# *Introduction*

In 2006 the Hindustan Coca-Cola Company produced a television commercial for urban Indian audiences starring the popular Bollywood star Amir Khan.[1] Khan plays the role of a "traditional" Indian farmer of the rural "undeveloped" countryside, symbolizing "old India." Three women, dressed in Western clothing and representing "modern India," are stranded as their car breaks down along a dusty farm road. "I am feeling so thirsty," one woman says to her friends, so they set off to find some cold water to drink while their driver fixes the automobile tire. They find the farmer in traditional dress standing by his well, and they ask him for some cold water to drink. Delighted to be visited by such beautiful women – "What are ripe tomatoes doing in sugarcane fields?" he asks – the farmer, bursting with symbolic and cryptic irony, signals the arrival of an apparently promising time, proclaiming that when three "peacocks" come to the fields, "the rain will come without clouds and the river will come without flowing." As the farmer reaches deep down into his well to bring up the bucket, the women are delighted to see that it is not water in the well, but three ice cold bottles of Coca-Cola. The commercial sheds light on a well-known Coke slogan – Life ho toh aisi – meaning, "Life should be like this."

**Water as a Foci of Struggle for Ecological Democracy**

Soft drinks replacing freshwater in some Indian villages is not a commercial fantasy. Coca-Cola and Pepsi, among other transnational and Indian national corporations, are extracting *billions* of gallons of groundwater each year throughout rural India and paying virtually nothing for it. This first form of "water privatization," or the commodification and mass commercialization of water, is enabled by colonial-era private property laws and more recently by undemocratic "free-trade" laws set down by the World Trade Organization that give rich landowners and corporate "persons" the "legal right" to extract as much groundwater as they are willing and able to take. With water rights inextricably tied to land rights, Coca-Cola and Pepsi have been able to purchase nearly 100 tracts of land throughout the subcontinent and, using the most advanced water-mining technology available, extract hundreds of millions of gallons of water every day from deep within the surface of the earth. Sanctioned by the Indian Government, these corporations use the discourse of bringing "development" and "modernity" to the "backward" Indian countryside.[2] Yet the dry community wells and polluted groundwater and soils that result from their activities add to the already immense burden on small Indian farmers in the 21st century.

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1 The commercial can be viewed here: http://ww.smashits.com/video/user/117/indian-coca-cola-commercials-amir-khan.html Thanks to my friend Sreejay for translating it to English for me.

2 For a deconstruction of the "regimes of developmentalism" that facilitated the creation of the 'Third World' and the discourses of development utilized to normalize it, see Chatterji (2000).

As struggling rural farmers abandon their farms and ancestral homes for city slums in search of economic opportunity, they become subject to the second dominant form of water privatization in India: the privatization of urban water distribution systems. The neo-liberal state, with its acquiescence to the demands of multi-national water corporations and free market ideology, is selling off India's vast water sources and public water infrastructure while guaranteeing pre-arranged profits to these companies regardless of their performance. As free public water networks are systematically removed to satisfy the privatization agenda in participating cities, the urban poor shoulder the full weight of risk and burden as they are forced to pay the rising costs of private water or receive none at all. In this paper I will address these two interconnected faces of urban and rural water privatization, using the methods of archival research, politically engaged ethnography, and participatory action research to evidence how the very survival of economically depressed farm-workers in Plachimada and slum dwellers in Bangalore city, as well as certain multi-billion dollar industries in India (soft drinks and transnational water corporations), is hinging on the struggle over the right to safe freshwater and the right to own and profit from it.

The movements in opposition to water privatization in both the rural and urban contexts discussed here articulate their struggles within broader national and international alliances advocating for "ecological democracy," or the right of local communities to exercise democratic control over their local food, water, mineral, forest, and hydro-carbon "resources" so sought after by transnational corporations who seek to own and exploit them. This paper is an archaeology of the present man-made water crisis in India, created by ecologically illiterate colonial rulers who systematically destroyed one of the most extensive and brilliant examples of sustainable water harvesting technologies in the world, and continued today through the free market policies of the Indian state that deepen the structural inequalities with regards to the actualization of the right to water. As such, this paper is a product of an ethically and politically engaged anthropology that is unafraid to stand in solidarity with those who are fighting for ecological and cultural survival against the dominant exploitative neo-liberal ideology that places the health of the land and of the people below that of short-term profits and private financial gain.

The first two sections of this paper report on my ethnographic and participatory action research investigating the fight over water privatization in Plachimada and Bangalore. Section One evidences the five-year struggle in the small rural village of Plachimada by mostly *Adivasis* (indigenous) farmers to successfully close the largest Coca-Cola bottling factory in all of India. Using house-to-house surveys and participatory ethnography, I report the effects of the plant's operation on the health and livelihood of the people of Plachimada, and I explore how a movement of low-caste farm-workers was able to close the factory down and to what extent their success is replicable by local farmers who are struggling against great odds and violent state repression to expel soft-drink and

bottled water factories from dozens of localities across rural India.[3] What I discovered through my research is that Coca-Cola is exploiting India's favorable legal environment and corrupt government bureaucracy to secure the main ingredient for its business for free, keeping these temporary plants in operation only until the aquifers are unprofitably dry or until they are forced out by the will of the local people and/or the enactment and enforcement of law. In the process, they violate the legal "right to water" promised to all Indians in writing by the India Supreme Court and by the United Nations in numerous international human rights conventions and laws that are signed by the Indian State.

In the Section Two, I investigate the contested Greater Bangalore[4] Water Supply and Sewerage Project (GBWASP) – which would privatize the city's water services to satisfy the loan conditions set upon the government by the World Bank, the Asian Development Bank, and the International Monetary Fund – and I report on the local resistance movements in opposition to it. GBWASP is a Public-Private Partnership that would give a consortium of transnational water-corporations ownership over the operation and management of Bangaluru's water supply, including the city's water delivery infrastructure and the Cauvery River water itself. As a pilot project of the Nehru National Urban Renewal Mission (NURM), Bangaluru and New Delhi are the first of India's 60 largest cities to receive substantial loans from the International Finance Corporation (a subsidiary of the World Bank) in exchange for "reform" of its municipal laws, putting it on the fast track to privatize urban development and municipal services as envisioned by the General Agreement on Trade and Services (GATS).[5] I critically deconstruct the practices and ideological underpinnings of this kind of "urban renewal," arguing that mandatory reforms are designed to consolidate ownership of Bangaluru's land and water, effectively driving slum dwellers away from the profitable real-estate they live on by systematically removing their access to affordable drinking water. This will enable the city's vested socio-economic and political elites to make immense profits by allowing them to sell areas currently occupied by slum dwellers to information technology companies, land developers, and other corporations that are now flocking to Bangaluru, the so-called "Silicon Valley" of India.

Consider this massive giveaway of freshwater to transnational corporations within the context of the dual crises that are overwhelming farmers

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3 See the India Resource Center website for up-to-date information on struggles against water privatization in India: http://www.indiaresource.org.

4 Known locally as Bangaluru, which is the name I will use.

5 For an in-depth analysis of how GATS establishes, quite undemocratically, a supra-legal justification for the neo-liberal takeover of public "services," see GATS: A Primer for Activists (INSAF, 2002).

and city dwellers throughout India (and much of the "third world"[6]): the "freshwater crisis" and the "agrarian crisis."

**Background: India's Freshwater Crisis**

The systematic disruption of traditional rainwater harvesting technologies (discussed in detail in Section Three), massive deforestation and subsequent rainfall decline, the pollution of surface and groundwater by industry and chemical agriculture, and the indiscriminate extraction of groundwater[7] have all contributed to the *man-made* freshwater crisis in India. More than five hundred million people in India lack access to safe and reliable drinking water (Black 2004). Of the 5,723 geographic blocks monitored by the Central Groundwater Board, 1100 of them are categorized as "overexploited" or in "critical" condition (CGWB website). Even John Briscoe, the Senior Water Advisor at the World Bank who wrote a draft report in 2005 for the Bank entitled *India's Water Economy: Bracing for a Turbulent Future*, predicts an exponential decline in available surface and groundwater resources, whereby in the year 2020, India's total demand for water will have exceeded all sources of supply,[8] with catastrophic public health consequences (Briscoe 2005). Numerical statistics on some future water crisis tossed around by bureaucrats belie the reality that water crises are public health disasters in thousands of localities today, experienced as "everyday violence" (Scheper-Hughes 2005: 253) and everyday oppressions by individual bodies and targeted communities in local socio-political and ecological contexts. Yet both the present official government policy and the law enable groundwater exploitation by rich property-owners and corporations while they ignore the indigenous technologies of water management that have long created local water abundances (see Section Three).

