, they do not want to turn down any seeds or wages for plantations being offered by the FD.

There are also empirical studies that argue for a greater role of external actors in local level collective action. Jewitt (1995) argues that external actors can play an important role as a neutral outsider in non-unified villages where jealousy and a lack of trust amongst villagers would limit the interest in villager initiated forest protection committees. In such instances, programs proposed by actors outside the village may gain a more positive response from villagers. Similarly, Ballabh et al. (2002) states that public agencies can play a positive role in solving conflicts within communities. In addition, where there is little experience of making decisions as a community, Jewitt (1995) argues that there is also a place for outsiders to help communities make equitable decisions and reduce intra-village conflicts. Nirmal and Kumar (2000, cited in Ito et al., 2005) state from their study in Nepal that forest user groups require support in forest management issues, such as accounting, banking, and fund management; and social issues, such as gender balance; the equitable distribution of CF resources; and conflict resolution. There are also arguments that any positive benefits brought by external actors are short-lived. For example the Winrock report on JFM: a decade and beyond (Saigal, n.d.) states that enthusiasm for JFM often decreases after the immediate gains from entry point activities are no longer felt. However they use this evidence to argue for greater and regular involvement of the FD in the form of employment generation

schemes and plans, stating that regular involvement from outside agencies is required to stimulate participation.

I will now turn to the current research on each of the main external actors in JFM in order to add to the discussion on the influence of each actor on the sustainability of collective action. It is worthwhile to note that theorising on the role and impact of NGOs in India is still limited (Kudva, 2005). Notable exceptions are Sekher (2001), Sarin (1996 cited in Sundar, 2000) and Ghate (2008) who conducts comparisons between forest protection committees based on which actor initiated formation (self-initiated, NGO led promoted or FD led). Research on the impact of the FD is mostly concentrated on their perceptions of JFM or analyses of the organisation structure (for example, see Matta et al., 2005a; Matta, Kerr and Chung, 2005; Matta and Kerr, 2007, Kumar and Kant, 2006, Kumar et al. 2007) . A notable exception is Agrawal and Chhatre (2007) who analysed causal variables between FD involvement and efforts to manage forests sustainably.

2.8.1 The influence of the FD on the sustainability of collective action

According to Ostrom (2005 cited in Agrawal and Chhatre, 2007: p69) 'the potential role that state officials can play in facilitating or hindering local resource governance is one of the especially contested issues in writings on common pool resource management and decentralized governance'. Whilst some contend that local autonomy is essential, others argue that state involvement can prevent local elite capture or prevent overuse of resources (Agrawal and Chhatre, 2007) and can help solve inter-village disputes (Sundar, 2000).

In India, the FD holds a powerful position vis á vis the villagers in that they can select the villages to be included in JFM (Sundar, 2000), allocate forest land (Sundar, 2000, Ballabh et al., 2002, Martin and Lemon 2001), control the microplans (Ballabh et al., 2002), decide on the disposal of forest produce and benefit sharing (Sundar, 2000) and can dissolve committees (Sundar, 2000), as well as remaining the owner of the forestland. The skills, techniques and procedures required under JFM are significantly different than those that have become entrenched within the FD through the previous centralised system. This led Hannam (2000 cited in Matta et al. 2005a: p867) to state that foresters' work has changed beyond recognition'. Field staff need to facilitate a participatory process and recognise and respond to subtle changes within communities. This has also been found by Regmi (2008) in the case of agency managed irrigation systems in Nepal where government officials involved in the water user groups are usually engineers and not experienced in managing institutional arrangements. Heltberg (2001: p207) also argues that the FD need to develop from being technical experts and guards to 'promoters of village development.'

The overriding message from empirical research in India is that the FD's role in JFM should be strengthened. Matta et al, (2005a: p860) argues for the 'critical role of bureaucracy in internalising public participation in NRM'. Behera (2009) asserts that the FD has failed to provide administrative, legal (e.g. conflict resolution amongst villagers over forest rights) and technical support to JFM villages in Andhra Pradesh. He states that many cases of JFM rule violations are due to the lack of legal and administrative support from the FD. In addition, it is argued that the technical expertise of the FD can supplement the indigenous knowledge of communities (Ballabh et al., 2002). Fox (1997) found that coproduction of social capital between the state and society had cumulative effects. Successful initiatives by middle and lower level supporters within state organisations strengthen the capacities of society to take advantage of subsequent opportunities. However the willingness and ability of societies to

take advantage of such opportunities varied. Furthermore, Matta et al. (2005a) argue that the FD plays an important role in activities that may not seem directly linked to forest protection but do increase the confidence of the villagers to work with the FD. Such activities may include drinking water provision, building of community centres or schools and infrastructure projects. However Matta et al. (2005a) do argue that longer term incentives are required for the sustainability of JFM.

The literature also raises several issues that the FD are facing in their participation in JFM. These issues are within the FD organisation itself and/or due to the intersectoral nature of rural development which affects the FD's relationship with other state bodies. The FD organisational structure remains hierarchical and bureaucratic with many low-paid staff, where promotion is not based solely on job performance, where staff face frequent changes in posts and where corruption is rife (Heltberg, 2001). Therefore changing to a participatory system can meet with resistance as those with power (the FD) have gained more from this status quo than the villagers (see Meadowcroft, 2007). According to Kumar et al. (2007: p576) State FDs function according to 'well-established rules, regulations, and standardized practices'. The National Forest Policy of 1988 did not include any suggested changes to the FD organisation structure which has predominantly remained as formed under the colonial administration (Kumar and Kant, 2006). Sundar (2000) and Rishi (2007) also state that there is a lack of participation within the FD as the structure is hierarchical and does not allow for lower level initiatives in implementing JFM. Intersectoral issues also arise as rural development necessarily requires attention from many agencies. According to Matta et al. (2005a) FD staff are not in a position to support activities beyond forestry either because they do not fall within their jurisdiction or they don't have resources to conduct further work. Baginski et al. (1999 cited in Ito et al., 2005) claims that this could be a cause for decreasing number of community forestry groups formed in Nepal. At a higher level, the FD is battling with a shortfall in funding as forests are no longer seen as a source of income for the State Treasury, and therefore budgets for the FD have been reduced (Matta et al. 2005a). Corbridge and Kumar (2002) also state that the FD is facing pressures to defend its turf and its actions are restricted by politics.

Given the structural issues within the FD regarding participation in JFM, some scholars argue that the positive examples of the FD playing an impressive role in JFM are due to individual attributes of the staff. Blaikie and Springate-Baginski (2007: p9) argue that the personality of the officers, the transfer of personnel and the particular supporting NGO can make a big difference for forest condition and livelihoods. Similarly Heltberg (2001) argues that well functioning committees are the result of a good relationship between a forest guard and the villagers. Studies into the perceptions of FD staff show that their main priority remains forest improvement and that there are mixed views towards JFM ranging from positive to indifference and disinterest (Matta et al., 2005a).

However there are some scholars who argue that the presence of the FD has a negative consequence for collective action. Ballabh et al. (2002) claims that communities can become accustomed to looking towards the FD to solve any disputes, rather than resolving them themselves. In addition, the presence of a Beat Officer at meetings limits the subjects that can be openly discussed. As it is the role of the Beat Officers to convene meetings, they may not do so when they feel a negative opinion from the villagers can be expected (Ballabh et al., 2002). Nayak and Berkes (2008) also found that the sustainability of JFM was reduced as a close relationship between a community and the FD reduced the number of linkages

between villages and outside agencies as well as the reciprocal relations previously held with other villages. Furthermore they found that participation under JFM was less than under self-organized community forest management in their case study village.

2.8.2 The influence of NGOs on the sustainability of collective action

Since the 1990 government circular (MoEF, 1990) ,‘appropriate’ NGOs have been envisaged as having a brokering role between the FD and the local communities (Sundar, 2000, Martin and Lemon, 2001). Indeed the circular states that ‘voluntary agencies / NGOs with proven track record, may prove particularly well suited for motivating and organising village communities for protection, afforestation and development of degraded forest land, especially in the vicinity of habitations’ (MoEF, 1990). Each state drafted its own resolution on JFM, therefore the precise wording differs, however all states see a role for NGOs. For example, in West Bengal NGOs are seen to have a role in strengthening the FD through introducing the participatory approach to the FD as well as communities (Tiwary, 2003).

In general, the roles played by NGOs are in facilitation, community mobilization for JFM, conflict resolution within the community, and implementation of support activities, such as small savings or enterprise development. The NGOs are also playing an important role in training of FD staff and communities as well as in the documentation of the program (Saigal, 2000). Brown (1992) argues that NGOs are better placed than government agencies to reach the poor and encourage participation and therefore are critical for building human and organisational capacities. As stated by Oltheten (1995) under the FAO Forests, Trees and People Programme, participatory methods and tools are now commonly used by NGOs through which more equitable institutional arrangements are promoted which include marginalised groups. For example, Saigal (2000) found in a village in Gujarat, that the most forest dependent and poorest groups were not included in JFM until a local NGO became involved. There is also evidence that NGOs increase levels of awareness of CFM amongst the local communities. In their study of CFM in Nepal, Ito et al. (2005) found that awareness of the CFM (relating to boundaries, membership fee and process of formation) was least where there was no NGO support. In addition, Ngwa and Fonjong (2002) found that in Cameroon, large international NGOs involved in community forestry, awareness activities and capacity building have proven to be a motivation for state actors and other communities. It is also argued that NGOs can act as a counterbalance to a powerful state agency. ‘Those who work to reduce the fear of retribution [...]powerfully change the political opportunity structure within which individuals and groups decide whether and how to act’ (Fox, 1997: p1098). Other development projects implemented by the NGO may not appear to have a direct impact on the success of NGO led CFM initiatives, however Ngwa and Fonjong (2002) found in Cameroon that poverty alleviation strategies employed by World Wide Fund for Nature (WWF) provided alternative income sources and also built a relationship between the NGO and the local people. The feeling of association on the part of the villagers grew because they saw the NGO as a development partner with local interest. This relationship created greater interest in CFM which may have otherwise been seen as having a pure conservation and thus antidevelopment motivation. Indeed Ostrom (2005) argues that repeated interactions lead to increased reciprocity which motivates individuals to link situations in a manner that a reputation in one situation can help to provide credibility in another.

Others argue that the influence of NGOs on JFM processes is more modest. NGOs may see themselves as small in relation to the larger FD and therefore feel that they cannot take

radical approaches with such a power imbalance in the relationship (Tiwary, 2003). Brown and Ashman (1996) found in their research of 13 cases in Africa and Asia that successful development programs that are NGO led are those that do not require long term grassroots resources for their sustainability. Such NGO led programs are less likely to generate new grassroots initiatives on related issues in comparison with grassroots led programs. In addition, Brown and Ashman (1996) claim that large NGOs were not as effective at managing disputes and promoting joint learning as the smaller indigenous NGOs with their local knowledge. Sundar (2000) questions the assumption that all NGOs are better equipped to work with local people in conducting research on local conditions. He gives an example of an NGO that had asked villagers to rank the forest species in order of their use to them. However the method of ranking did not allow for recognition of the wide variety of uses for one species and the huge numbers of different species that were being used. Therefore it should not be blindly assumed that the presence of an NGO will automatically lead to communities being able to express their needs and consequently to influence the implementation of JFM.

Across India, the number of NGOs is growing, but they remain relatively small in relation to the state (Kudva, 2005). In Tamil Nadu, Matta and Kerr (2007) found that the number of localised, experienced and committed NGOs was very small. They claim this is because the work is being carried out in remote villages with little publicity. Foresters they interviewed also related that NGOs tend to specialise in one activity (e.g. microcredit, PRAs) and therefore their roles were limited in JFM. The variety of NGOs working in NRM will necessarily entail significant differences in their influence on the ground. Approaches, working styles, size, specialism vs. holistic and internal organisation will all differ (see Kudva, 2005 for an overview of NGOs working in India).

2.8.3 FD and NGO linkages and communication channels

The link between the NGO and the FD is significant in determining the outcomes of projects and can be useful in tackling intersectoral problems (Brown, 1992). In India there are many state departments with stakes in rural development other than the Forest Department itself, such as Tribal Affairs, Revenue and Education departments. NGOs can therefore fulfil a bridging role where communication between state departments and between state departments and communities is lacking. By embedding development projects within the state departments and with market actors, the sustainability of the program can increase. Matta and Kerr (2007) report that forest officers in Tamil Nadu found that the pooling of FD and NGO resources and personnel in one village not only improved the forest and livelihoods, but was also instrumental in the village being recognised as a model JFM village in the state. However Brown (1992) acknowledges that building links between FD staff and local people is not a simple task and requires strong mediation skills from NGO staff. NGOs are also political and working with conflicting stakeholder interests can also influence how the NGO itself works and can lead to internal conflicts (Fisher, 1997, also see Moore, 2004).

Kumar et al. (2007) present a more cautious case of NGO and FD relations as they present evidence that shows that pressure from NGOs on state actors has a negative influence on resistance within the organisation to the adoption of CFM. 'As pressure from these agents increases, respondents tend to more rigidly follow rules, regulations, and standardized practices'. (Kumar et al., 2007: p591). Due to the hierarchical bureaucracy of the FD it is difficult for NGOs to work with lower level officials if they do not have approval from higher

level officials (Tiwary, 2003). This means that NGOs with links to higher level officials are more likely to be able to expand and upscale their work.

The NGOs' own networks and their relationship with their funders can also affect the freedom they have to work where and how they choose. Shah (1987, in Ngwa and Fonjong, 2002) found a need for NGOs to work together in networks in order to create further reaching results, beyond the local level. Tiwary (2003) explains how an NGO may be scrutinised and directed by their international funders whilst others without the ability to apply for such funding will have more freedom but less resources.

One argument in the literature related to this discussion on NGO networks and linkages is that NGOs have the potential to increase social capital, which would have a positive effect on collective action. Fox (1997) discusses the importance of regional organisations in representing dispersed and oppressed groups in Mexico. The main thrust of these arguments would also be applicable to collective action in natural resource management. Fox (1997) argues that it should not be assumed that community organisations have ties with other communities. Such ties may be fragmented due to social and ethnic diversity. Therefore regional organisations are useful in three aspects. Firstly, in identifying and discussing shared interests across communities. Secondly, due to the scale they operate at, they have the double advantage of scaling up collective action beyond the village level whilst remaining close to villages at the local scale. Finally, they are able to communicate information about shared issues between villages, which is especially important where access to independent media is limited. A further argument is put by Fung (2003: p523) who states that a major contribution of associations in civil society is to "improve ways in which interests are represented to lawmakers and translated into law and policy".

Brown and Ashman (1996) also argue that organisations can act as 'bridges' between sectors to facilitate joint problem solving. Their research in Africa and Asia shows that this type of social capital is linked to cooperative intersectoral problem solving. NGOs can provide positive incentives for developing horizontal links between communities as well as acting as a buffer for negative sanctions. For example, Brown (1994: p1, cited in Fox, 1996) states that NGOs can be critical in nurturing cooperation between unequal partners to solve problems. The act of cooperative problem solving can in turn create social capital.

2.8.4 The role of donors and funders

There has also been donor pressure to restructure the FD as part of the JFM program as a condition for aid. Therefore 'in the minds of reluctant foresters, popular participation and departmental reorganisation and training are linked within a single ensemble which is seen as being imposed from above' Sundar (2000: p266). International funders may impose certain caveats on the provision of funding or put pressure on FD or NGOs to implement projects according to their own ideologies or preferences. It appears that some states have adopted JFM only because of donor pressure (Saigal, 2000). For example, in Tamil Nadu the Japanese Overseas Economic Cooperation Fund (OECD) provided \$100 million for JFM work in 1000 villages. Matta et al. (2005b) states that foresters felt limited in their activities in the villages as the OECD saw JFM primarily as an afforestation program, thereby limiting social development activities that were greatly needed. In addition, targets were given for implementing JFM leading to disenchantment amongst foresters and increasing the likelihood that foresters look for shortcuts to achieve targets. There is also the risk that the JFM projects will falter as soon as the funding ends.

2.8.5 State political and administrative bodies

'The village panchayats, as statutory bodies and legal representatives of local people, wield considerable power and influence and thus significantly affect JFM outcomes' (Matt and Kerr, 2007: p470). Saigal (2000) also states that many panchayat leaders believe the JFM should come under their control, as with other development activities. The relationship between the panchayat and the JFM executive committee could range from antagonistic to supportive depending on the local political climate. The Winrock JFM status report (Saigal, n.d.) argues that the lack of clear roles between the JFM executive committee and the panchayat is causing problems, especially as the 73rd Constitutional Amendment grants further power to the panchayat level.

Matta and Kerr (2007) also found that the Collector's office helped in gaining development funds for villagers and this increased the forester's ability to win confidence and participation in JFM. In addition other state departments such as Tribal Affairs, Education, Health, Transport, Police and judiciary systems all have a stake in rural development and hence in JFM. The relations between the Ministry of Environment and Forests and the FD also determines the funds and functions of the FD.

2.9 Conclusion

The literature shows that scholars have identified that local user institutions can represent an alternative to nationalised or privatised CPR management. There has been a great amount of research undertaken into identifying principles for robust CPR management conducted mostly through identifying common factors across examples of robust CPRs. There is therefore a gap between the theory on collective action and the participatory decentralisation policies in place in natural resource management across the world, in which state actors are seen as having a role to play. This thesis aims to build on the research conducted on voluntary collective action by extending it towards the reality of participatory systems under decentralised policies. The IAD framework presents a useful tool for this purpose as it allows for an appreciation of multiple layers and action arenas, which the literature on participatory NRM systems has shown is particularly relevant to this study area. It also supports research which takes the sustainability of CA as an end itself through treating it as a dependent variable. Most researchers comparing institutional arrangements use case study methodology as this allows for the local nuances to be understood. Given the wide range of external actors which could possibly be involved in CA, this research will also take the same route however the comparison between cases will be based on involvement over time, not only based on which actor initiated it. This allows for a greater appreciation for the whole process of forming CA to date, and allows for any changes over time to be recognised. The literature shows that external actors can both positively and negatively affect sustainable CA with the potential for positive influence through the provision of knowledge, management and social skills, increasing communication channels and financial support. These elements will therefore be taken forward into the conceptual framework which follows in Chapter 3.

Chapter 3: Conceptual framework and operationalisation of variables

3.1 From the IAD Framework to a Conceptual Framework

The framework employed in this research is based on the IAD framework outlined in Chapter 2, figure 2. This allows for an analysis of the influence of the exogenous independent variable 'external actor involvement' on the action arena as the dependent variable, in this case, 'local level collective action undertaken by forest users in JFM'. The exogenous variables in the IAD framework are limited to biophysical/material conditions (taken here to be forest attributes), attributes of community and rules. Ostrom (2005) uses the term community in relation to the local participants though recognises the ambiguity of what construes a community (also see Agrawal and Gibson, 1999). It is argued here that in limiting analysis to the community of forest users, other significant actors involved in the same action arena are overlooked. This is especially true following the argument laid out in Chapter 2, that decentralisation policies usually do involve a role for state and NGO actors. I have therefore expanded the framework to include the external environment and in particular external actors. Figure 3 highlights the particular area of interest within the adapted IAD framework.

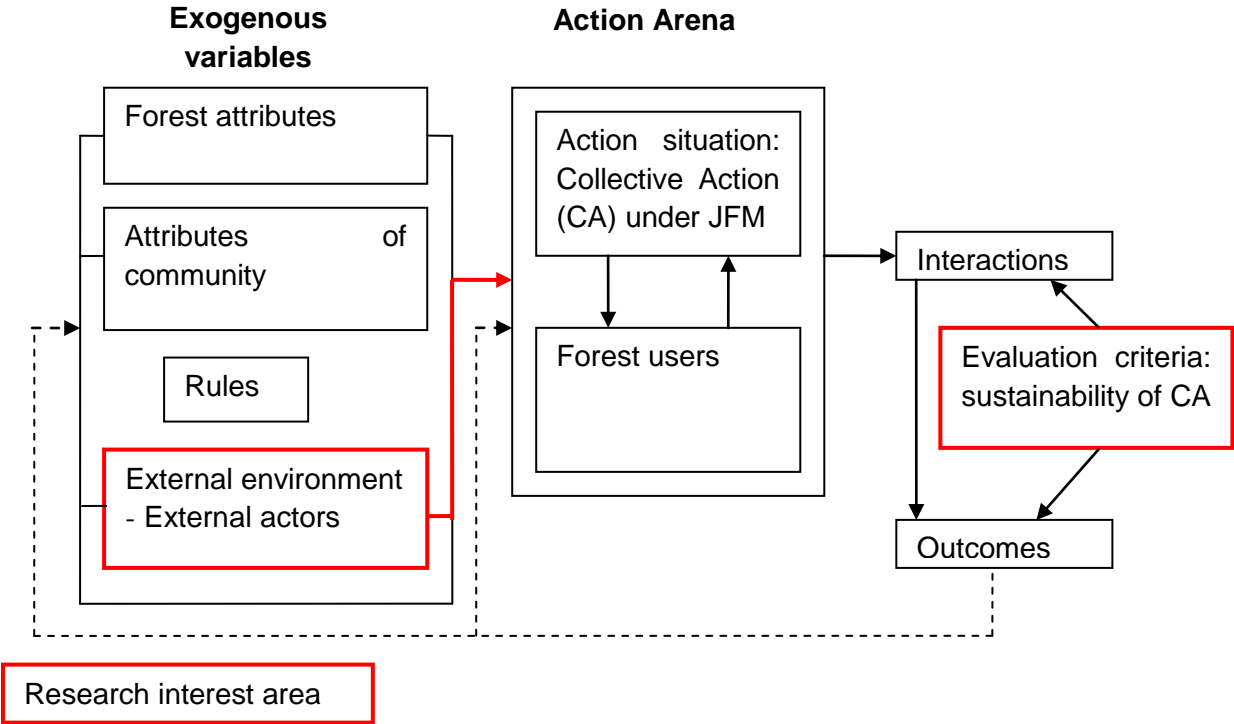


Figure 3: Research interest area in IAD framework

This research is conducted at the local operational level with a focus on collective action which is central to the operationalisation of JFM. The collective-choice and constitutional levels of analysis are beyond the scope of this research. It is however acknowledged that the same external actors may be direct or indirect participants at the constitutional, collective

choice and operational levels. External actors themselves are acting within their own action situations which in turn affect their actions within the collective choice action situation under analysis here. In analysing the influence of external actors it will be necessary to consider the action situations the external actors find themselves in, however any deeper analysis into underlying rules through the links and layers of action situations is outside the scope of this research.

The above adaptation of the IAD framework leads to the following conceptual framework used to structure this research.

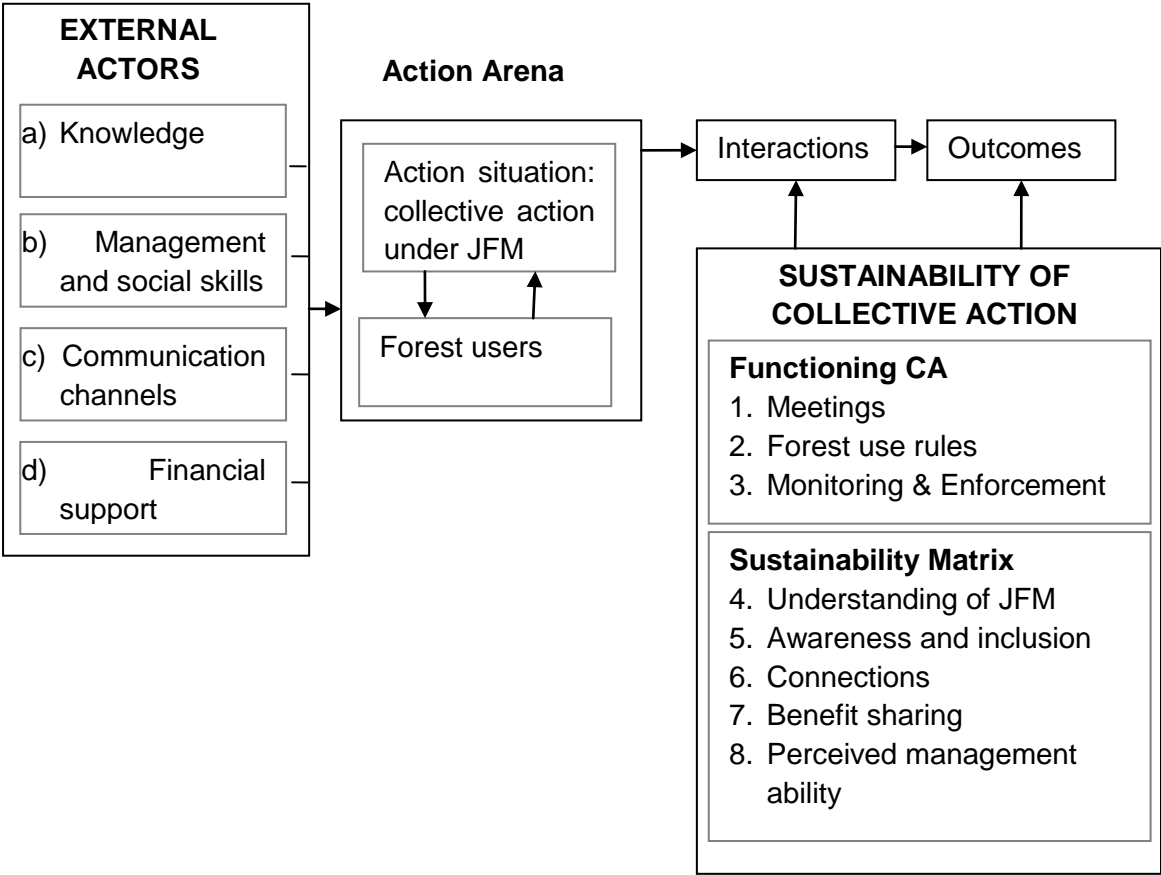


Figure 5: Conceptual Framework

External actor involvement forms the independent variable in this research and is analysed through the use of four indicators: a) to d) in the conceptual framework. The level of involvement of the external actors will influence the action arena, namely collective action of forest users under JFM. This leads to interactions with other action arenas and outcomes of the CA. Outcomes here are limited to products relating to the sustainability of the CA itself, rather than including outcomes related to forest conditions or the livelihoods of the forest users. The sustainability of the collective action therefore forms the dependent variable and I have identified eight indicators as can be seen in figure 5 which are used to measure the level to which the CA is functioning and its sustainability. In order to identify causal relations between the level of involvement of external actors and the sustainability of collective action it is necessary to identify the extent to which each external actor influences each of the indicators for the sustainability of collective action. In this way an attempt is made to isolate

the influence of each external actor (using indicators a) to d) above) on the observed level of sustainability of collective action.

3.2 Hypothesis

The literature reviewed in Chapter 2 demonstrated that the theoretical and empirical research conducted to date does not present a conclusive picture of the influence of external actors in local level collective action. It did however highlight several ways in which external actors have been found to positively affect the likelihood of sustainable collective action. These are shown in Figure 5 as a) to d) used here as indicators of external actor involvement. It therefore follows that greater involvement from a wider range of external actors can bring attributes that the forest users in isolation from such external actors do not themselves fully possess. The following hypothesis can therefore be formulated:

A high level of involvement from a wide range of external actors will increase the likelihood of sustainable collective action in JFM at the local level

Through conducting comparative case studied where the external actor involvement varies across cases, this research will aim to find out whether external actors in JFM do indeed increase the likelihood of sustainable collective action as hypothesised.

3.3 Methodology

3.3.1 Comparative case study

The hypothesis is tested using comparative case studies of varying external actor involvement. In this way an attempt is made to identify whether there is covariation between external actor involvement and the sustainability of collective action. The term case study is used here following the definition Gerring (2004: p342) proposes as 'an intensive study of a single unit for the purpose of understanding a larger class of (similar) units. A unit connotes a spatially bounded phenomenon observed at a single point in time or over some delimited period of time'. The unit of analysis is the village population which is also seen as the potential population for a single JFM case. Following the State of Maharashtra Government Resolution (GR), all members of a village aged 18 years or older can become members of the JFM general body (MoEF, 1990). The time period under consideration is the period since the villagers became aware of the JFM policy. However an understanding of any previous forest protection and development activities in the period before JFM is also required. According to Yin (1984: p1), 'Case studies are the preferred strategy when how or why questions are being posed, when the investigator has little control over events and when the focus is on a contemporary phenomenon with some real-life context.'. This method is therefore appropriate for addressing the research question posed . A qualitative approach has been chosen as this will enable the social and institutional context to be captured better than through the use of quantitative methods (Ellis and Mdoe, 2003). It would not be possible to quantify indicators of the sustainability of CA (numbers 4. to 8. in figure 5) whilst maintaining a sense of relevance to the situation on the ground.

3.3.2 Independent variable

The literature review brought to light four possible ways in which external actors can potentially either positively or negatively influence the sustainability of collective action.

These indicators are not mutually exclusive and may overlap, complement or contradict each other. The indicators and how they are operationalised in this research are given below.

a) Provision of relevant knowledge

The Rupfor and Winrock India JFM status report of 2006 identified amongst JFM committees that there is a need for greater technical forestry knowledge and awareness of the JFM policy including entitlements under the policy (Pai and Datta, 2006). This is also an argument used for the involvement of both FD and NGOs in JFM, as seen in the literature review. The manner in which the knowledge is provided is also relevant as Dietz et al. (2003) asserts that the information on the resource system and human-environment interactions affecting the resources must be presented in an appropriate way that meets the forest users needs.

The data for this indicator was gained through both direct and indirect questions in interviews and group discussions plus observations of interactions between actors. The same direct questions about the provision of different types of knowledge were put to several members of the FD from ACF level down to ROs, NGO directors and field staff, JFMC and villagers. This allowed for a comparison of responses. The questions covered who provided the knowledge, when, in what manner, how often, whether this has changed over time, whether it was requested/offered/imposed and the importance given to that type of knowledge. The types of knowledge asked about were: technical knowledge; forest protection techniques; monitoring of forest techniques; knowledge of applicable government laws, resolutions and acts. In addition, information was gathered on the employment background of the FD and NGO staff, the training or advice they had received from superiors and any communication or site visits with counterparts involved in successful cases of JFM elsewhere. These factors can affect the depth of knowledge each actor can provide and possibly the way in which it is provided.

In addition, indirect methods were employed to triangulate the methods by which the data was obtained. General discussions about how JFM was initiated and developed to date and stories about how issues are addressed such as rule infractions and conflicts were useful in allowing me to extract the role of knowledge from accounts of actual events. Observations of training sessions, workshops and meetings where external actors and villagers were present were also carried out. Such observations were highlighted as an important research technique by Ostrom (1992).

b) Management and social skills

Aside from the forest resource and technical knowledge that could potentially be provided by external actors, Ito et al. (2005) highlights that JFM committees may need support in forest management issues which include accounting, banking, and fund management plus social issues such as participation, equitable distribution of resources and conflict resolution. These are also the types of skills the GR states could be provided by NGOs so it is interesting to analyse whether this is the case and whether this has an influence on collective action. Both resource knowledge and management skills are capacities that environmentalists and NGOs claim are needed by forest users (Ghate, 2009).

The same research techniques were employed to analyse this indicator as for analysing indicator a) the provision of knowledge, namely individual interviews with FD and NGO staff, group discussions with JFMC and villagers and observations. External actors were asked about their involvement in the management of community-run committees including record

keeping, solving disputes and facilitating equitable arrangements of responsibilities and benefits. This was verified using triangulation of sources by also asking JFMC members and villagers the same questions. Again through general discussions on JFM, the involvement of external actors in the provision of management and social skills could be identified.

c) Communication channels

Scholars have extensively argued that communication between actors increases understanding of each other's viewpoints and builds social capital. This is an important aspect in a policy that envisages close working between the FD and the villagers. In addition, it can allow for linkages to complementary projects to be realised or indeed for possible contradictions between schemes to be avoided. Close communication channels and especially face-to-face contact has been raised by many scholars as being influential in building social capital (see Baland and Platteau, 1997; Ostrom, 1999, 2005; Putnam, 1993) and as discussed in the literature review, social capital is a central aspect of collective action. Bodin and Crona (2009) argue that the structure of the social networks at the local scale is very important in understanding how knowledge is transmitted and acquired. This point shows how the indicators for external actor involvement are not mutually exclusive.

In order to research the communication channels and the place of external actors within the structure of social networks an understanding of the number of connections the actor has and also the frequency, direction (who initiated it), method (in person at meetings, individual visits, telephone or letter) and purpose of communication was required. The centrality of the actors within networks can also be analysed, in other words, whether the actor can control, or block communication between other actors. This was gained through individual interviews with the external actors and group discussions with the JFMC to enable triangulation of sources. In addition observations from general stories and asking how a particular issue had been addressed allowed for a deeper understanding of the relations between i) the external actors and each other, and ii) the external actors and the JFMC members and other villagers.

d) Financial support

Matta et al (2005: p865a) reported that 'most field officers observed that the initial 3 years of seed money for the VFCs was the primary motivation for villagers' participation in JFM.' However Tiwary (2003) found little evidence for the claim that material demands become the reason for the relationship between the external actors and the villagers. Given the conflicting literature which highlights either the need for a reliable continuous supply of financial support or gives a more cautious report of the possibility of funds becoming the motivational factor for participation or communities becoming reliant on outside funding, it is useful to gain a greater understanding of this indicator. It is also necessary to realise that financial support may also be in kind through, for example, the provision of infrastructure during the initial years of a program. Analysis of program documentation, annual accounts, JFM reports and records is triangulated by means of conducting interviews with NGOs and FD officials. Group discussions with the JFMC as well as general observations of the credence given to any financial contributions provided to the villagers enable an assessment of the degree of motivation this provides. These group discussions also enable analysis of actor involvement in decisions made about the use of the financial contributions.

3.3.3 Dependent variables in the Sustainability Matrix

In order to determine the extent to which sustainable collective action is present in each case, I have developed a matrix which encompasses indicators on both the functioning of the collective action and its sustainability. According to Poteete and Ostrom (2004) examples of functioning collective action are characterised by: regular meetings; the presence of rules on entry, harvesting and monitoring and the presence of a system to enforce the rules. A qualitative measurement of the sustainability of collective action will also be made based on the following indicators identified in the literature review as being important factors in the sustainability of CA. In addition the indicators are also drawn from empirical studies of JFM cases in India which have highlighted important factors for the sustainability of CA at the centre of JFM:

1. Level of understanding amongst external actors and forest users of the JFM policy (amendments, entitlements and responsibilities) (Ghate 2009, Nayak and Berkes, 2008; Pai and Datta, 2006)

The data for this indicator was gained through individual discussions with members of NGOs and different levels of FD officials. Observations of interactions between external actors and forest users plus documents used for trainings also provided triangulation of sources.

2. Level of awareness and inclusion of all forest users (Agrawal and Ostrom, 2001; Baland and Platteau, 1997; Martin and Lemon, 2001; Murali et al., 2006; Rydin and Pennington, 2000; Poteete and Ostrom, 2004, Sundar, 2000)

Although it was not possible to undertake a survey of a statistically representative number of households (see section 3.3.7), individual or small group discussions were held in each village with villagers not in the JFMC to gauge awareness levels of JFM. This allows for a certain level of understanding of the awareness of forest users.

