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**Tragedy of the Commons or the Commoner's Tragedy:
The State and ecological crisis in India**

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Introduction

A recent New York Times article, "Greening the Desert," highlighted the triumphal accomplishments of the photographed laborers working in the formidable Thar desert in Rajasthan, India; bricks and mortar being carried on the heads of Rajasthani women and being laid down by Rajasthani men. Together they were putting on the finishing touches to a massive human endeavor started in 1958--The Indira Gandhi Canal. The following paper looks at water in Rajasthan: it attempts to show how state policy, responsible for such projects as the Indira Gandhi Canal--produced by common labor, in the desert commons, to distribute the common property resource, water--contrary to Greening the Desert, degrades the desert and exploits its people, not because of its technological enormity, but because of existing state/class relations which produce it. Though 'green' is being produced along the finished sections of the canal, in the forms of cash-crops and capital, it is at enormous cost to the commons and the commoner.

This paper will start by reviewing recent studies on similar 'public works' in India to better understand the role of the state (colonial and post-colonial) on the commons. Two such examples are the forest department's battles with Tehri Garhwal (Uttar Pradesh) hill communities over timbering the commons (Ramachandra Guha's *Unquiet Woods*) and World Bank social forestry attempts to timber Bastar district (Madhya Pradesh) forests (Anderson and Huber's *Hour of the Fox*). In both, social movements emerge to challenge the state over rights to access over the commons, historically sustainable for local peasant economies. These studies reveal an understanding of the changing relationship between state and classes, as it is articulated in the struggles over access to the commons. Alongside increased state intervention is the increased role of international capital and banks, especially the World Bank, as local-global production processes become linked. Today, the Bank helps finance most of India's big commons projects (more than thirty simultaneous projects in 1990) transforming India's forests, pastures, water resources, and 'wastelands' into 'domesticated' nature--subsidized, accessible, and ready to mine to satisfy capital's expanding needs.

This paper integrates in the author's recent field research on a local water crisis in Rajasthan today, a result of the state enabling the privatization of common water supplies in the hands of an emerging capitalist class in desert agriculture. Capitalist agriculture expands and intensifies in Rajasthan because of its ready access to and increased control over nature and labor--both key production conditions. Because neither one is produced by capital--neither one is a commodity per se--it is the state which facilitates their access for capitalist

production. Specific policy by local state agencies could regulate access to water, a common property resource, through its just and sustainable management and distribution, directed by scientific understanding of desert ecology and of the desert's existing social inequalities and the people's needs, for food and fodder. However, it appears the opposite is occurring in Rajasthan.

Local state agencies play an integral role in facilitating the increased control over the commons by a concentrated group of capitalist producers; the commons become inputs for private profit at great social cost. In this study of a drought-ridden arid district of Rajasthan, the social and ecological costs become transformative--for the poor peasant community, becoming proletarianized, and for the desert ecology, becoming degraded. The paper concludes with some general thoughts on the role of this particular form of state\class relations as a context for current ecological and social crises.¹

Historical Introduction: The Commons as Contested Terrain

Historiography reveals very little about the communities which inhabit the commons: "There are better population statistics for the deer in Windsor Forest than for the human denizens."² By studying early 18th century British law, E.P. Thompson was able to describe the social relations around the British commons, as facilitated by the administrative and legal arms of the state. In general, the commons have both a material and symbolic existence, constructed differently at particular historical junctures through state\class relations. So, for example, when 'forestdwellers' one day become 'trespassers' the next day, trespassing becomes more than simply a legal violation and the commons more than simply 'place'. It becomes meaningless, therefore, to portray the commons--forests, pastures, watersheds, rivers and such--and those who live directly off the commons, as edenic, pure, or virginal, enraptured in a 'nature' tender yet wild. Rather than describing merely what has been lost--innocence, for example--the story must start atop ambiguous, contested terrain, in the midst of many forces of domination, though consequently, terrain which is most powerfully shaped by the effective force of capitalist expansion.

¹ This article will not be discussing the various forms of grassroots resistance to the state water policy, or a thorough study of production relations and production conditions along the Indira Gandhi Canal (World Bank funded and engineered), though future articles will.

² E.P. Thompson, Whigs and Hunters (London:Allen Lane, 1975), p.55.

