

# **Fuelling development?**

**A critical look at  
government-centred  
jatropha cultivation for  
biodiesel as promoted by  
the biofuel policy in  
Rajasthan, India**

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**Spring 2010**



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## Abbreviations

**AIS** – All-India Service

**BDO** – Block Development Officer

**BPL** – Below Poverty Level

**CBNRM** – Community-Based Natural Resource Management

**CDP** – Community Development Programme

**DDP** – Desert Development Program

**DPAP** – Desert Prone Areas Program

**DRDA** – District Rural Development Agency

**FPC** – Forest Protection Committee

**GoI** – Government of India

**GoR** – Government of Rajasthan

**GONGO** – Government Organised Non-Governmental Organisation

**IAS** – Indian Administrative Service

**IFS** – Indian Forest Service

**IMF** – International Monetary Fund

**IWDP** – Integrated Watershed Development Program

**JFM** – Joint Forest Management

**NGO** – Non-Governmental Organisation

**NREGA/S** – National Rural Employment Guarantee Act/ Scheme

**NRM** – Natural Resource Management

**NTFP** – Non Timber Forest Produce

**OBC** – Other Backward Caste

**PRA** – Participatory Rural Appraisal

**PRI** – Panchayat Raj Institutions

**SC** – Scheduled Caste

**SGSY** – Swananajayanti Grama Swarojgar Yojana – a rural self employment scheme

**SHG** – Self Help Group

**SLA** – Sustainable Livelihood Approach

**SPWD** – Society for the Promotion of Wasteland Development

**ST** – Scheduled Tribe

**WD** – Watershed Development

**WDP** – Women's Development Programme

## Glossary

**Adivasi** – tribal community

**Beed** – pasture land

**Bhil** – tribe with scheduled status in Rajasthan

**Bilanam** – ‘no name’ land, land under the authority of the Revenue Department

**Charagah** – village pasture land

**Gair khatedari** – sub tenant

**Gochar** – common pasture

**Girasia** – tribe with scheduled status in Rajasthan

**Gram Panchayat** – elective body at village level (although often cover more than one village)

**Gram Sabha** – village council (constituting all adults in village)

**Hindutva** – far right Hindu nationalist movement

**Khalsa** – crown lands (pre-independence)

**Kharif season** – monsoon season – July to August

**Khatedari** – legal tenant of land

**Jagirdar** – feudal lord, possessor of a jagir

**Jagir** – land holding of a feudal lord.

**Jati Panchayat** – caste panchayat

**Mina** – tribe with scheduled status in Rajasthan

**Nagarpalika** – urban local government (as opposed to panchayat)

**Non- khatedari** – land without legal tenant

**Oran** – sacred forest around a temple

**Panchayat Samiti** – elective body at tehsil/block level

**Patta** – title to land

**Rabi season** – irrigation dependent season – November to February

**Rajput** – dominant caste in Rajasthan

**Recession farming** – land which becomes available after water recedes

**Tehsil** – elective area, corresponds to a development block

**Sarpanch** – chairperson of the Gram Panchayat

**Swadeshi** – self-reliance

**Swaraj** – home-rule

**Ward Panch** – village representative on the Gram Panchayat



## Abstract

This study examines government-centred jatropha cultivation for biodiesel as promoted by the biofuel policy of the desert state of Rajasthan, India. The drive to find alternative domestic sources of energy is intense in a country which sees demand rising in tact with economic growth, and which fears growing dependency on volatile international markets. Biofuel is seen as a possibility to help meet the demand for liquid fuels across the country. The government-centred model targets state owned wasteland for the plantation of jatropha, a drought resistant, hardy plant which produces non-edible oil which can be used as a diesel substitute. It aims to simultaneously offer a source of fuel, reclaim degraded land, as well as generate income for the rural poor. In this thesis I argue that the Rajasthani biofuel policy is paradoxical in its approach to rural development as it is an example of top-down development using bottom-up rhetoric. A blueprint for the cultivation of jatropha is welded on to already existing policies which have community participation as a central tenet. The element of participation therefore becomes undermined in the process. I also critique the blueprint as being built on unstable foundations; there are questions surrounding the viability of jatropha, as well as concerns surrounding the category of wasteland. All of these issues create concerns for the eventual success of any of the implemented projects. The theoretical criticism in this paper is supported by qualitative data collected in three case study villages in southern Rajasthan.

Keywords: India, Rajasthan, biofuel, biodiesel, jatropha, rural development, participation, blueprint development, wasteland

# 1 Introduction

Following reforms in 1991 India has enjoyed a period of intense economic growth. Securing future energy supplies in a shrinking energy market is vital if this is to continue. The benefits of growth however have failed to filter down to the many millions of its population still living in rural poverty. Despite the reforms which went some way to open up the economy India still considers itself a welfare state with development planning taking a key role. In its approach to biodiesel production we can see the state's attempt to address both the issue of energy security in relation to liquid fuels, and its obligations to provide for the rural poor. The use of the plant *jatropha curcas* as a feedstock was put forward as a central strategy in the National Mission on Biofuels published by the Planning Commission in 2003. Fundamental to this vision was the ability of the jatropha plant to not only survive drought conditions, but also to grow on land categorised as wasteland. Degraded land can, it is said, be reclaimed and brought under cultivation with very few inputs, offering the opportunity of income diversification for the rural poor without threatening food security.

In 2005 the desert state of Rajasthan took the initiative to develop its own biofuel mission. It saw potential in jatropha as a biodiesel source to provide rural development in a state which experiences low rainfall and often droughts, has a rapidly growing population, high under-employment and many people living below the poverty line. A Biofuel Authority was established within the Rural Development and Panchayat Raj (RD&PR) Department with the mandate of promoting biofuel development and research. They created a biofuel policy which presented the blueprint for the development of biodiesel production in the state. This blueprint, based upon the national biodiesel mission, targeted 'culturable wasteland' for the cultivation of jatropha. This land can be privately owned, under the direct authority of the state via the Forest Department and the Revenue Department, or under the authority of the Gram Panchayat (the state institution at the village level) on behalf of the community. The Biofuel Authority began by cataloguing the availability of this state controlled land and set targets for its allocation under the new policy. Funding and implementation of planting projects were linked up with other state-run development programs such as the rural employment schemes, soil conservation works, and joint forest management initiatives.

In a report for the German Development Institute (DIE) Altenburg, et al. (2008) identified three different categories of biodiesel value chain organisation in India. 'Farmer-centred

cultivation' concerns small, marginal and medium farmers who plant oil-bearing crops on their private land. 'Corporate-centred cultivation' concerns large-scale production for maximum productivity, where although the land maybe privately, community or state owned, it is a private company which takes responsibility for investment, planting, and maintenance. Of interest to me is the category 'government-centred cultivation' which concerns community based projects driven by social motivations such as employment generation, income diversification for the rural poor, increasing national forest cover, or protecting the soil from further degradation. As this is state funded cultivation on state land Altenburg, et al. (2008) identifies the government as the sole risk-taker in this model. Although all three of these value chain categories are promoted by the Rajasthani biofuel mission it is not possible to look at all three options in a study of this size. It is also not possible to consider the entire value chain of biodiesel promotion and production. I have chosen to focus on government-centred cultivation, concentrating on the issue of wasteland development.

The possible impact of biofuels on the livelihoods of the rural poor is hotly debated at local, national and international levels, in academic and corporate circles as well as by the popular press. The possibility of growing *jatropha* on wasteland with very few inputs makes it in the eyes of some a pro-poor alternative. Can this claim be validated? Looking at the actual impacts of an up-and-running *jatropha* project would have been an ideal way to study this question. This was not possible during my fieldwork as none of the plantations under the government-centred model were mature enough to produce fruits/seeds. However the ground realities I encountered during my fieldwork raised many interesting questions. As my stay in the area progressed I began to wonder whether there would be any production at all in some of the villages. How could it be possible to come to any conclusions about the impact of *jatropha* on livelihoods when it was the nature and implementation of the *policy* which could decide the fate of a project? Attention had to be turned away from the plant and the topic of biofuels per se to looking at the package within which it was a part. I needed instead to take a critical look at the blueprint.

Rural development in India has taken many guises in the years since 1947. India started its independence with a strong belief in state-led central planning where rationality and science were seen as the tools for the development of a modern economy. Although initially the focus was on the creation of heavy industry this approach was also turned towards agriculture. However, over time faith in the 'trickle down' process was eroded and the focus on regional

development had to give way to ideas of directly targeting the rural poor. Inspired by wider global development discourses as well as the home-grown Gandhian tradition what became known as 'blueprint development' was challenged as ineffective and inequitable. Central planning was seen as overly technocratic, top-down, and only able to offer a one-size-fits-all model which was unresponsive to the local context. Liberalisation in the 1990s also led to an increased role for markets and private actors. Blueprint development fell out of favour to be replaced by policies that espoused ideals of bottom-up, grassroots participation. Local democracy was to be strengthened and disadvantaged groups were to be empowered through, for example, the establishment of self-help groups (SHG). In the realm of natural resource management (NRM) there has also been a move away from state domination to a willingness to decentralise to local communities. Watershed Development (WD) and Joint Forest Management (JFM) are examples of such policies which can be labelled as community-based natural resource management (CBNRM). This new policy trend, grounded in a paradigm shift in the common property literature, recognised that common property did not necessarily result in the 'tragedy of the commons' (after Hardin, 1968), but could in fact be effectively governed by rules and institutions from within the local community.

It is clear from looking at a number of different policies that the rhetoric of rural development in Rajasthan is embedded within this new decentralized participation paradigm. According to the Human Development Report done by the state (Government of Rajasthan (GoR), 2002) people's participation is one of their development objectives alongside employment generation and poverty reduction. It states that 'people are not just passive targets of development assistance but active agents of change' (ibid, 2002, p.20). It points to its efforts to strengthen the Panchayat Raj Institutions (rural representative bodies) and claims that the state was one of the first in India to embrace the WD approach. It was also quick to make its own JFM resolution (Negi, et al., 2004). Rajasthan is also a forerunner in the implementation of the National Rural Employment Guarantee Act (NREGA) (Ministry of Rural Development (MoRD), n.d.), the latest rural employment scheme where the participation of the local community is seen as vital in the planning of projects. The various CBNRM policies and NREGA have been directly referred to in the biofuel policy as vehicles for the implementation of jatropha cultivation. This, however, creates a paradox. The biofuel policy can be seen as an example of blueprint development as it prescribes what to plant and where to plant it, and yet it envisions using mechanisms established under the decentralized participation paradigm. But how can a policy which in practice ties development packages to

the cultivation of one plant be reconciled with grassroots participation? This highlights a contradiction that exists between the continued bureaucratic control of the state and its efforts to decentralize decision making to the local communities.

What are the consequences of this policy, and what are the consequences of this paradox? This study is based on 8 weeks of fieldwork conducted in southern Rajasthan between November 2008 and February 2009. Three villages in the Udaipur District of Rajasthan were chosen as case studies, one for each of the categories of land specified in the biofuel policy; community, government and forest. This allows for a broad discussion of relevant issues concerning the various actors involved in the implementation of the policy. By looking at the concrete examples presented in my three case study villages I hope to explore what effect the tension between the two development approaches has on the ground, and ultimately on the success of the projects.

## **1.1 Objectives**

The main objective of this thesis is to answer the following research question:

**What are the consequences for rural development schemes from the Rajasthani biofuel policy promoting government-centred *jatropha* cultivation for biodiesel?**

To help answer this question I have three sub questions. As stated, I see the policy as inherently paradoxical as it is an example of a top-down blueprint using bottom-up participation rhetoric. The first of my questions therefore looks at the policy from the perspective of 'blueprint development', and asks:

- ***How reliable is the blueprint?***

To do this I need to look critically at the underlying assumptions. According to Roe (1991) narratives are used as shorthand in the process of blueprint policy making, so by identifying and deconstructing the narrative it is possible to discover what assumptions it is founded on. The two categories within the narrative I will be taking a closer look at are 'jatropha the wonder crop' and 'wasteland'. The first issue of jatropha begs the question of whether it can actually deliver on all of the promises that are given. Can it simultaneously provide high yields on marginal land with few inputs whilst providing employment, reclaiming land, preventing deforestation, and securing energy? The second category of 'wasteland' raises two questions. The first asks: what is wasteland? Wasteland can be read as 'wasted land' and creates the impression that it is not used or indeed useable, leading to the assumption that any development will be positive as it is presently unproductive. Yet by examining the historical

origins of this category we can see this term owes more to colonial bureaucracy than to local use and context. The second question is one of ownership and use. In the government-centred model wasteland is owned by the state, leading Altenburg, et al. (2008) to assume the government as the sole risk taker. However these lands can be thought of as “assumed commons” (after Singh, 2004) due to the role they play in rural livelihoods, and indeed land has been a contested arena in rural Rajasthan since before independence. Projects may therefore have costs and consequences to individuals within the communities which remain hidden in the narrative.

The second question looks at the policy from the perspective of the decentralisation paradigm, and asks:

- *Are the government-centred jatropha cultivation projects able to deliver on the ideals of CBNRM?*

This is of course a huge question in itself, but I want to focus on three issues; the targeted land, participation and knowledge. How has land use changed? Who gets access? What institutions are in place governing the land? What is the status of the plantation and who has responsibility? When it comes to participation, were the beneficiaries involved in the decision making of the project and at what level? Closely related to participation is the issue of knowledge. To enable rural people to make informed decisions it is of course important that they are made aware of the full implications of a project. So to what extent were the beneficiaries informed about jatropha; its uses, best cultivation practice, new markets for biofuel, the minimum support price, and so on?

The final sub question asks:

- *What are the views of the project beneficiaries?*

How do they view the projects? How do they view jatropha? Do the projects fulfil their needs? If not, what sort of project would they like to see on the land in question? Despite the war of words between pro and anti biofuel factions on behalf of the rural poor, there is very little information coming from the people themselves. This is especially relevant in a development climate which is supposed to involve the beneficiaries in the decision making process.

## **1.2 Study's Structure**

As the research questions were very much shaped by the fieldwork experience in Rajasthan I have chosen to begin this study with an introduction to the study area in **chapter two**. After a brief geographical overview I present the institutions and policies involved.

**Chapter three** takes a look at development. I look briefly at changing theoretical thought and link it to the Indian context in an attempt to show the historical roots of the conflicting approaches we now see in the biofuel policy. I then look at different approaches to rural development praxis, broadly categorised under the headings ‘blueprint’ and ‘process’ and explore key concepts such as ‘community’ and ‘participation’.

In **chapter four** I look more closely at the narratives that surround biofuels generally and then jatropha on wastelands in India more specifically. This allows me to take a closer look at the assumptions underlying the two main categories supporting the blueprint, that of ‘jatropha the wonder crop’ and ‘wasteland’.

**Chapter five** presents and explores the methodology used in the field, and the trials and tribulations of field work.

The three case study villages which were chosen during my fieldwork are presented in **chapter six**.

In **chapter seven** there is a discussion about the nature of the policy, the effect of the paradox, and the results on the ground. I finish by offering my views on what the biofuel policy and CBNRM should be concerned with.

Finally I offer some concluding comments in **chapter eight**.

## 2 Context: Rajasthan

### 2.1 Geographical setting

Rajasthan is positioned in the north west of India alongside the border with Pakistan (map 1 below). It is the largest Indian state covering 342,239 square kilometres (GoR, 2002). It can be divided into three physiographic regions. In the west, and constituting 60% of the land area, is the extension of the Thar Desert. This arid and semi-arid region is sparsely populated, but does have a high density of livestock. It is characterized by extremes of temperature (7°-48°C), low and erratic rainfall (100-400mm annually), low humidity and high wind velocity (SPWD, 2008). This desert area is arrested by the Aravalli Range which traverses the state from northeast to southwest (map 2 below). To the east of this range and in the east of the state is a semi-arid/sub-humid area. Here extremes of temperature are still experienced but rainfall and humidity are higher whilst wind velocity is lower. The third area in the south is a forested hilly region which includes the highest elevations within the Aravalli range. This area enjoys much higher rainfall (500-900mm annually) and is spared the extremes of temperature experienced in other parts of Rajasthan. Due to this higher rainfall and milder climate it is the 11 districts within this predominantly 'tribal' area which have been targeted by the Rajasthan biofuel policy.

**Map 1: Rajasthan Location Map. Source: 'Maps of India'**



**Map 2: Rajasthan Physical Map. Source: 'Maps of India'**



In 2001 the population of Rajasthan stood at 56 473 122 and its population density was 165 per km<sup>2</sup>. It has the highest decadal population growth in India. Nearly 70% of its population depends upon agriculture and its associated activities (GoR, 2002), and 22% are registered as being below the poverty line. The main crops consist of grain crops such as wheat, corn and millet, pulses, and oils seeds such as sesame and ground nut. The building and implementation of the Indira Gandhi Canal Project has provided irrigation in some areas allowing for the intensification of agriculture and the adoption of high yield crops (Vyas, 1998). This has brought a level of prosperity to the 'green revolution' farmers in the north of the state. However, only 20 % of cultivated land is irrigated and the majority of the state agriculture is still dependent on erratic rainfall. This leaves the population vulnerable and facing hardships in the event of monsoon failure. The short agricultural season due to lack of irrigation also results in a high demand for employment for a large part of the year. The increase in population taken together with a decrease in the size of land holdings, drought, ecological fragility and the persistence of feudal relations are given as constraints on the growth of the agricultural sector (GoR, 2002).

Livestock is the most important source of livelihood after agriculture, with Rajasthan boasting the highest population in India (ibid.). There are nomadic herders of sheep and camel as well as dairy producers who rely on stall-fed cattle. Animals not only provide goods for both the market and subsistence needs but they also provide valuable manure for the poor soils. Livestock also plays a central role in the cultures of many communities and transhumance migration from the west of the state to the more fertile east/south east has a long history (see for example Kavoori, 2000). Apart from those groups specialising in animal husbandry, livestock also plays an important role in the livelihoods of marginal farmers. Animals are not as immediately vulnerable to monsoon failure as crops so they can be understood as acting as an insurance policy, preventing destitution in times of drought.

9.54% of land in the state is classified as forest; 37% is reserved, 53% is protected and 10% is unclassified (Department of Forest (DoF), n.d.a). The different categories determine how the forest can be used and conserved but also act to put forest areas under the dominion of the Forest Department. Forest areas contribute Rs7160 million (\$154 million) per annum, 0.6% of state domestic product mainly from timber such as teak (ibid). According to the 'Rajasthan Human Development Report' (GoR, 2002) 5 million tribal people mainly in the south also derive seasonal income through the collection of Non-Timber Forest Produce (NTFP). This is

largely in the form of tendu leaves which are used to make beedis (a type of cigarette smoked throughout India). Forests also play a part in providing for subsistence needs, for example fuel and fodder, although this isn't without conflict with the Forest Department.

The climate of Rajasthan can be divided into four seasons: pre-monsoon, monsoon, post-monsoon and winter. It is during the monsoon season, which extends from July to September, that the state receives 90% of its annual rainfall. Drought is however a reoccurring reality in Rajasthan with consequences for both poverty and for the livelihood strategies of the poor. 'One lean year in three and one famine year in eight' is a local saying (Bhandari, 1974), where famine could refer to water, food, fodder, or a triple famine concerning all three. The Human Development Report states that between 1981 and 1995 there were 9 years of consecutive drought, with a severe drought in 1999. According to news report there was also drought in the years 1998-2003 (BBC, 2003). At the time of writing in 2009 the monsoon has been reported to be the weakest since 1972, with 34% below average rainfall reported in Rajasthan and 26 of 33 districts declared drought hit (India Metrological Department, 2009). It is obvious that securing subsistence and the survival of livestock in the face of such climatic insecurity is a challenge which continues to face many people in the rural areas. Dependence solely on rain-fed agriculture is not an option and households seek to diversify their livelihoods through livestock, NFTP collection, paid employment, and seasonal migration.

## **2.2 History and Social Organisation**

### **2.2.1 History**

From the 7th century the area that is now Rajasthan was colonised by Rajput rulers from other parts of northern India, who established what Haynes (1978) describes as 'conquest states' based on the Rajput lineage system. In the face of competing claims within this lineage system, and with the threat of encroachment from rival kingdoms, the rajas, or kings, sought to legitimize their rule through gaining allegiance with the neighbouring imperial power of the Mughals. Although independently ruled, they thus became incorporated into the Mughal administration and military system (Ramusack, 2004). As the Mughal Empire declined this search for outside legitimation was turned towards the growing power in Delhi, that of the East India Company. The British allied themselves to selected Rajput rulers 'simultaneously stabilizing the rajas authority and the company's rule' (Haynes 1978, p.421). The 21 princely states in the region became organised under the Rajputana Agency and were then ruled

indirectly by the British Empire. The existing feudal system of the princely states, land ownership patterns and economic organisation were not interfered with as long as British interests were maintained. After Indian independence the states were united to form the current state of Rajasthan.

### 2.2.2 Caste and Tribe

An important element to social organisation in Rajasthan, as in the rest of India, is that of caste. The caste system is popularly associated with Hinduism and is understood to have its origins in sacred Hindu texts. These divided the Hindu community into four ranked groups or *varnas* (*Brahmins*, *Kshariyas*, *Vaishyas*, and *Shudras*) which act, according to Bayly (1999, p.25), as a ‘scheme of idealized moral archetypes’. In Dumont’s classic work on castes (1969), they can be seen as constituting a hierarchical system which ranked groups based on ideas of purity and pollution. Those who were not included as a part of this fourfold system were deemed the most impure and became what was known as ‘untouchable’. However, as pointed out by Bayly (1999), the idea of caste is not isolated solely to the Hindu community, and there needs to be a distinction between the Brahminical traditions of caste as *varna*, and the concept of caste as *Jati*. *Jati* are smaller scale birth-groups and can be considered to be the concrete experience of caste in everyday life. It is one’s *Jati* which dictates social roles, marriage, occupations and relations with the wider community. This system can be understood as being both incorporated into the *varna* system, and at the same time as independent of it, encompassing as it does communities outside Hinduism. The origins and nature of caste as a social organizing principle is still very much debated. Although some see it as a ‘monolithic cultural code’ dictated by religion, others believe it is actually an ‘orientalist fiction’ constructed during the colonial period and reinforced through essentialist ideas such as those put forward by Dumont. Regardless of this debate, I agree with Bayly (1999) when she states that caste needs to be considered as a dynamic and multidimensional reality of Indian life.

Another important element in social organization is the idea of tribe. In India, communities which see themselves as ‘indigenous people’ are known under the common name of *Adivasi*, a term derived from the Sanskrit for ‘original inhabitants’. They are seen by some as self-governing ‘first nations’ (Bijoy, 2003) who over the years were pushed into more isolated forest areas by succeeding waves of colonization whilst remaining independent and culturally distinct from the ruling majority. *Adivasis* can be found all over India, and the hills and forests

of Southern Rajasthan are part of what is known as the 'central tribal belt' (Rath, 2006) which stretches from Gujarat in the west, until West Bengal in the east. According to Kjosavik (2006) *Adivasis* became excluded as the 'tribal other' under colonialism and have undergone a historical process of marginalization. They suffer from extreme discrimination, misery and destitution and are the poorest of the poor in India (Rath, 2006). It is claimed by many (for example Bijoy, 2003; Guha, 2007b) that not only have they been marginalized by the development process but have also been its victim, for example by being displaced by dam projects, industrialization, and by the 'privileging of the environment' (after Menon, 2007) through the establishment of national parks. There is however opposition against the idea that tribes are the indigenous population. The Hindutva movement on the Hindu far right define 'indigenous' as 'all those whose religions are born on Indian soil' (Sundar, 2002) in their ideological quest to recast India as a Hindu nation. In this way Muslims and Christians are excluded but Buddhists, Jains and tribal groups are considered indigenous alongside Hindus. They do not agree with the term *Adivasi* but instead use the term *Vanvasi* meaning 'forest people', and see them merely as 'backward Hindus' (ibid). They are considered 'primitive' in comparison to the 'civilized' Hindu majority. It can be argued that there has been an essentialisation of tribes as primitive, innocent, 'stone-age', closer to nature, and backward not only in the far right but in the general population. This perception is used by the state and others to justify paternalistic development strategies for their 'uplift'. However, essentialised notions are also used by the tribes themselves as a political tool in livelihood struggles against the state, for example in the *Jal-Jangel-Jameen* (water-forest-land) movement. The romanticized idea that their way of life is more authentic, static, co-operative, egalitarian, closer to nature and therefore more sustainable resonates with a more global environmental discourse which rejects the dominant capitalist system. In this way the political discourse of the '*Adivasi* movement' has become a part of a larger global 'indigenous movement' and is thus able to find solidarity beyond national borders (Rath, 2006). However, the title of *Adivasi* is deceptively simple as it encompasses more than 500 endogamous communities in India, whose culture, traditions, economic standing, and integration into the wider community is highly varied (Guha, 2007b).

In Rajasthan Unnithan-Kumar (1997) identifies Rajput as the 'landed, erstwhile ruling caste' and the Bhil as the 'archetypical tribe'. However, in her study of the 'tribe' Girasia she discovers that whilst outsiders identify them as relatives of the Bhils, they themselves claim to be Rajput. She discovers that the distinction between caste and tribe is in fact very difficult in

this region. The view that they are opposing social systems does not hold water as identities have been negotiated, reformulated, contested and subjected to outside imposition and dominance.

Caste and tribe need to be considered not only in terms of culture and tradition but as a political identity. This is also influenced by questions of status as an administrative category in relation to the state. The inequalities between different groups led to the categories 'scheduled castes' (SC) and 'scheduled tribes' (ST) to be created and listed in independent India's constitution. Being 'scheduled' gives certain specific privileges, protection and benefits in recognition of their historically disadvantaged and 'backward' status. SC refers to groups who were previously known as untouchables, whilst ST encompasses some, but not all of the groups who consider themselves *Adivasi*. The criteria used in allotting ST status include the presence of primitive traits, distinctive culture, geographical isolation, shyness of contact with the larger community, and backwardness (Ministry of Tribal Affairs (MoTA), n.d.). Although they are listed on the Indian constitution it is the responsibility of each individual state to allot 'scheduled' status to groups residing in its borders. This has in some instances resulted in a different status of the same caste/tribe living in neighbouring states. Rajasthan has the highest proportion of scheduled castes in India at 17% of the population. 12 tribes have been given scheduled status constituting 12.4% of the population (ibid.). In 1979 the Mandal Commission identified the category of 'Other Backward Caste' (OBC) which were also to be identified by the states as being entitled to certain privileges, and which were categorised according to economic and social criteria (Chalan, 2007). Examples of privileges include the reservation of seats on political bodies, quotas in universities, and access to funds and development projects earmarked for the uplift of India's 'backward' population. The politics of positive discrimination is however not without its critics. Although some point out its necessity in the face of continuing inequitable material realities (for example Ramaiah, 1992) others believe that it actually reinforces caste/tribe as the principle identity, perpetuating inequitable divisions in the social structure of Indian society (for example Bayly, 1999; Sen, 2006; and Tharoor, 2000). A stark negative example of this is what Bayly refers to as present day 'caste wars'. In Rajasthan this 'war' has been witnessed recently by rioting Gujjars, campaigning to be recognized as a scheduled tribe in order to gain access to development advantages (The South Asian, 2008).

