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Canal Irrigation and the Limits to State Authority
The Sardar Sarovar Project in Gujarat

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Big dams are government’s way of accumulating authority (deciding who will get how much water and who will grow what where), asserts Arundhati Roy in ‘The Greater Common Good’, her widely read and irate essay against the Sardar Sarovar Project (SSP) in Gujarat.1 They are ‘a guaranteed way of taking a farmer’s wisdom away from him’.2 However, the experiences from the command area of the SSP do not confirm this widespread narrative of centralized state control.

The SSP of Gujarat is the massive dam and canal irrigation project that has turned the Narmada River into a large lake and displaced between 250,000 and 320,000 people in the Narmada Valley.3 Arundhati Roy’s claim is part of a simple narrative of destruction that for long has held the hegemonic position in critical development studies’ approaches to big dams, in general, and the Narmada issue, in particular. Roy’s essay may have popularized the argument, but she stands on the shoulders of an impressive range of writers and scholars who have developed this critique over the last 50 years.

The work spans from Karl Wittfogel’s Oriental Despotism (1957), via Elisabeth Whitcombe’s Agrarian Conditions in Northern India (1972) and Donald Worster’s Rivers of Empire (1985), to James C. Scott’s Seeing like a State (1998) and Patrick McCully’s Silenced Rivers (2001).4 Through these and other analyses, the dominant argument is that government bureaucracies rule hydraulic societies at the expense of local communities and local self-reliance. Large scale canal irrigation concentrates power and expertise in the state bureaucracy, making cultivators

2. Ibid.
3. The estimates of displaced persons vary between a government estimate of around 250,000 people (www.nca.gov.in, accessed in January 2010) and the estimate of Narmada Bachao Andolan of more than 320,000 displaced persons and more than one million affected persons when we include the canal system and allied projects (www.narmada.org, accessed in January 2010).
and local communities (often collapsed into one category), the helpless followers and victims of a process, which is beyond their control and agency.

In this chapter, I follow the Narmada water to the villages of Central Gujarat.\(^5\) Along the way, I explore the views and actions of actors that have their hands on the management of the water and the canals. We will encounter the farmers of command area villages, the contractors constructing the smallest canals of the network, the field engineers of the government’s implementing agency Sardar Sarovar Narmada Nigam Ltd. (SSNNL), and the high-level irrigation bureaucrats in charge of the SSP, working from the capital’s head office. This investigative tour of one of the world’s most condemned large-scale canal projects, will make it hard to conclude that ‘the state’ is expanding its control over its rural citizens. On the contrary, the farmers form an important, albeit disorganized, power, and this study of the SSP sheds light on important dynamics of the Indian democracy.

### COLLAPSING CANALS AND ANGRY FARMERS

The first irrigation season in Phase 1 of the SSP was originally planned for 1995, and the full project was supposed to be completed and operational by 2004. However, the project was met with opposition of an unexpected force from the 1980s – opposition that was strengthened by the changing zeitgeist and increased awareness of environmental and indigenous rights during the 1980s and 1990s.\(^6\) The canal-network construction was delayed because of this opposition and because of financial problems in the early 1990s.\(^7\) Construction was already severely delayed when the Narmada Bachao Andolan (NBA) brought their protests to the Supreme Court of India in 1995, claiming that the project violated basic human rights. Dur-

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5. The chapter is based on my Ph.D. dissertation ‘Technocratic Dreams and Troublesome Beneficiaries. The Sardar Sarovar (Narmada) Project in Gujarat’, 388 pages, Oslo: Department of Sociology and Human Geography, University of Oslo, 2010. Field research for the dissertation was carried out during a total of nine months in 2004–5 and 2006.

6. Ibid.

ing the five-year court case, until the Supreme Court decided that the project could continue, there was no construction on the dam and minimal work on the canals.

In August 2002, the dam and canal network was finally ready for the release of Narmada water into Phase 1 in Central Gujarat. For Gujaratis, the Sardar Sarovar was a highly prestigious and much-awaited project. ‘Ahmedabad’s residents still haven’t stopped celebrating’, 8 reported *The Indian Express* in late August 2002, and ‘The water flowing in the canals has brought the smiles back on farmers’ faces in Central Gujarat and parts of Saurashtra’. 9 Two years into its operation, however, large and important parts of the distributory network remained unfinished with the smallest canals (the subminors) still not being built in most parts of the command area.

The situation in Krushigam10 village of Jambusar taluka (subdistrict) in late 2004 was typical. Well-off farmers and farmers with fields in good locations were illegally siphoning or pumping water from the branch canal through pipes powered by tractors, diesel pumps or gravity flow. The distributory canal connected to the Baroda Branch Canal had collapsed shortly after the release of water in the canals in 2002 and was still awaiting repair despite repeated complaints from the farmers. The Baroda Branch Canal was partly overgrown with bushes and grass, the roots of which were further weakening the canal walls. Parts of the Branch Canal had collapsed several times, causing damaging floods to the fields nearby.