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6 See Arturo Escobar: Encountering Development: the Making and Unmaking of the Third World (1995) for a critical history of how "development" discourses and practices were used to turn newly politically independent former-colonies into economically dependent, impoverished "third world" states in "need" of "modernity" (and capitalism). Note: common words in bureaucratic discourse such as "modern," "traditional," "backward," "development," etc. are written in quotes to emphasize their value-laden connotations and sub-textual assumptions that seek to universalize diverse human experiences and cultures and compartmentalize them into an orderly linear path of societal progress: in technology, morality, economics, social relationships, etc; when in actuality the highway to modernity is often laden with maladaptive practices and unsustainable dependencies that can threaten the very continuity of such "modern" ways of life.

7 State-subsidized diesel and electric powered groundwater pumps in India have ballooned from 25,000 in the mid-20th century to over 20 million now (Black 2005: 6).

8 The report predicted that the availability of surface and groundwater would decline from 500 cubic kilometers currently to less than 80 cubic kilometers in 2050.

## The "Agrarian Crisis"

Indian farmers throughout the subcontinent are reeling in distress after decades of export-oriented industrial agricultural production sponsored by the World Bank and other international banks, USAID, and the Indian Central Government. With the expressed-intent of "modernizing" India's agricultural system, "experts" and bureaucrats since the onset of the Green Revolution have forced the use of a massive amount of petrol-chemical pesticides and fertilizers, expensive, water-intensive hybrid seeds (both of which require loans to purchase), and colossal and ecologically disastrous irrigation projects on Indian farmers – leading to seemingly insurmountable personal debt; polluted, saline, and waterlogged soils; and depleted aquifers (Shiva 1991). The Green Revolution effectively broke the on-site, sustainable nutrient-cycles which for millennia recycled free, excess organic nutrients in the form of plant bio-mass and human/animal manure (known in the "Western" ethos as "waste") back into the living soil, and replaced this native ecological wisdom with expensive and toxic chemical fertilizers from DuPont Chemical and the like, which over time has wreaked havoc on biological vitality of soils and has fashioned economic dependency. Cheap, subsidized cash crops from wealthy nations[9] flood local markets, undercutting small farmers by causing a collapse in the price of farm commodities amidst the rising costs of cultivation, and leading to an environment in India in which indebted small farmers give way to homogenized and corporatized agriculture. These policies have driven millions of farmers from the countryside into crowded Indian cities, like it did to U.S. farmers after World War II,[10] like it has done to small farmers in Mexico as a result of NAFTA, and so on. Looted of their livelihoods and dignity, tens of thousands of Indian farmers in the past decade have resorted to the most forlorn form of social protest imaginable – ingesting pesticide to kill themselves[11] (Shiva 2004).

## The Role of Law

Central to my analysis of water privatization in Plachimada and Bangaluru is the role, power, and fluidity of law – used both by global elites to create the legal justification for the exploitation and ownership of the earth's water, land, forests, minerals, air, etc., and by local communities and people on the ground who organize to create and use laws to protect their ecologies and livelihoods. I

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9 The Food, Conservation, and Energy Act of 2008 was enacted into law in June 2008 and sets the United States' agricultural policy for the next five years. Like its predecessors, the 2008 Farm Bill provides massive subsidies to the largest agribusiness corporations in the U.S., paying them to grow enormous quantities of rice, soybeans, wheat, corn, and cotton that are then exported and flood the markets of "third world" countries

10 See Wendell Berry's The Unsettling of America: Culture and Agriculture (Berrry 1977) for more information on the U.S. Agriculture Department's methodical assault on family farmer in the post-war era.

11 Estimates range from between 80,000 and 200,000 farmer suicides in the last decade. See http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2008/03/22/MN8MV9DET.DTL for more information.

am orientated by Laura Nader's simple and profound notion of the "user theory of law" which holds that the law is by no means static or homogenous but is instead the site of a dynamic struggle between those who seek to control the law by reducing the public's access to it and those who seek to use it to challenge hegemonic control and create new laws to protect themselves and their communities from exploitation (Nader 2002). I examine how stakeholders on all sides try to take advantage of the plurality of diverse legal systems,[12] yet I find that the hegemonic forms of national and international law, as opposed to more decentralized legal systems, tend to put the onus of enforcement not in the hands of local people, but in the hands of state bureaucracies that are often inhabited by socio-political elites who personally profit from the neo-liberal and undemocratic restructuring of the economy, of law, and of culture. Thus I find the law to be but one tool in the struggle for political, economic, and ecological democracy, a tool that is sharpened and buttressed by the use of other illegal and non-legal tools such as unencumbered direct action, political mobilization and the politicization of the public sphere; the construction and deepening of local and global alliances; and (in the case of water privatization) the remembrance, revitalization, and re-creation of practical designs that capture, store, and use the water that falls freely upon the earth to produce real wealth and sovereign local economies (i.e. the kinds that aren't controlled by international banks).

**Ecological Design as Emancipatory Practice**

In order to get at the root cause of the water crisis, it is necessary to understand that the crisis is *man-made* and is a product of the widespread implementation of universal "modern" technologies, first by outside colonial powers and then continued by the Central Indian Government, that were utterly divorced from any sense of ecological literacy for that particular place. In the third and last section of this paper, I investigate the designs and practices of ingenious water harvesting systems that for centuries allowed villages in India to capture and use the rain to create water abundance, commonwealth, and economic self-sufficient communities. I historicize the centralization of water ownership in the colonial and post-colonial state that dismantled these systems and silenced these knowledges, and I argue that the current neo-liberal attempts to transfer the control and ownership of water to powerful transnational corporations using Colonial-era laws will only deepen the economic colonization and dependence of local communities on global capitalist elites and institutions for their very survival. Yet the point I hope to get across is that diverse community-managed water harvesting systems based on sustainable ecological design can lead to economic and cultural *decolonization* by enabling local communities to provide for their own common economic and ecological wealth. Because these water harvesting systems can be built cheaply using all local materials, and because they can provide all the water, food, shelter, clothing and fuel needed by communities of people to live dignified lives while regenerating local aquifers and biodynamic

12 For more on legal pluralism as it relates to water rights, see Meinzen-Dick and Bruns (2000) and Spiertz (2000).

soil life, they put the power of self-reliance back in the hands, minds, and bellies of the people, without the sanction of the banks, multi-national corporations, or the state.

## Methodology and Theoretical Orientations

This research paper is the culmination of three months of fieldwork in South India, which was made possible through a grant I received from the Summer Undergraduate Research Fellowship at UC Berkeley. In Thirupanathapuram, the capital city of Kerala, I conducted more than a dozen interviews with journalists, scientists, activists, professors and politicians on issues of water rights in India. While in the village of Plachimada, I carried out surveys of two dozen households within a 2 kilometer radius of the plant and I practiced participatory research methods in my engagements and interviews with farm-workers, local landowners, Coca-Cola employees, schoolteachers, public health employees and other local residents about their experiences and concerns regarding the Coca Cola bottling plant. Using the methods of participant observation, I spent some time nearly everyday sitting in the protest hut with other activists across the road from the factory. While in the city of Bangalore, I carried out research on the privatization of the municipal water through my participation in a seven-day march across the city with activists working to warn residents about the impending privatization and closure of public water out-posts.

In carrying out anthropological research, I remain mindful of the ways in which the discipline has been "nurtured within bourgeois society, having as its object of study a variety of non-European societies which have come under its economic, political and intellectual domination" through its colonial applications (Asad 1973: 103). The organization of anthropological knowledge into object-subject relations facilitated the colonial project that "homogenizes, unifies, hierarchically ranks and flattens diverse cultures and multiple humanities, rendering humans and nature as singular objects, named as resources, to be organized, integrated, and maximized within a logic of profitable productivity" (Shapiro 2000: 6). In resistance to this ideology of exploitation, I approach my research through a postcolonial lens, asking myself what this knowledge production is for and what it can contribute to those who struggle against water privatization, while remaining attentive to the cultural legacies of colonialism and neocolonial forms of subjugation that exist under the guise of modernization and development.