### 2.2.3 Language, Religion, Class, Gender and the BPL Household

Alongside caste, the historian Ramachandra Guha (2007a) also identified language, religion, class and gender as important markers in India, not only of personal identity but also of political significance. The changing relevance and fluidity of these categories, the way they are reworked and reconstructed in the face of political mobilisation and conflict, and the role they have played in the history and political life of India, from before independence to the present day, has also been beautifully explored by Misra (2007). Language, for example, has played a key role in the organisation of the states up through India's history, and is a very emotive topic, especially in the Tamil speaking south. India is celebrated for being tolerant in the face of religious diversity whilst at the same time seeing extreme sectarian violence such as that witnessed at the time of partition, or more recently in Gujarat in 2002. Class is important and is arguably growing in importance as the booming economy opens up new opportunities which cut across caste barriers. The uneven nature of these opportunities is perhaps instrumental in an increasing awareness of the divide between rural and urban populations. Gender is a category which cuts across all the others. The traditional position of women in what can be seen as a patriarchal society has resulted in them having much lower human development indicators in many areas, for example literacy, health, employment and so on. This has led many to declare the 'feminisation of poverty' in Indian society (GoR, 2002).

Rajasthan is predominantly a Hindi speaking region, with Rajasthani having five primary dialects; *Marwari*, *Mewari*, *Dhundhari*, *Mewati* and *Harauti*. Hinduism is the dominant faith although all of the major religions are represented alongside the 'indigenous' faiths of tribal groups. Many communities, for example Rajput, have a strong tradition of *pardah*, where women are either to remain in the home, or wear a veil (*ghungat*) with which they cover their faces in public. Alongside caste categories, women too are the beneficiaries of positive discrimination in the form of reservations and quotas, in democratic institutions, education and various development schemes. Programmes are also set up which are exclusively targeted at women, for example the Women's Development Programme (WDP) in Rajasthan within which the acclaimed Sathin scheme is a part. This employs semi-illiterate and illiterate low caste rural women to work in their villages with the aim of empowering rural women (Unnithan & Srivastava 1997). Another category alongside caste and gender which is used by the state for targeting rural development initiatives is that of the below poverty level (BPL)

household. These are identified every five years by a special BPL census (Bandyopadhyay, 2007). This is perhaps the most relevant in terms of poverty reduction as it looks at the actual economic standing of each individual household rather than its predetermined membership of a particular group.

## **2.3 Formal Institutions**

### **2.3.1 Central and State Government and Bureaucracy**

India has a federal system with a distribution of powers between the centre, the Government of India (GoI), and the state, in this case the Government of Rajasthan (GoR). The shared constitution delimits the powers of each, awarding the majority of rural development responsibilities, such as natural resources, environment, agriculture, fisheries, and water resources, to the states (Riley, 2002). Despite this constitutional division of responsibility the actual situation is much more complex as the relationship between centre and state is dependent on political forces operating at any given time. According to Mathur (1982) this can depend upon inter-state rivalries, policies and demands of states, actual and perceived high-handedness of the centre and the nature and background of the political elites at both levels. The state does not have full freedom over rural development strategy as it needs to take changing legislation into consideration. Major nationwide anti-poverty programmes can also be directly imposed by the central government. Although some may argue that this is a necessity in order to tackle poverty where states lack either the expertise/funds or political will, others claim that it can lead to conflicts, duplication of programmes and that it is an undermining of state powers by the centre (Mathur, 1995; Riley, 2002). However, the reality is that rural development programmes can have a number of policy origins as well as chains of authority and funding. They can be a consequence of the direct involvement of the central government via one of its ministries, they can result from state policy formulated in reaction to central legislation, they can be purely a state initiative, or a combination of state and centre.

At independence India retained the bureaucratic ‘steel frame’ of the Indian civil service established during British colonial rule, renaming it the Indian Administrative Service (IAS) (Misra, 2007). An important bureaucrat in rural India is the district collector, a position that was first established by the British for overseeing control and revenue collection at the district level. According to Riley (2002, p.59) he remains the ‘single dominant actor in rural India’ and is referred to by Maheshwari (1995, p.230) as the ‘king-pin in rural development’. Below

the district level the infrastructure for rural development was created under the community development programme (CDP) as part of the 1<sup>st</sup> five year plan. Districts were divided into development 'blocks' with the block development officer (BDO) as a key administrator and an extensive network of village level workers and extension workers. The role of the BDO is to coordinate and implement development schemes within the block. This bureaucratic system has since been married to the elective political system in the form of Panchayat Raj Institutions, with the vision of decentralizing decision making to local democracy.

Before continuing a few words need to be said about the bureaucracy. According to Maheshwari (1995) despite some structural changes introduced since independence the administrative machinery is the traditional revenue one established under colonialism. District collectors, as employees of the IAS (part of the All-India Service (AIS)), are recruited and trained by the centre before being allocated a position in the districts. This is often only for a brief tenure as they experience frequent transfers (Maheshwari, 1995; Mathur, 1995). It is believed that this avoids the bureaucrat becoming embroiled in local politics but critics argue that this undermines accountability both to the state in which they are serving and to the local population. Riley (2002, p.59) claims that this demonstrates the 'tendency of the centre to retain a degree of political control at local level despite decentralisation attempts'. Maheshwari (1995, p.12) is critical that the instrument of rural development is the 'career bureaucracy' where performance is measured by those further up the hierarchy rather than by those who are supposed to be affected. He argues that the criteria of success has become that 'records are well kept, the prescribed targets are all 'achieved' and the allotted funds are fully 'spent''. The organisational structure and culture in government agencies is also criticised for being reluctant to devolve power to local democratic institutions (Kovavalli & Kerr, 2002).

### **2.3.2 Panchayat Raj Institutions (PRI)**

In 1957 the Balvantray Metha Report recommended a decentralisation of governmental power through the Panchayat Raj Institutions (PRI), a new system of governance modelled on ideas of the traditional made up of elected bodies at village and district levels. Rajasthan, alongside Andhra Pradesh, was the first to adopt this system and offer participation already in 1959 (Maheshwari, 1995). However, it wasn't until 1992 that the PRI were constitutionally recognised and were given authority over the planning and implementing of 'schemes for economic development and social justice', including soil conservation, irrigation, water management, watershed development, social forestry, farm forestry, drinking water, fuel,



fodder and waterways (Constitution of India, 1996 cited by Riley 2002, p.45). The elective system was built onto the administrative infrastructure with district, intermediate and village level to be appointed by direct election with tenure of no more than five years (Bates, 2005). The constitution also provided reservations for STs, SCs and women. The Zilla Parishad, with the district collector as head administrator, is the district council. There are 32 in Rajasthan, of which 11 are included under the biofuel policy. The districts are further divided into *tehsils* which correlate with the development 'block' and which has the Panchayat Samiti as its administrative centre. The Gram Panchayat is the state institution present at the village level, although in reality it can cover several villages. A locally elected representative from each village is then selected as 'ward panch' to sit on the Gram Panchayat, one of which will become the head with the title of 'Sarpanch'. The Gram Sabha is the village council constituted of each eligible voting adult in the village. This example of direct democracy is according to Maheshwari (1995) the 'foundation' of PRI. However, claims that the PRI's have devolved power to the rural masses along the lines of Gandhi's vision of 'little village republics' is debated. Critics charge that despite the reservations they have continued to allow power to be concentrated in the hands of the rural elite. There has also been the criticism that the real decision making power actually still sits with the bureaucrats at the block level (Bates, 2005). According to Sekhar (2000) the legal and formal status of gram panchayats makes them small replicas of state authority within the villages rather than representing the interests of the villagers themselves. However, it is through this system that developmental and improvement works are channelled.

This modern PRI system based on principles of universal adult franchise is not to be confused with traditional forms which may still be operating, for example the *Jati* (caste) *panchayat*. This consists of caste elders and may perform judicial functions, settle cases of violations of caste norms and rules, and dispense punishments. According to Madhok (2005) it is estimated that 21,450 such panchayats still exist in Rajasthan, with strong traditions in the castes *Kumawats, Mina, Gujjar, Maghwal, Jats* and *Meos*.

### 2.3.3 Rural Development Programmes

The local bureaucracy together with the PRI implement rural development programmes from both the state and the centre. This can also be in partnership with local NGOs. The District Rural Development Agency (DRDA) has the job of coordinating and facilitating intersectional and inter-departmental cooperation at the district level for all of the poverty

alleviation programmes initiated by the central Ministry of Rural Development. Originally formed to implement the Integrated Rural Development Programme in the early 1980s (Mathur, 1995), it is aimed at being an autonomous entity and is registered as a society. Each agency has a self-employment wing, women's wing, wage employment wing, watershed wing, engineering wing, account wing and a monitoring wing. It is funded by both the centre and the state and is headed by the district collector. The vision is for a specialised and professional agency which does not involve itself in project implementation, the responsibility of the PRIs, but which instead has a co-ordinating role. It has been argued that it is problematic to local democracy as it by-passes the state as policy maker (Riley, 2002). However, this debate is ongoing as the balance of power is constantly under negotiation as new institutional arrangements are made. There are many different rural development schemes which are implemented to tackle a vast range of issues from health, literacy, employment, and natural resource management (NRM). I will now briefly outline a few which are particularly relevant for this study.

### **Swanajayanti Grama Swarojgar Yojana (SGSY)**

SGSY is a rural self employment scheme with the aim of bringing BPL families above the poverty line. Although the main focus is to provide access to bank credit and governmental subsidy to create income generating assets, the emphasis is on the social mobilisation of the poor. They are organised into self-help groups (SHG), a self-governed, peer controlled small association of the poor, usually from socio-economically homogenous families. This system of organisation has been inspired by Gandhian ideas of self help and the success of other microfinance schemes such as the Grameen bank in Bangladesh (Sinha, et al., n.d.). As well as credit it also covers training, capacity building, infrastructure build up, and technology and marketing support (MoRD, 2001). Women are also specifically targeted as 50% of all SHGs established in each block should be exclusively for women (ibid.).

### **National Rural Employment Guarantee Scheme (NREGS)**

An important new act is the 'National Rural Employment Guarantee Act (NREGA) 2005' the latest in a long line of employment schemes implemented by the GoI. According to Hirway (n.d.) previous schemes had all experienced similar problems concerning the creation and maintenance of durable assets and have had a limited impact on employment. However the NREGA has been hailed as a landmark act (Bandyopadhyay, 2007) as it frames employment as a legal right. Every single rural household is entitled to 100 days of unskilled work per year

on public works programmes. It is therefore the demand for work which determines the size of the programmes and not the supply. This employment scheme, whose main architect was the renowned economist Dr. Jean Drèze, is also underpinned by the concept of participation. It is envisaged that the planning of projects will be undertaken by the Gram Panchayat, based on recommendations by the Gram Sabha although projects will of course have to fit in with wider district plans. According to figures presented in 2008, 128 000 ha land was brought under jatropha plantation through the act (RD&PR Department, 2008).

### **Integrated Watershed Development Programme (IWDP)**

The latest approach for NRM used in India since the 1990s is a focus on a watershed as a unit for development in rain-fed areas, a watershed being a hydrological area with a common drainage point. It's a 'project based, ridge to valley approach for in situ soil and water conservation and afforestation' (Department of Land Resources (DoLR), 2001). The unit of implementation is the watershed committee, comprising of representatives from the Gram Panchayat, user groups, and the watershed association. The watershed association is a registered society at the village level and has responsibility for the organisation and maintenance of accounts and funds spent (Kolavalli & Kerr, 2002). This approach attempts to give local people the power to make decisions about project design and funding, to help raise productivity and conserve natural resources in rain-fed areas. Rajasthan prides itself as being one of the first states to recognise this approach to NRM with its focus on community participation in the development of common pool resources (GoR, 2002).

### **2.3.4 The Forest Department**

Although not directly governed by the British, colonial authorities were active in forestry in the Rajputana states (Robbins, 1998). The imperial British forestry was based on German models, which was concerned with scientific management and sustained yields of timber (ibid, 1998; and see for example Scott, 1998). In 1951 a unified forest department was established in Rajasthan, and forest areas were classified and bounded into blocks which were then notified in the Rajasthan Forest Act in 1953. In this system forests have been considered separately from the communities that live in the area. Despite the Forest Department being part of the Rajasthani state, policy, models, and targets for quantity, coverage, and species planted are decided at the centre by top bureaucrats in the Indian Forest Service. This is also a part of the AIS organised at the national level. According to Saxena (1997), this empowers the central ministries to legislate over forests despite this being the responsibility of state.

However, Robbins believes that the system is not only top-down as there is room for adaptation to local conditions, although this may create a ‘collision’ in views and approaches for local forest officers.

After independence the focus of the national forest policy was still on scientific forestry, which saw forests as a resource for timber and looked to the production of high value or high yielding species such as teak and eucalyptus (Saxena, 1997). It wasn’t until the 70s that local users were considered and funds were made available for social and farm forestry on non-forest and private lands. This was however based on the understanding that overexploitation by villagers was putting a burden on production forestry. Robbins (1998) claims that this industrial focus was not as marked in Rajasthan as in other Indian states as here there has always been investment in social forestry in order to meet the ‘perceived crisis of degradation’. Indeed, the Forest Department website still claims that they are concerned with the ‘destruction of forest land due to increase in domestic use beyond recuperation capacity plus nomadic pastoralists with sheep and goats’ (DoF, n.d.b).

The National Forest Policy 1988 was, according to Saxena (1997), a radical shift from the earlier revenue orientation. Instead of a focus on commercial exploitation there was a new focus on soil, environment, and conservation and in meeting the subsistence needs of the local population. This meant that there was a move away from a focus on single species to the ideal of mixed forests, with increased emphasis on NTFP. This policy also envisages one third of the total area of the country to be under forest cover. According to Balooni and Singh (2007) this means that a large proportion of wasteland must be afforested. The present mandate of the Forest Department as presented on their website includes the protection, development and management of forest and wildlife resources, the implementation of the National Forest Policy of 1988, afforestation programmes to check desertification, undertaking plantations on revenue wastelands, and the promotion of farm forestry through the distribution of seedlings (DoF, n.d.b).

Another piece of important legislation the Forest Department must take into consideration and which is especially relevant to the biofuel policy is the Forest (Conservation) Act 1980. This prohibits state governments from using forestry land for non-forestry purposes without central clearance (Sekhar, 2000). According to this act no state government can order “that any forest land or any portion thereof may be used for any non-forest purpose” where non-forest purpose

is defined as “the cultivation of tea, coffee, spices, rubber, palms, *oil-bearing plants*, horticultural crops or medicinal plants” or “any purpose other than reforestation” (GoI, 1980, my emphasis).

### **Joint Forest Management (JFM)**

In 1990 the Joint Forest Management resolution was issued by the Ministry of Environment and Forests, which triggered the GoR to issue its own resolution in 1991 (Negi, et al., 2004). This is an attempt by the state to decentralise forest management and involve people at the local level (Sekhar, 2000). It envisages the constitution of village forest protection and management committees (FPCs) which will work together with the Forest Department in the management and conservation of forest areas. In this way the villagers should get entitlements over access to forest land, grasses, lops, NTFP, and a portion of the proceeds from the sale of timber, and the Forest Department will no longer have to police the area to prevent encroachment. Saxena (1997) classifies this system as a ‘hybrid property rights regime’ as it combines both state and common property institutions with the objective of preventing open access. Singh (2004) calls it a ‘contractual property regime’ but believes it is a ‘half-hearted instrument’ as all the decision making is still done by the Forest Department. There have been many criticisms of JFM especially concerning this issue of power and the lack of true participation of the local population (for example Balooni & Singh, 2007; Martin, 2003; Negi, et al., 2004; Saxena, 1997, 2000; Sekhar, 2000; Singh, 2004). The reluctance of the Forest Department to devolve the decision making process is perhaps explained by their view, expressed earlier, that local people are the cause of degradation. It is also mirrored in the fact that despite the resolution being issued already in 1991, by 2003 it only affected 10% of the total forest area in Rajasthan (Negi, et al., 2004). A further complication in the implementation of JFM is the latest step in the decentralization of forest management, that of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (herein referred to as the Forest Rights Act). This is looked at in the following section.

### **2.3.5 Tribal Legislation and Administration**

As mentioned earlier ‘scheduled tribe’ is an important administrative category which has been used for targeting development schemes, at least at the policy level, since Indian independence. The 5<sup>th</sup> five year plan (1974-1979) saw the introduction of the ‘tribal sub-plan’ (Rath, 2006). According to the constitution each state is obliged to have this sub-plan within

the ambit of the state plan which is to focus on the welfare of scheduled tribes. 'Scheduled areas' are declared in blocks where STs represent over 50% of the population, guaranteeing funds from both the state and central ministries for the 'all round development of the tribal area' (MoTA, n.d.). In Rajasthan scheduled areas include the whole of Banswara and Dungapur districts, 17 village clusters within Udaipur District, one block in Chattargah, and one block in Sirohi district. Under this plan the Rajasthan Tribal Area Development Cooperative Federation was established, known locally as 'Rajasangh'. This is a Forest Development Corporation, a registered society which is provided funds from the centre for the procurement of NTFP. The aim is to eliminate middlemen so that the benefits can be passed directly onto the tribal collectors. Although the performance of Rajasangh is under debate (Mishra, n.d.; Samathak Samiti, [pers.comm] 2008; Tewai, 2004;) they are an important actor in the biofuel policy as they have in effect a monopoly over NTFP collection in scheduled areas.

In 1996 the Panchayat (Extension to Scheduled Areas) PESA Act was written into the constitution. This gives governance powers directly to tribal institutions, empowering Gram Sabhas to preserve cultural identity, control community resources, maintain traditional dispute resolution mechanisms, the right to dispute government plans, and ownership over NTFP (Menon, 2007). According to the 'National Advocacy Council for Development of Indigenous People' this act was the most important piece of legislation for tribals since scheduling. Nevertheless, they go on to say that no state has implemented it in its true spirit and that many tribal communities remain oblivious to the enabling powers and provisions it contains.

The Forest Rights Act is a recent and controversial piece of legislation affecting tribal politics in India. It seeks to rectify historical injustices over the rights of forest tribes to control forest resources. It recommends the allocation of legal ownership rights of a maximum of four hectares to each tribal family in the scheduled areas who have been continuously resident on, and utilizing forest land before December 2005 (GoI, 2006). Implicit is the assumption that giving rights would improve the management of forests (Menon, 2007). Many see this as a victory for tribal rights, for example 'The Campaign for Survival and Dignity' (n.d.), but there is vocal opposition. The Mumbai based environmental group 'Vanashakti' for example believe it will lead to massive deforestation over the whole of India, leading to a number of related environmental disasters. This is perhaps an example of what Cederloff and

Sivaramakrishanan (2006) see as the ‘cosmopolitan-secular ecological nationalism’ of the urban elite coming up against the ‘indigenist ecological nationalism’ of the *Adivasis*. On a more practical level there has been concern over the effect the Act will have over the authority of the Forest Department over conservation, where ‘privileges’ given by JFM schemes are reformulated as ‘rights’ (UNDP, 2008). The extent to which the Forest Rights Act will actually interact with the biofuel policy is unclear. Some groups working with tribal rights, for example the Rajasthan based NGO Aastha, believe that the biofuel policy threatens the implementation of the act as commercial interests will take precedence over *Adivasi* land claims (Mangolan Gujjar, [per.comm] 2008). In response they have mobilised against the policy, organising protests and resistance against it. This adds an extra element in the general attitude towards both biofuels generally and the jatropha policy more specifically in the state.

Although the two tribal villages presented as case studies in this paper are not within the scheduled area, it is still important to consider how tribal administration and legislation affects rural development in the state. It is important for understanding not only the larger picture of how the biofuel policy is being implemented, but also how attitudes and debates are influenced and defined. Tribal politics are a very important issue in Rajasthan generally and impacts upon attitudes towards development policies beyond ‘scheduled area’ borders.

### 2.3.6 NGOs

India is home to large number of Non Governmental Organisations (NGOs), too diverse to be easily categorised (Riley, 2002). The important role they play in the delivery of rural development programmes is recognised both at the national level and by the state government. This so called ‘third sector’ (Hulme, 1994) is seen as a way of increasing community participation in the development process thus ensuring greater sustainability of projects (GoI, 2008; GoR, 2002; UNDP, 2008). For example, NGOs are sought to act as implementing agencies for projects under WD, JFM and SGSY. They are seen as both making available more capacity and knowledge, and as a way of reducing the burden on the state. They are therefore regarded as a possible partner in the implementation of projects under the biofuel policy, although to what extent they have actually involved themselves up till now is unknown to me.

At the beginning of my research I believed that NGOs were instrumental in the implementation of jatropha plantations, and so my first contact in Rajasthan was with the

organisation called 'Aravalli'. This is what Brown and Korten (1989) would perhaps refer to as a GONGO, a government organised NGO. They were set up in 1994 by the GoR to ensure and improve GO-NGO partnership in the state working in the field of NRM and microfinance (Aravalli, 2004). The staff members within this very supportive institution were themselves interested in the topic of jatropha although they had no official standpoint on the issue. They introduced me to some of their partner institutions working in the field, who helped by furnishing me with local knowledge and by acting as gatekeepers into villages which were to become my case studies. None of the NGOs I was put in contact with were directly involved in jatropha projects although they worked in villages where they had taken place. 'Prayatna Samiti' is a small NGO working on NRM and microfinance projects in Udaipur District. The staff members I spoke to were sceptical to the large scale planting of jatropha on wasteland, although they had no objections to its promotion as fencing. They believed that the policy did not consider the complexity of land use patterns in the villages. The Society for the Promotion of Wasteland Development (SPWD) is a national organisation which has a regional office in Udaipur. Alongside lobbying and campaigning the highly educated staff members undertake research projects in partnership with local, national and international organisations. All of the staff members I spoke to were against the biofuel policy and have produced many documents and articles condemning it on several fronts. 'Progress' is an NGO working in Banswara district. The staff here were more positive to jatropha which they believed had a value in areas where very little else could be grown. They had had a project promoting the production of biodiesel from jatropha for local use, but had terminated this due to lack of interest and due to questions of economic viability. Although I was not able to include the villages visited with this NGO as case studies in this paper, exposure to this area helped to broaden my general understanding of the situation, especially in regard to tribal issues. Alongside these I also visited many other NGOs in the area for discussions and interviews on the topic of biofuels. A list is given in appendix 1.

## **2.4 The Biofuel Policy**

### **2.4.1 India**

The Government of India is concerned with the 'formidable challenges' presented by the increasing gap between the growing demand for energy and the domestic supply available (Planning Commission, 2006a). It is ranked 6th in the world in terms of energy demand, 3.5% of the world's total in 2001 (Glueck, et al., 2005). In 2003 70% of its crude oil



requirement was met through import at a price of \$1836 billion. By 2030 it is estimated that 5.8 billion barrels of oil a day would be required, 94% of which would need to be imported (Kumar & Maithel, 2007). It is feared that this growing dependency on imports would put the country at the mercy of supply risks (from for example conflict, strikes, or political upheavals) and market risks (price volatility), factors driving the desire to expand domestic resources. According to their Integrated Energy Policy (Planning Commission, 2006a, p. xxiv) 'it is not a question of choosing among alternative domestic energy resources but exploiting all available domestic energy resources to the maximum as long as they are competitive'. Alongside energy India is also concerned with food security and growing population/demand, climate gas emissions, as well as providing development opportunities for its vast rural population.

In 2003 the Planning Commission published its Report of the Committee on Development of Biofuel which looked at the options for ethanol and biodiesel production in India. Liquid fuel accounts for 28% of petroleum consumption, and the transportation sector is seen as having a crucial role in the economic development of the country (Planning Commission, 2006). The main focus for biodiesel production was the promotion of Jatropha. Chapter 5 (pp.110-129) in the report entitled 'National Mission on Biodiesel' can be seen as offering the blueprint for jatropha promotion. Here it was claimed that jatropha had the advantage over other promising oil-bearing tree-species due to several factors; it has the highest oil yield per hectare, is an easily established and hardy plant, it can thrive in areas with rainfall as low as 200mm, it can be grown on marginal low fertility lands, and it is not browsed by animals. Seed production is predicted as being between 0.4 to 12 tons a hectare, with an oil content assumed to be 35%. The report stated that the promotional programme needed to be taken up in:

- 'Understocked forest lands including areas adjoining them through the JFM Committees and under Social Forestry Programme by Government agencies, and
- Lands outside forest areas – public, community and private – through voluntary organisations and government agencies making use of the programmes of NOVOD, CAPART and programmes of the Ministry of Rural Development such as Integrated Wasteland Development Programme (IWDP), Drought Prone Area Programme (DPAP) etc' (Planning Commission, 2003, p.113).

It goes on to give recommendations for density of plantations (2500 plants per hectare, spacing of 2x2metres), estimates of yields, work days created, and costs for the establishment of nursery programmes and processing centres. The vision is that jatropha biodiesel will

provide employment generation for rural poor, will aid in the regeneration of wastelands, reduce emissions, and of course contribute towards a reduction in oil dependence, all without encroaching on arable land used for food crops.

Despite the publication of the biofuel mission in 2003, it wasn't until December 2009 that the cabinet finally approved the 'National Policy on Biofuel' prepared by the Ministry of New and Renewable Energy (MNRE). The stated goal of the policy 'is to ensure that a minimum level of biofuels become readily available in the market to meet the demand at any given time' (MNRE, 2008, p.4) and the salient features of this policy include:

- A target of 20% blending of biofuels by 2017
- Bio-diesel production to be taken up from non-edible oil seeds in waste / degraded / marginal lands
- Biodiesel plantations to be encouraged on community / Government / forest waste land and not on fertile irrigated lands
- Minimum support price to provide a fair price to growers

### **2.4.2 Rajasthan**

Already in 2005-6 the State Government of Rajasthan took the initiative to constitute a biofuel mission. This saw potential in tree borne oil seeds, specifically jatropha, to offer rural development and reforestation utilizing wastelands in the state. Not only did it seek to marry the promotion of jatropha with other development schemes (for example IWDP, JFM and NREGS) but also sees its role in research, nursery raising, distribution, funding, and processing of biodiesel. They view it as an integrated approach to biofuel promotion involving many ministries. To implement the objectives of this mission the Biofuel Authority was set up within the Rural Development and Panchayat Raj (RD&PR) Department and a biofuel policy was declared (Biofuel Authority, 2007). The 11 districts in the south of the state (Baran, Banswara, Bhilwara, Kota, Bundi, Rajsmand, Sirohi, Chittorgarh, Dungarpur, Jhalawar, and Udaipur) were considered suitable for plantation, and it was calculated from agricultural statistics (2004-5) that there was a total of 72 9312 ha of culturable wasteland. From this, 40495 ha were reported as available for allotment by the district collector.

Jatropha is seen as the prime candidate for plantations on this land due to its low water requirements and its ability to bear seeds after 3 years. According to the policy land for biofuel plantation and for biofuel based industry and processing unit may be allotted to:

- (a) Self Help Group of Below Poverty Level (BPL) families,
- (b) Village Forest Security and Management Committee,
- (c) Gram Panchayats,
- (d) Agriculture Co-operative Societies,
- (e) Societies,
- (f) Government Undertakings, and
- (g) Companies.