In Krushigam, the farmers denied the contractor the permission to build subminor canals. The explanations for this were various and confusing. Many, including the contractor, said the deputy sarpanch was corrupt and wanted money for himself, or even worse, that the whole panchayat wanted bribes for allowing construction. Some said that the contractor used mud that was needed for house building; others said that the sub-minors would block access roads to the fields. The sarpanch told me that he had to stop the work because the contractor had not followed procedures and asked for permission, and paid a commission for the soil.11

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11. It is SSNNL policy that the contractor must get the panchayat’s permission to take the soil needed for construction, and a fee shall be deducted from the contractor’s bill by the SSNNL officials and deposited in the Collector’s office, and repaid in whole to the panchayat (Deputy Executive Engineer for Subminor construction, SSNNL Baroda, personal interview, 11 January 2005). It is apparently also customary law in India that the state has to pay the Panchayat for the use of Panchayat land (personal communication with Dr Loes Schenk-Sandbergen, May 2009).
The contractor gave up, and started construction in the neighbouring village. His company lost money every idle day.

The farmers of Krushigam were angry with a state that could neither build waterproof canals nor maintain and repair them. The leading farmers of the village had written several letters of complaint to all levels of the government, including Chief Minister Narendra Modi. In these letters, they demanded the transfer of ‘rude’ and ‘abusive’ SSNNL officials. They made it clear to me that they would not allow any further canal construction before the existing canals were repaired. These farmers were well-off and had invested in pumps, therefore lack of sub-minor canals was not a problem for them. Another two years into operation, in 2006, the sub-minor canals were still not finished. There were still bushes growing in the Branch Canal, but the Distributary was repaired. Farmers were still irrigating through pumps, which meant that only the relatively well-to-do had water access. One sub-minor canal was half-ready, but one of the farmers showed me how we could break pieces off it with our bare hands.

How can we explain this sorry situation of Gujarat’s most prestigious development project to date?

Most farmers explained the dilapidated canal network in terms of corruption. Canals broke because of the poor quality of building materials used, facilitated by a corrupt nexus between SSNNL officials and the contractors. ‘They are all percentage-wallahs,’ was a frequently repeated claim from the leading farmers in the village. This is also what the Krushigam farmers argue in the three letters of complaint described earlier, and what I was told by farmers in other villages. Similar to the systematic corruption in south Indian canal irrigation described by Wade (1982, 1985),12 the SSP farmers say that the irrigation engineers in the SSNNL expect a kick-back from the contracting firm that gets the tender – a fixed percentage of the contract sum is paid to the engineers, hence the term ‘percentage-wallah’. The contractor will not pay this percentage from his own pocket and thereby reduce his profit, said the farmers, but he will save the money by diluting the quality of building material. For example, he will reduce the amount of cement and replace it with sand. Alternatively, if the government agency provides the material, the contractor will sell some of the cement sacks.13

The contractors confirmed the existence of a percentage system, but refined my conception of corruption. When I asked the leader of Contractors Ltd.14 whether

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they had to ‘bribe’ the SSNNL officials in order to get a contract, he laughed and shook his head. ‘Single officials never ask for bribes,’ he said, ‘but of course there is a commission to be paid when a contract is signed’.\(^{15}\) I did not realize it at the time, but the contractor here confirmed Jonathan Parry’s finding that there are different types of corruption associated with different degrees of moral condemnation.\(^{16}\) There is a moral distinction between ‘gifts’, ‘commissions’ and ‘bribes’, of which bribes are regarded to be the most immoral.\(^{17}\)

Another contractor explained that a total of 5 per cent of the contract sum is paid directly to the different staff at the SSNNL office: 1 per cent each for the section officer, the deputy engineer, the executive engineer and the quality controller, 0.2 per cent each for the accountant, the secretary and some of the other staff.\(^{18}\) Such a percentage system seems to have been informally institutionalized for a relatively long time in India. According to the Santhanam Commission report of 1963, a regular percentage of the contract sum on public works was often demanded by government offices and shared among various government officials for the allocation of construction contracts.\(^{19}\) However, the question still remains whether this illegal, but institutionalized, percentage system is the cause of the broken canals in the SSP command area. In other words, are the command area problems mainly caused by the corrupt Indian state?

Here, the contractors’ explanations depart from that of the farmers. Although the contractors also confirmed that the standard of construction was not always up to the mark, they disagreed strongly that they did poor quality work because of the commission. According to them, the main reason for the poor quality construction

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13. I visited one command area village in Ahmedabad District where farmers laughingly told me that they had all bought cheap cement from the contractor who built Narmada canals in their village. The NGO working on Participatory Irrigation Management in that village also told me that the contractor had sold cement from the site.
14. Pseudonym for company name, ‘Contractors Ltd.’ had the subcontract for construction of sub-minors in Krushigam and neighbouring villages.
17. ‘The “commission” is a fixed rate percentage on the value of all contracts – so much to the clerk, so much to his immediate superior, so much to the manager in charge of the section . . . [w]hile the “gift” is for having invitations to tender placed your way; the “commission” is for getting the order, and the “bribe” – a negotiable amount – is paid for passing substandard goods or sanctioning payments for phantom supplies.’ Parry, op. cit., p. 45.
19. R.Wade, op. cit.
was the many obstacles in the construction process, to a large extent caused by the actions of command area farmers, i.e. the project beneficiaries. Interfering farmers demand changes in the network design, they block construction, delay the work, and production costs escalate. ‘We are forced to do bad quality work because of this,’ said the small contractor.  

As we have seen, this was common behaviour among farmers in my field research area.

The engineers in the SSNNL’s regional head office in Baroda argue that an important reason for the many breakages in the canals is farmers’ illicit pumping from, and frequently also deliberate breaking of, the canals. First, they say, the canals have been unused for six to ten years since their completion, and the wear and tear of time has affected them. Second, the unauthorized pumping of water destroys the canal lining. Pipes make indents into the lining, and weaken the structures. And when farmers pump water during daytime, the water level in the canal is lowered. The canals have to run at full level for the water to reach the tail ends. The canal operators, therefore, adjust the water level by opening gates to increase the flow to the prescribed level. When, at night, the farmers shut down their pumps, the water level increases and the pressure exceeds what the canal is designed to tolerate.  

