

## CONTEXTS AND CONSTRUCTIONS OF SCARCITY

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*Water scarcity is considered one of the most pressing problems confronting the survival of humankind in the next century. But, what is it that makes water a “scarce” resource? How is access to and control over water linked with prevailing social and power relations and how do these influence how it is used or abused? By drawing on research in Kutch, India, the paper argues that water scarcity can be constructed differently by different social and political actors, often to meet political ends. Moreover, global and national conceptions of water scarcity often draw on absolute notions that may not be attuned to local level understandings of scarcity and its multifaceted nature. The paper analyses the “real” aspects of scarcity -- dwindling groundwater aquifers, increased salinity – while also revealing the means by which scarcity is “constructed” or “manufactured” through political and policy processes. State discourses portray scarcity as natural (rather than human-induced) and universal (rather than something that is cyclical). The external ‘essentialised’ notions of scarcity generated by state discourse and state programmes are contrasted with local people’s knowledge systems and livelihood strategies that allow them to adapt to the unpredictability and temporary scarcity of water.*

## Introduction

“Scarcity and misuse of fresh water pose a serious threat to sustainable development and protection of the environment,” declared the Dublin Statement on Water and Sustainable Development of 1992 (Visscher and Sorensson 1994: 1). This quote exemplifies the central importance that water resources and water scarcity have attained in global debates on the environment and development. The International Drinking Water Supply and Sanitation Decade (1981 – 1990) led to a proliferation of new policies, technologies and warnings regarding water. Several authors talk of a looming water crisis which will have a profound impact on food security, human health and social and economic development (e.g. Ohlsson 1995; Clark 1991; Postel 1996). Hence, it is increasingly argued that there is an imperative for water to be seen as an economic good or scarce resource to be used optimally and judiciously (cf. Postel 1996; Winpenny 1994).

But, what is it that makes water scarce? Is it because of the rapidly dwindling aquifers? Is it because a billion people lack access to clean water? Clearly, water supplies are limited and finite, but does this make water scarce in absolute terms? By focussing on the case of ‘water-scarce’ Kutch in India and its relationship with the controversial Sardar Sarovar Project (SSP) in India, the paper argues that access to and control over water is usually linked with prevailing social and power relations which influence how it is used or abused? The paper argues that water scarcity can be constructed differently by different social and political actors, often to meet political ends. Through a detailed empirical and multi-sited examination of both actual water practices and discourses of scarcity in the Kutch region of western-India, the paper argues that scarcity is both “real” and “constructed”. The paper analyses the “real” aspects of scarcity -- dwindling groundwater aquifers, increased salinity – while also revealing the means by which scarcity is “constructed” or “manufactured” through political and policy processes. State discourses portray scarcity as natural (rather than human-induced) and universal (rather than something that is cyclical). The external ‘essentialised’ notions of scarcity generated by state discourse and state programmes are often quite different from local people’s knowledge systems and livelihood strategies that allow them to adapt to the unpredictability and temporary scarcity of water.

My findings are the result of a year’s fieldwork in Kutch and Gujarat in 1995-1996 and short visits almost every year since then. The research employed a combination of methods such as participant observation at the village level, semi-structured interviews with a host of rural and urban actors, the analysis of rainfall data, discourse analysis and historical analysis. Most of the analysis was conducted before the massive earthquake struck and totally transformed Kutch however I hope that most of the insights are relevant even today and are applicable to wider issues of scarcity/ dryland dynamics. This paper begins by discussing the multi-faceted nature of scarcity and then provides an overview of Kutch, its water resources and the links with the SSP. It then analyses the dominant discourses of scarcity and demonstrates what they are obscuring. The paper then examines local responses to scarcity and ends with thoughts on how a combination of socio-political, discursive and institutional factors have succeeded in naturalising scarcity in Kutch.

### **The multifaceted nature of scarcity**

From once being considered an abundant resource, water is increasingly seen as a 'scarce' resource, which needs to be managed judiciously. The statistics are well known: Only three per cent of water on earth is fresh and most of this is locked away in the ice caps of Antarctica and Greenland or deep in underground aquifers. As a result only 0.3 per cent of global water is available for human consumption (Gleick 1993:3). Water scarcity, as it is constructed in global declarations and debates, is often presented in absolute and monolithic terms, obscuring the complex nature of scarcity and its linkages with ecological, socio-political, temporal and anthropogenic dimensions. Let us review some of them.

One, unlike other environmental resources such as forests and coal, water is a renewable resource, which means that its availability is constantly subjected to variation depending on its state in the hydrological cycle. (One exception is groundwater, which is less renewable than other water sources.) Not only is its state variable (e.g. solid, fluid, or in gas form) but it is also variable across time and space, depending on factors such as climate, season and temperature. These are the *biophysical and ecological* attributes determining water availability.

Two, water scarcity has *temporal* and *cyclical* dimensions. People living in arid and semi-arid regions have long since recognised the temporal nature of water scarcity as the case study demonstrates. Periods of dearth are interspersed by periods of abundance. Water availability, thus, is characterised by uncertainty in many parts of the world. However, while the contingency on factors such as rainfall, vegetation and grass cover make water availability uncertain, it would be fallacious to see water scarcity as something that is constant and permanent. This is because supplies do become abundant in favourable seasons and climatic conditions. Thus, water supplies are relative to exogenous factors such as rainfall.

The third dimension is the *distributional* and *relational* aspects of scarcity. There is tremendous inequality in access to and control over water resources. Scarcity is not felt universally by all. In water scarce western India, irrigation pumps work twenty-four hours a day, while poor women find their drinking wells run dry. In arid parts of the world, people consume 10 liter of water per day (Mehta 1998). An average American, by contrast, over 700 liters a day (Gleick 1993:375).

The fourth dimension concerns the *anthropogenic* dimensions of scarcity. While water scarcity tends to be naturalised today, its anthropogenic dimensions are whitewashed. It is well known that the degradation of the Aral Sea and the Caspian Sea are largely due to human intervention. Furthermore, many of the silted up dams, broken hand-pumps and defunct water pipeline schemes are indicative of bad management practices and/ or a failure to encourage or create supportive institutional arrangements to govern water supplies. In sum, it is wrong to conceive of water scarcity in absolute terms, but instead there is an urgent need to link water scarcity with socio-political, institutional and hydrological factors.

Why is a differentiated understanding of water scarcity important? For one, it sharpens our understanding of the multi-faceted nature of water scarcity, making us aware of the biophysical, temporal, relational and political aspects. Most important of

all it throws the crisis narratives of water scarcity into sharp relief to which I now turn.

### **Understanding ‘water crises’**

In the 1990s it was asserted that the wars and conflicts of the next century will be about water. Consider the following quotations:

‘Many of the wars of this century were about oil, but wars of the next century will be about water’ (Serageldin in Cooper 1995:1115)

‘The next war in the Middle East will be over water, not politics’ (Boutros Boutros-Ghali in Butts 1997:65)

‘Not all water-resources disputes will lead to violent conflict . . . [but] in certain regions of the world, such as the Middle East and southern Asia, water is an increasingly scarce resource . . . In these regions, the probability of violence, due at least in part to water disputes, is increasing’ (Gleick 1993:108).