"The British state," Thompson concludes, "all eighteenth-century legislators agreed, existed to preserve the property and, incidentally, the lives and liberties, of the propertied."³

The British state penetrated the most remote hill regions of north India in its need for raw materials and labor, neither of which came to them without a struggle. When the colonial state exerted control over common forests, and by 1900 it controlled over 20 percent of India's land area, it intervened in the lives of most Indian villagers. Through a system of commons management and an administrative policy and legal system which redefined property rights, based on commercial profit rather than local systems of sustainability and social labor, the colonial state redefined relations with the trees, the rivers, the pastures, and the community.

As Guha and Gadgil show in "State Forestry and Conflict in British India," the task of the colonial state in controlling the forests was to transform the species composition of the indigenous, diverse forests into timber plantations with market value--simultaneously a material and ideological transformation. The forest commons could only be transformed into timber plantation when its people were transformed into cheap labor, local forest knowledge into scientific forest management, and the state into the primary facilitator/enforcer. Guha and Gadgil describe the local versus state polarity:

Silvicultural techniques, for example, attempted with success to transform the mixed coniferous/broad-leaved forests of the Himalaya (in the north) into pure coniferous stands, and to convert the rich evergreen vegetation of the Western Ghats (in the south) into single-species teak forests. While these induced changes in forest ecology have in the long term had a slow imperceptible effect on soil and water systems, they immediately ran counter to the interests of surrounding villages, since the existence of several species rather than one could better meet the varied demands of subsistence agriculture. Significantly, the species promoted by colonial foresters--pine, cedar, and teak in different ecological zones--were invariably of very little use to rural populations, while the species they replaced (such as oak) were intensively used for

³ Ibid., p.21.

fuel, fodder and small timber.⁴

Forest law and policy not only transformed forests into timber plantations, it penalized, and sometimes criminalized, local peasants for using the forests. In the South under British rule, fishing communities could not afford to use teak for constructing their canoes (teak was extracted for the royal navy, for example) because of the heavy duties levied for local consumption; duties were levied on weavers for collecting cocoons. Bamboo was collected for house construction, basket weaving, furniture and musical instruments by local villagers. But once the state discovered bamboo was suitable for paper making, industrial exploitation was highly encouraged; local consumption became restricted, and artisans were required to buy it from government depots or on the open market, where the price was prohibitive.

The moral economy of provision amongst the peasantry was in direct conflict with the political economy of colonialism. As an illustrative, material result of this duality, Guha and Gadgil refer to 1921 peasant uprisings in Kumaun against forest policy: "With state management, tins of pine resin had replaced tins of ghee (clarified butter) as the main produce of the forest—a transition with telling consequences for the village economy."⁵

Making Invisible the 'Nibbling' Forestdwellers

A study of the role of the Indian state and the World Bank in Bastar district's forests reveals a similar though contemporary political economy and set of social relations. In the 1900s, the British tried to clearfell Bastar district forests to construct and panel railway sleepers. The government's stance on the forest commons is summed up in a statement announcing new forest policy: "The accident of a village being situated close to a forest does not prejudice the right of the country as a whole to receive benefits of a national asset."⁶ Nonetheless, the forestdwellers rebelled.

In the 1970s, the Bastar district forests were identified by World Bank experts as a propitious place for an industrial forestry scheme. The tragedy of India's commons, according to

⁴ Ramachandra Guha and Madhav Gadgil, "State Forestry and Social Conflict in British India," Past and Present number 123, May 1989, page 147.

⁵ Ibid., p. 172.

⁶ Robert S. Anderson and Walter Huber, The Hour of the Fox: Tropical Forest, the World Bank, and Indigenous People in Central India (Seattle: University of Washington Press, 1988), p.44.

Bank documents, is that India's forests, though 23 percent of the total land surface, provided for only 0.2 of the labor force and contributed only 1.3 percent of India's GNP.⁷ Did these precise figures take into account the millions of people who worked and lived off the fruits of the forests? Why was the Bank so interested in Indian 'productivity' and employment in its forests?

Bank policy reveals two issues at stake: an economic and a discursive. India in the 1970s needed foreign exchange to service its growing external public debt (\$12.4 billion), of which half was owed to the Bank and the IMF. The Bank forestry scheme document declared that India's balance of payment deficit would jump another 20 percent; the Bank could help by lending money for income-generating schemes on its 'unproductive' commons. The Bank, however, needed to prove that, yes indeed, the commons were unproductive; India could improve its economic condition by transforming the commons into timber plantations. First, Bank experts needed to make invisible the people who lived and produced on the commons; second, it needed to make invisible the peasant economy and forest-management systems which kept the forests and its people sustained. Through a 'social forestry' program, the Bank and the complicit state planned to kick out the forest-dwellers as trespassers, then invite them back, as wage laborers (the 'social' part of social forestry?) in the newly transformed forest.