This research seeks to intervene on the "ecological and cultural destruction being unleashed by a state. . . so privy to a global technological design that lies behind both the large scale erosion of the natural resource base of the people and the erosion of distinctive cultures and community lifestyles" (Kothari 1993: 26). As critical ethnographic practices involve "conscious, political intentions that are oriented towards emancipatory and democratic goals" (Quantz 1992: 448-9), I see this research as a work of international solidarity to be used to educate Americans about the lived consequences of the product choices they make, while providing university and high school students with the knowledge needed to advocate for cancellations of contracts between their schools and soda companies. This

research contributes to emancipatory anthropology in its understanding of violence as a process, so that the "more indirect violations and longer term infringements of people's rights and intrusions in the framework of civil society, the environmental and life-support system, and diverse cultures may find a place within the concerns of human rights discourse" (Kothari 1993: 22). Concerning traditional water harvesting technologies, I seek to excavate elements of "subjugated knowledges" which have been silenced or confined by dominant and standard forms of knowledge sanctioned by the established institutions and ideologies (Foucault 1972). These ancient technologies, together with the emerging sustainable technologies of ecological design that are currently being implemented across the globe in efforts to build community-based water harvesting and local sustainable food systems, are "hybrid practices" (Bhaba 1994) that intervene upon the biopolitical power (Foucault 1972) exercised by institutions of capitalism and neo-liberal states in their efforts to privatize and control the most basic biological needs for life: food, water, energy, and housing. Rather than remain dependent on these institutions as what Michel Foucault calls "biopolitical subjects," movements for ecological democracy open up the possibility for the decolonization of the 'processes of life' that can help us to collectively remember the future of ecological abundance (Foucault 1972).

# *Section 1*

## The Fight for Water Democracies in Plachimada

Water is alive, and it is the essential source of life for all living species on Earth. "Human Rights" can never really exist at all unless there is first an actualized right and just access to unpolluted water, for without access to safe drinking water many other human rights are simply unachievable. Given that water is not a human invention but a free gift from nature, Vandana Shiva holds as a principle of "water democracies" that no one has a right to own water as private property, sell it as a commodity, or overuse, abuse, waste, or pollute water (Shiva 2002: 36). Shiva proclaims that water rights "do not originate with the state, but evolve out of a given ecological context of human existence" as a "natural right arising out of human nature" (2002: 20). Yet despite the fact that the India Supreme Court and international law uphold an individual's "right to water" nation-states the world over are giving the right to own, exploit, pollute, and sell water for profit to powerful transnational corporations. One such place is Plachimada.

## Physical and Social Geography of Place

Plachimada, with a population of three to four thousand people, lies in the foothills of the Western Ghats mountain range, in the region of Palakkad, on the Kerala side of the border it shares with Tamil Nadu. It is part of the Moolathara village, one of three villages that comprise the Perumatty Gramapanchayat village government (Gramapanchayats being the smallest and most decentralized level of government in India, hailed by Gandhi as the ultimate form of village self-governance). My interviews with numerous village residents revealed that roughly 10% of the people living in Plachimada own farmland and employ seasonal farm-workers. 50% work as agricultural laborers, averaging only 100-150 days of work per year, while the rest work as daily wage-laborers: logging and chopping wood, collecting coconuts and processing 'toody' (a popular coconut wine), weaving coconut coir, cutting hair, driving rickshaws, etc. The average daily wage is 80-100 rupees for men and 50-80 rupees for women (As of March 2009, 50 rupees equals one dollar).

Water is a dominant feature of the landscape in Plachimada. On my first bus trip from Palakkad City to Plachimada, I was struck by the fact that villagers are experiencing a scarcity of drinking water in an area that appears to be so well-endowed with water resources. I rode past one flooded rice field after another, watching the women and men in the fields with water up to their shins, bent over to tend the crop. Palakkad's intricate network of man-made tanks, ponds, reservoirs, and canals have enabled farmers to produce one third of the state's rice (a water intensive crop), earning it the nickname "the rice bowl of Kerala" even though this region lies in the rainshadow of the Western Ghats mountain range and receives one of the lowest precipitation levels in the state (Koonan 2007).

The people of Plachimada overwhelmingly belong to what is called "Scheduled Castes and Scheduled Tribes," recognized as the lowest castes in

India. Many are so-called "indigenous Adivasis" of the Malasar and Eravalon tribes (referred to as "tribals" by the Indian state, a term used to lump together a vast and diverse array of cultures and communities across India who directly depend on India's forest, land, and water resources for their sustenance). Another segment of the population in Plachimada are known as "Dalit" (former "untouchables") – another term devised in consult with the British Colonial Government to lump together millions of people who did not fit into the four dominant castes designated under the Colonial census. Many of Plachimada's residents migrated from neighboring Tamil Nadu a generation ago, seeking work and Kerala's higher minimum wage and labor standards.

Plachimada can be seen as a microcosm of what life is like for hundreds of millions of India's Adivasi and low-caste agricultural workers across rural India. Most Adivasis never traditionally owned land as private individuals and instead held agricultural land, grazing land, water, and forest resources as village commonwealth. Through the introduction of "the rule of law" [13] and private property laws during Colonialism, these resources have been legally divvied up to a relatively small number of political and socio-economic elites, and as a result, Adivasis and other oppressed groups have become "landless" in their ancestral homeland. Although the leftist Kerala State Government has provided each family in Plachimada with a tiny plot of "privately-owned" land, usually 3 or 4 cents (a cent being 1/100$^{th}$ of an acre), very few have enough land to actually grow any food for themselves. Thus, they are dependent upon the land-owning class and the welfare of the Indian State for their survival, and many are forced to leave their ancestral land and familial ties for the cities in search of food, clothing, and work. While the Coca-Cola plant has indeed exacerbated their situation by exploiting the groundwater and polluting the water and soils, before the corporation arrived and after it is gone, these groups will still be fighting for their right to self-government and for their right to land.

**Generosity, Kindness, and Friendship Make my Research Possible**

Much of the three months I spent in India were with a man named Thomas*,[14] who I met my very first day in Kerala at an internet café near his home in a small fishing village outside of Thiruvanathapuram, the capital city of Kerala. The owner of the café did not speak any English, so she called her friend Thomas over to speak with me and find out why I was there. I told him I wanted to study the peoples' movement that shut down the Coca-Cola plant in Plachimada, and he immediately invited me to stay in the extra room at his mother's house until I was ready to leave the capital for Plachimada. Thomas is very politicized and has many connections to local politicians within the ruling CPM party (Communist Party, Marxist). His kind help in formulating research

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13 See Laura Nader and Ugo Mattei's Plunder: When the Rule of Law is Illegal for more on how the "rule of law" has been used by capitalist powers to dispossess communities the world over of their natural wealth (Nader and Mattei 2008).

14 *All names, except those of public officials and well-known celebrities, have been changed.

ideas and his willingness to guide me through his home country made this research possible, and we quickly became close friends. We spent that first week driving all over the capital on his motorcycle, conducting more than a dozen interviews together of politicians, activists, journalists, professors, and scientists. Thomas, like millions of men in Kerala, had been working overseas in the Middle East due to the lack of available local jobs. He had just come back from Dubai where he worked as a cab driver and was now unemployed and frustrated at home. So when he asked if he could accompany me to Plachimada, I was thrilled.

Thomas and I traveled to Plachimada with Rajan*, an attorney and an activist in the Plachimada Solidarity Committee, who offered to help us arrange a place to stay and to introduce us to the leaders of the movement that closed down the factory. Thomas and I spent the next few weeks on the floor of an abandoned thatched hut, left bare by a newly married couple who got tired of the low wages and unpredictability of agricultural labor and had decided to look for other opportunities in Palakkad City. I spent much of the next two months interviewing farm-workers, local landowners, Coca-Cola employees, schoolteachers, public health employees and other local residents about their experiences and views of the plant. Each day I went to sit with Mylamma, a female Adivasi elder who is widely regarded as the local leader of the anti-Coke movement, in the now-famous hut directly across the road from the massive Coke plant that was the center of the resistance. For more than 1500 consecutive days, Mylamma and a rotating group of other villagers (mostly women) had been carrying out a *dharna* (a sit-in) in that hut, sitting in peaceful protest against the occupation and pollution of the land and the exploitation of water by Coca-Cola.