Given that we might shortly witness a war in the Middle East that is definitely not going to be fought over water (even though most people still are unsure of what the actual imperative for fighting this war is ), the aforementioned grim prognoses were certainly wrong. Still, the narratives of ‘water crises’ have gained much currency over the past few years. It has been argued that the spiraling global consumption of water coupled by the population growth will lead to severe water shortages, having a profound impact on food security, health and human well-being (Postel 1996; Postel 1992). However, what are the assumptions behind these crisis narratives? The assumptions have their roots in neo-Malthusian perspectives concerning environment and development, which posit that increasing population growth will put pressure on the existing shrinking resource base. It has been argued that water scarcity needs to be linked with the exponential increase in demand for water, rather than on population growth. Moreover, water scarcity is often compounded due to poor institutional arrangements governing water. An impressive body of work by common property theorists has successfully discredited neo-Malthusian notions concerning population growth, resource availability and environmental degradation. Many empirical studies have shown how people co-operate in times of resource pressure and scarcity (cf. Berkes 1989, Bromley and Cernea 1989; Ostrom 1990). They have also drawn attention to the importance of institutions in managing resources. Common property scholars have also shown how Hobbesian notions of anarchy where states, regions and people fight over scarce resources may not be an accurate or predictable scenario. For example, emerging research has shown that local people and global actors stakeholders have deep understanding of water in their immediate environment and co-operate with each other in times of adversity to avoid high transaction costs in their failure to comply (Ostrom 1990, Ostrom and Keohane 1995). This is not to deny that water is embroiled in local, regional, national or international disputes. Lower caste villagers in Indian villages still are victims of local conflicts over water. Several international disputes are around water (e.g. riparian disputes in the Middle East and in South Asia). There exist several conflicts concerning how water should be managed (e.g. battles against large dams) and conflicts concerning the prioritization

of water use (e.g. inter-sectoral conflicts between drinking, agriculture, urban development).

However, in most of these cases it is unclear whether the conflict is due to 'scarcity' per se. Riccardo Petrella argues that it is misleading to blame conflicts on water scarcity and on rising water needs. Instead many international, national and regional conflicts around water are caused by other factors such as ethnic rivalries, nationalism and power politics that extend to the cultural, political and economic spheres (Petrella 2000: 61). In such cases water is used to fuel already existing conflicts. Conflicts also arise due to the ways in which water use is linked with the prevailing social and power relations (be they in the household, in a community or in a region) and to the stakeholders social and institutional positioning which are generally unequal and contested. For example, in India water crises usually emerge because access to and control over water is very unequal and differentiated in micro, meso and macro settings. Thus, water crises usually arise due to skewed access to and control over a finite and limited resource. Addressing these inequalities in questions concerning local, national, regional and global control over water is probably a more helpful way to mitigate the water 'crisis', rather than the creation of blanket statements making water out to be the source for all conflicts.

### **Water scarcity as socially and politically constructed**

*“...the whole human development, at least up to now, has been a bitter struggle against scarcity.”  
(Jean-Paul Sartre)<sup>1</sup>*

As is evident from this quote, scarcity is frequently considered a “given” factor of human life and an existential reality. It is also one of the main premises of modern economic thought. Even some sociologists have been seduced by these ideas and see the combat against scarcity to be the basis of social action (cf. Balla 1981:225). However, has it always been so? Nicholas Xenos in the work "Scarcity and Modernity" (1989) systematically shows how certain attributes of modernity have given rise to the universal notion of scarcity. Today unshaken belief in paradigms purported by neo-classical economics makes scarcity out to be an ubiquitous and permanent feature of the human condition.

The etymological roots of the word “scarcity” go back to the Old Northern French word *escarcet* ■ which meant insufficiency of supply. Until the late nineteenth century, scarcity connoted a temporally bounded period of scarcity or a dearth. Scarcity was experienced cyclically, dependent usually on poor yields. After the industrial revolution which led to cataclysmic changes creating new needs, desires and the frustration of desires, the concept acquired a new meaning which culminated in its "invention" in neo-classical economic thought of the eighteenth century (Xenos 1989:7). From *scarcities*, which were temporally bound and spatially differentiated, came the scourge of *scarcity*, "a kind of open-ended myth" (ibid:35) from which deliverance was sort.

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<sup>1</sup> Jean-Paul Sartre in Xenos 1989.

Scarcity, not *a* scarcity or *scarcities*, was essentialised and its simplistic universalisation led to the obscuring of ambiguities and regional variations.<sup>2</sup> In modernity, the elusive twin of scarcity is abundance, making scarcity “the antagonist in the human story, a story with a happy ending; vanquishing of the antagonist and a life of happiness ever after and abundance for all” (ibid:35).

Deliverance from scarcity could only take place, thinkers argued, via progress. Shades of this are still found in theories of modernisation which promote unilinear paths from "underdevelopment" to "development". Progress became the focus for social critics such as Marx and Mill whose theories argued that abundance was the pre-requisite for the full realization of human capacities. These models continue to be "evoked today by those who take refuge in the hope of an abundant future to assuage their sense of the injustices of present-day scarcity” (ibid:36).

In the international discourse on water resources management, water scarcity is taken to be a given and starting point for policy agendas (Postel 1996). Until very recently, the supply-oriented nature of water resources management focused on meeting the ever-growing and competing needs of industry, agriculture and domestic use. The perversity of these needs, for example, growing water-guzzling sugar cane in times of droughts or prioritising cement plants over drinking water schemes, is rarely questioned in state discourse. Even the recent demand-oriented notion of water as an "economic good" does not question the universalised notion of water scarcity (e.g. Winpenny 1994). From being a "free-good" pillaged by free-riders, water is converted into an "economic good" that needs to be managed by dam builders and water bureaucrats.

It would be an ontological fallacy to deny that there is no such thing as water scarcity or water shortage.<sup>3</sup> The ever increasing duration of time spent by women on water collection and the visible decline of groundwater reserves in aquifers are clear indications of *one* aspect of the problem of water scarcity. There are, however, many other intangible and ambiguous aspects of the problem leading to different types of *scarcities* felt by a wide range of actors. The exploitation, mismanagement and expropriation of water resources by the state and private stakeholders have led to a division of interests vis-à-vis scarcity. Hence the responses to "scarcity" have also been varied and there is need to understand their relational aspects. Over and above the understanding of the tangible and physical evidences of the problem (i.e. dwindling water levels), the paper also seeks to understand what scarcity means for different actors. The focus is also on how certain actors in Gujarat have constructed a naturalised and essentialised notion of scarcity. In doing so, I follow Yappa's urgent plea to "include the very intellect that helped us to conceptualise" the problem in the first place (Yappa 1993:225).

### **The Case of Kutch**

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<sup>2</sup> Modern economics is premised on human needs and their satisfaction: an increase in human needs leads to scarcity of goods; institutions such as property and markets mediate transactions with these scarce goods. In this way, the enterprise of economics is legitimised and the concept of scarcity is universalised (Xenos 1989: 71).

<sup>3</sup> See Matthew Gandy (1996) for the ridiculous dilemmas that emerge out of the relativist trap in viewing environmental problems.

Imagine water on a tortoise. Kutch. Kachchh. Katch. Cutch. All these names are derivatives from the Gujarati word *kachau* or tortoise. It is from the word *kachau* that the drought-prone district of Kutch in western Gujarat gets its name. Indeed, Kutch is shaped like a tortoise due to the elevation in the centre. This central highland, called the Bhuj ridge, is the source of the area's main groundwater resources and rivers, which water the region. The topography slopes down towards the north and south. This topography has not only given Kutch its name. Due to the sharp gradient, all the 97 rivers and streams of Kutch are non-perennial and have a high run-off rate. Whatever little rain that falls is washed away and flows off in several streams and rivulets into the sea or into the Ranns. This, compounded with the area's erratic rainfall and semi-arid to arid conditions, make water a very limited resource in Kutch.