Had the local people not rebelled, the project would have transformed the forests and three of its environments, according to Anderson and Huber: a) its biological--replacing the diverse forest species (called 'presently unmarketable' by Bank experts) with three long-fibered industrial species--pine, eucalyptus, melina; b) its sociological--destruction of the material, cultural, ecological conditions of the tribal people and replacing them with a state-facilitated class-divided community of wage-laborers and timber industry profiteers; c) legal-administrative--juridical, legislative, and punitive/criminal ideology and bureaucracy must be constructed to successfully arbitrate local and non-local claims and rights to the commons, yet allowing for the smooth and steady appropriation of the forests.

The project never got off the ground, due to local protests and the dramatic drop in the international price of newsprint and bleached pulp--one of many global factors affecting local commons. The Inspector General of Forests, at an international conference, summed up the state's frustration, imbued with the same hegemonic 'tragedy of the commons' ethos which historically has permeated state policy:

⁷ Ibid., p.59.

What can a handful of forestry personnel do to oppose the action of thousands of people who constantly nibble at the forest resources? The most important technical lag is that of organizational techniques on which rests the protection and productive functions of the forests [i.e., the coercive-police state].⁸

The most comprehensive commons legislation by the British was the Indian Forest Act of 1878, which, according to Guha and Gadgil, "by one stroke of the executive pen attempted to obliterate centuries of customary use of the forest by rural populations all over India." The Act was the basis for legal and scientific management of the forests for rationalized timber production. Families of 'rightholders' were allotted a specific amount of timber and fuel, but not allowed to barter or sell it. The people were thereby excluded from managing the commons through 'cooperative'-social labor, as well as denied customary access to pastures and forests. Commons management and access was transformed by the state from a right to a privilege. The commons was separated from the commoners much the way the means of production has been historically wrested away from producers. State and private property are the consequences of both historical transformations.

The Desert Awash with Water Crisis

Does this analysis apply to the rather difficult-to-track common property resource, water? What is the role of the state, in the arid districts of Rajasthan, in water management? What are the current conditions of water use and what are the mechanisms used to manage water consumption (Rajasthan being an ecologically fragile and economically poor state)?

The mystique of 'desert', as discursively presented in many readings--mirages, wind-sculpted stolid nomads, homogenous barren landscape--is predicated on an image of staticity, the awesome convergence of 'oriental' contradictory illusions: Desert is a place of historical perdurability and emptiness; spiritual mystery and predictability. Desert, and its people, is as timeless, forceless, lifeless as Edward Said understands the Orientalist's vision of the colonized 'other' to be. The telos of growth, modernism, development, etc., is to put a flame under the 'other'--in this study, the people of the Thar desert--as if 'history' passed them by and history is in someway embodied in the next development scheme's technic.

According to N.S. Jodha's comprehensive study of 80 villages in

⁸ Ibid., p.92.

21 districts in dry regions of seven states including Rajasthan, common property resources (CPRs) have offered significant contributions to the employment and income generation for the poor.⁹ Over the last three decades, however, the area of CPRs has declined by 26 to 63 percent, 49-86 percent ended up in the hands of the non-poor. In rural development planning, Jodha states, CPRs are ignored while private property resource-centered activities are emphasized, including promotion of high-yielding variety crops, distribution of cross-bred cattle, or supply of electricity for ground-water lifting devices.

Rajasthan, particularly its arid districts, has fallen into a serious water crisis. Though many call it a water shortage, an earlier study on cash-crop production and its exhaustive use of groundwater demonstrates there is no shortage of water for privileged communities.¹⁰ A 1988 news article reported that "all the major surface water sources (in Rajasthan) are drying up and the underground water level is going down by over 25 metres."¹¹ Most of the 34,960 villages are facing "acute" shortages and 7,942 villages have no water scheme at all.¹² The major cities have begun to ration; in villages near to industrial sites, water has become contaminated.¹³ Water supplies have been depleted

9 N.S. Jodha, "Common Property Resources and Rural Poor in Dry Regions of India," Economic and Political Weekly 21:27 (July 5, 1986).