The land allotted to the above agencies will be leased from the state. Categories a-e will be allotted 70% of available land, to be leased without a fee. The remaining 30% will be available for lease to categories f-g at a very low rate. A *green patta* (land title) will be awarded on the condition that jatropha is planted within two years. The blueprint given for the planting: spacing, density, costs, yield projections and so on are the same as that given in the National Biofuel Mission discussed above (Biofuel Authority, 2007, p.47). The implementation of the policy is to be done through the rural development schemes already in operation under the RD&PR department, via the PRIs as well as with the Forest Department. I was told by the Deputy Chief executive officer of the Biofuel Authority that they set targets for the allocation of community and government land which were to be met by the district collector. The district collector in turn looks to the block development officer, who is a vital link in the implementation of the plantation projects with the local communities via the PRIs. July 2009 figures published on the Biofuel Authority website show that 927 SHGs have been allotted 8369.51 ha of land, 450 Gram Panchayats have been allotted 4420.95 ha, and 2 societies have 80.95 ha.

I was told by the Chief Conservator of Forest in Udaipur that forest land is *not* allotted by the Forest Department under this policy as there is presently no legal procedure that allows for this to take place. This would contravene the Forest (Conservation) Act of 1980. Jatropha is rather planted mixed with other species with the aim of reforestation. There are no official targets for planting but is instead largely dependent upon funding (coming via the Biofuel Authority or NREGS for example), and local suitability. He told me that all planting is with the help of the local community via “*the umbrella term*” of JFM. According to July 2009 figures presented by the Biofuel Authority, 2480 JFM committees have been formed in the 11

districts under the policy (available on their website). The Assistant Conservator of Forest expanded on the issue of JFM. He stated that jatropha had been introduced to already established village protection committees. However, he admitted that new JFM set up under the policy are JFM in name only, as in practice they are just employing local people as labour through the NREGA. As well as the planting on forest land the Forest Department is also responsible for setting up nurseries and supplying seedlings for other development agencies, funded by the Biofuel Authority.

A minimum support price for jatropha seeds has been set by the Biofuel Authority at \$0.15 (7.00Rs) per kg for the next 3 years (from 2008) through the Rajasthan State Cooperative Marketing Federation (RAJFED). In scheduled areas this will be organized through Rajasang, the Forest Development Corporation referred to under tribal administration.

The policy states that a maximum of 30% of targeted land can be allotted to Government undertakings and companies. This paper will not be looking specifically at these two categories as these do not concern government-centred development as defined in the introduction. Nevertheless, it is important to note this clause in the policy as it is this which has sparked most protest and resistance, especially from the tribal community. It is this clause which has contributed most to the charge of 'land grab' as it is feared that local communities will lose rights and access over land they consider to be theirs. This is especially relevant given the current debates over the Forest Rights Act, as discussed earlier. Although as yet no land has been awarded under this category so far, I was told by both the Deputy Chief executive officer of the Biofuel Authority and the Chief Conservator of Forest in Udaipur that discussions had taken place with foreign companies.

### 3 Development

The aim of this thesis is to explore the consequence of conflicting approaches to rural development in India and what it means for the implementation of the specific biofuel policy project. But what is meant by the term ‘development’? It is a concept which is elusive, ambiguous, chaotic and contested. There have been many approaches grounded in different paradigms; modernisation, dependency, basic needs, sustainable development, participation, market liberalisation, to name but a few, all of which not only have different strategies for achieving development, but which have different definitions for what development actually is or should be, and how it can be measured. In this chapter I attempt to link philosophical questions underlying the notion of development with discussions surrounding praxis. It is of course not possible in a study of this size to look in-depth at the entire history of development and implications on policy spanning the over 60 years since Indian independence. Out of necessity it will have to be simplistic and superficial. But by drawing out specific debates in development theory and relating them directly to the Indian experience I hope to highlight the conflict in approaches which has resulted in the contradiction we see in the biofuel policy; that of a strong rhetoric of participation alongside the reality of continued state control.

#### 3.1 *The ‘Development Project’*

What is development? Cowen and Shenton (1995) make the distinction between development as an ‘immanent process’, and development as an ‘intentional practice’. The first refers to an objective process which is driven by the inner dynamics of a system, for example capitalism. ‘Intentional’ development on the other hand is the subjective willed policy and action to achieve a specific result. They state that although intentional development is often said to have begun at the end of the Second World War, it actually has a much longer history firmly rooted in the 19<sup>th</sup> century European experience of industrialisation. They also claim that it emerged as a state practice as a means of managing populations adversely effected by the dynamics of capitalism, as a ‘counterpoint to progress’, to ‘create order out of the disorder of rapid urbanization, poverty and unemployment’ (1995:29). These ideas were also transferred to the colonies, and the ‘new’ imperialism of the late 19<sup>th</sup> and early 20<sup>th</sup> century saw ‘self-conscious’ efforts to use science and technology not only for opening up the tropics to European trade and industry, but ‘for the moral and material advancement of the colonial peoples’ (Hodge, 2007:7). It is this social engineering by political elites for the improvement of mankind which McMichael (2004) refers to as the ‘development project’. Although the

idea of development may have had its roots in western society and in positivist thinking from the Enlightenment, it was embraced by newly independent states as an important principle for pursuing economic growth, legitimacy and revenue collection (De Jong, 2006; McMichael, 2004).

De Jong (2006) identifies two major opposing paradigms in the history of development which are given by most scholars in some form or another. On the one hand is the modernisation/neo-liberal paradigm, where the capitalist economy and liberal organisation of society is considered the norm. On the other side the structuralist/critical paradigm takes its stance from a socialist perspective. However, she also presents an alternative conceptualisation highlighting a shift in development theory which occurred across the political divide. From 1950-1990 the development project was concerned with 'economic development'. It was focused on the level of the national state, and saw the state as having a dominant role, where top-down expert knowledge would provide material and economic growth. From 1990 until the present day the focus has instead been on 'human development'. Now the development project is seen as an interplay between state, market, and civil society, concerning both the local/regional level and global integration. It aims to be bottom-up, participative, responsive to different stakeholders, and promote material, social, cultural, and political development within a framework of sustainability (de Jong, 2006:28). Although oversimplified, this conceptualisation of two distinct *eras* is useful in looking at changes that have occurred in rural development approaches. Before we look at what this shift has meant in practice, I want to take a brief look at the underlying philosophy leading to this shift that occurred on both sides of the political spectrum with special focus on the idea of participation.

According to Murray (2006), the late 1970s witnessed a transition on the right from the modernisation model to neo-liberalism. The policies of the former were not seen to give results and government intervention was seen as the cause of inefficiency and corruption. Neo-liberal policies of structural adjustment were imposed by global institutions such as the World Bank and the IMF on debt ridden economies. This entailed 'rolling back the state' through privatisation, deregulation, a reduction of protectionist measures, and a reduction of public expenditure. There was however growing criticism about the untoward effects on the poorest and most marginal and the 1980s became known as 'the lost decade' of development, with neo-liberalism accused of 'reversing... the development project' (McMichael, 2004). Criticism was however responded to, and although economic policies still followed the neo-

liberal model, there was simultaneously a shift in the policy landscape towards projects focused on 'human development'. However, despite this 'softening' in policy this shift can be understood as working from within the logic of the neo-liberal paradigm. Privatisation of development to NGOs, and decentralisation directly to communities corresponded to ideas of 'shrinking the state'. Participation was seen as a way of not only making development projects more effective, but for transferring responsibility from the state/implementing agency onto the communities themselves.

Within the structuralist/critical paradigm, the loss of socialism as a legitimate alternative alongside the perceived failure of the development project (as witnessed by increased poverty for example) and the 'theoretical vacuum' caused by post-modern critique of social sciences resulted in what Schuurman (1993:1) referred to as 'the impasse in development theory'. The view from post-modern thought that all knowledge is constructed and contingent upon power, identity, and the construction of truth resulted in a rejection of the idea of development as a universal process with a linear progression. By using the (post) structural ideas of Foucault and Derrida, development became redefined as a discourse which does not reflect reality but actually constructs it. Influenced by post-colonial and subaltern theorists such as Said, Spivak, and Fanon, post-modern development scholars see this discourse as a process where Eurocentric concepts, theories, and practices are created and reproduced through the articulation of knowledge and power. Esteva, for example, sees development as a western concept used by imperial powers to support the ideological projects of domination (cited by Parfitt, 2002) and made the exclamation that 'development stinks' (Esteva, 1987 cited by Crush, 1995). This led some 'post-development' scholars, for example Escobar, Sachs, Rahemna, and of course Esteva himself, to reject the project of development altogether (Johnson, 2006; Parfitt, 2002). However, not all post-modern thought led to rejectionism. Parfitt (2002) argues that although any definition of development will be necessarily unstable, repressive, and exclusive, there is a moral imperative for 'social minorities' (meaning the privileged) to engage in the process when poverty and inequalities are increasing. He believes that it should not be rejected just because it is implicated in the application of power as this is unavoidable. He advocates the path of 'development of least violence' and sees non-action as more violent than the attempt to engage in the development process in an ethical and critical way. As a way out of the impasse the concept of participation was embraced as 'development of least violence'. It is emancipatory as it involves the transfer of power, builds project ownership, and enhances project efficiency, effectiveness, and sustainability. It is seen as a

way of avoiding foreign concepts and agendas from controlling and dominating the development process (Johnson, 2006). This allows for the aims of development to be defined by the communities themselves, within their specific social and cultural contexts.

The work of the Indian economist Amartya Sen can be understood as a bridge between the political right and left. He is a key scholar involved in redefining goals of development as human well-being by conceptualising it as capability, the range of things that people can do or be in life. Shanmugaratnam, (2001:267) summarised Sen's view that 'development is best seen as an expansion of people's capabilities, as a process of emancipation from necessities that constrain fuller realisation of human freedoms'. An expansion of the economy without an expansion of human capacities is not development, or can actually be seen as negative development if policies contribute to the capability failure of some (ibid). This shows the inadequacy of using solely economic parameters, such as per capita income, as a measure of development and the definition is widened to include social, cultural, and political freedoms. Sen's philosophy can be seen as being in accordance with the political right as he is strongly influenced by the ideas of Adam Smith, and focuses on individual freedoms. It can also be accepted on the political left as there is an appreciation of the structural inequalities present in society preventing these freedoms. Participation is essential to both act out individual freedoms and to tackle structural inequalities. The meeting of right and left on the issue of participation does not however mean that there is a consensus. On the one side there is a concern with efficiency, on the other that of social justice.

### **3.2 The Indian 'Development Project'**

India gained its independence in August 1947, when power was at last transferred from the British Raj to the Indian National Congress party. Nehru, as independent India's first Prime Minister, had a vision of transforming the country into a modern industrial society. Rationality, science and technology would be used to build up an economy seen as stagnating and backward after years of colonial neglect. An avid believer in the virtues of modernisation Nehru was also inspired by the centrally planned system of the Soviet Union. He was impressed that they were able to rapidly industrialise, increase output, were able to provide basic amenities and a relatively equal distribution of income to its large population as well as being insulated from the effects of the great depression (Luthra, 2000). The centrepiece of Nehru's reforms became economic planning (Misra, 2007). Already in 1938, nine years before independence, Congress had set up the National Planning Committee. This had the



mandate of creating policy for economic development in the soon-to-be-free India (Guha, 2007b; Luthra, 2000). Planning, as defined by the secretary of this committee, was ‘the technical co-ordination, by disinterested experts, of consumption, production, investment, trade, and income distribution in accordance with social objectives set by bodies representative of the nation’ (Shah, 1948 cited by Guha, 2007b:205). After independence the Planning Commission was set up in 1950 which was to formulate 5 year and annual plans for the effective and balanced utilisation of material, capital and human resources (Luthra, 2000). Distributive justice and self-reliance became the cornerstones of India’s development planning alongside economic growth, to be achieved by expanding the public sector so it could reach ‘commanding heights’ in the Indian economy and through import substitution (Guha, 2007; Luthra, 2000; Mathur, 1982).

‘Nehruvian socialism’ did not have free reign however, as there was dissension about the path independent India should take. This was personified in the views of what could be considered the triumvirate at independence: that of Nehru, Gandhi and Sardar Patel. Although Nehru had embraced the development project as industrialisation with a strong centralised state, Gandhi, the ‘Father of the Nation’, had rejected this vision of development in his very method of mobilizing against colonial rule. This was expressed by his simple lifestyle and symbolised by his use of the *dhoti*, the traditional Indian male attire. His idea of *gram swaraj*, or village home-rule, rejected both modern technology and the political and economic institutions established under the British, visualising instead a nation of village republics revolving around cottage industry, self-sufficiency, and religious piety (Misra, 2007). He not only romanticised the idea of the harmonious village, but also took a moral high ground by advocating self-sacrifice and public service. In addition to ‘Gandhian traditionalism’ (Herring, 1999) there was also scepticism of Nehru’s plans from leading industrialists and those in Congress on the political right, particularly the prominent politician Sardar Patel. He was critical to central planning and saw promise in a capitalist path to development (Misra, 2007). At the birth of a newly independent nation however there was an interest and political willingness to achieve consensus and so concessions were made. Although centrally planned, it was not to be a command economy like in the Soviet Union, but was a mixed economy with public and private businesses. The Planning Commission however dictated licensing, location and production targets, although the private sector was free in their day to day work (Luthra, 2000). Guha (2007b) claims that central planning was actually embraced by the private sector as the ‘license raj’ which was created worked to protect their monopolies. Although the main

focus of development was on industrialisation the Community Development Programme (CDP) and later the PRI (explored in the previous chapter) were launched in the rural areas with a nod to Gandhism. The 2<sup>nd</sup> Plan also presented a two sector model which attempted to marry soviet planning with Gandhian village economics. Industry was the goal for modern development, and cottage industry was to be promoted for tackling unemployment (Misra, 2007). In the idea of *swadeshi*, or self-reliance, there was already consensus. The call for economic nationalism had long been used as a powerful political tool in the freedom struggle, not only in the '*swadeshi* movement' of 1905-06, but also in subsequent mobilisations by Congress, Gandhi, and other local activists (ibid). *Swadeshi* has been a driving force behind various goals of planning, for example that of food and energy security, and remains a powerful political rallying call even today.

In 1991 India faced a balance of payment crisis. The economist Dr Manmohan Singh (now Prime Minister) was called in to oversee fiscal adjustment and structural reforms, with support and funding from the World Bank, IMF, Asian Development Bank and other donors (Luthra, 2000). Although tentative measures at liberalisation had been taking place since the mid 1980s (Luthra, 2000; Misra, 2007), it wasn't until this event in 1991 that there was drastic change in the Indian economy and a dismantling of the 'licence raj'. This opened up for more private actors and increased competition. There was also a renewed focus on decentralisation to the PRI, and Nagarapalikas (local government in urban areas) and to NGOs. The increasing role of other actors did not however ring the death toll for planning in India and the Nehruvian legacy of 5 year plans lives on. P.V. Narasimha Rao, the then sitting Prime Minister, claimed that there was still a pressing need for government planning due to the limitations inherent in market mechanisms. It was both necessary for macro-economic management, in order to promote regionally balanced growth, as well as being vital for providing programmes for the poor (cited by Luthra, 2000). For example, in its approach to the energy sector the Planning Commission states (2006a:16) that 'the institutional structure in the public sector that we have so assiduously built up during the last 55 years or so to promote self-sufficiency and self-reliance in energy, has led to a monopolistic market structure that led to the systemic infirmities that are inherent in cases of majority public ownership of an enterprise'. However, whilst opening up for more private actors they go on to claim that good regulation and the proper industry structure can 'mimic competition', justifying not only the continuation of strong state control but also the importance of planning in delivering this vision. Securing

energy is of course seen as essential for avoiding future balance of payment problems and for continued economic growth.

The role of the Planning Commission may have changed to give more room for the free market but it is still strong in areas which are perceived to be ignored by the private sector. It has a mandate to develop a common policy stance for states and centre, to plan for social infrastructure needed for human development, to protect ecology and natural resources, and protect the weak and marginal by strengthening anti-poverty programmes (Luthra, 2000). The boom in the Indian economy since liberalisation took place has not been felt evenly by all of the population. It is popularly claimed that the poor have not benefited, only the rich have got richer. The growing disparity in income is political dynamite in one of the world's largest democracies with a vast politically active rural electorate. Here it has always been necessary for political parties to show that they are the 'champions of the poor' (Misra, 2007), and this is perhaps reflected in the calls for 'reform with a human face' and for 'inclusive growth' (stated goal of the eleventh five year plan, 2007-2012) (Planning Commission, 2006b). Poverty reduction efforts, rural investment, and employment creation is therefore politically vital and planning is seen as an important tool for being able to (or being seen to) deliver.

It is interesting to compare the evolution of the Indian development project with de Jongs (2006) conceptualisation of two eras mentioned above. India had indeed embraced the idea of the development project and 'disinterested', rational, Indian experts stepped into the shoes of the departing British bureaucrats. In the 1<sup>st</sup> era India was concerned with economic development, and industrialisation and modernisation from within a structuralist paradigm was the route to take. The liberalisation measures in 1991 can be considered a useful marker of India's move into the second era. There was a reduction of state intervention and renewed efforts at decentralisation through democratic institutions, civil society and of course the private sector. The role of the state has moved from being directly involved in economic planning to those spheres not addressed by the markets, that is to say issues of human development and sustainability. However, it is important to note that in politically sensitive areas like energy and agriculture the presence of the state is still strong. Global discourses have not just been internalised by India however, as it is also an important player in the creation of global debates surrounding development and development praxis. Not only has it been the site of experimental new approaches, which have later been adapted and used in other countries (Korten, 1980), but has been home to important and influential scholars such

as Amartya Sen. The element of ‘Gandhian traditionalism’ present since before independence has also had a strong influence on modern debates surrounding decentralisation and participation. Gandhian thinking has not only had a lasting legacy in India itself but has, according to Parfitt (2002), also been a source of inspiration to post-development scholars such as Rahemna referred to earlier.

### **3.3 *Blueprint vs. Process Approaches***

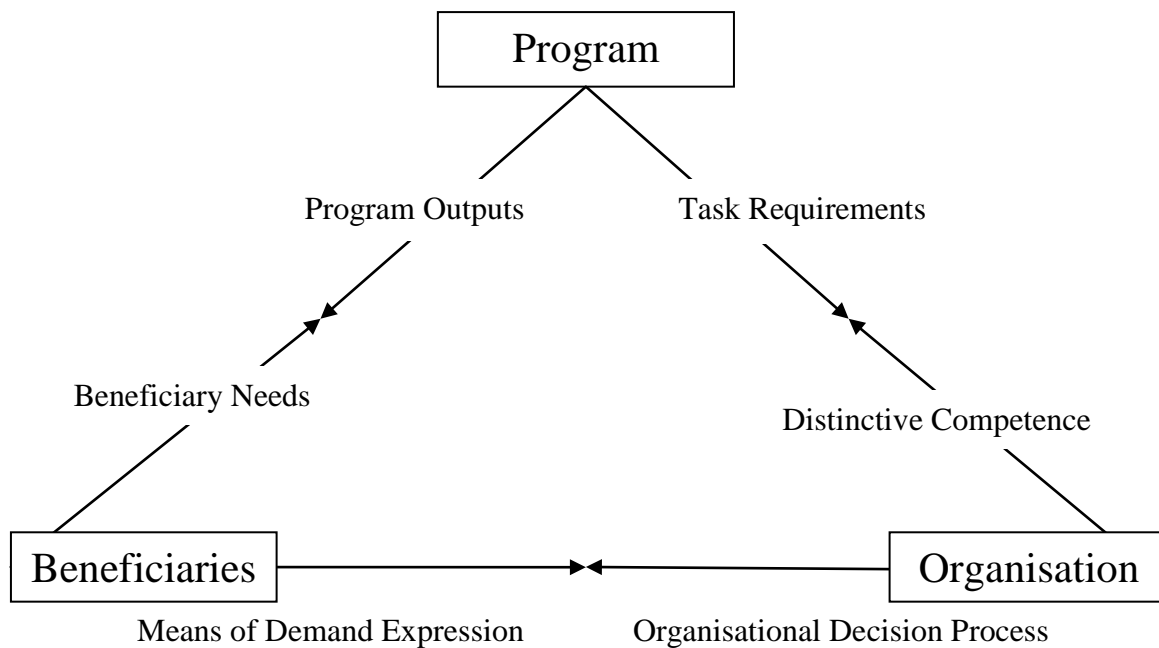
I now want to move the discussion from ideas about development at a theoretical level, to debates surrounding rural development praxis. The 1980s saw the beginning of a critique against what became known as ‘blueprint development’. According to Bond and Hulme (1999:1340) the blueprint approach to rural development is:

*‘based within the concepts of objective rationality and reductionism and has its roots in the fields of engineering and construction. Prescribed steps lead through the stages of the project cycle; experts design and control activities; detailed planning at the beginning specifies objectives, targets, outputs, resources and schedules; local institutions are bypassed if they have inadequate capacity and the job of management is to implement as closely as possible to the plan’.*

It is easy to see that blueprint development had a strong tradition in India which saw central planning as an essential way of organising resources. However, rural development praxis in this light was seen as technocratic, top-down, and only able to offer a one-size-fits-all model which was unresponsive to the needs of the targeted communities. The emphasis on expert pre-planning and time bounded projects was seen as an impediment to success as they were too structured to allow meaningful participation, and not flexible enough to allow differing, complex responses at the grassroots (Korten, 1980; Parfitt, 2002; Toner & Franks, 2006). Out of the concern for the poor performance of top-down blueprint development came a number of different models, which Bond and Hulme (1999) broadly categorise as ‘process approaches’. They aim to be people-centred, bottom up, and participative. Korten (1980) for example advocated what he called ‘the learning approach’. He called for a restructuring of development organisations so that they are able to embrace error, plan with the people, and in this way link the knowledge built up in partnership with the community with action. Livelihood approaches, later to become sustainable livelihood approaches (SLA) also come under the process banner. An important paper by Chambers and Conway (1992) introduced

the concept of livelihoods as an analytical category for research and development, as a break away from the former focus on farmer or peasant. According to Scoones (2009) this term brought village studies, household economics, gender analyses, farming systems, agro-ecological change, political ecology, and sustainability science together. With the term livelihoods there is an attempt at a multidimensional understanding of the complex realities of rural life, and the many ways people go about making a living. They see a livelihood as comprising the capabilities, assets, and activities for a means of living, which is 'sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base' (definition of Chambers & Conway adapted by Scoones, 2009:175). The links of SLA with Sen's capability approach is apparent. In common with all of these approaches is that development is seen as a process of developing local institutions and that beneficiary participation is to be combined with management flexibility and linked through the process of learning (Toner & Franks, 2006). According to Bond and Hulme (1999) there is the recognition that development challenges are 'messes' which need to be acted out, rather than thought out by experts.

Korten (1980) introduced the concept of 'fit' to evaluate rural development interventions. He found that projects were successful when they 'achieved a high degree of *fit* between program design, beneficiary needs, and the capacities of the assisting organisation' (ibid:496). Figure 1 (on p.37) shows a schematic representation of fit requirements, which although is quite simple, is made up of very complex and varied variables. There should be a 'fit' between beneficiaries' needs, a function of political economic and social context, and the development program. There should also be a fit between the program and the capacity and resources of the organisation. Finally there needs to be a fit between the beneficiaries' means of demand expression and the assisting organization. This latter point is focusing on the competence of the organization, its structures, routines and norms etc, to provide participative development and its ability to learn and be flexible. Centrally planned, 'blueprint' development schemes were criticised for not having this *fit* with the consequence that they were unsustainable beyond the lifespan of the project.



**Figure 1: Schematic Representation of 'Fit Requirements' (Korten, 1980:495)**

Despite the widespread criticism of blueprint development it was not completely disregarded by all scholars. Roe (1991) found it problematic that the learning process approach conceived development as 'trial and error' and 'learning from failure', when this failure could have drastic implications for the poor. He claimed that surely learning from past experience was just as hard as planning for an uncertain future. Although he recognised its limitations he saw blueprint development as the most pragmatic approach and instead of trying to replace it asked how practitioners could better utilize it. He understood blueprints to be based on stories, or narratives, created by bureaucrats and policy makers in the face of extreme uncertainty. He suggested that a method of improving blueprint development was to create more accurate counter-narratives on which to base policy. Roe's ideas of narratives will be returned to later in this paper.

### 3.3.1 Community-Based Natural Resource Management (CBNRM)

CBNRM is a term which covers a range of models which see a community as the focal unit in the management of natural resources, mainly that which can be considered 'common pool resources' (Tyler, 2006). The premise is that the community would have the access to the resources essential to their livelihoods, without leading to its degradation. Together with the debates which led to an appreciation of the complexity of rural livelihoods, this new approach was influenced by changing views presented in the common property literature. Natural

resources can be held under three general property regimes: state property, private property, and common property (Dietz, et al., 2003; Singh, 2004). Although in India the first two regimes are officially in use land considered state property can be understood to be an 'assumed' common pool resource (Singh, 2004, to be further explored later in this paper). A common pool resource is defined as being a resource where 'excluding potential appropriators or limiting appropriation rights of existing users is nontrivial (but not necessarily impossible) and that the yield of the resources system is subtractable' (Ostrom, et al., 1994:4). In the Indian context wastelands, community pastures, community forests, common dumping and threshing grounds, watershed drainages, village ponds, rivers and their banks and beds are within this category (Jodha, 1990). These resources can have great importance in the livelihoods of the rural communities and a large proportion of India's poor depend on them (Agrawal, 2001). Jodha (1990) contends that they are used more by the poor than the rich and can contribute 12-25% of a poor household's income. He claims that they are disproportionately dependent on the 'low pay off options' available (Jodha cited by Johnson, 2004:417).

Hardin's 'tragedy of the commons' (1968) was a landmark text in the scholarship of the commons. In this narrative (after Roe, 1991) each herdsman acting as a rational being would have to increase their herd sizes for their own personal gain, despite the knowledge that if all were to do the same the resource would be degraded. In this way 'man is locked into a system that compels him to increase his herd without limit - in a world that is limited' (Hardin, 1968:1244). Local people are the villains and the victims of resource degradation. As a solution 'mutual coercion' would have to be embedded in the social arrangements governing the resource, which is only achieved by placing it under state or private ownership. Singh (2004) points out that attitudes towards the commons in India were negative long before Hardin's narrative informed policy decisions. The colonial government saw the idea of 'the commons' as inefficient and antiquated, fed by notions coming out from events such as the Enclosures in 19<sup>th</sup> century Britain. State institutions were seen as rational and progressive, and as better suited to serve the interests of the public (Sivaramakrishnan, 1995). This, claims Agrawal (2003), was paradoxically reinforced by anthropological studies of the institutional arrangements of common property regimes of tribal people, placing these under the category of 'traditional' and 'pre-modern'. These views were of course part of the wider discourse of modernity.