3. Level of connections with external actors and other communities of forest users that will allow for knowledge transfer in both directions, concurrence on conflicts of interest, building trust and reciprocity (Baland and Platteau, 1997; Ngwa and Fonjong, 2002; Ostrom 1999, 2005; Putnam 1993)

The data for this indicator was gathered under independent indicator c) Communication Channels as outlined above.

4. Level of confidence amongst forest users that their actions will benefit them in the future (Agrawal, 2001; Baland and Platteau, 1997; Ostrom, 1990)
5. Level of perceived ability amongst the forest users to manage their own JFM without depending on external actors (Ballabh et al. 2002; Regmi, 2008; also see Ostrom, 2005 who relates this to the robustness and resilience of institutions)

Data for indicators 4. and 5. was gathered through informal discussions with the JFMC and other villagers. The conversation was steered towards their views of the future of JFM, whether they feel they have gained knowledge and skills since the initiation of JFM and who taught them these skills, what the current issues are and whether they feel NGOs or the FD can and should address these. Examples of problems arising were used to determine which actors were involved in addressing such issues. In addition, questions about forest changes since the start of forest protection and JFM (if changes since this point in time could be isolated) were used to guide discussions about future benefits in order to observe the level of confidence and views on the future of JFM.

3.3.4 Case Selection

The cases selected are from Gondia district, one of the most forested districts in Maharashtra with a total of 363 JFM villages (MoEF, 2005). The administrative unit of *district* almost perfectly corresponds with the unit of forest management called *division*. Within Gondia forest division there are 12 ranges and the cases selected are found in two ranges: Salekasa and Nawegaon. Selecting cases across two ranges increases the number of external actors and therefore is an attempt to avoid drawing conclusions which may only be true of the particular individuals involved in the cases. However generalisation from a small *N* is still problematic. As Gerring (2004) states, this is a trade off between knowing more about less or less about more. In order to gain a deeper understanding of the causal mechanisms between the independent and dependent variables I have opted for limiting my analysis to one case representing each level of external actor involvement found on the ground. Therefore only modest generalisation beyond the division level is possible.

3.3.5 Control variables

In order to identify the influence of external actors on the sustainability of collective action it is imperative that other possible influences are held as constant as possible across the cases. This will allow for greater confidence in drawing conclusions regarding the influence of external actors. Therefore in selecting the cases an attempt has been made to identify other variables present that could affect the sustainability of collective action and which therefore need to be held constant. Agrawal (2007) identified four clusters of variables as outlined in the table below. An interpretation of each cluster relevant to this research has been given and the action taken to control the influence of each cluster has been outlined:

Cluster variables	of	Interpretation	Action taken to control influence
Characteristics of the resource system (forests)		Size, boundaries, the extent to which resource units can be stored, the rate and predictability of flow of benefits from the resource system and ease of monitoring resource conditions	Case selection from small geographical area and data on forest uses obtained
Characteristics of the user group		Size of the group, clarity of boundaries of the group, heterogeneity, extent of interdependence in the user group, dependence on the resource, whether the user group has sufficient resources for initiating and maintaining collective action (Poteete and Ostrom, 2004).	Cases selected considering the following village socio-economic data: population, reliance on forest, occupations and average land size (to determine reliance on forests), heterogeneity seen as social group composition (caste, tribal) and education level, experience in development projects and collective action
Institutional arrangements		'Rules that are easy to understand and enforce, locally devised, take into account differences in types of violations, help deal with conflicts and help hold users and officials accountable are most likely to	All under same GR* therefore all have same level of autonomy to create locally devised rules Case selection from within same district of Maharashtra therefore same interpretation of GR at

	lead to effective governance.’ (Agrawal, 2007: p123)	district level administration Characteristics of resource system and user group are similar therefore all rules across cases are created to deal with similar resource issues
External environment	Demographic, cultural, technological, market-related factors, nature of state agencies	All cases are from the same district of Maharashtra Similar distances to markets of similar size. No large market close to any of the cases. Ask about other development programmes present or recently carried out in the villages and gain background information from microplans

Table 1: Control Variables

* GR refers to State of Maharashtra Government Resolutions relating to JFM policy (MoEF 1993 and 2002)

3.3.6 External actor involvement

The cases were selected based on the level of involvement of the different external actors present. In order to identify the influence of each individual external actor the cases have been selected to create a variety of external actor involvement arrangements. The selection was not only based on the actor(s) that initiated JFM but also on the level of their involvement since initiation to date. The two key external actors identified in the literature review, in the GRs and through discussions with experts in JFM (Ghate, 2009b) are Forest Department officials and NGOs. A stakeholder analysis process was undertaken in eight villages through informal individual discussions with the local FD officials and/or NGO representatives where present, and a group discussion with members of the JFM executive committee and other interested villagers. The following cases were selected based on the involvement of these two key external actors (see table 2 for an outline of key external actor involvement in each case):

- A:** Forest protection and JFM is self initiated by the forest users with high FD and high NGO involvement
- B:** Forest protection and JFM is self initiated by the forest users with high FD involvement and low NGO involvement
- C:** Forest protection is initiated by forest users, JFM is initiated by FD and there is a low level of FD and NGO involvement
- D:** Forest protection and JFM is initiated by an NGO with international funding and minimal FD involvement

In addition, the cases selected all have a minimum level of functionality based on the criteria outlined earlier, namely: frequent meetings, presence of rules and a system to monitor and

enforce rules. This enables an understanding to be gained on the influence of external actors where the JFM policy is at least functioning. A comparison is made with two cases of non functioning (NF) JFM, hereafter NF1 and NF2 where there has been a certain level of involvement from the two key actors. Following Gerring (2004) this comparison can be seen as bringing in peripheral units of study, specifically non functioning JFM cases, in order to learn whether external actors have also had an influence on the non functioning of collective action whilst also allowing for some understanding to be developed as to the extent to which the results from the four case studies are generalisable to other villages in which the same external actors are involved. It was not possible to conduct full case studies in these comparison villages, however data on external actor involvement was gathered which would allow a comparison to be made. Case NF1 was selected as it falls under the responsibility of the same Range Forest Officer as cases A and B and the Deputy Conservator of Forests stated that FD involvement was significant, yet it was understood that JFM was not functioning. Therefore it provides a comparison of a JFM case in order to learn whether the same FD officials had any influence on the non functioning of CA. Case NF2 was selected as the same NGO is involved as is involved in cases C and D. Therefore it provides a comparison of a JFM case in order to learn whether the same NGO not only had any influence on the functioning of CA in C and D, but also whether they had an influence on the non functioning of CA in NF2.

NF1: Forest protection and JFM is initiated by the FD. Very little FD involvement and no NGO involvement

NF2: Forest protection and JFM is initiated by the FD. Low level of FD and moderate level of NGO involvement

3.3.7 Data Collection methods

A range of methods were employed to ensure triangulation of sources and methods. It was found during the first visit that the culture in the villages did not lend itself easily to individual interviews. Rather group discussions with JFMC members and separately with other villagers were conducted and supplemented with a limited number of randomly selected interviews on an individual basis. Attention was given to holding group discussions at convenient times and involving women in the discussions as far as possible. Informal group discussions allowed for villagers to raise the points most important to them, the content of which was an important observation in itself. Open ended questions also contributed to enabling discussions to develop in a more natural manner which allows greater confidence in the responses given. This was coupled with questions asking for actual examples of issues raised in order to validate the general issues under discussion. In order to guide discussions, a template of possible JFM activities was taken from the research material used by International Forestry Resources and Institutes (IFRI, 2008), a research program at the University of Michigan led by Dr. Elinor Ostrom. Their research guidelines and material have been devised through extensive international research by institutes affiliated with IFRI. This provided me with a comprehensive framework for discussions. Furthermore such general discussions and accounts of events assisted with isolating a causal link (absence of spurious correlation) between external actors and the sustainability of CA, as such open discussions also brought up other factors that potentially influenced the dependent variable. This allowed for follow up questions in order to establish causal links.

In addition, semi-structured interviews were conducted in person at the offices of the external actors, sometimes individually and sometimes with other members of the organisation present. The interviewees were therefore in their own environment and so could feel

comfortable in discussions. Semi-structured interviews using open-ended questions allowed the respondent to discuss issues in their own words without being forced into closed responses which could mean important nuances are lost. Several interviews were conducted with key actors from the NGOs and FD over a period of three months (September until November 2009) in order to discuss the same issues several times and to build a rapport which enabled more open discussions.

Observations of interactions between actors were crucial in verifying the responses given in interviews and discussions about the provision of knowledge and skills. I observed a workshop and a village meeting held by one of the NGOs active in the area, a training day organised by another NGO and three meetings of villagers and FD officials.

Although documentation of JFMC activities in the villages were limited, the microplans provided background information on the socio-economic aspects and resource information in each village. Some villages had records of rule infringements, minutes of JFMC meetings and records of accounts which could be used to validate data gained from group discussions. Documentation provided by external actors such as Annual Reports and copies of material provided in training sessions was used to verify information given in interviews.

Informal discussions with researchers and practitioners representing research institutes and NGOs involved in rural development were also undertaken. As well as providing a deeper understanding of the background to forest management and JFM, the information gained was used to help with identifying key external actors and the indicators for sustainable collective action.

Chapter 4: Background to study location and forest management in India

4.1 Research location

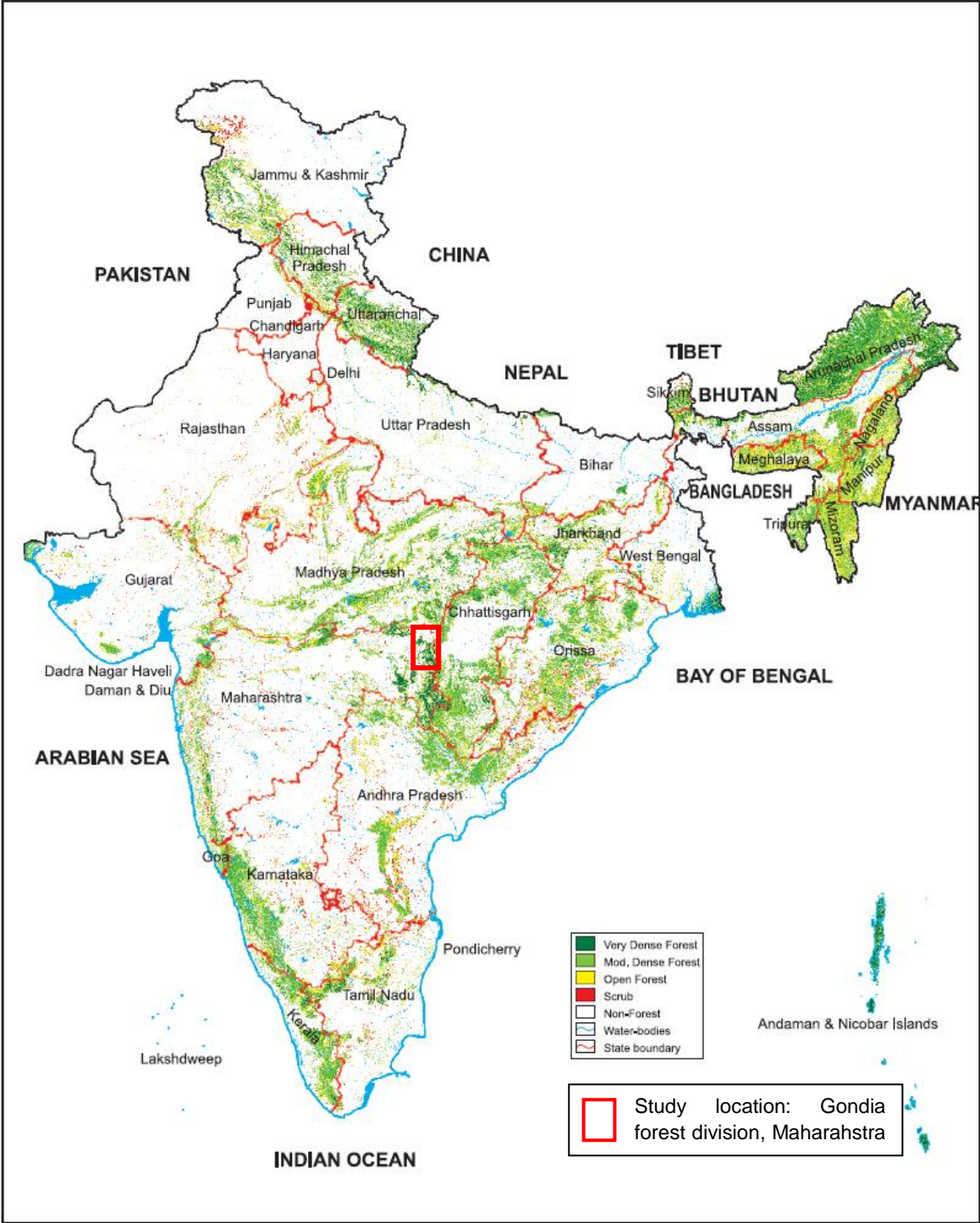


Figure 6: Location of study area in India

Source: Forest Survey of India, State of Forests Report 2005 (<http://www.fsi.nic.in>)

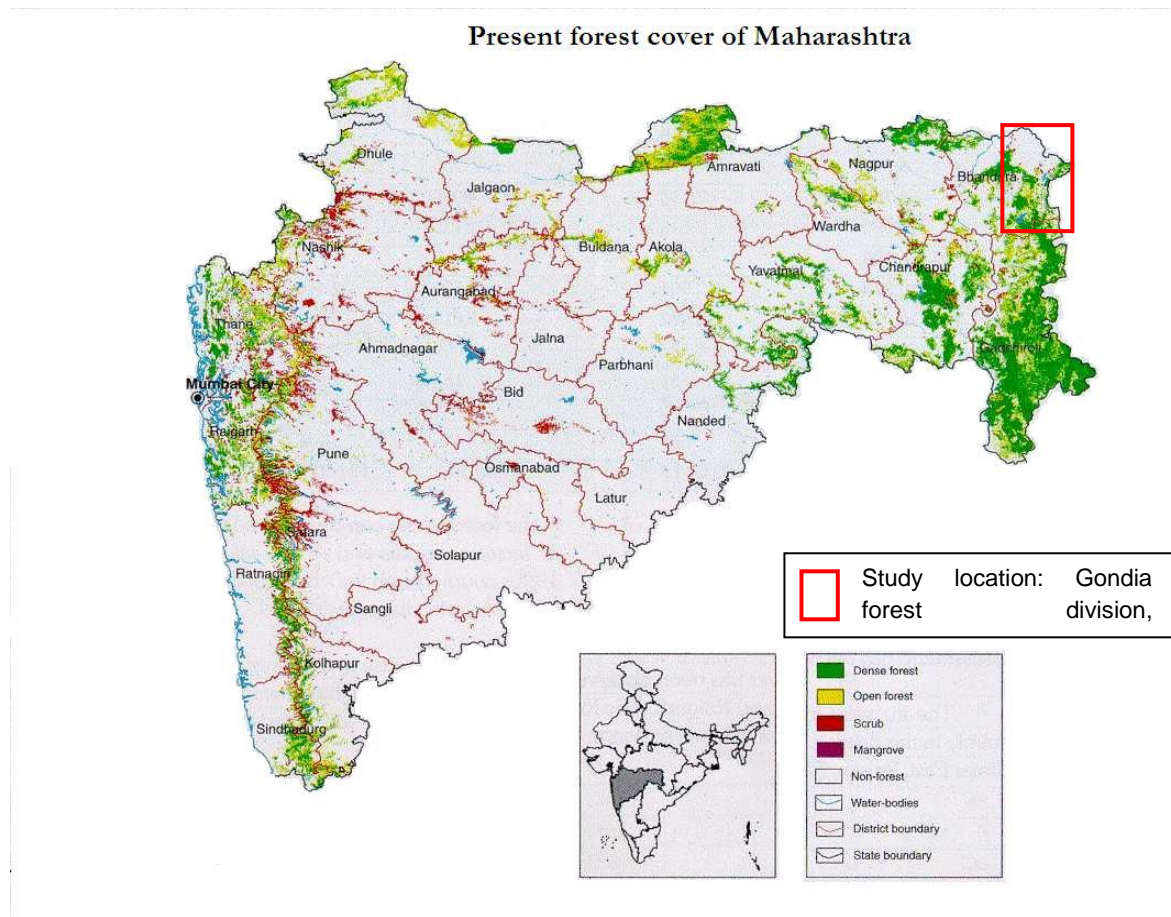


Figure 7: Location of study area in Maharashtra state

Source: Forest Survey of India, State of Forests Report 2005 (<http://www.fsi.nic.in>)

Gondia is located in the eastern region of Maharashtra called Vidarbha, a region rich in forests (Godbole, 2006). Gondia division has the second highest level of forest cover in the state at 2121 km² (37% of its total area). The forest type in the area is tropical dry deciduous (MoEF, 2005). The population is just over 1.2 million, 88% of which live in rural areas. Scheduled Castes and Scheduled Tribes comprise 30% of the population. 81% of households live in a semi-permanent house. Literacy rates are reasonable at 78.52% however the population with an education beyond primary level is just 28% (census, 2001).

The study is conducted in two forest ranges, Salekasa and Nawegaon within Gondia division. I have chosen to keep the location below range level confidential and the respondents anonymous. This allows me the freedom to use fully the information I gained from respondents, without the possibility of this negatively affecting them. I have therefore refrained from directly referencing village level, NGO level or FD discussions and documents.

4.2 Forest change trends

Records on the decreasing extent and quality of Indian forests (see Nilsson, 2008; Forest Survey of India, 2005), clearly show that this situation represents a significant point of concern. The latest Forest Survey of India's (FSI) State of the Forest report from 2005 shows a slight decrease in forest cover during the period 2002-2004 of 728 km² (0.11%). Similarly, in Maharashtra, there was also a small decrease in forest cover of 38 km² whilst 47,476 km²

(15.43% of total land area) remains classified as forest area (representing 7.01% of national forest cover).

However the real picture is gained by considering the changes in forest density over time. In Maharashtra only 8,191 km² (2.66%) of land area is classified as very dense forest cover (canopy density over 70%) and 20,193 km² (6.56%) as moderately dense forest cover (canopy density 40-70%) (FSI, 2005). This is a decrease since the 2003 assessment of 10 km² of dense forest cover and 28 km² of moderately dense forest cover, whilst scrub has increased by 73 km². Indeed if attention is given to Figure 7 showing the forest cover of Maharashtra it can be seen that the majority of the remaining forest cover is in the Vidarbha region in the far east of the state.

In India forests remain an important resource for 275 million rural people (Shah and Sajitha, 2009). In Maharashtra state 55.2 million people live in rural areas, which represents 57.6% of the state population of 96.87 million (latest census of 2001 stated in MoEF, 2005). Forests are widely used as important sources of fodder, fuelwood, food, medicinal herbs and construction materials for houses and agricultural tools plus as land for cattle grazing (Jewitt, 1995, also see Nilsson, 2008). In addition, forests provide daily wage labour opportunities and profit making opportunities through the sale of firewood, bamboo, tendu leaves and lac, whilst also supporting cottage industries (such as basket making) (Maharashtra Gov. 2009) When these figures are compared with the picture of decreasing forest density outlined above it shows a worrying situation of a large rural population with a high level of dependence on a reducing forest resource.

4.3 History of forest management in India

In 1878 the first step towards government control of forests was taken with the passing of the Indian Forest Act (Murali et al., 2006). Forest land was increasingly strictly allocated in order to control valuable timber resources (Agrawal and Ostrom, 2001) effectively eradicating the rights of local people to use the forest for subsistence traditionally practiced through grazing, gathering and swidden agriculture. During British rule and in the decades since Independence in 1947 forests in India were state owned and under strong centralized control (Kumar, 2002). Forests were seen as sources of raw materials for development therefore a strong production-orientated forest management policy ensued (Rawat et al., 2008). This strict state control led to the alienation of local people dependent on forests for their livelihoods and to the demise of many traditional management systems (Martin and Lemon, 2001). However, even during this period some communities across many states were able to maintain local community forest management institutions (Murali et al., 2006), some in partnership with local forest officials (see Agrawal and Ostrom, 2001).

The introduction of the Indian National Forest Policy of 1988 marked the policy shift towards decentralized management with a more central place for participation of local communities in the development and protection of forests (Kumar, 2002). This policy laid out the goal of achieving a forest cover of 33% of the land area, however it has been argued that the quality of the forest cover must also be considered to add value to this objective (Nilsson, 2008). Forest-dependent communities were asked to become partners with the FD though ownership of the land remained with the FD (Kumar and Kant, 2006). White and Martin (2002 cited in Agrawal, 2007) state that 93% of forest land in India is publically owned. In 1990 a circular was issued by the Ministry of Environment and Forests (No. 6.2 1/89-F.P.) to the

forest secretaries of all states and Union Territories setting out the new policy. Initially JFM was restricted to the regeneration of degraded forests. Each state subsequently issued its own government resolutions or government orders for the implementation of the new National Policy within the guidelines of the 1990 circular but with specific guidelines in terms of forest categories, produce and identification of communities to be included (Kumar and Kant, 2006). This led to great variety in how the policy was implemented between the states. Since the 1990 circular there have been two subsequent guidelines issued by the national government dated 21.02.2000 and 31.05.2002 which extended the forest type that could be covered under JFM to good forests (forest cover of 40% and above) and emphasised the need to increase women's participation (MoEF 2003). The MoEF (2005) states that as of March 2005 99,868 JFMCs comprised of 13.8 million families were managing 21.44 million hectares of forest, which represents 28% of total forest area. In Maharashtra, there are currently 11,799 JFM committees governing a forest area of 2,685,000 ha (Pai and Datta, 2006) which represents over 40% of all forest area (FSI, 2005).

4.4 Description of JFM in Maharashtra

JFM implementation in Maharashtra was supported by a World Bank loan of 88,900,000 Special Drawing Rights in 1992. Schedule 2 of the World Bank development credit agreement state the objectives of the agreement as 'to increase the productivity of forest lands, arrest environmental degradation, maintain or improve bio-diversity conservation, develop wastelands, raise bio-mass self-sufficiency, generate rural income and promote community participation in forestry activities.' (WB, 1992b). The following description of the JFM policy gives the background to the research. It is taken from the Maharashtra Government Resolutions (GRs) of 1992 and 2003 and will be followed by scholars' accounts of the actual workings of JFM on the ground (MoEF 1992, 2003).

4.4.1 JFM on paper

Under JFM the first step is to form two committees: the executive committee (hereinafter JFMC) and the general body. The GRs outline the rules governing the JFMC and general body as follows:

- The JFMC is comprised of a maximum of 11 elected members of which one is a member of the gram panchayat (village council) and one is an ex officio representative of the FD in the position of secretary.
- The JFMC should meet at least monthly
- To conduct any work at least 6 members must be present, of which 2 must be women.
- The general body is comprised of all the adults in the village who are willing to be a member and 33% should be women.
- The general body should meet at least twice per year

The JFMC is then registered under the Societies Registration Act of 1860 and the ACF selects the forest land within 5 km of the village to be allocated to the JFMC. A Memorandum of Understanding is signed between the ACF and the JFMC. Two accounts are set up: one containing the savings from government and one containing any income generated by the JFMC. The making of a 10 year microplan is facilitated by the FD but with the intention of using Participatory Rural Appraisal techniques (Bhattacharya et al., 2008). Bhattacharya et al. (2008) outline the issues to be complied with in the microplan as: encroachment, forest

fire, head loading, timber smuggling and grazing. Members of the JFMC should select the species for any plantations and then have the responsibility of managing the area allocated to them through patrolling the land at least once per month, raising instances of encroachment, illicit taking for resources etc. with the FD, managing the activities under the microplan, providing labour to the FD where needed, distributing forest produce equitably and assisting with the annual account audit. The JFM members have usufruct rights to take all subsistence NTFP from the forest excluding tendu leaves and cashew. Any remaining forest produce will be auctioned by the FD and the JFMC will receive 20% of the profit. In the case of timber, firewood and bamboo, benefits from the plantation and good forests will be given wholly (100%) to the JFMC if the incremental increase in timber volume can be determined. Where the original timber volume is not known, the FD can decide on the percentage of the profits to be allocated to the JFMC which will not exceed 20% in good forests, and 50% in degraded forests. The FD is able to dissolve the JFMC if they are found to be repeatedly breaking the laws of the forest acts.

4.4.2 JFM in reality

Initial reports on the impacts of JFM show an improvement in forest condition. Also forest works have generated additional employment in activities such as clearing, singling, planting and soil and moisture conservation works (Sudha et al., 2003 cited in Bhattacharya et al., 2008). However there have been many criticisms of the implementation of JFM. Firstly, the levels of participation have been highly criticised. Participation has become a 'fundamental aspect of natural resource governance the world over' according to Pretty (2003, cited in Matta et al, 2005a: p860). Therefore socio-psychological dimensions of governance are receiving increased attention (Rishi, 2007). However scholars have noted that the degree of participation in JFMCs is lacking and therefore delving beyond the figures of the number of committees being set up is essential (Sundar, 2000). This is especially the case with regards to the marginalised and women members of households (Sundar, 2000 and Martin and Lemon, 2001). Secondly, there have been many reported issues of elite capture of the new source of funds including in tribal areas where it is usually presumed that communities are relatively homogenous (Corbridge and Kumar, 2002). Thirdly, the prescriptive nature of the JFM policy does not allow for flexibility on the ground and can lead to unintended and unwanted results (Martin and Lemon, 2001). One example of this feature of JFM is the lack of regard for heterogeneous, hierarchical and conflict-ridden communities, rather it is assumed that communities are stable families with a identifiable relationship with the forest resource (Sundar, 2000). Finally, the legal identity of JFM is questioned as JFMCs do not have an independent legal identity and the land remains owned by the FD (Saigal, 2000).

The JFM policy is not implemented in isolation. Since 1988 further policies have recognized the rights of local communities such as:

- The Panchayat Extension to Scheduled Areas Act (PESA) of 1996 which lists the forest products the *gram sabha* (village assemblies) are entitled to manage themselves. This is also applicable beyond the FD owned land.
- The Biodiversity Conservation Act (2002) allows *gram panchayats* (village councils), *panchayat samitis* (sub-district level) and *zilla parishad* (district level administration) to charge outsiders for the use of biotic resources.
- The Scheduled Tribes and Other Traditional Forest Dwellers Act (known as the Forest Rights Act) 2006 gave rights over forestland that had been under cultivation by a family for three generations or more. However, the gulf between formal policy

documents and reality remains significant (Nayak, 2008) and joined up working between related acts is limited. Under the Forest Rights Act, villagers set up Forest Rights Committees to assess claims for land which are then submitted to the Revenue Department for consideration. Under this act, communities which have been living on land for generations have rights (individual or common) to livelihood sources, have traditional seasonal resource access for nomadic and pastoralist communities; rights to disputed lands; rights of access to biodiversity and community rights to intellectual property and traditional knowledge. They also have the responsibility to protect wildlife, forests, biodiversity, catchment areas, water sources and other ecological sensitive areas (Ghate 2009a).

It can therefore be seen that the JFM policy is found within layers of legislation pertaining to similar resource and rural development issues in rural areas of India.

4.5 The Forest Department

The organisation of the Forest Department remains top-down hierarchical with the highest position in the state being the Principal Chief Conservator of Forests (PCCF). Under this position is the Conservator of Forests (CF) followed by the Deputy Forest Officer/ Deputy Conservator of Forests (DFO/DCF). The DFO or DCF is the highest official responsible for the division level management and is the highest level of official interviewed during this research. Under the DCF of Gondia are currently three Assistant Conservators of Forests (ACFs) who are each responsible for four forest ranges. This study is conducted in two forest ranges each with its own Range Forest Officer (RFO) responsible for one range and reporting directly to the ACF. Under the RFO are Range Officers (ROs) and Forest Guards (FGs).

4.6 Overview of the case studies

The following table gives an overview of the actor involvement in each case study since forest protection started until the present day. The following 5 chapters will take each case study and following the same structure for each case study, a background to each case study will be given and the dependent and independent variables will be analysed.

Case Study	Actors involved in starting forest protection	Actors involved in registering JFM	Actors involved in sustaining JFM after initiation	Any changes in actors involved in sustaining JFM over time
FUNCTIONING JFM				
A	Individual villager initiated FPC created	FD	Villagers FD heavily involved NGO heavily involved in lac training, SHGs	Change with FD rotation
B	Community member approached local council- FPC created	FD	Villagers Original RO heavily involved in trainings Limited NGO involvement: women's SHGs	No FD involvement since 2006 (new RO)
C	Local council was responsible, Community approached local council- FPC created FD told villagers about JFM- heavily involved	FD	Villagers Limited FD (plantation only) JFMC approached NGO in 2008- limited involvement	Since division change no FD involvement NGO recently involved
D	Completely led by NGO– SGP under GEF project No FD No previous forest protection	NGO FD	NGO Community FD (only tender for firewood collection)	

NON FUNCTIONING JFM				
NF1	FD initiated	FD	FD initially and again recently, very limited	New RO of 3 months is involved, changing JFMC
NF2	FD initiated	Not registered	Solely community led Little NGO or FD involvement	FD provided plantation land but now no involvement

Table 2: Overview of actor involvement in each case study

Chapter 5: CASE STUDY A

CASE STUDY A

Forest protection and JFM is self initiated by the forest users

High FD and high NGO involvement

5.1 Data Collection for case study A

The following data collection methods were used to ensure triangulation of sources and methods:

- 1) Large meeting with previous Round Officer, current Round Officer, Range Forest Officer from the FD, JFMC, local council leader and villagers using a semi-structured discussion
- 2) Meeting with five members of JFMC using a semi-structured discussion
- 3) Two group discussions with non JFMC villagers (one held during the day, one held in an evening) using a semi-structured discussion
- 4) Five semi-structured individual community interviews
- 5) Individual interview with previous local council leader involved in forming the FPC
- 6) Two semi-structured interviews with Range Forest Officer and several informal discussions
- 7) Two semi-structured interviews with Assistant Conservator of Forests and informal discussions
- 8) Semi-structured interview with Deputy Conservator of Forests
- 9) Semi-structured interview with NGO Managing Director and Project Coordinator
- 10) Two semi-structured interviews and informal discussions with NGO Block Coordinator and Field Worker
- 11) Visit and discussions with NGO lac production trainer to lac farmers in one ward of the village (25 men, 25 women present)
- 12) Interview with 2 fieldworkers from the Agriculture Department
- 13) Observations of interactions between FD and villagers at the initial village meeting
- 14) Observation of NGO Block Coordinator conducting a SHG awareness training
- 15) Review of NGO Annual Report 2008-2009
- 16) Review of the village microplan dated 25.04.2003

It can be seen that the research methods employed cover group discussions, semi-structured individual interviews, informal individual discussions, observations of the external actors and their interactions with the villagers and documentation reviews.

5.2 Background

5.2.1 Introduction to the village

Case study A is situated in Salekasa range, the most eastern part of Gondia district. It is located 9 km along all weather roads from Salekasa which is a small town where the Range Forest Officer is based. The forest area around the village consists of degraded tropical dry deciduous forests, of which the JFM manages 71.3ha which is all the FD land within the village boundary. This is mostly padas trees, which can be used to cultivate lac (a resinous secretion from a parasitic insect which inhabits the branches of the padas trees). In addition, there is a 20ha plantation of bamboo (used for housing and sold), sagwan teak (*Tectona grandis*), amla (*Embllica officinalis*) and sewan (a local name for a type of timber). The village itself has a population of 1258, over approximately 227 households and is divided into three wards. The villagers are predominantly from the Other Backward Classes (OBC) social group. The average size of land is less than 2ha, there are 56 landless households and no households with more than 5ha of land. 76% of the village population are farmers and 20% are daily wage labourers with the main produce being rice. In addition, the numbers of bullocks, cows, buffalo and goats are high though it was not clear how evenly they are distributed amongst the population.

5.2.2 A brief history of forest protection

Over the past 25 years the condition of the forest surrounding the village has slowly deteriorated. Overgrazing and felling was conducted solely by the villagers themselves. Therefore in 2001 a villager, Mr. Sahedavji Meshram, initiated the formation of a forest protection committee (FPC) with 15 voluntary members (5 from each of the 3 village wards). Initially the FPC protected 28 ha through devising a grazing system, making rules on forest use and setting sanctions for rule breakers. The grazing system involved dividing the land into 10 sections which were used on an annual rotational basis. The *Sarpanch* (local council leader) at that time was also involved in setting up the FPC. The FPC initiated the following rules and sanctions:

- 50% of each forest product available can be taken (this is mostly applied to firewood and determined by the FPC checking the forest condition)
- Fines for grazing in the wrong section according to the grazing system (per animal): Rs 150 for buffalo; Rs 100 for cows, cattle; Rs 50 for goats
- No felling of trees
- Fines for illicit felling (per tree): Rs 1000 for Sagwan, Rs 21 for other trees which incrementally increased to Rs 201 by 2005
- Rs 10 membership fee from all villagers

At this time, no formal monitoring system existed however at all group discussions it was conveyed that a norm existed whereby villagers reported rule contraventions to the FPC. The rules were seen as fair and enforcing a fine system was not seen as problematic by either the FPC or other villagers.

In 2005 the local forest guard who lived in the village informed the villagers about JFM. He was responsible for monitoring 700-800 ha of forest land which was gradually becoming depleted. He suggested to the FPC that they should become registered as a JFMC responsible for 71.3 ha of FD owned forest land within their village boundary. The JFMC was registered in 2005 under the Societies Registration Act of 1860. In order to conform with JFM

rules, membership of the JFMC was reduced from 15 to 11 though the 4 villagers who were no longer official members of the JFMC remained an integral part of the committee. At this point the sanctions were increased but no further changes to the rules were made.

5.3 The JFMC

Members of the JFMC are formally elected for 3 years however in practice they continue in their posts unless an objection is raised. The only change in membership has been through the death of a member and his membership was passed to his widow. To date, the JFMC has been responsible for:

- Electing their own positions within the JFMC
- Deciding who would plant and protect the plantation
- Monitoring the forest on a daily basis under a rotation system
- Composing rules (under FPC), deciding upon fines and fee contributions
- Deciding how funds received from fines are to be spent
- Administering the lease of land for lac production
- Submitting fund proposals for ponds to the state government

5.4 Main JFM Activities

- Following the microplan, the FD provided 20 ha for the creation of a plantation of bamboo, sagwan teak (*Tectona grandis*), amla (*Emblica officinalis*) and sewan (a local name for a type of timber). The villagers planted the trees. To date, no harvesting of plantation products has taken place.
- JFM land with 60,000 padas trees (host trees used in lac production) has been leased to groups and individuals. Self-help groups comprising 13 members lease the land for 5 years and can take all the profit from the lac production. The fees paid for leasing the land are deposited in the JFM account (since 2005 Rs 58,000 has been made from the lease of land).
- JFM planted mahua (*Madhuca longifolia*) and karanj (*Pongamia pinnata*) amongst the trees in the plantation.
- Renting out decoration materials for social events in order to generate income.