**Establishment of the Bottling Plant in Plachimada**

My presence was immediately known by much of the small village, including in particular the guards who stood outside the Coca-Cola plant. On my second day in Plachimada, Thomas and I were informed by our new friend Swaminathan* that a plain-clothed "spy," as he put it, was keeping watching on me and following me from afar. On my third day, one of the uniformed security guards pulled Thomas and I aside and asked what we were doing there. The same guard again pulled us aside on my fourth day to inform us that a Hindustan Coca-Cola executive in the Public Relations department was coming from Kochi (more than 150 km away) to meet with me. I immediately agreed to the meeting, as it was my intention to interview as many people from as many different angles as possible. My excitement about "infiltrating" the inside of the Coca-Cola plant was shortly diffused when Swaminathan told me that my presence inside the plant might cause some local people to think that I was in fact a spy for the company, as Coke has hired many such spies during the 5 year resistance movement (personal communication with Rajan, July 2 2006). Luckily Thomas was there to vouch for me, or else I could have jeopardized my research agenda.

As it turned out, the interviews I conducted with the Coca-Cola employees I met provided me with very valuable information regarding the establishment of the plant, the reasons for choosing the site, the incentives used to entice Coca-

Cola to the area, and to my astonishment, even information about some illicit deals made between the company and local government officials.

According to the Public Relations Officer I interviewed inside the Coca-Cola plant, the company was invited by the Kerala State Government as one of many "Green Field Projects" designed to bring "economic development" to areas that are designated by the government as "undeveloped" and "backward" (personal communication, July 6 2006). I was surprised to learn that elected officials within the Left Democratic Front, a coalition of the Communist Party, Marxist (CPM) and other leftist parties, had been the political party responsible for clearing the way for the establishment of the Coke plant. The LDF had regained power in the State Government as well the local Panchayat from the Congress Party coalition during the 1996 elections, and despite their anti-economic-globalization rhetoric, local officials helped the company acquire nearly 40 acres of prime agricultural land from a few wealthy landowners in the fall of 1999. Incidentally, the acquisition of this agricultural land and its utilization for non-agricultural purposes is illegal under the Kerala Land Utilization Act of 1967; therefore, a good case can be made against the legality of the plant's very existence, regardless of its activities (personal communication with Rajan, July 18 2006).

The incentives offered to the company by the Kerala State Government and the local Panchayat to move in to Plachimada are astounding. According to the Coca-Cola Public Relations executive, the deal included promises to provide immediate clearances for the company's applications (bypassing required environmental impact assessments and other clearances), land at a subsidized rate, free off-the-grid electricity, access to water from the catchment areas to supplement groundwater, and an unrestricted supply of free groundwater from the State government (personal communication, July 6, 2006). He told me these things gleefully. And I wondered what the Coca-Cola Company was giving back in exchange for such valuable gifts.

To my surprise, I quickly found my answer that very day from a Coke driver who was directed by the public relations executive to take me on a tour of the company's "generous" deliverance of "free water" to poor residents across the Tamil Nadu border.[15] The driver gregariously and unreservedly answered all my questions. He was extremely excited to be talking to me, and I suspected that perhaps he was drinking a bit of toddy before being called in by the Coke executive to drive me around. As we followed the company water tanker, stopping multiple times to allow women to fill up their buckets with company water, I asked him why the political parties were all in favor of the plant at the beginning but are now all aligned against the plant's reopening. He answered

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15 In the wake of the closure of the plant and the subsequent public relations fiasco, the company has been permitted to extract 70,000-100,000 liters of water per day to be given away to neighboring communities – although few of the communities that were most involved in the public protests against the plant receive any company water and much of the 'free water' given by the company is delivered to people who live outside the sphere of the plant's negative ecological impact.

emphatically: "Because they're not being paid anymore!" (personal communication, July 6, 2006).

With great enthusiasm, he went on to elaborate on the early alliance between Coca-Cola and local landowning politicians, including a former member of the local Panchayat, who were offered exorbitant sums in exchange for their vocal support for the factory's establishment and for help in acquiring land for the bottling plant. According to the Coke driver, this politician, like other rich landowners in the area, sold groundwater from the many bore-wells on his property to the company. I later heard similar allegations repeated many times of local landowners selling water from their property to the company, enabling Coke to circumvent the restrictions on water extractions later placed on them by the State Supreme Court.

As the struggle on the ground intensified, and as word began to leak out across the internet about deliberate toxic contamination in Plachimada, Coke tried to buy the silence and allegiance of officials and activists alike. Indeed, at least four other individuals divulged to me that they themselves had been offered monetary bribes at some point by the company: including two prominent leaders in the Anti-Coke struggle, a public health inspector, and an employee from the local irrigation department who had stumbled upon an illicit diversion of water from a nearby canal into the adjacent Coca-Cola factory. It is this kind of corporate lawlessness reciprocated by corrupt political elites that made the struggle to shut down the factory so difficult, even in such a "progressive" and "leftist" state.

**Water: Raw Material for Life, the Raw Material for Coke**

Coca-Cola, Pepsi, and other bottled water/soda companies are on a relentless hunt for cheap sources of freshwater, be it from rivers or from deep underground aquifers.[16] The more freshwater these corporations can obtain, the more product they can make and sell. Essentially, these companies are turning ancient water from deep aquifers, upon which India's 700 million farmers depend for their survival, into chemically infused, nutrition-less sugar water and bottled water for India's growing urban middle class. Being as Coke pays only .02-.03 paise (100 paise = 1 rupee) for the water in a 1 litre bottle, and sells it for Rs. 10-12 (1000-1200 paise), the profit potential from India's precious freshwater is enormous[17] (Down to Earth 2002). *Living Our Values,* Coca-Cola's corporate citizenship report, opens with the words, "The Coca-Cola Company exists to benefit and refresh everyone it touches" (Christian Aid 2004: 45). Yet the company's advertisements that it is "refreshing" and "thirst quenching" are

16 See Holy Water from the West (Ranjith: 2004, and The Real Pepsi, the Real Story (Dara: 1991) for the notorious histories of Coke and Pepsi in India.

17 According to the Water Cess Act of 1977, industrial water users need to specify how much water they plan on using to be billed for it. The Coke plant at Plachimada claimed to use 500 thousand litres/day. At 3 paise (.01 rupees)/kilolitre, Coke pays 15 rupees per day for the water they consume, or approximately 38 cents. (Down to Earth 2002).

exposed as insidious Orwellian doublespeak when one learns that many, if not most, of its bottling plants are located in areas where locals experience acute shortages of drinking water, such as Kala Dera, Rajasthan; Gangaikondan, Tamil Nadu; Plachimada, Kerala etc (India Resource Center 2008).

Plachimada has, or had, an immense amount of groundwater. Its undulating topography, its many human-made tanks, ponds, and reservoirs, and its low percentage of paved surface area, allows for low run-off and great groundwater recharge when literally buckets of it comes down at once during the monsoons. I heard many times how Coca-Cola's prospectors commissioned a satellite survey of the underground aquifer to make sure that they would be able to extract hundreds of millions of litres of water from it for a period long enough to recoup tremendous profits on their investment. When I asked the Coke executive about the satellite survey, he skirted the issue, but he did make it quite clear that the company was very excited about the wealth of available groundwater resources to mine in Plachimada.

The plant is nestled less than ten meters south of the Moolathara main canal, a few hundred meters west of two large reservoirs (Kambalathara and Venkalakkayam) and less than a kilometer away from the Chitoor River (Koonan 2007). The Gramapanchayat issued its operating license to the Hindustan Coca-Cola Company in January 2000 to close the deal, and by the company's own estimates, the plant began pumping 500,000 liters of water per day starting in March 2000 with six high-powered bore wells (personal communication with Coke Public Relations Executive, July 6 2006). These numbers, however, are contested by local activists and NGOs who counted the number of cases leaving the factory each day – taking into account the company's admission that it takes about 3 liters of water to produce 1 liter of soda – to estimate that the amount of water being pumped per day was nearly three times as high (personal communication with Mylamma, July 8 2006). In addition, Dr. Acuthan, a distinguished hydrologist in Kerala, has calculated that the four 7.5 horsepower (h.p.) pumps and the two 5 h.p. pumps used at the factory would pump more than one million litres of groundwater in ten hours of operation (Vikas Adhyayan Kendra n.d.).