The SSNNL lacked funds on the budget of 2003 for the repair and maintenance of the canal network. Without funds released from the central office, the regional SSNNL office cannot hire contractors and initiate repair work. This resource situation was clearly frustrating for the SSNNL field engineers, who had to face the demands and ire of angry farmers. As we shall see more elaborately later, the explanations provided by the government engineers are in line with the arguments of Barbara Harriss-White (2004), that shortage of government funds and resources is a more crucial reason for poor government performance than corruption.

The question remains: why were the beneficiaries of this project, which when completed could more than double their annual income, obstructing canal construction and even breaking canals?

THE CORRUPTION DISCOURSE AND ITS EFFECTS

The farmers would often trail directly from the percentage-wallah-story into a broader account of the problems of corruption in other sectors of the society. People would tell me that rather than paying ten rupees for a bus ticket for Jambusar, the conductor would charge seven rupees and pocket the money. People would point at the heaps of rocks lying along the village connection roads, and say that due to a ‘corrupt nexus’ between the contractors and the road department officials, the work was abandoned. Where the roads had been improved, the rocks used were too big and sharp, and destroyed the bullock carts, due to the same corrupt practices. The Government Labour Office (GLO) in each district is supposed to monitor the Minimum Wage Act for agricultural labourers, but in Krushigam, the office had appointed a farmer in charge of collecting an annual bribe from the farmers. After receiving this, the office did not check the adherence to the Act in the village.24 On a couple of occasions, I asked why neighbours did not call the police about repeated instances of severe wife beating, and I was told that there was no point in calling the police as they would not do anything but demand a bribe from the perpetrator and nothing would change. Not only were the government employees accused of corrupt practices, but so were fellow villagers. During interviews and evening chats, I was told that the committee of farmers in charge of the government-financed Watershed Programme in the village pocketed money meant to pay for labourers to dig field bunds and field ponds. And as mentioned earlier, the contractor in Krushigam blamed the Panchayat members for extorting bribes from him before he could start work.

Parry (2000) observed similar widespread popular perceptions of pathological corruption in Indian society – the prevalent belief that corruption has been continuously escalating to unprecedented levels in India since Independence.25 ‘A content analysis of chay-shop conversation would probably reveal that corruption

24. The practice of the Government Labour Officer (GLO) in Gujarat was described by Jan Breman in 1985: ‘“I am the Government Labour Officer. . . .” State Protection for Rural Proletariat of South Gujarat’, Economic and Political Weekly, vol. 20, no. 24, pp. 1043–55. At this time, according to Breman’s article, the Government Labour Office would actually tour the villages and ask labourers and employers about wages paid, although the sanctions against violations of the Minimum Wage were few and far between because the GLO staff sympathized with the farmers and the labourers feared sanctions if they reported about their employers. Twenty years later, it seems the GLO limits his check on the wage level to the collection of bribes, as I was told was the practice in Krushigam and Motugam. This is also confirmed by Breman, in his The Poverty Regime in Village India: Half a Century of Work and Life at the Bottom of the Rural Economy in South Gujarat, New Delhi: Oxford University Press, 2007.

25. Parry, op. cit.
beats even the state of the crops’, he says. But Parry questions whether this talk is an accurate description of the real state of affairs. The incidence of corruption seems to be inflated by popular discourse, and Parry suggests that the reason may be the ever-expanding presence of the government since Independence and is present (in the forms of schools, electricity, clinics, etc.) in areas where it was not before. It may, thus, not be that the government is more corrupt, only that it is larger, and the possibilities of experiencing corruption, or practices which may be interpreted as corruption, are also correspondingly larger.

The widespread belief in a crisis of corruption is not a new phenomenon in India. Corruption has been a recognized problem since the early independent years. In fact, Gunnar Myrdal wrote in 1968 that the belief in widespread corruption in India amounts to a ‘corruption folklore’, which may or may not exaggerate the level of corruption in the Indian state, but which ‘embodies important social facts on its own’.

Myrdal and Parry suggest that the perceptions of corruption have effects in themselves. This folklore, says Myrdal, has a bearing on the way ‘people conduct their private lives and how they view their government’s efforts to consolidate the nation and to direct and spur development’. Parry argues that belief may turn into reality when people think that, for instance, access to a government job is unavailable without the costly services of a middleman (a dalal). For example, those without the means to pay a middleman, may not even try for the job, whereas those who do, will seek out the ‘services’ of a middleman before they are even asked for a bribe. Other studies on bureaucratic performance suggest other negative effects of a discourse of corruption. For example, Banik (2001) shows that unfounded accusations of corrupt practices are used to justify punitive or politically-motivated transfers of government officials, and that such transfers demoralize government staff, while Mollinga and Bolding (2004) argue that widespread and unfounded accusations of systemic corruption put irrigation bureaucrats on the defensive and make them unreceptive of necessary reforms.