5.5 Identification of actors involved in JFM

Through group and individual discussions with villagers and interviews with FD and NGO staff, the following actors were identified as being directly or indirectly involved in JFM in case study A:

Groups of villagers	FD *	1 NGO *	Other actors
JFMC	Round Officer (lowest rank)	NGO fieldworkers	Block Development Officer
Lac production villagers	Range Forest Officer	NGO block coordinator and office manager	Agriculture Department
Non JFMC or lac production villagers	Assistant Conservator of	NGO project coordinator	Other NGOs

	Forests and higher ranks of FD		
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Table 3: Actors involved in JFM in Case Study A

* The positions within these organisations are listed in hierarchical order with the lowest level positions listed at the top.

The NGO is the same one working in Case Study B. It must be noted that the NGO involved has an agreement with the FD through the *Rashtriya Sam Vikas Yojana* (RSVY) central government policy to develop self help groups (SHGs) and work in developing lac production in the village. Therefore its working mandate does not directly include CA under JFM. However the NGO has carried out activities in the village beyond lac production and the villagers do not make a clear separation between development work under JFM and other rural development or agricultural training activities. The NGO works through fieldworkers who are responsible for five *panchayats* (local council areas, not necessarily corresponding to villages as one council may cover several small villages). The fieldworkers are supervised by the block coordinator who is responsible for two blocks who in turn reports to the Amgaon office manager, responsible for four blocks. These staff are local to the area and work from the Amgaon office, the nearest small town. The project coordinator is located in Gondia, the district capital approximately two hours drive from the village.

5.6 Dependent variable

This section will address the dependent variable: the sustainability of the CA. It will assess the level to which the CA under JFM can be described as functioning and it's level of sustainability using the eight indicators outlined in Chapter 3. After assessing the sustainability of the CA section 5.7 will assess the influence of each of the external actors on each of the eight indicators of the sustainability of the CA. This will be done by using the four indicators of external actor influence as identified in Chapter 3.

5.6.1 Indicators of level of functioning of CA

Meetings

The JFMC meet twice per month which can be considered to be on a regular basis. The data on the frequency of general body meetings conflicts. The JFMC, current and previous Round Officer and Range Forest Officer stated that they are held every 3 months whereas individual villagers said they were held either twice per year or on an annual basis. Nevertheless meetings are held to which the whole village may attend.

Rules

The rules and a fine system were devised under the FPC in 2001 and have not been changed under JFM. The only change has been an increase in the fine amount. The rules cover entry, harvesting, grazing and monitoring. They are not written but conveyed at general body meetings.

Monitoring and Enforcing Rules

A member of the JFMC checks the forest on a daily basis. A system is in place to rotate the daily check amongst all members of the JFMC. In addition the norm exists for the community to report rule violations to the JFMC. The area of padas trees leased to lac farmers is also monitored by the lac SHGs on a monthly basis. Separately from the JFMC or lac farmers, the

Round Officer also performs regular checks on the forest, including the area leased for lac production.

It can be seen that CA under JFM in case study A is functioning according to all three indicators.

5.6.2 Sustainability Matrix

5.6.2.1 Understanding of the JFM policy

The JFMC has shown compliance with the rules of the JFM policy through actively making a change to the FPC in order to comply with JFM rules. There were 15 members in the FPC (5 from each ward) but they were told by the FD that they could only have 11 members under JFM. Therefore four members left the JFMC but remain an integral part of the committee without being formal members. Furthermore, the JFMC comply with the JFM policy on women members, the election of JFMC positions within the JFMC, the term length of JFMC membership (though this continues unless an objection is raised by a member of the general body or JFMC) as well as in the frequency of JFMC and general body meetings. The method of creating the microplan and selecting the forest area under JFM involved collaboration with the villagers and is therefore in conformance with the JFMC policy. In addition two bank accounts are held (one for government contributions and one for JFM raised funds) as stipulated in the JFM policy. Very well maintained records of accounts and fines are held by the secretary and/or the president. However there are also regulations under the JFM policy for which no evidence could be seen, for example there is no member of the local council on the JFMC and the rules were solely devised by the FPC with no wider involvement of the villagers.

The Range Forest Officer knows the basic JFM rules about which forest products are the responsibility of the JFMC (i.e. not tendu or timber) and rules on membership. It is clear from discussions with the JFMC that they only receive information on their obligations and responsibilities under JFM from the Round Officer. The Round Officer in turn receives this information from within the FD hierarchical structure. The knowledge of the villagers is therefore correlated with the knowledge of the FD, especially the Round Officer as they have most contact with him and he sits on the JFMC. This is a point I will return to in section 5.7.1. The role of the FD was seen by the JFMC to be one of support and in providing trainings, no specific responsibilities of the FD in relation to JFM were given. It was not clear the level to which the JFMC understood the roles and responsibilities of the FD nor their entitlements to future benefits, beyond their understanding that the Round Officer should attend meetings and be the secretary to the JFMC. Therefore a full assessment of their knowledge of the JFM policy cannot be made, however it can be clearly concluded that their knowledge relies on the information given to them by the Round Officer.

5.6.2.2 JFM awareness and inclusion level

Individual and group discussions with villagers showed a mixed awareness of the existence of JFM. From the six individual interviews, three interviewees had not heard of JFM whereas in group discussions there was a general sense of awareness of the existence of JFM. Of those who had heard of JFM only one person could name all the members of the JFMC (see appendix 1). Similarly, the awareness of general body meetings amongst non JFMC villagers was mixed as can be seen when asked how many meetings are held. There is a general awareness of the rules about entry and harvesting and the fine amounts (of those who knew

of JFM) with group discussions showing a consensus on the rules and a rough estimate of the fine amounts. All respondents who were aware that rules existed said they would contact the JFMC if they saw a crime being committed. There was no awareness amongst non JFMC villagers of how the rules had been formed, showing that their inclusion in such decision making was limited.

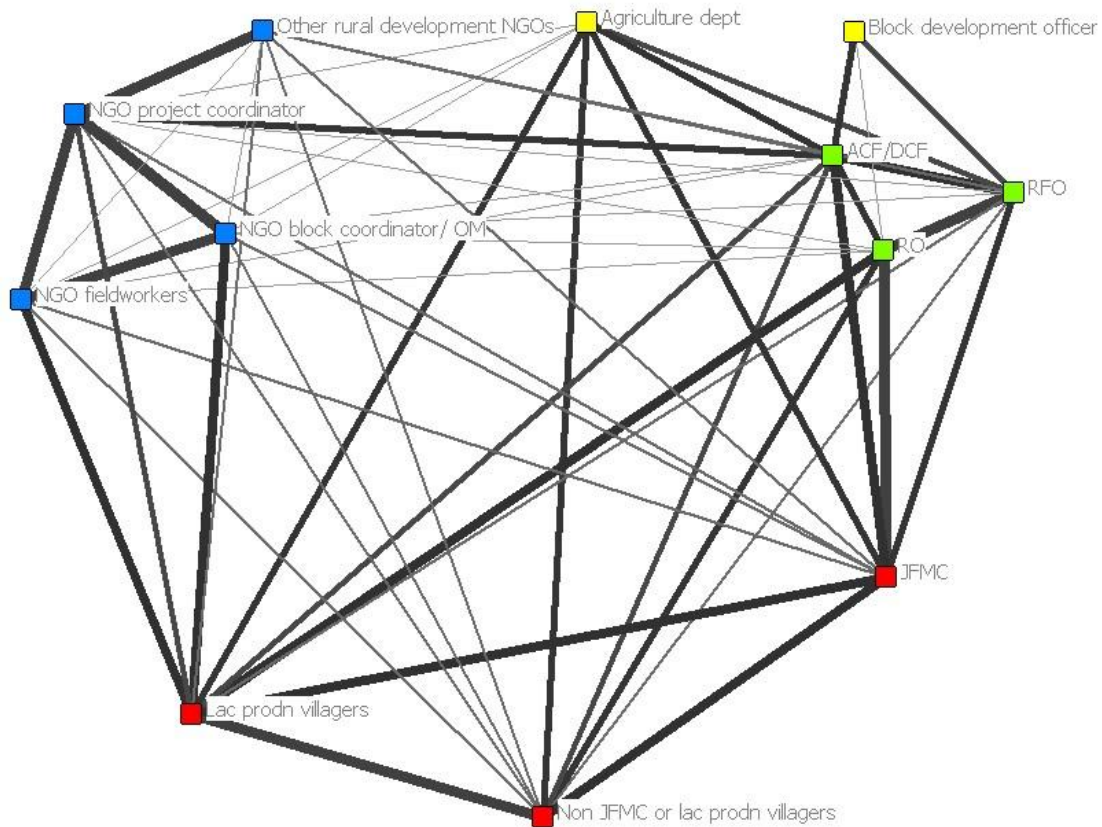
In addition, the involvement of women in JFM is limited. On the one hand, there are three female members of the JFMC but on the other hand, it was reported that mostly only men speak at general body meetings. Whilst the NGO and the lac farmers stated that ten women attended the initial lac training, two villagers reported that no women attend the current lac trainings given by the NGO. During the group discussion with lac farmers (who had been gathered by the NGO and approximately 25 of which were women) only one woman was present who had attended the training. One of the presidents of a women's SHG reported that men were using these groups to gain access to the padas trees that were leased to SHGs.

Efforts have been taken to make the general body meeting as convenient as possible as meetings are held on public holidays. The rules and account details are given at these meetings to try to ensure that all villagers have access to this information. The JFMC itself is representative of the village as a whole in terms of caste, average size of land and education level. This is an indicator that their decisions should reflect the interests of most villagers and should encourage inclusion of villagers.

To summarise, it can be seen that there is a mixed awareness of the existence of JFM and of the general body meetings though there is a general awareness of the rules and fines. It appears that no villagers are actively excluded from JFM though no actors are actively encouraging participation either. The low level of participation of women is not limited to JFM nor is it a result of actions taken by any actor in JFM, rather it reflects relations in society as a whole, a point I will return to in Chapter 10.

5.6.2.3 Connections

The diagram below shows the frequency of communications between the actors involved in JFM in case study A. As the focus of the research is on JFM, a boundary was placed to exclude the connections of actors on the edge of JFM who are only indirectly involved in JFM (for example, between the Block Development Officer and the Agriculture Department and their own connections).



Level of frequency	Definition	
—————	No communication	
—————	Only for a particular issue	Actor clusters
—————	Once per year or less	FD
—————	Monthly <x> Yearly	NGO
—————	Monthly	Villagers
—————	> Monthly	Other external actors

Figure 8: Case study A- Connections between actors

The density of the network is fairly high at 0.62 meaning that the number of relations that exist between each actor (or group of actors, for example the JFMC) is high compared to all the possible relations. As the density is fairly high, there is the opportunity for information to be exchanged and for trust to be built between actors. However, it is clear that some relations have a much higher level of frequency than others and that there are certainly cliques with regards to the frequency of interactions. This places some actors in positions of greater power, due to their centrality. This is the case for lac production villagers and the FD. The diagram shows that the NGO actors form one clique that only interacts with the JFMC through the higher level FD or through the lac farmers. The JFMC is not directly connected to the NGO, substantiated by the fact that the JFMC did not have any contact details for the NGO, rather they simply see them when they visit the lac farmers and indeed one member of the JFMC is also a lac farmer himself. This lower level of communication is because the

NGO focuses on lac production and therefore apart from their lead in conducting the PRA exercise for the microplan, they do not involve themselves in JFM.

As the FD is heavily involved in this village, there are connections between different levels of the FD and the different groups of villagers (JFMC, lac production villagers, and non JFMC or lac production villagers). The lac production villagers, JFMC and non JFMC or lac production villagers are central in the network as they have connections with 10 of the possible 11 other groups of actors (and their connections with the remaining actor, the Block Development Officer is not known). This is much higher than the average degree of 6.8. However, when the strength of the relations is considered, it can be seen that the villagers not involved in lac production or the JFMC are not strongly connected to the FD, with interviewees stating that their only connection is when the Round Officer attends general body meetings.

5.6.2.4 Confidence in future benefits

There is confidence in the institutional aspects of the working of the JFM which is an indicator that future benefits will be fairly distributed. All group discussions and individual interviews with JFMC and non JFMC villagers showed a general view that the rules are fair, fines can be collected and the non JFMC villagers were satisfied with the way the JFMC works. In addition the well maintained records and information given at general body meetings increases the transparency in the funding made through fines (since 2001 Rs 15,000 has been earned from fines for illegal grazing and Rs 10,000 from fines for illicit felling) and through renting out decorations for functions. Although forest protection (under the FPC and then JFM) has only been introduced recently villagers stated that there is a very gradual improvement in forest condition: more firewood is available; the health of trees has improved; more wildlife has been seen and there is an increase in the availability of NTFPs. Similarly, the lac farmers showed confidence in the increased yield using the new techniques stating that yields per tree have increased from 1 kg/ crop harvest before the training to 3-4 kg/ crop harvest using the new techniques. This increase has been seen over a three year period. The recent decision to invest in building up lac seed stock also indicates confidence in future returns.

However, the arrangements with the FD are less promising. There is no formal agreement with the FD stating how the future benefits from the plantation will be divided between the FD and the JFM villagers. This could cause doubt which would reduce the incentive to devise and adhere to rules. However, this was not directly referred to by villagers indicating that there may be an assumption that future benefits will be equitably shared.

5.6.2.5 Perceived ability to independently manage JFM

There is evidence that systems are in place which allow for certain aspects of the CA under JFM to continue relatively independently of the external actors. The records of meetings and fines are well recorded, independent income generating activities are in place which are likely to continue (land lease to SHGs for lac production from padas trees, fines, membership, renting out decorations) and disputes about forest use are being resolved internally without the need for FD intervention. The JFM was named the best JFM in the district in 2006. In addition the high number of trainings provided (see Section 5.7.2.5) may have provided knowledge and skills which will improve the perceived benefits and therefore also increased the perceived ability to manage JFM. The fact that the FPC was independently managing rules, records and fines before JFM was introduced is also

significant when combined with the generally positive view of the fairness of rules and fines they had devised.

However it was also observed that there is dependence of the JFMC on the Round Officer. They report that the Round Officer instructs them to carry out certain activities under JFM. The JFMC stated that they want to gain independent direct access to JFM rules and guidelines to avoid reliance on the Round Officer. Group discussions also showed a desire for training on crop harvesting, fishing, irrigation from the Agriculture Department plus training on medicinal plants and production and income generating activities (incense and soap making mentioned by women). In these group discussions villagers also said there was a need for NGO involvement in rural development activities and for introducing new technologies. This could be interpreted in different ways, as will be discussed in Chapter 10.

5.7 Independent variable: Influence of external actors

This section will analyse the influence of the external actors (the independent variable) on each of the dependent variable indicators of the CA's level of functioning and sustainability. This is conducted through a focus on the indicators of external actor influence namely knowledge, management and social skills, communication channels and financial support, as outlined in Chapter 3. Not all *independent* variable indicators of external actor influence are applicable for each of the *dependent* variable indicators of the CA's level of functioning and sustainability. In addition, some independent variable indicators are applicable to more than one indicator for the sustainability of the CA. For example, the provision of trainings to large groups of villagers may increase awareness as well as developing confidence in future benefits and the ability to self-manage JFM. Attention has also been paid to the non provision of the independent variable indicators as non provision could have both a positive or negative influence on the sustainability of collective action.

5.7.1 Functioning CA

The Round Officer initiated JFM as he was aware of the applicability of the policy to the village and knew that the FPC already existed. There was no involvement of either the FD or the NGO in drafting the rules and fines under either the FPC or the JFMC. When the FPC became the JFMC the external actors did not become involved in the decisions already made. Similarly they have not been involved in deciding the frequency of meetings. However both key external actors have had a low level of influence on the monitoring of rules. For the first two years under JFM the FD helped with guarding the plantation and the NGO gave training in 2005 to the JFMC Chairman and one other member on how to check the forest. The FD also bring record keeping skills, through the Round Officer as the secretary of the JFMC, and provided the pass book for recording the fines. However under the FPC the record keeping was being carried out by the president. The JFM policy states that record keeping is the Round Officer's responsibility and therefore he is undertaking this duty, but it is not clear that this is a new skill that the JFMC would not be able to provide in the absence of the Round Officer.

5.7.2 Indicators of the sustainability of CA

5.7.2.1 Understanding of JFM policy – influence of knowledge from external actors

The foundations for compliance with the JFM policy were laid under the guidance of the previous Round Officer present when the FPC became the JFMC. The Round Officer at that time instructed the villagers on the JFM rules in general, the rules of membership of the JFMC and the plantation arrangements. Since this time the only mention of information being provided by the Round Officer is in relation to rule compliance and not with regards to the rights and responsibilities of the villagers. The influence of the FD has been substantial and appears to be the only source of this type of information for the JFMC. This can explain why changes were made from the FPC to the JFMC in order to comply with the rules. The NGO claimed that they also provide information on the laws and rights of villagers however this was not substantiated in other group discussions or interviews with villagers.

5.7.2.2 JFM awareness and inclusion level – influence of management and social skills and financial support from external actors

The microplan preparation was undertaken as a collaboration between the forest users, the FD, the State Revenue Department and the NGO. It was based on Participatory Rural Appraisal (PRA) techniques, a direct influence of the involvement of the NGO as PRA is central to their working approach. The PRA approach entails the involvement of local people in sharing their knowledge and deciding the priorities for development. The use of PRA will increase awareness amongst all villagers of the plans for the village, of which JFM was integral.

No further actions are taken by external actors to encourage involvement in JFM from villagers not involved in the JFMC or lac production, though this would be outside the remit of the NGO. The FD worked solely with the JFMC to decide the species to be grown in the plantation. All villagers were invited to carry out daily wage labour on the plantation but no further participation beyond manual labour was reported. There is both positive and negative evidence of the level of trust between villagers and the FD, which will influence participation. On a positive note, the FD was involved in arranging the lease of padas trees for lac production and provided funds for decoration equipment which was subsequently leased out for functions. As income generating activities, this may help build trust between the villagers and the FD. However on a negative note, the villagers claim that the plantation workers have yet to receive full payment which may have a negative impact on future participation levels in projects involving joint working with the FD.

Workshops and trainings organised by both external actors were limited to a few participants from the JFMC for practical and financial reasons. For example, a workshop on accounting skills was held jointly by the FD and the NGO in 2007 to which the VP and President were invited and attended. It appears that no action was taken to include other villagers, such as through actively ensuring that the information gained was disseminated further amongst the villagers. The NGO's lac production training had a wider outreach with 50 participants in one village ward. The criteria for inclusion in the training was that participants should be farmers, with not less than 25 lac host trees and interested in participating. Actions were taken to involve women (10 of the 50 participants were women) and without a positive discrimination approach in relation to BPL (which is widely seen in government initiated development work). The lack of direct action from external actors to involve villagers in JFM correlates with the

evidence of mixed awareness of the existence of JFM, the rules and poor involvement of women.

The lack of influence of the FD on awareness and inclusion levels correlates with the views of villagers in relation to JFM expressed by all levels of FD. This is a point I will return to in Chapter 10 as it is common to all cases.

5.7.2.3 Connections with external actors – influence of external actors through increasing connections

Regular FD involvement with monitoring the plantation, involvement in organising the leasing of land with padas trees and in arranging trainings would help build trust with the villagers. However this is mostly limited to contact with the JFMC rather than the whole village. Contact between non JFMC villagers and higher level FD officers is mostly through the lower officers or the JFMC. This can be seen in the diagram as the FD's link with the villagers is mostly through the JFMC and slightly stronger through the lowest ranked official (RO) than the higher officials (RFO and DCF). Group discussions and community interviews also showed how the connections can be broken very easily by the rotation of FD staff. The new RO has only been in the post since August 2009 and therefore it is too early to assess whether this relationship will improve with time. There is also only occasional communication between the FD and other state departments regarding rural development, of which JFM is only a part.

The NGO provides the link between the villagers and other NGOs through their link with villagers involved in lac production. However as there is no active NGO forum on JFM in Maharashtra the benefits to be gained are currently limited. There is regular contact with many villagers through their focus on participatory approaches. Their direct connections with the JFMC are limited, also shown by the fact that the JFMC did not have current contact details for the NGO. The workshops run by both the FD and the NGO usually involve people from other local villages and therefore also provide an opportunity for increased contact between villages. This can be a chance to build connections and trust and also to share knowledge and views on JFM and other related issues.

The connection between the NGO and the FD is weak. At higher levels the connection is stronger (their work on lac production is under an agreement with the FD and they organise joint workshops and have joint working on microplans) but this is for a specific purpose. There are no regular meetings to coordinate activities or take a holistic approach to the development of the village.

5.7.2.4 Confidence in future benefits – the influence of external actors through management and social skills and financial support

Both external actors have arranged training for the JFMC on accounting and record-keeping. This increased transparency which, when combined with transparency of operations between the JFMC and the other villagers, will help to increase trust in the JFMC and future benefits. The FD's influence in arranging the lease of land with padas trees means that the lac farmers have a reliable source of income, especially when combined with the training from the NGO which increased yields. Consequently, this provides the incentive to protect the padas trees and indeed the lac farmers stated that monitoring was taking place on a monthly basis. The 5 year lease period did not appear to reduce the incentive of the lac farmers to protect the padas trees nor to invest in building up lac seed stock.

Substantial financial investment by the FD in entry-point activities, such as the plantation, together with the fact that the JFMC could choose the species to be planted (in compliance with the JFM policy) creates the base for trust in future benefits for the members of JFM. However there is no formalised agreement on how the benefits will be shared between the FD and the JFM members or indeed between the JFM members. In addition, the delay in payment for plantation work may decrease the trust in the FD. The FD also had an influential role at the start of JFM in deciding the amount of land to be allocated to JFM. This will naturally determine the amount of benefits which could be realised, a point I will return to in Chapter 10 as it affects all cases.

5.7.2.5 Perceived management ability

The JFMC and lac production farmers have received a range of trainings both in technical and forestry skills as well as in management skills. As previously stated, the FD and the NGO held a workshop together on paperwork and accounts. The Deputy Conservator of Forests arranged a training workshop on cutting trees, weeding and maintenance of forests and the Round Officer organised training sessions on conservation, maintenance of forests, plantations, nursery techniques, fire control and growing mahua. The NGO arranged separate training in 2005 on lac production (collection, quality improvement, production, sale and accounts). Follow up trainings have been carried out twice since then plus the NGO conducts regular visits to provide specific advice. The NGO has also given poultry farming and medicinal plants training. However the awareness of the trainings given by the NGO is limited (see Section 5.6.2.2). In addition to the training sessions, the NGO also initiated 17 SHGs from 2000 onwards. The NGO reported that their technical input decreased over time whereas the advisory role from a distance increased. Such advice was on both technical aspects (monitoring the forest) and management skills (advising on resolving disputes). Financial contributions in kind were limited to adhoc supplies. The FD provided forest tools in 2005 and the NGO provided a cashbox and register for the SHGs as well as lac production equipment. Neither constitutes a regular reliable source of support. This was a conscious decision on the part of the NGO as their approach is to build capacity rather than provide financial contributions which they see as unsustainable. In addition to the two key external actors, the Agriculture Department also conducted related trainings in soil micro-nutrition and soil conservation to villagers who are interested in participating. They also provide bioinsecticide and biofertiliser plus seeds at 50% subsidy. This could be seen as positive for the management skills of villagers as they learn new techniques which could increase yields however more in-depth analysis of the possible dependence of villagers on bioinsecticides and biofertilisers is needed. Furthermore, the Agriculture Department makes these provisions independently, without concurrence with the JFM which could lead to overlap or counterproductive activities.

The high number of trainings should increase the JFMC's ability to manage the CA independently (as well as their confidence in future benefits, which is of course interrelated). However, as has been seen in Section 5.6.2.2, the awareness and participation levels in trainings is limited. It is also necessary to consider the content of the trainings. Whilst all the FD led trainings were on technical aspects, the NGO also included trainings on management and sales of lac as well as social skills. An indicator for the level of these trainings given by the NGO and FD is the employment histories and trainings that the trainers themselves have received. This will be discussed in the following chapter as this point applies to all the case studies.

In addition, through observing a training day that the NGO provided to new SHGs it could be seen that the trainer is very experienced in organising such training sessions and also in conveying information in an engaging and clear manner. Through an interview with the lac production trainer it could also be ascertained that his knowledge was very detailed and he was also experienced in working with rural communities. Through a group discussion with the NGO fieldworkers and the block coordinator it was clear that the NGO in question provides extensive in house training of fieldworkers both within their specialism and with interrelated issues of rural development. There is also a personal development structure focussing on soft skills such as management and training. This would imply that the trainings given by the NGO were of a good quality. Discussions with the villagers also showed that they were happy with the training they had received.

However it was also seen that the JFMC and other villagers request further trainings from external actors. This may indicate a sense of dependency but on the other hand it may also show awareness and willingness to gain further knowledge. The non involvement of external actors in devising rules, fines and maintaining records under the FPC show that these skills may already have been present to a certain extent within the village before any external actors became involved.

5.8 Case Study A Conclusions

The external actors have not been greatly involved in the indicators of a functioning CA. However both of the key external actors have had a large influence on certain indicators of the sustainability of CA. The table below shows a qualitative assessment of the sustainability of CA and the relative positive influence of the external actors on each indicator of sustainability.

Indicator	Level of presence of indicator	Influence of FD	Influence of NGO
Indicators of functioning CA			
Meetings	Present	None	None
Rules	Present	None	None
Monitoring rules	Present	Low	Low
Indicators of sustainability of CA			
1. Understanding of JFM policy	Medium	High but decreased over time	None
2. JFM awareness and inclusion levels	Medium	Low	Low
3. Connections with external actors	Medium	High	Medium
4. Confidence in future benefits	Medium-High	Medium	Medium
5. Perceived ability to independently manage JFM	Medium	Medium	Medium

Table 4: Summary of case study A

Chapter 6: CASE STUDY B

CASE STUDY B

Forest protection and JFM is self initiated by the forest users

High FD involvement and low NGO involvement

6.1 Data Collection for case study A

The following data collection methods were used to ensure triangulation of sources and methods:

- 1) Two separate meetings with JFMC using semi-structured discussions. At each meeting at least four of the members were present.
- 2) Group discussion with non JFMC villagers using a semi-structured discussion
- 3) Eleven semi-structured individual community interviews
- 4) Semi-structured interview with Round Officer
- 5) Two semi-structured interviews with Range Forest Officer and several informal discussions
- 6) Two semi-structured interviews with Assistant Conservator of Forests and informal discussions
- 7) Semi-structured interview with Deputy Conservator of Forests
- 8) Semi-structured interview with NGO Managing Director and Project Coordinator
- 9) Two semi-structured interviews and informal discussions with NGO Block Coordinator and Field Worker
- 10) Observation of Round Officer conducting a village meeting in a different village
- 11) Observation of NGO Block Coordinator conducting a SHG awareness training
- 12) Review of NGO Annual Report 2008-2009

It can be seen that the research methods employed cover group discussions, semi-structured individual interviews, informal individual discussions, observations of the external actors and their interactions with the villagers and documentation reviews.

6.2 Background

6.2.1 Introduction to the village

Case Study B is situated in Salekasa range, the most eastern part of Gondia district. It is located 5 km along all weather roads from Salekasa which is a small town where the Range Forest Officer is based. The forest area around the village consists of degraded tropical dry deciduous forests, of which the JFM manages 120 ha. The main species in the forest area which are useful to the villagers are tendu (the leaves are used to make local cigarettes and sold), mahua (the fruit is used for making local alcohol), bera (fruit) and sagwan (*Tectona grandis*, teak, a commercially important species). The village itself has a population of 1200, over approximately 162 households. The population is heterogeneous with the largest social group being Other Backward Classes (OBC) with approximately 740, however there are also a high proportion of Other Classes and Scheduled Tribes (ST). There is also a wide range in the size of land owned, from 15 landless households up to 50 households with land larger

than 5 ha. 98% of the village population are farmers, with the main produce being rice. The types of livestock observed in the village were bullock, cows, buffalo and goats. Although no data could be obtained on the numbers of each type of livestock, it was reported that one person was employed to graze the animals indicating that they were fairly common.

6.2.2 A brief history of forest protection

The villagers reported that illicit felling of the teak forest by people from their village had reduced the forest density significantly. The trees were being cut from the root and therefore regrowth was restricted. In 1995 a member of the village approached the local council (*Gram Panchayat*) for support in creating a committee to protect the forest (FPC). All villagers were declared by the local council to be members of the forest protection committee. There were 21 members of the executive committee, including members from other villages to enhance cooperation in monitoring the forest. The FPC devised its own rules and charged membership fees. In 2004 the Round Officer suggested that the forest protection committee register itself as a JFMC and this was done under the Societies Registration Act of 1860. All forest land within the village boundary is managed by the JFMC, with a clear boundary of large boulders. The forest is an old mixed plantation, including sagwan (teak). The JFMC also protect revenue land. The Round Officer who was influential in registering the JFM was rotated in 2006 and communication between the villagers and the FD since this time has been significantly reduced.

In 1996 the following norms and rules were established by the FPC:

- No weapon can be taken into the forest
- Nobody can cut any trees. Only fallen wood can be taken as fuelwood
- No grazing of animals
- Membership fee was set at Rs 11 per person
- The executive committee of the FPC was given the authority to fine individuals for rule violations, with the exact amount to be decided on a case by case basis. The minimum fine was set at Rs. 100.
- A reward system for informers of rule violations was established. Each informer would receive Rs. 11, including people from other villages.

When the FPC became registered as JFM in 2004 a new rule and fine amount was added: felling of sagwan (*tectona grandis*) would be fined at Rs. 500 per tree and for all other tree species a fine of Rs. 350 was set. A reward for reporting illicit sagwan felling was introduced at Rs. 100. The rule on grazing has recently been removed as trees are large enough to withstand the grazing animals.

6.3 The JFMC

Under JFM the FPC was reduced from 21 members of the executive committee to 11 members. The members from other villages left the committee, although the JFMC report that social relations with surrounding villages means they still provide support in forest monitoring. No change in membership of the JFMC has occurred. To date, the JFMC has been responsible for:

- Electing their own positions within the JFMC
- Deciding the rules on forest use, the fine system and membership fee contributions

- Monitoring the forest
- Administering the fine system

6.4 Main JFM Activities

- In 2009 fire control activities were carried out
- 47 Mahua trees have been conserved and now individuals can take the mahua fruit (uncontrolled)
- Purchase of a bull to impregnate all villagers' cows. This is seen by the JFMC as a social activity.
- Monitoring the forest

6.5 Identification of actors involved in JFM

Through group discussions with the villagers and interviews with the FD and NGO, the following actors were identified as being directly or indirectly involved in JFM in case study B:

Groups of villagers	FD*	1 NGO*	Other actors
JFMC	Round Officer	NGO fieldworkers	Local Council
Non JFMC villagers	Range Forest Officer	NGO block coordinator and office manager	Agriculture Department
People from other villages	Assistant Conservator of Forests and higher levels	NGO project coordinator	Other NGOs

Table 5: Actors involved in JFM in Case Study B

* The positions within these organisations are listed in hierarchical order with lowest level positions listed at the top.

The NGO present is the same one working in Case Study A under the *Rashtriya Sam Vikas Yojana* (RSVY) central government policy to develop women's self help groups (SHGs). Presently there are eight SHGs, six of which are involved in agricultural businesses. The NGO's mandate does not cover CA under JFM but the same situation applies as in case study A in that the villagers do not make a clear distinction between JFM and other rural development projects, such as the plantation under the Social Forestry department (part of the FD). The Social Forestry department provides employment for villagers on a daily wage basis to carry out manual forestry work.

6.6 Dependent variable

This section will address the dependent variable: the sustainability of the CA. It will assess the level to which the CA under JFM can be described as functioning and its level of sustainability using the eight indicators outlined in Chapter 3. After assessing the sustainability of the CA, Section 6.7 will assess the influence of each of the external actors on each of the eight indicators of the sustainability of the CA. This will be done by using the four indicators of external actor influence as detailed in Chapter 3.

6.6.1 Indicators of level of functioning of CA

Meetings

The JFMC meet monthly, which can be considered as being on a regular basis. There is also a general body meeting once per year to which the whole village is invited.

Rules

The rules were devised in 1996 under the FPC, with the only changes under JFM being the additional fines for illicit tree felling and the removal of the grazing rule. The rules cover entry (no weapons), harvesting, grazing and monitoring. The rules are told to the villagers at the community meeting but are not written or recorded.

Monitoring and Enforcing Rules

Every 3 days a member of the JFMC checks the forest for rule violators or signs that trees have been cut. They also check the rivers as rule violators dispose of unwanted wood in rivers due to the fear of being caught and fined. In addition, the person employed in the village as a cow grazer also checks the forest. The JFMC reported that people from other villages also inform them of rule violators.

It can be seen that the CA under JFM in case study B is functioning according to all three indicators.

6.6.2 Sustainability Matrix

6.6.2.1 Understanding of the JFM policy

The JFMC has shown compliance with the rules of the JFM policy through actively making a change to the FPC in order to comply with JFM rules. There were 21 members in the FPC including members from other villages but they were told by the FD that they could only have 11 members under JFM rules. Therefore the membership was reduced to comply with this rule. However non compliance with the JFM rules can be seen in that the membership of the JFMC has remained the same since, with no elections. Also, no member of the local council is on the JFMC and there are no JFM bank accounts. There is compliance with the meeting frequency rule for the JFMC with monthly meetings being held. However the JFM rules state that general body meetings should be held at least twice per year whereas they are held on an annual basis. Also, there is no formalised benefit sharing agreement which is stipulated in the JFM policy and there was no villager involvement in the microplan creation process. The rules were made by the FPC and did not involve further involvement from the other villagers, plus they do not include a rule to prohibit grazing, both of which means non compliance with the JFM policy.

It was clear from discussions with the JFMC that they received information on their obligations and responsibilities under JFM from the previous Round Officer. The Round Officer in turn received this information from within the FD hierarchical structure. There have been no such discussions on obligations and responsibilities with the current Round Officer. The role of the FD was seen by the JFMC to be one of support and in providing training, no specific responsibilities of the FD in regards to JFM were given further than their understanding that the Round Officer should attend meetings and act as the secretary to the JFMC. The Range Forest Officer appeared to have good basic knowledge of the JFM policy: he knows the JFM rules about which forest products are the responsibility of the JFMC (i.e. not tendu or timber) and rules on membership. It was not clear the level to which the JFMC

understood the roles and responsibilities of the FD nor their entitlements to future benefits. Therefore a full assessment of their knowledge of the JFM policy cannot be made, however it can be clearly concluded that their knowledge relies on the information given to them by the previous Round Officer.

6.6.2.2 JFM awareness and inclusion level

There is a high level of awareness of the existence of JFM with all eleven randomly chosen individual villager interviewees stating that they knew the JFMC existed. The majority also knew how many members there are, however only two interviewees could name all the committee and two interviewees knew some of the members. Although not statistically significant, this does indicate a basic awareness of JFM amongst non JFMC villagers. However, awareness of meetings was more limited, with only four interviewees aware that JFMC meetings are held on a monthly basis whereas five interviewees knew that meetings took place but were not aware of the frequency or the content of meetings and one interviewee said no meetings took place. It is also significant to note that only one interviewee attended the general body meetings and he stated that not all the community attend, even though they are held on public holidays to aid attendance. The JFMC reported that attendance of women at the general body meeting was in the capacity of SHGs although a secretary of one of the SHGs interviewed said she had never attended a meeting. As only one interviewee had attended a general body meeting, it was not possible to determine whether women or villagers from the ST/SC social groups actively participated. However the evidence gathered does indicate that the non-JFMC villagers do not feel involved, with two interviewees stating that they are not invited to attend meetings (implying that they feel that they should be invited).