The crescent-shaped peninsula of Kutch is the largest district in Gujarat and has an area of 45,612 sq. km constituting 23 per cent of the state. Kutch is like an island as it is bound by the sea in the South and West and by the Ranns (salt marshlands) in the East and North. Kutch was a princely state ruled by the Maharao of Kutch. It became a part of India in 1948 and was integrated into the state of Gujarat only in 1961. Apart from this geographical isolation, political and historical circumstances have contributed to its general isolation from the rest of mainland India and Gujarat.

It has nine *talukas* or administrative sub-districts: Bhuj and Nakhatrana in the North; Lakhpat and Abrasa in the West; Mandvi, Mundra and Anjar in the South and Bachau and Rapar in the East. Apart from its very heterogeneous social and ethnic composition, the region has nine ecological zones (Gujarat Ecology Commission: 1994). Rainfed agriculture and animal husbandry are the chief occupations in Kutch, although settled agriculture initially did not have the same importance that it has today. The livestock economy has always been one of the most important sources of livelihood for the people of Kutch. This has given rise to the saying "Milk like sons can never be sold", indicating the central role played by livestock and dairy products in everyday life. Even today, the livestock population exceeds the human population.

Kutch has an arid to semi-arid type of climate. Temperature ranges from 45 degrees centigrade in the summer to two degrees in winter. Humidity and evapotranspiration are high throughout the year. In some areas, groundwater supplies are abundant, but increasingly the levels are dropping. Overexploitation of the aquifer combined with sea water ingress has led to salinity in the water and soils and a sinking water table. The groundwater table sinks at a rate of a metre a year and in two talukas in the district fall under the over-exploitation category (Gujarat Ecology Commission 1994: 14). Due to its topography no major dam is possible in Kutch.

Rainfall is erratic and variable and averages about 350 to 370mm. There is high regional variation, ranging from 440 in southern Kutch to 338 mm in western Kutch (Raju 10: 1995). It only rains a few days a year, (15 on an average) with significant intra-district variations. For example, in the drought year of 2000 Abdrasa received about 200 per cent of its average rainfall with 600 mm and Rapar received 75 per cent of its average rainfall with 223mm which constitutes a

moderate drought. By contrast, Mandvi received only 104 mm which was about 30 per cent of its average rainfall. In official discourse, Kutch is considered drought-prone, with droughts taking place every 2-3 years.

Scarcity conditions in Kutch are often attributed to dwindling rainfall (Mehta 2001). However, this is a myth, both in Kutch as well as in other parts of the world (cf. Falkenmark 1990). Rainfall data of the past 60 years prior to 1997 indicates that while there have been erratic variations in the quantity of rainfall, there is no evidence to suggest that precipitation rates have changed. A t-test, comparing the rainfall in Kutch over 30 years (1968-1997) with the previous 30 year period (1938-1967), revealed no significant difference ( $t_{obt.} = -.28, p > 0.05_{2-tail}$  see Sinclair 1998). Inference tests using rainfall data for the *talukas* of Abrasa, Bhuj and Rapar over a longer period (120 years) were conducted to compare rainfall differences existed between four 30-year periods (1878-1907, 1908-1937, 1938-1967 and 1968-1997). A repeated measures analysis of variance revealed no significant differences over these periods (Sinclair 1998). Table 1.1 gives the mean rainfall over these periods with their standard deviations and demonstrates that rainfall in Kutch and in the *talukas* of Abrasa, Bhuj and Rapar) is neither increasing nor decreasing.

**Table 1.1. Mean rainfall in Kutch (mm)**

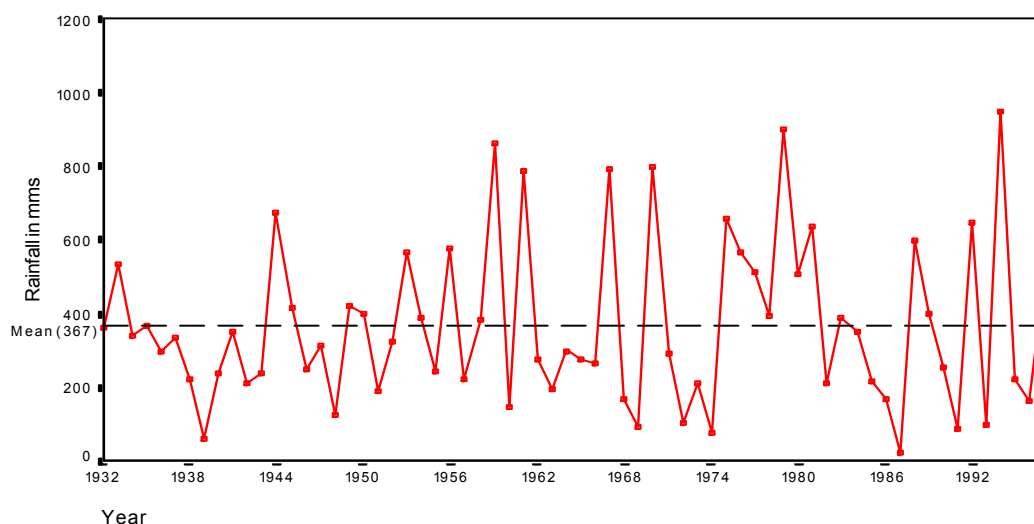
	Mean rainfall in mms ( <i>standard deviation</i> )				
	1878-1907	1908-1937	1938-1967	1968-1997	1878-1997
Abrasa	329 (240)	314 (267)	384 (330)	354 (294)	345 (282)
Bhuj	354 (171)	363 (239)	364 (256)	340 (246)	355 (228)
Rapar	396 (212)	370 (177)	371 (203)	385 (294)	380 (223)
Kutch	N/a	n/a	358 (204)	375 (259)	367 (221)*

\* Based on data available for all *talukas* from 1932-1997

Source: Institute of Desert Ecology, Bhuj

However it is characterised by high annual variability (see Figure 1.1). Thus, rainfall is largely characterised by uncertainty and can be seen to be “*regularly irregular.*”

**Figure 1.1. Average annual rainfall in Kutch**



Kutchi identity is moulded around water, or the lack of it. Villagers across the length and breadth of the district say that the lack of water is the cause of their misery, the depopulated villages and mass migration<sup>4</sup> out of Kutch. Water scarcity is attributed to low rainfall, ever-decreasing rainfall and perennial droughts. There is a widespread belief in Kutch that due to the harsh climate, erratic water supply, declining groundwater sources and frequent droughts, the only solution is to get water from the rivers of Gujarat (Kutch Development Forum, 1993). That is why all hopes are being pinned on the Sardar Sarovar Project. Seen in this light, the Sardar Sarovar Project (SSP) is not only the last in the line of external water wonders supposed to transform Kutch. It is also considered by many to be *the* only hope for Kutch.