Since Hardin's 'tragedy' was published there has been a growing amount of literature criticising his view. According to Agrawal (2001) the analysis has been thoroughly repudiated by serious scholars. Most point to the failure of not distinguishing between open access and common property regimes (for example Agrawal, 2001; Dietz, et al., 2003; Johnson, 2004; Ostrom, et al., 1994; and Sekhar, 2000). Open access means that exclusion from the resource is not possible. Institutions governing access are either not in place, or cannot be enforced. Most common pool resources are however governed by local informal institutions which control the rules of access, management, exclusion and alienation from the resource therefore maintaining a common property regime.

As a result of this turn in the literature there has been a shift in policy approach away from privatisation or state control of natural resources towards community-based management. Previous state interference is now understood to have been damaging to local institutions which, coupled with the difficulties of enforcement, has led to open access situations. It is also fuelled by concerns about environmental degradation such as deforestation and desertification, and ideas about sustainability. The role of traditional ecological knowledge of those whose livelihoods were dependent on the local environment is recognised. This dynamic, locally specific 'ecoliteracy' (Pilgrim, et al., 2007) is now seen as a valuable developmental resource. It is not just expressed by the individual but is embedded in the institutions governing resource use, which are again embedded in the cultural belief systems of the 'communities' creating an 'eco-cultural landscape' (Rai, 2007). It is hoped that CBNRM can harness this resource to achieve both environmental and developmental goals. So there is now a focus on establishing common property regimes or collective tenure systems which will increase efficiency, sustainability, and will ensure compliance from all members of the local community. The shift in policy can be seen against the backdrop of wider development policy debates generally. Earlier we saw how community participation was considered an answer on both sides of the political divide. Here too we can see how CBNRM can provide an avenue for reducing the burden on the state, but at the same time can also be seen as an acceptance of indigenous community perspectives over the western discourse of modernity.

The rhetoric of livelihoods and participation has been taken up by Indian and Rajasthani policy makers, and the policy shift towards CBNRM has been witnessed in the new approaches of WD and JFM. The State Human Development Report (GoR, 2002:17) for



example, examines issues ‘from the perspective of livelihoods and human capabilities, especially that of the poor’ and goes on to say that ‘sustainability of livelihoods is at the forefront of the ‘people’s agenda’ in Rajasthan’. The national guidelines for watershed development claims to have a ‘livelihood orientation’ where the ‘involvement of primary stakeholders is at the centre of planning, budgeting, implementation and management...’ (GoI, 2008:11). Before declaring a victory for process approaches however, it would first be useful to consider some of the problems. Projects focusing on the community are not without their critics. Some of the issues and pitfalls surrounding community development will now be looked at more closely.

### 3.3.2 Community and Participation

As we have seen, the concept of ‘community’ became popular due to a realization that state or market solutions were not achieving results (Platteau & Abraham, 2002). It was embraced by the populist left who saw in it an opportunity for empowerment and recognition for local populations. It was also embraced by those on the political right as a way of reducing the state and cutting costs/increasing efficiency. Although a move towards a focus on local knowledge and empowerment is positive it is not without its problems. One of the concerns is that ‘communities’ become essentialised as ‘the Other’ (Said cited by Conklin & Graham, 1995 and Neumann, 2000), in this case as the ecological noble savage living in harmony with the environment. This is what Neumann (2000:235) referred to as a ‘primitive discourse’ with ‘assumptions of socially undifferentiated local communities whose land uses and access rights are ancient and internally uncontested... the people without history (Wolf, 1982) who exist in some static pre-modern equilibrium’. This resonates with debates surrounding the *Adivasis*, as discussed in the previous chapter. This discourse enables ‘communities’ to be categorised as either ‘good’, i.e. traditional, nature conserving, or as ‘bad’ i.e. modernized and nature destroying. This is a powerful rationale for the removal of ‘incompatible’ land-users from conservation-development projects (Neumann, 2000). Another consequence of this essentialisation is that an individual, or even an NGO can be accepted as representing the ‘community’ despite any internal conflict that may exist. On the other hand, it could also be used as a political tool by the ‘community’ for gaining rights and access over land and resources, as expressed in the ‘indigenist ecological nationalism’ of Cederloff and Sivaramakrishnan (2006) discussed previously.

Another of the problems with 'community' is in its definition. As Mansuri and Rao (2004:8) state, the term 'community' is used to denote a 'culturally and politically homogenous social system'. This is imagined as Agrawal and Gibson's (1999:640) 'mythic community' of 'small, integrated groups using locally evolved norms to manage resources sustainably and equitably'. However what is labelled as a community in the context of a development project is often an 'endogenous construct defined by the parameters of the project, by project facilitators, or by the nature of administrative or identity boundaries rather than an organic form' (Mansuri & Rao, 2004:8). For example, the focus on a watershed as a unit for management is problematic as it can encompass a number of villages and hamlets in an otherwise arbitrary fashion (Ahluwalia, 1997; Chhotray, 2007). The same can often be said for JFM schemes where the Forest Department set forest boundaries which are at odds with local understandings. Even when a bounded community is accepted as a logical unit for development projects by the people themselves they still may not necessarily be 'culturally and politically homogenous'. Differences between community members, differences based on gender, caste, age, ethnicity, livelihood and so on may be governed by institutions, 'rules-in-use' which are embedded in social relations (Leach, et al., 1999). This not only dictates status and power within the community but also rights and entitlements over natural resources and other assets. Whilst studying a WD scheme Chhotray (2007) was critical that a male landholder was equated with a landless woman with little thinking about the impact of class/caste/gender. Kumar (2002) too is critical to the 'rhetoric of community'. In his study of JFM projects in Southern India he finds that stratification within the village and the variation of costs and benefits across sites were neglected resulting in the projects being focused on the interests of the local elites. For as Ahluwalia (1997:7) states 'community based projects cannot be dissociated from local power politics'. By analysing the participatory methodology central to community development it will be possible to highlight some of the inherent problems and paradoxes involved.

Participatory methodologies are central to community approaches to development, and are said to find out about the local context, create an environment of mutual learning, and lead to the empowerment of the local community. Chambers (2007) refers to a number of different methods but for the sake of simplicity I will refer to them all with the participatory rural appraisal (PRA) label. He goes on to say that in all approaches there are three main components: the behaviour and attitudes of the facilitator, the methods used (visuals, tangibles, groups), and 'sharing without boundaries'. Kothari (2001) uses Foucault's

definition of power to analyse the processes that occur using such methods. She states that participatory development creates a dichotomy that sees power as located outside of the community, at the state or global level. This hides power relations that are present in everyday situations between different individuals within a community. Local knowledge is not a fixed commodity but is produced, formulated, and reformulated within a cultural, social and political context. The egalitarian ideology of all having an equal say and 'sharing without boundaries' may not occur in practice. As Crewe (1997:73) so succinctly put 'it is not enough to revere participatory development, to say 'listen to the people, consult the poor and let them tell us their needs' as if they all agreed with each other... Not recognizing conflicts between interest groups leaves control in the hands of the more powerful by default'. This 'elite capture' may be due to their ability to overtly impose their will onto the development process, or simply that they receive the most benefit whilst the costs are borne by the whole community (Mansuri & Rao, 2004; Pérez-Cirera & Lovett, 2006). However, more subtle processes are also at work where the interests of the more powerful become encoded into the rules and institutions. A gendered analysis of participation, like that carried out by Agarwal (2001) in India and Nepal, demonstrate how interests are not equally considered. Institutional arrangements, which dictate the division of labour along lines of gender, resulted in women being excluded from the participatory process. This was due to logistical constraints such as location, time, the labour demands on the women, and so on, but also due to custom and the expected norms of female behaviour, all of which is determined by the rules and perceptions of those affected. She uses the term 'participatory exclusions' to describe these exclusions that exist within seemingly participatory institutions.

An important point of discussion concerning the participatory paradigm is the apparent paradox. CBNRM aims to recognize and utilize local knowledge by empowering local communities in order that they can be the driving force behind sustainable development. However it is clear that without having a homogenous community empowerment becomes a complex issue. Who within the community are being empowered and whose interests are being heard? The very presence of a project creates an arena where institutional claims can be strengthened by outside recognition. Will the project reinforce inequitable arrangements, or will it create an opportunity for other interest groups to stake their claims? This is a complicated question because as Mosse (1997) points out, the idea of equal rights might be in direct contradiction with the very logic of social relations within the community. The empowerment of the 'community' may reinforce and retrench 'traditions' which are

inequitable, for example by increasing the labour burden on the women (Ahluwalia, 1997). However, using western ideas of equality could be seen as a direct challenge to indigenous culture, interference and dictation from the outside that is a far cry from the stated aims of the approach. Is it that empowerment through participation is only possible in a ‘community’ where equality already exists? What role has the facilitator in the negotiating process between conflicting interests? Should they be on the side of the more marginal? There is a danger therefore that practitioners in the field will be paternalistic and impose their own ideologies and Long and Villarreal (1993) point out that facilitation inevitably entails an interplay between emancipatory and manipulative processes.

### 3.3.3 Participation - The New Blueprint?

Earlier on in this chapter I introduced the idea of a blueprint approach to development, and contrasted this with process approaches which have the central principle of participation. However, paradoxically there is not a dichotomy between blueprint and participation. Many scholars and practitioners now see participation as the *new* blueprint. For example Ahluwalia (1997), Kolavalli and Kerr (2002), and Chhotay (2007) see the WD approach as a blueprint as it does not take local contexts into consideration, with participation following a predetermined pattern using predetermined methods. Agarwal (2001) is one of many scholars that have presented a typology of participation, reproduced in table 1 below. Here we can see that the term ‘participation’ can be used to describe a situation which ranges from merely being a member of a group, to having full voice and influence in the decision making process.

**Table 1: Typology of participation (Agarwal, 2001:1624)**

<b>Form/level of participation</b>	<b>Characteristic features</b>
Nominal participation	Membership in the group
Passive participation	Being informed of decisions <i>ex post facto</i> ; or attending meetings and listening in on decision-making, without speaking up
Consultative participation	Being asked an opinion in specific matters without guarantee of influencing decisions
Activity-specific participation	Being asked to (or volunteering to) undertake specific tasks
Active participation	Expressing opinions, whether or not solicited, or taking initiatives of other sorts
Interactive (empowering) participation	Having voice and influence in the group’s decisions

This typography highlights the differences between various members in a group, and can be used to map differences in participation within the community. However, it can also be useful when considering participation possibilities given by a particular project. For example, is it empowering for all or only for some? Does it offer participation only at the consultative level, or is there full interactive participation as is envisioned in process approaches? McGee (2002) contrasts 'participation in projects' (which can be considered the first four on Agarwal's list) with 'participatory development' (the last on the list). She sees the differences in methodologies between these two not only as a difference in toolkit but 'the key to how development was conceived and by whom, and what sort of development was promoted and how'. She states that 'participatory development' is a threat to the status quo as this would involve a shift in power from the 'experts' to the grassroots. It has therefore been mainstreamed as 'participation in projects'. This is now the orthodoxy which is put in practice, the blueprint if you will.

Chambers (2007) sees the many criticisms of PRA as a consequence of bad practice and an excessive focusing on the methods. He asserts that the importance of the attitudes, creativity, flexibility and intuition of the facilitators has been forgotten in the process. To return to Korten's (1980) model of 'fit requirements' we need to look at the capacity of the implementing organisation to learn, be flexible and its ability to *provide* participative development. We can see from the discussion about community and participation above, that this is no easy matter. Far from offering an easy option for development, it can be understood to be a painstaking approach requiring skilled facilitators with a detailed understanding of the local context. The attempt of the state to decentralise to local NGOs is not possible in all areas and so implementation falls to government agencies. But how can these agencies build internal capacity in participatory process driven approaches without changing cumbersome bureaucratic systems and risk-averse management styles? According to Thompson (1995) it is this systemic problem which creates a contradiction leading to the abandonment of the approach, leaving just the rhetoric.

### **3.4 The Biofuel Policy Paradox**

To summarise the Indian context, we can see that there has been a long tradition of central planning with the rationale that scientific and expert opinion will best serve the interests of development goals. After economic liberalisation the belief in planning continued with a focus on the areas of poverty alleviation, environmental sustainability, and also in areas of

food security and energy. The role of the bureaucracy as policy maker and implementer has meant that 'blueprint development' is still very much in operation. Simultaneously there has been a move towards more decentralised approaches championing stakeholder participation. This is evident in schemes such as JFM, WD, SGSY, and NREGS. Although local NGOs are increasingly recognised as having an important role much of project implementation is done through government agencies.

The Rajasthan biofuel policy promoting government-centred jatropha cultivation can be seen as a paradox coming out of this context. On the one hand it is an example of blueprint development. It stipulates what is to be grown, where, how much, and for what purpose, with the aim of achieving a range of diverse development goals. The centre sets targets for land allocation and planting which is then passed down through the bureaucratic hierarchy. On the other hand, the policy hijacks schemes created under the participation paradigm as the vehicle of implementation. Due to this tension in the policy it needs to be examined on two levels. The first is to look at it in terms of blueprint development. Returning to Roe (1991), if blueprint development is based on narratives, what is the narrative underlying the policy? How accurate is it? What would be a counter-narrative? Secondly it needs to be looked at from the perspective of the decentralisation paradigm. What are the implications for participation? What are the impacts on CBNRM? It is to the first question I now turn.

## 4 Critiquing the Narratives

The Rajasthan biofuel policy can be considered an example of blueprint development as it has objectives and targets designed and implemented at the level of government. Roe (1991) claimed that a narrative is a device created in the face of uncertainty which is used as a foundation for creating and justifying blueprint development policy. A narrative is a story with a beginning, middle and end, and with a cast of easily recognisable characters or archetypes; heroes, villains, and victims. Roe states that unlike ideology it is a story about what will happen, rather than what should, and that even if some of the conventional wisdoms upon which they are based are in doubt they are still treated as having explanatory powers.

Hajer (1995) sees policy making as the creation of problems, a process where fragmented and contradictory information is used to construct problems in such a way that they can be solved through policy by institutions. As part of this process narratives standardize, package and label problems so that they are legible (after Scott, 1998), they appear universal, and they justify off-the-shelf solutions (Leach & Mearns, 1996). Leach and Mearns (1996) see labelling as 'disarming shorthand' which constructs a problem in such a way as to prescribe predetermined solutions. They refer to the labelling of 'target groups' for development. In India we have seen that a particular caste (SC, OBC), a tribe (ST), below poverty level (BPL) families, 'women' are targeted for 'uplift'. It could also refer to the labelling of land, for example in the biofuel policy wasteland is targeted for development. This labelling brings with it a set of preconceived ideas about that being labelled, masking difference, contradictions, and local context. Leach and Mearns (1996) also refer to 'received wisdoms' (referred to by Roe as conventional wisdoms). These are ideas which are sustained through labelling and which are often represented in a narrative of their own. As jatropha for biofuel lies at a crossroad of various environmental debates the received wisdoms embedded in the narrative take the form of environmental orthodoxies (after Forsyth, 2003) for example; climate change, desertification, and deforestation. According to Hajer (1995) these labels act as 'emblems' which function as a metaphor for understanding the larger whole of the environmental condition and have a mobilising effect. The fact they are associated with what can be seen as crisis narratives (where a catastrophe will occur unless major changes are brought about) lends them more power and gives a sense of urgency that action needs to be taken.

Although accepting the limitations of blueprint development Roe (1991) suggests that the creation of counter-narratives are an important way of questioning and refining the blueprint. Leach and Mearns (1996:8) however point out that this could lead to a debate that reduces 'the world to two dimensions in a simplified and ultimately unhelpful way... frequently taking the form of 'bad'/'good' dichotomies'. I would say that many of these dichotomies are not as a result of forming counter-narratives as envisioned by Roe, but are rather a result of the creation of a counter-narrative with roots in an alternative discourse. Discourses are knowledge regimes which are not stable or coherent but are produced, reproduced and transformed by numerous actors both through text and through oral statements (Hajer, 1995) and narratives can be thought of as an 'expressive means' of conveying the messages of a particular discourse (Adger, et al., 2001). In their exploration of global environmental debates, Adger, et al. (2001) identify two dominant discourse clusters, that of the Global Environmental Management (GEM) discourse, and the populist discourse. Although they were looking specifically at global environmental narratives this division is useful for analysing many development issues. The first is expressed through 'win-win' narratives, which are tied to technological solutions and which show optimism in development and faith in opportunities for local benefits. In terms of development this can be understood as a continuation of the discourse of modernity and progress, now being expressed through a predominantly neo-liberal lens. It is this discourse which forms the basis of a top-down blueprint policy. The populist discourse takes its philosophical roots from the self-reliance/dependency schools, and sees local tradition and knowledge as superior. In India this has been identified as the 'new traditionalist' discourse by Sinha, et al. (1997). They claim that scholars such as Vandana Shiva, Anil Agrawal, M. Gadgil and Ramachandra Guha amongst others contrast a romanticised notion of pre-colonial indigenous Indian tradition with western modernity, creating a continuum of ideas which link the Vedas, the Bishnois (a tribe of Rajasthan renowned for their tradition of protecting desert fauna), Gandhism, and the Chipko movement in opposition to colonial rule, the developmental state, modernity, science and the new economic order.

This paper does not attempt to undertake an analysis of the discourses underpinning the jatropha debate. I will not be looking at the power relations, motivations, and actors involved in the construction of the narratives. Instead I am interested in the consequences and implications on policy and practice. It is therefore important to look at what the narratives communicate. Although I am specifically interested in jatropha it is not possible to consider



this in isolation from the global discussions of biofuels more generally. Ideas and views are shared, overlap, are produced and are reproduced in different contexts and at different levels. For this reason I will begin with a brief look at the narratives concerning biofuels more generally, before narrowing in to the stories of jatropha on wastelands in the context of India.

### **Global Biofuel Debates - The Win-Win Managerial Narrative**

The narrative on this side of the dichotomy is the story which sees humanity and the environment threatened by climate change, and our intrinsically good economic system and way of life threatened by the reduction of fossil fuel resources inherent in the spectre of peak oil. However, through the use of modern technology and human resourcefulness these problems can be overcome. Developments in biofuel technology will not only provide a new source of fuel but will lead to a reduction in global CO<sub>2</sub> emissions as the carbon released in combustion will be reabsorbed by the crop. Production itself may not be completely carbon neutral but with increased technological ability, careful life-cycle or 'well-to-wheel' analysis and regulation of production techniques, the optimum methods can be achieved. In terms of development biofuels offer an opportunity for a reduction in oil dependency and increased energy availability in rural areas. Developing countries which can achieve higher yields together with lower land and labour costs have an economic advantage in the global market. There will be greater investment in agriculture which will lead to an increase in job opportunities and income for poor rural farmers. Countries with the potential for good yields will attract foreign investment which will lead to modernization and technology transfers. The heroes in this narrative are the scientists, engineers, managers, and business leaders, the experts which can use the tools of modernity and market mechanisms to find a solution which will be beneficial to all. The threat of climate change will be faced and fuel shortages solved in a way that will simultaneously serve the interests of business, local populations, and the environment.

### **Global Biofuel Debates - The Populist Narrative**

The populist narrative on the other side of the dichotomy tells a very different story. They also see a threat from climate change and peak oil but believe that it is the economic system; capitalism, big business, and the idea of progress itself which is to blame for this threat. Biofuels do not offer a solution as it leads to a business-as-usual approach which is at root environmentally unsustainable. There is the view that CO<sub>2</sub> emissions will not be reduced, or they will actually increase leading to the destabilisation of the global climate. This is because

such large areas of land will have to be converted to produce enough biofuel and this land-use change has not been taken into account. For example, tropical forest and peat lands will be cleared resulting in the loss of important carbon ‘sinks’, as in the case of palm oil production. This will also result in a loss of biodiversity and the creation of monocultures will lead to the spreading of pests and plant diseases. There will be an increased pressure on available natural resources such as water and productive land. The developmental benefits are also questioned. Far from having an opportunity for a raise in the standard of living local people and rural farmers are being displaced and human rights abuses are taking place. Land is expropriated for biofuel production although previously used by marginal people for subsistence. Food security is threatened as resources are channelled into producing fuel for cars, rather than food for people. The populist narrative sees the industrialised world, agribusiness and investors as villains who are using the discourse of climate change to justify the continued exploitation of the global south and the rural poor.

### **Jatropha on Wastelands – The Win-Win Managerial Narrative**

One of the major criticisms of biofuel is the impact it will have on food. This centres around two issues. The first is that edible oils or carbohydrates will be diverted towards the production of fuel, which will not only decrease its availability for human consumption, but will also increase its cost. The second issue is that agricultural land will be diverted to the production of fuel at a time when feeding the world's growing population is seen increasingly as a problem. It is in answer to these concerns that the plant *jatropha curcas* comes into its own. As a hardy, drought resistant crop it can grow on marginal land unsuitable for agriculture, and produces seeds with high oil content which is non-edible. It is also claimed to have the ability to regenerate poor soils whilst requiring very little in the way of input, earning it the reputation as a pro-poor ‘wonder crop’ or ‘green gold’. This made it the prime candidate for biodiesel production in India as promoted by the National Biofuel Mission 2003 and the Rajasthan biofuel policy 2005.

The category of wastelands has a long history in India, and so too does wasteland development schemes. These schemes are not only in the interest of increasing productivity and supplying ‘development’ to rural populations but are also in response to environmental concerns about deforestation and desertification. The story with *jatropha* is that it is able to grow on this wasteland. Based on the various claims made about the plant many different objectives can be realised leading to a win-win situation. The first is that ‘unproductive’ land

can be put to good use, producing fuel without sacrificing food security. In so doing it will be an important step on the road to energy dependency for India. As well as a diesel substitute, the seed cake created can be used as a fertilizer, further contributing to the regeneration of marginal land and opening up for the possibility of increasing land available for food production in the future. It will provide employment and additional income in the rural areas. This would entail very little cost or risk as it grows on wasted land and requires low inputs. Wasteland under the ownership of the government can be utilized specifically for the ‘uplift’ of the weakest in society; BPL households, women’s self help groups, tribal communities etc, meeting the development obligations of the state. It will be beneficial in the fight against desertification, ‘greening the desert’ as it binds the soil preventing top soil loss. It will also help in efforts at reforestation as it is easy to establish and fast growing. In addition to these local environmental concerns it will also contribute towards a reduction in India’s CO<sub>2</sub> emissions. This also opens up for the possibility for approval under the clean development mechanism (CDM) of the Kyoto Agreement, further enhancing its economic potential.

### **Jatropha on wastelands – The Populist Narrative**

The environmental activist Vandana Shiva is a very vocal critic of jatropha cultivation in India. On her website she states that the planting of jatropha is a ‘biofuel hoax’ which is leading to a ‘land grab’ (Navdanya, 2007). Village commons and grazing land defined as wasteland are being appropriated leaving marginal people more vulnerable. She claims that the crops of tribal farmers have been destroyed, land security threatened and local resource institutions abrogated due to the imposition of jatropha plantations by the Forest Department. This undermines both the PESA Act of 1996 which is supposed to recognise the self determination of tribal gram sahas, as well as working against the implementation of the Forest Rights Act 2006. She also claims that the creation of a monoculture threatens both biodiversity and future food security as diverse traditional crops are being replaced. The involvement of foreign corporations such as the British D1 Oils is seen as an act of neo-imperialism as they aim to exploit the poor farmer in the pursuit of profit. She has also levelled the charge of ‘biopiracy’ as these companies take advantage of careful breeding done by indigenous institutions. In contrast with the win-win narrative of the jatropha proponents, on the populist side we have a paradoxical ‘no-win’ situation. Questions surrounding reliability of yield estimates have lead to uncertainty around the production potential of oil. If jatropha fails as an oil crop this is obviously bad for the poor farmer, a situation which will according to Shiva lead to further farmer suicides (following her thesis connecting the

introduction of Bt Cotton by Monsanto with rising suicide). However, if it lives up to the hype this is also bad as farmers will then turn over their agricultural land from food production to that of oil. The health of the local population is also put at risk as the seeds are poisonous and there have been many reports of children becoming acutely ill after eating them. *Jatropha* does not offer the potential for pro-poor development but is instead another example of 'ecological fascism' being imposed on rural communities for the benefit of the urban rich. Corporations and the state are the villains acting in the interests of the rich at the expense of the rural poor and the environment.

The narratives on both sides of this polemic debate offer powerful explanations that compel either the support or the rejection of *jatropha* projects. The first is the narrative used to justify the biofuel policy in Rajasthan. The second acts as a unifying story used by opponents who are against the policy for whatever reason. This paper does not seek to fully explore all of the elements embedded in these narratives. The first issue I will look at is the actual potential of *jatropha*. This is a big field with a lot of research taking place concerning different aspects from genetic variation, environmental impacts to biodiesel production techniques. I will be looking at debates surrounding the viability of cultivation on marginal land. The second issue I will look at is wasteland as a category.

#### 4.1 *Jatropha* the 'Wonder Crop'?



**Figure 2: *Jatropha curcas* growing on 'wasteland' in Banswara district, Rajasthan**

*Jatropha curcas* L. also known as physic nut is a small bush/tree belonging to the genus *Euphorbiaceae*. It is native to South America but is well established in southern Rajasthan where it is known locally as *ratanjot*. As well as patches growing naturally in the Udaipur region it can be found being grown as a live fence due to its toxicity, thus protecting other crops from grazing livestock. The toxicity means that it does not need to be protected from browsing animals, although this also makes it unsuitable as fodder. It grows in semi-arid and arid conditions and in tropical humid areas. It starts to produce fruit after its 3<sup>rd</sup> year, reaches

full maturity in its 6<sup>th</sup> year and can live for up to 50 years. It is a succulent which sheds its leaves in times of stress as it is able to retrieve nutrients from the leaves and store them in the root system and stem. It can survive in this dormant state for more than a year without rain (Van der Putten, et al., 2009). The development of its root system is dependent on the method of propagation. If planted from seed it develops 1 large tap root alongside 4 side roots. If it is grown from a cutting the tap root is not formed. The tap root enables the plant to exploit deeper water and nutrient resources, making it more resilient in drought conditions. It also means that the plant is less likely to compete with annual crops. It is also this root which helps stabilize the plant and the soil (Heller, 1996). However, it has also been identified as having the potential to lower the water table in large scale monoculture plantations (Biofuel Digest, 2009). It is monoecious, with male and female flowers appearing on the same plant. This flowering is induced by prolonged periods of soil water availability and is halted by limitations in nutrients (Kumar, 2009; Openshaw, 2000). The fruits mature 2-4 months after flowering which in Rajasthan is from September to December. With irrigation continuous flowering is possible, although this leads to several stages of the seed reproduction being present on the same branch (Kumar, 2009). The inedible fruit contain 3 seeds, the kernel of which has a high oil content. The plant has multiple uses apart from its potential in biodiesel production. It is used in medicinal preparations, in soap, and in varnish. Seed cakes made from the husks removed during the process of oil extraction are high in nitrogen and can be used as a fertilizer. They are at present not suitable as fodder although research is underway into processes which can remove the toxicity (Openshaw, 2000). Although the plant is woody it does not burn well making it unsuitable as firewood.