26. Ibid., p. 28.
28. Ibid., p. 940.
29. Ibid.
30. This is not to argue that we should stop talking about or investigating possible corrupt practices. However, we should not take the corruption discourse at its face value and present it as a truth without firm evidence, which is far too common, even in research.
Like for Parry, most of the stories of corruption relayed to me were second- or third-hand, and the sources of many were the print media. When the stories and complaints about corruption popped up during conversations and interviews, I asked whether my informant himself or herself had actually had to pay a bribe for a public service, and most frequently I would get a negative answer, but invariably they knew of someone who had been forced to do so. Out of hundreds of brief and long conversations I have had about the issue, I can count on one hand the instances when my informant had been forced to pay a bribe.

Gradually, I started suspecting that the discourse of corruption may also influence the interpretation of government policies and regulations. Take the example of the opposition to sub-minor construction in Krushigam. The policy of SSNNL is that the contractor should get the panchayat’s permission to take the soil needed for construction. The company should further pay a ‘royalty’ for the soil, a royalty, to be deducted from the contractor’s bill by the SSNNL and then deposited in the Collector’s office, and repaid in whole to the panchayat. The explanations for the obstruction of sub-minor construction in Krushigam were varied and confusing. In hindsight, it now seems plausible that there was some confusion about the correct procedure for the payment of royalty for the use of panchayat soil, and that the contractor interpreted the demands of the panchayat members for a commission/royalty through the filter of the corruption discourse in which all holders of public office are immediately suspected of siphoning off public resources for private gain.

It was beyond the scope of my study to determine whether the commission or the farmer’s interference was the main reason for the poor quality and frequent breaches in the Sardar Sarovar canal network. However, it is safe to suggest that the prevalent corruption discourse has an effect on its own, regardless of the degree to which it is the correct diagnosis of the problems of governance and policy implementation. It contributes to the very same governance problems by providing justification for policy violation and private acquisition of public goods. In Jambusar, the result is a vicious circle in which delays lead to construction shortcuts and weak canals that break more easily under water pressure, which the farm-

34. And it is most likely also impossible.
ers perceive as confirmation of their ‘percentage-wallah-thesis’, and then use to legitimize their illegal pumping from the canals and obstruction of the construction work. The illegal pumping, in turn, further damages the canals, and the obstruction of canal building leads to delays which, again, lead to poor quality construction.

‘WE ARE NOT SOCIAL WORKERS’

The canal water of the SSP is to be managed through village level water cooperatives (Water Users’Associations or WUAs), organized around the minor canals. This so-called Participatory Irrigation Management (PIM) model was introduced in the late 1980s, and adopted as SSP management policy in 1994. Each WUA will be run by a committee of eleven members representing both the head and tail ends of the village canal system. These have the responsibility for reporting larger damages to the SSNNL, for repair and maintenance of the sub-minor canals, for ensuring that irrigation water is shared on rotation, for collection of water fees, and for sanctioning violation of rules.

At the time of research, most WUAs in the command area villages were largely non-functioning paper organizations. The situation in Krushigam was typical. There were two WUAs in the village, each led by a committee of eleven registered members. Of these, only the leaders knew the rules and regulations for canal water management. There were board members who did not know that they were on the board of a WUA, and the household survey revealed that most of the landowners in the village had at best a vague idea of being members of such an association, although a majority of the landowners were registered as members of one or both of these WUAs. Only 11 per cent of the landowners reported that they had participated in an information meeting organized by the SSNNL, and 80 per cent of the landowners did not know that a water users’ association was responsible for distributing Narmada water in the village.35

The SSNNL office in the taluka capital has a staff of around thirty engineers and one computer. The leader of the office, Executive Engineer V. Amin, had held the position for six months when I first met him in December 2004. Since the establishment of the office in April 2001, there had been fourteen other men in his position, an example of the rapid rate of transfers in Indian bureaucracy. Their responsibilities are many: (1) to construct the sub-minor canals, (2) prepare and motivate farmers for WUA membership and participation, (3) motivate farmers to build

35. Aandahl, op. cit.
field channels, and (4) monitor water delivery and irrigation. Each field assistant has to cover the work in 2,000 hectares of land, 36 a huge task, complained the Executive Engineer. With only one computer in the office, the amount of paperwork to be done also took much time. In particular, the Executive Engineer complained about the task of motivating farmers to enrol and participate in WUAs, This is a very difficult task. We are breaking our heads on this task. Illiteracy is much more. At present, we cannot do as much progress as we want. Progress is zero. 37

He said that only ‘strong people’ come to the meetings they hold to inform farmers: We inform the Talati, the leader of the WUA, and the sarpanch about the meetings, but the weaker never come. They are prevented from coming. According to him, there is little the SSNNL can do about this, since, We are not social workers. Amin admitted the problems of keeping the schedule of sub-minor construction. In Krushigam, he said, this Motu fellow is trying, 38 but he is harassed like anything. Only one village in his region had completed the sub-minor network. There were many reasons for the success in this area, he said, but the main reason he could find was that the sarpanch and the leader of the WUA in this village were both members of the Swaminarayan sect, and so was his field assistant, so somehow we could manage.