### **The Politics of Scarcity: Kutch and the SSP**

The SSP is a controversial multi-dam canal irrigation and hydroelectric project under construction on the Narmada river in Gujarat. If completed, the planned 163 metre dam is intended to bring drinking water to 30 million people and irrigate 1.8 hectares of land (Raj 1991: 11). It will also submerge 37,000 hectares of forest and agricultural land as well as the homes of at least 250,000 people.<sup>5</sup>

Plans to provide water for Kutch from the river Narmada have a long history and are no less complicated than the history of the Sardar Sarovar dam itself. They are presented here briefly. The Narmada river flows through three states, namely Madhya Pradesh, Gujarat and Maharashtra. Though the project was conceived almost a century ago, actual work has been stalled due to inter-state conflicts such as the height of the dam, the extent of submergence and the sharing of benefits. Different committees were set up to resolve all these inter-state conflicts such as the Khosla Commission of 1965 and the Narmada Water Disputes Tribunal of 1979. Kutchis maintain that the state of Gujarat did not represent their interests adequately and were biased in favour of obtaining benefits for Central Gujarat which has far better water endowments. As a result, during the course of several rounds of negotiations, Kutch successively lost out. From an original plan of three canals, the Narmada Water Disputes Tribunal sanctioned only the canal along the coast in 1979. Instead of allowing for the irrigation of 9.45 lakh acres of land in Kutch,<sup>6</sup> only 95,000 acres of land were to get irrigation (Kutch Development Forum:1993). In this way only two per cent of Kutch's area stands to benefit from the Kutch Branch Canal.

The hurdles of the past, however, are few compared with future chances of getting water to the region. Water can only enter Kutch after the Narmada main canal is constructed. Once diverted into the main canal, the water will traverse 500 kilometres before it enters into Kutch. Along the way the canal will cross major rivers

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<sup>4</sup> The present population of Kutch is a little over one million. For every Kutchi living in Kutch, there is one in East Africa, the Gulf or in Bombay. People in Kutch attribute this great Kutchi diaspora to the lack of water and the "underdevelopment" of the region. I suspect that there are also historical reasons for this. Since time immemorial, the princely state of Kutch was involved in seafaring activities and played a key role in trade with East Africa and the Arab world. Thus, Kutchi entrepreneurship and its sense of adventure have also played a significant role in the migration of its people.

<sup>5</sup> A discussion of the cost/benefit analysis of the project and a summary of all the controversies surrounding it, though interesting, are not possible in this paper.

<sup>6</sup> One lakh = 100,000

such as the Mahi, the Sabarmati and the Banas and their valleys. Before entering Kutch, it will also cross the Little Rann. Here high evaporation is expected. The quantum of water entering into Kutch will almost be that of a small river. Consensus still has to be reached on whether the lift or gravity method will be used. No work has started as yet on the proposed Kutch Branch Canal (KBC) as the alignment line has not yet been fixed. The present plan envisages a canal of 200 kilometres in Kutch passing through a tiny coastal strip in Eastern and Southern Kutch. In this way five *talukas* stand to benefit: Rapar, Bachau, Anjar, Mundra and Mandvi. Only two of these *talukas*, namely Rapar and Bachau, are considered to be drought-prone. The other three are richer in groundwater endowments and are considered to be part of the belt that has experienced the green revolution in Kutch. The industrial belt of Kutch situated in the Kandla-Gandhidham area is also located in the command area. Thus, the needs of industrial residents and rich farmers may be met more than those of needy farmers in other drought-prone areas. The SSP, if realised, may also intensify the existing North/South divide in the district.

In short, providing water from the SSP to Kutch is still very much in an embryonic stage and promises to be a protracted process. It is ironic that water-hungry Kutch should be used by the dam proponents to justify the project, especially as it does not appear as though Kutch is likely to benefit significantly from the project. Nonetheless hopes and aspirations have been aroused among the people of Kutch. Powerful imagery is used to stress how crucial the project is for Gujarat's drought-prone regions and this imagery is a significant tool in election campaigns:

“They had seen farmers shedding blood from their eyes at the parched and cracked farms due to want of rains in Saurashtra and Kutch (...) Tearful tales of dry desert were heart-rendering and emphasised again and again the need to solve the problem of water for human and cattle population in the (...) Kutch region. People of Saurashtra and Kutch live on a dream of the Narmada waters reaching them (...)” (Sanghvi 1992: 5).

The SSP is considered to be the lifeline of Gujarat. The state of Gujarat accords it with the utmost priority. Almost a third of the finances of the last Five Year Plan were to be invested in the project. This is evident from the Eighth Five Year Plan of the state which says:

“The highest priority in investment is given to the Sardar Sarovar (Narmada) Project (...) An outlay of Rs 2900 crores which amounts to 25.22 percent of the total size of the Eighth Plan has been proposed for this single project which is the lifeline of Gujarat (...) Thus an outlay of Rs 3756 crores for the Eight Five Year Plan has been provided for irrigation (..) which includes outlay for SSP (...) This constitutes 32.66 per cent of the total Plan outlay for the Eighth Plan” (Government of Gujarat: 1992: 26-27).

Apart from consuming a significant portion of the state's budget, the SSP may have jeopardised the future of several minor and medium-sized schemes all over the state. In Kutch detailed project proposals for over 20 minor schemes have been submitted since 1984 to concerned authorities in Gandhinagar. Since 1984, however, only five schemes have been sanctioned (Water Research Investigation Department, Bhuj). Meanwhile scarcity continues to proliferate in Kutch and elsewhere. In Gujarat, it is

largely a taboo to talk against the project or even to suggest that the SSP is not the panacea that it is made out to be.

Members of the protest movement against the dam have been subjected to threats, police brutalities and tremendous criticism in the Gujarati media.

The propaganda machinery used by the state as well as decades of political promises have succeeded in “manufacturing” perceptions or myths that reinforce the bounty that is supposed to be the SSP. Here I borrow Herman and Chomsky’s concept of “Manufacturing Consent”. In a book titled by the same name they describe the role of the media in “manufacturing” consent and describe how support is mobilised for special interests that dominate the state activity. In Gujarat, the state has “*manufactured*” one dominant perception of water, namely, the Narmada project as the single solution. In doing so, political and business interests all over the state are being served.<sup>7</sup> Additionally, the discourse on water resources management is hegemonised by this one project. The focus on externally-supplied water has prevented water-harvesting schemes from gaining wide-spread acceptance in Gujarat. Officials of the Gujarat State Land Development Corporation (GSLDC) feel that their work is marginalised in water resources departments in Kutch and in Gandhinagar. Their efforts are stymied due to the state-wide obsession with the Narmada project. An official of the GSLDC in Bhuj said:

If all the 177 watersheds in Kutch would be developed, there would be no need for Narmada water. But our work is not taken seriously. Everybody is obsessed about the Narmada project, but what should the people do until the water comes? We lack human power, our offices are understaffed and during scarcity years, all our work comes to a standstill because our schemes are converted to relief sites. In areas where we have worked, wells have been recharged and water conservation has increased. The need for relief has gone down. But this is a long and protracted process, which cannot take place overnight.

Villagers in the research village also echo these sentiments. Every year they watch helplessly as water flows unchecked into the Rann due to Kutch’s topography. Due to the sharp gradient, all the 97 rivers and streams of Kutch are non-perennial and have a high run-off rate. Whatever little rain that falls is washed away and flows off in several streams and rivulets into the sea or into the Ranns. Thus is necessary that water is sufficiently tapped through rainwater harvesting and catchment area treatment.

Xenos’ argument of deliverance from absolute notions of scarcity is very relevant for Kutch. In the late 1990s, Kutchis had largely bought into the grand narrative of this ‘water wonder’. They felt that it would solve all their problems and make up for the injustices of climate and history since the people<sup>8</sup> felt betrayed that they have

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<sup>7</sup>For example, the Gujarat government has been promoting industries coming up along the “Golden Corridor”, largely situated in the SSP’s command in Central Gujarat. It has attracted investments worth Rs 75,000 crores for this purpose (Desai: 1995).