According to the narrative jatropha is a 'wonder crop' as it can yield oil bearing seeds for diesel production whilst being grown on degraded land. The figures quoted in the Planning Commission's mission report (2003) gave the prediction of 0.4 to 12 tons of seeds per hectare. This is the projection of Jones and Miller (1992) for a mature plantation (cited also by Jongschaap, et al., 2007; Openshaw, 1999), but according to Jongschaap, et al. (2007) this was given without any information about the conditions creating such a large variation. Achten, et al. (2008) consider jatropha as a wild plant as there has been no selective breeding program or improvement of germplasm, and point out that there is great variability in productivity between individuals. They claim that possible yields are as yet still unknown, and that projections have been incorrectly based on extrapolations from individual trees into hectares per year. Jatropha yields are dependent on a number of variables. Firstly are the site

characteristics such as water availability, climate, soil type and fertility. Also of importance are the genetic makeup and the age of the plant. Finally management has a role to play, the method of propagation, spacing, pruning, fertilizing, irrigation, and so on (Achten, et al., 2008; Kumar, 2009). We can see that although the plants *are* drought resistant they need both water and nutrients for growth and for flowering and seed production. Achten, et al. (2008) make the claim that if jatropha is planted with the aim of oil production on barren lands it will inevitably imply the use of fertilizer and irrigation. For as Rob Bailis, an assistant professor at the Yale school of forestry and environmental studies states “if you plant trees in a marginal area, and all they do is just not die, it doesn’t mean you’re going to get a lot of oil from them” (cited by Luoma, 2009).

As well as providing oil, jatropha is seen as a way of reclaiming degraded land. One reason for this is that it binds the soil. Achten, et al. (2008) point out there are differences in planting requirements depending on the intended purpose, due to root competition and canopy growth. Narrow spacing creates competition for light and water, which in turn lowers the fruit: biomass ratio. For fencing and hedges created with the intension of soil conservation there is a need for dense biomass and therefore close spacing is beneficial. However, this is going to have an adverse effect on possible yields. Conversely, for optimum oil production the plants will be widely spaced resulting in reduced biomass. There is therefore a trade-off which takes place in fruit or biomass depending on the plantation method, with a view to intended primary function. There is also a question of nutrient degradation. In the narrative it is pointed out that the seed cake produced after oil extraction can be used as a fertilizer, ensuring the replenishment of nutrients to the soil. However, in the system promoted in the policy the seeds are sold on to the next link in the production chain. It is then the extraction plant which has the seed cake as a by-product. This means not only that it is this link which can benefit from possible income potential, but that the nutrients are *lost* from the land unless it is bought back by the community and applied as a fertilizer.

One final point is that of management. Jatropha has been hyped as needing very few inputs for the farmer and I have briefly touched on water and fertilizer. However, there is also the issue of labour (ignoring the paradox between wanting to create workdays and trying to limit labour). ICRISAT recommend that for optimal production the plants should be pruned. This has been shown to improve height, number of branches, stem girth and crown (ICRISAT, n.d.). Jongschaap, et al. (2007) writes that 2/3 of the branch in the dormancy phase is to be

pruned, and that in India it was essential to pinch the apex at 6 months of age to induce branching. Openshaw (1999) also point to the need of thinning plantations during growth to limit competition. This indicates that far from just planting and leaving it jatropha needs management to increase chances of seed production. The success of Jatropha planted on wasteland without care and attention (irrigation, fertilizer and pruning) will be dependent on the micro environment each individual plant experiences. This will lead to uneven growth and unpredictable outcomes.

Achten, et al. (2008) asks the question of whether it is possible to produce ecologically and socio-economically viable amounts of energy in barren conditions. They point out that it cannot meet all expectations attributed to it at the same place or at the same time. The reputation of jatropha as a 'wonder crop' has now been questioned. Critics have accused proponents of jatropha of moving faster than the science, saying that biofuel investors have been taking the lead instead of researchers. The many reports of poor yields, or failed schemes has led to it being renamed the 'blunder crop' (Biofuel Digest, 2009). Even the British energy corporation D1 Oils warns against overestimating potential on degraded lands (Luoma, 2009). However, this does not mean that jatropha is not useful in some contexts. Returning again to Rob Bailis, "whether it turns out to be positive or negative is going to depend a great deal on how it's addressed at the policy level" (cited by Luoma, 2009).

## **4.2 Wasteland**

### **4.2.1 Wasted land?**

In the win-win narrative the ability to use wasteland for jatropha cultivation saves it from the concerns surrounding the fuel vs. food debate. But what is wasteland, and who defines it? Joshi (2007) points out that there is no universally accepted definition of wasteland. He gives ten different examples of categorization systems which are in official use in India, which use different methods and different criteria. According to Gadhil and Guha (2000) land categorisation was part of the colonial project. The objective was to maximize land revenues for the British, or in the case of Rajasthan the rulers they were allied with, with a clear distinction between revenue-able land and the remaining common lands (Brara, 1989). That which was uncultivated, and therefore un-taxable, was categorised as wasteland. This was despite the category that it inhabited in the minds of local people, and the use that it played in their daily lives. Such uses could include grazing, fodder collection, fuel wood, or the

gathering of non-timber forest products (NTFP) for subsistence or for the market. This was part of a larger process of categorisation, something that Sivaramakrishnan (1995:6) has argued as being “a manifestation of the ... orientalist colonial project of constructing India as knowable by representation”. The knowledge generated “was of crucial importance to the technologies of rule” part of what Foucault called ‘the sciences project’ which ‘was an exhaustive ordering of the world’ (cited by Sivarmakrishnan, 1995:6). Robbins (2001) sees this project of modernisation and bureaucratisation as a way of bringing in state control over village lands. This was part of a process of making the land more ‘legible’ (after Scott, 1998) to the central state, in order to gain control, and to improve resource exploitation. During this process local categories of land became invisible from the gaze of the state. Official land categorizations live on in independent India. Robbins (1997, 2001) argues that they provide powerful metaphors which influence how they are approached by the state. Land labelled as forest land is now seen as being in need of *management*, whereas wasteland is in need of *development*. Robbins (1997:72) states that “Wasteland is, by definition, degraded ... Because land is ‘waste’, interventions and actions taken on that land are understood as remediation and reclamation...”

According to the GoI there are 63.9 million hectares of wasteland in India (DoLR, n.d.). From this it is estimated that only 17 million have the potential for the cultivation of jatropha (Rajagopal, 2002). Nevertheless, in some of the more bombastic jatropha propaganda it is the first figure which is quoted, despite the fact that this includes land categories such as ‘snow covered/glacial’, ‘barren rocky/sheet rock’, and ‘sands-inland/coastal’. In Rajasthan almost 30% of the total geographical area is categorised as wasteland (NRSA, 2005). Having such a high percentage coupled with the problems of a growing population and high population density it is easy to see why projects aimed at wasteland development are attractive to the state. However, in the Rajasthani biofuel policy it is the category ‘culturable wasteland’ which is to be targeted, defined as ‘degraded land which can be brought under cultivation with reasonable efforts and which is currently lying unutilized and land, which is deteriorating for lack of appropriate soil and water management on account of natural causes, including ravine land’ (Biofuel Authority, 2007:3). Due to the extreme climate conditions experienced in the state the policy has also been restricted to the 11 districts in the south. This means that the vast majority of the wasteland in Rajasthan, much of which makes up the Thar Desert, is not in fact suitable. It also implies that the land which *is* targeted could in fact be ‘brought under



cultivation with reasonable efforts' without having to depend upon the particular qualities associated with *jatropha*.

Joshi (2007) is keen to point out that the condition of 'wasteland' is highly variable and that even within the category of 'culturable wasteland' there are environmental and anthropogenic factors which are context specific. Wasteland is *not* synonymous with 'degraded' or 'marginal' land but is rather an administrative category based on productivity as legible to the state. According to Mehta (2004) it is an 'urban elitist idiom' which shows little understanding for the local context.

#### 4.2.2 Assumed Common Pool Resources

A significant proportion of what is categorised as wasteland is under the control of the government. In the populist narrative it is argued that this land is in fact part of what makes up the village common pool resource. In a state with such intense population pressure and so little available cultivable land this is hardly a surprise. Singh (2004) however categorises these lands as 'assumed commons' due to the complex bundle of institutional arrangements from many different sources of authority which governs them. Robbins (1998:418) presents a brief history of overlapping systems of property rights and land control in Rajasthan which he sees as creating this 'fractured and hybrid legal landscape best described as a state of legal pluralism'. In the period predating the Mughal conquest traditional codes were established which saw the demarcation of community lands, the establishment of committees to oversee this land, and the establishment of sacred forests/pastures known as *orans*. During Mughal rule land laws became codified within the feudal political system, becoming more centralised. In this period common grazing lands called *gocher* were established to be held by the state for use by the villagers. The classification process under colonial rule saw the conversion of uncultivated land, forests, and communally managed lands into state property (Sekhar, 2000). The British introduced 'modern' ideas of property rights and ownership, and were much more concerned with tax/revenue possibilities (Robbins, 1998). Forested lands became established as state owned using the principle of eminent domain, with the state being seen as acting in the public interest (Sivaramakrishnan, 1995). This ensured state monopolies over teak, and the 'protection' of resources from degradation through the establishment of game reserves and a ban on shifting cultivation (Sekhar, 2000). The category of wasteland was introduced for uncultivated land as has been discussed above. After independence land reform in Rajasthan saw the abolishment of the feudal *jagirdari* system (known as the *zamindari* system in other

parts of India) and the introduction of a new form of village administration through the panchayats. Although still state owned, under the Rajasthan Tenancy Act 1955 land became dichotomised as either *khatedari*, under the private tenancy of villagers, or *non-khatedari*, the property of the state. Village forest lands were registered as being under the Forest Department. From the remaining *non-khatedari* lands grazing land known as *charagah* became the custody of the panchayats, and the remaining 'unoccupied' land fell under the title *bilanam sakar* under the revenue department (Brara, 1989; Mehta, 2004). According to Brara (1989) it was the settlement authorities who determined the boundaries of private, pasture and unoccupied tracts of land based on existing records of usage, or where not available on people's consent. In villages that had previously been under the direct rule of the crown (known as *khalsa* villages) there were pre-existing records. However, this was not the case for feudal *jagir* villages. This, claims Brara, made it possible for the former intermediaries or *jagirdars* to appropriate traditional pastureland, resulting in much less pasture in these villages. In villages without records or a spokesman to identify pastures, the state allocated land based on the numbers of cattle (Bhise, 2004; Brara, 1989). The consequence of this uneven process of land reform meant that de facto pastureland was in some villages recorded as *charagah*, in other villages as private *khatedari*, and in others as state revenue land. Brara goes on to state that regardless of the de jure status of wasteland a significant proportion of total geographical area in Rajasthan is de facto grazing land.

Although these successive eras introduced new land categories and systems they did not necessarily replace each other. There exists a 'multiplicity of traditions' (Robbins, 1998) with overlapping and conflicting rules, institutions and lines of authority. This of course creates an environment where there can be conflicting claims over entitlements to land and its resources. The land categories of the state may not conform to the categories in use on the ground. This means that 'wasteland' could include *orans*, *gocher*, *charagah*, as well as many other local categories, for example Mehta (2004) mentions *banjar kadim*, *gair mumkin*, *khara*, *khala*, *pahad*, and *magra*. Conversely it can also mean that village common land may include several categories of the state, for example forest land, *charagah*, and government land.

One of the consequences of this conflict is what some people see as the 'colonisation' of the commons. The starkest example is the enclosure of the forests by the state, where local communities are denied access and thus become alienated from these commons. As I have discussed previously in this paper this has particular relevance to tribal groups who have

traditionally depended on forest resources. The state government also reserves the right of deciding what 'unoccupied' lands can be used for. It could be diverted towards agriculture, for the constitution of forest under the Rajasthan Forest Act 1953, or for allotment to the landless. This is without recognising their present use by the community, for example as grazing lands (Brara, 1989). By 1975 *charagah* lands could also be allotted for agriculture with the agreement of the Gram Panchayat (ibid). This has decreased the amount of common land available which can severely affect the livelihoods of the rural poor.

It is from within this context that the critique of the biofuel policy on wastelands can be understood. Far from the state awarding additional rights to the rural poor it may result in disrupting a pre-existing system of land use, one which provides essential resources to the subsistence needs of the rural poor. The land may be used for grazing, for fodder collection, timber, fuel, thatching, wild fruits, herbal remedies, and the collection of NTFP. It is seen as a continuation of the colonisation of the commons by the state, leading to the 'land grab' charge. However the view that there exists an equitable community system of land use independent from the state is not accurate either. Alongside the 'encroachment' by the state there can also exist conflict within the fragmented local community. Encroachment of the commons by individuals is a huge problem in Rajasthan (Bhise, 2004). Although this is done by both the poor and the landless it is actually more likely to be done by more powerful village elites, as they have both the capital with which to develop the land and the ability to withstand any sanctions (ibid.). This 'tragedy' has the most serious consequences on the poor who are much more dependent on this resource. This can indicate that either the local institutions governing the common pool resources do not have the adequate authority to enforce the rules, or that there are none in place leaving effectively an open access situation. Robbins (1998), Brara (1992) and Sekhar (2000) place some of the blame at the door of the PRI which failed to get legitimacy when it replaced the *jagirdari* system. This was partly due to the fact that in reality its jurisdiction can be spread over several villages rather than in one. Paradoxically, Jodha argues in a series of papers (1980, 1985, 1987) that the *jagirdari* system was ecologically a more sustainable land management system, which as it became eroded by the land reforms led to the degradation of the commons (cited by Fisher, 1997). It is also said that the recurrence of encroachments is further encouraged by the periodic ad hoc regularisation by the state over the last five decades (Mehta, 2004). The appropriation of the commons; by the state through development projects and regularisation of encroachments, and by village members, adds to what Bhise (2004) categorises as a vicious circle of

degradation. The reduction in the resource base not only intensifies the use, leading to degradation, but also weakens the chances that it will be able to supply subsistence needs. This in turn increases migration, further undermining the link to commons management, which again increases the chances of encroachment.

### **4.3 Narratives questioned?**

In the light of the discussion on jatropha and wastelands it can be seen that the win-win narrative is flawed in several respects. Jatropha is not a 'wonder plant' which is able to deliver a range of benefits at no expense to the grower. It is a plant, which like any other, needs careful appraisal of the different inputs, costs, and benefits, and the trade-offs involved. The most central claims of being able to produce energy, and therefore income, from marginal lands by using this plant are far from guaranteed. As a focus of study it is a relatively new species and there remain so many unanswered questions and uncertainties surrounding its performance and possibilities. From this perspective it is difficult to understand the rationale for creating a biofuel policy which already encourages the large scale plantation across all of the wastelands in the targeted districts. In addition, the category wasteland does not necessarily refer to idle degraded land, but can refer to a broad range of land types with a number of different environmental and socio-economic contexts. The pre-existing use of this land may be threatened, which by implication means that there will be costs borne by different members of a community as a consequence of the projects. This is a continuation of conflicts based on the dislocation between state and local categories of land, use and entitlements, which has a long history. The blueprint biofuel policy is therefore built upon unstable foundations. The populist narrative is also problematic. Although it recognises alternative uses the targeted land may have, the pre-existence of an equitable traditional common property regime cannot be assumed. The targeting of lower status groups in the projects may actually underscore their entitlements to common pool resources in the face of conflicting interests within the village. Jatropha could possibly be a useful plant for land reclamation or income diversification and is not in itself a threat to local livelihoods. If, following Roe (1991), blueprint development *is* the most pragmatic way to implement rural development policy in the context of India then a counter-narrative would need to be made. The 'jatropha on wastelands narrative' would have to first take on board the unresolved questions surrounding jatropha itself, and would also need to be more responsive to the local context in relation to land use.

## 5 Methodology

### 5.1 Approach

The approach to research in this thesis can be understood as following a constructivist agenda, 'in terms of seeing people discursively creating their worlds, seeing the field as discursively constructed and indeed both the fieldwork and field worker as socially constructed' (Crang 2003:494). Initially, as I heard and explored the opposing narratives about jatropa and wastelands and listened to the arguments as both sides spoke on behalf of the rural poor, I wondered how the rural poor themselves perceived the issue. A qualitative approach was needed if I was to be able to look at the *meaning* attached to a phenomenon. Concepts and categories, and their relationships, were the 'data', the central analytical tools needed to construct a picture of reality (Aase & Fossåskaret, 2007). Even though the focus of study began to shift, and my hope of getting a glimpse into other peoples 'lifeworlds' faded, these qualitative methods were still central for finding out the ground realities. This chapter aims to show not only the methods that were used, but the journey of construction and *reconstruction* of the field, of fieldwork and indeed myself as the field worker that was taken along the way.

### 5.2 Reflections from the Field

The original aim of my thesis had been to discover the impact of jatropa cultivation at the village level. I set off to Rajasthan with a handful of theories and a vague plan of what I wanted to do. The idea was to find a 'typical' village where jatropa was already being harvested, and spend all my time in 'the field' collecting data. This data was to be a combination of quantitative and qualitative. The quantitative data in the form of household surveys was to answer what Bernstein, et al. (cited by Scoones, 2009) referred to as the basic questions of research: who owns what, who does what, who gets what and what do they do with it? I then planned to use this as a baseline for ensuring that the qualitative data gathered; using informal conversations, participation observation, and semi-structured interviews, could be analysed in a way that was representative. It was the second qualitative data set which was to be the focus of my study as I wanted to explore the diversity of views towards 'jatropa on wastelands' as expressed by different groups within the village. However, this idyllic fieldwork dream was not to materialize. There were no jatropa plantations mature enough so I no longer had a clear focus or framework for the study. This, together with the logistical problems of access and language, and the constant negotiation process with various actors

each with their own agendas and expectations, sent me into a spin. Instead of implementing my plan I had to adopt what felt to me like ‘the head-less chicken approach’; although perhaps Aase and Fossåskaret (2007:35) would euphemistically call this being ‘on the pulse’ (*på pulsen*) of the research process? Unable to get long-term access into one village with adequate interpretation, I nevertheless had the opportunity to visit many villages. I also cast the net wide and talked to NGO workers, activists, businesses, scholars, and government officials (see appendix 1). Aware that I was working within a tight budget and a tight schedule I felt that anything was better than the frustration of being stuck in the city of Udaipur twiddling my thumbs.

Although this experience was not ideal for a novice researcher working independently in a foreign country, it did provide for some valuable lessons in the practical realities of research. The most important was the need to be flexible. Firstly, the questions that seemed important in front of my computer in Norway were not necessarily relevant on the ground in Rajasthan. There *were no* mature plantations. But would there be in the future? If not, why not? Seeing the policy in the context of the overall rural development approach of the state seemed much more relevant in the light of field experiences. The negotiation and adaptation necessary in response to practical problems I experienced in regards to access, language, and expectations also required flexibility. These problems however also provided a wealth of experience for reflecting on issues of ethics, power, and status in the research process. This in turn proved productive for reflections over the nature of development work itself.

### **Getting Access to the Field**

My fieldwork in southern Rajasthan was done in two four week periods between November 2008 and February 2009. Having made contact with the organisation Aravalli prior to my field work this was my first port of call. They were interested in a partnership as they wanted a ‘comprehensive study’ on the impacts of the biofuel policy. Despite my insistence that I would not be able to deliver such a study this was an ongoing issue during our whole relationship. I had assumed that they would have an overview of jatropha cultivation in the state and would therefore be able to help me find a suitable location for my ‘in-depth village study’. However it soon became apparent that as they themselves did not work on the ground they did not actually know what was happening. I was therefore put in contact with their partner NGOs working in the field. They also provided contacts with other relevant stakeholders; institutions, agencies, and activists.

In Banswara District I visited two tribal villages with the NGO 'Progress'. The first had planted jatropha in connection with a soil and water conservation project, the second as part of a JFM scheme. Despite the great amount of value I got from the visit it was severely hampered by the limited level of communication achieved, based as it was on Pidgin English, Pidgin Hindi, and body language. Unfortunately those who could speak English did not have the time to help me, and those who did have the time could not speak English. Regrettably this was a problem I was to encounter time and again. From Banswara I travelled to Udaipur, where I was to spend the majority of my time in Rajasthan. Here I was allowed to base myself in the office of SPWD and took contact with the NGO Prayatna Samiti, who was to act as 'gatekeeper' to the 3 case study villages presented in this paper. During the initial visits to these villages I had the opportunity to see the 'plantations'. However, again I was confronted by the problem of language, as despite assurances to the contrary those who could speak English just did not have the time to accompany me. However, with the help of Aravalli I was eventually able to hire a young agricultural student to act as interpreter. It was 'arranged' that we would spend five days in each village during the second period of my fieldwork.

Feeling restricted by the NGOs and not entirely happy with my 'choice' of case studies, I spent some time trying to find alternative field locations. Using contacts I had made in the tourist sector in Udaipur I visited a village where there was a clear caste/class division between wealthy Rajput families with lots of land, and poor SC families with very little who had been involved in a project to plant jatropha on revenue land. On my first visit I also saw nomadic camel herders in the area, relevant in terms of rights over grazing land. This would have made an interesting case study as many of the debates surrounding the jatropha policy had been based on the assumption of multi-caste villages with clear divisions and conflicts over land entitlements and power. However, without having a 'gatekeeper' present, I and my interpreter were met with suspicion; nobody wanted to talk to us, answer our questions or help us in anyway. This experience made me realise the importance of the NGO. Although whilst working with them I felt that I had little control over the research process, I was of course able to capitalize on the relationship they had built up with the villagers through long-term engagement.

Returning in January to begin the second period of my field work I optimistically looked forward to an intensive stint in the field. However I found that the 'arrangement' I had made

with my interpreter was not binding. His own workload meant that he was not available to the extent we had agreed. This was perhaps due to misunderstandings or changing circumstances, but I believe it was a result of his not wanting to appear rude by declining my requests. Unfortunately one of the ways he handled the clash in commitments was by not answering his phone. Although he did make contact eventually the time we had available was significantly reduced. Initially he was available for five days only, during which time we visited all 3 villages. As I was not happy with the brevity of the visits I managed to negotiate with both the NGO and my interpreter a return visit. To add to the complexity, all of the fieldwork undertaken in the villages also had to be with the accompaniment of an NGO field worker. Although my interpreter was fluent in Hindi it was not his mother tongue, and he was not from the area. He therefore found it difficult to understand the local dialect/language of Mewari spoken in the rural areas. However, I was not totally convinced that this was the whole story. It may have been a convenient excuse for a young city man nervous of working alone in a tribal village with an older English woman he was not sure how to relate to.

### **Reframing the research**

Where is the 'field' in fieldwork? My own view of what constituted the 'field' changed in tact with my evolving idea of 'case'. Both are constructions of the researcher and research process, used to reflect and frame particular problems, questions, and interests (Amit, 2000; Ragin & Becker, 1992). As my original plan would have necessitated a more ethnographic methodology to understand my 'case' I was increasingly frustrated at the amount of time spent in the various offices of different NGOs. The real business of fieldwork I felt was *out there* in the village. This idea that the village was the proper site of fieldwork was also strong in the NGO milieu (albeit with a different methodological focus). This is perhaps fed by the notion that development research involves finding out about 'the other', in this case the rural (tribal) poor. However, as it became clear that this type of approach would not be possible and I began to get interested in the wider context of rural development my view of 'the case' and therefore 'the field' began to change. I chose instead 3 villages to study, 'cases' chosen to shed light on the larger 'case' which was the 'biofuel policy in Rajasthan'. The villages were still of course important sites for fieldwork but were to be seen within a larger context. My experiences in the offices of NGOs, with government officials and local businesses, in conversation with activists, professors and development workers became *part of* fieldwork.



### **Choice of cases**

Bradshaw and Stratford (2004) identify between different sampling methods, which although they discuss in relation to choice of informants, can also be usefully applied to the selection of cases. 'Purposeful sampling' involves the researcher choosing on the basis of specific criteria, for example by choosing a case which could be considered typical, or perhaps deviant. 'Maximum variation sampling' aims to study a high diversity in order to uncover systematic variations and common patterns within these variations. Finally there is 'convenience sampling' which is done on the basis of access. My case study villages were 'chosen' on the basis of the category of land which jatropha had been planted on as identified by the biofuel policy: panchayat, forest, and government. It could be argued that the ideal choice of case would have been to find the most typical village within each of these categories, in order to be able to generalise when discussing the case of Rajasthan. This would have to take into consideration other social factors such as perhaps caste, class, livelihood choices, economic opportunities, literacy levels, and so on. I however had to depend upon convenience sampling as it was only at these locations I was able to get adequate access and interpretation. The 'choice' of key informants within the villages can be seen as a process of choosing a case within a case within a case. Ideally I wanted maximum variation as I wanted to explore the range of views within the community to discover how the impacts of the projects had played out along different lines, for example based on land holdings, wealth, gender, age etc. However, practical limitations meant that I again had to be content with convenience sampling. The processes involved will be discussed below.

#### **5.2.1 Methods used**

Winchester (2004) identifies three types of methods used in qualitative research; oral, written and observational. Although a piece of research may be primarily dependent upon one, the use of mixed methods is useful in the process of triangulation. This thesis uses a combination of methods from all three types, although obviously to different degrees. The written methods concerned the analysis of policies, documents, grey material and so on in order to discuss both the development approaches of the state, and the narratives associated with the policy. Here I am concerned with the oral and observational methods used in the field. The choice of methods did not follow a predetermined plan or blueprint (!) but were rather adapted and evolved as a response to what was possible in any given situation. It will be seen that many factors raise questions about reliability, accuracy, and ethics. Some of these problems will be taken up in more detail afterwards.

## Oral

In the villages the oral methods I used included questionnaires, semi-structured interviews, group discussions and informal conversations. As I had wanted to choose my key informants using maximum variation sampling I intended to use a questionnaire to make the village more 'legible'. However, I also needed to ask questions which used the reference points and categories relevant in the context of rural Rajasthan. I had therefore anticipated developing such a questionnaire based on knowledge gained by being in the village context. However, an NGO worker (gatekeeper/blocker) was unwilling to allow me access to the village unless I could *prove I was ready* by producing first a questionnaire. A copy of this 'compromise questionnaire' is given in appendix 2. Ironically, despite this insistence it became apparent that the NGO *field* workers were not concerned with what they saw as an arduous method of data collection. Data was better collected by summoning people to us, preferably in the style of group discussions. The questionnaires were therefore filled out in the presence of many other people, with many people speaking at once, and with very little focus on accuracy or validity. There was also a fixation on the filling in of names, which proved both time consuming and in some instances worrying for villagers weary of my motivations. For me the recording of names was not important as the only purpose had been to identify those I wanted to interview further. However, as it was obvious I would not be able to carry out the questionnaires as intended there seemed little point in developing or adapting them. Instead I used them as a launching pad for semi-structured interviews. These were undertaken with individuals and with small groups of whoever was willing and available at the time, with the intention of supplementing information gathered in the group discussions. The questionnaires were also used as a framework during these group discussions.