The field-level officers complained about the amount of work they were supposed to do, as illustrated by a casual talk with field engineers during ethnographic fieldwork in Krushigam in March 2006. One evening, a team of three field engineers from the SSNNL led by the Additional Assistant Engineer Madrasi, 39 stopped by the veranda of the heads of the leading family of the village when I was there. Rajendrasinh and Sanjaysinh Sindha 40 were brothers, now in their sixties, and the largest landowners and de facto leaders of the village. This team of engineers were not responsible for the SSP work in Krushigam, but knew the Sindha brothers from earlier, and used to stop by for tea whenever they passed the village. Now, they were on their way back from inspecting sub-minor canal construction and minor-canal restoration in their area. We talked about the problem of poor-quality construction, and the lack of cooperation between the villagers and the contractors. The SSNNL field officers said that the farmers refused to let their land be cut in two by the canal network, and some people harassed the contractor and

36. 2,000 hectares is equivalent to around 2,700 football fields.
37. Executive Engineer, SSNNL Jambusar Division, personal interview, 13 December 2004.
38. Contractors Ltd. had the subcontract for Krushigam from Motu Construction.
39. Pseudonym
40. Pseudonyms
demanded money. The farmers knew the amount of money the contractor loses if the work is delayed and used this as leverage for pressing him for money, they said, to which the Sindha brothers agreed. So is the case in Krushigam, they said, mentioning names but asking me to write ‘some people’ only.

I asked about the WUAs and whether they had started collecting water charges now in Krushigam and elsewhere. Both the Sindha brothers and the SSNNL officers answered in the affirmative and told me the current rates. To my question if this was really happening, they jointly replied that ‘Well no, there is no public support for paying water charges. Some people refuse to pay’. After some back and forth on the issue, they agreed that most frequently, people are not paying. Rajendrasinh said that this is wrong and that the government cannot pay everything on its own if people are taking water all the time. ‘The project is done with the aim of making people happy and raising their standard of living,’ he said, ‘but how can this happen if no one is paying?’ Madrasi nodded in agreement and said that 100 hectares were being irrigated in the neighbouring village of Tingam, although no one was paying. His assistant looked in the files, a big book with records of hectares irrigated and charges collected, and gave the precise figure – in Tingam 125 hectares are irrigated and no one has paid anything. The engineers finally admitted that nobody in any village in their subdivision was paying anything. People give lots of excuses, and they say that ‘the other villages are not paying so why should we?’

The problem described by Mr Madrasi was the following. The field officers responsible for collecting the fees do not have the power to stop water if farmers do not pay. Farmers are angry and uncooperative because broken canals are not repaired in time. But the SSNNL office in Jambusar lacks funds, as advance funding has not been given from the main office, and they cannot hire contractors. In some villages, people are ‘good’ and cooperative, and help with the repair of broken canals, said Madrasi, but he was unable to explain why. ‘It depends on caste also,’ he said, ‘but it is hard to guess’.

Madrasi argued that it would be much better if the WUAs built the sub-minors themselves, but Rajendrasinh and Sanjaysinh protested: ‘We don’t have machinery, and payment from the government is never done in time. So how much time and money can we spend on our own?’ This was the widely held view of the leading farmers of Krushigam. Madrasi suggested that the farmers should hire a man to keep an eye on the contractor and make sure he did good work. The wage for the watchman would be an expense for the WUA, but the work would be done in time, and the investment would be recovered when the canals started yielding more profitable farming. ‘I can’t work in five places in one time,’ Madrasi com-
plained, reminding the farmers why it is impossible for the field engineers to supervise all the work done by the contractors. Sanjaysinh agreed that this procedure would be a good way of overriding the corrupt nexus between government officials and the contractor. ‘But,’ he suggested, ‘it is possible that the hired guy will also be corrupt!’ ‘So the committee must keep an eye on the guy!’ Madrasi exclaimed, ‘How can I do so much work!’ Sanjaysinh laughingly commented: ‘If you do too much work, the contractor will get you transferred.’ This exchange is an example of the many and frequent remarks about corruption in village talk, the corruption discourse discussed earlier. It also gives us a hint at another factor influencing bureaucratic performance, the looming threat of punitive transfers.

The main problem for repair and maintenance, according to Madrasi, was that the Irrigation Department used to have labourers working under the engineers, who would be tasked with regular maintenance. But they changed the system and introduced the contract system. ‘This is the problem,’ he said, ‘the previous system was more expensive, but it worked, the repair and maintenance was done in time.’ He was frustrated that farmers could get away with taking water without paying for it, and asked what advice I would give. I said I am only an amateur, but it seemed a good idea to stop the water if people don’t pay. They all nodded, and Madrasi opened his notebook and wrote in English: ‘Stop water if people don’t pay’. Unfortunately, he said, it is impossible to suggest such things further up the system. The system works the other way,

I get a phone call from Gandhinagar saying ‘I want all information about committees and irrigation in your area before evening’. But how is it possible to give information that fast, when there is no organization? They want information about irrigated area, released water, charges collected, such information. We don’t have an organization to collect all that information that quickly. They keep reducing our staff, there is too little staff.41

‘So what do you tell them’, I asked and Madrasi’s response was quick: ‘Gappa (lies). We give false information. Everybody does that. If it is not possible, how can we do anything else? And it is not possible to tell them that it is impossible to give such information. They don’t accept that.’42 His colleagues joined in, and everybody agreed. They said that maybe you can send such a message two or three times, but if you keep saying it, they kick you out, or transfer you, ‘like Amin’.

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41. Additional Assistant Engineer, SSNNL Jambusar Division, village conversation personal interview, 6 March 2006.
42. Ibid.
They all laughed at the mention of the transfer of their superior. The general feeling among farmers and these engineers was that this was a punitive transfer due to slow progress. ‘They will order an inquiry into your work and remove all your powers or harass you’, they said, ‘so we just add to the previous information: if we said 100 last time, we say 105 now.’