The general awareness of the existence of rules and fines was fairly high with seven interviewees being able to quote one of the rules or stating that they knew they could be fined for certain activities. However detailed knowledge of the rules and fine amounts was not evident from the individual interviews or group discussion. Again this shows a lack of participation of non-JFMC villagers and correspondents with the low level of attendance at general body meetings amongst the villagers interviewed as this is where villagers are informed of the rules.

The level of awareness of training from external actors is low amongst the non JFMC villagers interviewed. Three interviewees stated that they had not heard of any training or FD involvement in JFM. Similarly three respondents said there was no NGO involvement in JFM. Only one interviewee could name the NGO involved as she is a member of a SHG. Three interviewees had received lac training but they didn't know who had provided the training. This indicates that the large number of training organised by the previous Round Officer (see section 6.7.2.5) were not widely publicised or had an intended limited audience. Only one non-JFMC member mentioned the bull purchased by the JFMC which was intended to be for the benefit of all villagers with cows.

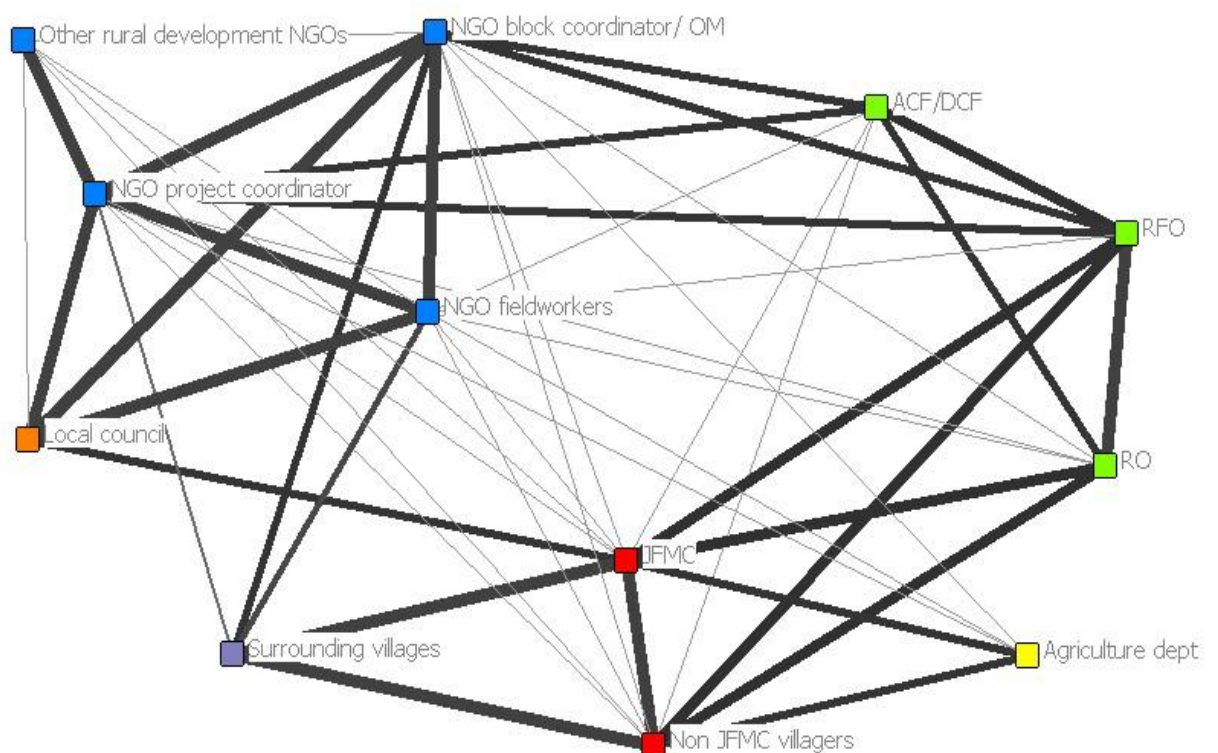
The JFMC reflects the socioeconomic characteristics of the village with all members apart from the secretary being members of the majority social group: OBC to which 92% of the village belong. They are all farmers, as are 98% of the villagers. The average land size is 1.4 ha which is small on the range of land sizes for the village, as estimated by the JFMC. Their reflection of the socioeconomic characteristics of the village and the fact that there are two

women on the committee is an indicator that their decisions should reflect the interests of most villagers and should encourage inclusion of villagers.

To summarise, it can be seen that there is a basic awareness of the existence of JFM and of the general body meetings however detailed knowledge of the rules and fines appeared to be lacking. It appears that no villagers are actively excluded from JFM though no actors are actively encouraging participation in either training sessions or meetings, beyond the decision to hold meetings on public holidays. As seen in case study A, the low level of participation of women is not limited to JFM nor is it a result of actions taken by any actor in JFM, rather it reflects relations in society as a whole, a point I will return to in Chapter 10.

6.6.2.3 Connections

The diagram below shows the frequency of communications between the actors involved in JFM in case study B. As the focus of the research is on JFM, a boundary was placed to not include the connections of actors on the edge of JFM who are only indirectly involved in JFM (for example, between the Local Council and the Agriculture Department and their own connections).



Level of frequency	Definition	
—————	No communication	
—————	Only for a particular issue	Actor clusters
—————	Once per year or less	FD
—————	Monthly <x> Yearly	NGO
—————	Monthly	Villagers
—————	> Monthly	Other external actors

Figure 9: Case study B- Connections between actors

The density of the network is 0.41 with the average degree for each actor (or actor group) at 4.5 (from a maximum of 11). These figures show that currently there are some actors who are not connected in the network, compared to all the possible relations that could exist. This can be seen from the diagram which shows that the NGO currently forms a separate clique, only being linked to the villagers and FD through the local council and their work in creating SHGs and leading the making of microplans in surrounding villages. This interaction is purely for the purpose of developing a microplan, therefore had this research been conducted a few months earlier, this connection would not have existed. When the frequency of connections is considered, this shows that the Round Officer and Range Forest Officer (low and mid level FD officials) are interacting frequently with both the JFMC and the non JFMC villagers. However, the form this interaction takes differs greatly. The interaction with the JFMC is at meetings where JFM is the main topic of conversation. The interaction with non JFMC villagers is at general body meetings or when conducting village visits. The low level of awareness of trainings conducted by the previous Round Officer (see section 6.6.2.2) indicates that this communication is limited. Again the communication is greatly affected by the individual officer as since 2006 there has been little communication with the new Round Officer, he only visits if they request his attendance to help solve a problem. Before 2006 the villagers reported that the Round Officer visited more frequently and was more supportive, in terms of arranging trainings. At this time the Round Officer was central to the network as the villagers reported that they did not know who had actually conducted the trainings, just that they were arranged through the Round Officer.

It is important to note that there are strong social connections between the JFMC and non JFM villagers and between the residents and surrounding villages. This could lead to exchange of knowledge, cooperation and the ability to resolve disputes. These are purely social relations and do not form part of a formalised meeting or action on the behalf of the external actors. There is the opportunity for greater connections with other villages at sub district (Tehsil) level through the FD's forest protection committee with representatives from the villages in that sub-district. However the representative from the village does not attend. The local council is only involved in JFM at general body meetings and through social contacts with the JFMC. There is no local council representative on the JFMC. This reduces the ability to coordinate activities with the local council, which is relevant given the powers granted to the local council under other rural development legislation.

6.6.2.4 Confidence in future benefits

The low level of awareness of the content of JFMC meetings and the details of rules and fines is an indicator that the CA is not being openly administered in a transparent manner. The JFMC does not show clear records of fines or membership fee contributions to the villagers. This can lead to a lower level of confidence that future benefits will be evenly distributed amongst the whole village. Even though the JFMC reported that compliance with the rules has improved over time, they did state that there is still a problem with compliance.

Certain aspects of the institutional design in case study B may increase the confidence of villagers in the future benefits of CA. The JFMC has become stricter with enforcing fines and non payment will result in the culprit not being allowed to take forest products and being removed from the JFM. In addition the reward system gives an incentive to villagers to report on rule violators, which can also increase compliance if rule violators feel there is a higher chance of being caught and reported to the JFMC. Furthermore, the fine collected goes to the JFMC in full and together with the membership fee was used to purchase the bull. These

features of the CA can indicate to the non JFMC villagers that the economic benefits will be shared amongst the village. However the uncontrolled harvesting of the mahua trees conserved by JFM members may have a negative effect on the perception of villagers that benefits are being evenly felt across the community and indeed that this can be a long-term resource.

The JFMC reported gradual improvements in the forest condition and they are now satisfied with the state of the forest. From protecting the forest they have noticed the following changes: increased forest density has led to an increase in the number of dry leaves which provide natural fertiliser for the soil so that new plants can grow naturally; there are more birds; there are more beha (berry), mahua fruit and edible flowers. The tangible benefits of forest protection can therefore be an incentive to carry on CA under JFM.

6.6.2.5 Perceived ability to independently manage JFM

Forest protection begun under the FPC without FD or NGO involvement, an indicator that their contributions are not essential for the fundamental aspects of CA in this case study. Before their involvement the community was brought together and rules and fines were set. However at this time the involvement of other external actors was significant, namely the local council and people from other villages. In addition, the JFMC made the microplan for their village independently of external support. The systems for continuing CA are now in place such as the rules and fine system which is being administered in a stricter fashion than in the beginning. This brings in a regular income to the JFMC though actual funds being restricted to fines and membership are likely to be limited (this could not be substantiated as the JFMC did not provide evidence in the form of records or accounts). Such systems, however limited in scope, are operating without input (or interference) from external actors. A wide range of trainings were arranged by the previous Round Officer (see section 6.7.2.5) in 2004, 2005 and 2007. The JFMC reported that they are satisfied with the knowledge and skills gained from these training sessions, which could indicate a greater ability to self-manage JFM. However this should be viewed with some caution given the limitations to awareness and participation discussed in section 6.6.2.2. In addition, the quality of the training sessions must be considered, as will be discussed in Chapter 10.

In 2000 the FD declared the village to be the best JFM in Gondia district and therefore the JFMC decided to help other villages by visiting them and discussing forest issues with them. The JFMC gave examples of advice given to other villages such as when to pick fruit and to not sell pads tree seeds as this was affecting the tree stock. Such confidence in their abilities in relation to JFM was also displayed through reports that they were independently able to stop companies taking large boulders from JFM managed land through claiming authority over the land. Local councils from other villages have also come to learn from the village as a model village and this has given confidence to the JFMC. The JFMC feel that they are stronger now from their experiences, however ever since the beginning of JFM they feel that they have been in a stronger position than the FD. It is therefore clear that the JFMC perceive themselves to be in a position to manage JFM, however there is not enough evidence to state whether this opinion is also held by non-JFMC villagers. This is significant given the lack of detailed information about the activities and rules set by the JFMC reaching the wider community.

The group discussion with the community and the meeting with the JFMC raised the following areas for which further training is desired: lac production, growing a mango

plantation, digging ponds, flower cultivation and increasing land and crop productivity. Land is available for these activities but no funding. Training in how to sell in open markets is also requested. There was no preference as to whether this should be supplied by the FD, another government department or an NGO. This could be seen either positively as a quest for additional knowledge and skills, or negatively as dependency on external actors.

6.7 Independent variable: Influence of external actors

This section will analyse the influence of the external actors (the independent variable) on each of the dependent variable indicators of the CA's level of functioning and sustainability. This is conducted through a focus on the indicators of external actor influence namely knowledge, management and social skills, communication channels and financial support, as outlined in Chapter 3. Not all *independent* variable indicators of external actor influence are applicable for each of the *dependent* variable indicators of the CA's level of functioning and sustainability. In addition, some independent variable indicators are applicable to more than one indicator for the sustainability of the CA. For example, the provision of trainings to large groups of villagers may increase awareness as well as developing confidence in future benefits and the ability to self-manage JFM. Attention has also been paid to the non provision of the independent variable indicators as non provision could have both a positive or negative influence on the sustainability of collective action.

6.7.1 Functioning CA

The Round Officer was influential in registering JFM in the village as he suggested that the forest protection committee register itself as a JFMC. However forest protection under the FPC had started eight years previously. At this time there was no involvement of either the FD or the NGO in providing knowledge or management skills for the drafting of the rules and fines under the FPC. When the FPC became the JFMC the external actors did not become involved in the decisions already made. Similarly they have not been involved in deciding the frequency of meetings or in monitoring the forest. The FD does provide record keeping skills through the Round Officer in his position as secretary of the JFMC. However these records were not evident and it is not possible to determine whether these skills would be in addition to the skills the FPC already had. Neither the FD nor the NGO has provided financial contributions for creating a functioning JFM.

Other external actors were influential in creating a functioning forest protection committee. The local council had the authority to call a community meeting and the influence to outline the rules as composed by the FPC. As the FPC approached the local council for this purpose, it can be determined that the FPC felt unable to gather the community and impart rules. The local council was not involved in the making of the rules themselves nor is there a member of the local council on the JFMC. People from other villages were an integral part of the FPC before it became the JFMC and the norm (rather than a rule) still exists for them to help in monitoring the forest.

6.7.2 Indicators of the sustainability of CA

6.7.2.1 Understanding of JFM policy – influence of knowledge from external actors

The mixed level of knowledge of the JFM policy shown by the JFMC can be directly attributed to the previous Round Officer. Under the instructions of the Round Officer the 21

members of the FPC were reduced to 11 under JFM. There are however examples of non compliance with the JFM policy (see Section 6.6.2.1) which indicates that the JFMC is not receiving, or not acting upon information from the Round Officer, as the sole source of information on the JFM policy. The Round Officer is reliant on information passed down through the FD hierarchy and on any training he has received. This is a point that will be returned to in Chapter 10 as it is common across all cases. As was seen in section 6.6.2.1. it appears that the JFMC have the view that the FD's role is that of supporting the villagers and providing relevant training. A clearer understanding of the FD's responsibilities was not given and it can be expected that this has not been discussed with the FD. During interviews with the Range Forest Officer, knowledge of the JFM policy was not an area of knowledge that he indicated the FD are providing to villagers. No other external actors have exerted any influence on the level of understanding of the JFM policy amongst villagers.

6.7.2.2 JFM awareness and inclusion level – influence of management and social skills from external actors

The local council was influential in calling the initial village wide meeting about forest protection. This shows the management skills as well as standing that the local council have amongst the villagers. It also reveals the lack of such standing experienced by the JFMC at that time, which was compensated for by the local council. Their involvement at this time was very important for the development of the CA through giving credibility to the JFMC and the forest rules amongst non JFMC villagers. The Round Officer was also influential in the beginning in calling a meeting to inform villagers of the need to comply with JFM rules as given by the JFMC. This reflects his authority and standing amongst villagers, indeed the JFMC reported that his involvement increased compliance with the rules. However further efforts on the part of both the local council and the Round Officer to involve villagers appears limited.

No external actors actively promote the inclusion of non JFMC villagers in devising the rules and fine amounts, in attending meetings or in monitoring the forest. This corresponds with the low level of detailed knowledge of the rules and fines as described in section 6.6.2.2. The relatively higher level of general awareness of the existence of the JFMC does not appear to be related to any awareness raising activities carried out by any external actor. The involvement of the two key external actors, the FD and the NGO, appears to be fairly limited to either the JFMC or the SHGs respectively. Whilst the JFMC reported that the previous Round Officer had provided a great number of trainings and had been supportive, there was a low level of awareness of trainings amongst the non-JFMC villagers interviewed. This could indicate that the Round Officer did not intend for a large number of villagers to be included or had limited success in encouraging their participation, or that the villagers were not interested in the trainings being offered. There is no evidence of any further actions taken by the FD to involve villagers. For example, there are no income generation activities such as plantations which are used in other cases of JFM to create an incentive for participation. The lack of influence of the FD on awareness and inclusion levels correlates with the views on villagers in relation to JFM expressed by all levels of FD. This is a point I will return to in Chapter 10 as it is common to all cases.

The NGO's remit is limited to SHG development and therefore they were not directly involved in JFM awareness activities. However it was noted in a group discussion that it was compulsory for all villagers to attend the one off lac training provided by the NGO, though again awareness amongst the non JFMC villagers interviewed was limited. The NGO

themselves stated that all women were invited to form SHGs and the number of SHGs depends on the level of interest of the villagers. They have now been contracted by the FD to write a microplan using PRA techniques, for which initial visits with the local council have already been conducted. Villager involvement in creating the microplan through the PRA techniques may increase awareness and involvement in JFM, but it is currently too early to assess this. Given that the NGO is already known in the village for their work on SHGs there is some level of trust among some villagers and the NGO. However, the level to which the NGO is known in the village is questionable, according to the interviews with non JFMC villagers.

6.7.2.3 Connections with external actors – influence of external actors through increasing connections

The influence of the FD was positive under the previous Round Officer through designing trainings that were open to non JFMC villagers and were often held by other departments or NGOs. This would not only increase communication between villagers themselves but also give an opportunity to exchange knowledge with other government and NGO actors. However, the villagers do not know who gave these trainings, emphasising the centrality of the role the Round Officer at that time held. Also, the low participation in these trainings points to the conclusion that this was not seen as an avenue to communicate with other external actors. The sub-district (tehsil) level forest protection scheme set up by the FD was intended to bring together a representative from each village to discuss forest protection, share ideas and cooperate with each other. The elected village representative has not attended these meetings and this was accepted by the JFMC.

It is through the Round Officer that the JFMC and non JFMC villagers have contact with higher FD officials. However the top-down hierarchical organisation structure of the FD would limit this impact. Indeed, although there are meetings between the Assistant Conservator of Forests, the Range Forest Officer and the Round Officer, these meetings are not specifically on JFM and the culture is such that the meetings are intended for the higher level rank to instruct the lower level rank. This point is returned to in Chapter 10. FD involvement greatly reduced when the previous Round Officer was rotated to a different position. Now the Round Officer only visits on a request basis when the JFMC says there is a problem. Again this highlights how the situation can change dramatically dependent on the individual officer assigned to this forest area. The FD is in a position of power here as the frequency and type of communication is on their terms, again a common point I will return to in Chapter 10.

The NGO also has a position of centrality in that they control any communication between other NGOs and the JFMC. Certainly this communication channel is useful for the NGO as they are members of state level rural development NGO groups in other states, but not in Maharashtra (as it is not presently active). Therefore the benefits in terms of learning from others, sharing ideas and coming together to influence policy are not seen. The NGO's work in setting up SHGs will increase communication within the village as will the Participatory Rural Appraisal techniques which will be used for creating the microplan. This will bring together the FD and villagers, though as this has not currently taken place, only speculative assessments of this activity can be given.

6.7.2.4 Confidence in future benefits – the influence of external actors through management and social skills

There is little involvement of the FD in creating confidence amongst the villagers that there will be future benefits in protecting the forest. The only positive evidence to this regard is the previous Round Officer's influence in calling a meeting to inform villagers of the importance of the rules and confirming that the JFMC have the authority to implement a fine system. The JFMC reported that his involvement increased compliance and therefore this could create a greater incentive for all villagers to comply with the rules (as the free-rider problem is being reduced). However the non involvement of the FD may also be seen as a positive aspect to the extent that the JFMC gain the freedom to decide how the income from membership fees and fines should be spent. The lack of financial contributions in the form of entry point activities (such as plantations) also reduces the level of perceived future benefits. The FD's decision on the amount of land to be allocated to JFM can also be influential in perceptions of whether the future benefits will be sufficient for all JFM members. This is a point I will return to in Chapter 5 as it affects all cases. A negative aspect which is the responsibility of the FD, is that there is no formal agreement on how the benefits from the forest will be shared between the FD and the JFM members or indeed between the JFM members. This is significant given the fact that sagwan (teak) is an important source of income and could lead to reduced confidence in future benefits.

The involvement of people from other villages in the monitoring of the forest will contribute to the perception that rule breakers will be fined and therefore has a positive effect on the perceived level of future benefits. There is no other direct influence of external actors on this indicator, however indirectly their influence on other indicators, such as participation, will of course also impact the confidence in future benefits of forest protection.

6.7.2.5 Perceived management ability

Through the previous Round Officer trainings were organized in 2004, 2005 and 2007 on Sagwan (teak) conservation; forest maintenance such as cutting techniques; lac production including how to maintain quality, packing techniques and marketing; water conservation and grazing techniques. This is an extensive list of a broad range of agricultural skills however it can be seen that they are limited to technical skills, with the exception of the packing and marketing elements of the lac production training. The JFMC villagers were satisfied with this training which could show that the trainings provided knowledge which leads to a greater sense of management ability. However, caution again must be taken due to the lack of awareness and involvement in the trainings amongst non-JFMC villagers. Since the change in Round Officer no further trainings have been organised, indicating that the influence of the FD in this area is at least partly dependent on the actions of individual forest officers. However, the lack of trainings could also be a positive aspect if it was assessed by the FD that no more are required and the members of the JFM have the necessary skills to manage the JFM independently. This seems doubtful considering the number of trainings requested by the JFMC (see Section 6.6.2.5).

The fact that the Round Officer informed villagers at the start of JFM that the JFMC has the authority to administer rules and fines could indicate that the Round Officer chose to allow the JFMC to manage JFM without his leadership (his only involvement was as the Secretary on the JFMC). It also appears that by declaring the village as the best JFM in the district in 2000, the JFMC gained confidence in their own abilities (though it appears this confidence was not lacking prior to this award, see Section 6.6.2.5). The only financial contribution from

the FD is the provision of books on medicinal plants, as already discussed, no other entry-point activities which could generate income for the JFM were undertaken.

The NGO provided training on lac production in 2007 however no follow up trainings have been given. No financial contributions have been made, a conscious policy decision on the part of the NGO so as to avoid dependency and promote capacity building to lead to sustainable development. There is therefore very limited influence of the NGO on the JFM members' perceived management ability. However, again it should be noted that non influence can be positive in that it does not breed reliance on an external actor. Indeed this would correlate with the high level of perceived management ability seen in Section 3.2.5. Other trainings related to JFM activities were also organised by the Agriculture department (annual training on water conservation) and the Social Forestry department (lac and padas plantation training). The scope of the trainings are again limited to technical skills, rather than management or social skills.

6.8 Case Study B Conclusions

The external actors have not been greatly involved in the indicators of a functioning CA. However both of the key external actors have had some influence on certain aspects of the sustainability of CA. The table below shows a qualitative assessment of the sustainability of CA and the relative positive influence of all the external actors mentioned during the stakeholder analysis on each indicator of sustainability.

Indicator	Level of presence of indicator	Influence of FD	Influence of NGO	Influence of local council	Influence of other villagers
Indicators of functioning CA					
Meetings	Present	None	None	High	High
Rules	Present	None	None	None	High
Monitoring rules	Present	None	None	None	High
Indicators of sustainability of CA					
1. <i>Understanding of JFM policy</i>	Medium	High	None	None	None
2. <i>JFM awareness and inclusion levels</i>	Medium	Low	Low	Medium	None
3. <i>Connections with external actors</i>	Medium	Medium	Low	High	None
4. <i>Confidence in future benefits</i>	Medium	Low	None	None	None
5. <i>Perceived ability to independently manage JFM</i>	High	Medium	Low	None	None

Table 6: Summary of case study B

Chapter 7: CASE STUDY C

CASE STUDY C

**Forest protection is initiated by forest users
JFM is initiated by FD
Low level of FD and NGO involvement**

7.1 Data Collection for case study C

The following data collection methods were used to ensure triangulation of sources and methods:

- 1) Two separate meetings with JFMC using semi-structured discussions. At each meeting at least five of the members were present (all male).
- 2) Group discussion with non JFMC villagers
- 3) Five semi-structured individual community interviews
- 4) Semi-structured individual interview with a member of the local council
- 5) Semi-structured interview with the Range Forest Officer and Round Officer
- 6) Two semi-structured interviews with Assistant Conservator of Forests and informal discussions
- 7) Semi-structured interview with Deputy Conservator of Forests
- 8) Two semi-structured interviews with NGO director and many informal discussions
- 9) One semi-structured interview with NGO Village Coordinator and many informal discussions
- 10) Informal discussions with other NGO staff members and volunteer
- 11) Observation of village meeting led by NGO director
- 12) Observation of Biodiversity workshop held by NGO director and managed by NGO Village Coordinator to which two members of each JFMC from the villages in two districts were invited
- 13) Observation of NGO led workshop for FD on Conservation in Non Protected Areas, Nagpur
- 14) Review of village microplan from the year 2004
- 15) Review of documentation provided at the NGO led workshops: Biodiversity Workshop for JFMC members and Conservation in Non Protected Areas Workshop for FD
- 16) Review of NGO literature, newspaper articles about the NGO, discussions with JFM and rural development experts about the NGO

It can be seen that the research methods employed cover group discussions, semi-structured individual interviews, informal individual discussions, observations of the external actors and documentation reviews.

7.2 Background

7.2.1 Introduction to the village

The village is situated in Nawagaon range, Gondia district close to Nawagaon Nature Reserve and Bird Sanctuary. It is located 11 km along all weather roads from Nawagaon

town which is a small town where the Range Forest Officer is based. The forest area around the village consists of degraded tropical dry deciduous forests, of which the JFM manages a 60 ha plantation. The village itself has a population of 821, over approximately 165 households. The vast majority of the population (144 households) belong to the Other Backward Classes (OBC) social group. All households own less than one ha of land, with 43 landless households. 74% of the village population are farmers, with the main produce being rice. The majority of the remainder are employed as daily wage labour. The types of livestock observed in the village were bullock, cows, buffalo and goats. Although no data could be obtained on the numbers of each type of livestock, it was reported that two households were employed to graze the animals indicating that they were fairly common.

7.2.2 A brief history of forest protection

There are three distinct periods in the recent history of forest protection in the village. Firstly, pre 1998 the gram panchayat managed the forest based on a receipt system. If a village member wanted to take any forest products they would need to receive a receipt from the gram panchayat permitting certain forest products to be taken. Secondly, in 1998 the JFMC reports that a few villagers thought that forest management should be the responsibility of the villagers themselves and therefore called a community meeting to elect a Forest Protection Committee (FPC). The membership fluctuated dependent on the interest of the villagers. Under the forest protection committee (and with local council involvement) rules were set and community meetings were called twice per year to appoint a forest guard at particularly sensitive times of the year. In March every year a person is appointed to carry out a forest fire patrol for the months of April to June and in August every year a person is appointed for patrolling against illicit firewood. A nominal fee of Rs. 10 was charged to the villagers in order to pay for the guard. Thirdly, in 2003 the Range Officer told the villagers about the JFM policy. He called a village meeting and upon gaining approval of the villagers he registered the FPC as a JFM committee under the Societies Registration Act of 1860. He then directed the writing of the microplan for the village. The JFM was the first to be registered in Bhandara division and this attracted visits from many FD officials and various NGOs, including the one currently involved in the village. In 2008 the division boundary changed and the village was moved from Bhandara division to become the responsibility of the FD in Gondia division. Since the transfer no FD official has visited, according to the JFMC and both group discussions. The main concern of the JFMC and the non JFMC villagers with regards to forest protection is that people from surrounding villages enter the forest to carry out illicit firewood collection.

The rules under JFM are:

- The entering of bullock carts and vehicles is prohibited
- People from outside the village are not allowed to enter the forest
- Felling of trees useful to the villagers is not allowed (what is considered useful is determined on a case by case basis)
- Only bushes can be cut for firewood
- A maximum of three bamboo shoots can be taken at a time
- A guard is employed for monitoring the forest on a monthly wage of Rs. 800, a continuation of the system established under the FPC
- Membership fee of Rs. 10 established under the FPC

There is also a Forest Rights Committee which is a result of the implementation of the Forest Rights Act of 2006 (see chapter 4). This was proposed by the local council and elected in a village meeting. The JFMC and villagers are not involved in the work of the committee apart from in reporting any evidence of encroachments they may discover. During community interviews it was also mentioned that in 1981 a different forest protection group (called Mata Devestar Mandal, MDM) was formed by the local temple. The group also paid a forest guard to patrol the forest before the FPC was formed. The president of MDM stated that they are now paying the guard again as the JFMC is not functioning properly. However, according to the JFMC the MDM only gave money for tools, not for paying the guard. Due to the inconsistencies in the reports on MDM it is not possible to fully analyse how the presence of this group affects the sustainability of JFM.

7.3 The JFMC

There are 11 members of the JFMC, 2 of whom are women. The members were elected during a community meeting held in 2003. Villagers could nominate candidates and the final membership was decided based on the consensus of those present at the community meeting. Since election, the membership has not changed. The JFMC is responsible for:

- Composing rules (under FPC), deciding upon fines and fee contributions
- Monitoring the forest every 3 days on a rotational basis
- Employment and payment of the forest guard
- Liaising with the FD regarding the outstanding payment situation

7.4 Main JFM Activities

In 2003 a plantation was developed under the leadership of the FD as a JFM entry-point activity. Grass (for fodder), sagwan teak (*Tectona grandis*) and bamboo were planted. The cost of the plantation was Rs. 100,000 for the nursery of the three species and Rs. 59,500 for the labour. In addition, Rs. 40,000 was provided by the FD for the purchase of a speaker and decorations to be used for community events and rented out for private functions. However according to the JFMC and the NGO, the payment of the workers was not fulfilled. This situation has created a great amount of anger amongst the villagers, and has also affected the villagers' trust in the JFMC, a point I will return to in sections 7.6.2.4 and 7.7.2.4.

7.5 Identification of actors involved in JFM

Through group discussions with the villagers and interviews with the FD and NGO, the following actors were identified as being directly or indirectly involved in JFM:

Groups of villagers	FD*	1 NGO*	Other actors
JFMC	Round Officer	NGO coordinator	village Local Council
Non JFMC villagers-plantation workers	Range Forest Officer	NGO director	Other NGOs
	Assistant Conservator of Forests and higher levels		

Table 7: Actors involved in JFM in Case Study C

* The positions within these organisations are listed in hierarchical order with lowest level positions listed at the top.

The NGO present also leads JFM in case study D. It is influential on a district and state level in all areas of rural development and conservation agendas. It grew initially from the director's interest in bird watching at the nearby bird sanctuary. His connections in the area developed and his interest grew into other areas of rural development as he realised the interdependencies between rural livelihoods and conservation. Their office is in Nagpur city at a distance of 120 km from the village where the director and a team of 5 full time staff (and a few volunteers on an ad hoc basis) work, when not visiting villages. The original village coordinator is a resident of the nearby case study D village. The village coordinator currently assigned to the district is educated to degree level in Social Work and has worked for the NGO for two years. He reports directly to the Director of the NGO. No other NGOs are working in the village. The NGO became involved in 2008 when on a visit to introduce their programmes, the JFMC told them about the outstanding amount due to the plantation workers. After the visit, the JFMC Chairman contacted the NGO to ask for assistance in liaising with the FD in order to resolve the payment dispute. A secondary reason the JFMC contacted the NGO was for support in development activities. However the overwhelming reason was that the JFMC felt the NGO could expedite the process of obtaining the amount they feel is due to the plantation workers.

7.6 Dependent variable

This section will address the dependent variable: the sustainability of the CA. It will assess the level to which the CA under JFM can be described as functioning and its level of sustainability using the eight indicators outlined in Chapter 3. After assessing the sustainability of the CA, Section 7.7 will assess the influence of each of the external actors on each of the eight indicators of the sustainability of the CA. This will be done by using the four indicators of external actor influence as detailed in Chapter 3.

7.6.1 Indicators of level of functioning of CA

Meetings

The JFMC meet monthly, which can be considered as being on a regular basis. There is also a general body meeting once per year to which the whole village is invited. However since the division change in 2008 the general body meeting has not been held due to lack of attendance of a member of the FD.

Rules

The rules were devised in 1998 under the FPC. The rules cover entry to the forest, harvesting and monitoring the forest. The rules were decided in the community meeting and have been discussed in subsequent general body meetings, but are not recorded. There is no rule on grazing. There are no fixed fine amounts for rule infringements. Each case is dealt with on an individual basis at the following village assembly meeting and the fine is dependent on the severity of the crime.

Monitoring and Enforcing Rules

Every 3 days a member of the JFMC checks the forest for rule violators or signs that trees have been cut. They also check the rivers as rule violators dispose of unwanted wood in rivers due to the fear of being caught and fined. In addition, the person employed in the

village as a cow grazer also checks the forest. The JFMC reported that people from other villages also inform them of rule violators.

It can be seen that the CA under JFM in case study C is functioning according to all three indicators, however since the division change the level of functioning of the CA in terms of regular meetings has reduced.

7.6.2 Sustainability Matrix

7.6.2.1 Understanding of the JFM policy

When JFM was registered in the village in 2003 a limited number of actions were taken by the FD and JFMC to comply with the JFM policy. The election process of the JFMC was in accordance with the JFM policy as the correct number of JFMC members were proposed by villagers in a community meeting and elected by consensus. The JFMC also hold monthly meetings. One aspect of the working of JFM is coincidentally in accordance with the JFM policy and is therefore *not* evidence of active compliance due to an understanding of JFM policy. Namely, that the rules were decided in a community meeting under the FPC (in other words, before JFM came into existence).

However there is also evidence of non compliance, indicating that the JFM policy is not well understood by either the lower level FD or the villagers. Firstly, the area under JFM was decided by the FD only, with no input from the JFMC and similarly the microplan was undertaken by the FD only. Several aspects of the JFM membership and meeting frequency are also not in accordance with the JFM policy. Firstly, the JFMC membership has not changed since 2003 however the policy states a term time for the Chairman of 3 years. Secondly, no member of the local council is on the JFMC. Thirdly, only men are present at the general body meetings whilst the JFM policy states that 50% of the women members should be present for a general body meeting to be held. Finally, since the division change in 2008 no general body meeting has been held. Before the division change general body meetings were held annually whilst the JFM policy states that general meetings should be held at least twice per year. In addition, there is no rule on grazing, which is a requirement under JFM Government Resolution of 2003 (MoEF, 2003).

There is no clear view of the responsibilities of the FD on the part of the JFMC or the non-JFMC villagers. The perceived role of the FD is limited to providing the funds for the plantation, attending general body meetings, acting as secretary to the JFMC and most importantly, paying the wages of the plantation workers. It appears that the villagers cannot look further until the payment issue has been resolved, indeed discussions on the responsibilities of the FD never moved beyond this point. Therefore a full assessment of the knowledge of the rights and responsibilities of both the JFMC and the FD cannot be made. The JFMC did report however that they do not know how the future benefits of the plantation will be shared between the FD and the JFM villagers. Certainly it was apparent from discussions with the JFMC and the non JFMC villagers that the limited information they received on the JFM policy was through the previous Round Officer only. The Round Officer in turn received this information from within the FD hierarchical structure. Information on the different forest related acts was also provided by the NGO at three workshops, though these did not directly cover the rules under the JFM policy.