## Effects of Groundwater Exploitation and State Complicity on the Local Population

Whether we believe the company's numbers or not does not matter much, for the extraction of 200-400 million liters of water each year in a drought-prone region has had tremendous impacts on the local population. Within six months of the plant's operation, villagers and farmers began to notice their wells going dry, and the pumps used by landowners near the factory began to siphon a much lower quantity of water. All of the landowners I interviewed within 2 km of the plant reported a significant decline in the water table level soon after the factory's operations commenced. One farmer in particular was in favor of the plant for the first few months of operation, until his 5 h.p. pump went from running 18 hours a day to less than one hour. This man used to employ 20 agricultural workers on

his 7 acres, sold groundwater to other farmers, and produced substantial yields of rice paddy and coconut (Personal Communication, July 10 2008). One year after Coke moved in, his yields dropped by three quarters, and he had to stop employing most of his farm-workers. The effect on local labor patterns severely cut the numbers of workdays available for agricultural laborers, and many had to leave Plachimada for the cities to find work.

**Dumping of Toxic Waste and Health Effects**

The effects of the plant's pollution on the health of the children, women, and men of Plachimada, like the extensive pollution of nearby soil and water resources in the vicinity of the plant, have been well publicized by journalists, scientists both within Kerala and in Europe, in publications by local NGOs, and by some Plachimada farmers themselves via the India Resource Center's website. After six months of operation, villagers began to notice that the water that was available to them had changed drastically in quality. The first indication cited by multiple villagers that the quality of the water had changed was the way the rice would turn hard and rancid only a few hours after being cooked with well water. The taste too had turned metallic. During my first week in Plachimada, a woman who was speaking with Thomas and I asked for us to drink some water from the community well directly adjacent to the plant, to see for ourselves. And even then more than a year after the plant had stopped producing its products, the water tasted metallic and I spit it out.

But this was the only water the people of Plachimada had for drinking and washing (until a Jesuit group and a local NGO installed rain water catchment systems at many home sites in 2007), and it quickly proved harmful. In my discussions with Kalamath*, a pre-school teacher and public health inspector in Plachimada, I learned that nearly two-thirds of school children in Plachimada have suffered from skin rashes, itching, and red bumps on the skin after contact with well water (personal communication, July 13, 2006). Half of the two-dozen households within 2 km of the plant that Thomas and I surveyed reported that they or their children had suffered from stomach pain, vomiting, and pain in the limbs after ingesting the water. A similar percentage of the mothers and fathers I spoke to complained that they or their children experienced abnormal hair loss, burning of the eyes, and/or itching all over the body after contact with the well water. As a result of this not-so-subtle form of embodied, gendered, "everyday" violence (Scheper-Hughes and Bourgois 2004: 2) inflicted upon the population, women were forced to walk 3 km each way to fetch and haul potable water to the village that would not harm themselves and their families. The words of the Adivasi woman who asked me to take a sip from the community well are representative of the experiences and feelings of nearly every Plachimada villager I spoke to:

> "Our water was pure before the factory opened. We never had any problems. Now we can't bathe in the water, our hair clumps together and falls out, even on the head of my baby. We can't drink this water; it hurts (pointing to her stomach). The workers in the fields come home and find their feet and legs covered with

rashes. They ruined our water and land, and they don't care" (personal communication, July 5, 2006).

More than a nuisance, polluted waters have contributed to the well-documented deterioration of the health of the people living near the plant. Mylamma blamed 5 deaths in the village on the well water they ingested. These deaths include her grandchild and a young married couple that lived next door, each of whom complained of terrible stomach aches just before they died. All the while, the bureaucrats on the state and central Pollution Control Boards showed callous disregard and blatant indifference to the mounting evidence of Coca-Cola's lasting adverse affect on local water supplies. According to Jeyaprasad, the current Member Secretary and top official at the State Pollution Control Board: "Now that the plant is closed, there is no more pollution. Our job is finished" (personal communication, July 1, 2006).

Although Coke officials and some state health inspectors and pollution control bureaucrats I spoke to blamed the rise in skin ailments on the "poor hygiene" of "uneducated tribals," everyone I interviewed in Plachimada vowed that they never had any issue with water from community and private wells before the Coke plant opened. Such comments by "modern" Coke executives demonstrate how easy it is to place blame on a culturally constructed "other." Edward Said's deconstructions of Orientalism (Said 1979) help to shed light on how cultural conceptualizations of "difference," while serving to reciprocally define oneself in opposition to the "other" (me, as "modern" and "educated," you as "uneducated tribal"), justify, rationalize and routinize the kind of systemic and "everyday" violence inflicted on small farmers worldwide by state and corporate bodies, using the discourse and practices of development.

The Coca-Cola Company now openly reports two forms of effluent discharge that were not in any way treated, as mandated by numerous state laws. The first stems from the fact that for every 1 litre of soda produced, 3 to 4 litres of water are used, the vast majority of it to clean the bottles that come back to the factory for reuse and to clean factory equipment. Hundreds of thousands of litres of water each day are infused with a combination of chemical solvents for these tasks, and then dumped in the grounds of the factory. The second is a called a "bio-solid waste" by Coke officials. I asked the Coca-Cola executive how this waste was disposed, and he gave me two answers. The first was on the grounds of the factory itself, stacked up as raised beds of sorts along the roads of the factory, which I saw firsthand. The second way the bio-solid waste was disposed was to local farmers directly, given for free under the guise of "fertilizer" (Srivastava 2006). The Coke executive proclaimed with a cryptic smile that local farmers requested this by-product themselves, and that the company was just trying to help by giving "poor farmers" free fertilizer (personal communication, July 6 2006).

The BBC Radio 4 program, "Face the Facts," exposed this "fertilizer" revelation to wide audiences across India and abroad in August of 2003, after the BBC had received tests of samples of sludge given to farmers to amend their soils. The tests at the University of Exeter "revealed the material was useless as a fertilizer and contained a number of toxic metals, including cadmium and

lead" (The Hindu July 27 2003). The Laboratory's senior scientist, David Santillo, said that the contamination had spread to the water supply, with levels of lead in a nearby well going well above those set by the World Health Organization. Britain's leading poisons expert, Professor John Henry, urged authorities to ban the supply of the sludge saying, "The results have devastating consequences for those living near the areas where this waste has been dumped and for the thousands who depend on crops produced in these fields. . . What most worries me about the levels found is how this might be affecting pregnant women in the area. You would expect to see an increase in miscarriages, still births, and premature deliveries" (The Hindu, 2003). A few days after the BBC expose, the former Chairman of the State Pollution Control Board conducted his own tests, "without the permission of his superiors," which corroborated the BBC tests with results showing 201.8 mg of cadmium per kg of sludge (4 times the legal limit) and recommending that the sludge be classified as a toxic waste (Vikas Adhyayan Kendra n.d ). When confronted by the BBC reporter on their practice of distributing toxic waste as fertilizer, Coca-Cola's Vice-President said, "It's good for the farmers because most of them are poor" (Srivastava 2006). The Coca-Cola Company was ordered to stop the practice by the government authorities.

Strangely, Health Minister Sankaran immediately ordered new "detailed inquiries" to be carried out not by the former Chairman of the Pollution Control Board, but by the Member Secretary K.V. Indulal, who was repeatedly described to me as a corrupt man with 4 houses who has taken numerous bribes from influential interests. The report, unveiled by Indulal at a press conference and covered by every major newspaper, absolved Coca-Cola of any wrongdoing, reporting that the levels of cadmium and lead were "not beyond tolerable limits" (InterPress Service 2005). The Kerala State Government, however, has since discredited this report. In fact, the Vigilance and Anti-Corruption Bureau in Kerala in October 2003 raided three of K.V. Indulal's houses in Kerala and is now investigating him for accepting bribes from Coca-Cola while he was a member of the Pollution Control Board (The Hindu Business Line 2003).