10 M. Goldman, "Cultivating Hot Peppers and Water Crisis in India's Desert," The Bulletin of Concerned Asian Scholars, December 1990; "The 'Mirch-Masala' of Chili Peppers: The Production of Drought in India's Desert," Capitalism, Nature, Socialism: a journal of socialist ecology 1:2, Summer 1989.

11 "Drinking Water Crisis Worsens in Rajasthan," Indian Express (Delhi), March 18, 1988.

12 J. Bandyopadhyay, Ecology of Drought and Water Scarcity (Dehradun: Research Foundation for Science and Ecology, 1987); the number of villages without safe drinking water has increased dramatically in most states--i.e., doubled (Uttar Pradesh) and quadrupled (Gujarat)--within the past ten years.

13 M.C. Mehta, Supreme Court advocate, has a number of class action suits against the Indian state in the Supreme Court, on the basis of Constitution article 21 which guarantees citizens of the right to life (recently interpreted by the Court to include the right to clean water) due to groundwater contamination. One such case is in Udaipur district where Hindustan Agro-Chemicals, Silver Chemicals, and Jyoti Chemicals have leaked chemicals into the groundwater system destroying wells, fields, and sickened animals and affecting more than 20,000 people. Mehta has on his bookshelf

because of excessive consumption by some industries, destruction of ecological watersheds, destruction and abandonment of traditional water catchment systems. Jodhpur district has been one of the worst-hit districts in Rajasthan. A study on Jodhpur's famous catchment system reveals that inside Jodhpur city, the government's public works department has abandoned its many stepwells and outside the city, the mining and road systems have destroyed many contoured and well-developed rainfed ponds and tanks.¹⁴

Agribusiness too is left unregulated in its exploitative labor practices and water consumption. Government officials claim it cannot regulate water use. The following story illustrates the role of the state in one chili-producing region of Jodhpur region, on the eastern edge of the Thar desert, where groundwater tables are falling precipitiously, the worst in the district. Yet, an elite class of cash-crop producers continue to pump voluminous amounts of water each day. In total, the lionshare of the local resources--labor, water, electricity, capital investment, arable soils, and more--are being funneled into the high input production of chili peppers which benefit a small class of rich business families, at enormous private profit and highly destructive social and ecological costs.

Wells of the poor in Rampura-Mathania area have dried up as the water tables have plummeted and the vast majority of low-caste poor households are unable to finance the cost of tubewells (to be dug with a diesel engine 300-700 feet deep) which could replace their dry hand-dug wells (maximum 60 feet deep). Traditional methods of water collection in Rajasthan, methods traced back to Indus and Saraswati valley civilizations 6,000 to 8,000 years back, are large contours in the land which use hillsides and depressions to capture and hold rainwater, letting it percolate to the roots of trees, feed grassy vegetative cover, serve as animal watering holes and feed into tanks from which to draw drinking water. The concern was less how much water would fall than how well the rain was collected. Most of these structures have been destroyed by roads, mines, expanding urban centers, and state neglect. Jodhpur was once architectural center for bawari (step wells), a perennial water source, up until recently. Most have fallen in disrepair. Meanwhile, the city sinks wells in the rural communities, pumping voluminous amounts of water out, such as from the city's wells in Rampura-Mathania.

wine bottles filled with groundwater from the villages, water appearing a burgundy color.

14 Dr. S.M. Mohnot, "Restoration of Jodhpur's Traditional Water System and Catchment," Jodhpur University, 1988.

The Desert Commoner's Tragedy

In Jodhpur district landlessness is not an overriding issue, but lack of access to water, as a CPR, is. Research has shown that a high percentage of the common groundwater supply goes for chili-pepper production. As wells dry, as government's attempts to bring water to villages fall short, and as less food is being produced locally, people must outmigrate, work at the mine quarries or for the chili-pepper businesses. In both, we find highly exploitative social relations of production.

Quarry workers from Jelu, a small village a few hours' busride from Jodhpur's main quarries, work 26 days out of 30 days seven months of the year.¹⁵ Though their salaries fluctuate from 30-50 rupees per day, a decent amount, most fall quickly into debt to the mine owners, purchasing food, liquor, and opium at high rates (60 percent of the men are addicted), and use cut stones for nighttime shelter. Most have respiratory diseases and malaria because of the unsanitary conditions. Officials call it tuberculosis, a poverty-related disease, and not silicosis, a work-related disease, for which the worker could sue for worker's compensation. One worker relates his situation to a legend of the Kingdom of Jodhpur: When the local King prepared his horses for a battle in the fiery sun of the desert, he put opium in his horses' mouths to charge them with adrenaline and numb them from the horrific pain of battle. This worker saw himself in similar relations with the quarry owner.