7.6.2.2 JFM awareness and inclusion level

There is a high level of awareness of JFM with the group discussion, all five interviewees and the discussion with the member of the local council all revealing that the existence of JFM is well known. The speaker provided by the FD as an entry point activity is used for community meetings and is also rented out for private functions. This activity therefore increases awareness of the JFM amongst the villagers. However, as a maximum only two members of the JFMC could be named in the group discussion and two interviewees could not name any members of the JFMC and didn't know how many members there are. Additionally, only two interviewees and the local council member knew that the JFMC meet monthly. The plantation workers who have yet to receive payment they feel is due, do not fully trust the work of the JFMC. Some villagers still feel that the JFMC took the money for their labour from the FD and did not distribute it to them. They would not allow the JFMC to speak with me alone, insisting we spoke with the plantation workers first. It was also reported at the group discussion that they feel the JFMC is not working as conscientiously as it used to, and one interviewee reported that it is not functioning properly. There were clearly disagreements between members of the JFMC regarding the leadership. All these points will decrease faith in the JFMC and therefore decrease the likelihood of wider participation from the villagers.

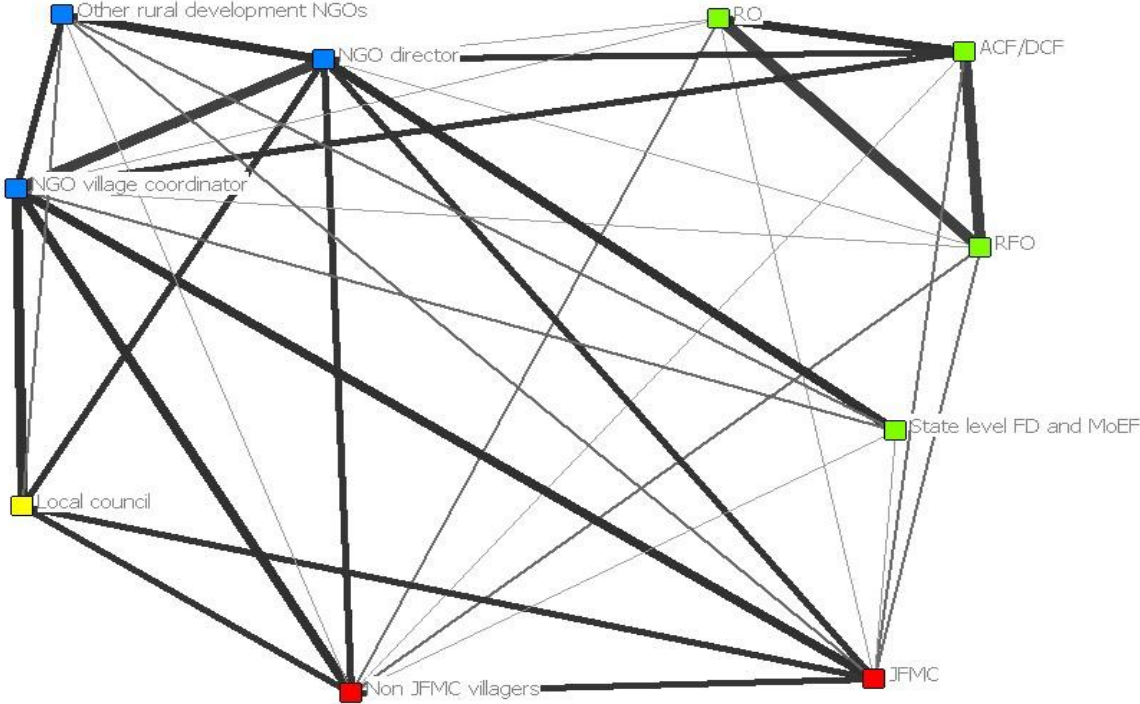
The JFMC reflects the socioeconomic characteristics of the village with 10 of the 11 members being members of the majority social group: Other Classes to which approximately 87% of the village belong. They are all farmers, apart from the secretary, as are 74% of the villagers (with the majority of the remaining 26% being daily wage workers and therefore also dependent on the forest resources). The average land size of nine members (excluding the secretary and chairman) is 1.72 ha which is slightly larger than the average in the village according to the microplan. It is worth noting that the chairman has 10 ha of land which is significantly larger than the average for the village. As land size is being used to indicate wealth, this could relate to a position of power within the village. Aside from this point, the JFMC largely reflects the socioeconomic characteristics of the village. Combined with the fact that there are two women on the committee, this is an indicator that their decisions should reflect the interests of most villagers and should encourage inclusion of villagers.

There is some confusion about how often the general body meetings are held as forest protection and the plantation are also discussed in the village assembly meetings held every six months. It was widely stated that participation of women at the community meetings (either JFM general body or village assembly) is very low even though all villagers are invited. One member of the JFMC also stated that the women need to receive training on participating in group discussions. Again, this can reflect the wider social relations and is not unique to JFM, as will be discussed in Chapter 10. Similarly, even though the rules were decided in 1998 at a village assembly meeting, awareness of the rules was low. Only the local council member was able to state the rules, whilst individual interviews revealed that only two people could vaguely state that there is a rule about taking firewood. In the group discussion the only rule that could be named is that firewood should not be taken. However, in theory participation in the fining system should be high as the fines are decided on an ad hoc basis at the village assembly meetings. This provides an opportunity for the fines to be administered in a transparent manner and allows input from all members of the village. However, there is a low level of participation of women at community meetings as already discussed.

The low awareness level of the JFM committee, the meeting frequency and participation is obviously related to the low awareness of the rules under JFM. In total this presents a picture of a high awareness of the existence of JFM but an overall low awareness beyond this in relation to membership and rules plus a low participation level. The number of individual discussions was limited however the group discussion was attended by approximately thirty men and yet only two JFMC members and one rule could be named. Although it does not appear that any actions are being taken by any actors to actively exclude certain groups, there are also no positive steps being taken to involve villagers either. The situation regarding the payment of workers is the largest concern and negatively affects relations between villagers and the JFMC. Therefore this presents the main challenge to participation.

7.6.2.3 Connections

The diagram below shows the frequency of communications between the actors involved in JFM. As the focus of the research is on JFM, a boundary was placed to not include the connections of actors on the edge of JFM who are only indirectly involved in JFM (for example, the Local Council and their own connections).



Level of frequency	of	Definition	
—		No communication	
—		Only for a particular issue	Actor clusters
—		Once per year or less	FD
—		Monthly <x> Yearly	NGO
—		Monthly	Villagers
—		> Monthly	Other external actors

Figure 10: Case Study C Connections between actors

The density of the network is 0.58 with the average degree for each actor (or actor group) at 5.20. These figures show that currently there are some actors which are not connected in the network, compared to all the possible relations between actors that could exist, however these figures are still relatively high. It is clear that communications between the FD and the other actors are very limited as they form a clique on the network diagram. The only communication now between the FD and the villagers is through the NGO (director and village coordinator) and the high level FD officials. This is solely in regard to the outstanding payment issue. In this regard the NGO actors are central in the network as they can control communications and therefore information exchange between the FD, JFMC and non JFMC villagers. This is seen in the diagram as their degree centrality (the number of connections they have) is seven, above the average. The lack of direct communication between the FD and the villagers means that the network structure does not allow for a more positive working relationship based on trust to be developed for which face to face contact is required.

The communication between the NGO and the non JFMC villagers is fairly frequent, however group discussions showed that this was only in relation to the outstanding payments. No other topics are currently discussed, though in a meeting held by the NGO the director did use the opportunity to talk about the need to conserve the forest and to discuss the Forest Rights Act with the people. The NGO is also central in the network as they are the only actors with connections to the state level FD and politicians from the Ministry of Environment and Forests (MoEF), apart from the high district level FD officials (ACF and DCF in the diagram), whose connections are not known but can be presumed to involve connections with the state level FD and MoEF. Indeed the NGO director's connections with the MoEF are frequent and are even directly with the top level within the MoEF.

The diagram is based on the current communication pattern, however it was raised in a group discussion that the situation before their change to Gondia division was different. The villagers knew the name of the previous Round Officer, but they do not know the name of the current Round Officer as he rarely visits. Communication with the FD is limited to occasional visits by the Range Forest Officer and Round Officer. Indeed the sole purpose of communication from the JFMC to the Range Forest Officer has been to request the presence of the Round Officer at meetings. Within the FD there is frequent communication however this has not yet settled into a normal routine as both the Range Forest Officer and Round Officer are new to the range and are currently visiting villages together. Therefore this cannot be taken to be the normal pattern of communication.

7.6.2.4 Confidence in future benefits

The institutional arrangements are not constructed in a manner which would encourage confidence in the future benefits of CA. The only positive characteristic is that the rules and fines are made openly and therefore transparency in this respect should in theory be high. However poor awareness and participation, as discussed in 7.6.2.2, limits any benefits the institutional arrangements may in theory provide. The lack of a clear and final decision about how the future benefits from the plantation will be divided between the FD and the JFM villagers will reduce confidence in the future benefits, and therefore the incentive to participate in CA. The general lack of a relationship with the FD officers will also compound this feeling that they cannot be trusted. The JFMC reported that in 2001 they had caught the

then current Round Officer using a bullock cart to remove trees from the forest for his personal gain. Although this could not be confirmed with the FD, even the rumours of this event would damage the confidence amongst villagers that they have a high level of autonomy over their forest. This would lead to a reduction in confidence that they will benefit from protecting the forest.

The lack of trust of the JFMC on the part of plantation workers will also negatively affect their confidence that future benefits of the plantation will be equitably distributed. The JFMC did not provide clear records of meetings or accounts, which, when it is considered that fines are paid to the JFMC and that the level of trust of the JFMC is already low, would affect the non-JFMC villager`s confidence that they will personally gain from protecting the forest, or reporting rule violations. The employment of a guard to monitor the forest may give assurance that rules are being enforced in an objective manner. Even though the JFMC reported that compliance with the rules has improved over time, they did state that there is still an ongoing discussion amongst villagers about the rules.

The physical effects of protecting the forest are only recently starting to be seen. The JFMC reported that some forest produce such as grasses are more abundant than before protection, however this is only a gradual change. It was reported by both the JFMC and in a group discussion that outsiders entering the forest and carrying out illicit firewood collection is causing a substantial problem. This perception of lack of autonomy over the forest will reduce confidence in future benefits.

7.6.2.5 Perceived ability to independently manage JFM

Community forest protection begun under the FPC without FD or NGO involvement, an indicator that their contributions are not essential for the fundamental aspects of CA in case study C. Before their involvement the community was brought together, rules were set, a forest guard was employed and fines were administered through the village assembly. However at this time and to date, the involvement of the local council has been significant as the rules and fines are discussed in the village assembly.

The systems for continuing CA are now in place such as the rules and fines system which is being administered in a stricter fashion than in the beginning and without input (or interference) from external actors. The JFMC also asserted that they feel more confident in enforcing the rules in a strict fashion. However their ability to manage the forest is reduced by outsiders conducting illicit felling (as discussed in section 7.6.2.4). As the JFMC have not been able to stop outsiders entering the forest this will reduce their perceived ability to autonomously manage the forest.

Along with the renting of the speaker and decorations, the membership fee brings in a regular income for paying the guard. However the discussions about the MDM group indicate that financial autonomy is poor as there was the suggestion that the JFMC could not pay the guard. This could not be substantiated as the JFMC did not provide evidence in the form of records or accounts and there were conflicting accounts from the JFMC and MDM chairman.

The discussions with the JFMC, the group discussion and individual interviews with non-JFMC villagers showed that more involvement from the FD is sought in terms of attendance at meetings and village visits. It is felt that their presence is required in order for meetings to be held, as can be seen by the fact that there has been no general body meeting since the division change. In addition, the villagers see a role for the FD in carrying out the projects

included in the microplan and in providing more plantation land, information on the forest and a pond. However the most important aspect regarding the outstanding plantation payments is now being dealt with by the NGO. The JFMC reported that they had tried personally to speak with the District Forest Officer and this had not resulted in a satisfactory outcome. Therefore they now rely on the NGO to liaise on their behalf.

The group discussion raised the request for an outside organisation to provide trainings on techniques for protecting and monitoring the forest. There was no preference as to whether this should be supplied by the FD, another government department or an NGO. This could be seen either positively as a quest for additional knowledge and skills, or negatively as dependency on external actors.

7.7 Independent variable: Influence of external actors

This section will analyse the influence of the external actors (the independent variable) on each of the dependent variable indicators of the CA's level of functioning and sustainability. This is conducted through a focus on the indicators of external actor influence namely knowledge, management and social skills, communication channels and financial support, as outlined in Chapter 3. Not all *independent* variable indicators of external actor influence are applicable for each of the *dependent* variable indicators of the CA's level of functioning and sustainability. In addition, some independent variable indicators are applicable to more than one indicator for the sustainability of the CA. For example, the provision of trainings to large groups of villagers may increase awareness as well as developing confidence in future benefits and the ability to self-manage JFM. Attention has also been paid to the non provision of the independent variable indicators as non provision could have both a positive or negative influence on the sustainability of collective action.

7.7.1 Functioning CA

Before 1998 the local village council had been operating a receipt system for collecting forest produce. The local village council was therefore influential in initiating forest protection in that they transferred management responsibilities to the FPC. For five years the FPC was managed without the involvement of either the FD or the NGO in providing knowledge or management skills for the drafting of the rules and fines. The local council was not involved in the process of rule creation nor was there a member of the local council on the FPC. However the local village council was and remains indirectly involved in the rule formation as the village assembly meetings were used for deciding the rules and are still used to discuss fines and other plantation matters. Direct involvement of the local village council is limited as they do not have a representative member on the JFMC.

The Round Officer was influential in registering JFM in the village as he introduced the JFM policy to the village and suggested that the forest protection committee register itself as a JFMC. He organised for the registration of JFM under the Societies Registration Act of 1860. When the FPC became the JFMC the external actors did not become involved in the decisions about rules that had already made. External actors have not been involved in deciding the frequency of meetings or in monitoring the forest. However the FD has had a negative influence on the frequency of meetings being held as due to their absence the JFMC feel they cannot hold general body meetings. The FD previously provided record keeping skills through the Round Officer in his position as secretary of the JFMC, however

this is no longer the case since the division change. Furthermore these records were not evident and it is not possible to determine whether these skills would be in addition to the skills the FPC or JFMC already had. The FD provided one off financial contributions in kind through the plantation, which cost Rs. 100,000 for the nursery of the three species planted.

Overall it can be seen that the NGO has not been involved in the functioning of CA to date. The FD's influence is notable in its current absence which negatively affects the frequency of meetings. It was clear from discussions with the JFMC and non JFMC villagers that they felt the FD should be present in order for these meetings to be held. The indirect support of the local village council should not be overlooked as in conducting important discussions relating to forest protection at village assembly meetings, the local village council adds credibility to the JFMC.

7.7.2 Indicators of the sustainability of CA

7.7.2.1 Understanding of JFM policy – influence of knowledge from external actors

The mixed level of knowledge of the JFM policy shown by the JFMC can be directly attributed to the Round Officer in position when the JFMC was formed. Under the instructions of the Round Officer the elections for the members of the JFMC were held, in accordance with the JFM policy. There are however many examples of non compliance with the JFM policy (see Section 7.6.2.1) which indicates that since this date the JFMC is not receiving, or not acting upon information from the subsequent Round Officers or any other sources. This marries with the reports that there is currently no communication with the FD. The Range Forest Officer and Round Officer had only been in the post a few weeks before the fieldwork period and therefore had not yet visited the village. They had not received information from their predecessors of the status of JFM when they were transferred to this forest range and therefore they have not had a positive influence on the understanding of JFM in the village. However, they had received training themselves on the JFM policy and had experience working with JFM in other ranges. They are reliant on information passed down through the FD hierarchy and this is a point that will be returned to in Chapter 10 as it is common across all cases.

The NGO arranged three workshops on amendments to Government Resolutions, guidelines or rural development acts and policies that affect the villagers, including but not specifically on JFM. The JFMC representatives attending the workshops receive written information on the content of the workshops. The director of the NGO usually leads the workshops and he has detailed knowledge of the latest JFM policy laws and guidelines. He is also experienced in conveying this information to the villagers. As the NGO has only been involved for one year, the extent of information gained from these workshops is limited. In addition, participation is limited to the JFM chairman and one other member.

It can be seen that the influence of both the FD and the NGO on the level of understanding of the JFM policy is currently low. Or put differently, there has been little positive influence of external actors on this indicator, but through their absence they have influenced the continuation of the low level of understanding of the JFM policy amongst villagers. However the current FD and NGO actors are newly involved in the village thus it cannot be assumed that the current situation will continue into a norm. The influence of the NGO especially is likely to increase, if the current rate of three workshops within one year continues. Whether

this influence extends beyond providing two members of the JFMC with this knowledge will be analysed in section 7.7.2.2.

7.7.2.2 JFM awareness and inclusion level – influence of management and social skills and financial support from external actors

The local council was influential in creating initial awareness of the FPC as this was conducted at a village assembly meeting to which all villagers are able to attend. This shows the management skills as well as standing that the local council have amongst the villagers. Since then, their support in allowing forest protection, rules and fines to be discussed at the village assembly meetings promote inclusion and also increases the credibility of the JFMC. This in turn may further positively influence the participation of villagers in CA activities organised by the JFMC. The motivations for this support are not however clear: whether this is done out of respect for the JFMC, out of a belief that all villagers should be included in decisions, out of their own desire to remain involved or out of satisfaction that the JFMC are now conducting a task that used to be their responsibility (or another reason) is unknown. At the time of either FPC or JFM formation, no other external actors were involved in promoting inclusion in rule making or the election of members.

There is little evidence of the FD actively promoting awareness and inclusion in JFM. Indirectly, the speaker provided by the FD and which is used for community meetings and rented out for private functions, will increase awareness of JFM. Also, the plantation as an entry point would have increased awareness as it provided what was perceived as paid employment for all willing villagers. This correlates with the high level of general awareness of JFM as shown in section 7.6.2.2. The microplan was solely carried out by the FD and therefore did not provide an opportunity for villages to actively participate in discussing the future plans for the village. Also, the fact that projects detailed in the microplan have not been carried out would also negatively affect perceptions of the FD as a trustworthy partner to work with.

The situation with the outstanding payments has had a detrimental effect on any feeling of trust and reciprocity towards the FD on the part of the villagers. This significantly reduces the likelihood of future participation of villagers in JFM activities. According to the JFMC Rs. 59,500 is outstanding from unpaid labour. The JFMC and NGO state that the Deputy Conservators of Forests in both the previous division (Bhandara) and the new Gondia division are both declaring that payment is the responsibility of the other division. This will of course further exacerbate the situation of low levels of trust. Further to this, the situation has also raised doubts about the integrity and ability of the JFMC amongst the unpaid plantation workers which will negatively affect participation in future JFM activities, even when the FD is not directly involved.

The NGO appears to put more emphasis on including the village as a whole in discussions relating to the forest. For example, the NGO director called a community meeting to discuss the outstanding wages in order to ensure that the whole community is aware of the current situation. This matches the views expressed in interviews and informal discussions with the NGO director and the village coordinator that community spirit is required for the success of JFM. Copies of the letters sent from the NGO to the FD regarding the payment situation are also sent to the JFMC and the NGO director told the villagers they could ask to see the copy. Also at a meeting with the NGO and the villagers the NGO village coordinator actively encouraged women watching from a distance to join the discussions. The meeting was held

in a public space in the centre of the village at a time that made it possible for most villagers to attend. The workshops held by the NGO are only for the JFM chairman and one other member of the JFMC, which is logistically understandable. However the NGO gives copies of any legislation or acts to the JFMC and informs the non JFMC villagers that they can ask to see this. No further steps are taken by the NGO to promote dissemination of this knowledge to the wider community.

It can therefore be seen that the NGO does create an environment in which inclusion and participation is possible, though they do not actively target sections of society which may not feel able to participate (such as women or certain tribes and castes). Also, neither the FD nor the NGO is involved in specifically promoting awareness of JFM which correlates with the low level of awareness of the details such as membership, rules and meeting frequency expressed in group discussions and interviews (see section 7.6.2.2).

7.7.2.3 Connections with external actors – influence of external actors through increasing connections

Figure 9 shows that the NGO holds a strong central position between the JFMC and the FD. In this way the NGO can control communication between the actors. The NGO gained this position in the network due to the poor level of direct communication between the JFMC and the FD. Before the NGO became involved in 2008, the communication between the JFMC and the FD was more frequent and in the form of direct communication. At this time the JFMC complained directly to the Deputy Conservator of Forests in Bhandara division regarding the outstanding payments, however this was not, in the JFMC's view, fruitful. The NGO aided direct communication between the actors as they held a workshop to which both the Deputy Conservator of Forests and the JFMC chairman attended. Again this shows the centrality of the NGO in facilitating communication between the actors, even before they took over the role of advocating on behalf of the JFMC.

Now all communication is through the NGO. The NGO has therefore not been influential in creating a new connection between actors, but individually it has a better quality of communications with both the FD and the JFMC than they had when communicating directly. It does mean that there is now no direct communication however as the norm now exists for all communication to go through the NGO. The JFMC reported that they do not now feel the need to contact the FD as the NGO is in a better position to do this. The NGO director does send copies of all letters to the JFMC and told the non JFMC villagers to request to see the copies. This shows that the NGO realises their central place in communications and attempts to share information beyond the JFMC. In this way, the NGO may contribute towards improving the trust between the JFMC and the non JFMC villagers through bringing information into the open as a more neutral outsider.

NGO's connection with the state level FD and MoEF could bring an opportunity for at least the NGO to be able to feedback the realities on the ground. Therefore this puts the NGO in a strong position within the network. In theory it could also provide an opportunity for connections between the villagers and the high FD officials though this is more likely to be indirect through influencing the NGO.

The FD has a negative influence on communication as according to the JFMC and the NGO they have not responded to attempts from the JFMC to set up an ongoing dialogue regarding the outstanding payments. This therefore means that trust has been lost with the villagers. It

also results in a deterioration of the communication between the JFMC and the non JFMC villagers as the non JFMC villagers feel that they cannot trust the JFMC to carry out this task on their behalf. This point was raised in a group discussion where one villager said that he was not satisfied with the JFMC because they could not resolve this situation. It can be seen that this lack of communication also undermines the credibility of the JFMC.

7.7.2.4 Confidence in future benefits – the influence of external actors through management and social skills and financial support

The only management skill and financial contribution shown by the FD in increasing the confidence amongst villagers in the future benefits of their actions, is through the plantation as an entry-point activity. This should provide both subsistence crops and cash crops for the future benefits of the villagers. However this is more than counteracted by the current situation regarding the outstanding payment of plantation workers and the fact that there has been no formal agreement on how the future benefits of the plantation will be shared between the FD and the JFM villagers. The lack of trust as reported in 7.6.2.2 will also affect the villagers confidence that they will receive benefits from protecting the plantation. In addition, the FD made the microplan for the village which means that the villagers did not make decisions about the projects and programs to be included. This may mean that the relevance of the plans to the villagers is not strongly felt and therefore they may not see the future benefits as relevant to them. The group discussion also revealed that the FD is not fulfilling projects in the microplan and therefore any confidence in the future actions of the FD will be negatively affected. The FD's decision on the amount of land to be allocated to JFM can also be influential in perceptions of whether the future benefits will be sufficient for all JFM members. This is a point I will return to in Chapter 10 as it affects all cases.

There has been no direct involvement of the NGO on this indicator beyond its attempts to create more open discussions with the whole community (see 7.7.2.2), which may have a positive impact on their confidence that future benefits will be equally distributed, and not retained by the JFMC. The group discussion showed that the villagers have respect for and confidence in the NGO, therefore their involvement as a more neutral actor may also increase confidence in a more equitable distribution of benefits. Similarly, the local council's support for JFM in terms of increasing the transparency of the rule making and fines system through holding village assembly meetings, will allow confidence amongst the villagers that the benefits will be equitably distributed.

No external actor appears to be involved in attempting to resolve the problem of outsiders illicitly felling trees. This is a main point of concern (see 7.6.2.4) which will affect the villagers' confidence in the future benefits of their actions.

7.7.2.5 Perceived management ability

No external actor has provided training on the technical aspects of forest management, forest protection techniques, monitoring, management skills or record keeping skills according to the group discussion, JFMC meeting and two individual interviewees. Therefore no external actor has shown any influence in improving the villagers' skills in these areas. The lack of trainings could also be a positive aspect if it was assessed by the FD and NGO that they are not required and the members of the JFM have the necessary skills to manage the JFM independently. This seems doubtful as neither of the key external actors has conducted a needs assessment in the village.

The NGO did however hold three workshops in 2009 to provide knowledge to the villagers about the Government Resolutions, acts and policies applicable to them. With this improved knowledge the confidence of the villagers may also be positively influenced, as this can improve their position in their partnership with the FD. However the JFMC stated that the NGO only provided a little knowledge of applicable resolutions, acts and policies indicating that the value of the information given is not as highly regarded by the JFMC as it is by the NGO.

The local village council adds credibility to the JFMC through using the village assembly meetings to discuss forest protection and fines. This can create confidence amongst the JFMC in their ability to manage forest protection. Their non involvement beyond this indirect support may also indicate to the JFMC and non-JFMC villagers that the JFMC has the authority to lead on forest protection. Similarly, the non involvement of the FD and NGO in the day to day working of the JFM may be seen as a positive aspect to the extent that the JFM gain the freedom to decide on meetings, rules, monitoring and fines.

The JFMC approached the NGO to assist them with the outstanding wages. They felt like they could trust the NGO director and that the NGO was in a better position to negotiate with the FD. They had firstly approached the FD directly but this had not been successful. The inability of the JFMC to manage the situation has led other members of the JFMC to question their leadership, as seen in section 7.6.2.5. However the NGO’s approach in the workshop observed and in the meeting with the villagers was to encourage the villagers to negotiate with the FD directly and demand their entitlement under various schemes. This can be seen as a positive approach which discourages reliance on the NGO, however the impact of this will be limited when the past shows that the JFMC were not able to negotiate successfully with the FD to resolve the outstanding payment situation.

The JFMC has not held a general body meeting since the change in division as the Round Officer has not been present. This shows a perception that the FD is an integral part of JFM and their presence is required in order for meetings to take place. During the group discussion it was stated by non-JFMC villagers that they want the FD to provide an officer to guard the forest for them, again showing reliance on the FD. The absence of the FD to this regard has not resulted in a more independent viewpoint from the JFMC or the non JFMC villagers, rather there is a view that the FD is not fulfilling its basic duties.

7.8 Conclusions

The external actors have not been greatly involved in the indicators of a functioning CA. However both of the key external actors have influenced certain indicators of the sustainability of CA. The table below shows a qualitative assessment of the sustainability of CA and the relative positive influence of all the external actors mentioned during the stakeholder analysis on each indicator of sustainability. The negative involvement of the FD against some of the indicators is also apparent.

Indicator	Level of presence of indicator	Influence of FD	Influence of NGO	Influence of local council
Indicators of functioning CA				
Meetings	Present	Negative	None	Medium

Rules	Present	None	None	Low
Monitoring rules	Present	None	None	None

Indicators of sustainability of CA				
1. <i>Understanding of JFM policy</i>	Low	Low	Low	None
2. <i>JFM awareness and inclusion levels</i>	Low-Medium	Negative	Medium	Medium
3. <i>Connections with external actors</i>	Medium	Negative	Medium	None
4. <i>Confidence in future benefits</i>	Low	Negative	Medium	Low
5. <i>Perceived ability to independently manage JFM</i>	Low	Negative	Medium	Low

Table 8: Summary of case study C

Chapter 8: CASE STUDY D

CASE STUDY D

Forest protection and JFM is initiated by an NGO with international funding

Minimal FD involvement

8.1 Data Collection for case study D

The following data collection methods were used to ensure triangulation of sources and methods:

- 1) One meeting with six members of the JFMC using a semi-structured discussion (all male)
- 2) Group discussion with non JFMC villagers
- 3) Semi-structured individual interview with the leader of the local council
- 4) A semi-structured interview with the JFMC chairman and previous NGO village coordinator
- 5) Semi-structured interview with the Range Forest Officer and Round Officer
- 6) Two semi-structured interviews with Assistant Conservator of Forests and informal discussions
- 7) Semi-structured interview with Deputy Conservator of Forests
- 8) Two semi-structured interviews with NGO director and many informal discussions
- 9) One semi-structured interview with NGO Village Coordinator and many informal discussions
- 10) Informal discussions with other NGO staff members and volunteer
- 11) Observation of village meeting led by NGO director
- 12) Observations of interaction between NGO Village Coordinator and villagers
- 13) Observation of Biodiversity workshop held by NGO director and managed by NGO Village Coordinator to which two members of each JFMC from the villages in two districts were invited
- 14) Observation of NGO led workshop for FD on Conservation in Non Protected Areas, Nagpur
- 15) Review of village microplan from the year 2004
- 16) Review of documentation provided at the NGO led workshops: Biodiversity Workshop for JFMC members and Conservation in Non Protected Areas Workshop for FD
- 17) Review of NGO literature, newspaper articles about the NGO, discussions with JFM and rural development experts about the NGO

It can be seen that the research methods employed cover group discussions, informal individual discussions with external actors, observations of the external actors and their interactions with the villagers and documentation reviews.

8.2 Background

8.2.1 Introduction to the village

The village is situated in Nawagaon range, Gondia district close to Nawagaon Nature Reserve and Bird Sanctuary. It is located 9.5 km along all weather roads from Nawagaon town which is a small town where the Range Forest Officer is based. The forest area around the village consists of degraded tropical dry deciduous forests, of which the JFM manages 120ha and has an 85ha mixed plantation of bamboo, sagwan, and several fruit species (aula, bera, baja, saja). The village itself has a population of 821, over approximately 165 households. The population is almost evenly split between the social groups Scheduled Tribes and Other classes ('other' meaning other than Scheduled Tribes, Scheduled Castes and Other Backward Classes). The vast majority of households own less than two ha of land, with 43 landless households. 74% of the village population are farmers and their main produce is rice. The majority of the remainder of the population are employed as daily wage labour. The types of livestock observed in the village were bullock, cows, buffalo and goats. Although no data could be obtained on the numbers of each type of livestock, it was reported in the village microplan (which is made when the JFM is registered) that there is a high number of dairy animals.

8.2.2 A brief history of forest protection

Before JFMC the FD would not allow the villagers to take forest produce yet according to the villagers, hunting and illicit felling formed large problems in the forest areas. At this time the FD's rules were that wet wood and timber could not be taken from the forest, only small twigs and dry leaves could be taken for firewood. The FD would carry out checks on the forest and would not allow the people to carry out their own monitoring of the forest. It was also reported that the presence of naxalites (a communist group) impeded villagers from entering the forest. In 2004 forest protection and JFM were initiated by the Director of a regional environmental NGO. The Director initially undertook work in the village by way of workshops with the children in the village to engage them in nature and wildlife. His second step was to hold a village meeting with the local council and community to persuade them that they should be responsible for forest protection. Four male villagers then approached the FD to arrange for JFM to be registered. The JFMC gave the reasons for JFM formation as forest protection, wild animal conservation and livestock rearing (for fodder). An ongoing issue under JFM is that people from other villages drive into the forest and take forest produce. According to the JFMC the illicit felling is solely being carried out by outsiders, with nomadic tribes given as an example. The Round Officer present when JFM was registered was involved in the JFMC, but was rotated soon after JFM was formed and since then FD involvement has been more modest.

Under JFM the following norms and rules were established and remain unchanged:

- Outsiders are banned from entering the forest with vehicles
- Only dry wood can be taken
- A fine system was set of Rs. 201 for the first few offences, rising to Rs. 501 for persistent offenders.

- Monitoring was conducted by small groups of villagers (3-4 people) every 15 days. This was later stopped as the JFMC reported it had become a norm for villagers to report rule violators they see whilst grazing their animals.
- Rule violators from other villages are reported to the FD and fined by the FD. The JFMC are not aware of the fine amount set by the FD nor do they receive any reward for reporting culprits.
- A membership fee of Rs. 11 per person per year was established.

A community meeting was held to draft the rules using the rule suggestions given by the NGO. At the community meeting the JFMC members and their positions were also suggested by the villagers, with the rule of one vote per household. If no objections were raised the suggestion was upheld. The rules were painted on a wall but during the Diwali celebrations of November 2009, they were painted over and have not been replaced.

8.3 The JFMC

There are 15 members of the JFMC, including 6 women. They have remained the same since formation.

To date, the JFMC has been responsible for:

- Forming an Environment office for the education of children and adults, to discuss the environment and for education sessions from the NGO
- Establishing 4-7 women's savings groups together with the NGO
- Carrying out a forest quality check before the plantation was initiated using sample plots (species and density were checked)

8.4 Main JFM Activities

- 85 ha mixed plantation started in 2007: bamboo, sagwan teak (*Tectona grandis*) and fruit trees (aula, bera, baja, saja)
- Carrying out a tree census together with the FD
- Monitoring the forest (initially under a formal system, this has now become a norm)

8.5 Identification of actors involved in JFM

Through group discussions with the villagers and interviews with the FD and NGO, the following actors were identified as being directly or indirectly involved in JFM in Case Study D:

Groups of villagers	FD*	1 NGO*	Other actors
JFMC	Range Officer	NGO Coordinator	Local Council
Non JFMC villagers	Range Forest Officer	NGO Director	Politicians (all levels)
People from other villages	Assistant Conservator of Forests and higher ranks of FD		Water management project leaders

			Other NGOs
			District Collector's office

Table 9: Actors involved in JFM in Case Study D

* The positions within these organisations are listed in hierarchical order with lowest level positions listed at the top.

The NGO present is also present in Case Study C and is influential on a district and state level in all areas of rural development and conservation agendas. It grew initially from the director's interest in bird watching at the nearby bird sanctuary. His connections in the area developed and his interest grew into other areas of rural development as he realised the interdependencies between rural livelihoods and conservation. Their office is in Nagpur city at a distance of 120 km from the village where the director and a team of 5 full time staff (and a few volunteers on an ad hoc basis) work, when not visiting villages. The original village coordinator is a resident of this village and it was widely reported that he was influential in bringing the people together. The village coordinator currently assigned to the district is educated to degree level in Social Work and has worked for the NGO for two years. He reports directly to the Director of the NGO. No other NGOs are working in the village.

8.6 Dependent variable

This section will address the dependent variable: the sustainability of the CA. It will assess the level to which the CA under JFM can be described as functioning and its level of sustainability using the eight indicators outlined in Chapter 3. After assessing the sustainability of the CA, Section 8.7 will assess the influence of each of the external actors on each of the eight indicators of the sustainability of the CA. This will be done by using the four indicators of external actor influence as detailed in Chapter 3.

8.6.1 Indicators of level of functioning of CA

Meetings

Although there was some discrepancy between the frequency of JFMC meetings reported by the JFMC (monthly) and in group discussions (twice per month or more often as needed), it is clear that the meetings are on a regular basis. Similarly, reports of the frequency of general body meetings varied from twice per year to annually. Village assembly meetings are held twice per year and as JFM is usually an agenda item at these meetings, the discrepancy could be over whether these meetings are also regarded as JFM general body meetings. However, the fact remains that JFM is discussed at an open meeting to which all villagers can attend.

Rules

Rules on entry, harvesting and monitoring were established under JFM in 2004. A fine system with set fine amounts was initiated at the same time. The rules were initially written on a wall in the centre of the village for all villagers to read, however now they are not written.

Monitoring and Enforcing Rules

A monitoring system involving groups of all villagers was established in 2004 at the same time the forest rules were drafted. The system was later stopped, a decision taken by the JFMC as it was felt it was no longer required. Norms on reporting forest crimes had been established and remain.