**The Long Struggle to Shut Down the Plant**

The people of Plachimada, facing the lawlessness of Coca-Cola and the corrupt complicity of the state, initiated one of the most celebrated and inspiring local resistance movements in 21st century India in a heroic effort to remove one of the largest and most powerful corporations in the world from their tiny village. With a massive demonstration on April 22, 2002, a permanent *dharna* (non-violent vigil) was inaugurated across the road from the factory's gates, without the support of a single political party in Kerala. The *dharna* carried on in spite of police intimidation and violent state repression for more than four years: twenty-four hours a day and seven days a week. Under the leadership of Mylamma, sympathetic families from the area would often send one family member a day to partake in the *dharna* while the other members would work the rice fields.

From the beginning, one of the foremost tactics incorporated by the protestors in Plachimada was the formation of national and international alliances with a diverse array of civil-society groups. The Plachimada Solidarity

Committee, comprising more than 40 civil-society groups from across India, has become a shining example of the power of counter-hegemonic globalization as an antidote in the fight against corporate globalization. Heavily theorized by Boaventura de Sousa Santos, this form of "globalization from below" is constituted by a series of initiatives, movements and organizations that fight against neo-liberal globalization through local/global linkages, networks and alliances (Santos 2005: ix). Santos celebrates this "insurgent cosmopolitanism" as an actualization of a new political fact that is focused on the idea that the current phase of capitalism requires new forms of resistance from both inside and outside the state (Santos 2005). Yet despite the transnational scope and trans-local qualities of "insurgent cosmopolitanism," Santos cautions that we should not forget that these movements develop out of local initiatives, that resistance to oppression is a daily task undertaken by anonymous people away from the gaze of the media, and that without this resistance, transnational democratic movements could not be sustained (Santos 2005, xxvi).

Central to the strength of counter-hegemonic globalization is the way in which it fully maximizes global flows of information via alternative media such as the Internet. The India Resource Center website was created to respond to the need for a web that could connect various peoples' movements throughout India and effectively transmit up-to-the-minute press releases and photographs from Plachimada to the world wide web. The India Resource Center served to connect villages facing similar conflicts over natural resources and corporate globalization, allowing for a sharing of tactics, strategies, and information. The website was also used to broadcast the struggle against the crimes of Coke in India to student groups in the United States and Europe who were able to use this online resource to successfully organize the cancellation of exclusive campus contracts with Coca-Cola on nearly forty campuses (Stecklow 2005). Striving to forge a "dialectical relationship between thought and action" (Jackson and Jones 1998) as a practitioner of a politically engaged participatory-action ethnography, I used my research and personal experience to advocate for a cancellation of Coco-Cola contracts at UC Berkeley and Bay Area high schools upon my return home to the United States. In this way, this project takes a post-colonial approach to ethnographic practice so that spaces can be opened for communities to "speak across national and cultural barriers, not to assume that their contexts or concerns are the same, but rather develop a set of theoretical principles of 'translation,' so that alliances can be formed in spite of, and perhaps (paradoxically) because of, differences in power and differences in culture" (Mills 1998: 109).

The organization of national and international solidarity movements and their coordinated effort to punish Coca-Cola for its crimes in India and Colombia (where it has been accused of orchestrating killings of local union leaders) has proven to be a potent force in this struggle. The international movement to hold Coke accountable for its human rights abuses in India, comprised of environmental organizations, student groups, corporate watchdogs, and activist-celebrities such as Vandana Shiva, Medha Paktar, and Maude Barlow was formed to support the struggle of the Plachimada Solidarity Committee. The 2004 World Water Conference was brought to Plachimada, and journalists and activists from

all over the world began to descend on the village. As a result of this surge of local, national, and international publicity generated by the BBC expose, every political party in Kerala (with the exception of the BJP) finally sprang into action. At long last, Coca-Cola was forced to admit to the State Pollution Control Board in 2005 that it had been dumping millions of litres of contaminated wastewater directly into the ground, water that had been mixed with chemical cleaning solutions to sanitize used bottles and clean factory equipment (Kerala State Pollution Control Board, Order 19.08.2005). The Panchayat, with its newfound political support, canceled the operating license for the factory and issued a notice of closure, bringing the conflict into the Kerala High Court.

**The Law as Emancipatory Tool?**

While the Adivasis protesters sit across the road from the Coca-Cola plant, keeping a close watch on each vehicle that enters and exits its gate, another front in the fight for water democracies is being waged thousands of miles away in the India Supreme Court in New Delhi. This front is being fought in the name of the people of Plachimada by prestigious, predominantly high-caste and upper-class lawyers, operating within the strict confines of a legal system constituted in the image and likeness of British Colonial Law, all in a foreign language and custom. Even if the Adivasis could afford to travel to the Indian capital to attend the proceedings and have their voices heard, the substance and form of Indian juridical law is from the beginning stacked against them: it recognizes foreign systems of law, foreign laws and foreign epistemologies, often de-legitimizing their own. The situation epitomizes a "face-to-faceless" justice system theorized by Laura Nader in *Life of the Law* (2002). It lays bare the inherent inequalities of the law: inequalities of access, of design, and of epistemologies recognized as valid. For example, a justice system based on the epistemology of Adivasis might recognize community/group rights instead of only recognizing the rights of individuals, as it might recognize water, forests, and land as living sacred beings deserving their own rights as opposed to their current secular categorization.

Furthermore, many of my informants accuse the state itself, rather than Coca-Cola or any other transnational corporation, as the foremost criminal entity in India. It is the state, they say, (and the law) that has sanctioned the sale of their land, water, and forests, permitted the deterioration of these sanctified bodies in the process, and impoverished their communities. Although every political party in Kerala now openly condemns the actions of the company in Plachimada, it took more than two years of protesting outside the factory gates before any party would respond to their grievances, allowing precious time to pass during which Coca-Cola could exploit the groundwater and inflict harm on peoples' bodies. Time and again, government bureaucracies like the Central and State Groundwater Board and the State Pollution Control Board went out of their way to side with Coca-Cola, while local villagers pleaded with the bureaucracies to check the toxic substances deposited into their land and bodies. For these reasons, and with the perception that the legal struggle sucks the flow of resources pouring in from international allies towards an expensive and protracted legal campaign and away from the people on the ground who must live with poisoned

and degraded soils and wells, many of the Adivasis I met (especially the ones who were not very involved in the protest movement) were skeptical about the likelihood that the ongoing Supreme Court case would deliver them any tangible justice.

However, most of my informants that were most involved in the Anti-Cola Struggle felt differently; they recognized the law as a crucial site to contest dominant social and political hierarchies and as a potential tool for societal transformation. Mylamma, for instance, while cautioning against falling into the 'legal trap' – which she said occurs when social movements expend most/all of their precious energy, resources, and hope in legal actions to the detriment of political mobilization and direct action protest – believed that legal contestation was one important strategy in a litany of complementary tactics. Acutely aware that the laws that govern groundwater and land ownership were inherited from British Colonial Law, created by and for powerful groups, Mylamma stresses the necessity of mobilizing the political power of broad-based civic-activism to create a visibly politicized public sphere powerful enough to pressure ideological allies in the Kerala State Government to enact new laws and develop a new State Water Policy that will prevent this kind of unrestrained water extraction.

And unless the laws that allow private corporations to extract an unlimited supply of groundwater are changed, it will be nearly impossible for local communities to protect themselves against this kind of legalized ecological exploitation, especially in Indian States that are not as politicized as Kerala or have less progressive state governments. Back in 1882, the British Colonial Government passed the Indian Easement Act, which legally classified groundwater as the private property of an individual land owner, effectively transforming the millions upon millions of people who held land as common property into landless individuals (Singh 1995). The act, which is still in effect, provides an unlimited right on the groundwater to the owner of the overlying land, without regard for 'prior appropriation' or 'reasonable use' (National Academy of Agricultural Sciences 2005). After the Single Court Bench denied Coca-Cola's appeal against the Panchayat, the company was able to overturn this ruling in the Division Bench by relying on this archaic law. It was, in fact, the company's primary argument that "the rule of law saves every action of the individual, which is not expressly prohibited by law, whereas, every action of the State must be supported by law" (*Perumatty Grama Pachayat vs State of Kerala*, W.P.(C) No. 34292 of 2003, December 16, 2003). Because there is no law governing the control or use of ground water, the Division Court upheld this argument, ruling on April 7, 2005 that the company is free to exact 500,000 liters of groundwater per day. So ruled the "learned" judge, that a "water-based industry, with a huge investment, has [a right] to receive water to *quench its thirst* without inconveniencing others" (Krishnakumar 2005; emphasis mine). The Panchayat refused to grant the company a renewed license in opposition to the ruling of the Division Bench, so the case has moved to the Indian Supreme Court, whose ruling will have a monumental impact on the "right to water" in local communities for years to come.