This information is then passed upwards in the system and aggregated, from Section Officer (Madrasi), to Deputy Engineer, to Superintendent Engineer, to Chief Engineer, to the Director and finally to the Chairman of the SSNNL. Aggregated, it becomes the official statistics of progress in the project, the numbers quoted to researchers like me, published on the project website, given to journalists, and from there on to the general public.

A common bureaucratic phenomenon is the tendency to displace the original project goals of social transformation, progress and improved well being with quantitative and measurable indicators of performance.44 There are clear signs of the same process happening in the SSP.

Almost all the government officials I talked to about the SSP knew the numbers of the project by heart. Quite early on in our conversations, whether the occasions were an interview or a request for a map or a list of command area villages, they would spontaneously tell me the status of the project through its numbers. One fact was repeated by all, that in Phase 1 of the SSP, from the dam at Kevadia to the Mahi Aqueduct, 1,192 WUAs were registered. This number did not change from March 2004 to March 2006, when I did the last interview. This would be supplemented with other quantitative facts. One official would say that there were 443,587 farmers in Phase 1 of the command area, another would say 3.16 lakh landowners, one would add that of the 1,192 WUAs, 1,179 had been registered under the Cooperative Act, yet another would tell me that they had held 3,000 village-level farmers’ meetings, 200 taluka-level meetings, and 50–70 district-level meetings, or that 85 Village Service Areas had completed the canal network down to the sub-minor level, and that in the current season 1–1.5 lakh hectares of the 4.46 lakh hectares in Phase 1 were irrigated. None of the officials ever had to look these numbers up in a file or report.

Quantification and enumeration has replaced quality and function in the evaluation of success. These numbers were the measures of the progress of the SSP, and proof of the immense efforts the government had invested in the project. A new bureaucratic management model adopted by the SSNNL in 2003 may have strengthened this quantitative focus. The organization introduced the Management By Objectives model. At the beginning of every year, each officer sets tar-

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43. Field Engineer, SSNNL Jambusar Division, village conversation, 6 March 2006.
44. Scott, op. cit.
gets for himself. Then, the required activities for reaching the target are identified ‘stage and component wise’ and responsibility for tasks are allocated. The progress is monitored and targets revised every six months. The pressure to meet these targets does not encourage field engineers to report more truthfully about the state of project implementation in their subdivisions.

THE CHALLENGE OF SOCIAL ENGINEERING

In the head office of SSNNL in Gandhinagar, the problems of implementing the PIM and getting farmers to cooperate with each other and with the government were acknowledged. Executive Engineer of the Command Area Development Wing of the SSNNL said that PIM is a new concept for farmers as well as engineers,

The engineers will naturally focus more on the construction process, and the farmers expect the government to deliver at the doorstep. But the Narmada project is of such dimensions that it is not possible to deliver at the doorstep. Gujarat has a long history of successful cooperatives, as seen in the Amul story. So we thought that farmers should be involved. The farmers will have to invest something, therefore they are not responding initially. But over the last ten months the picture has been quite good, the membership drive is finally working, enrolment has increased, even cooperative societies have started registering.

But this is a difficult job for the engineers, he said, as ‘they have never done this sort of social engineering before’. A year later, he repeated that the main challenge of the project was PIM, and that ‘Making people participate in the way we want is hard’. The challenge of social engineering, of making the farmers behave in the manner necessary for the functioning of the scheme, was recognized and echoed by most engineers. One Deputy Executive Engineer in the Baroda

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45. Executive Engineer, CAD Wing SSNNL, Gandhinagar, personal interview, 3 March 2005.
46. Amul is a cooperative dairy, one of the most widely acclaimed success stories of rural development in Gujarat, and a model which has spread to other states. Through village-level marketing cooperatives, even the smallest farmer can deliver as little as half a litre of milk to the local dairy cooperative and get a fair price for it.
47. Executive Engineer, CAD Wing SSNNL, Gandhinagar, personal interview, 3 March 2005.
48. Ibid.
49. Executive Engineer, CAD Wing SSNNL, personal interview, 27 March 2006.
office of the SSNNL complained about the problems of formation of WUAs, saying that ‘In certain areas farmers are saying “first you show us the water, then we will become members”. The farmers don’t visualize the actual beauty of the water users’ association, so they don’t come forward’.  

One experienced irrigation engineer who had worked six years in the SSNNL and before that several years as Executive Engineer in the Irrigation Department’s Central Design Organization, complained about the lack of training for such tasks. He averred that ‘Engineers are taught how to acquire land, survey it, prepare the tendering, etc. He is not taught the socioeconomic aspects which are needed after the engineering work is done’.  

The reluctance to participate in WUAs in the SSP has been explained partly with the recent breakdown in the cooperative movement in Gujarat. In the villages of one study, the researchers found that cooperative credit banks for agriculture had gone bankrupt, and the Amul cooperatives were not established. J. Talati, D. Pandya and T. Shah, therefore, suggest that people in these areas have lost trust in the cooperative movement. However, in Krushigam and surrounding villages, the cooperative credit bank and Amul dairy cooperative were operating successfully, with low levels of conflict and high levels of participation and loan recovery. The answer may then lie not in the viability of ‘cooperatives’ as a general model, but what kind of cooperatives. The Amul cooperatives are marketing cooperatives, and require little cooperation and negotiation between farmers beyond organizing a board and a milk collection centre in each village. An irrigation cooperative is a management cooperative, where farmers have to organize and negotiate the fair sharing of a limited resource. This has proved to be much more difficult.