Women from these villages spend an average of four hours a day fetching water, four hours collecting fuel, tending the herds with the children, preparing food, cleaning the seeds, cleaning and drying the dung (as fuel and building material), and craft work.¹⁶ They manage the household and the community with very

¹⁵ These descriptions come from interviews with villagers and social workers in Jelu and other villages in Jodhpur district. This section comes from interviews from my 1990 visit, though earlier research stays, in 1986 and 1988, inform the basis for this article's analysis.

¹⁶ Recently, the government built a handpump in the village Jelu for drinking water, so women there do not have to go very far for drinking water. Though 'drinking water to all' has been a battle cry of the Indian state since Independence, functioning government handpumps are not accessible to many villages. According to many studies and also reports from rural social agencies, access to clean water is becoming more scarce, due to falling water tables and increased water contamination--neither one natural or uncontrollable. For Jelu, a nearby social agency, Gramin Vikas Viqyan Samiti (GVVS), helped secure them a handpump.

little state support. In many villages in Jodhpur district, low caste families have very little access to common resources managed by the state, such as roads, schools (particularly schools which do not discriminate against low caste families), public transportation, electricity, credit, and anti-poverty development programs. The state is noticeably invisible, in spite of its assertions.

Anti-poverty projects do crop up, where women will be hired at subpar wages to help move sand and rocks from the roads, plant trees and barbed wire for the forestry department, etc. But this requires back-breaking work, without shelter or shade for the women or for their infants. Low-caste women here tell stories of regular confrontations with the foremen about whether or not they worked hard enough to deserve their full wages. This harassment typifies gender and caste oppressions in these villages: low-caste women are always fighting for these guaranteed rights as citizens, rights to their wages, rights to sanitary drinking water, rights to their children receiving an education, etc.. Mostly, this state-sponsored work is meaningless, irrelevant to the village community, and painful. It offers a small financial supplement to the household, however, necessary to offset shortages of items which become less available for the poor from the commons--food, fodder, fuel, and water.

The quarries, contracted out by the state, are a major cause of the destruction of Jodhpur's historic water conservation system. According to a recent report, until the 1950s, Jodhpur city was surrounded by a water catchment and water body system: man-made contours, lakes, steams, wells, tanks, and embankments worked into the sides of hills and valleys to catch and conserve most rainwater--"mutilated", the report says, by the more than 7,000 privately managed stone quarries. The mines generate 20 million rupees in annual revenues (1988) for the city, just one-tenth of the direct cost Jodhpur incurs annually from its rural groundwater pumping system to compensate for this water loss.

The impact of the state in refusing to regulate and penalize the mining industry in its destruction of Jodhpur's principal source of water, up until the last forty years, is one example of local state/class relations affecting the commons. Another critical

Run with a Gandhian ethic of working with 'the poorest of the poor', GVVS works in almost 100 villages through Jodhpur district. As well as helping secure a handpump for them, GVVS is lending them money to set up cooperative tubewells and start a government-financed home construction project. Soon, many of the men will stop working in the mines, perhaps down to 30 percent, as these new projects will enable the poor Jelu families to become more self-sufficient. Some of the village sons have become trained as GVVS social workers.

example is its neglect in regulating, instead of facilitating, the rapid depletion of the rural's groundwater supplies, as exemplified in the worst case of abuse, in the Rampura-Mathania area, which also happens to be the most productive chili-pepper region.

When people ask why villagers have neglected or abused the traditional water catchment systems (and common pastures and woodlots which the nadis and tanks serve), they tend to ignore: the wage-labor and sharecropping work which pulls the poor off, or denies them access to, the commons; the work the industries do to degrade the community and the catchment systems; and the state's role.

Hot Peppers and the Watered-down State

Chili peppers, like sugar cane, consume at least eight times as much irrigated water as seasoned crops such as jowar and bajra, the poor's food grains. These crops do not secure a similar profit rate, however. According to a recent Jodhpur district village study on groundwater extraction, two-thirds of the tubewells in the sample were owned by large landowners, who pumped a higher percentage of the groundwater, for irrigation.¹⁷ Nearly 75 percent of the crops under irrigation are high water-consumption crops, primarily chili peppers, with the balance used for food and fodder crops, wheat and lucerene. Extension of irrigation to these essential crops has not occurred, the study argues, due to shortage of water through lowering of water table, which may soon lead to a saline and brackish watersupply, unfit for irrigation.