Upon visiting the first village it was decided by the field worker, the interpreter and the first villager spoken to, the 'Dairy Chairman' (an important figure in the village), that the best thing to do was to hold a group discussion (see figure 3 p.68). This seemed to them the best solution; the informant did not want the village to be 'legible', the field worker was dependent on maintaining a good relation with this man, and he and my interpreter also wanted the research to be done as quickly as possible. It was also a format that everyone was familiar and comfortable with as it was part of the repertoire of village-NGO relations. This therefore set the precedent for how fieldwork was to be organised in the other villages. I did not have any influence over who attended these discussions. In the first village it was the key informant

who organised the meeting and in the other two the field workers ‘summoned’ people as we arrived. As the NGO was only concerned with micro-finance projects in these two villages I assume that it was only members of their projects who participated. In the first village there were only men present, in the second the women were present although did not speak and in the third the majority were members of a women’s SHG. Apart from their gender I got very little insight into who they were, what their status was in the village, and most importantly who was excluded. The format of a group discussion was also problematic due to the chain of translation that was necessary for me to understand what was being said. This meant that not everything said was translated, and it was difficult for me to know who had said what.

The interviews I conducted with people outside the village (NGOs, government agencies etc) were completely unstructured. They took the form of fact finding missions, and so questions snowballed from the information given. Some were conducted in Hindi with the help of my interpreter but the majority were conducted in English.

### **Observation**

Observation was a very important tool for me working in what I experienced as a very opaque social milieu. Observing the environment was an important source of triangulation, comparing what I was told with what I could see. This concerned the jatropha plantations themselves, the activities of the villagers (for example open grazing or ‘encroaching’), and the behaviours of all the participants in relation to each other and with me. ‘Participant observation’ is recognised as a valuable way of achieving insight into a social environment through the researcher becoming a part of the society to be studied. Although the extent to which this is possible in any situation is debateable Aase and Fossåskaret (2007) state that by taking on a local *status* the researcher is able to get ‘backstage’. I cannot claim in any way to have achieved this in the brief, highly controlled visits I experienced in which a chain of translation was needed. However, I was certainly a participant in the research process itself. Who I was (white, English, female), how I was perceived (researcher, student, employer, outsider, foreigner), and how I measured up to certain expectations played a vital role not only in how the process played out but ultimately in what I was able to construct as the ‘truth’. The term ‘intersubjectivity’ is used by Dowling (2004) to describe this situation where meaning and interpretation comes as a result of interaction with people within a given context. The researcher is never merely an observer of truths but is actively involved in what Aase and Fossåskaret (2007) characterise as ‘participant construction’ rather than ‘participant

observation'. This, of course, cannot be considered without acknowledging the uneven power that exists in different relationships.

### **Field Diary/ Research Diary**

My field diary was an essential tool during fieldwork. This was used not only for recording empirical data but also as a research diary. This followed my thought processes, worries, concerns, questions, feelings and (mis)understandings which I experienced along my journey. It was not always possible to separate empirical 'facts' from the more subjective concerns and questions that were constantly raised concerning reliability, validity and ethics. I found, as Dowling (2004) suggested, that it was vital for the process of *critical reflexivity*, or 'the process of constant, self-conscious, scrutiny of the self as researcher and of the research process' (England, 1994 cited by Dowling, 2004).

## **5.3 Challenges: Language, Status, Power and Ethics**

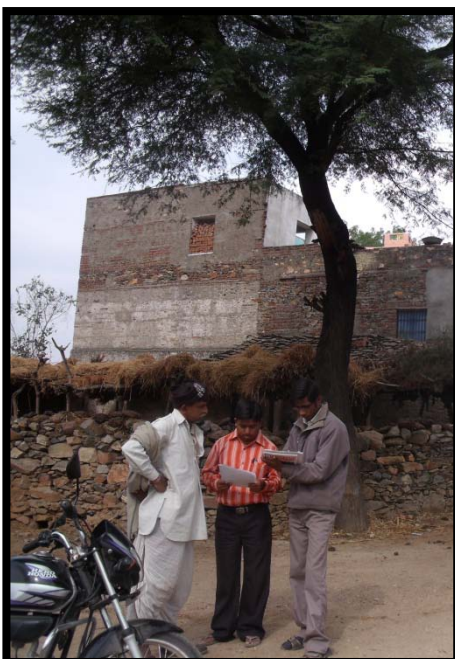
### **5.3.1 Language and Meaning**

Working in a different cultural context created ample opportunities for complicated linguistic and cultural misunderstandings. Even when using English there were problems as it is not necessarily used in the same way and cannot be considered as separate from culture. In India for example it is impolite to say 'no', or to say outright that something is not possible. This is also connected with status as to deny something to a 'guest' is to fail in your duties as 'host'. Despite previous experience in India making me aware of this, it was a reality I found very difficult to deal with. It meant that I time and again travelled to a village having been assured I would be met by someone who could act as translator only to be disappointed. It also caused confusion with the arrangements I made with my interpreter. Despite trying various approaches I never did find a way of asking which would allow people to tell me the 'truth' without having to lose face.

The need to use an interpreter in the collection of qualitative data is of course problematic. Nuances of language are lost, and culturally grounded categories can be misinterpreted or misrepresented. This danger is obviously increased the more links there are, in the same way that the message in Chinese whispers gets more unrecognisable the more people are involved. In this case the local rural Mewari category needed to be translated (by the NGO field worker) into a Hindi category which again had to be translated (by my interpreter) into an English

category. Although I have included a few quotes in my case studies they cannot be understood as a literal translation of a direct utterance. They are rather a product of negotiation as everyone involved attempted to reach a mutual understanding of what was being communicated. Although I started the fieldwork aware that there may have existed local categories of land this could not be explored; differences could not be communicated and everything became translated to me as “barren land”.

As mentioned before, the format of group discussion made it very difficult in the translation process. Not everything that was said was or could be translated to me, giving my interpreter the power of selection. My influence over this process was guided by our status set (to be discussed below) but also by his expectations of what I wanted, and what research was about. For example, in the course of one of the group discussions there was obviously a heated debate taking place. I recognised the word for ‘milk’ and the villager was waving his arms around pointing at the surrounding forest land. However, when I turned to my interpreter for a translation all he said was “*Actually madam, these people are uneducated*”. Obviously this quote can be interpreted on many levels (for example, a possible prejudice against illiterate tribals?). However, I think that as he knew I was interested in jatropha he could not see the value of translating what he believed was an irrelevant discussion about (lack of) pasture land. These people were not able to give me the ‘correct answers’ regarding jatropha. It was very difficult for me to explain that I was not looking for ‘correct answers’ but rather an insight into how the villagers themselves viewed the village situation.



**Figure 3:** Picture illustrating some of the problems of fieldwork. This was taken in Nandi Vela, the first village visited. Here we can see the ‘Dairy Chairman’, the NGO worker, and my interpreter looking at the questionnaire.

- Problem 1 - language: chain of translation from English-Hindi-Mewari-Hindi-English
- Problem 2 - involvement: it was difficult to control the research process, illustrated by the fact that I am *taking* the picture rather than *in* the picture
- Problem 3 - gender, power and access: the coalition of men?

The chain of translation was also problematic in terms of power to control the research process (see figure 3, p.68). I had to interview/ negotiate with the field worker via my interpreter, and I had to interview/negotiate with the villagers via my interpreter via the NGO field worker. Quite often I found that they considered me an unnecessary link in the discussion process, preventing me from being an active participant.

### 5.3.2 Status and Power

A status is not something that can be chosen at will, but is assigned to a person out of the status possibilities that are inherent in a particular social system, the 'status inventory'. Certain biographical traits, such as race, gender, caste, age, (and/or other culturally relevant identities) will dictate what inventory is available to any individual. Aase and Fossåskaret (2007) say that with any given status there are rights and obligations, role expectations which are governed by informal, culturally specific, unwritten rules. A person's status dictates how they are related to by others, and are infused within a matrix of power relations. Relations can be complementary, for example student: student, or can be asymmetrical, such as teacher: student. Although the researcher cannot pick and chose, by behaving out of tact with the role expectations of any unwanted assigned statuses they can negotiate new ones from within the inventory until they find one which best suits their research needs. Although this may be possible there is however the prerequisite that the researcher can identify first the possible statuses available and second the roles that a particular status incorporates. This is not assured when researching in a foreign culture. Social identities are not created along the same lines, and social differentiation and stratification may not be apparent to the unknowing outsider. Even those statuses which seem familiar may actually involve very different expectations. For example, in the office of SPWD I found it very difficult to communicate on equal terms with the academics working there. If I wanted to speak to them I was often made to wait even though it was obvious that they were not busy. Initially I assumed that it was because I was *female*, but after observing the behaviours of various interns on placement I eventually realised that it was because I was a *student*. The relationship between academic and student is a lot more authoritarian and asymmetric than I was used to coming from a Norwegian educational environment.

Although the ability to negotiate a suitable status may take time which is not always available, it is still possible to undergo 'impression management' (Kearns, 2004:15). The most obvious

way of doing so is of course to consider one's appearance. Whilst in India I chose to wear the *salwar kameez*, the tunic and trousers worn by many women in northern India. This is not traditional dress in Rajasthan (where it is either the *sari* or *ghaghra cholis*: long skirt with blouse and scarf) but it is worn in the more urban areas. However my aim was not to dress the same as local women but to prevent assumptions and expectations as a result of wearing western clothes. In *salwar kameez* I was respectable, smart, and as a white woman I probably appeared somewhat ambiguous. In many of my interactions I also emphasised both my married status and the fact that I had children. I felt that this was important as it gave me the veneer of respectability making it less problematic to talk to single and indeed married men. It also showed that although I had travelled alone to India, in other ways I was still following the expected role of a woman by being a wife and mother. I was therefore not so alien and could build rapport based on the common link of having a family.

A whole chapter in itself could be written about the dizzying experience of having a constantly shifting status in the field, with different people and with the *same* people in different situations. My status fluctuated depending upon which constellations of different elements of my (perceived) identity were 'activated' in any particular relationship at any particular time: female, white, guest, researcher, student, foreigner, outsider, western, tourist, English, British (- colonial rule), mother, wife, educated, non-caste, rich, and perhaps many others of which I was not aware. My status had a direct relation on my power to influence events, and ultimately the information I could get access to. Table 2 (p.71) explores some of the possible status sets I experienced with various actors in the field, and the consequences I felt they had on the research process. This is of course simplified as well as being completely subjective. I have no way of knowing if the actors indicated would agree with this analysis. It is also of course affected by my own 'cultural glasses' as I attempt to place social phenomena into categories available in my own cultural matrix (Aase & Fossåskaret, 2007). In table 3 (p.71) I have looked in more detail at the fluctuating relationship I experienced with my interpreter. He was perhaps the most important actor in regard to the case studies presented as he was largely responsible for mediating my relationship with the villagers. It is perhaps revealing in itself when the most important actor in the research process is the interpreter, rather than the intended informants of the study. However, I want to stress that all of the people I was privileged to work with during my fieldwork were generous, kind, patient, and went out of their way to help me. For this I am deeply indebted. I do not want in any way to infer that the problems I encountered were their problems. This intends to be an exercise in

reflexivity of *my* role, of *my* position in relation to them and *my* abilities to recognise and negotiate problems and cultural differences in order to carry out my research project.

**Table 2: Possible Statuses assigned to me by different actors and the consequences on the research process**

Actor and status	My possible assigned status	Consequences
NGO office worker: Host/Development academic/Gatekeeper	Guest/Student/ Outsider	<ul style="list-style-type: none"> <li>• I had to negotiate access to villages</li> <li>• I had to prove myself academically first</li> <li>• I was not included in the decision making process</li> </ul>
NGO field worker: Host/Insider	Guest/Outsider	<ul style="list-style-type: none"> <li>• I had to negotiate access <i>in</i> the villages</li> <li>• Research conducted on their terms</li> </ul>
Academics	Student	<ul style="list-style-type: none"> <li>• Authoritarian relationship</li> <li>• Expected to show respect and follow instructions</li> <li>• Open discussions not possible</li> <li>• I needed to show humility in order to get access to their expertise</li> </ul>
Government Officials	Researcher	<ul style="list-style-type: none"> <li>• My status as ‘student’ hidden</li> <li>• More symmetrical relationship</li> </ul>
Villagers: holders of ‘data’	Outsider/NGO co-worker/ ‘Bringer of schemes’	<ul style="list-style-type: none"> <li>• Extension of NGO-village relations</li> <li>• Seen as strategic to talk to?</li> <li>• Issues of ethics and informed consent?</li> <li>• No access ‘backstage’</li> </ul>

**Table 3: Exploration of status sets experienced with my interpreter, and consequences on the research process**

Status set - Me: Interpreter	Consequences
Older female: younger male	<ul style="list-style-type: none"> <li>• Patriarchal society</li> <li>• Older, married females to be respected - authority over young male</li> <li>• My authority weakened in presence of other men - ‘coalition of men’</li> </ul>
Employer: employee	<ul style="list-style-type: none"> <li>• As employer I was his superior</li> <li>• I emphasised this status when attempting to take back control of research process</li> </ul>
Outsider: insider Student: ‘expert’	<ul style="list-style-type: none"> <li>• Used his insider status to reclaim the balance of power</li> <li>• He took on role of guide or expert</li> <li>• (Re)told me information I had taught him</li> <li>• Answered questions himself rather than asking the informants</li> </ul>
Guest: host	<ul style="list-style-type: none"> <li>• ‘Guest is next to god’ in India</li> <li>• Felt he needed to ‘protect’ me and be responsible for my comfort</li> <li>• He was nervous (on my behalf?) in presence of rural men –sought NGO escort?</li> <li>• He tried to accommodate my needs without knowing what they were – not possible to discuss</li> <li>• It might have limited the options of access to the village (misplaced concerns about food, lodging, transport etc)</li> </ul>
Student: student	<ul style="list-style-type: none"> <li>• Symmetrical relationship - only possible when fieldwork finished</li> </ul>



### **5.3.3 Knowledge, Power and Ethics**

All researchers need to consider the ethical implications of their methods, but working in a different cultural context requires a heightened sensitivity to power relations (Valentine, 2005) some of which have already been explored in connection with the idea of status. Many of the ethical problems I encountered in the field concerned the communication with the villagers in the context of the discussion groups. Due to the nature of their organisation (by the Dairy Chairman, or spontaneously by the field worker) it was unclear how voluntary participation was. I was not convinced that it was explained to the villagers exactly who I was, what I wanted to know, and what I would use the information for. Did they participate with the impression that there would be some long-term gain in doing so? Did they believe I had the power and influence to bring changes in their lives? Confidentiality was also impossible when filling out the questionnaires, and perhaps the most vulnerable felt obliged to disclose information in front of others they would rather have kept private. Was this relationship therefore in danger of being exploitative? Was I unwittingly using an asymmetrical power relationship as leverage to 'extract' information and knowledge from poor vulnerable people? Is it right to use their knowledge as 'data' just to further my academic career? To make a community 'legible' (after Scott, 1998) is perhaps to make them vulnerable, even if the intention was to give them a voice. However, if knowledge is power, it is not to be given freely. Maybe it is, as Simpson (2006:130) found, 'more like intellectual property for which issues of ownership and retention come into play'. Although they may have felt obliged in their relationship with the NGO to participate in the discussion this does not mean they felt obliged to disclose information to me. As the holders of the data they were actually in a position of power, using the 'weapons of the weak' (to use another of Scott's concepts, 1985) to protect themselves from exploitation.

### **5.4 Community and Participation**

In chapter 3 I explored some of the pitfalls surrounding the idea of community in development work, and some of the problems with participation. I would like to briefly discuss this in relation to my own research experience in the field. Despite arriving in Rajasthan with the understanding that the local community was not a homogenous, harmonious unit but rather a highly stratified political arena, I was still unable to respond to this in the research process. The case study narratives present a one-dimensional view from the village, as if everyone agreed and spoke with one voice. I have no idea if views were differentiated along gender lines, through class differences, according to land holdings and so

on. As I have already touched on, it seemed as though the group discussion was a well established method of NGO-village communication, perhaps inspired by PRA. This was also the case in the villages I visited in Banswara District. It was therefore the expected method to conduct research, the way it was done (see figure 4 below). However, there was no concern over who was represented (who ever turned up) or to facilitate an environment where people could ‘share without boundaries’. Women were either not present, or were not allowed a voice. Even whilst talking to the women’s SHG in the third case study, it was the male rickshaw driver who had brought me to the village who attempted to be spokesman. In the villages in Banswara it was the (high caste) Rajput taxi driver who spoke on behalf of the tribal villagers. The norms, expectations and power structures dictated who had the right to speak. The facilitators themselves are not free from power structures and bring their own views concerning gender roles, caste, etc. However, they also have to be sensitive to the positions of local elites if they are to be successful in implementing projects which depend upon the cooperation of the whole village. In the same way, I had to be mindful of the pre-existing structures and networks of relations in order to negotiate a space to carry out my own work.



**Figure 4: Series of pictures showing the PRA inspired group discussions: how research is done? The first two pictures are from Banswara District, the third is with the women’s SHG in Paya Talab**

### **5.5 Limitations and justification**

In conclusion, this research has to admit to many limitations. First of all there are the limitations concerning choice of case studies as representative of the issues in rural Rajasthan:

- No multi-caste village - relevant in terms of use and dependence on commons as differentiated by caste (livelihood).

- No transhumance pastoralists – relevant in context of debate around reduction in pastureland.
- No encroachment on government/panchayat land – relevant due to the huge problem of encroachment in Rajasthan.
- No village from scheduled areas – relevant for considering impact with state institutions and policies in place in scheduled areas, and especially relevant in the light of the Forest Rights Act and tribal mobilisation.

There are also methodological limitations:

- ‘Convenient’ sampling method – only those with links to the NGO - representative?
- Accuracy/reliability in light of translation difficulties – English – Hindi – Mewari – Hindi – English?
- Accuracy/reliability in light of time/access difficulties?
- Status, roles, expectations of all involved (me, NGO workers, interpreter, villagers).
- Community with only one voice – what of gender, status, wealth, class, caste...
- PRA, group discussions - who said what, and who was allowed to speak?

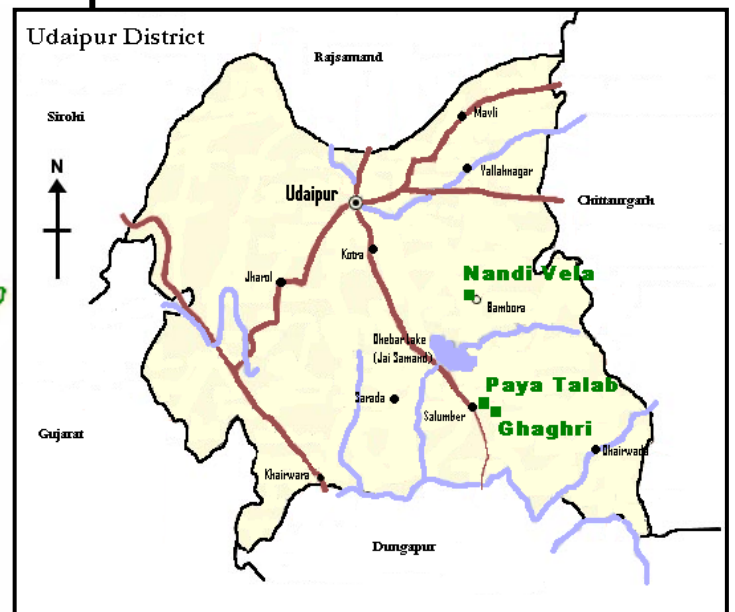
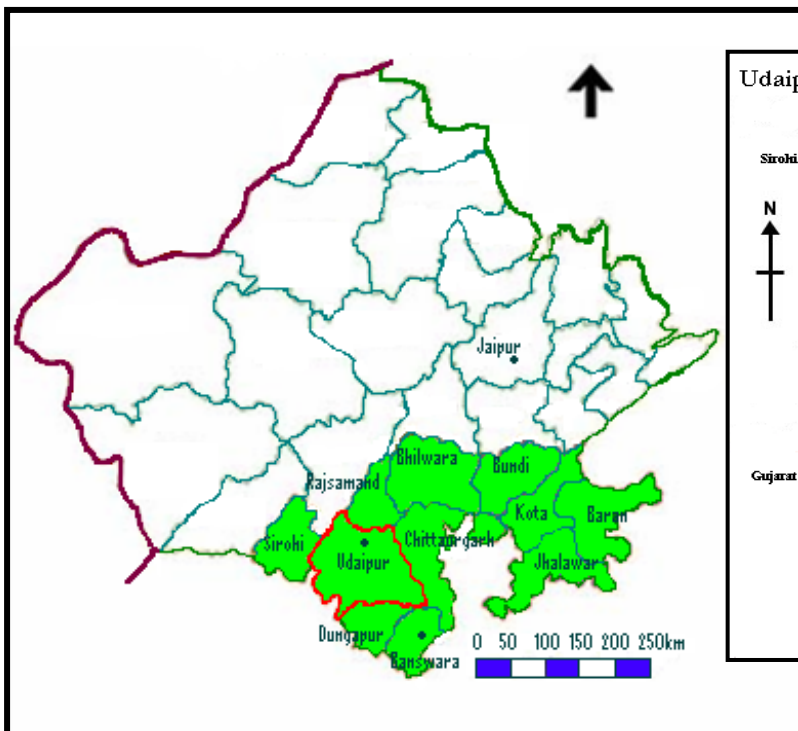
Faced with so many problems and limitations it might seem foolhardy to put ones faith in the findings of this thesis. However, in spite of all this I find myself not only believing in my work, but also having the opinion that I have something important to say about the biofuel policy. I may not have gotten the level of detail I had initially hoped for from the villages, but in many ways this detail was not necessary. What I was told together with what I observed uncovered a reality which is difficult to see from secondary sources alone, perhaps impossible, but which is very obvious on the ground.

## 6 Case Studies

### 6.1 Location

The biofuel policy applies in the 11 districts in the south of Rajasthan (coloured green on map 3). The three villages presented in this chapter are all located in Udaipur district (see map 4).

**Map3: Districts in Rajasthan covered by the biofuel policy. Udaipur District (field work location) outlined in red**



**Map 4: Udaipur District showing case study locations**

### 6.2 Case study 1: Panchayat Land - Nandi Vela

#### 6.2.1 Introduction to the village

Nandi Vela is a village covering 265 ha in Girwa tehsil, Udaipur district. It is approximately 50 km from the district and tehsil centre in Udaipur and just a few from the local market town of Bamora. It comes under Bori Gram Panchayat, which also covers ten other villages. According to the 2001 census there are 104 households, although the villagers report that there are now 135. Almost all of the households are Dangi, an OBC caste traditionally associated with dairy farming (Mohan Dangi, [pers.comm] 2008). The census also stated that there were 4 SC families but their existence was not brought to my awareness at the time of field work and so their role in the village is invisible in this case study. 28 ha of land in the

village are irrigated, the crop in the irrigation-dependent (*rabi*) season consisting largely of wheat alongside some mustard. The crop in monsoon (*kharif*) season is mainly maize. All agricultural production is for household consumption only. The main focus of economic activity for all Dangi households is animal husbandry for the production of milk. Providing year long feed for their livestock is therefore a shared priority for almost everyone in the village. All are members of the co-operative Saras Dairy of Nandi Vela. This was established approximately 20 years ago by a local village man to provide a way for each household to sell small quantities of milk for a daily income to meet daily needs. This milk is then sold by the dairy in bulk to the city. The president of this dairy is also the village ward panch. The dairy chairman is also an important local figure, and it was he who took it upon himself to organise the village discussion for the sake of this research project. Agriculture and animal husbandry do not provide enough to satisfy the villagers' livelihood needs and most families look to supplement their income with wage labour. Most find work locally but some individuals migrate further afield, to Udaipur or even to Mumbai. 36 households were registered as being BPL in 2006 (according to figures given by the NGO Prayatna Samiti) but all households are involved in work projects under NREGA.

### 6.2.2 Previous common pasture enclosure

Common pasture land in Nandi vela covers an area of approximately 150ha<sup>1</sup>. Previously this entire area could be accessed by all for open grazing. In 2000, in partnership with the NGO Prayatna Samiti, the villagers decided to enclose 112.5ha by building a boundary wall and restricting access. A village committee comprising of 11 members was established to oversee this enterprise. The building work was completed by what they called *shramdan*, with each household donating labour to the effort. All households are also involved in the *suya system* which is used to monitor the area to prevent the illegal cutting of grasses or gathering of other resources. A special stick is possessed for a day by the person who has monitoring duty. At the end of his 'shift' he passes the stick on to a member of the next household who then assumes responsibility. This area is now completely protected for 6 months of the year, allowing grasses and vegetation to grow. This is then harvested and stored to be used when needed as fodder. November/December is cutting time and one villager is employed fulltime as watchman (at two bundles of grass per household) to ensure that no unauthorised collection is done. Each household then uses about 9 days to collect the grasses, getting approximately 40kg per member. After harvesting the grasses, the land is then available for open grazing

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<sup>1</sup> All areas given are based on the assumption that 1 bigha = 0.25 ha. However local variations exist.

until it is again closed off at the beginning of the monsoon. The villagers stated that they were very satisfied with this project as it increased the availability of fodder and that they were able to store the grasses for use when other sources were scarce, reducing the need to purchase. Since the land has been enclosed they reported also that there has been an increase in the natural growth of other useful plants such as *acacia nilotica* (babul), *dendrocalamus strictus* (bamboo) and *azadirachta indica* (neem).

### 6.2.3 The 'Plantation'

In 2006-7 the Girwa Panchayat Samiti (block level) informed Bori Gram Panchayat (village level) about the scheme of planting jatropha on wasteland as part of NREGS. This scheme would provide local work for all households in the village as well as supplying free jatropha saplings. These plants would then be the responsibility and property of the village. This opportunity was communicated to the villagers by their ward panch. The Gram Sabha (village council) agreed that the remaining 37.5ha of common pasture land would be planted with jatropha with the condition that enclosing the land was part of the project. The work first took place in June, July and August of 2007. Pits were dug and although fertilizer may have been in the sapling bags supplied by the Forest Department no extra was added at the time of planting. The boundary around the land was originally planned to be created by using some of the jatropha saplings themselves, but this was ultimately rejected by the villagers. They wanted the enclosure to be effective immediately rather than having to wait for the plants to mature, or having to depend on their success. A stone boundary was therefore built. Also included in the enclosure was 1.8ha of government land known as *bilanam* (for the story of *bilanam* please see box 1, p.78). This project provided 50 days of work for 60 people per day each earning the minimum wage of \$1.7 (80Rs) per day and as planned, this work was divided between all the households in the village. It was reported that due to the failure of the rains in 2007 the saplings did not survive. The planting was then repeated in June, July and August of the following year, 2008. According to the board erected at the site by the Panchayat Samiti, the total money invested was \$17,026 (Rs796 000); \$7,358 on 'objects' which in this case must refer to the plants themselves, and \$9,668 on work. However it is unclear if these figures reflect the cost of both years of planting or only the first. I was told that the Panchayat Samiti created the village committee to oversee this newly enclosed area. The work of this committee is now running parallel to the previous one set up by the villagers. They state however that the *suya system* has become a united activity, with two sticks being passed around but with those on duty sharing responsibilities for the two sites. This is

possible as it was clearly expressed by all of the villagers that their only interest lay in the possibilities of enhancing fodder availability from this new site, rather than any benefit coming from the jatropha plants themselves.