The daily work of SSNNL engineers is characterized by adaptability and negotiations in their efforts to implement the project as smoothly as possible. One example is the collaboration with NGOs for the motivation task for establishing WUAs. Since the adoption of PIM as the preferred management model for the project in 1994, the SSNNL had involved NGOs in this job in some parts of the command area. This was an ongoing pilot scheme based on the idea that NGOs are closer to the people and better able to communicate with farmers. But the

51. SSNNL Engineer, personal interview, 3 March 2005.
NGOs and the SSNNL did not agree on the best organization of PIM. One NGO had in 2005 recommended that the formal minor-canal administration rights be handed over to the WUA even with only 51 per cent of the farmers enrolled, which the SSNNL refused. If the administration rights were given to these 51 per cent farmers, the Executive Engineer of Command Area Development feared that they would monopolize the water, not make sure the sub-minor canals were built, and sell the water to other farmers. The SSNNL wanted there to be at least 80 per cent enrolment and also that 25 per cent of the members of the WUA should be ‘tail enders’, i.e. have land in the tail end of the canals. ‘One would believe that these concerns would be held by the NGOs, who are supposed to be pro-poor, and not the government’, said the Executive Engineer. A year later, the SSNNL had accepted that 51 per cent enrolment had to be sufficient before the formal management rights were handed over to the WUA. At this time, the same Executive Engineer told me that the policy was that 51 per cent of the farmers should be members and that 25 per cent should be ‘tail enders’. The SSNNL had realized that 80 per cent enrolment was unrealistic in many of the VSAs, and adapted their policy to reality.

SANCTIONS, POWER, AND THE ROLE OF POLITICS

The complaints aired earlier by field engineer Madrasi over the lack of sanctions against water theft and other violations during the chat at the Sindha brothers’ veranda is relevant here. In the head office of the SSNNL, the engineers regard sanctions for violation of irrigation policy as a dilemma. Irrigation is important for productivity and to limit the damage and government expenses in drought years. Therefore, the government wants the farmers to use water.

‘Water is an essential commodity. If we stop the water, the crop will fail and you will lose the production. We want the farmers to use irrigation water. They know this, and play this card’, said Vyas. I believe Vyas here provided an important clue to understand the implementation problems of the SSP. As was also documented in the study by Talati and Shah, there is a widespread perception among project beneficiaries that the need of the state to deliver water is greater than the need of the farmers to use canal water. The state provides irrigation water with

54. Executive Engineer, CAD Wing SSNNL, personal interview, 15 March 2005.
55. Ibid., 27 March 2006.
the aim of increasing agricultural production, which is necessary to achieve the projected returns on the huge investment made in the SSP. In addition, with the long history of intense conflict, it is important for the government to prove that the controversial SSP is a ‘success’, and success depends on agricultural productivity. There are two types of sanction that is available to the government – to stop water or to fine individual farmers. The first would be a collective punishment of an entire Village Service Area, and thus, would seriously undermine the need of the SSP to demonstrate that the project increases agricultural productivity. The second sanction of imposing fines seems equally unlikely to work, as the government is already not able to collect the water fee.57

The field officers furthermore do not have the authority to go against the powerful local elites, especially in politically important areas. Vyas and other engineers blamed the ‘lack of political will’ for the irrational water use. Vyas explained that politicians are part of the reason for the lack of efficient sanctions against policy violations. First, politicians will too easily accommodate the farmers’ demand for water. ‘If we stop the water, the farmers will make a delegation to the Chief Minister and the politicians. They will claim that they will pay later if the water starts running again, and they will get this agreement with the politicians.’58

Second, it has been politically difficult to remove distorting agricultural subsidies and charge appropriate water fees. Cheap electricity for farm pumps has been an efficient ‘vote-getter’ in Gujarat since 1988,59 and so is the promise of water. Many engineers complained to me about the political clout of the farmers and the irrational water use resulting from it, as exemplified by the following quote from an engineer who concluded that ‘our only problem is democracy’,

Agriculture is subsidised at all levels. Farmers are not paying the actual costs. We are providing water at negligible cost to the farmer. If water is available so cheap, then will he be inclined to invest lots in drip irrigation? At the least we could have charged more for the electricity used to pump

57. A third option was never even mentioned to me by the SSNNL engineers: confiscation of pumps that were pumping water illegally. This would likely have been a very efficient threat against illicit irrigators, but seems to have been a too politically controversial punishment to even consider.
58. Executive Engineer CAD Wing SSNNL, Gandhinagar, personal interview, 27 March 2006.
water. Groundwater is now pumped with subsidized electricity. So will the farmer be inclined to save that water? Nobody will understand the scarcity of water unless it is costly.\textsuperscript{60}

The political use of the Narmada water was evident in the weeks leading up to the elections in Gujarat in March 2004, when the ruling BJP government released Narmada water into the unfinished canals in north Gujarat.

**CONSTRUCTION CHALLENGES DUE TO SCALE**

A well-known problem of large canal-irrigation projects is the synchronization of the construction process – the dam and the main canal are completed early, while the distribution network of smaller canals is delayed. The planners of the SSP attempted to avoid this situation by constructing the project in phases and completing the full network in Phase 1 in Central Gujarat first. Among other things, they did not anticipate that sub-minor construction would meet such opposition. The situation of 2002 presented the government with another dilemma. In the absence of a complete canal network, there were large volumes of water available from the Sardar Sarovar Dam and the larger canals. What should one do with this water? In the interim phase, the SSNNL decided for interim allocation of water. The interim policy allows for controlled pumping from the canals, but the government ignored the lack of compliance with the interim policy rules. In addition, the government decided to fill the Narmada water in existing village ponds, lakes, and rivers, even outside the command area. This served to recharge severely depleted groundwater and improved irrigation availability in many areas. A question is what will happen when the canal system is finished, and the government tries to impose austerity on the water users with stricter rules? One irrigation department official commented on the dilemma, ‘If you give water for ten years and then stop, there will be riots. Some will say we should, therefore, not give outside the command area. But the other school says: Should we waste water for ten years?’\textsuperscript{61}

\textsuperscript{60} SSNNL Engineer, personal interview, 3 March 2005.