It has become clear, even to the company Public Relations executive I interviewed, that the Coca-Cola factory in Plachimada will not likely re-open even if the Supreme Court rules in its favor. The people's movement in Plachimada is simply too strong and has done too much damage to the image of Coca-Cola in the state at this point to warrant a hotly contested re-opening of the plant. It is much easier for the company to find new socio-political elites in new localities to ally itself with, as it has done just across the Kerala border in Gangaikondan, Tamil Nadu. In fact, during my last week in India, the Kerala State Government led by Chief Minister V S Achuthanandan placed a complete ban on the sale and manufacture of Coca-Cola and Pepsi, a ban that was soon overturned by the Kerala High Court (India Resource Center 2006). Nevertheless, people's movements against this bottling plant and dozens of Coke and Pepsi plants across India are growing and leaders from the Plachimada struggle are taking a leading role in providing support to villagers throughout the country who are protesting water exploitation in their communities. A victory in the Supreme Court for the Plachimada Solidarity Committee would be a windfall for communities seeking to prevent corporate groundwater exploitation throughout the subcontinent, but regardless of the outcome, the transnational alliances to hold Coke accountable for its crimes will continue to encompass an increasingly diverse array of non-legal, legal, and illegal terrains including the use of international boycotts, the strengthening of local/global linkages and civil-society networks and alliances, and the organization of local resistance movements against the operation of these bottling plants wherever they operate.

# *Section 2*

**Public-Private Partnerships, Water Privatization, and the War on the Urban Poor: The Fight For Dignity in The Slums of India's 'Silicon Valley.'**

250 miles north of Plachimada lies Bangaluru, the capital city of Karnataka State and one of the fasting growing cities in Asia, whose millions of urban poor are now facing the prospect of city-wide water privatization. It is commonly referred to in the Indian media as the "Silicon Valley of India" due to the explosion of information technology (IT) jobs in the city over the last ten to fifteen years. Its population has ballooned from 1.6 million in 1970 to 6-8 million today, due to an influx of IT workers and a crush of migrants from distressed agricultural communities. Today more than one thousand IT companies operate in the city, providing employment to more than 200,000 people, many of whom have moved here from distant parts of the country seeking prestigious and relatively high-wage positions (personal communication with Selva July 10, 2006). These firms have been welcomed with open-arms by the local political elite, who have enticed the global IT sector with a combination of tax breaks, low enforcement and enactment of environmental regulations, access to land and natural resources, and a steady stream of recent technology graduates who have willingly severed community and familial ties to seek the fast-paced excitement of the new global economy (personal communication with Selva July 10, 2006). Land prices in Bangaluru have skyrocketed (from US $0.10/sq.ft. prior to 1991 to over $200/sq.ft. in some places today, according to a website called Bangalore Real Estate Trends), and it is well known throughout the city that a powerful nexus of local politicians, police, real-estate developers, and "goondas" (gangs of thugs who take their orders from the land mafia) have coalesced to capitalize on the real-estate boom (The Hindu 2006).

However, according to the Bangalore Water Supply Board, roughly 25% of the city's population lives in areas that the state bureaucracy calls the "slums," [18] nearly 2 million people (Rozario 2005). In 1991, the Karnataka Slum Clearance Board undertook an effort to count and officially notify each distinct collection of slum dwellings throughout the city. The Board registered a total of 361 distinct slums, each of which were inhabited by anywhere from a few dozen to a few thousand people, and although these declared slums were officially recognized by the state, the provision of even basic services like drinking water, latrines, roads, schools, public health facilities, etc has been desperately lacking (Rozario 2005). The Karnataka State has not and will not recognize the very existence of the more than 400 slums that have formed since 1991, in an attempt to absolve the State of the responsibility it has to provide basic services to these citizens (personal communication with Clifton, July 10 2006). People living in

18 A slum household is defined by UN-HABITAT, The UN Human Settlements Programme, as a group of individuals living under the same roof that lack one or more of the following conditions: security of tenure, structural quality and durability of dwellings, access to safe water, access to sanitation facilities and sufficient living area (Rozario 2005).

the declared and undeclared slums, some of whom have lived in the same slum for a few decades, have thus developed an informal economy to supply themselves with food, water, and a small income (working in sweat-shop factories, cleaning street gutters, collecting trash, constructing roads and buildings, sex work, etc) in order to eke out a life on the margins of the city. They build and clean the city, yet their humanity and existence as right-bearing citizens is totally ignored. The slums provide a safety net for people with no place else to go, as individual slums are frequently comprised of migrants from the same region who practice the same religion and speak the same language.

As the city expands, people dwelling in the slums are under the constant threat of attack by the land mafia and their hired goondas. The goondas often terrorize slum-dwellers, committing acts of sexual and physical violence upon them and burning their tent-neighborhoods to the ground in order to depopulate the landscape to make room for new apartment buildings, private residential communities, and office-buildings. Along the march through Bangalore, I was shown a number of slums that had recently been torched to the ground. According to an article in *The Hindu* entitled "Tackling the Land Mafia," several "underworld elements" have turned into real-estate agents, dividing up the city districts to ensure that their business interests do not clash. The article contends that police and politicians are in on the scheme, even doubling as real-estate agents themselves to cash in on the economic boom (The Hindu, Feb. 11 2006). But as the droughts continue in North Karnataka, as farmers struggle to compete with heavily subsidized crops in the global commodities market, and as the moneylenders demand repayment of debts incurred by farmers to buy expensive inputs and fertilizers for their hybrid seeds, the flow of people from the countryside and into the slums persists. Indeed, with the onset of liberalization of the economy in India in 1991, Bangaluru's slums grew from 444 with a population of 1.12 million in 1991 to 763 with a population of 2.2 million in 1999 (World-Information 2005). Bangalore now has the third largest slum population after Mumbai and Kolkata in all of India (Schecnk 2001).

Housing Minister D.T. Jayakumar has made clear the government's desire to rid Bangaluru of its slums in the next decade. In a policy proposal released in April 2006, Jayakumar announced a joint venture with private land developers to build flats for slum dwellers on exactly half of the land currently occupied by each slum, with the other half given to private developers for "commercial exploitation" (The Hindu 2006). Although the flats would be provided for free, the real motive appears to be a giveaway to real-estate brokers, not the urban poor. For only those names that appeared on voter rolls in 2004 would be entitled to the flats; everyone else would be forced into rehabilitation centers, according to the article. Of course, after the "development" and privatization of these slums, no one would be allowed to put up huts "anywhere in the corporation limits." It is within this context that the current proposal to privatize the operation and management of Bangaluru's water supply needs to be situated, for many suspect that the proposal is a ploy to expel slum dwellers from the hub of the IT district.

On a tip from my activist-informants in Plachimada, I traveled up to Bangaluru to research the Campaign Against Water Privatization (CAWP), a

coalition of more than 40 citizen groups, and to participate in/observe their week-long march through Bangalore's eight Urban Local Bodies where the initial stages of water privatization are currently underway. The week-long *padayatra* wound through Bangaluru's vast maze of slums, back-alleys, corridors, and central boulevards, stopping at four or five intersections or village centers each day to call the occupants to hear a series of songs and dramatic performances that wove together well-known legends and folksongs with deeply politicized and comedic street performances to illustrate the need to organize for the collective right to water. More than 250 people gathered on the first day of the *padayatra* (pilgrimage or protest march), and our numbers grew to over 1,000 participants by the end of the week, culminating with a massive *dharna* at the house of the Chief Minister in the pouring summer monsoon rains. Hundreds of thousands of pamphlets were distributed, and I helped by gluing informational posters in public spaces as we made our way, staying near the back of the march and talking with whomever I could.