It can be seen that the CA under JFM in case study D is functioning according to all three indicators.

8.6.2 Sustainability Matrix

8.6.2.1 Understanding of the JFM policy

The JFMC has shown understanding of the JFM policy through its high level of compliance with the rules of the JFM policy. The election of the JFMC members and drafting of the forest rules were undertaken by the village assembly. The PRA exercise for compiling the microplan entails the involvement of the villagers, which is also a JFM requirement. In addition, the local council leader is a member of the JFMC, records of meetings and fines are kept and JFMC meetings are held at least once per month. However, there is also evidence of non compliance with the JFM policy as there are 15 members of the JFMC and they continue in their post unless objections against them are raised. The JFMC do not have two bank accounts as stipulated in the JFM policy and it was not clear whether general body meetings are held once or twice per year, with twice per year being stipulated in the JFM policy. There is also uncontrolled grazing which is not in compliance with the JFM policy and the forest land was allotted by the FD without conferring with villagers regarding their needs. Again this is not in compliance with JFM policy.

There was also no evidence amongst the villagers of detailed knowledge of other parties' responsibilities such as there was no mention of the specific responsibilities of the FD further than requesting general support and more visits. There is an understanding that the Round Officer should attend meetings and act as secretary to the JFMC. As it was not clear the level to which the JFMC understood the roles and responsibilities of the FD nor their entitlements to future benefits, a full assessment of their knowledge of the JFM policy cannot be made.

On the part of the FD, the Round Officer and Range Forest Officer were transferred to this range only two months before this fieldwork was undertaken. They both stated that they are aware of their responsibilities under JFM and which forest products are covered by JFM. However it was also evident that information on how JFM was operating in the area had not been passed on from their predecessors. They were now undertaking their own introductory visits to establish the current status of each JFM village in their range.

The NGO village coordinator has a good, though not extensive, understanding of the JFM policy which he had received from the NGO director. It was also evident that the NGO and not the FD was the dominant actor in providing information on the JFM policy to the villagers, as will be discussed in section 8.7.2.1.

8.6.2.2 JFM awareness and inclusion level

It was not possible to conduct individual interviews to gain an understanding of awareness levels. However two group discussions with villagers (mostly male) and an interview with the deputy leader of the local council (female) were undertaken. It was observed at these meetings that discussions were not dominated by a few villagers, rather villagers discussed answers to questions with each other and interrupted each other. In addition an assessment of the institutional features which promote inclusion was made.

General body meetings were used to make key decisions which shows an open and transparent manner of working by the JFMC. At the general body meetings the rules were

made, the JFMC were elected on a one vote for each household basis and the crop species for the plantation were suggested based on the needs raised by villagers and the quality of the land. The JFMC and villagers in the group discussions stated that they would call a community meeting should they want to replace a member of the JFMC. The monitoring system involved all villagers and now the norm is for all villagers to report on rule violators. In addition the close working with the local council and leaders of the government water management scheme shows transparency and the understanding that people involved in other schemes and elected local council members should be at least aware of JFM activities. Their regular joint meetings are also open for villagers to attend.

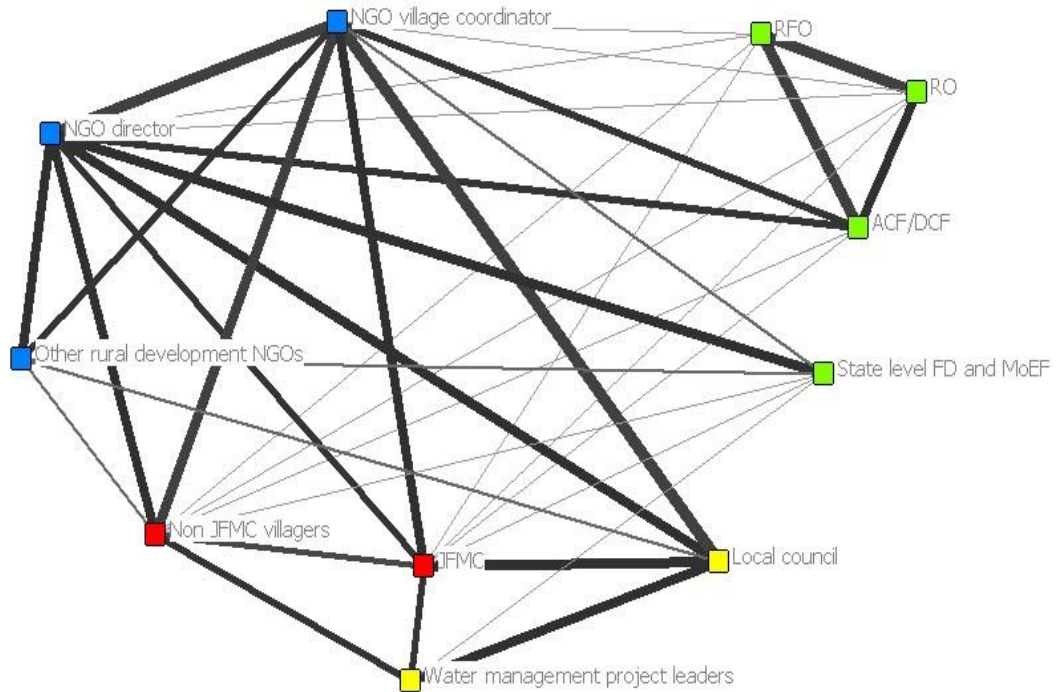
It can therefore be seen that the institutional arrangements have been made to aid awareness and inclusion. A full assessment of how these arrangements work in practice cannot be made, however the group discussions with non JFM villagers indicate a fairly high awareness level of JFM. Participants were aware of the existence of JFM, the date of registration and the names of the President, Round Officer, NGO and NGO staff (Director and Village Coordinator). The rules could also be quoted. They were also aware of the trainings given by the NGO and stated that they were open for all interested villagers to attend. However when one person stated that there are 21 members of the JFMC, he was not corrected. The indications of women's involvement are also positive. It was reported in group discussions and in the individual interview with the female deputy leader of the local council that women attend general body meetings and participate actively in discussions. There are also 4-7 women's self help groups set up by the JFMC with support from the NGO to develop confidence and income generating opportunities amongst women. However only men attended the group discussions themselves with women watching from a distance. Again this is an indication of JFM reflecting wider social norms. It could also be argued that the one vote per household rule followed in this case study (which is part of the JFM policy) favours men in their position as heads of households.

The fairly high awareness and inclusion levels seen at group discussions could be due to the institutional features to promote participation however no assessment can be made of whether this is representative for the village as a whole.

The JFMC is fairly representative of the villagers as a whole in terms of education level, land ownership and occupation. However the JFMC members are mostly from the OBC and ST castes whereas over half of the village population is from the 'other classes' category, referring to not SC, ST or OBC. The six women on the JFMC can also help in promoting the inclusion of women in JFM activities, and in promoting women's needs and interests in decisions taken by the JFMC. The representativeness of the JFMC could mean that it reflects the needs of the majority of villagers which can mean that no groups in society feel excluded from participating.

8.6.2.3 Connections

The diagram below shows the frequency of communications between the actors involved in JFM. As the focus of the research is on JFM, a boundary was placed to not include the connections of actors on the edge of JFM who are only indirectly involved in JFM (for example, between the Local Council and the Government run water management scheme and their own connections).



Level of frequency	Definition	
—————	No communication	
—————	Only for a particular issue	Actor clusters
—————	Once per year or less	FD
—————	Monthly <x> Yearly	NGO
—————	Monthly	Villagers
—————	> Monthly	Other external actors

Figure 11: Case study D- Connections between actors

The density of the network is 0.44 with the average degree for each actor (or actor group) at 4.4 which is low and indicates that there are many actors who are not connected in the network, compared to all the possible relations between actors that could exist. It is immediately apparent that the FD forms a separate clique in the network. Currently there are no direct communications between the Round Officer or Range Forest Officer and the JFMC or non JFMC villagers. Communication is only indirectly through the NGO with the higher level officers at Assistant Conservator of Forest level or above. This impedes the building of trust between actors that are not in face to face contact, as well as hindering knowledge exchange. It also places the NGO in a position of centrality in which it can command control over the communication between the two groups of actors. The NGO's centrality also

extends to communication with other NGOs as they have the only link with this actor and therefore can exchange knowledge and coordinate with other NGOs. However the inactivity of the Maharashtra network of rural development NGOs impedes any gains from this relation.

It can be seen that the local council is involved in the network with frequent communication with the JFMC and the NGO. This is due to the monthly meetings held by the NGO and JFMC. The communication between the non JFMC villagers and the local council is not known however through social relations within the village it can be expected that there is at least occasional contact.

8.6.2.4 Confidence in future benefits

The open manner in which it appears the JFM is run, as discussed in section 8.6.2.2, is a positive indicator that future benefits will be shared equally with non JFMC villagers. The fact that key decisions are made at general body meetings and that records of meetings and fines are shared at these meetings shows a high level of transparency. This in turn may increase confidence in future benefits amongst all villagers. Indeed it was reported by both the JFMC and in group discussions with non JFMC villagers that compliance with the rules is high amongst the residents, and the change in monitoring system indicates confidence in a high rule compliance rate. This could signify confidence that complying with rules will return direct benefits to an individual level. The close working with the water management project and local council may increase the confidence amongst villagers in the decisions taken by the JFMC and it also shows an effort towards coordinating actions. Indeed the group discussions showed a unanimous view amongst participants that the JFMC were doing satisfactory work.

The JFMC conducted a forest quality check using a sample plot technique on the area used for the plantation. The JFMC plan to conduct a further check ten years after the baseline survey in order to measure how the forest quality has changed. This gives transparency of future changes in the forest quality which can form the basis of information on the benefits gained directly due to forest protection.

The funds from membership fees and fines are retained by the JFMC only, which could increase confidence in the future benefits of CA if the funds are being put to use in activities that benefit the village. The JFMC President stated that the funds are used to cover the expenses of JFM members such as travel costs to attend workshops or meetings held by the NGO. As the group discussion showed a satisfactory view of the JFMC's activities it appears that this use of the funds is acceptable. The villagers themselves are also receiving a regular financial incentive to manage the forest in the long term through the FD tender for firewood collection managed by the JFMC. The extent to which this is viewed as a reliable future income source will at least partially determine whether this remains a contributing factor to confidence in the reliability of future benefits.

The plantation species were chosen by the villagers in a general body meeting based on the land quality and the needs of the villagers. This provides a strong basis for confidence that the benefits from the plantation will be useful for the villagers. However there is an ongoing debate between the JFMC and the FD over the details of how the benefits will be divided between the two partners. This can reduce the confidence amongst villagers that they will see a suitable percentage of the profits being returned to the villagers.

There were frequent references by the JFMC, the non JFM villagers and the deputy leader of the local council that there is a problem with people coming from outside the village to take forest products from the JFM managed forest. This can reduce confidence in future benefits, especially if the forest quality improves relative to the quality of surrounding forests. Indeed the JFMC President and several non JFMC villagers stated that forest density is slowly improving and that there have been several tiger sightings which is an indication of the health of the forest. In itself this could have a positive influence on the confidence of villagers in the future benefits of their actions, however any positive effect would be seriously reduced if outsiders are able to take a significant amount of forest produce without repercussions.

8.6.2.5 Perceived ability to independently manage JFM

The confidence of the JFMC to manage JFM has increased since JFM was initiated in 2004. Indeed the previous NGO village coordinator stated that in 2004 the villagers were not ready for JFM in the sense that they were not willing to work together. Since then confidence in their abilities has increased amongst JFMC members. Under JFM the JFMC has organised a forest monitoring system in the absence of the FD, has submitted a request that the local council and FD dig ponds in the village and feel to be successful in reducing nomadic tribes from taking forest produce, by taking them to the village assembly where a fine was administered. The deputy local council leader stated that people now take charge of monitoring the forest instead of illicitly taking forest products as occurred before JFM was introduced. The JFMC president conferred that people used to be scared of the FD, even those in the lower levels, whereas now people feel able to raise issues with the FD directly, without going through a third party such as an NGO. He also stated that the villagers are now aware of their rights. It was not clear whether this confidence was felt outside the JFMC though non JFMC villagers did state that they are satisfied with the JFMC in managing JFM in the village.

The high number of trainings from the NGO increases both the technical and managerial/ social skills of villagers. Combined with the openness of trainings to all villagers as seen in Section 3.2.2, these skills could increase the perceived ability to be able to manage JFM. Indeed the group discussions showed satisfaction in the trainings provided by the NGO. In the absence of the Round Officer in his position as secretary of JFMC, the president keeps the records of meetings and fines. This signifies that the skills are present within the JFMC to undertake this task without FD involvement.

There are also signs that the JFMC is not fully confident that they could manage JFM without external actor involvement. For larger problems they turn to external actors for support. If the villagers catch a group of offenders in the forest they would report this to the FD rather than administering their own fine. The nomadic tribe from Rajasthan which used to take forest produce was brought to the local assembly and the JFMC stated that if there was an emergency they would call a village meeting and ask the FD to attend. However these examples can be seen to be outside the normal daily management of JFM. The many references to the ongoing problem of illicit felling from people outside the village also shows that the villagers cannot handle this problem alone, even if they have been able to significantly reduce illicit felling from their own village residents. The group discussion also revealed that non JFMC villagers are not satisfied with current FD support and would like more FD visits. This could show that the villagers feel that the FD is not fulfilling their duties in supporting them, especially as the number of visits has reduced under the new Round Officer.

8.7 Independent variable: Influence of external actors

This section will analyse the influence of the external actors (the independent variable) on each of the dependent variable indicators of the CA's level of functioning and sustainability. This is conducted through a focus on the indicators of external actor influence namely knowledge, management and social skills, communication channels and financial support, as outlined in Chapter 3. Not all *independent* variable indicators of external actor influence are applicable for each of the *dependent* variable indicators of the CA's level of functioning and sustainability. In addition, some independent variable indicators are applicable to more than one indicator for the sustainability of the CA. For example, the provision of trainings to large groups of villagers may increase awareness as well as developing confidence in future benefits and the ability to self-manage JFM. Attention has also been paid to the non provision of the independent variable indicators as non provision could have both a positive or negative influence on the sustainability of collective action.

8.7.1 Functioning CA

The director of the NGO was influential in starting forest protection in the village. Through his awareness raising activities and ability to work with a few interested villagers he proposed that the villagers should approach the FD to organise for JFM to be instigated. The FD's role at this time was limited to the formalities of registering the JFM. The NGO's long term presence in the area, social networks and involvement in environmental awareness built trust between the villagers and the NGO which was evident from group discussions. This was felt by the NGO to have enabled them to introduce JFM to the village.

The NGO and FD were not directly involved in the election of the JFMC members nor in deciding on the frequency of meetings or monitoring systems. The NGO did provide information on the availability of forest products and suggested forest rules to the villagers, indicating the provision of scientific knowledge on forest conservation. However in group discussions the villagers reported that they had decided their own rules and fine system without involvement from any external actors. Trainings and workshops on JFM provided by the NGO may provide knowledge on forest conservation as well as management techniques, though isolating the direct influence of these workshops is problematic.

The FD provides record keeping skills through the Round Officer in his position as secretary of the JFMC. However in his absence, the President maintains the records and therefore it is not possible to determine whether these skills would be in addition to the skills already held by (a) member(s) of the JFMC. Records of meetings and fines were evident and were proudly shown by the JFMC President. The FD is involved in monitoring the JFM forest as part of the Forest Guard's beat rounds, approximately once per week. However neither the FD nor the NGO was involved in deciding the monitoring system put in place under JFM. No external actors including the FD, the NGO or the local council have provided financial contributions for creating a functioning JFM.

8.7.2 Indicators of the sustainability of CA

8.7.2.1 Understanding of JFM policy – influence of knowledge from external actors

The NGO was very influential in initiating JFM as they introduced the policy to the villagers and explained the process of registering themselves as JFM. There have also been subsequent workshops which usually the JFM president and one other JFMC member attends. At these workshops any amendments to Government Resolutions, guidelines or new rural development acts and policies are explained to the participants. Such workshops are held at sub-district level and district level for youth representatives and separately for the JFMC. The JFMC representatives attending the workshops receive written information on the content of the workshops. The director of the NGO usually leads the workshops and he has detailed knowledge of the latest JFM policy laws and guidelines. He is also experienced in conveying this information to the villagers. In addition to such regional workshops individual visits by the NGO village coordinator can provide additional information, however this avenue of communication is limited by the more modest level of JFM policy knowledge held by the village coordinator. However the informal social relations between the NGO director himself and the villagers enables the villagers to also gain information directly from the director.

It was also seen in section 8.6.2.1 that there is not full compliance with the JFM policy which cannot be attributed to a lack of knowledge amongst NGO staff and therefore suggests that the communication of JFM policy information from the NGO to the JFM is limited or that the NGO consciously does not involve itself in actions taken by the JFMC regarding compliance with the JFM policy, further than providing the information.

The JFMC reported that all their information on the JFM policy comes from the NGO, no other external actors are involved in providing this type of information. Although it was not possible to corroborate this with the previous FD officials (as they had recently been transferred out of the district) it was clear that the new Range Forest Officer is aware of his responsibilities in relation to the procedural elements of JFM. However transferring this knowledge to the JFMC would be, at least partially, hindered by the lack of access to up to date information on the status of JFM in the range.

8.7.2.2 JFM awareness and inclusion level – influence of management and social skills from external actors

The NGO's role in making the microplan using participatory approaches based on identifying villagers' needs would necessarily involve many villagers which subsequently helps to increase awareness of JFM amongst villagers. Section 8.6.2.2 shows a high level of awareness of JFM amongst the villagers participating in the group discussions. Similarly the institutional characteristics are seen to promote inclusion amongst non JFMC villagers. The work of the NGO can be seen to aid this participation through directly aiming workshops at youth and entering into a dialogue with the villagers to determine their training needs. If participants have been involved in suggesting the content of trainings this should increase participation in trainings. Through setting up women's SHGs, a Youth Environmental Empowerment Committee and general environmental awareness workshops a relationship is built up with the villagers which can increase participation in later initiatives, such as JFM. Indeed group discussions showed awareness of training programmes offered by the NGO and the fact that the names of the NGO staff are widely known is also indicative of the

relationship between the NGO and villagers. At group discussions, the Village Coordinator was actively trying to encourage women to enter the community building where the discussion was taking place. Alongside the many references to the importance of women in agricultural practices stated by both the NGO director and village coordinator, this shows the view that women's participation is important for JFM. In addition, workshops and meetings with villagers are held on public holidays or either early in the morning or in the evening to aid participation.

The NGO's entry activities in the village were conducted through community meetings and actions to involve the village youth in environmental awareness activities. Therefore this working approach and frequent reference in workshops to involving women and youth may directly or indirectly influence the participatory institutional arrangements designed by the JFMC (such as in rule formation). It is impossible to conclusively state whether the participatory views of the JFMC have been influenced by the presence of the NGO, however the example given by the NGO over their ten year history working in the village is likely to have at least reinforced this working approach. However, the NGO does not take responsibility for ensuring non JFMC villagers are informed of JFM activities, this is left to the JFMC.

The FD has not been involved in providing trainings or awareness raising activities. However their involvement in the plantation which provided employment for the villagers would have increased awareness of JFM and the income possibilities would have provided an incentive for participation. The local council has not directly been involved in raising awareness or involvement in JFM, however their close working with the JFMC as discussed in section 3.2.2 would add credibility and therefore may have an indirect positive influence participation levels.

8.7.2.3 Connections with external actors – influence of external actors through increasing connections

The NGO director and village coordinator have created a strong position within the network, shown in diagram 10 by the high number of connections they have with other actors. Both actors have seven connections, most of which are on at least an occasional basis. Through their long-term work in the village the NGO staff have built personal relationships with village members therefore their social connections are now very strong. Even though the NGO reports that they are now moving into an advisory role and are starting to withdraw from the village, their personal connections means that communication is still on a very regular basis. The NGO appears to realise the position it has created for itself in the network as the director encourages the JFMC to communicate directly with the FD but at the same time, he frequently states that the FD is not required for JFM to function well. This therefore does not provide clear encouragement for the villagers to establish direct communications with the FD and the NGO does not appear to attempt to influence the FD to increase communication with the JFMC. It could also be argued that in their central position in the network, and given their reputation as being a successful NGO, the lower level FD does not have an incentive to increase their work in this village (especially given the time constraints expressed by the Deputy Conservator of Forests). Certainly there does not appear to be any attempt on the part of the FD to increase their visits to the village, as reported in the group discussion. This issue of crowding out will be returned to in chapter 11.

The local council remains involved in JFM through their monthly meetings with the JFMC. This allows for coordination of activities and adds credibility to the JFMC. It also allows for more opportunities to exchange information and ideas. Both the JFMC and the deputy leader of the local council reported that they found the meetings useful to this regard and that they felt it necessary to involve as many people outside the JFMC as possible in environmental awareness and forest protection.

There is currently a lack of communication with the Round Officer and Range Forest Officer which was not the case with the previous Round Officer in this position when JFM was registered in the village. The JFMC and non JFMC villagers reported that communication with the Round Officer at that time was much more frequent and he supported the villagers' efforts to protect the forest. However, this must be seen in combination with the poor level of awareness amongst non JFMC villagers, reported in section 8.6.2.2. Again this points to evidence for the patterns of communication being very much dependent on the individual FD officials, rather than a structured communication norm. The NGO director and JFMC members have remained the same since JFM was registered, with the only change being in the rotation of the FD official, therefore this shows that the effort of the individual FD official is required in order to develop direct communication channels with the JFMC and non JFMC villagers.

8.7.2.4 Confidence in future benefits – the influence of external actors through management and social skills and financial support

The NGO has given trainings on record keeping and JFM management which, combined with the high level of awareness of JFM, can improve transparency of the JFMC's activities which in turn will help non JFMC villagers to gain confidence that any future benefits will be equitably distributed. This is also true of the NGO's possible influence on the open nature under which the JFMC operates (see Section 8.7.2.2) which again will improve transparency and the confidence of non JFMC's in an equitable distribution of future benefits. The close working with the gram panchayat is also influential here as this can increase credibility and therefore confidence that the future benefits will be equitably distributed.

Through general trainings and discussions on environmental issues, such as the Youth Environmental Empowerment training which took place over 20 days, an understanding of the importance of forest protection is developed. This in turn can help villagers have confidence that their actions under JFM will prove beneficial in the future.

The FD has awarded a tender for collecting firewood to the JFMC which provides a regular income for JFM members and also increases the incentive to protect the forest. Through increased compliance, confidence in future benefits will be increased. The FD has provided substantial financial support through investing in entry-point activities, such as the plantation which also provided employment for villagers. Together with the fact that the JFMC could choose the species to be planted (in compliance with the JFM policy) this creates a base for trust in the future benefits of the plantation for the members of JFM.

The agreement between the FD and the JFM on the sharing of future benefits from the forest has not been finalized. This could reduce confidence that the villagers will receive a satisfactory share of the future benefits of their actions in protecting the forest. In addition, offenders from other villages are taken to the FD but the JFMC does not receive any of the fine amount potentially paid by the offender to the FD. This is a disincentive for reporting rule

violators, which combined with reports that the major threat to the forest comes from outside the village, could reduce confidence in the future benefits of abiding by the rules.

The non involvement of the FD may also be seen as a positive aspect to the extent that the JFMC gain the freedom to decide how the income from membership fees and fines should be spent. The FD's decision on the amount of land to be allocated to JFM can also be influential in perceptions of whether the future benefits will be sufficient for all JFM members. This is a point I will return to in Chapter 10 as it affects all cases.

8.7.2.5 Perceived management ability

Through the many training sessions and workshops organised by the NGO over the last ten years, the JFM members have developed technical and management skills which could positively influence their abilities to manage JFM. This is compounded by the wide awareness and open participation from the interested villagers (see Section 8.6.2.2). The trainings have been conducted on at least an annual basis and have provided technical skills on forest products and their availability, forest protection techniques, monitoring of forests techniques, agriculture techniques and understanding climate conditions. In addition, the NGO has also led workshops on the JFM policy and other relevant legislation such as the Biodiversity Conservation Act of 2002 and the Forest Rights Act of 2006. Outside the formal trainings, the NGO visits frequently providing advice on particular issues in the village. The knowledge of the NGO director in both technical and management issues is extensive and he has experience in giving such trainings to the villagers. This was observed in a workshop on the Forest Rights Act held by the NGO where the director spoke in clear and informative language and also told the JFMC representatives present to pass on the information to the rest of the village. During one group discussion the participants stated that they are satisfied with the large amount of training from the NGO. The NGO had also said they will conduct training on making a microplan in 2010 which indicates that their involvement in the village will continue to be substantial. However, caution must be taken as it was not possible to conduct individual interviews with non JFMC villagers therefore a full analysis of the awareness of villagers of the trainings conducted by the NGO cannot be taken.

The NGO mediates between the villagers and the FD with the intention of encouraging the villagers themselves to pressurize the FD directly to undertake projects such as digging ponds. The presence of the Youth Environmental Empowerment Committee and women's SHGs set up by the NGO also means that other people in the village will have experience working as a committee, which can benefit the future management of JFM.

The previous NGO village coordinator stated that the NGO started to withdraw two years ago and is now providing an advisory role for specific issues. As reported in section 8.6.2.5 the JFMC feel that they can now contact the FD directly to propose certain development activities, as was evident in their direct contact to request a pond. Although the NGO report that they are withdrawing support their strong social relations in the village mean that they can still provide advice and appear to still be an integral part of village development, judging by the frequent references in group discussions to the NGO and the names of the NGO staff. The NGO does not provide financial contributions, indeed the JFMC uses funds raised to travel to workshops and trainings. This is a conscious decision on the part of the NGO as the director explained that the villagers should not want to receive something (in this case, the knowledge provided at trainings) for nothing. This could reduce a dependency relationship developing between the JFMC and the NGO.

The Round Officer present when JFM was being initiated was transferred soon after the JFM was registered. According to the JFMC he visited frequently and was supportive in setting up JFM. However, the JFMC and non JFMC villagers participating in group discussions reported that the FD has not provided training sessions. However this could not be corroborated through the FD as the new Range Forest Officer does not have records of trainings. In itself, this points to the limited capacity of the FD to provide training sessions if newly rotated staff do not have easy access to information on whether trainings have already been conducted. Of course, this is only one case and cannot be generalized. It could also be the case that the FD did not provide the trainings because they knew that an NGO was already working in that village, especially as the NGO's work is under an agreement with the FD, and the NGO itself (plus the name of the Director) is well known in the area. It also shows that the level of FD support, as seen by villagers, is at least partially reliant on the individual officer as the rotation of officers was seen as significant by the villagers. It was also stated by non JFMC villagers that they want more FD involvement in the form of visits and general support. This could indicate a need for support (knowledge and/or management skills) which can be seen either positively as a quest for knowledge, or negatively as a reliance on external actors. However this could also be due to the view that the FD has certain responsibilities under JFM which the villagers feel they are not living up to. As this is certainly the view of the NGO, it could also be questioned whether the NGO's view has also influenced the villagers over the past ten years of intensive interaction.

The local council has also indirectly contributed to this indicator. The JFMC is seen by the local council as a legitimate partner to work with, and indeed a member of the local council is on the JFMC. This can positively increase the JFMC's confidence in their own rights to manage JFM.

8.8 Case Study D Conclusions

The external actors have not been greatly involved in the indicators of a functioning CA. However both the key external actors, and especially the NGO, and the local council have been influential on certain indicators of the sustainability of CA. The table below shows a qualitative assessment of the sustainability of CA and the relative positive influence of the external actors on each indicator of sustainability.

Indicator	Level of presence of indicator	Influence of FD	Influence of NGO	Influence of local council
Indicators of functioning CA				
Meetings	Present	None	None	None
Rules	Present	None	Medium	None
Monitoring rules	Present	Low	Low	None
Indicators of sustainability of CA				
1. <i>Understanding of JFM policy</i>	Medium	None	High	None
2. <i>JFM awareness and inclusion levels</i>	High	None	High	Low (indirect)
3. <i>Connections</i>	Medium	Low	High	High

<i>with external actors</i>				
<i>4. Confidence in future benefits</i>	Medium-High	Medium	High	Low (indirect)
<i>5. Perceived ability to independently manage JFM</i>	High	Medium (through non involvement)	High	Low (indirect)

Table 10: Summary of case study D

Chapter 9: Comparison with non functioning cases of JFM

9.1 Case Study NF1

CASE STUDY NF1

Forest protection and JFM is initiated by the FD

Very little FD involvement and no NGO involvement

9.1.1 Data Collection

It was not possible to conduct a full case study of this village, however the following methods were employed to triangulate sources and data collection methods:

- 1) Meeting with the JFMC chairman, another member of the JFMC and the leader of the local council
- 2) Group discussion with approximately ten non JFMC villagers, including four women
- 3) Semi-structured interview with the newly appointed Round Officer
- 4) Observing the first meeting between the new Round Officer and the villagers
- 5) Two semi-structured interviews with Range Forest Officer and several informal discussions
- 6) Two semi-structured interviews with Assistant Conservator of Forests and informal discussions
- 7) Semi-structured interview with Deputy Conservator of Forests
- 8) Review of the village microplan

It can be seen that the research methods employed cover group discussions, semi-structured individual interviews, and observation of the external actor's interactions with the villagers.

9.1.2 Background

9.1.2.1 Introduction to the village

This village is situated in Salekasa range, the most eastern part of Gondia district. It is located 16km from Amgaon which is the nearest large town, and 8 km from Sakritola which is the nearest market town, and is where the Round Officer is based. It has the same type of forest area as the case study villages, namely degraded tropical dry deciduous forests, of which 30 ha is a new plantation of bamboo, teak, Khair and Aula fruit managed by JFM. The forest is used by all villagers for wood collection for fuelwood, agricultural tools and housing construction. In addition mahua fruit and tendu leaves are collected which are used both for subsistence purposes and sold at the market. The village population is approximately 665, over 139 households. The villagers belong to either a Scheduled Caste (27%), Scheduled Tribe (22%) or Other Backward Classes (51%). 90% are classed as Below Poverty Level. 39 people work as daily wage labourers, of which 29 migrate to cities or other nearby states for seasonal employment. The rest are all paddy farmers with some livestock.

9.1.2.2 A brief history of forest protection in the village

JFM was registered by the Range Forest Officer in 2003, prior to this the villagers stated that no forest protection rules or norms were in place. However it was not until three years later,

in 2006 that a village assembly meeting was called by the FD in order to elect the eleven members of the JFMC. 73 villagers attended this meeting and the JFMC members were elected. However the JFMC chairman does not have a copy of the registration document, nor a copy of the microplan or any information on the JFM policy. The FD and local council devised the microplan and the FD made the forest use rules without involvement of the villagers. At this time the FD also provided funding for the purchase of function equipment such as a microphone and sound system. The equipment is rented out however there is no JFM bank account and therefore the Rs. 5,500 profit is kept in cash by the chairman with no account records kept. Currently, the villagers reported that they have no trust in the JFMC as there is no progress, no meetings are held, there are no records kept nor accountability for the profit from renting out equipment. The villagers reported that some crimes are reported to the FD but they do not know whether the individuals are subsequently fined by the FD. The new Round Officer had recently visited and had called a village meeting to discuss reactivating JFM in the village. The villagers reported that they want to elect a new JFMC due to their lack of trust and confidence in the abilities of the current committee.

9.1.3 An overview of the sustainability of CA and the influence of the FD

The only external actor involved in JFM since registration in 2003 is the FD. The highest level FD official to have visited the village is the Assistant Conservator of Forests. He visited once when the plantation work commenced but did not speak with the villagers. There has been very little involvement from the lower level FD officials with the villagers reporting that there has been no trainings or technical support from the FD. The villagers are interested in receiving trainings from the FD or an NGO on harvesting forest products and selling them at markets.

Table 11 indicates the level to which CA can be deemed as functioning and sustainable, and the influence the FD has had on each indicator.

Indicator	Level of presence of indicator	Influence of FD
Indicators of functioning CA		
Meetings	Not Present	Negative
Rules	Not Present	Negative (as devised by FD)
Monitoring rules	Not Present	None
Indicators of sustainability of CA		
1. <i>Understanding of JFM policy</i>	Low (no JFM information)	None
2. <i>JFM awareness and inclusion levels</i>	Low (only aware of existence of committee)	None
3. <i>Connections with external actors</i>	Low (only with new Round Officer)	None
4. <i>Confidence in future benefits</i>	Low (no trust of FD or current JFMC, plus decrease in availability of forest produce)	Low (provision of function equipment and plantation)
5. <i>Perceived ability to independently manage JFM</i>	Low (no functioning JFMC, no trainings)	None (no trainings, no support)

Table 11: Case Study NF1: An overview of the sustainability of CA and the influence of the FD

9.1.4 Discussion of the influence of the FD

It can be seen that JFM is not functioning in this village and there is a low level of sustainability of CA. The JFMC Chairman and member stated that the full list of forest rules are not known and are not enforced. They claimed that there is some limited awareness amongst the villagers that there are rules about cutting trees and grazing, as devised by the FD. In the group discussion with the non JFMC villagers, there was awareness that a forest protection committee exists and that there are 11 members. This was the extent of their awareness level and there was no participation in decisions about forest use.

The FD has not positively influenced any indicators, apart from through the provision of function equipment and the plantation which may provide some future benefits. However this is not combined with a positive relationship between the FD and the villagers nor a strong JFMC and therefore any positive FD influence is minimal. It can be seen that the non functioning and low sustainability of CA correlates with a low level of involvement of the FD and absence of other external actors. The only negative FD influence has been through devising the rules for the JFMC without villager consultation. This would naturally prove a disincentive for the villagers to create their own rules.

The lack of trust between the JFMC and the non JFMC villagers indicates a low level of social capital within the village and a lack of leadership and transparency from the JFMC. It therefore appears that the lack of external actor involvement is not the only cause for the low level of functioning and sustainability of the CA. In addition, it can be seen that the villagers expect more FD involvement in the form of visits and trainings, therefore again highlighting the importance of the villagers' perceptions of the role of external actors.

9.2 Case Study NF2

CASE STUDY NF2

Forest protection and JFM is initiated by the FD.

Low level of FD and moderate level of NGO involvement.

9.2.1 Data Collection

It was not possible to conduct a full case study of this village, however the following methods were employed to triangulate sources and data collection methods:

- 1) Group discussion with four JFMC members and seven non JFMC villagers, all men
- 2) One semi-structured interview with NGO Village Coordinator and many informal discussions
- 3) Two semi-structured interviews with NGO director and many informal discussions
- 4) Observation of village meeting led by NGO director
- 5) Observations of interaction between NGO Village Coordinator and villagers
- 6) Observation of Biodiversity workshop held by NGO director and managed by NGO Village Coordinator to which two members of each JFMC from the villages in two districts were invited
- 7) Observation of NGO led workshop for FD on Conservation in Non Protected Areas, Nagpur

- 8) Review of documentation provided at the NGO led workshops: Biodiversity Workshop for JFMC members and Conservation in Non Protected Areas Workshop for FD
- 9) Review of NGO literature, newspaper articles about the NGO, discussions with JFM and rural development experts about the NGO

It can be seen that the research methods employed cover group discussions, semi-structured individual interviews, observation of the external actor's interactions with the villagers and documentation reviews.