<sup>8</sup> I suspect that their experiences with shoddy resettlement and rehabilitation after the earthquake has probably further reinforced their sentiments of mistrust and resentment of Gujarat’s politicians. Today

constantly had to live with a series of broken promises. The widespread 'manufactured' nature of debates around the SSP also helped obscure and whitewash the anthropogenic nature of scarcity to which I now turn.

### **The anthropogenic dimensions of scarcity**

While the actual volume of water bestowed by the Rain God might not have changed, the severity of drought or scarcity is felt more acutely today than in the past. Scientists and local people maintain that the intensity of drought has increased (cf. Murishwar and Fernandes 1988). There are several factors at play. The first factor is increasing *devegetation* which has certainly taken place due to an increase in commercial logging activities in the last five decades. Prior to Kutch's integration into the Indian union, the Maharaos had instituted a policy of afforestation. Areas known as *Rakhals* were set aside, where tree cutting and grazing were prohibited. The *Rakhals* were used as game sanctuaries, grass farms and for experiments at reforestation. Despite their elitist nature, the *Rakhals* were successful in experiments concerning the types of trees suitable for Kutch's unique requirements and considerable forest cover was created (Rushbrook Williams 1958: 29). After 1948, these institutional restrictions ceased to exist and there was a boom in unchecked logging. Trees were cut down and smuggled out of Kutch into Gujarat for coal. This has had serious repercussions on the vegetational cover of Kutch. The wild growth of *Prosopis Juliflora* has also led to loss of grass cover and the undermining of indigenous tree species. Moreover, it is believed that *Prosopis Juliflora* neither attracts rain nor gives moisture to the soil even though it might conserve water within its own system. Bad water management practices have also played a role in vegetational reduction. The world famous grasslands in northern Kutch, for example, have suffered considerably due to the damming of Kutch's northern rivers. The damming stopped the annual inundation and natural fertilization by the silt traditionally brought by the rivers. The grasslands are now dependent only on rainfall for their rejuvenation (Ferroukhi: 1994:41).

Another dimension to anthropogenic scarcity is the *overexploitation of groundwater aquifers*. Access to and control over groundwater in Kutch is marked by tremendous inequality. In the research village, 'higher castes' such as the Rajputs and Jadejas comprise less than 30 per cent of the population but they control about 65 per cent of the land. They also own most of the wells in the village. Well ownership goes hand in hand with land ownership. Those who have access to land, control the water below them. The rich irrigators in rural areas (popularly known as 'water lords') are often responsible for depleting vast amounts of groundwater resources. They tend, however, to attribute declines in the groundwater table to climatic change which again obfuscates the real problem: namely, rapidly increasing groundwater use leading to a declining water table (cf. Olsen 1987). This can only dry out local wells and ponds and has far-reaching effects on biomass regeneration and the water recharging capacity of soils. Clearly, water extraction outweighs water recharging. Consequently, the water table is declining by about one meter every year in Kutch. Groundwater is Kutch's most precious, yet, most abused resource. Its control lies in the hands of powerful landed

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the obsession with the SSP is less than what it was before due to the problems encountered with survival since the earthquake.

owners and irrigators and is their most important forms of material capital making them powerful water lords in their local communities (cf. VIKSAT n.d.; Shah, T 1993). These water lords overcome groundwater constraints by their willingness and financial ability to invest in yearly or even monthly well digging, broadening and deepening operations. They are also successful at circumventing legislature and making the best of institutional loopholes.<sup>9</sup> The groundwater crisis, hence, is not just one of dwindling water levels, but instead a crisis of access and control over scarce resources. Irrigators in the region often tend to think short-sightedly. This manifests itself in their willingness to tap scarce water resources during droughts to grow water-hungry crops as the next sections demonstrated.

The above discussion should make it clear that the growing water ‘crisis’ in Kutch is largely human-induced. However, in popular discourse the anthropogenic dimension of water scarcity is obscured. The culpability of large farmers, bad water management practices and state policies is denied. The story of “dwindling rainfall” obscures the fact that water has been misused and legislation is constantly circumvented. The power of the water lords remains unquestioned and their greed is exonerated. The water problem is seen as “natural”, something beyond human agency, even though rainfall and drought patterns are characterised by high uncertainty and variability. Projects such as the SSP are evoked as the only solution to set right what nature has ostensibly disturbed.

### **Differentiated responses to scarcity**

I now turn to village level experiences of water scarcity by drawing on findings from a village which I call Merka in eastern Kutch. The village is situated in the potential command area of the SSP. It is a medium-sized village with a population of 3,463. It has been declared a ‘no source’ village by the state which means that existing water supplies in the village are not sufficient to provide water to its population. Water is, thus, supplied by the Gujarat Water Supply and Sewage Board either by tanker or by pipeline.

Merka is a multi-caste village. Caste is the basis for most social interactions and also plays a crucial role in local water resources management practices. Merka’s castes range from the erstwhile feudal lords (*Jadejas*) to *Rjputs* (warrior castes), pastoralists (*Rabaris*, *Bharvads*) and the *Dalits* (formerly known as Harijans or “untouchables”). Sources of water comprise tanks around the village where rainwater is collected, wells with groundwater and *viridas*, holes in the riverbed (see Mehta Forthcoming for details on caste politics and water). .

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<sup>9</sup> Gujarat was the first state to pass a groundwater law in 1976, which dealt with the regulation, and licensing of tubewell construction and control of groundwater use. Its implementation, however, has been difficult given the strong political opposition and because rights to use groundwater go hand in hand with land ownership (VIKSAT n.d.: 11). The skewed pricing of electricity contributes to uncontrolled rates of water extraction.

The following tale narrated to me by a Gadvi woman in the peak of summer nicely sums up Kutch perceptions of scarcity and rain cycles and also illustrates Xenos' point of scarcity being something that is temporally bound. *How many eggs does a hen lay? How many are ripe and how many are raw? Despite the apparently inane and mundane nature of these questions, they ended up baffling the subjects in the court of an ancient kingdom in Wagad. Some said: "five eggs"; others said "two". Everyone was largely clueless. The ruler was not satisfied and was impatient for a clever answer. His adviser suggested that they ask a wandering bard, a Gadvi, known far and wide for his wisdom. The Gadvi mused and then answered simply: "Let's say the hen lays twelve eggs. If four eggs are ripe, then all twelve are ripe. If four eggs are raw, then all twelve are raw."* This did not make sense to the advisor, but the ruler was pleased. He rewarded the Gadvi handsomely. What have eggs got to do with scarcity? The twelve eggs represent the twelve months of the year. The four eggs are the four monsoon months. If it rains well in these four months (i.e. four ripe eggs), then the year is a good one (i.e. all eggs are ripe). Conversely, if the four monsoon months are bad, then the whole year is bad. The crucial four ripe or raw eggs determine the fate of the twelve eggs. And the outcome is always uncertain. In the same way, the fate of the Kutchi year is sealed after the onset of the rains and the outcome is always unpredictable and uncertain (Gadvi woman, Merka, March 1996).

As the above vignette on the ripe and raw eggs shows, in rural Kutch, the outcome of every year is uncertain. Periods of abundance are interspersed with periods of dearth and impoverishment. Rainfall is largely characterised by uncertainty and can be seen to be *"regularly irregular."* What are the institutional arrangements that deal with this uncertainty and scarcity? Livelihood strategies display a high degree of flexibility. Let me begin with dryland agriculture and pastoralism and the links between the two.