Produced by the government desert research center, the report argues that because groundwater is a CPR, and a rapidly depleting one, its use for private profit only, and not for food and fodder, is socially unjustifiable; the authors find that demand in the region for food and fodder is not being met through local production. Since chili peppers do not yield fodder (nor food) in their production, its consumption of most of the CPR groundwater drawn "amounts to a misallocation of CPR groundwater." Water-use efficiency is nonexistent, they conclude, because CPR groundwater is practically free of cost and power tariffs levied by the state are linked to horsepower of the engine used for pumping and not to power consumed or water drawn. Hence, it becomes disadvantageous for farmers to produce food or fodder, though both are in high local demand. The state makes it more advantageous for farmers, who can afford the capital inputs,

¹⁷ K. Anantha Ram, K.K. Vyas, L. Singh, "Groundwater: A Study in Common Property Resource Problem in Arid Areas," unpublished mss., Jodhpur: Central Arid Zone Research Institute, 1990.

to produce a highly profitable, though highly degradative commodity, such as chili peppers.

State officials insist the only vehicle available to the state to stop the excessive pumping of water is to forbid state-run banks from loaning money to farmers for tubewells. Therefore, the poor and middle farmers who produced low-water consuming crops, cereals, pulses, and fodder, mostly for local distribution, are unable to access water. The rich need no extra credit; in fact, the rich business families merely take over the responsibilities and loan money, at twice the rate, to all who want credit.

Electricity, a government-run enterprise, is regulated only to the extent that irrigation pumps receive six-to-eight hours a night. Large-scale irrigation in this region is dependent upon electricity; regulate the flow and cost of electricity, in this case, and the state could regulate one aspect of irrigation flow. Bribery insures that your family will top the list for electrical hook-up, a competitive edge the large producers have over others.

But it requires capitalist production capabilities to produce peppers at a profit: inputs are expensive--steady access to electricity or diesel fuel, fodder (cattle become scarce when common pastures are depleted), pesticides, labor, and a well deep enough to guarantee steady flow for the whole year. Many 'middle' farmers have stopped producing chili peppers because they cannot afford the cost, or the risk of failure, of deepening their wells. Hence they are squeezed out of the competition by the wealthiest who help to lower the water tables and are the only ones who can afford, through cash and bribery, to further deplete the resource at the necessary, rapacious rate. Higher water extraction rates, therefore, lead to greater market concentration, as only a few businesses can stay in the competition. With greater control of the market comes greater control of prices. This adversely affects their sharecroppers who must sell at harvest time to the large landowners, who themselves can afford to wait an average of four months before selling at regional markets at prices many times higher what they 'bought' it for from their sharecropping laborers.

The desert people's 'rights' to the commons, as well as in Windsor and Tehri forests, become transformed to 'privileges'; in a sense, the commoners become trespassers for digging wells down to the receding levels of the watertable, while the rich become de facto owners. CPR groundwater becomes property much the way timber in the forests of England and India did--with the help of the state. Simultaneously, the people's contributions--the work of water and environmental management and rainfed food and fodder production--are made invisible by the state. In spite of regularly intervalled government campaigns to 'end poverty' and supply 'drinking water for all,' in reality the opposite is occurring in the arid districts of Rajasthan. The state is

spending more money and energy to appropriate more CPRs from the people, not less; the poor land managers receive practically no state support in their work to maintain community water catchment systems, community woodlots and pastures. Subsidies and big rural development projects focus on centralizing, concentrating resources into the hands of producers who can afford the risks, of high-yielding variety, capital intensive livestock and agriculture production, while the risks become externalized social costs (Who, after all, pays for reclaiming waterlogged, over-salinated wastelands?). The irony (and contradiction) is, the more the state treats the poor and their peasant economy as invisible, the more dependent the state becomes on the poor peasant's 'moral economy' to continue to repair that which the state is destroying, to produce that which the state denies is being produced.