9.2.2 Background

9.2.2.1 Introduction to the village

This village is situated in Bhandara district, just across the western border of Gondia district. It is located 20km from Sakoli which is the nearest large town. It has the same type of forest area as the case study villages, namely degraded tropical dry deciduous forests, of which 23 ha of barren land was allocated to the JFM in 2005 for conservation. The forest is used by all villagers for wood collection for fuelwood, agricultural tools and domestic use. In addition mahua fruit, tendu leaves and aula are collected which are used both for subsistence purposes and sold at the market. The village population is approximately 600. The villagers belong to either a Scheduled Caste (30%), Scheduled Tribe (39%) or Other Backward Classes (31%). All villagers are paddy farmers, with some livestock.

9.2.2.2 A brief history of forest protection in the village

JFM was registered by the Range Forest Officer in 2005, prior to this the villagers stated that no forest protection rules or norms were in place. The Range Forest Officer and the local council called a village assembly meeting where the nine male members of the JFMC were elected and rules were decided upon by the villagers. However JFM has yet to be registered, the reason for which, given in the group discussion, was that 50 ha of forest land needs to be allocated to the JFMC before registration can take place. The FD has stated that the JFM will be allocated 75 ha in total, but this has been an ongoing issue since 2005 according to the NGO and the JFMC. There are currently vague rules that people from other villagers cannot enter the forest land and only firewood can be taken. The Round Officer decides whether wood can be taken for agricultural purposes on a case by case basis. A fine system is in place, and is administered on a case by case basis by a member of the JFMC. The JFMC charge a membership fee for all villagers of Rs. 11 which is used to employ a forest guard. There are no regular JFMC meetings however the village assembly meeting is sometimes used to discuss forest protection. There are no accounts or records. There has been no involvement of the FD since the Range Forest Officer who initiated JFM was rotated to another post. However the JFM chairman reported that the current Round Officer says he will only become involved once the JFM is officially registered under the Societies Registration Act of 1860. The villagers reported that they have received no trainings on JFM apart from the two workshops on Biodiversity given by the NGO, which the chairman attended. They want training on making appropriate rules about forest use, on employment opportunities and on plantation techniques. They stated that either an NGO or FD can provide these trainings, apart from the plantation techniques which should be provided by the FD.

9.2.3 An overview of the sustainability of CA and the influence of external actors

The FD has not been involved in the village since 2005, with the villagers reporting that there have been no visits apart from the Beat Guard doing rounds of the forest area surrounding

the village. There has been no trainings or technical support from the FD, the reason given is that the JFM is not yet registered. The NGO, which is the same NGO as involved in cases C. and D., has been involved in the village since 2007 with the Village Coordinator visiting on a monthly basis to speak with members of the JFMC in order to discuss any problems and inform them of workshops the NGO are holding. The Village Coordinator lives in a nearby village and reported to have 175 villages to visit as part of his responsibilities. The Village Coordinator has also been liaising with high level FD officials on a regular basis (every few months) regarding the allocation of further forest land to the JFM. The NGO invited the chairman to attend two regional Biodiversity workshops which were the only times the JFM chairman met the NGO director apart from when he first came to the village in 2007.

Table 12 indicates the level to which CA can be deemed as functioning and sustainable, and the influence the external actors have had on each indicator.

Indicator	Level of presence of indicator	Influence of FD	Influence of NGO
Indicators of functioning CA			
Meetings	Not Present	None	Negative
Rules	Partly Present	Negative (as partly devised by FD)	None
Monitoring rules	Present	None	None
Indicators of sustainability of CA			
1. Understanding of JFM policy	Low (no JFM information)	None	None
2. JFM awareness and inclusion levels	Could not be analysed		
3. Connections with external actors	Low (Occasionally JFMC initiate contact about registration, also through NGO Village Coordinator)	Negative (do not initiate communication)	Moderate
4. Confidence in future benefits	Low (no confirmation on area of plantation, no transparency of JFMC)	Negative	Low (some liaising with FD but no positive result)
5. Perceived ability to independently manage JFM	Low (no functioning JFMC, no trainings)	None (no trainings, no support)	Low (two workshops for JFM chairman)

Table 12: Case Study NF2: An overview of the sustainability of CA and the influence of the FD

9.2.4 Discussion of the influence of external actors

The evidence is limited as individual discussions and group discussions without the presence of a member of the JFMC could not take place. Therefore analysing the JFM awareness and inclusion level was not possible. It can be seen that CA can only partly be described as functioning due to the absence of meetings and the fact that the Round Officer partly decides on harvesting of wood. There is no positive influence of external actors on the level of

functioning of CA, indeed the positive aspects such as the employment of the forest guard, and a fine system, have occurred without external actor involvement.

The JFMC reported that they had not received information on the JFM policy from any external actors and, for example, the common understanding existed that JFM can only be registered once 50 ha of land was allocated. This is not stated in any official JFM Government Resolution or policy document, and has not been corrected by the NGO Village Coordinator nor has he explained the rules under JFM to the villagers. He has not held any whole village meetings, but does confer with the JFMC on a monthly basis. The Village Coordinator is involved in liaising with the FD regarding the forest area the JFMC expect to be granted to them for a plantation. However, he stated that there has been no development since 2005 and he is now waiting for the FD to make contact. To this end, the lack of progress on this issue, combined with the common (mis)understanding that more forest land must be allocated before JFM can be registered, shows that the FD are in an influential position. Although their involvement level is low, they can potentially stall the development of JFM through a lack of communication and through not registering JFM. It was not possible to clarify this with the FD (as this village is in Bhandara division) but it does indicate that the NGO Village Coordinator is not in a position to progress the issue and the NGO Director is not involving himself. As a minimum, this does show that the perception amongst the villagers at the group discussion is that the FD are not fulfilling their responsibilities. However, this has not stopped the villagers creating some rules, establishing a membership fee and paying a forest guard. Their confidence in the future benefits would however be greatly enhanced with a larger area of forest land and a more transparent working mechanism of the JFMC.

There has also been no financial contributions from the external actors. With regards to the FD, this will relate to the fact that the JFM is not officially registered and therefore is not eligible for plantation work or other entry point activities. The NGO does not provide financial incentives as part of their approach.

In conclusion, the external actors have had no positive influence on the functioning of CA, the FD has had no positive influence (and in some indicators a negative influence) on the sustainability of CA and the NGO has had only a moderate positive influence. Therefore the moderate involvement of the NGO in this village has not led to a functioning and sustainable CA.

Chapter 10: Comparative Analysis

10.1 Introduction

This chapter will firstly give a matrix providing an overview of the results of the research and then each indicator of the dependent variable will be analysed drawing on the comparison that can now be made between the cases. This will allow the following chapter to draw conclusions and make both policy recommendations and recommendations for future research.

10.2 Combination matrix for all cases

The table below shows the results of the analysis of both the dependent and independent variables for each case. For each indicator of the dependent variable, the sustainability of collective action, I have indicated the level to which the external actors positively affect the presence of this indicator. I have also included where the external actor has a negative influence on each indicator.

	A	B	C	D	NF1	NF2	
External involvement actor	High FD High NGO	High FD Low NGO	Low FD Low NGO	Low FD NGO led			
Indicators of functioning CA							
Meetings	<i>JFMC</i>	Twice per month	Once per month	Once per month	At least once per month	Not present	Not present
	<i>General body</i>	Every 3,6 or 12 months	Every 12 months	Once per year until 2008 none since 2008	Every 6 or 12 months	Not present	Not present
<i>Influence of external actors</i>	FD: None NGO: None	FD: None NGO: None	FD: Negative NGO: None LC: Medium	FD: None NGO: None	FD: Negative	FD: Negative NGO: None	
Rules	E, H, M, G	E, H, M, G rule was present, removed	E, H, M	E, H, M	Not present	E,H, M (vague)	
<i>Influence of external actors</i>	FD: None NGO: None	FD: None NGO: None	FD: None NGO: None LC: Low	FD: None NGO: Medium	FD: Negative	FD: Negative NGO: None	
Monitoring and Enforcing Rules	Present JFMC, Lac farmers and norm to report crimes Fixed fine system administered by JFMC	Present JFMC, cow grazer and other villages report crimes Fixed fine system administered by JFMC, including reward system	Present Forest Guard employed Fine system administered by village assembly- no fixed fines	Present System involved all villagers, now norm to report crimes Fixed fine system administered by JFMC	Not present	Present Forest Guard employed Fine system administered by a JFMC member on case by case basis	

<i>Influence of external actors</i>	FD: Low NGO: Low	FD: None NGO: None	FD: None NGO: None	FD: Low NGO: Low	FD: None	FD: None NGO: None
Indicators of sustainability of CA						
1) Understanding of JFM policy	Medium	Medium	Low	Medium	Low	Low
<i>Influence of external actors</i>	FD: High, but decreased over time NGO: None	FD: High NGO: None	FD: Low NGO: Low	FD: None NGO: High	FD: None	FD: None NGO: None
2) JFM awareness and inclusion level	Medium	Medium	Low	High	Low	Not assessed
<i>Influence of external actors</i>	FD: Low NGO: Low	FD: Low NGO: Low LC: Medium	FD: Negative NGO: Medium LC: Medium	FD: None NGO: High LC: Low	FD: None	n/a
3) Connections with external actors	Medium	Low	Medium	Medium	Low	Low
<i>Influence of external actors</i>	FD: High NGO: Medium	FD: Medium NGO: Low LC: High	FD: Negative NGO: Medium	FD: Low NGO: High LC: High	FD: None	FD: Negative NGO: Medium
4) Confidence in future benefits	Medium-High	Medium	Low	Medium-High	Low	Low
<i>Influence of external actors</i>	FD: Medium NGO: Low	FD: Low NGO: None	FD: Negative NGO: Medium LC: Low	FD: Medium NGO: High LC: Low	FD: Low	FD: Negative NGO: Low

5) Perceived ability to independently manage JFM	Medium	High	Low	High	Low	Low
<i>Influence of external actors</i>	FD: Medium NGO: Medium	FD: Medium NGO: Low	FD: Negative NGO: Medium LC: Low	FD: Medium (through non involvement) NGO: High LC: Low	FD: None	FD: None NGO: Low

Table 13: Combination matrix of results of all cases

Key:

E	Rules on entry
H	Rules on harvesting
M	Rules on monitoring
G	Rules on grazing
LC	Local Council

10.3 Analysis of the influence of external actors on each indicator of the sustainability of CA

10.3.1 Functioning of CA

The only positive influence of the FD on the indicators of a functioning CA is limited to assisting with the implementation of monitoring the rules in two cases (A and D), and not in deciding the rules. In case C the FD has a negative influence in that they do not come to meetings and therefore the JFMC reported that the meetings are not held. Also in NF1 and NF2 the FD don't hold attend or arrange meetings. However, in case D the same lack of attendance has not stopped the meetings occurring. This could be due to the more confident attitude expressed by the villagers themselves, which is also likely to have been influenced by the long term involvement of the NGO. The same NGO has only been present in case C for one year before the fieldwork period. This shows that a similar situation in two villages located only a few kilometres from each other can result in different outcomes. It also shows that the perceptions of the villagers in terms of the roles they expect the FD to fulfil is significant. In addition, the same NGO presence in the case of NF2 has not led to a fully functioning case of CA. Here, NGO involvement has been regular but the NGO Village Coordinator has not ensured that JFM is fully functioning, probably due to the overwhelming negative influence of the FD (in land allocation and registration of the JFM) and his personal lack of full knowledge of the JFM rules. This indicates that the influence of the NGO is determined by the individual present, their own skills, knowledge and (power) relations with the FD rather than being determined on an organisational level.

The role of external actors in influencing the functioning of CA is minimal. In the cases researched, the FD, NGO and Local Council do not involve themselves in the day to day functioning of JFM in terms of the meeting frequency, rules or monitoring. This is especially the case where the institutions were developed under a previously formed Forest Protection Committee which was registered as JFM. Where the NGO led the initiation of forest protection under JFM, in case D, they were involved in making suggestions, but allowed the villagers themselves to lead. This provides a positive message to the villagers that the NGO is in a supporting, rather than a leading role. The only involvement of the FD in rule making is in case NF1 where rules were devised by the FD and NF2 where they are partly devised by the FD. This correlates with a non functioning CA and in NF1, a low awareness of the rules. Although caution must be taken due to the low number of cases, it appears that involvement of the FD in rule making could be one of the reasons why these cases are not functioning.

In conclusion, the absence of external actor influence correlates with the presence of a functioning CA in all cases. The comparison with the non functioning cases however shows the potential for the FD to have a negative influence on meetings. FD involvement in rules appears to have a negative influence on the functioning of the of CA. The expectations of the villagers is that the FD is present at meetings. The absence of the FD to fulfil this basic role can possibly have a negative effect on the functioning of CA, though it appears that this does not automatically occur in all cases. Indeed other local factors such as the confidence or abilities of the villagers, or the presence of a leader or NGO may mitigate the impact this absence has on a village.

10.3.2 Sustainability of CA

10.3.2.1 Understanding of JFM policy

Incorrect understanding and incomplete knowledge of the rules under JFM were stated by Round Officers and the NGO working in cases C, D and NF2. A new Round Officer in Salekasa range (where cases A and B are located) also stated that he was not aware of all the rules under JFM nor of the entitlements and responsibilities of the FD or the villagers. It can be seen from each case that compliance with the JFM rules when a FPC is registered as JFM seems to focus solely on the membership of the JFMC, indicating a possible lack of knowledge of the JFM policy by the FD.

The FD was influential in registering JFM in cases A, B and C and also in the non functioning comparison cases, but not case D where the NGO took the lead. However none of the cases show full compliance with the JFM policy and possible reasons are that the FD officials don't know the policy, or see the need to/ have the skills to implement all aspects of JFM. Where the NGO took the lead to initiate JFM (in case D) the FD played no role apart from the administration of the registration. It can be assumed that the FD would not take a lead in case D at this stage because of the presence of the NGO which is widely known to be working in forest protection in the village. The question remains as to whether the FD would have taken this role, had the NGO not been present. This concept of 'crowding out' will be returned to in Chapter 11.

Also where the NGO led the initiation of JFM, there is evidence that the JFM policy is not being fully complied with. As stated above, the knowledge of the lower level FD officials on JFM policy was seen as being limited however this is not the case with the NGO director (though the Village Coordinators do not have full knowledge of JFM). The NGO director is on the state level panel for discussing the Government Resolution amendments and therefore has a thorough understanding of the policy. Rather it is the case that the NGO has chosen not to become involved in the day to day workings to this extent, as was discussed under section 10.3.1 of this chapter. This matches the view expressed by the NGO that they concentrate on advocacy and bottom up approaches to build the capacity of the villagers to administer JFM (and other rural development and conservation projects) themselves. In case D they encourage villagers to approach the FD directly and also to discuss with the JFMC. Therefore they provide information to the JFMC and give them written material, however they are not involved in dissemination of the knowledge or in determining the actions taken by the JFMC based on this knowledge in any of the cases studied. However in NF2 they don't encourage communication and the Village Coordinator does not know have a high level of understanding of the policy himself. This again shows the influence of the personal involvement of the NGO Director.

It is clear that the knowledge of the villagers is directly dependent on the knowledge of the external actors involved in JFM in the village but this influence is limited by the extent of the external actors' knowledge. However, extensive knowledge of the external actors present does not automatically translate into a greater understanding of the JFM policy amongst villagers or in increased compliance with the JFM rules. This is related to the limited involvement of external actors in the day to day working of JFM, as already discussed, and also to the level of awareness and inclusion in JFM as will be discussed in section 10.3.2.2.

10.3.2.2 JFM awareness and inclusion

Where there is a high level of FD involvement in a village, there is still only medium level awareness and inclusion. In contrast, in case D, with NGO led JFM, there is a high level of presence of this indicator. This is not the case where there is a high level of NGO involvement in case A but here the remit of the NGO differs.

It does not appear that the FD purposively excludes anyone from the trainings or meetings but they do not actively encourage participation either, and as already stated, they do not involve themselves in the day to day workings of the JFM. Where the microplan creation was FD led, the villagers did not participate in determining the needs and future projects included in the plan. The first meeting of villagers in NF 1 (the case which the FD had stated was functioning) with the new Round Officer showed this point clearly. The meeting was conducted with the current JFMC and interested male villagers whilst the women washed the clothes in the river less than ten metres from the communal area in which the meeting was held. Only one elderly woman was present and no attempt was made to involve any other villagers. This example also shows that such management skills are still not currently taught as part of the introductory FD training. This young Round Officer had just completed his year of training with the FD and yet was not aware of the JFM rules nor of techniques for holding such community meetings. An interview with a different Round Officer also revealed that he had received information on the objectives of JFM and was instructed that village participation was part of JFM, but he had not received training on participatory methods. The Deputy Conservator of Forests reported that the high level FD staff had received training once when JFM was introduced, but this was focused on information about the policy, not training on how to implement the policy. Interviews with the district and range level officials revealed that they believed the villagers themselves were not ready for participation with each other. Other views given by the Conservator of Forests (Wildlife), Deputy Conservator of Forests and Assistant Conservator of Forests (all high level FD officials) on participatory working include the view that only a few people from each village are needed to work with the FD, there is no time to engage with local people (one official estimated that only 5% of the FD's working time is spent on JFM, the rest is on protection), that there is no (financial) incentive for lower level FD officials to engage with villagers as maintaining the status quo is more profitable for them (through bribes), and that success is determined by the motivation of the people (one official estimated that only 20 of the 12,000 JMF cases in Maharashtra show self motivation). These views indicate that participatory working is certainly not institutionalised within the FD at all levels. Given the hierarchical structure of the FD, the views of the higher ranked officials will influence the lower level officials (Heltberg, 2001). It is therefore not surprising that the presence of the FD does not positively influence the awareness and inclusion of villagers in JFM.

It can be seen how this indicator is interrelated with external actors' involvement in the functioning of CA as absence of the FD in case C affected the level of trust between the villagers and the FD. As discussed in chapter 2, social capital is an important element of CA. The non payment of plantation workers has led to a poor level of trust, not just between the FD and the villagers, but also between the villagers and the JFMC. However underpayment of plantation workers in case A did not result in the same loss of trust, indeed it was mentioned but had been accepted by villagers. This could be because of the greater level of involvement of the FD in case A in other activities, such as in giving trainings, or an

acceptance on the part of villagers that this is a normal situation that they cannot affect. The reason for this difference in outcome is therefore not apparent however it clearly shows again the importance of local dynamics in determining the impact of actions taken by external actors. The same (none) action by the FD in two villages resulted in two different outcomes.

Both NGOs provide relevant knowledge- whether it be on sericulture techniques or forest products, or on relevant regulations and acts- but are not actively involved in ensuring that this information is disseminated beyond the training participants. This means that other activities that generate an awareness and interest amongst villagers to participate in development projects are required in order for other villagers to request such information from training participants. An example of this is the Youth Club set up by the NGO in case D which intended to raise interest amongst the village youth about environment and biodiversity issues in general. Also, the plantations initiated as FD entry-point activities could be important in raising awareness of JFM and encouraging participation through providing an immediate return in the form of paid employment. However if they are administered in the traditional fashion of paying daily wage labourers, this is unlikely to harness interest amongst villagers. Especially, as discussed, two of the cases reported problems with payment of labourers.

Both NGOs encourage women to participate in meetings and workshops, indeed the NGO active in case A and case B arranges women's SHGs and employs themselves several women to work in the villages. The NGO also appears to be openly engaging in all social groups as they do not make Below Poverty Level (a national classification based on economic and social criteria) a prerequisite for participation in their programmes. However it was not possible to observe whether the NGOs actively identified certain groups for their schemes. The NGO led microplan creation processes involve(d) participatory rural appraisal techniques which place the villagers in a central role. Again this shows that the NGOs work in an open manner. This correlates with the high level for this indicator in case D, where forest protection is NGO led. This is the only village with a high level of awareness and participation in JFM. The NGO remit in case A was different in that it did not directly involve JFM, but awareness of the NGO itself and the work it did was high. In contrast, where NGO involvement is low it was not the case that the FD became more active in increasing awareness possibly due to the views of participatory working detailed above. However, when this is compared with NF2 it can be seen that here the regular NGO involvement has not taken the form of the NGO Village Coordinator actively involving marginalised sections of the community. This can be related to the minimal level of training he has received, and the high number of villages (175) he is responsible for. This does indicate that not all NGO staff have the management and social skills required for participatory approaches, again differences can be attributed to the individual level.

The local council also had some slight influence on the participation levels, through indirect support such as using the village assembly meetings to discuss forest issues. Also, their support in setting up forest protection committees adds credibility, and at that time this support was crucial. However their current involvement is limited and does not appear to correlate with the level of presence of this indicator across the cases.

10.3.2.3 Connections with external actors

In no case is there a network in which all the actors are fully connected, and there is no example where a concerted effort has been made by any external actor to ensure this develops. However there are individual actions by external actors which both increase or decrease either the number of connections, or the frequency of connections. Workshops run by either the FD, an NGO or both, provide ad hoc opportunities for contacts beyond the village to develop. There are also examples of external actors attempting to create a more structured, regular contact pattern for inter village networking at tehsil and district level. Also, the NGO in cases C and D encourages communication between the JFMC and non JFMC villagers. The lack of communication between the JFMC and FD in case C encouraged the development of the NGO as a central actor in the network but also reduced communication (due to decreased trust levels) between the JFMC and non JFMC villagers who have outstanding issues regarding payment for their work in the plantation. However, the issue regarding land and registration in case NF2 has not resulted in the same action by the NGO. The Village Coordinator is liaising with the FD but does not actively inform the wider village community of the status nor does he encourage communication between the JFMC and the non JFMC villagers. Again, the skills of the individual NGO member of staff involved are significant.

Both the key external actors occupy a central position in the networks in all villages. However the local council and other external actors (such as various government departments) appear to be peripheral to JFM in terms of connections with the JFMC and other villagers. Although the connections between these more peripheral external actors have not been analysed, it is clear that there is no structural, holistic and cooperative approach to developing JFM within the relevant external actors. There are examples in each village of these external actors communicating about single issues (such as the microplan, a specific workshop or regarding payments for plantation workers), however this is not on a regular basis.

It is clear that the influence of the FD on this indicator is determined at an individual level, rather than at a structural or organisation level. Though of course, following the IAD framework outlined in Chapter 2, at this collective choice level decisions taken will affect the action situation the individual Range Forest Officer or Round Officer finds themselves in at the operational level (see Ostrom, 2005). The dominance of the operational level is apparent as the rotation of individual officers greatly affects the influence of the FD on this indicator, as it does on all the other indicators of the sustainability of CA. This shows that the FD (from high to low level officials) is in a position of power here as the frequency and type of communication is on their terms. It was also seen how the same actor can have different connections in different villages, in terms of number, frequency and purpose. The Range Forest Officer for Salekasa range has more frequent communications in case B than in case A. There are several possible reasons for this. Until recently the Round Officer in case A was very much involved in the village and therefore the Range Forest Officer stated that he did not need to be involved. Whereas in case B the recent Round Officer was not as frequently connected to the village. In addition, the Range Forest Officer felt that case A was progressing well in JFM and therefore he may not have felt the need to be involved. This could also possibly be due to the strong presence of the NGO involved in lac production in case A.

The influence of the FD in increasing connections between villagers and higher levels of FD officials is limited across all cases. This is due to the top-down hierarchical organisation

structure of the FD and the fact that there are no regular meetings between the Assistant Conservators of Forests, the Range Forest Officers and the Round Officers involved in this study dedicated solely to JFM. The lower level FD officials reported that meetings were for higher level officials to instruct them and not for feed back up the hierarchy. Plus the rotation every 3 years limits their ability to build up relations with villagers.

It is also the case that the NGOs present in these cases differ in their centrality and actions within the JFM communication networks. The smaller NGO present in cases C and D has high level connections within the state level FD and MoEF, as well as being influential amongst NGOs. Also, the personal relations developed by the NGO staff with the villagers in case D means that connections in this village will naturally be more frequent than in other villages in which the NGO works (as is seen in the case of NF 2). The larger NGO working in cases A and B has connections with NGO networks in other states. This again indicates the importance of considering the local scale varieties when making conclusions about the involvement of external actors.

10.3.2.4 Confidence in future benefits

A common element across all three cases with a plantation is that no formal agreement on how the future benefits will be shared between the FD and the villagers has been made. This is even applicable in case D where NGO involvement is high. To this regard, the FD is in a powerful position and exerts a negative influence on the sustainability of CA. It was also noted that only in case D (with high NGO involvement) did the JFMC report that they are actively discussing this issue with the FD. This confident proactive stance may be due to the long term involvement of the NGO director who instils such a message, indeed the JFMC chairman stated that confidence in approaching the FD directly has increased under JFM whereas before JFM the people were scared of the FD officials. It appears that the other villages accept this situation and are not questioning the FD, rather they assume they will gain sufficient benefits when the forest matures and can be harvested.

The FD have the last decision on the amount of land to be allocated to JFM. This appears to be arbitrary and was only done in consultation with the villagers in one of the cases (case A, where there is high FD and high NGO involvement). This will have a direct effect on whether the villagers feel that the future benefits are likely to be sufficient to be worth their effort in conserving the forest (especially if this is a plantation and requires extra conservation effort than an already established forest). This can be most clearly seen in the case NF 2 where the small size of land allocated has become the centre of all discussions regarding JFM. The arbitrary nature of allocating forest land to JFM has been raised in literature and in an expert interview (Ghate, 2009b). The FD has shown a positive influence through tenders for firewood collection, and the provision of function equipment to be rented out, which may improve livelihoods however their direct relation to conservation of the forest is tenuous. It can also be argued that the non involvement of the FD in deciding plantation species and in the fine systems (meaning that all profits from fines and membership fees are retained by the JFMC) is a positive factor. This can be seen in table 13 as where FD involvement is low, this indicator has not been negatively affected. However this must be coupled with transparency within the JFMC so that non JFMC villagers also feel they will gain benefits for their own actions. Only two villages showed clear records: case D, where there is high NGO involvement, and case A where there is high FD involvement. In both these cases the external actors were involved in setting up transparent record systems, however in case B where the FD is also highly involved, they did not set up a record system. This again points

towards the influence that individual actors have, rather than the influence being on the level of the organisation itself.

It can be concluded that there is no clear relationship between the level of confidence in future benefits felt by the forest users, and the level of involvement of external actors. It is clear however that the FD has a negative influence across all villages in terms of land allocation and a lack of formalised agreement on the sharing of future forest products, although they also have a positive influence in some cases in relation to non involvement and creating income generating activities. The NGO led case shows the highest level of confidence in future benefits though whether this can be solely attributed to the presence of the NGO is debatable. It appears that the level of this indicator relates just as closely to the manner in which the JFMC operates which, as already stated, is not an aspect that the external actors deeply involve themselves in.

10.3.2.5 Perceived ability to independently manage JFM

There are three cases of forest protection starting before the FD or an NGO became involved, therefore the fact that they are still functioning cannot be solely attributed to the involvement of external actors. In addition, both cases of non functioning CA were initiated by the FD and both show low perceived ability to independently manage, therefore indicating that other variables are important for this indicator. Indeed there is no clear relationship between the involvement of external actors and the perceived ability of the villagers to manage JFM independently. Therefore, again the local dynamics are crucial to explain the differences. However there are some important relationships between the external actors and this indicator that can be drawn out. Firstly, the only case in which perceived ability to independently manage JFM is high is where the NGO involvement is high. Here the JFMC members stated several times that their confidence in working with the FD has increased, and the approach shown by the NGO in building local confidence to do this was clear. However, with such a long involvement of the NGO and personal relationships between the NGO director and many villagers, the JFMC is certainly not acting independently of the NGO. Indeed, when asked, "What is JFM?" one non JFMC villager answered by saying the full name of the NGO director. Of course this level of personal involvement cannot be replicated across all the sites that the NGO works with, as is clearly seen in case NF 2., therefore this situation cannot be generalised.

The only case of functioning JFM in which there is a low level of perceived ability to independently manage JFM is where the FD involvement has negatively reduced trust within the village due to non payment of plantation workers, and the NGO has had to step in to liaise between the JFMC and the FD. This shows how one situation has negatively affected all the indicators of sustainable CA and also that the NGO has felt the need to address the situation directly, as direct communication between the JFMC and the FD has not been successful in resolving the situation. The low level of this indicator in the non functioning cases is related to the non functioning of the JFMC (NF 1.) and to the negative influence of the FD (NF2.) which has again caused the NGO to step in to communicate with the FD.

The low level of FD presence in case C (and the non functioning cases) is seen negatively by the villagers – they want training and more frequent visits from the FD. However the same situation in case D seems to relate to a positive outcome in that there is a correlation with a high level of perceived ability to manage JFM. Therefore there must be other variables active on a local scale which affect the level of perceived ability to manage JFM. Possibly the

presence of the NGO in case D makes that difference. However in case D the villagers still wanted increased FD support and a higher frequency of visits, indicating that villagers perceive the role of the FD to at least include trainings and visits no matter whether an NGO is present. In addition, the JFMC in case D reported that in dealing with groups and outsiders entering the forest they request the presence of the FD, indicating again that even where a strong NGO is present, the perception is that the FD is the appropriate body to deal with such issues.

The need for trainings was expressed by villagers in all cases- usually focusing upon direct knowledge of forest products and silviculture and agriculture techniques. This can be seen as both a positive aspect in that the villagers want to improve their own knowledge and skills, but also a negative aspect in that it can show a reliance on external actors. It is impossible to draw any conclusions from this, in the absence of a full needs assessment of the villages studied. It was however apparent that the villagers did not have a clear preference for whether these trainings should be carried out by the FD or an NGO, even in villages where there already is a high level of involvement of either or both external actors. This could indicate that direct reliance on individual external actors appears not to be present in the cases studied and could also indicate that even where an NGO is present, the perception is that the FD should also provide trainings (as was explicitly stated in relation to plantation training in case NF. 2). In all cases where there was a high number of trainings, the awareness and participation of villagers was limited. Again this reflects the local culture and is not solely a reflection of the way the trainings were organised. Also the individual FD official present is significant as trainings stopped suddenly when a Round Officer was rotated away from case B.

The training quality depends on the knowledge of the organisations themselves. It was clear that both NGOs were experienced in giving participatory training sessions and had the management skills to organise such trainings to be as beneficial and open to participation as possible (timing, location, involvement of women). However, the NGO Village Coordinator in NF 2. had not received such trainings and he stated that he is only assessed on the number of village visits he makes, rather than the processes or outcomes he is involved in at each village. I could not observe training sessions held by the FD as they were not conducted in the fieldwork period, however it is clear that the lower level FD officials had not been trained in how to conduct such trainings. There was also a big difference in the NGOs themselves, as the NGO active in cases A and B is much larger, operating across several states and has a formalised professional development training system in place for its staff. The NGO operating in case D is much smaller and does not have such training sessions for its staff. Therefore generalisations across NGOs and indeed within NGOs cannot be made. The type of funding received by the NGOs may be influential here. In case D (the NGO led case) \$28,571 funding was received from the Global Environment Forum's small grants program over a two year period between end 2003 and end 2005 (GEF, 2009). Therefore their ability to undertake trainings and capacity building activities in this village was much greater than is currently seen in case C village (or case NF 2). However, the funding does not appear to have directed the approach to working, as the same approach is seen in case C, though the number of trainings is currently much less. The NGO present in cases A and B receives funding from government agencies (mostly the relevant District Rural Development Agency) and the National Bank for Agriculture and Rural Development (NGOb, 2009). They determine their own approach and were clear that they do not work with communities or organisations

that do not support their participatory, bottom-up, holistic approach to rural development. They appear to have the contacts to maintain a steady funding flow in order to continue longer term relations with villages.

10.4 Conclusion

The comparison between the cases has allowed for the correlations between levels of involvement of external actors and the extent to which CAs in JFM can be said to be functioning. Through looking at the influence of external actors on each indicator, some possible causal relations have been identified. The following chapter will draw conclusions from the comparisons made here.

Chapter 11: Conclusions and Recommendations

11.1 Introduction

This final chapter will draw out the conclusions from the comparative analysis given in Chapter 5 by relating the findings to the research question and literature reviewed in Chapters 2 and 3. The conclusions allow for several policy recommendations to be made and for a reflection on the research design and methodology employed. Finally, some suggestions will be made for the directions in which future research could aid the understanding of some of the points raised in this study.

11.2 Reflection on the research question

The Joint Forest Management (JFM) policy was implemented across India during the 1990s with the vision of combining forest conservation and rural livelihood improvement goals through creating local level partnerships between the Forest Department and the local villagers. The difference between the rhetoric and the reality has been widely documented, as has the great variety in outcomes of JFM seen in forests and villages across India, raising the question about the reasons for such diversity. At the heart of JFM is collective action whereby forest users make their own rules to govern the forest. The literature on collective action mainly focuses on the institutions created in order to explain why there is such variety in outcomes of collective action. In India there is also great variation in the level and type of involvement of external actors at the local level (especially the Forest Department and NGOs as the key external actors in JFM). Could this be one of the reasons why there is such variety in outcomes of JFM? From this departure point, this research has attempted to contribute to the academic discussion on collective action of common pool resources through focusing on the influence of external actors as one possible reason why there is such variety in outcomes of JFM across India. The ultimate aim of this research must be to provide practical policy recommendations for the actors currently working to improve rural livelihoods whilst tackling the rate of deforestation.

The evidence from the case studies presented in this thesis supports the broader literature on common pool resources developed since the founding work of Ostrom (1990) as discussed in Chapter 2. It can be seen that, to some extent, local forest users have been able to devise their own rules for managing the forest and certainly that this form of governance can present a viable alternative to centralised forest management by the Forest Department as discussed in the literature presented in Chapter 2 (see Balland and Platteau 2000; Dietz et al.; 2003, Gibson et al. 2004; Ostrom, 1990, 1999; Poteete and Ostrom 2004). However, the sustainability of collective action, as analysed through the indicators presented in this thesis, shows great variety across the cases. Also, none of the cases present an example of highly sustainable collective action. I will now return to the research question posed in Chapter 1 to determine the influence of external actors on each indicator of the functioning and sustainability of collective action. The research question to be addressed is:

In what ways does external actor involvement in Joint Forest Management in Maharashtra, India influence the likelihood of sustainable collective action at the local level

11.3 External actor influence on the level of functioning of CA

The absence of external actor involvement in the indicators for a functioning CA correlates with the presence of a functioning CA under JFM

The FD, the NGOs, the local council and other state departments involved in the cases had very limited influence on the level to which the CA can be described as functioning based on the following indicators: frequent meetings; rules for entry, harvesting and monitoring; monitoring and enforcing rules. The external actors did not involve themselves in the day to day workings of JFM. The exceptions are NF1 and NF2 (to a lesser extent) where there is some involvement of the FD in rule making and which appears to correspond with non functioning of CA. To this extent, there is a discrepancy between the role of NGOs as seen by the Government Circular of 1990 which envisages a role for NGOs in organising the community. In these cases, this did not occur and was actually not required in order to develop functioning CA. However, the non functioning cases show that this argument cannot be extended to state that there is a causal link between the absence of external actors and the functioning of CA. What can be argued is that external actor involvement is not required for CA to function, according to the indicators used here. There is clearly the potential for the FD to have a negative influence on this indicator, if the level of their involvement falls short of the expectations of the villagers. The effect of the FD's non involvement was seen to vary and is therefore dependent on other locally specific factors. This conclusion points to the need for a clear discussion on the roles and responsibilities of all actors involved in JFM at the start of the JFM registration process.