Dryland agriculture employs a wide range of risk minimisation strategies such as the spreading of land assets over different land parcels distributed over a variety of soil types. Decision-making regarding field preparation is often an innovative response to an ever-changing environment. For example, if villagers sense a lean year, they are likely to plant drought-hardy crops. If the year appears promising they invest in millet or cotton. Crop-related decisions are not just dependent on exogenous factors such as the rainfall. Personal need, practicalities and collegiality towards field neighbours are also important factors. Thus, agricultural practices are flexible responses to situations at a given time and given place. They are adaptations to the year, particular soil conditions and to highly specific contingencies arising within the social world. For example, it is usual to confer with field neighbours and collectively negotiate on crops to be grown in a particular vicinity. To borrow Paul Richard's useful analogy, all these factors make agriculture in Kutch an ongoing performance which is a *"sequential adjustment to unpredictable conditions"* (Richard 1989: 41). Clearly of course, not all cultivators have uniform strategies. Large landowners with irrigation facilities enjoy the maximum buffer against uncertainty. By contrast, dryland cultivators and marginal farmers face the knocks of scarcity more.

The same resource base is also used by herders, given that the livestock-based economy has always been one of the most important sources of livelihood in Kutch. Kutch's semi-arid to arid type of climate encourages a vegetation of short annual grasses ideal for livestock rearing. The pastoralists are usually sedentary but during

lean year's migration is a necessity given the uncertainty of rainfall and forage availability in the village environs. Those with large herds can afford to migrate for about 400 kilometres. Migration thus allows pastoralists with large herds to adapt to a variable and heterogeneous environment. Due to this mobility they can exploit and access different social and ecological patches across the range. One always hopes, quite literally, that the grass is greener on the other side. The institutional arrangements need to be highly flexible and adaptable and entail constant decisions and responses to "here" and now contingencies. Each site has its own set of forage opportunities and restrictions. The water situation is always different, as is the reception from the host community. Survival is only possible due to constant adaptation and ad hoc arrangements. Those with fewer animals (under 100) cannot afford to migrate and have to make do with locally available grasses.

Migratory pastoralism is possible only due to the wide support and social networks spread out over a wide area, indicating the embeddedness of institutions in wider social structures. These social networks include kinship ties amongst other pastoralists but also reciprocal relationships with farmers that have been built with farmers over several generations. The relationship between cultivators and pastoralists, who use the same resource base, has largely been synergistic. Landowners appreciated the manure provided by the pastoralists and they were allowed to pitch camp on fallow or harvested fields during their migratory routes. Recently, however, changes in agricultural patterns have made the relationships less symbiotic, with pastoralists losing out. State policies and interventions have tended to offer agricultural subventions to cultivators and have led to the introduction of double and triple cropping. The migration of pastoralists is actively discouraged with pastoralists being fined or areas being sealed off. There are no state policies in Kutch directed towards pastoralists or for the protection of CPRs. This has led to a general lack of appreciation of the diverse ways in which different resource users use the same land and CPR resources. It has also led to a general undermining of the institutional flexibility displayed by cultivators and pastoralists as they adapt their livelihoods to deal with uncertainty and led to a general worsening of ties between the two groups.

Of course, the livelihood strategies in drought-prone Merka are not only very diverse. They also depend on people's occupational status and wealth assets. I now explore three diverse household profiles and their experiences of drought in 2000 in the course of a three year drought cycle. I focus on a rich irrigator family with 100 acres of land, a labouring family with 5 acres of land and a pastoralist family with moderate livestock and land assets.

### **Some household profiles**

The grand old Rjput patriarch, Kamta Dhoka, and his son's family live in a majestic old house with a large courtyard. They own about 100 acres of land (for legal purposes they are under several names). The patriarch is one of the richest men in the village. About 20 acres of land are irrigated by four wells with saline water. Their prize is the 25 acres of land adjacent to a small check-dam from which they extract sweet water which they use to grow commercial crops such as cumin and castor. These activities have actively contributed to depleting the water in village communal tanks. Since this family is the patron of about twenty families spread out over the village in every quarter and caste, these activities do not meet with much resistance. The Dhoka family has the financial clout to constantly deepen, broaden and extend

their well-digging activities. This also ensures good yields in a dry year.

The family grows subsistence crops such as *bajra*, *mug* and *tal* in fields all around the village. In addition they grow fodder crops such as lucerne and jowar on irrigated fields in the dry months. In this way their cattle are assured of fresh green fodder. Cotton and cumin are their chief cash crops, grown on irrigated land. In good years, they can make about Rs 4 lakhs with a profit of about Rs 2 lakhs. Cotton can grow with saline water from their wells. However, cumin cultivation is only possible in sweet water for which they use village communal tanks, often without permits.

This family does not suffer tremendously due to the hardships of drought. There is no change in their diet and milk continues to be drunk by all members, including women and girls. Even during the drought year of 2000-2001, the third year of the drought cycle, their large land assets and irrigation facilities ensured a modest yield (3000 kilos of grain and cereal which would last a year and 4000 kilos of cumin). They somewhat managed to break even against their initial investment of Rs 2.5 lakhs. Drought for this family means fewer yields and fewer profits which mean not having flowing cash which they would use to build a house or celebrate a wedding. In no way does drought entail misery or loss.

By contrast, drought means debt, hardship and a somewhat reduced intake of milk and milk products for the household of Kasiben and Khimjibhai, two Dalits. They have eight children and earn most of their money through seasonal labour and cultivation. Khimjibhai's father's land is shared between four brothers. It is so insignificant that Khimjibhai considers himself, for all practical purposes, to be landless. Against a payment of Rs 10,000, the family acquired land from a pauperised Darbar which they now cultivate in partnership with him. They have two parcels of land – one is near the Rann and the other is close to one of the dams of the village.

They usually grow cotton and castor in one field and grains and cereals in another. In a good year, they can have yields of about 400 kilos of grains and cereals. They keep about eight months worth and sell the rest. Unlike the Dhokas, all their surpluses are not stored and no seeds are stored. Thus buying seeds can be difficult following a drought year. When the season is favourable they can earn about Rs 40,000 a year from agricultural activities, largely from cotton sales. In a bad year, their yields are very limited and last for barely a month or so. In 1995, Khimjibhai borrowed money (interest-free) from the Dhokas. In 2000, the three consecutive years of drought had taken their toll and Kasiben had pledged her jewelry to the moneylender against a loan of Rs 6000.

In 2000-2001, they reported that the first two rains were good but the last crucial shower failed. Hence the entire year was disappointing and there was no hope of any profits but Khimjibhai felt that he would break even. They also could not irrigate one of their fields near the dam because the Dhoka family used up all the water in the tank. Since their relationship with the Dhokas is one of patronage and dependence, they could not be overtly critical of them.

The effects of drought are far more pronounced on this family and the periods of dearth are more extreme than what they are in the Dhoka family. During drought periods, the pernicious trap of being indebted to the money-lender is a constant worry,

the intake of milk produce is drastically decreased and the dependence on casual labour and relief is strong. But even this family does not compromise on food intake during the drought. They continue to eat pulses, grains and vegetables, largely purchased from the shop. Clearly, without relief work and other employment opportunities this Harijan family would encounter far more deprivation than it does currently.