The World Bank's Science: From Commons to Free Market

Finally, it is important to observe the role of international banks in the transformation of Rajasthan's commons. The economically poor Rajasthan government has fallen into a devil's bet with the World Bank over the completion of the Indira Gandhi Canal, with its billion dollar pricetag--a debt which must be generated through capital-intensive production throughout the state. Clearly, in agriculture in Rajasthan, capitalist production of cash crops such as chili peppers is crisis-ridden, with its contradictory social, economic, and ecological consequences. According to ongoing research, similar productive relations exist along the canal too. Three categories of farming enterprises have been noted along the canal: capitalist farmers who have migrated from the over-exploited Punjab and elsewhere, drawing on heavily subsidized state resources to expand their capital with lower-costing inputs; Rajasthan middle farmers who also are trying to take advantage of state subsidies for cash-crop production; and third, poor locals who have been forced, by the diminished commons, to gamble with the high risks of input-intensive agriculture.¹⁸ Researchers suggest first-category farmers are producing high yields whereas the third category are falling into debt. Alongside these varied results are the ecological consequences of the ill-regulated canal waters--salinization, soil erosion, and waterlogging. Ethnographic

¹⁸ Some of this information comes from excellent research from the Institute of Development Studies, Jaipur; as well as from interviews with canal engineers and farmers from Bikaner and Ganganagar. One Indian engineer said, echoing forest officials who deny the productivity of forest dwellers: "Hey the worst thing that could happen (if the canal fails) is that everything around the canal turns into wasteland. Big deal--the desert already is wasteland."

interviews tell of families losing access to common pastures and woodlots, as these commons are replaced with cropfields. The state has a steadfast hierarchy in its management of water which ignores the simple fact that in the arid districts of Rajasthan, food and fodder are two products on which the people and the ecological balance of the commons, depend. Yet, the vast majority of the annual state budget goes to the Canal project and irrigation development. This is true in spite of the fact that only a small percentage of the Rajasthani people irrigate their lands (28 percent) outside of the rainy season and that the nearly 25 percent of its villages have no safe drinking water.

World Bank irrigation and dam engineers have spoken of the Indira Gandhi Canal as a "complete disaster", "a terrible boondoggle." "The best thing we (the Bank) could do was pull out and persuade the Indians to do the same."

One irrigation engineer summed it up beautifully: "The only reason I can imagine the Indian government continues to build it (after the World Bank pulled itself from the project) is to keep the Pakistani's out (It runs near their shared border.) Because it certainly won't help the state in any other way. When I visited it I saw sand dunes in the canal, stopping the water flow. They would need huge sludging machinery and constant attention to keep the sand out. Unless they settle thousands of people there, willing to level the land, bring in the money, expertise, and experience, it cannot succeed. These settlers (the urban poor who have moved from the rural because they lost their land or cattle to debt or degradation of the commons) won't have the ability to develop the land in a way necessary to use the water. So the water just goes to waste.... Whoever thought this irrigation scheme could work...."

The biggest problem with the debt-producing Indira Gandhi Canal and so many of the Bank's projects, is that the state, through the myriad of local and international agencies supporting the project, is facilitating the same exploitative social relations of production along the canal as those which have been documented throughout India.¹⁹ Worse still, in the most ecological fragile terrains of the Thar desert, capital-intensive agriculture has the potential of rapidly destroying the conditions of production--the resource base of water, soil, vegetation--on which all

¹⁹ Interviews with farmers in the north, where the canal is complete, speak of their own exploitative sharecropping relations with their laborers.

communities depend for their survival.²⁰

The Traagic Contradiction of the State:
To Regulate or Not To Regulate

Claus Offe, in "The Theory of the Capitalist State and the Problem of Policy Formation," writes of the capitalist state (though referring to advanced capitalist societies) as 'interventionist', which avoids the extremes of the state functioning as nonexistent or irrelevant (orthodox Marxist interpretation) or all pervasive (social democratic).²¹ To understand the capitalist state, it is necessary to understand it by how it relates to the accumulation process. He proposes four elements to this relation: 'The state has no authority to order production or to control it'; 'however, the state has the mandate to create and sustain conditions of accumulation'; 'its power relationships, its very decision-making power depends upon the presence and continuity of the accumulation process'; and, 'the state can only function as a capitalist state by appealing to symbols and sources of support that conceal its nature as a capitalist state'.