**Box 1: The story of *Bilanam***

1.8ha of Revenue land known as *bilaman* (meaning literally ‘without name’) was included in the plantation along with the common pasture land under the authority of the Panchayat Samiti. At first I thought that this was included as an incentive to persuade the villagers to agree to the project. However, when I asked questions about this land the answers I got were inconsistent and ambiguous. It was whilst having an informal chat *without* the presence of the dairy chairman that it became clear that this had been an area of contention between the villagers. This piece of land was enclosed and planted with jatropha along with the rest of the plantation. When it was time to harvest, the dairy president/ward panch, and dairy chairman claimed that this land was for their own use and denied the rest of the village access. It seems that they were able to use their own positions of power in relation to the panchayat to secure themselves rights over the land at the expense of the other villagers. This caused conflict in the village as not only was this land considered a common good for use by all, but because it had been included in the area monitored by the *suya* system; i.e. through the combined labour of the whole village. I was not told how this situation was resolved, but I was told that the families of the two men were no longer included in the social life of the village and that the area in question is now treated as common property alongside the rest of the plantation.

I have included this story as it gives a glimpse of underlying village politics concerning access to land and rights over resources. Even a seemingly homogenous village such as this has its own dynamics of power and internal conflicts and is far from harmonious. It gives an indication of how local elites can abuse their power and manipulate new projects for their own personal gain. However, it also shows how power is not simply situated, as the other villagers were obviously able to apply sanctions in order to achieve what they saw as a more just solution. This story also offers a hint of the possible motivations which lay behind the involvement of the chairman in the research process. He was the first source of contact for the NGO worker, and it was he who insisted that it would be more rewarding for me to come to a village discussion at his home. Although this is purely speculation on my part, it may be that

he was using his connections with the NGO, and thereby me, to try and reclaim his social position and importance in the village. Although the truth of this is something I will never discover, it does offer a tantalizing glimpse of possible alternative agendas going on beneath the surface.

#### 6.2.4 Observations in the field

My first visit to the plantation site took place in early December 2008. This was during the time of intense monitoring by a full-time watchman, before the harvesting of grasses had begun. It was very difficult to see the jatropha saplings in amongst the tall grasses. Although unfortunately I did not get any real insight into the ethnobotany of the area during this field work, it was clear that that this was the site of many different species of grasses and shrubs. In some places the grasses came up to a height of several metres. This was in stark contrast to the seemingly barren surrounding area which is open to grazing year round (see figure 5 below).



**Figure 5:** Series of pictures showing the ‘plantation’ in December, before the grasses were harvested. The first picture shows a jatropha plant in amongst the tall grasses, the second gives a wider view of the ‘plantation’, and the third compares the plantation with the open grazing land of the neighbouring village.

As I was shown around by the watchman it was very obvious that the care of the saplings was not part of his job description. He spoke about them with disdain and whilst pointing out the individual plants to me took the opportunity to whack them with his stick. He also pointed out a large mature jatropha plant, which obviously pre-dated the plantation, and then pointed to the ground at its base, showing me the lack of grass growing underneath. His job was to prevent the illegal cutting of grasses at this crucial time before the harvest, therefore ensuring rightful distribution under the rules set out by the committee.





**Figure 6:** Series of pictures showing the ‘plantation’ in January, after the grasses were harvested. The first picture shows goats and cattle grazing in the now open pasture land, in the second it is possible to make out the pits where jatropha had been planted, and the third is a close up of a pit showing that the plastic bag is still present.

The next time I visited the plantation site was in January 2009. The grasses had been cut and the area was again open for the free grazing of animals. This time it was very easy to see the pits which had been dug for the planting of jatropha. It was however very difficult to see the plants themselves. The ones I did see were only about 20cm in length, and it was very difficult for me to judge whether they were still alive. In the one area where we were looking many of the saplings had been planted with their roots still wrapped in the polythene bag in which they arrived from the Forest Department (see figure 6 above). In conversation with members of the NGO it was also claimed that some villagers had cut and damaged some of the roots before planting in order to minimize their chances of survival.

### 6.2.5 Villagers perceptions

*“if the plants do survive we will find a way for them not to survive”*

(Villager, Nandi Vela, 2008)

The villagers stated that they were only interested in doing the project as they were able to enclose the land. This meant that they could increase the area of protected pasture in the village thus securing future fodder for their animals. They also benefitted from the creation of local employment. No-one in the village said that they were interested in the jatropha plants themselves. In fact, most were passionately against the plants as their growth would be at the expense of grass used to feed their animals. Apart from its competition with grasses, the other main criticism of jatropha was that it has no other use apart from its seeds, and that even for this they would have to wait 3 years. The wood cannot be burnt, it’s not suitable for construction, and most importantly, due to its toxicity, it has no use as a fodder for their

animals. Toxicity was also mentioned as a problem in terms of harvesting the surrounding grasses and for grazing animals.

Many people in the village did not know the intended purpose of the plantation as a source of feedstock for biodiesel production. Many were only familiar with the local market for soap production, a very minor and low earning activity. The collection of jatropha seeds was said to be very labour intensive and yet offering very low returns. It therefore had very low status and was an activity fit “*only for children and tribals*”. Some discussed the use of jatropha as a means of preventing soil erosion as they are low growing and hold the soil, but stated that this was not a problem on their common pasture land. As they became aware of biodiesel during the group discussion the topic turned to one of justice. Why should a poor village such as theirs provide cheap fuel for urban areas? However, I am not sure whether this argument was initiated by the villagers themselves or whether it was first raised by the NGO worker present and/or my interpreter. Those villagers who were aware of the use of the seeds for producing diesel were very critical of the project. If oil was supposed to be produced from these crops then they should be properly irrigated and looked after, although this wasn't an investment anyone was prepared to take. They also questioned the suitability of the land for this purpose which they claimed was too stony and unable to hold the moisture. They were therefore sceptical that even with the will of the village that this project would result in successful production. They were therefore unprepared to sacrifice fodder security for unreliable future income from the sale of seeds. They said that had not been given any guarantee for prices or for buyers of the seeds, so they were not aware of the minimum support price declared by the Biofuel Authority. Future earnings from this activity were far from secure. At present the grasses grown are giving instant valuable returns. They argued that if one plant produces 1 kg of seeds, on the same land they could produce many more kg of grass. The villagers told me that they would have preferred investment into *acacia nilotica* (*babul* – gum arabic), *dendrocalamus strictus* (bamboo), *azadirachta indica* (neem), *acacia catechu* (*kher*), or a fruit crop such as mango. These would have satisfied a variety of needs without having to sacrifice grasses. They could have provided wood for furniture and house building as well as for firewood for fuel, the leaves could be used for fodder, and a crop for market could be produced. They understood that a fruit crop such as mango would require a lot more attention in the first year but that this would be seen as a worthwhile investment for the village. There would be less risk involved as grasses could still be grown between the crops.

### 6.2.6 Summary

From the point of view of the villagers, this development project was a success. They were able to utilise the opportunities presented by this scheme to carry out their own development agenda. They were able to secure funds and investment to pay for their own labour to enclose an area of common pasture land so that they could repeat the success they had had with their previous project. This would increase fodder security, the foremost priority of the villagers whose primary livelihood activity is the production of milk for the market. They also secured locally situated work through the planting of the crop, which they could even repeat a year later with legitimate reasons. As the village is largely homogenous in terms of caste and livelihood priorities they were able to mobilize together to hijack this development scheme for their own ends without internal conflict. When conflict did arise, as in the case of *bilanam*, the other villagers were able to apply social sanctions to those concerned pressurising them to concede to their demands for justice. However, as I pointed out in the introduction, the views of the SC families are not known. The jatropha crop was a means to an end. Not all the people in the village were aware of the use of jatropha for biodiesel, and the project did not include any educational element to inform them of this new market. But even those who did know were not interested in sacrificing immediate gains in fodder for unknown returns from seed collection in the future. As seed collection is an activity for “*tribals and children*” it is not taken seriously as a future means of livelihood security. The seed is therefore not valued, and the plant has no other uses. In fact it competes against the very grasses which are so important. There are no incentives for the village to care for and promote the growth of the plants.

From the point of view of the state, on paper this project was a success. Work hours were found to satisfy demands under the NREGA, and wasteland in this village was allotted and planted with jatropha. As any further responsibility for the plantation lies with the villagers themselves its survival and future productivity is beyond the gaze of the state. There are no mechanisms in place to monitor the success or progress of the development scheme and no feedback is expected to be given to the Biofuel Authority or any other department. The ground reality is of course that the project has failed. No jatropha will be grown, no biodiesel will be produced, and \$7,358, maybe more, has been spent on plants which the village had no intention of letting survive.

## 6.3 Case study 2: Forest Land - Ghaghri

### 6.3.1 Introduction to the village

Ghaghri is a village situated at an altitude of 350 metres above sea level surrounded by hilly forest land under the authority of the Forest Department. There are 80 scattered households with a population of around 450 people, all belonging to the scheduled tribe category 'Mina'. The tehsil centre and nearest market town is in Salumber, approximately 15km away. There is an unreliable and occasional bus service connecting the two, as well as the opportunity to pay for a ride on privately owned trucks or jeeps. Ghaghri comes under Khajum Gram Panchayat, which also has eight other villages under its jurisdiction. Although there is an elected village ward panch in Ghaghri, I was told that the real authority still lay with the '*mukhiya*', a person who holds a traditional hereditary position of authority. It is he who makes the decisions. According to Oommen (1970) '*mukiya*' has come to be a generic name used in Rajasthan to refer to any person in a prestigious position, so the term in itself gives no indication of what sort of traditional institution he is a part of. However, it is possible that it is a *Jati* (caste) Panchayat, as according to Madhok (2005) this tradition is still strong in the Mina caste.

According to the 2001 census the total land area is 274 ha, with over half the area, 145.5 ha, categorised as forest land. Only 5 ha of land in the village are irrigated and it was said that this land is under the ownership of 10-13 households. These households own their own well on their land and all own more than 0.75ha. The remaining 59 ha of agricultural land are dependent on the rains for agriculture. I was told that all households in the village had some land to work on as "*everyone*" encroaches on forest land in the rainy season. They produce small amounts of wheat and maize which is solely for household consumption. A few animals are kept by each household, mainly cattle and goats, which give manure to the poor soils and reportedly produce only enough milk for the daily tea. Outside of the rainy season there is no pastureland and fodder is said to be scarce. There is one preschool and one school which goes up to 5<sup>th</sup> standard but all of the adults I spoke to were illiterate. Most households need to find paid labour outside of the growing season and many migrate to the big cities of Udaipur or Ahmedabad to work, in construction or any other job they can find. I was told that "*other people in the village*" also make charcoal illegally from forest timber and sell it in Udaipur as fuel. All households have an employment card under NREGA and under my visit a work band of 50 were engaged in rebuilding a road around the village as part of this scheme.

Jatropha was a familiar plant in Ghaghri prior to the scheme for planting for biodiesel as it is grown around some of the fields as a living fence. The seeds were already being collected and sold to one of the three shopkeepers in the village. I was told that this was a time consuming activity and that it was mostly undertaken by children and occasionally women as a way of making a few extra rupees. As the crop from the fences is limited and the seeds ready at different times, the shopkeeper has to store them until he has enough to make it worth his while to sell at the market in Salumber. The stated prices given for these seeds varied according to who was spoken to. One shopkeeper claimed he bought them from the villagers at 10rs/kg and sold them for 12-13rs/kg. I was told by other villagers that they got only 4-5rs/kg from the local shopkeeper who then sold them on for 14-15rs/kg. I did not have the opportunity to speak to any of the women or children involved in the picking.

### 6.3.2 The 'Plantation'

It was immediately stressed by all Forest Department employees spoken to, forest guards working in the field as well as high sitting officers at divisional headquarters, that there were no plantations of jatropha on forest land in Rajasthan. They argued that this would go against the 'Forest (Conservation) Act of 1980' which states that the state government cannot order the plantation of oil-bearing plants unless it is for the purpose of reforestation. They (defensively) insisted that jatropha had been planted mixed with other species in the borderlands of forest areas for the purpose of "*reforestation and for the benefit of local people*". According to the local Forest Guard in Salumber, 50 ha of Sakhenivain forest land in the Salumber range has been planted with 2000 jatropha plants in 2007. He claimed that it was planted properly and with care and so has a good survival rate. From my own observations in the forest area surrounding Ghaghri the jatropha plants certainly appeared to be growing well. None of the plants had leaves present, which is normal in the dry season, but many were over a metre tall. They had been closely planted in rows which were widely separated and there were many other species of plants and trees present. The guard said that they were planted after the first week of rain. After 1 month the grass was removed and fertilizer was added. He expects the plants to give fruits in one year (2010) as "*they are fast growing in this area*". The work involved villagers from Ghaghri together with the neighbouring village of Pavti. They were employed by the Forest Department to do the planting and associated work as part of a NREGS. Although previously permission had been granted for villagers to collect grasses and other NTFP in the 'plantation' area, since the planting it has been officially closed for use. A man had been employed through NREGS to

continue to monitor the area. The board erected by the Forest Department giving the information about the project states at the bottom that animal feeding is forbidden in the area. However, on my visit it was clear that this was not adhered to by the villagers as goats were taken there to graze (see figure 7 below).



**Figure 7: Series of pictures from Ghaghri. The first is a view over the village showing the cultivated land at the front, and the hilly forest land which surrounds the whole village. The second shows jatropha being used as a living fence, and the third shows the ‘plantation’. Please note the grazing animals under the sign which states that grazing is forbidden.**

It was far from clear to me, or it seemed to the villagers spoken to, who will have rights over the collection and sale of the jatropha seeds. Some villagers did not expect to have any entitlements, but expected instead to be employed on a daily basis by the Forest Department to pick the seeds. Others expected the collection to be open but that they would have to sell to the Forest Department, or their licensed buyer, at a very low rate. Yet another man stated that one positive effect of the plantation was that the rates they would get per kg would in fact be higher than at present. The local forest guard at first stated that collection would be open for the local population. He claimed that there was already an official agent in each village who received a license by applying to a sub-division of the Forest Department called *Laghu Wan Uapuj Nigam Vi Bhag*. As an agent they then have the rights to buy jatropha seeds from the locals to sell on to this *Nigam* at the district level, which then sells the seeds to companies on the open market. However, I was told in the village that the agent was not actually resident in the village but was in Salumber itself, with the local shopkeepers providing the extra link.

### 6.3.3 Joint Forest Management

According to the biofuel policy jatropha planted on forest land is to be done as part of a JFM programme. However, Forest Department officials at the district level admitted that many of

these are JFM in name only as local people are only employed through NREGS as a labour force. This also seems to be the case in Ghaghri. However, during our interview the local forest guard told me about the *surosha samiti*, which was introduced into the district 2 years ago, one of which was to be registered in Ghaghri in the next 2-3 months. It seems that the *samiti* is a JFM scheme which will control access to the forest and its products. However, this scheme was not known to anyone I spoke to in the village at the time of my field work. It also remains that jatropha was not planted as a part of this system in partnership with the local population, but as part of a policy involving the Forest Department and the Biofuel Authority, with the local population merely as a work force. The lack of participation raises questions not only about the hijacking of the JFM label, but also about the development of schemes under NREGA which are also supposed to be generated in partnership with the Gram Sabha.

### 6.3.4 Encroachment

During the first group discussion held in the village concerns and complaints were raised regarding access and rights over forest land and produce which is under the authority of the Forest Department. They claimed that it was difficult and costly to get permission to collect grasses and other NTFP and that this was a contributing factor to their poverty. On my next visit however, the villagers I spoke to agreed that the rules were unfair but that this wasn't really a problem as no-one followed them anyway (see box 2, p.87). As stated earlier, they claimed that "everyone" encroached on 0.25-0.4ha forest land for agricultural purposes during the rainy season. They said that this had been going on for the last 20-30 years and that on inspection by the Forest Department they simply pay a fine of 50-100 Rs. Any jatropha planted on this land were simply uprooted under cultivation. They also said that "everyone" freely takes whatever produce they want from the forest without applying for permission or paying for a licence. It was claimed that they take about 20-30 kg fodder in the form of grasses, leaves for manure, timber for fuel and for making charcoal amongst other things. They also let their animals freely graze on the land in open defiance of the sign, as mentioned before. They recognise that Forest Department staff do not have the capacity to monitor the area. The nearest forest office is over 3 km away and the local officer was said to come by only once a month. It is also quite clear that they do not have the legitimacy in the eyes of the villages to enforce the rules. It may be the case that there exists traditional 'informal' institutions in the village for governing access to forest land and NTFPs. Unfortunately this was not something that I was able to confirm or deny in the brief time I was allowed access in the village.

**Box 2: Agendas: poverty and land rights**

Before I move on I think it would be interesting to ponder a moment on possible agendas that guided the answers I was given by different people at different times. During the first discussion it became clear that those participating wanted to impress on me their position of poverty and hopelessness in relation to the Forest Department and the state. Alongside complaints about unjust access to forest resources, I was also told how members within the Panchayat Samiti had made illiterate villagers ‘sign’ away their rights to a proper wage under the NREGS with a thumb print. They claimed that they were now getting paid half of what they were entitled too. Although I had attempted to explain my position and the purpose of my visit they may have believed I was in a position which could prove useful to them. It is tempting to believe that the second discussion where encroachment was freely discussed was due to my somehow being able to get ‘backstage’. I however believe these informants were also hoping that I had some strategic use re their relationship with the state. When I was told about the land that *everyone* encroached on, I found it strange that they stressed both the length of time which this had been happening, and the fact that although they had paid a fine/fee to the Forest Department, they did not receive a receipt. However, I later discovered that in 1990 the Ministry of Environment and Forest had issued conflict resolution guidelines with regards to the regularisation of encroachments on forest land. They highlighted the need to legalise encroachments made pre 1980, based on records of registration of the offense (Vyas, 2008). Seen in this context, they were perhaps attempting to justify their entitlements over the land in relation to official rules, which cannot however be honoured by the Forest Department as it was not properly registered.

**6.3.5 Villagers perceptions**

*“...only the Forest Department will benefit...”*

(Villager, Ghaghri, 2009)

Apart from the assertion by one man that seed prices might rise (see above) no-one in the village thought that the jatropa would offer them any benefits in the future. At the time of field work the ‘plantation’ had resulted in them being officially prevented from accessing resources from the land, although illegal activity still carried on. They complained that the plants would compete against grasses used for fodder, something which was very scarce as



they had no pastureland. Apart from the seeds the plants offered no other resources. The wood cannot be used for fuel or building, and it is useless as fodder. Possible earnings from seed harvesting was not considered an incentive. I was told that the work was time consuming, hard work, and that the person risked suffering from skin irritations from the toxins in the plant. Most believed that the money earned would be so low that it would only be a worthwhile activity for children. The villagers do not believe that the *jatropha* has been planted for their benefit. They did not understand why it had been planted or why the Forest Department was so interested in it. Again, very few spoken to in the village were aware of biodiesel. Those who did know, and those who learnt of it during my field work, were still sceptical that any of the benefits would be enjoyed by them. It was expressed by one man that any benefits would be for the Forest Department itself as they set the rate. He did not believe that they would get a fair price for the seeds.

I was told that they would like to see the Forest Department investment into multi-purpose plants. *Tectona grandis* (*saag* -teak) was suggested as the leaves could be collected for fertilizer and grass is still able to grow. Although the Forest Department would not allow it to be cut down for 5 years, after this period the villagers could seek permission to fell it for income. However the scarcity of water was recognized as a problem as irrigation would be needed. *Ziziphus mauritiana* (*ber*) was suggested as when planted in the rainy season it can survive the summer. This plant, also known as 'Indian plum', produces fruit and is also browsed by goats. *Azadirachta indica* (*neem*) was also suggested as it is always green, has medical uses, and can also be fodder for goats. Explicit within all these suggestions was of course that the community would have rights over these resources on the forest land.

### 6.3.6 Summary

One of the striking things that emerge from this case study is the continued antagonism between the Forest Department and the local community. JFM, although cited by the policy as the mechanism for implementation on forest land, is not a ground reality in this village. Although I do not know if this particular case is included in the JFM figures given by the Biofuel Authority, from talking to Forest Department officials it appears that all plantations have been labelled as such, despite in practice being purely labour arrangements. This antagonism is problematic not only in terms of the livelihood options of the poor, but also for the Forest Department who are faced with endemic encroachment issues. The biofuel policy also seems to come into conflict with other state acts and policies. It was clear by the

behaviour of *all* of the Forest Department staff spoken to that a contradiction could be felt between the policy and the Forest Conservation Act. I got the impression from the more senior officials I spoke too that the biofuel policy had been imposed on them, and that it needed to be justified by referring to the reforestation benefits of the plant. One official seemed resigned to the fact that jatropha would spread on forest land as it was so easy to establish, thereby making reforestation goals of the Forest Department easier to achieve. This is despite having reservations over its usefulness and its economic value.

The villagers themselves seemed to view the planting of jatropha as just another of the baffling things the Forest Department got up to. Although there is a history of seed collection in the village it is not seen as a good way of earning money as it is labour intensive and offers low returns. They do not believe it has been planted for their benefit and that if there is money to be made this will only benefit the Forest Department. This is done at the cost of other resources, such as grass for fodder, which is to a large extent harvested illicitly without Forest Department permission.

## **6.4 Case Study 3: Revenue Land - Paya Talab**

### **6.4.1 Introduction to the village**

The village of Paya Talab is situated in Salumber tehsil, 6km from Salumber itself. It comes under the Gram Panchayat Banoda alongside 7 other villages in the area. This purely Mina (ST) village also has a *mukhiya*. However I was told that here his authority ran parallel to the Gram Panchayat rather than overruling it. The local ward panch took responsibility over civic duties, whereas the *mukiya* had authority over family matters and personal conflicts. I was told that the number of households in the village were 175, although the 2001 census gave the figure of 204 households and a total population of 1134. It is a comparatively large village covering 571 ha. According to the census, only 26 ha are irrigated, 78 un-irrigated and 116 ha classified as culturable wasteland. 'Talab' means lake, and the village lies in the catchment area of this lake. The ground water levels in this area are therefore comparatively high. This lake has been created, or at least enhanced, by the building of a dam. I was told that 50 households have up to 2.5 ha irrigated land. Those with less land are involved in sharecropping. I was also told that in an average year (without drought) those with more than 1.25 ha land could cultivate enough to meet their needs for the whole year. Those households who own 0.5 - 0.75 ha of agricultural land could manage for 6 months, and those with less

than 0.5 ha could only manage for 3. Cattle and buffalo were owned by many households, but all had a few goats. Households with small landholdings needed to find employment to be able to compliment their livelihoods. I was told that the women looked for work in the local area. Many had to walk into Salumber to look for short-term construction jobs which paid 50-60Rs/day (\$1-\$1.3). They complained that these jobs were insecure which meant that they had to use a lot of time and energy looking for work. The men often migrated further afield, to Udaipur, Ahmedabad and even to Mumbai. Here they share a room and then work in hotels; as waiters, preparing food, lifting work, or cleaning, or in construction. It was reported that their monthly wage could be between 1000 – 3000 Rs (\$22-\$65). I was told that jatropa was not grown as a fence in this area and that the villagers had little experience with the plant prior to the plantation. However, a few isolated mature plants were observed in fences and around fields as I walked around the village (see figure 8 below).



**Figure 8: Series of pictures from Paya Talab. The first shows a view over the agricultural land with the hilly revenue land behind; the second shows mature jatropa plants as part of a fence; the third shows open grazing at the other plantation site. Note the green leaves of the plants.**

#### 6.4.2 The ‘Plantation’

It was reported that the Gram Panchayat asked the village if they would make an application to get the revenue land, or *bilanam* allotted under the biofuel policy. Apparently one other village under the panchayat also agreed to this scheme. According to the *green patta* (land title) issued by the Panchayat Samiti in 2007, (a copy of which I was able to get from the NGO) a total of 10ha of revenue land were allotted to the SHG *Dhuli Devi Mahila Mandal* for the purpose of jatropa plantation, 2.53 ha situated to the north of the village, 7.41 to the west. I was told by the villagers interviewed that in fact 4 women’s SHGs were created for this

project but that all of the villagers, including the men, were involved in the work. This was again under NREGS which paid them \$1.5 (70 Rs) a day for 1-2 months. They said that fertilizer was added at the time of planting but that no care had been given since that time. Despite this lack of care, most of the plants observed were thriving in this area. Many of the plants still had green leaves, indicating that they still had good access to water.

Initially I was told that the land had been closed off and that the women monitored the area for the benefit of the grasses growing between the jatropha plants. They said that all of the villagers would have rights over the seeds when they came. However, no boundaries were observed and so closing the area off to open grazing would have been impossible. It was also incredibly difficult to find out who was a member of the SHG given rights over the land through the *green patta*. As my 'gatekeeper' into the village was a field worker with the NGO Prayatna Samiti my primary informants were those involved in the microfinance SHG they worked with. It took some time to realise that this was not the same group as was set up under the biodiesel scheme. No one seemed to remember who was in this group, or seemed to consider it very important. During my questioning I tried to ascertain what institutions had been established governing the site, and who had what rights and entitlements. It may have been that my line of questioning 'guided' them to give answers they believed I wanted to hear, but which were not true. As far as I can tell, the SHG mentioned in the document was merely a formality required to get the land allotted. The 4 SHGs they mentioned seemed to be some form of working group established whilst the work was taking place, although they had no lasting institutions or form. After the project was completed, that is to say the planting finished, they had no further claims over the land. I was told that the most likely thing to happen was that children would pick the seeds. When directly asked, the villagers interviewed denied that the land was used for anything prior to the planting, stating simply that it was *bilanam*. However, the grazing of animals was witness during my field work (see figure 8, p.90). Also during more general discussions about life in the village they informed me that after the rainy season the whole family is involved in the collection of as much grass as possible from the surrounding areas including the revenue land, which they store and save for drought periods. Their initial hesitancy might be as they recognise that they have no legal rights over the land and were wary of implicating themselves to an unknown person. It might also have been that they understood my question to be referring to agricultural production, and didn't consider the collection of grasses or open grazing of animals as an answer I was looking for.

### 6.4.3 Villagers perceptions

*“I don’t know... [how well the plants were doing]... it is barren land”*

(Villager, Paya Talab, 2009)

No-one I spoke to in this village knew anything about biodiesel. They knew that the seeds could be used for making soap and some of the women mentioned its medical use as a purgative, but this creates little demand for the sale of seeds and so would not provide much income. They admitted that they were baffled as to why the state would want to plant this “*useless weed*”. As in the other villages, they complained about its lack of utility; it cannot be eaten, used as fodder or burnt as fuel. When they found out about the use of the seeds to make diesel, one of the women remarked with humour that it was typical that they should have to grow fuel for the rich when they could not even burn the wood on their fires. They had no knowledge of a possible new market for jatropha seeds for biodiesel or of the minimum support price offered by the state. They therefore had no interest in the crop or any incentive to care or maintain it. When I asked how well it had been doing since it was planted no-one could answer. They just shrugged their shoulders and said simply they did not know, it was “*barren land*”.