The final household is the Kansuo Rabari family. Their strategies are very different from those of the large land-owners and the poorer marginal farmers and labourers. This family has both livestock and land assets. It would fall in the middle category of wealth with about 60 acres of dry land and 300 sheep and goats. Their land is spread across four land parcels on good quality soil near one of Merka's small check-dams. In a good year, the fields can produce about 5,000 kilos of grain which is largely stored and can last for two year. Cotton yields (about 2,000 kilos) are sold commercially. The fields are largely looked after the street-smart brother-in-law who is engaged in business activities. He does not fit the stereotype of the gullible goatgrazer which is largely how the large land-owners and village elites view the pastoralists.

The rest of the family, however, largely fits this stereotype. For them, pastoralism is their lifeblood and identity marker. Malabhai and Dayabhai, the two sons take care of the livestock assets. They and their wives and nine children largely lead a peripatetic existence. They have about 400 sheep and goats and camp with them on hundreds of different fallow fields, either in Merka when the season is favourable or somewhere between Merka and North Gujarat when the season is adverse. They earn their livelihood out of the sales of sheep (about Rs 800 – 1000 per sheep) and wool. Additional earnings come from farmers who pay them for manuring their field through sheep droppings. They can earn about Rs 40, 000 a year from pastoralism with very little of the initial investments that are required in agriculture. After three year drought cycle of 1998-2001, the number of animals fell by twenty percent. This is because younger lambs and kids could not survive the drought conditions and were abandoned. They were however confident that the numbers would pick up again once the season was favourable again. Usually if Malabhai and Dayabhai sense a drought, they try and increase the sales of sheep after the monsoons to avoid having to abandon them.

Out of the three families I have described their lives are the most linked with seasonal conditions. The season determines whether or not they migrate with their livestock out of Merka. The season also determines the length of the route. Drought for them largely means a reduced amount of grass cover in their large extended home, the *simara* which is their livestock's protein bank. The subsequent reduced fodder intake leads to weakened or hungry animals and a reduction in livestock sales and assets. Their food consumption is not as lavish as the Dhokas. They consume fewer fresh green vegetables and when en route, it is quite common for them to just eat bread and milk for days on end. During drought periods, they have less milk to make curds and buttermilk.

They, like many other Rabari families, complain about the lack of institutional support towards pastoralist livelihoods in Merka. Merka has no dairy so milk sales cannot take place in a systematic matter. Pastoralists with small ruminants, the

majority in Merka, cannot avail of government-sponsored cattle camps or grass depots. Kasuobapa and his family feel that drought conditions are clearly increasingly which will make it very difficult for them to sustain the pastoralist lifestyle in future.

As Anuben, a married sister said:

We would rather have land assets than livestock assets. Land can't die or wither away like an animal. An animal walks and dies. If the herd perishes, that's the end. We Rabaris can't afford to build up a herd from scratch anymore. By contrast, you can let the land lie fallow for a few years.

In this light, the forward-looking strategy of Ambabhai, who has begun to diversify his livelihood strategies, is wise. However all the Rabaris and Bharvards in Merka are not so lucky. Kasuo's father had wisely invested in land and as a result this family can fall back on agriculture to get by. By contrast, less than ten percent of Rabaris and Bharvads in Merka own significant land assets in the village and lack the initial capital to diversify their livelihoods. Thus, even though the pastoralist lifestyle is very suitable for drought-prone Kutch, the lack of government support will force people to either give it up all together or combine it with other livelihood options.

These three household profiles demonstrate two things: One, livelihood and drought-coping strategies in Merka are highly diverse and adaptable. Two, they are highly dependent on wealth and assets which explains the vast differences, say, between the Dhoka patrons and the Harijan family. Three, there is a high correlation between wealth and security. The most secure livelihoods are maintained by the Dhokas with their 100 acres of land and, more importantly, irrigation facilities which they enjoy, often to the detriment of poorer household's well being. For example, their over-exploitation of the water in the communal tanks prevented the poorer Harijans from enjoy a minimum level of irrigation. The Kasuobapa Rabari family, with its 300 sheep and goats and 60 acres of land, enjoy relative security when compared with Rabaris with 50 sheep who cannot afford to migrate. But they pay a price too: Out of the three households, the Rabaris encounter the most dramatic spatial and lifestyle changes in order to adapt to scarcity and uncertainty. The Harijan family has the highest insecurity. This is because they own very few assets encounter the most impoverishment. Their dependence on state-sponsored relief measures is very high. Thus, scarcity and drought mean different things to different resource users and their experiences and perceptions are largely linked with people's wealth, assets and social positioning.

I experienced drought in Merka in 1995-96 which was a semi-scarcity year and in 2000, at the end of the three year drought cycle. In 2000 Merka's rainfall was better than the Kutchi or even Rapar average – it was about 263 mm (as opposed to 195 in Rapar) and those with irrigation facilities were not doing too badly. But the three years of drought had visible manifestations: Unlike in 1995-96, people clearly seemed to be weighed down by fodder scarcity, low agricultural yields, debts and problems with *ganda bawal*. They also complained about the lack of flowing cash money and few or no off-farm employment facilities.

But, the relative normalcy of drought, no matter how difficult and hard, was also evident. In response to my questions about drought, people would laugh.

We are used to drought. Two years are bad and one year is good. This is our life. When it's bad we disappear away from the village. When the rains come, we race back. This is our home and we are happy here.

But this acceptance of the cyclical nature of drought and scarcity may not always persist. Even the highly adapted, flexible and diverse livelihood strategies of both cultivators and pastoralists will not always be able to withstand the problems of dwindling groundwater aquifers, devegetation, soil degradation and the lack of grass cover. There are limits to local resilience. I do not want to overly glorify 'adapting to and living with scarcity and uncertainty.' However understanding their dynamics will help planners and policy-makers overcome their 'dryland blindness' and promote interventions that contribute to mitigating scarcity, instead of naturalising it.

### **Dryland blindness and the naturalisation of scarcity**

It cannot be stressed enough that policy-makers in distant Gandhinagar "do not understand Kutch"<sup>10</sup>. The yardsticks of the water-abundant areas of Central Gujarat are applied to Kutch whilst conceiving water-related interventions. The 'dryland blindness' of planners (cf. Mehta 2000) has led to investments in surface water schemes and groundwater developments that do not perform well in Kutch due to its extreme climate and erratic and variable rainfall. Little wonder that they fail. According to the former Collector of Kutch:

It took us a long time to understand why the drinking water schemes were so dismal in Kutch. Most of us are used to the areas of Central Gujarat, which have abundant rain, extensive canal systems and good rivers basins that are fed by the rivers of two states. Hence, borewells recharge well. Kutch, however, is totally different. It has 97 rivers, but they only have a fourth of the capacity of all of Gujarat's six rivers. A borewell runs dry so quickly. It will only be useful if it is dug near a river basin and a water harvesting structure having recharging potential<sup>11</sup>.

This dryland blindness has meant that many of the interventions pursued in Kutch do not take into account the region's special needs,<sup>12</sup> the SSP being no exception.

The other problem is the overemphasis on relief instead of long-term drought proofing measures. As Sainath (1996) has it, everybody loves a good drought; these relief schemes prove highly profitable for a host of rural actors ranging from contractors to local leaders and politicians. As almost every third year is a "scarcity" year, all water-related activities, including those concerning watershed development, are converted to "scarcity" works. Villagers receive wages to build temporary dams and bunds that are invariably washed away with the onset of the rains. Of course, these schemes are important for employment generation and to

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<sup>10</sup> Interview with official of the division for Water Resources Investigation, Bhuj.

<sup>11</sup> Interview with then Collector of Kutch.

keep up purchasing power during crop failure as the case of the Dalit family shows. Still there do not contribute to long-term drought proofing.