In our case, historically and today, the Indian state "creates and maintains the conditions of accumulation by measures that require simply the allocation of resources (land, taxes, repressive forces) which are already under the control of the state."²² Offe's main point is that the capitalist state is caught between a rock and a hard place, for its functions are in reality, 'unrealistic'. In Rajasthan, for example, with a low per capita domestic product, it appears necessary for the state to offer free and ready access to its resources (common property resources under the state's domain, though symbolically portrayed as actually under villages' domain) to promote production. Yet, facilitating access and control over groundwater supplies, in this case, means selling out the majority poor, who cannot afford to dig their wells deeper. Though the state creates and sustains conditions of accumulation, it does so at the immediate cost to the state, through increased poverty and degradative ecological

²⁰ There has been documentation on salinity, alkalinity, waterlogging problems (also contaminating drinking water supplies); vegetative cover deterioration; and up to 80 percent water wastage due to seepage from the unlined canal; evaporation, and farmer negligence.

²¹ Claus Offe, "The Theory of the Capitalist State and the Problem of Policy Formation," in Leon Lindberg, et al., eds., Stress and Contradiction in Modern Capitalism (1975).

²² Ibid., p.128.

effects.

Yet, if the state were to regulate access to water, the possible retaliation by the powerful rural/urban elite--disinvestment--is viewed as worse than the crises caused. The rich chili-pepper businessmen have said that a) they've been reinvesting their surpluses in urban industrial units and b) expect the groundwater in the district to go dry within ten years--admittedly because of their 50,000-100,000 gallons pumped per day--and expect they will have to move their capital, eventually, elsewhere. "But that's no problem for us; afterall we're businessmen, not farmers," a wealthy one explained.

Most state officials, however, deny the state's role in such allocation, and hence, its role in CPR depletion. One official clearly sees the problem: "Unfortunately," says a Jodhpur-based government agricultural officer, "stopping desertification through equitable land management is not of great interest to either the rich farmers or the government. We have to persuade these farmers that it is to their benefit to stop over-exploiting the land and water. But is it? After all, they're only concerned with profits.

"See, it can all be exhausted and they can just move on. Capital can always find new land, new water, new labor. That's never a problem."

These allocated resources, also described as 'conditions of production', cannot be produced by capital, though they are used in capitalist production.²³ Groundwater and other natural resources are such conditions, necessary for production, from the public domain. Yet in order to have competitive capitalism, they must be freed up from a democratic handling of them. Imagine, for example, the state groundwater board, with administrative, legal, and criminal/punitive support, decided that groundwater should be restored again to the domain of the public. It could allow for every tubewell to pump x gallons per day, enough to irrigate fields of foods and fodder which require smaller amounts of water than the export crops. Any amounts above that would be charged a fee to discourage wasteful use; The fee may discourage the production of high-profit, high-water consumption crops. But this scenario suggests some obvious contradictions: First, the bureaucracy to regulate all tubewells would be expensive and perhaps corrupt; Second, where would the state generate revenues to pay for the regulation? The fear is capital investment would quickly flee the desert--afterall, many would argue that they are there only because of low regulation, low taxes, free and easy access to labor, land, and groundwater. Hence, the state makes

²³ See James O'Connor's works in Capitalism, Nature, Socialism: a journal of socialist ecology, issues in 1988-89.

sure these resources are available. Only with profit-generating capitalist production can the state afford to regulate, some would say. Yet, this is why the Indira Gandhi Canal has been such a failure; left unregulated, everything that could go wrong has.

As Offe also notes, the state must ensure, in its allocative and productive modes of relations with the accumulation process, that not only raw materials but also labor reaches the market and fills it satisfactorily. State officials understand clearly that for steady accumulation, there must be a steady flow of rural workers participating in the wage-labor market. This cannot be taken for granted in these arid districts where families have in the past, and try to presently, provide for themselves from their own land, from the village commons (as Jodha argues) either locally or throughout the sub-continent (for nomadic forms of production). Some mechanism must exist that 'frees up' these self-sustaining peasants from their land so to fill the labor market. If, during cash-crop harvest time, the poor peasants can sustain themselves from the accessible and fruitful CPRs, they need not allow themselves to be exploited in the mines or the fields. Then what happens to local capital? The role of the state is to, above all, ensure the existence of an accumulation process (with all its inherent contradictions and exploitative relations). Without it, the state in a capitalist society, cannot exist.

When analyzing why there exists a water crisis in a region of the desert, rates of rainfall become much less relevant than rates of labor exploitation. From an understanding of groundwater as a common property resource, with the state as its sole arbiter, we can begin to see unveiled state/class relations which have a direct effect on the region's ecology. Rather than being viewed as a natural or common's tragedy, ecological crisis should be understood as a crisis of the state, shaped and negotiated by legal and administrative policy and activity, under contradictory economic and political pressures which have their local, regional, and global configurations.