The only good thing that came out of the project according to those asked, was that it created some paid employment in the local area. This meant that they did not have to travel, or spend a long time looking for work in Salumber or further afield. After the work was finished the project was forgotten and they claimed there were no lasting benefits. They were eagerly waiting for the next “*women’s scheme*”. When the plants start producing seeds the children would be free to pick them to get some extra income. Although it was recognised that as they grew the jatropha plants would compete against grasses they collected as fodder, this did not create a passionate response in my informants as it did in the other villages. Either they seemed resigned to the fact that as it was not their land so they just had to accept what the state had decided, or it was not considered a problem. If it was the latter, this might be as they did not depend heavily on the resources from the land and they felt they had adequate alternative sources, or that they felt free to remove the plants if access to fodder were to become a problem in the future.

#### 6.4.4 Summary

It is obvious that this case study was the most challenging in terms of validity of data, problems with its collection and so on. It is a large village and I only had access to a very few people from a very specific demographic (i.e. mostly women involved in with the NGO microfinance program). There were also problems with gaining information from these sources as they seemed suspicious and reluctant to answer specific personal questions. Many of the answers I did receive were put in doubt as they contradicted my own observations. However, they did not seem to have any qualms about sharing with me their thoughts about the jatropha plantation. Although it was very difficult to find out how the project was set up, how it was carried out, who was involved and other details, their ambivalence towards it was interesting in itself. There was no sense of ownership over the project and although the SHG was actually awarded a *patta* over the land this did not mean anything on the ground. It could be speculated that it was the position of powerlessness of these illiterate women that had resulted in them becoming disenfranchised from a project that they were entitled to. They had not been informed of the possible value of the plants, and they may not have been aware that the *patta* was awarded to them. Perhaps there were more powerful actors, either in the village or the panchayat, who did not wish to see usufruct rights over revenue land being claimed by this group yet wanted to take advantage of the state funds available through this scheme. My lack of access made it impossible to find out in the time I had. Despite this lack of interest the jatropha in this village seemed to be thriving, albeit with very uneven growth. There is therefore the chance that if the plants do produce a good yield of seeds, and a good market becomes known in the village, that the women will be able to stake a claim over the resources in the future.

## 7 Discussion

The three case study villages presented in this thesis had very different experiences with the biofuel policy and the projects resulting from it. The main results are summarised in table 4 below. This table tries to capture the essential issues related to land, knowledge and participation, and the villager's views, some of which will be taken up in more detail later.

**Table 4: Summary of results from the three case study villages**

	Case Study 1: Nandi Vela	Case Study 2: Ghaghri	Case Study 3: Paya Talab
Caste	OBC - Dangi	ST - Mina	ST - Mina
Land category targeted	Panchayat wasteland	Forest wasteland	Government wasteland
Official authority of land	Gram Panchayat	Forest Department	Revenue Department
Policy of implementation	NREGS	NREGS – JFM?	NREGS – SGSY? (Women's SHG)
Implementing agency	Panchayat Samiti	Forest Department	Panchayat Samiti
Aims of implementing agency	- Rural employment - Wasteland development - Targets; allocation of land for jatropa, work under NREGS	- Reforestation - Rural employment - Soil conservation - Targets; jatropa (?), reforestation	- Rural employment - Wasteland development - Targets; allocation of land for jatropa, work under NREGS
Property regime before project	Common property - open grazing - open access	State (enforced but contested – open access)	State (not enforced - open access)
Encroachment	No	Yes	Not known
Property regime after project	Common property regime	State (enforced but contested – open access)	Common property regime – open access
New village institutions created by project?	Yes	No	4 (?) women's SHGs established but no longer active
Information given in project about jatropa?	No	No	No
Knowledge in village about biofuel?	Some	No	No
Knowledge in village of minimum support price?	No	No	No
Consultative participation?	Yes	No	Yes
Interactive participation?	No	No	No
Villagers view of project benefits	- Local employment - Enclosure of commons: fodder security	Local employment	Local employment
Villagers view of project negatives	None	- Loss of 'official' access - Continuing lack of rights - Loss of grass for fodder	Possibility of future competition with fodder
Villagers view of project	Positive	Negative	Neutral
Villagers view of jatropa	Negative – competitor of grass, no use for firewood, building, or fodder, toxic, low price from seeds	Negative – competitor of grass, no use for firewood, building, or fodder, toxic, low price from seeds	Negative – competitor of grass, no use for firewood, building, or fodder, toxic, low price from seeds
Condition of jatropa	Dead	Good – responsibility of Forest Department	Various – left to environmental chance

Although the villages were chosen as they had a plantation on each of the land categories given in the policy, they cannot be considered representative. There are too many other factors involved in the social organisation of rural Rajasthan to be able to generalise from the sole variable of the category of plantation land as defined by the state. However, it does allow for a range of different issues to be explored in relation to institutions and policies which have a role to play. Before I take up some of these issues it would first be useful to think about the case study villages in relation to the blueprint.

### ***7.1 Fieldwork Reflections on the Blueprint***

The overall aim of both the central government and the state of Rajasthan is to increase the likelihood of energy security by promoting jatropha cultivation on government wasteland. This would simultaneously offer both land reclamation and rural development opportunities to the rural poor. However, the viability of jatropha on marginal land is questioned, as too is the definition of wasteland. The case studies in this thesis are not able to shed light on the first issue of jatropha, as the plants were not mature enough to produce seeds. In the case of Ghaghri, the plants were being well looked after as it was the responsibility of the Forest Department. However, as they were planted with the aim of reforestation (planted close together in rows) this is perhaps going to have a negative impact on possible yields. In the case of Paya Talab some plants were doing well despite the complete lack of attention they had received, probably due to the high water table in the area. What this means in terms of yield is impossible to say. In the case of Nandi Vela it is very easy to predict as the plants will not be allowed to survive (or are already dead). The latter two indicate a very important element that is missing from the blueprint, that of education. Introducing an otherwise 'useless' plant onto common land and entrusting the 'beneficiaries' with not only their care and maintenance, but also the actual utilisation of them (i.e. by picking and selling the seeds) without informing them of the use seems at the very least short-sighted. Indeed, a local biodiesel business in Udaipur (IKF Technology, see appendix 1) complained that most of the seeds already growing in the state (from jatropha used as fencing) are left to rot as people are unaware that the biodiesel market exists. This could perhaps indicate that the price the market is able to offer is too low, raising questions about potential income even if the yields are adequate and indeed the economic viability of jatropha biodiesel. However, it might not be that simple in remote rural environments where knowledge of markets has to pass through extended networks, often under the control of middlemen.



Given the lack of knowledge about jatropha and its actual potential it is strange that this plant has been the sole focus of biodiesel production in Rajasthan. Although the policy mentions 'other such tree borne oil seeds' it is only for jatropha that nurseries have been established and which has been used in plantations. Other plants could perhaps offer the potential for biodiesel whilst offering more to the villagers, in the way of fodder and fuel wood for example. In the first two villages *Azadirachta indica* (neem) was mentioned as a useful alternative crop and this has also been identified as a possible biodiesel feedstock. I am not claiming that this would be a better solution than jatropha as I have no knowledge on this matter, but it does raise the possibility that other species of plants may be more suited to the local context. Jatropha may still have a role to play however. For example in Banswara District I was told that as toxic jatropha did not need to be protected against browsing animals it was looked at favourably, as so many people in this area had to migrate for long periods to find work.

The state's goal of bringing wasteland under cultivation is apparently aided by cultivating the hardy, drought resistant jatropha. However, we have already seen whilst discussing wasteland that culturable wasteland is not necessarily marginal or degraded land. If it can be 'bought under cultivation with reasonable methods' (Biofuel Authority, 2007:3) then it can be done so for other purposes and jatropha is not necessarily essential in this process. In Nandi Vela they were able to use the project to enhance the availability of grasses for fodder, and just by looking at the contrast between the enclosed 'plantation' and open grazing ground it is obvious what is possible. On the forest wasteland in Ghaghri jatropha was planted in mixed plantations, so there are obviously many other species of plant which can do as well in the same conditions. Other projects are therefore possible on this land given the will and investment. Although I did not get any detailed insight into local categories of the land, local use indicated that it was indeed used as a common pool resource by the communities, albeit to differing degrees. This is not surprising in a desert state which nevertheless has a population density of 165 per km<sup>2</sup>. Any wasteland development blueprint therefore needs to take this into consideration. This land is not lying unutilised, and therefore there may be costs to any given project. And it may well be that the highest costs will be paid by those the project claims to benefit.

## **7.2 Fieldwork reflections on CBNRM**

I now want to consider the projects from the perspective of the decentralised participation paradigm, looking first at the case studies of Nandi Vela and Paya Talab. I will take up the issue of forest land afterwards. The first case study in Nandi Vela can be considered successful to a certain degree, as the community were able to dictate the terms of the project. Of course from the view of biofuel it has failed as no jatropha will be grown. However, a CBNRM project with a common property regime has been established which will continue work with the targeted land to meet local livelihood needs without needing the support of outside agencies. Although the new institutions were apparently set up by the Panchayat Samiti the villagers were able to integrate it into an already existing system. The capacity of the villagers to take control in this way may be due to the relative homogeneity of the village as everyone had the same livelihood concerns for fodder. Capacities were also perhaps strengthened by the involvement of the NGO in the previous project. In Paya Talab the institution (the one or four SHGs) created for the project were only on paper. Work groups had been organised through NREGS to undertake the planting but that was all. There was no common property regime in place, and the land continued to be in effect open access. The NGO had only been working on microfinance projects in this village and so had had no role in capacity building in the area of NRM.

In terms of participation, the projects in Nandi Vela and Paya Talab were agreed to by the villagers. They were not imposed and there was no 'land grab'. However, the participation can only be considered 'consultative' as they were merely offered a project which they could either accept or decline. They were not involved in the decision making or planning of the scheme (although this may have taken place subversively in Nandi Vela it was not in participation with the state). However, this raises the issue of coercion as access to development projects have become tied to the use of jatropha. They are not offered a choice, but rather jatropha or nothing at all. The creation of local employment, even in the short-term, was a powerful incentive to agree to the projects even though they were not seen to offer anything of lasting value. This indicates that the participation element in NREGS has been undermined as the projects have obviously not been suggested by the Gram Sabha, but have come from above.

For local communities to participate in any meaningful way it is essential that they are fully informed of the possible impacts, costs and benefits of any project. Very few villagers I spoke to knew about biodiesel and no-one had heard of the minimum support price guaranteed by the state. This complete lack of knowledge shows that there has been no attempt to inform villagers, and this was perhaps the biggest problem I witnessed. This lack of information was brought home to me in many other villages whilst travelling around the area. Seeing my obvious interest in the plants I was approached on several occasions by people trying to find out why they had been asked to plant it, what it was for, and how could they benefit. Although there is knowledge of jatropha in Rajasthan it has solely been in connection with fencing, with the production of soap as a minor added benefit. What then is the use of planting so much land?

In Ghaghri the forest land continued to be under the dominion of the Forest Department but with 'encroachment' as a continued reality. The JFM label had been misused as it was purely an employment scheme. Even though the forest guard spoke of the possibility of a JFM scheme starting in the near future, this was not connected in any way to the jatropha planting and it is very doubtful that it would have anything to say about already established plants. The project here did not offer participation to the villagers at any level, and their entitlements over the land were not recognised in any way. There is obviously a great deal of conflict over land use and resource entitlements of forest areas. There is also conflict between the different legislation governing the land: the Forest Conservation Act, the Forest Rights Act, the JFM resolution, and now the biofuel policy, as well as reforestation targets in the national plans. These conflicts need to be addressed before the Forest Department can properly embrace the decentralisation paradigm it claims to adhere to, an approach which aims to correct not only questions of equity and justice but also to tackle issues of efficiency and conservation.

### **7.3 Fit?**

Looking at the projects with Korten's (1980) model of 'fit requirements' in mind, it can be seen that there was not a fit between the beneficiaries' needs and the outputs of the program, apart from in the creation of local employment. Perhaps, with the proper information, the projects could have been seen by the beneficiaries to at least have had the *potential* to meet needs in the future? Korten also talks of the need for fit between the organisation and its capacity to deliver the program and to take on board the 'means of expression' of the beneficiaries. We therefore need to consider the implementing agency, the local bureaucracy.

There has long been criticism of the hierarchical nature of the Indian bureaucracy where accountability is more important to those up the chain of authority, rather than to the people it is supposed to serve (Gadhil & Guha, 2000; Maheshwari, 1995; Mathur, 1995; Riley, 2002). The meeting of targets, the spending of funds, the allotment of resources, all of which can be carefully documented are given precedence at the cost of performance. The implementation of a project is a measurement of success, rather than the results on the ground. In my interview with the Deputy Chief executive officer of the Biofuel Authority, when I asked him if he knew how much land was presently involved in the successful cultivation of jatropha he showed me data on how many plants had been raised in the nurseries, and how much money had been spent. He also pointed out how much land had been allotted. As the projects became the responsibility of the villagers, there were no mechanisms in place to monitor how effective they had been. This lack of feedback also meant that the planners at the district level had no way of knowing what the needs of the beneficiaries were, or how they could be met. Is it that the logic of the narrative is so powerful that success is seen to be guaranteed?

It is also obvious that there is a continuing problem concerning the participation of the local communities. But does the local bureaucrat have the *capacity* to involve the local community in decision making? Not only is he faced with various targets that need to be fulfilled (land to be allotted under the biofuel policy, work hours to be found under NREGA, SHGs to be established under SGSY), but funding is channelled according to policy. Although the different policies may well aspire to community participation the bureaucratic system is unable to deliver, resulting as Thompson (1995) stated, in an abandonment of the approach with only the rhetoric remaining.

#### **7.4 Same-same but different, or ‘not learning from experience’**

Korten’s (1980) call for what he called ‘the learning approach’ pointed out the need to restructure development organisations so that they are able to embrace error, learn from experience and plan with the people so that local knowledge would be linked with action. He claimed that to not do so would result in a continuing record of failure. In many ways the implementation of government-centred jatropha cultivation can be seen as an example of the ‘continuing record of failure’ of commons development in Rajasthan. In her study of a social forestry project Brara (1992) found that ‘wasteland’ targeted by the Forest Department was de facto ‘pasture’, and that villagers accepted schemes solely for short-term employment with the understanding that any saplings planted would not survive anyway. Species preferred by the

Forest Department as fast growing and drought resistant held little value to the villagers as they could not be used as fodder, fuel or timber. Robbins (1998:77) too pointed out differences between species preferred by the Forest Department and those preferred by the locals, saying that ‘state afforestation practices are disjointed from *in situ* patterns and priorities’. The introduction of eucalyptus in the 1960s also follows a similar pattern. Drought resistant with excellent coppicing powers it was claimed it could satisfy rural community needs of income diversification by providing the raw material for the pulp/paper industry whilst grown on land not otherwise used for food crops. Planted in social forestry schemes, along roads, railways, canals, and degraded barren areas ‘India’s eucalyptus craze’ was eventually referred to by Saxena (1994) as ‘the god that failed’. Bond and Hulme (1999:1354) point out that ‘while the literature on development is replete with lists of ‘lessons’ and examples of ‘learning from experience’ the truth is that ‘not learning from experience’ characterizes the knowledge-creating dynamics of the development endeavour.’ This certainly seems to be the case in this example. Unfortunately it appears that in government-centred *Jatropha* cultivation we again see history repeating itself, where one supposed ‘wonder crop’ is envisioned as the answer to many complex needs and requirements simultaneously. However, the lack of fit between the view of the state and the livelihood needs of the beneficiaries means that the projects are not delivering on what is promised as there is no grassroots interest beyond the phase of implementation. The fact that this is despite the introduction of policies with a decentralised participation focus raises serious questions about how they are being realised in practice on the ground. It seems to me that the concerns of the central government and the state for energy security in the future are seen as justifications to override questions of grassroots participation. This together with the continued hierarchic nature of the bureaucracy undermines the decentralised participation policies introduced as a means of offering both equitable and more efficient development.

### **7.5 Lessons to be learnt?**

In terms of biodiesel promotion the central government and the state need to rethink the blueprint. Although the drive is strong to utilise the tool of central planning in order to kick start the industry in terms of government-centred cultivation, it is leading to questionable results. Firstly, the state should be concerned with relevant research into biofuels, as initiating such a large scale scheme without adequate scientific information about yields, viability, costs and so on is difficult to understand even on its own terms. Also, restricting the focus to one plant for all contexts seems unnecessarily constraining. *Jatropha* might not be suitable, and if

it doesn't fit the needs of the beneficiaries it will not be sustainable. Promoting an awareness of biofuel, possibilities for new markets, and projects which focus on providing fuel for local needs will perhaps be more successful for stimulating interest at the grassroots level.

The category of wasteland needs to be reconsidered, or even abandoned altogether, as it masks a complexity of different uses and land types which are not 'waste'. Without an understanding of local land use and context, projects will continue to be promoted as if they had no costs and only benefits to the local community. The state needs to take into consideration local categories of land. Although it might be reluctant to give up its claims on 'state-owned' land, it seems that in rural areas where they are in effect absent landlords 'encroachment' has to be recognised as inevitable and they need to accept that the land is in fact a part of the village common pool resources. It is only by recognising this and by giving the local community the power over his land that investment and issues of degradation can be addressed. The state therefore needs to strengthen its efforts in CBNRM, rather than undermining it through top-down one-size-fits-all projects such as those promoted by the biofuel policy. Only by focusing on building capacity at the village level, dealing with conflict, setting up institutions, can there be a move towards 'empowering participation' where the community is actively involved in the decision making and planning. If jatropha for biodiesel does show itself to be environmentally and economically viable then it will be taken up by the community through choice rather than by coercion.

## 8 Concluding Comments

The National Mission on Biofuels and the Rajasthani biofuel policy were created in an attempt by the central government of India and the state of Rajasthan to address the pressing problem of energy security. They are not only worried about meeting rising demand in order to keep the wheels of economic development in motion, but are concerned with their growing dependence on volatile international markets. The idea of *swadeshi* or self-reliance has also a strong historical and cultural significance stemming from the independence movement, and is still a powerful motivation today. By creating a blueprint for government-centred jatropha cultivation on wastelands it was envisioned that food security would not be jeopardised, degraded land would be reclaimed, and the rural poor would be given a stake in a CBNRM scheme which would offer additional income.

This thesis sees the Rajasthani biofuel policy and its implementation as existing between two contradicting approaches or paradigms to rural development. On the one side it is an example of blueprint development, where experts plan and design a one-size-fits-all program which can be applied in all the identified areas. This type of approach has a strong history in India where central planning has played a key role since independence. It is reinforced by a bureaucracy which continues to be hierarchical in nature and where accountability is to those further up the chain, rather than to the people it ‘serves’. On the other side the policy attempts to harness policies emanating from the decentralisation/participation paradigm which sees CBNRM schemes as the most appropriate way of managing and developing common pool resources. This approach is not only inspired by global debates but also has a long history in India itself stemming from the Gandhian tradition of *gram swaraj*, or village self-rule.

The main question of this thesis was to find out how the Rajasthani biofuel policy promoting government-centred jatropha cultivation impacted on rural development schemes. To answer this I looked at the reliability of the blueprint, considered if the projects could deliver on the ideals of CBNRM, and found out the views of the project beneficiaries. As an example of blueprint development the biofuel policy is questionable. The assumption that jatropha can ‘perform’ simultaneously on so many fronts is not supported by the research, and viable yields resulting from the projects are far from guaranteed. The fact that it is not suitable as fodder or firewood and can replace species which are, make it an unfavourable choice to the project beneficiaries. The complete lack of education or information given to them about

jatropha or biodiesel means that they are unaware of any future potential it may have as a source of income. Wasteland as a category is also misleading, and despite being officially state owned the land is often already used as part of the village common pool resources. Projects are therefore not offering something-for-nothing but involve costs that could be felt by members of the community. This could mean the loss of fodder or grazing land, and given the precarious climatic conditions marginal farmers are faced with this can have a huge impact on their ability to cope with drought conditions. This is relevant not only from the perspective of justice and equity, but from the point of view of efficiency and sustainability. If a project is to be the responsibility of the targeted community it has to meet their needs if it is to be sustained beyond the implementation phase. By linking these government-centred jatropha projects with the various community-based policies from the decentralised paradigm, the top-down blueprint is repackaged with bottom-up rhetoric. The ideals of ‘empowering participation’ at the core of these policies are undermined in this marriage. Even ‘consultative participation’ can be seen as ‘coercive participation’ where access to development resources becomes tied to planting jatropha. The views of the beneficiaries involved in the projects at the three case study villages confirms that jatropha is not seen as fitting their livelihood needs.

This thesis is not against the state having a biofuel policy. Nor is it against the use of jatropha. Rather it is against the one-size-fits-all wasteland development approach which fails to take into consideration the local environmental and social context. Not only do these projects fail to address the concerns of the people they are meant to serve, but they could also result in wasted resources as unwanted projects are completed and then forgotten.



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## 9.1 Internet Resources

- Biofuel Authority Rajasthan: <http://www.biofuelraj.gov.in>
- Campaign for Survival and Dignity (n.d.) The Forest Rights Act, viewed 10<sup>th</sup> September 2009, <http://forestrightsact.com/what-is-this-act-about>
- Department of Forest: <http://rajforest.nic.in/>
- National Advocacy Council for Development of Indigenous People (n.d.) S.T. (Recognition of Forest Rights) Bill 2005, viewed 10<sup>th</sup> December 2009, <http://www.nacdip.net/recognitionofforestrights.html>
- Vanashakti (n.d) viewed on 10<sup>th</sup> September 2009, <http://www.vanashakti.in>

## Appendix 1: Interview Partners during research

Name	Position	Organisation	Role of Organistaton	Date of Interview
Mohan Dangi	Secretary	Prayatna Samiti	NGO involved in rural development projects in Udaipur district, Rajasthan	1st and 2nd 3rd December
Professor K. N. Joshi	Professor	Institute of Development Studies, Jaipur	Research Institute	18 <sup>th</sup> and 19 <sup>th</sup> November 2008
Rishu Garg	Programme Officer	Aravalli, Jaipur		20 <sup>th</sup> November, 3 <sup>rd</sup> December
Ajay Panday	Director	Progress, Banswara	NGO involved in rural development projects in Banswara District, Rajasthan	22 <sup>nd</sup> and 23 <sup>rd</sup> November 2008
Bhagwan Satay	Field Worker	Progress, Banswara		23 <sup>rd</sup> November 2008
Jagadeesh Menon	Programme Officer - GIS	SPWD, Udaipur	Research and lobby organisation	25 <sup>th</sup> November 2008
Juned Khan Komal	Programme Officer	SPWD, Udaipur		25 <sup>th</sup> November 2008
Mangolan Gujar	Programme Officer	Aastha	NGO campaigning for the rights of tribal peoples in Rajasthan	1 <sup>st</sup> December 2008
R. K Grover	Conservator of Forest	Forest Department, Udaipur District	State Department in charge of forest land	12 <sup>th</sup> December 2008
R. K. Jain	Assistant Conservator of Forest	Forest Department, Udaipur District		12 <sup>th</sup> December 2008
Kamlendra Singh Rathore	Secretary	Samarthak Samiti	NGO involved in MFP projects and awareness of rights in Rajasthan	19 <sup>th</sup> January 2009
Mr R. N. Mahala	Project Manager, Rajasthan	IKF Technology	Private biodiesel company	27 <sup>th</sup> January
Udaisingh	Forest Guard, Salumber Range	Forest Department		2 <sup>nd</sup> February 2009
Dr. Y. C. Bhatt	Professor and member of the Biodiesel Society of India.	College of Technology and Engineering, Maharana Pratap university of Agriculture and Technology	Research	3 <sup>rd</sup> February 2009
Surendra Singh Rathore	Deputy Chief Executive Officer	Biofuel Authority, Rajasthan	State Department with the mandate of promoting biofuel crops in the state	6 <sup>th</sup> February 2009

## Appendix 2: 'Compromise' Questionnaire

### Questionnaire for the study of jatropha plantations in Udaipur District, Rajasthan

***The information obtained from the questionnaire will be strictly confidential***

Date:

Village:

Household:

Caste:

#### Part 1: General Information

##### **1.1. Socio-demographic information**

Household member (H.m)	Age	Gender	Education	Relationship with A
A				
B				
C				
D				
E				
F				
G				

##### **1.2. Land**

Land type		Size	Uses		
			Kharif (post monsoon)	Rabi (Pre monsoon)	Other
Khatedari:	irrigated				
	non-irrigated				
Gair Khatedari:	irrigated				
	non-irrigated				
Other (Beed)					

How much is produced

in a good year?

in an average year?

in a drought year?

What % of produce is for personal consumption, what is for market?

in a good year?

in an average year?

in a drought year?

### 1.3. Livestock

Types	Number	Feeding (open grazing, stall fed, private pastures)	Uses
Cattle			
Buffalo			
Goat			
Other			

What % of produce for private consumption, what is for market?

in a good year?

in an average year?

in a drought year?

### 1.4. Employment

H.m	Local employment	Duration	Migration		Duration
			Where?	What?	

### 1.5. Group membership/Scheme involvement

For example JFMC, SHG, NREGA, Other (please specify)

H.m	Group/scheme	Activity

**1.6. Seasonal Calender of activities**

	Agr			Animal Hus.			NTFP collection			Labour/migration			Other			Other		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Jan																		
Feb																		
March																		
April																		
May																		
June																		
July																		
Aug																		
Sept																		
Oct																		
Nov																		
Dec																		

1=good year, 2=average year, 3=drought year

Part 2: Information concerning the Jatropha plantation**2.1. Land**

What is the plantation land called?

What/who has authority?

Has this authority changed due to the plantation?

How was the plantation land previously used by the household?

	H.m	Frequency*
NFTP collection		
Grazing		
Fodder collection		
Firewood collection		
Agriculture		
Not used		
Other (please specify)		

\*D=daily, W=weekly, S=seasonally, DR=Drought year

Please specify what NFTP (if applicable).

In what way has the plantation changed this land use?

	Now	Expected in future
NFTP collection		
Grazing		
Fodder collection		
Firewood collection		
Agriculture		
Not used		
Other (please specify)		



## 2.2. Planting

Were you involved in the decision to plant jatropha?

If yes, how?

If no, how and when were you informed?

Who in the household was involved in the planting of jatropha?

Through which scheme:      SHG              NREGA              Other (please specify)\_\_\_\_\_

How long did it take?

If paid, how much did you receive?

## 2.3. Jatropha Information

Was jatropha already grown in the village, for example as fences?

Were you given any education or training about the jatropha plantation?

If yes, by who?

What were you told about the plantation?

## 2.4. Seed collection

Before plantation:

Were jatropha seeds already collected in the village before the plantation?

a) for personal use    b) to sell            c) both

If a, for what was it used?

If b, to whom did you sell and for how much per kg?

Who in the household collected the seeds?

Approx. how many seeds were collected?

When were they collected?

After plantation:

What rights do you have over seed collection from the new plantation?

a) work (through NREGA) – fixed payment – per kg payment

b) Free collection with selling on the open market

c) Free collection with licensed buyer

d) Other, please specify.

Who will/does collect the seeds?

What is the present price per kg?

How many seeds collected per day?

When are they collected?

### **2.5. Local perception**

What are the benefits from the plantation (if any)?

For you?

For your household?

For the community?

For the environment?

What are the negatives from the plantation (if any)?

For you?

For your household?

For the community?

For the environment?

What would be the ideal use of the land in your opinion?

What are your expectations for the future?

Any other comments...