Largely, planners have not built on local people's coping strategies vis-à-vis scarcity. Instead of promoting dryland agriculture or agro-pastoralist occupations they have neglected them. They do not view scarcity as a temporally bound phenomenon. Instead, Kutch is made out to be permanently drought-prone and cursed by scarcity. State-sponsored water interventions have not succeeded in mitigating scarcity. In fact, some of them have exacerbated the water problems in certain areas, making scarcity indeed ever present and all pervasive. These flawed interventions arise because of the prevailing world-views and experiences of policy-makers and their dryland blindness and because of institutional weaknesses in water management programmes. At one level, the people of Kutch live with and consider scarcity as something that is cyclical, periodic and part of their lives as demonstrated through the village-level study. Increasingly, however, scarcity has become naturalised and all pervasive, due to a combination of discursive, socio-political and institutional factors. As long as this situation persists, scarcity and its accompanying "scarcity industry" will remain an all-pervasive feature of life in Kutch.

## **Discussion**

This paper has argued that scarcity has always been a way of life in rural Kutch. Scarcity refers to a concrete period of dearth either of water, milk or fodder, which is felt acutely by the human and livestock population in rural areas. Scarcity is not permanent, but interspersed with periods of abundance and bounty. Several strategies, rooted in local knowledge systems and practices, exist to cope with seasonality and uncertainty and rural livelihoods have adapted to the variable and uncertain nature of Kutch's rainfall. The coping strategies against scarcity are highly differentiated. The wealthy of the village tend to have the most options and can resort to a wider range of coping strategies than the poor. To a certain extent, social forms of differentiation such as caste, historical legacies and gender legitimise the unequal access to and control over scarce resources.

Powerful discourses of scarcity in have largely served the interests of powerful people (e.g. politicians, business constituencies and irrigators). They have obscured the fact that there is highly unequal access to and control over land and water resources in Kutch. They also succeed in essentializing scarcity in Kutch and making it seem as "natural", thus ignoring its anthropogenic nature. Scarcity is also used to legitimise the controversial SSP by evoking notions of its bounty and potential contribution to Gujarat's development. With respect to the large dam, there appeared to be unambiguous consent all over Gujarat that the SSP was the only way to mitigate the problem of water scarcity. However, this consent was largely "manufactured" due to the socio-political processes discussed. Thus, there emerges the need to analyse water scarcity at two levels: One, at the discursive level and two, at the material level as a biophysical problem.

On the one hand, devegetation, dwindling groundwater aquifers, soil salinity and the general undermining of local strategies to cope with scarcity result in the rural poor feeling the impact of drought more severely. These are 'real' manifestations of

the biophysical problem of water scarcity and they are different from narratives of scarcity which have a “manufactured” nature. Hence, it might be useful to distinguish between “real” and “manufactured” scarcity (see Table 1.2).

Table 1.2 “Real” and “Manufactured” Scarcity

Real Scarcity	Manufactured Scarcity
<p>Biophysical phenomenon with ecological and social consequences</p> <p>e.g. dwindling aquifers</p> <ul style="list-style-type: none"> <li>• Declining grass cover</li> <li>• Fodder problems</li> <li>• Longer trudge for women (marginalised groups particularly disadvantaged)</li> <li>• Cyclical (periods of abundance and dearth)</li> <li>• Relative to agricultural, meteorological and hydrological factors</li> </ul>	<p>“Constructed” problem.</p> <ul style="list-style-type: none"> <li>• Scarcity is universalised</li> <li>• Scarcity as natural</li> <li>• Anthropogenic dimensions are whitewashed</li> <li>• Relief and drought industry</li> <li>• Powerful stakeholders benefit from “scarcity”</li> <li>• Scarcity as permanent</li> </ul>

“Real” scarcity is a biophysical phenomenon with ecological and social dimensions (e.g. dwindling aquifers, the depletion of water resources in a communal tank or a longer trudge for rural women). It is, however, usually cyclical given that periods of abundance are interspersed by periods of dearth. It is highly dependent on resource availability and exogenous factors such as rainfall and climate, which are variable and erratic. Real scarcity is relative to several hydrological, meteorological, agricultural factors and is also linked with social inequality. This complexity is obscured by “manufactured” scarcity, which is a discursive construct. Scarcity is essentialized and universalized (e.g. Kutch is made out to be a “museum of environmental hardship). Seen as permanent, the cyclical dimensions of scarcity are ignored. Scarcity is made out to be “natural”, thus ignoring the anthropogenic areas of culpability. The “manufactured” nature of scarcity allows controversial schemes such as the SSP to continue to be legitimized and also legitimises unequal access to water and land resources.

Why is this distinction useful? The paper has demonstrated that environmental problems such as water scarcity are created and reproduced at both the discursive as well as at the biophysical levels. What is the nature of their interaction? The “manufacture” of scarcity at the discursive level obscures several important aspects of “real” scarcity. One, inequalities often shapes access to and control over water. Two, water scarcity is not natural, but instead largely due to anthropogenic interventions, resulting out of bad water management and land use practices. The naturalization of

scarcity at the discursive level does not help mitigate the symptoms and causes of “real” scarcity. In some cases, “real” scarcity might be exacerbated due to the popular narratives (e.g. water tables might continue to decline if dwindling groundwater resources are attributed to climate change rather than on their uncontrolled extraction). Furthermore, the “manufacture” of scarcity might not result in the creation of solutions appropriate to local needs and conditions.

## **Conclusion**

I have used the case of Kutch to highlight the multifaceted nature of scarcity and how it is socially and politically constructed to meet certain ends. This paper largely focused on how scarcity was used to legitimise the construction of large dams and create a ‘scarcity’ industry. Internationally (unlike in India, China and elsewhere), the rhetoric of large dams and scarcity may be on the wane but it is rapidly being replaced by a new mantra. We are currently witnessing a new twist to currents in the water domain. The key issues today are cost recovery, the need to recognise water’s economic value and the need for private sector involvement as a means to efficiently manage water and provide it to ‘all’ (Mehta 2000 and 2002). Scarcity is used to justify these policy directives, too, though these issues cannot be handled here (see *ibid*).

It is telling that at the WSSD in Johannesburg, world leaders failed to endorse commitments to reduce wasteful consumption of non-renewable energy, not least due to the powerful lobbies of the energy and oil sector in the US. However, almost as a way to show that there was a consensus on something, global actors with some reluctance acknowledged a looming water crisis and pledged commitments to the millennium targets around sanitation. While not wanting to deny the importance of commitments to enhancing access to water and sanitation to the billions who lack it, some questions begged to be asked. As my case study demonstrates does the rhetoric around ‘water crises’ and ‘water scarcity’ help to mitigate current water problems—or, in fact, makes things worse? The default position since the 3<sup>rd</sup> World Water Forum at the Hague is that *more* needs to be done; more money spent, new largely ‘private’ actors roped in, if not new institutions created. But the existing actors hardly resemble an effective cast and their understanding of the script is still somewhat shaky. A clear picture emerging is one of ideological leaps preceding rigorous analysis, driving an industry of self-justification and, most dangerously, presenting ‘evidence’ that is only partial fact. The huge interests - both financially in terms of beneficiaries (consider the global market for water services this century especially in urban areas and the push towards water privatisation by the Bank and the IMF) and developmentally in terms of poverty reduction (the billions who lack adequate domestic water and basic sanitation) make the stakes extremely high. Watch this space....

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