11.4 External actor influence on the sustainability of CA

11.4.1 Understanding JFM policy

Although there is a correlation between low external actor involvement and a low level of understanding of JFM policy, the opposite cannot be claimed: i.e. a high level of external actor involvement *does not* necessarily cause a high level of understanding of the JFM policy. The level of understanding of the JFM policy expressed by the villagers is directly dependent on the level of understanding and knowledge of the external actors involved in that village and the actions they take to disseminate this knowledge.

There is no relationship between the level of involvement of the FD and the level of understanding of the JFM policy expressed by villagers.

The knowledge of the JFMC and non JFMC villagers is directly related to the level of knowledge of the Round Officers who were involved in registering JFM in the village. This was the case in the villages in which no NGO was directly involved in JFM. This study showed that the FD officials have a limited understanding of the JFM policy, not only in terms of the JFM rules on the institutional arrangements (such as representation at meetings, rule creation, election of JFMC), but also in terms of the FD's responsibilities and the cooperative working and benefit sharing with the villagers required under JFM. Therefore a greater involvement of the Round Officers, if the current understanding of the JFM policy remains the

same, will not increase understanding of the JFM policy amongst villagers. Contrary to other parts of India, the FD officials in this study had only received training from within the FD, even though the introduction of JFM was part of a World Bank funded programme (WB, 1991). Therefore there was no NGO influence on knowledge of JFM within the FD.

The relationship between NGO involvement and the level of understanding of the JFM policy is dependent on the specific mandate of the NGO and the extent to which the NGO actively attempts to disseminate this information to non JFMC villagers

The NGO led case shows that an external actor, with in depth knowledge of the JFM policy can positively influence the level of this knowledge amongst both the JFMC and the non JFMC villagers, however this is dependent on the awareness and inclusion of the non JFMC villagers (see Section 11.4.2). It is interesting to note that in the NGO led village, the FD are not involved in providing knowledge of JFM, possibly due to the strong presence of the NGO which would not provide an incentive to the FD to become involved. The crowding out argument will be discussed in section 11.5.2.

11.4.2 JFM awareness and inclusion level

There is a correlation between a low level of external actor involvement and a low level of JFM awareness and inclusion level, however increasing external actor involvement does not necessarily lead to a higher level of JFM awareness and inclusion

There was no evidence in any of the cases that any external actor purposefully excludes marginalised sections of the community from participating in JFM. However, the top-down hierarchical structure within the FD coupled with the continuing doubts expressed by high level FD officials about participatory approaches, does not provide lower level FD officials with a supportive environment or the necessary training to increase participation at a local level. Indeed, increased FD involvement did not lead to increased awareness and inclusion in JFM. It can therefore be stated that participatory methods have not yet been institutionalised within the FD, a conclusion which has also been drawn from research in other parts of India (see Kumar et al., 2007, Kumar and Kant, 2006, Sundar, 2000 and Rishi, 2007). There was evidence of the FD using entry point activities not necessarily related to forest protection in order to increase awareness and participation (such as provision of decoration materials). This was also observed by Matta et al. (2005a) who argued that such short-term incentives can be useful for gaining trust between villagers and the FD, however longer term incentives are also needed. The NGOs both work using participatory approaches in both microplan preparation and in trainings, therefore the potential for NGOs to increase awareness and inclusion in JFM is much greater than where the FD lead JFM development without NGO involvement.

The NGO led case is the only case with a high level of awareness and inclusion in JFM

Due to the long-term presence and allied activities of the NGO, the awareness of JFM was highest in the NGO led case. This evidence supports the literature that NGO involvement can increase awareness (Ito et al., 2005), that face to face and repeated interactions in allied activities helps to develop trust between the villagers and the NGO (Ostrom, 2005 and Ngwa and Fonjong, 2002) and that NGOs are better placed than government agencies to reach the poor and increase participation (an argument made by Brown, 1992 and Saigal, 2000). In the case where the NGO and FD were both heavily involved, the awareness and inclusion levels were less, but this can be explained because the NGO involved had a remit which focussed

solely on lac production and certainly the lac production training was organised in an open, participatory manner. Both NGOs extend this participatory principle as far as creating options for participation but do not actively seek to involve marginalised groups. This was a conscious decision taken by the NGOs as they both stated they rely on the willingness of the villagers to participate. Therefore the influence of NGOs on this indicator of the sustainability of CA depends on other local factors, namely the villagers' interest and willingness to participate. This limitation to external actor involvement in actively seeking to increase the participation of marginalised groups will be returned to in the discussion section below.

11.4.3 Connections with external actors

There is no correlation between the level of external actor involvement and the number of (indirect) connections the villagers have with external actors, however the external actors occupy central positions in the networks

The influence of the external actors on this indicator is determined by the individual representative of the FD or NGO, and can be either positive or negative in connecting the villagers with other external actors. There are individual examples of both the FD and NGO attempting to connect villagers with other villages, which is seen to support Fox's (1997) view that such regional actors can facilitate the sharing of information and the discussion of common issues. However the centrality of the external actors also means that they can play a negative role in communications. The limited communication between NGOs involved in rural development in Maharashtra, within the FD organisation and between the FD and other state agencies and NGOs has a strong limiting influence on the impact external actors have on this indicator. These limited avenues of communication have also been recognised in the literature in relation to other parts of India (see Chapter 2 such as Kumar et al., 2007, Rishi, 2007, Sundar, 2000 and Tiwary, 2003). The NGO in case C used their centrality to put the villagers in contact with higher level officials, though this is the only example of such an action. The connections established by the external actors between the villagers and their own contacts is mostly indirect by way of villagers influencing the external actors directly involved in the village, which in turn may influence the external actors in their own dealings with higher officials or other NGOs. However, it was not found that either of the key external actors use their centrality (either purposefully or accidentally) to reduce connections between the villagers and other external actors, including other villages. This is in contrast to the argument posed by Nayak and Berkes (2008) who state that higher FD involvement can reduce the number of connections the villagers have with other actors.

11.4.4 Confidence in future benefits

There is no correlation between the level of external actor involvement and the level of confidence in future benefits expressed by the villagers

The FD is in a very powerful position in that land ownership remains with the FD plus the amount of land allocated to JFM and the benefit sharing agreements rely on the actions of the FD, as is found elsewhere in India (see Sundar, 2000, Ballabh et al., 2002, Martin and Lemon 2001). In all cases the FD has not shown a positive influence in both these areas with the only exception being in the NGO led case where consultation with the villagers regarding the land allocation was undertaken, but even here there is no formalised benefit sharing agreement with the FD. The NGO in case C is also involved in liaising between the FD and the villagers regarding outstanding payments, a situation which negatively affects the villagers confidence in the benefits of working with the FD. It therefore appears that the NGO

presence had a positive impact on the process of land allocation and in the ongoing discussion regarding payments, which supports the arguments made by Jewitt (1995) that external actors can play an important role as a neutral outsider, especially where the partners are unequal (argued by Brown, 1994 cited in Fox, 1997). Certainly it appears that the NGO sees themselves as equal to the FD with sufficient power or standing to communicate with high level FD directly. There are examples where a greater involvement of external actors has had a positive effect, through the provision of trainings, the creation of income generating activities, the creation of transparent JFMC systems and measuring forest change. However there are also examples where the non involvement of external actors has had a positive effect, such as through their non involvement in the decisions made by the JFMC on plantation species, rules and fines and the fact that all profits made from memberships, fines and the renting of equipment go to JFM. This correlates with examples in the literature such as Regmi's (2008) study of water user groups in Nepal, as explained in Chapter 2, where the users need to have confidence that external actors will not interfere in rule making and enforcement activities.

It appears that the influence of external actors is only one factor which influences the confidence level in future benefits. The characteristics of the user group in terms of social capital, the transparency of the JFMC decisions and their credibility as a rule enforcer also appear to be relevant factors. This supports Fox's (1997) argument that social capital can develop through independent bottom-up production in the absence of external support (see Chapter 2). As reported, the external actors had limited influence on these day to day aspects of the functioning of JFM. In addition, the changes in the quality of the forest resource also provided a tangible incentive for continuing CA, an aspect over which the external actors have only an indirect influence.

11.4.5 Perceived ability to independently manage JFM

There is no clear relationship between the involvement of external actors and the perceived ability to independently manage JFM

The case studies do not show that the external actors have any direct influence on whether the forest users feel able to manage JFM independently. However the following conclusions can be drawn:

The influence level of the FD is dependent upon the individual actor present

The influence of the FD varies across the cases and this indicates that the difference in influence is directly related to the individual FD official present at the local scale. The rotation of FD officials can significantly change their influence on this indicator through the number and level of quality of trainings being conducted, a factor which is perceived by all the villagers as being an important FD function. Also the cases with high FD involvement show some form of dependence on the Round Officer in that the villagers look to the Round Officer for the provision of trainings and information, and in one case this is a situation they wish to avoid. To this extent, the findings correspond with those of Ballabh et al. (2002) who warned that a dependency relationship could develop. However on an organisation level, the FD clearly has the potential to both strongly positively or negatively affect this indicator. This is clearly seen in the case of non payment of plantation workers greatly damaging the trust between villagers and the JFMC.

The perceptions of the villagers with regards to the level and type of involvement of external actors are a significant factor in their perceived ability to independently manage JFM

A similar level of involvement of external actors across different cases was not perceived in the same way by the different villages. The expectations of the roles of the FD vary and this affects the level of their satisfaction with the FD's level of involvement in JFM which relates to their perceived ability to independently manage JFM. Again, this points to the need to consider the local scale dynamics rather than making sweeping conclusions about the influence of external actors.

The only case in which the perceived ability to independently manage JFM is high, is in the NGO led case

The NGO's approach to support the villagers in their own relationship with the FD is evident as is the considerable work involved in developing social capital within the village (Youth Club, environmental workshop, creating opportunities for whole village involvement). However, it appears that the increasing confidence level of the villagers has taken considerable involvement of the NGO over a long period of time together with extensive knowledge, social skills and funding for a wide range of trainings, as this is not evident in the other cases in which the same NGO is involved. This could also be the result of the funding received to work in this village, compared to case C and NF2 which were not part of the internationally funded programme. Also, there is some evidence for dependence on the NGO which would reduce the sustainability of this situation. The potential for NGOs to positively influence this indicator of a sustainable CA is therefore evident, but not assured.

11.5 Discussion of issues raised by the research

Upon reflection of the conclusions it is clear that the hypothesis formulated in chapter 3, namely ***'A high level of involvement from a wide range of external actors will increase the likelihood of sustainable collective action in JFM at the local level'*** has not been proven by this research. External actor involvement is not a prerequisite for functioning collective action and, whilst there are individual positive cases of external actors influencing individual indicators especially in the NGO-led case, there is no clear correlation between external actor involvement and the indicators for sustainability of collective action. This indicates that a high level of involvement does not necessarily lead to more sustainable collective action. The conclusions raise the following issues for discussion:

11.5.1 The centrality of external actors in JFM

The cases presented in this thesis show that there is no clear relationship between external actor involvement and the sustainability of collective action. However, this research has shown that external actors are in a central position within JFM to potentially either positively or negatively influence the likelihood of sustainable collective action. Indeed, external actor involvement may positively affect one indicator (for example, in this research the NGO involved in case D positively influenced the level of awareness and inclusion and the perceived ability to independently manage JFM) but negatively affect another indicator (such as by taking over communication with the FD and creating some level of dependency on the NGO). Especially where there is no or low NGO presence, the FD has a powerful position due its dominance of decisions relating to land allocation and benefit-sharing. To this end,

the villagers may gain a high level of control over the day to day management of JFM but ultimately the FD has the power to decide the opportunities afforded to the JFMC (see Ostrom, 2005 for a discussion of the difference between control and power). This finding supports the current literature which identifies the importance of considering actors beyond the local resource users when analysing CA in CPR management (such as Agrawal, 2007, Clement and Amezaga, 2009, Martin and Lemon, 2001, Matta and Kerr, 2007, Sundar, 2000). It also shows how the involvement of external actors can have wide ranging influences across all the indicators of sustainable collective action used in this research. However, their involvement does not appear to be necessary for functioning collective action to develop, which corresponds with the literature on common pool resources outlined in Chapter 2 (Ostrom, 1990, 1994, Agrawal and Chhatre, 2007).

11.5.2 Relations between external actors is limited

Communication between external actors themselves regarding the specific situations in each village is limited. The limited intersectoral working was also reported by Matta et al. (2005a) and Corbridge and Kumar (2002) where battles for jurisdiction and politicalisation of responsibility boundaries are discussed. One high level FD official interviewed here said that the FD are losing ground in comparison to other departments as forests are no longer income generating. Brown (1992) and Brown and Ashman (1996) argue that NGOs can help tackle intersectoral problems if they work with the FD but this was not found to be the case, with NGOs preferring to work closely with the villagers and to a much lesser extent with related government departments. There was little evidence of external actors cooperating or supporting each other, and any cooperation is on an ad hoc basis rather than being systemic. Even the local council appears to have a limited role (only in one village was there regular contact with the JFMC). This is significant given their rights under the 73rd constitutional amendment which granted further rights and responsibilities to panchayats (Pai and Datta, 2005). It is also significant that the NGO with international funding did not appear to be directed in their approach by the international funder as they take the same participatory approach in their work in other villages for which they received no international funding (though to a lesser level). The difference in the level of involvement is large and will be partly due to the funding differences but just as significant are the personal relations of the NGO staff, especially the Director. There is also the question as to whether the presence of the NGO in case D 'crowded out' the FD. Given the time constraints mentioned by the FD and that their incentives are to increase the number of JFMCs and plantations (rather than to ensure that they are working well), they may feel less responsible towards the villagers in case D when a well known NGO is so heavily involved. The 'crowding out' effect is seen in many forms in literature, most relevant here is in relation to central state agencies crowding out local government (see van Laerhoven, 2009) and state support displacing or duplicating local institutions which may lead to dependency on state actors (see Parnwell, 2005). In the situation found in this research the NGO presence may in fact prevent relations between the FD and the villagers developing.

11.5.3 Low level of Institutionalisation of JFM in FD

Despite the fact that JFM implementation in Maharashtra was World Bank funded (WB, 1992a, 1992b) the findings here show that at least in this district, JFM is not yet institutionalised. This is significant as the Maharashtra FD was in 1992, the first forest department in India to receive financial support from the World Bank to develop its various departments (Maitra, 1999), and therefore has had the longest time for developments to

occur and institutionalise. The higher level FD officials stated the approach of working with villagers (instead of against them) was slowly growing within the organisation but that there were still cautious views of participation expressed by all levels of staff (as was also found by Matta et al. (2005a) in Tamil Nadu). The fact that new recruits do not receive comprehensive training on participatory approaches or the rules under JFM is also discouraging. Furthermore, the individual FD official in the field can choose to provide trainings, make regular visits and build contacts with the villagers or alternatively can choose to have minimal involvement, with no detrimental effects to his career. Again, this shows that JFM is not fully institutionalised and is target driven (number of JFM committees and plantations) rather than process driven, a point confirmed by high level FD officials. It was observed that information is not passed on to successors when an officer is rotated to another position, the new staff need to learn the local situations in each village and build relations with the villagers (this issue was also reported by Blaikie and Springate-Baginski, 2007 in their research in West Bengal, Orissa and Andhra Pradesh). Saigal (2000) and Sundar (2000) both state that such organisations implementing participatory approaches are only doing this due to the funding conditions, and in this case, also due to a central government order. Without an improved understanding of the JFM policy at all levels (in terms of rules, rights and responsibilities of all parties), and an incentive system within the FD that encourages FD officials to support the villagers, it will be difficult to move beyond the current situation of maintaining the status quo through minimal action. This will be difficult to implement, as reflected upon in chapter 2, because the actors that have gained the most from the current system also have the most power to preserve this system (see Meadowcroft, 2007).

11.5.4 Local level factors matter

The variety in the outcomes of external actor involvement show that local level factors matter significantly. There are many local level factors which can act to enhance or limit the influence of external actors such as a transparent JFMC combined with a more united community and a strong NGO in case D may have accounted for the fact that the absence of the FD has not stopped JFMC meetings taking place, whereas in case C where there is an absence of these community attributes, the JFMC blamed their lack of meetings on the absence of the FD. This finding supports Agrawal's (2007) review of CPRs in which the relation between causal factors is seen as a significant factor in explaining the success of CA and which requires further research. In addition, the importance of including related local level developments as control variables was evident. For example, in case D alternative employment opportunities reduced dependence on the forest and therefore forest condition was positively affected. This was also found in the literature and discussed in Chapter 2 as Matta et al. (2005a) found that other development activities being carried out in the same village in Tamil Nadu, India changed the JFM situation through providing alternatives to fuelwood and fodder. Furthermore, pressures from beyond the village unit must be considered, such as the nomadic groups seen in case D and indeed it is for these situations that the villagers turned to external actors for support. This finding supports Sundar's (2000) argument that external actors can help solve disputes involving parties from outside the village as well as the wider IAD framework which allows for such considerations to be included when examining a specific action arena. It is significant that in the NGO-led case the villagers still turn to the state for such issues, implying that the state is the only actor able to carry out this role, even when the NGO present is strong. Indeed Pierce (2000) warns against NGOs replacing the state in development work where the state is weak, instead he argues that there is still a clear role for the state in governance arrangements.

11.5.5 Limited influence on participation

Where a forest protection committee is already functioning, the external actors do not get involved in the day to day decisions or institutions (rules or norms). The institutional arrangements for participation in CA can be influenced by external actors, but in the cases studied this was the limit of external actor influence. This supports Agrawal and Chhatre (2007) in their claim that external actor involvement can create a more equitable participation system and Fox's (1997) assertion that one way of building social capital is through coproduction between local groups and external allies in civil society. However, although the NGOs showed efforts in creating a situation open for participation of marginalised groups, active efforts to encourage marginalised groups to become involved in decision making or trainings were limited (the exception being the Youth Club in case D). Amongst the FD, such efforts were nonexistent. This point is most important with regards to the NGOs (rather than the FD or other external actors) as although they claim to employ participatory approaches, which is in line with current trend towards participation employed by civil society groups and funding organisations worldwide, the effects of their efforts in these cases were limited, as measured by the level of awareness amongst villagers. As Ingles, Musch and Qwist-Hoffman (1999: p67) of the FAO state, 'anybody can claim to be an expert in the use of participatory approaches'. Therefore the cases studied do not support the view that the involvement of NGOs can help bring communities together and increase participation, as was seen in the literature such as Ballabh et al. (2002), Jewitt (1995) and the Pai and Datta (2005). These findings do correlate with a review of community forestry projects conducted by the FAO in 1995, where they found that NGO led projects tended to work with a select established group, rather than involving the whole community due to local conflicting interests (class, ethnicity, gender, caste) (Oltheten, 1995). They also support Fox (1997) who argues that external actors can create opportunities for building social capital, but the local communities have to be willing and able to take advantage of such situations (discussed in Chapter 2). This appears to be the view of both the FD and the NGOs present in these cases.

This point raises a fundamental question about the assumption that NGO involvement will increase participation in development projects in general, and most importantly in relation to CPRs where free-riding through low levels of participation can affect the sustainability of CA (Ostrom, 1990). It also raises the question about the type of participation that is being advocated by the NGOs. It is beyond the scope of this research to investigate the form of participation here (see Buchy and Hoverman, 2000 for a discussion of participation as a goal in itself or a means to an end). The participation issues seen here of course reflect society as a whole. It cannot be expected that the JFM policy can create a different culture of participation when it is widely stated in the literature that rural societies in India have very strong traditions in terms of caste and gender (Sooryamoorthy, 2008; Ito, 2009). This may be seen as a 'get out' clause for the FD, however the NGOs see divisions in society as a hindrance to their work and in fact make it a prerequisite for selecting villages to work in. This will of course create a bias whereby NGOs choose to work in villages with a higher level of social capital, which then supports their own work in the village, creating more positive outcomes and validating their involvement.

11.6 Reflection on the research design

11.6.1 The dependent and independent variable indicators

The dependent variable indicators drawn from literature were all applicable to the local situation found during this research and it was found that they are not mutually exclusive, rather they very much influence each other. The indicators relate to the institutional sustainability and therefore it was possible to move away from purely measuring physical targets of forest change (such a move is seen as important in the literature, see Agrawal, 2001 and Bhattacharya et al. 2008). The indicator which appears to be the most relevant and interesting regarding the literature on external actor involvement is that of “Awareness and Inclusion” as it showed the different perceptions of the external actors and the villagers. It also raised the discrepancies between the literature on NGO involvement, the approach discussed by the NGOs themselves, and the reality on the ground. The indicators can be further developed such that the “Connections” indicator encompasses who initiated the communication and the purpose of the communication; and a household survey would allow statistically significant data with regards to “Level of understanding of JFM policy”, “Awareness and Inclusion”, “Confidence in future benefits” and the “Perceived ability to independently manage JFM”. The independent indicators (knowledge, management and social skills, communication channels and financial contributions) are all important in themselves however it appeared that the mere presence of external actors in terms of their frequency of visits and being available for queries was just as important to the villagers.

In addition, the use of the IAD framework to guide the research has been useful. It has allowed an appreciation for the action situations the external actors find themselves in to be explored, looking at the organisation they are in and how this affects their involvement in JFM. An appreciation for overlapping action situations is also relevant for studies of the external environment of CA.

11.6.2 Limitations of research

The socio-economic and cultural conditions in the study area, together with perceptions about, and between, external actors and villagers inevitably influenced the nature of some of the research methodologies that could be employed, although every effort was made to negotiate around these circumstances. The overall structure of the research methodology stood up well to the practical issues faced however the following shortcomings were identified, and these have been considered in making the final conclusions given above.

- 1) Although it was attempted to include the norms, rather than purely focussing upon rules, it is likely that there will be norms of forest use and behaviour in place that it was not possible to observe.
- 2) The cases were selected with a view of limiting the other possible causal factors for differences in the sustainability of CA though of course differences between the cases remain in terms of the characteristics of the user groups, the size of the resource available and the external environment (such as the presence of development projects, however the villagers reported that they are not conducted in a participatory manner and therefore their influence on JFM is likely to be limited). These characteristics are seen in the literature as factors that, in combination with other possible causal factors, may influence the success of CA (see Agrawal, 2007). Through qualitative interviews, speaking directly

with the actors present in each village, I have attempted to identify any direct links, however these socio-economic differences must be considered as possible influencing factors.

- 3) The validity of the results will be affected by the research techniques employed. I could not conduct research in exactly the same manner in each village as household surveys were not possible, plus using group discussions meant the views of women are limited. Using a translator also reduces personal interaction with the respondents. As is common in social science research, the information given to me in discussions is clouded by the individual's perceptions, memories and the particular image they would like me to receive.

Through triangulation of sources and methodologies (including observations which were very informative) the impact of these factors was limited as far as possible.

11.7 Policy Recommendations

The overall impression of JFM gained from this research is that the level of sustainability of CA at the heart of JFM is low and that the external actors are in powerful positions to both positively and negatively affect the aspects of sustainability assessed in this research. This sombre picture of JFM is especially important given that the focus has been on functioning JFM cases and therefore is likely to represent a better than average picture of the status of JFM more than ten years after implementation in Maharashtra. However, on an individual level (rather than a structural level) there are some positive indications that the situation is improving. With the following recommendations I hope to contribute in a small way towards the policy choices external actors are making to improve the current situation and strengthen the likelihood of collective action at the local level. Through conducting this research with a focus on one action arena at the local level, it has become apparent that the influence of external actors is determined at both the local level and collective choice level action arenas, as supported by the IAD framework (and of course, indirectly also the constitutional level).

11.7.1 Local level recommendations

- 1) It is clear from the conclusions drawn above that the external actors and villagers at the local level do not have a clear common understanding of the JFM policy and the roles and responsibilities of all the actors involved in JFM. This is significant for three of the indicators of sustainability of CA: understanding of JFM policy; confidence in future benefits and perceived ability to independently manage JFM. Therefore the main recommendation to come out of this research is that there is a strong need for a clear discussion on the roles and responsibilities of all actors involved in JFM at the start of the JFM registration process. The external actors occupy a central position in JFM at a local level, the government resolution certainly advocates roles for both NGOs and the FD, and the villagers themselves expect at least a minimum level of support from the FD. Therefore it is essential that all actors clearly understand the JFM policy and have independent access to information on Government Resolution amendments or guidelines. The perceptions of the level to which the FD should be involved varied across the cases and affected trust between the actors as well as their perceived ability to independently manage JFM. Therefore clarifying the responsibilities of all actors will help to build trust between the actors and to reduce the uncertainties regarding expectations of actor involvement. This has the added advantage of increasing transparency and thus reducing opportunities for all actors to maintain the status quo of

poor livelihood levels, significant deforestation rates and (perceptions of) high levels of corruption.

- 2) Related to this point, the low level of understanding of the JFM policy is directly related to the level of understanding held by the external actors. The external actors therefore can have great influence over this indicator of sustainability of CA as they are the source of JFM information for the villagers. It is therefore recommended that the local level external actors request this information from within their organisation and the JFMC should take the responsibility for ensuring this is distributed to the villagers. The poor level of knowledge of the lower level FD officials was a common point across all cases, and therefore decisions taken at the collective choice level are also significant here, as will be discussed in section 11.7.2.
- 3) All external actors (FD, NGOs, Local Council) need to work with the villagers to formalise the benefit sharing arrangements for when the cash crops reach maturity. If the Government Resolution remains as stands, the villagers can expect 20% of the profits from a good forest. This needs to be finalised in each case so that there is security in the benefits of forest protection, which will also help to build trust and confidence between the villagers and the FD. The NGOs could fill a role here as independent third party liaising between the FD and the villagers.
- 4) Connections between actors at the local level need to be improved in order for knowledge to be shared, actions to be coordinated and a more reciprocal relationship to be built. From the cases analysed in this research it appears this communication is currently very limited on a local level, and where it does take place this is mainly for a specific project (such as a workshop or microplan creation). More regular meetings would also allow for clarity of responsibilities under JFM which in turn can improve the trust between these actors.
- 5) One external actor which is currently not strongly involved in JFM (despite holding a powerful position regarding natural resources) is the local council. Structuring communication and cooperation between the JFMC and the local council could improve not only the possibilities to share knowledge and coordinate development programmes, but could also increase the transparency of operations in both the JFMC and the local council itself.
- 6) The local level FD should play an instrumental role in disputes between villages or between villages and businesses or other groups using the forest designated under JFM. In this way they can contribute to the confidence in future benefits of forest protection felt by the villagers and build trust between the villagers and the FD.
- 7) Whilst the above recommendations have entailed strengthening the roles of external actors, it is also apparent that the external actors should not involve themselves in the day to day running of the JFMC apart from attending meetings where appropriate (such as the Round Officer in his position as secretary) and being available to offer advice on forest use rules, management of the JFM or dispute resolution. This was seen in the conclusions of this research as external actor involvement was not required for a

functional CA to develop and the absence of external actors in the fining system means that all profits go to the JFMC account.

11.7.2 Collective choice level recommendations

- 1) The above recommendations must be coupled with an incentive system within the FD focussed on the quality of the institutions put in place, rather than purely on targets of plantations and JFM committees. It has been seen in the cases studied here that a rotation in FD staff can have a large impact on the level of involvement in the villages as there is no incentive system currently in place to encourage the lower level FD to fulfil their responsibilities under JFM. There also needs to be a system in place for information to be passed on to successors as the rotation time of 3 years is shortened even further if the new incumbents need to orientate themselves with the status of JFM in each village, without any hand over from their predecessors.
- 2) Recommended organisational changes within the FD include capacity building, creating a system to pass on information when rotated, supporting lower level FD with JFM policy documents and guidelines and improving the training, especially for new recruits. This research has shown that participatory methods are not yet institutionalised in this forest division. NGO involvement in training programmes would allow for knowledge and skills transfer and would also build a better working relationship between the actors.
- 3) Communication between the external actors at the collective choice level can also be improved. The NGO director involved in cases C, D and NF2 has frequent contact with high level FD officials however this could be strengthened so that the FD can learn from his experiences in participatory approaches. There is currently no active NGO forum in Vidarbha region of Maharashtra and certainly this could be reactivated and could also include relevant research institutes as a further source of knowledge. The NGO involved in cases A and B is also active in forums in other states and therefore could be a useful source of knowledge for NGOs within Maharashtra. Both NGOs showed experience in conducting PRAs and creating participatory institutions. To avoid crowding out the FD, the sustainability of JFM would benefit from efforts on the part of the NGO management to work with the FD to build their capacities in participatory approaches. This is a long process but would benefit from closer working with NGOs, rather than the present system of contracting out villages to NGOs without much further structured communication, as was seen in these case studies.
- 4) Participation levels are modest, despite the participatory discourse being widely proclaimed by both NGOs. It has been seen that the NGOs create opportunities for participation however they do not actively seek to involve marginalised groups within the villages. Whilst it is understood that participation relies on the villagers' own initiative, local politics and community divisions should not be cited by external actors as reasons for not deciding to work in a village. At a national and international level, this also raises questions regarding the effectiveness of NGOs stating participatory approaches. The fundamental question is whether NGOs should only create open institutions or actively seek to involve marginalised groups? In these cases, the involvement of all forest users is required for CA as this reduces the freerider problem and gives a greater incentive to

follow rules protecting the forest. Therefore more proactive involvement techniques are recommended. This can be through allied activities such as employment generation which build trust, not necessarily directed directly at forest conservation.

- 5) Some actions from the external actors which are currently in a weak state but show potential are the sub-divisional and division level JFM groups set up by the FD, the FD run divisional competition of awarding the best JFM and the sub-divisional and divisional workshops held by the NGOs. There is potential here for programmes which do not require large funds or long term external actor resources and yet which seem to be highly regarded by forest users (and indeed provide a confidence boost and opportunity to learn from other villages). These groups could involve visits to different villages which was found by Oltheten (1995) to be a very effective training method. An example can be taken here of The Federation of Community Forest User Groups, Nepal (FECOFUN), which is a more formalised manner of creating networks between villages.

11.8 Recommendations for further research

- 1) This research has shown the importance of studying how external actors influence the sustainability of CA. The importance of taking a wider approach to both studying external actors beyond only the FD and NGO (especially the local council was influential in some cases) and the local context has also been apparent. For this purpose, the IAD framework has proven to be supportive. Future research is needed into the extent to which the influence of external actors is dependent on other local factors, especially the level of social capital appears to be a significant factor here.
- 2) In addition, longitudinal studies could be employed to investigate further whether external actor influence varies over time (such as in regards to the rotation of FD officials, as found in this research) and whether external actor involvement is influential in the JFM's resilience and response to external changes which will affect JFM (such as people from surrounding villages entering the forest as its condition improves relative to surrounding forest areas, or pressure for the land from industry).
- 3) There is also a need to further investigate the participation and engagement methodologies employed by NGOs in rural communities with a view of identifying and disseminating information on good practice.
- 4) Finally, the conclusions drawn here are from a small N and therefore research using a larger N may be useful to complement the qualitative case study research and discover the extent to which these conclusions can be generalised.

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List of Abbreviations

ACF	Assistant Conservator of Forests
BPL	Below Poverty Line
CA	Collective Action
CF	Conservator of Forests
CPR	Common Pool Resource
DCF	Deputy Conservator of Forests
DFO	District Forest Officer
FD	Forest Department
FSI	Forest Survey of India
FPC	Forest Protection Council (used to mean before JFM)
GEF	Global Environment Facility
GR	Government Resolution
JFM	Joint Forest Management
JFMC	Joint Forest Management Committee
LC	Local Council
MoEF	Ministry of Environment and Forests
NF	Non-functioning (in relation to collective action)
NGO	Non Governmental Organisation
NRM	Natural Resource Management
NTFP	Non Timber Forest Produce
OBC	Other Backward Classes
PCCF	Principal Chief Conservator of Forests
PRA	Participatory Rural Appraisal
RFO	Range Forest Officer
RO	Round Officer
SC	Scheduled Caste
SGP	Small Grants Program
SHG	Self Help Group
ST	Scheduled Tribe
WB	World Bank

APPENDIX 1: Control Variables

A		B		C		D	
Resource characteristics							
Forest type	Zhydpi Jungle Tree species: sagwan- teak, bera, sena, moha, 3 types of bushes, 4 types of grasses	Zhydpi Jungle Tendu, mahua, bera, sagwan	Zhydpi Jungle 133 ha Protected forest 128 ha Saga (teak), tendu, moha, salai, khair, padas Forest density <0.4	Zhydpi Jungle			
Size of forest under JFM	71.3 ha (all of FD land within village boundary) for padas trees 20 ha plantation	120 ha No plantation under JFM	60 ha plantation	120 ha forest 85 ha plantation			
Resource boundary	Clear	Clear	Clear	Clear			
User group characteristics							
Population	1258	1200	821	722			
Number of Households	227	162	165	136			
Social groups (pop)		No. of hh	Approx. pop.	No. of hh	Approx. pop.	No. of hh	Approx. pop.
SC	50	9	9	12	60	0	0
ST	52	20	67	0	60	43	0
OBC	1156	100	148	9	0	7	228
Other classes	0	29	740 215	144	45 720	51	37 270
Land ownership (/hh)							
Landless	56	15		43		0	
0-2 ha	158	35 (0-5 ha)		122 (< 1ha)		168	
2-5 ha	13	-		0		9	
Above 5 ha	0	50		0		95	

Occupation (%)				
Farming	71		98	74
Farming plus labour	5		Unknown	Unknown
Daily wage labour	20		Unknown	25
Business	1		Unknown	2
Service	3		2	3
Livestock	Number	Ownership (% households)	1 household employed to take animals for grazing	2 households employed to take animals for grazing
Bullocks	236	84% have livestock		
Cows	105			
Buffalo (female)	44			
Buffalo (male)	31			
Goats	185			
Education level (%)			Young people average is grade 10-12	(% of JFMC, village level info not known)
Uneducated	18			0
Grade 4 complete	57		Older people average is grade 5	20
Grade 10 complete	24		0.83	60
College/technical	1.5			20
Below Poverty Level	High %		15%	65%
Experience with CA or development projects	Social Forestry projects such as lake cleaning (daily wage labour)		Since 2002: JIswaraj – water harvesting government scheme. Integrated child development scheme Bank loans for seasonal crops with 6-8% interest. 10 SHGs	Forest Rights Committee JIswaraj – water harvesting government scheme is not being implemented No other development projects
				Unemployment increasing, agricultural produce decreasing
				Environmental Awareness Youth Club

External environment				
Distance to market	Salekasa 9km	Salekasa 5km	Nawegaon 11km	Nawegaon 9.5 km
Current development programs	17 SHGs run by NGO 3 women's savings groups Government development program (<i>gram vikas</i>) Midday meal scheme	Plantation- Social Forestry scheme <i>Harilayi project</i> (Government run water management scheme) Integrated child development scheme	No other development projects from either the government or an NGO	<i>Harilayi project</i> (Government run water management scheme)

The data to complete this table has been collected from both village microplans and discussions with villagers. Therefore the figures cannot be taken as completely accurate (and in some places contradict each other). However the purpose of this table is to provide a general impression of the villages so that general similarities or differences between the villages can be identified for the purpose of controlling variables during case selection.