\textsuperscript{61} Dr. M.B. Joshi, Executive Engineer, Kalpasar Project, personal interview, 17 March 2004. Formerly with the SSNNL over many years, now Executive Engineer for the new Kalpasar project in the Department of Narmada, Water Resources, Water Supply and Kalpasar (name of Department of Irrigation in Gujarat Government in 2004).
The BJP politician and former Irrigation Minister Jaynarayan Vyas was known to have voiced strong words about the creation of ‘rivers of blood’ because of the lack of control of water use in the interim phase after the release of the Narmada water into the unfinished network. Although he did not admit to making such a strong comment to me, he said he had worried in public about the lack of volumetric pricing, which ‘should be implemented at the earliest’. Giving Narmada water to areas that will not get water in the future is creating water rights, he said, ‘and nowhere in the world can any politician take away water rights once they are established’. However, it is ‘not possible to withhold water from people when it is flowing in front of their eyes’, he said. His strong advice, therefore, was to complete the canal network and enforce volumetric control and pricing at the earliest, and in the meantime, ‘educate the farmers that the water will be rationed in the future’.

**BUREAUCRATIC BALANCING**

Canal irrigation is said to transfer power from autonomous peasants and local communities to central bureaucrats and the state. Seen together with the corruption discourse these highly critical explanations paint a very negative picture of the state, blaming the failure of government programmes on the state, and presenting the farmers and local communities as the victims. My research of the SSP tells a different story. Rather than being disempowered and deskillled by a centralized high-modernist canal irrigation scheme, we see that the farmers have ‘cards to play’, and that the relationship between the government and farmer is less a question of state dominance than has been suggested.

Government engineers, in my experience, engage more in negotiating between competing claims on and aims of the state, balancing difficult dilemmas and scarce resources, rather than simple dominance and rent-seeking. It is often claimed that the reason for the implementation problems of participatory management models at the field level is that the process is thwarted by field engineers who

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63. Y.K. Alagh told me this and suggested I interview Vyas for a critical perspective on project implementation.

64. Presumably because he perceived me as likely to be a supporter of the Narmada Bachao Andolan and also because he was planning a comeback in the next Gujarat Assembly elections.

recognize that the transfer of powers to farmers will deprive them of an additional source of income through bribes.\textsuperscript{66} My field research does not support such a claim. It may well be that the SSNNL field engineers occasionally also demand bribes for their services from command area farmers, as popular belief would have it, but I did not come across any direct accusations of this kind. A percentage system for contracts, however, seems well documented, but this works more indirectly to upset the implementation of plans, by depleting the government of financial resources, and through a possible lack of control with the quality of the work of contractors. The contractors are likely to cut corners in construction and blow up their costs in the tender process, and farmers use the percentage-wallah argument to legitimize illegal pumping and obstruction of canal building.

The centralization argument against canal irrigation has a tendency to collapse all levels and parts of government into one monolithic category of ‘the state’, with a common interest in increasing the power of this ‘state’. But the case of the Sardar Sarovar shows that different parts of the state operate in different spheres, within different constellations of social and political interests and technical challenges. The field engineer in direct contact with the farmers faces very different challenges in his daily work from his superiors in the head office, who needs to balance the different and sometimes contradicting goals of government policies. Common to all parts of the irrigation department is the need to function within a democracy that gives large groups of voters the real power to overthrow politicians at the next election if they cannot give the impression of having delivered on demands for water and (cheap) electricity. And these politicians have the power to transfer officials in the bureaucracy. As Corbridge et al. remind us, officials at all levels in the bureaucracy must maintain relations with key actors in the political sphere of society.\textsuperscript{67} This brings us to a recurring issue in literature on Indian political economy – the government’s degree of independence from strong special interests and classes in society.

A classic study in this field is Suzanne Rudolph and Lloyd Rudolph’s \textit{In Pursuit of Lakshmi}.\textsuperscript{68} They argue that small and medium peasants have considerable


\textsuperscript{67} Stuart Corbridge et al., \textit{Seeing the State: Governance and Governmentality in India}, Cambridge: Cambridge University Press, 2005.

influence as voters because of sheer numerical strength. As a group, they overlap to a large extent with another numerically strong group: the Backward Castes. This is one of the largest interest groups in India, argue the Rudolphs, comprising more potential voters than any other rural group. In a more recent analysis of the class relations in the Indian political economy, Barbara Harriss-White similarly emphasizes the role of the intermediate classes, i.e. the small landowners, rich and medium peasants, merchants of rural and semi-rural townships, small-scale manufacturers and retailers.69 These, and not the urban middle class and the rich elite, are the masters of the India where most people live in villages and small towns. If we are to understand how Indian democracy is working, and why so much is not working, we must understand the interplay, interests, conflicts, and strategies that arise when these economic interests meet different parts of the government.

REFERENCES


69. Harriss-White, op. cit.