**Historical Context; Where Does Bangaluru's Water Come From?**

Like much of India, the people of Bangaluru used to obtain water for drinking, domestic, and irrigation purposes from a vast human-made system of hundreds of interconnected rain-fed tanks and lakes that surrounded the city. These were managed and maintained by specialized groups of professional tank engineers and supervised by decentralized local village bodies as one of the most vital roles of village government. (see chapter 3). In 1896, the colonial government initiated a new water system that brought water from the far-away Hesarghatta reservoir, and as the city expanded, the tanks fell into disuse (CASUMM, 2005). As recently as the 1950s, Bangaluru's water needs were still met in a large part by more than 250 of these tanks, but the politically connected real estate industry has since purchased the tank beds from the government and transformed the grounds into hotels, high-rise apartment and office buildings, golf courses, and the like, and today only 17 of these lakes exist (Radhika, 2007).

In response to rapid industrialization, the Bangalore Water Supply and Sewerage Board (BWSSB) was established in 1965, and the first of many projects to pipe water 100 km from the Cauvery River to Bangaluru was commenced (CASUMM, 2005). Today, the Cauvery is the only source of BWSSB water, and it is the site of an intense inter-state water conflict with neighboring Tamil Nadu. The river itself is in bad shape, and the farmers who have long depended on the river for irrigation have been forced to move to the cities in search of work. Yet despite Bangaluru's apparently unsustainable and controversial dependence on the Cauvery, the state government has caved to pressure from the federal government and from international financial institutions to privatize the distribution of Cauvery water and increase the reliance on the river.

**The Dire Water Situation for Bangaluru's Poor Residents and the Effects of Privatization**

Bangalore's growing population of slum dwellers and urban poor rely predominantly on water from free sources and from informal underground

markets. They purchase water from wealthier residents who pump and sell water from their private bore-wells, and they collect water from a litany of community mini-water schemes such as open wells, leaky pipes, and from the city's approximately 15,000 public taps and stand-posts provided at no cost by local municipal governments (Rozario, 2005). As I walked through the city with CAWP, I listened to a number of slum dwellers and poor city residents speak about the reliability of their water access. Rabindran*, a 20 year old engineering student, told me that his younger sisters would sometimes spend three to four hours a day trying to acquire water for the family. Women here, like women throughout much of the world, are principally responsible for providing for the family's water supply. I learned from him and other informants that the public taps, which are located only in legal land settlements and in a few of Bangalore's "recognized" slums, are operable for about 2-4 hours, every other day, with fights often breaking out between thirsty people waiting in line. Each morning, I would watch dozens of women line up with their brightly colored water buckets, waiting for the taps to turn on so they could fill up and carry the buckets back to their families. Clearly, something should be done to actualize the "right to water" and the "right to livelihood" that is promised by the Indian Government for Bangaluru's poor, but I found evidence that the privatization scheme is much more concerned with the ability of the water corporations to recoup on their loans and investments than it is concerned with providing the people of Bangaluru with water.

**The Greater Bangalore Water and Sewerage Project**

The new water privatization scheme, known as the Greater Bangalore Water and Sewerage Project (GBWASP), will provide 100 million litres of water/ day from the Cauvery River to the seven city municipalities and one town municipality on the outskirts of Bangalore in an area that is quickly becoming a new hub of the Information Technology district. Here, high-rise office buildings, luxury apartments, and gated communities with names such as "Melrose Place" – occupied by individuals who are clearly profiting from economic globalization and who presumably have a high willingness and ability to pay for private piped water. These settlements compete for land in this part of the city with more than 250 distinct slums, occupied by impoverished families living in blue tarped tents. Whereas the public BWSSB utility will continue to provide the infrastructure to hook up individual households to piped water as long as they pay the regular mandatory fees, a consortium of transnational water companies, including British Thames Water, will take over the operation and management of the system including the regulation and monitoring of the water supply, the billing, maintenance, repair, disconnection, etc.(Rozario 2005).

A key component written into the plan is that of "beneficiary contributions" (also known as "user pays") ensuring "full cost recovery" for the participating private companies. Just to be clear, the "beneficiary" here is not the private company (although they stand to make immense profits from the operation and management of the city's water), the "beneficiaries" are those who pay for new connections, implying that they should feel grateful to pay higher costs for

private water (or else receive none). For the GBWASP, the municipal government has promised a total of 179.52 crores, nearly $4 million, in "beneficiary contributions" to the private consortium, with more than 400 crores in string-laden loans from international banks and government grants to round out the funding (CASUMM). A down payment of between Rs. 2,500-10,000 ($55-$220) per household, based on the size of the receiving structure, would be required as an initial contribution, plus a Rs. 1,740 fee for the meter installation, followed of course by monthly payments (Express Indpress 2007). The BWSSB had already gone door to door in many neighborhoods back in 2005 demanding the 2500 rupees, but more than three-quarters of the households thus far have refused or have been unable to pay (Times of India 2007). All households that have not yet paid the "beneficiary contribution" will additionally be charged a penalty of Rs. 100/per month extending from August 2005 up until the date they pay in order to receive any water (although the privatized water has yet to flow) (Times of India 2007). Such exorbitant fees can be met only by certain middle and upper class residents.

During the march I spoke with many residents throughout the city who were threatened by government officials when they refused to pay the initial sums. All report that they were told that the public taps on the street would be shut off and that they should not expect to receive even a drop of water. When I asked about the reason they were unable to pay, I inevitably got the same answer: low wages. Many street sweepers, employed by private contractors to sweep the city's streets (most of whom are of Dalits, Adivasis, and other "Scheduled Castes and Tribes"), took part in the *padayatra*; and I learned that although the city minimum wage is Rs. 1,800/month, many receive much less than Rs. 1,500/ month. How can minimum wage workers be expected to pay a quarter of their yearly income on "beneficiary contributions" for water they may not see for years?

Most significantly, *the privatization scheme would phase out all "non-revenue water" supplies,* which I learned while sitting in on a meeting that CAWP organized with representatives from a group of slums. The government has made it clear time and again that no "illegal connections" will be allowed, and that the project would provide water only through individual house connections that will be closely monitored and metered (Rozario, 2005). Thousands of public taps and stand-posts would be shut down, open wells, tube wells, community water projects would be phased out, and no new public taps would be laid. As a result of the privatization scheme, the state government will systematically and purposefully deny the hundreds of thousands of poor working class people living in Bangaluru's vast slums and poor neighborhoods their "right to water" (more on the legal "right" to water on page #).

It is clear that this water privatization scheme drastically skews the distribution of risk and reward: all the risk is placed on local communities and peoples' bodies, and the financial rewards are guaranteed to private corporations no matter how well they perform their tasks. According to Boaventura de Sousa Santos, neo-liberal globalization de-socializes various forms of capital, freeing capital (in this case, water) from the social and political bonds that in the past

guaranteed some social distribution, and placing forms of capital in private hands with no legal or political obligation to defend the public good (de Sousa Santos 2005: viii). With society subjected as a whole to the market law of value, the distribution of the costs and opportunities brought about by neo-liberal globalization become extremely unequal (de Sousa Santos 2005: viii). To give total control over the source of all life to unaccountable corporations, whose trans-locality insulates them from the affects of local design/implementation errors and whose only priority is profit,virtually guarantees disaster.

**Nehru Urban Renewal Mission: a Subversion of Democracy**

The GBWASP is a pilot project of what is known as the Jawaharlal Nehru National Urban Renewal Mission (NURM), an executive federal program funded by the World Bank, the Asian Development Bank and USAID, which effectively hastens a framework that will force India's 60 largest cities to allow corporate entities the "legal" right to own and operate nearly all of its formerly public urban "services." In other words, NURM will more fully complete the privatization of the Indian State that begun in 1991[19], contracting out all the major duties of government, such as providing water, sanitation, solid waste management, transportation services, public housing for the urban poor, etc to corporations and public-private partnerships.

NURM is categorically anti-democratic. It is to be undertaken without any legislative backing or public debate, yet it repeals substantial sections of India's federal, state, and municipal laws such as the Urban Land Ceiling and Regulation Act (legislation that protects agricultural lands from non-agricultural development) and state and municipal legislation that mandates that government or quasi-government bodies be in charge of the provision of "urban services" (India Together 2005). All this legislative restructuring is legally sanctioned by the supra-national and undemocratic free-trade laws of the World Trade Organization, which force member-nations to rewrite any municipal, state or national laws deemed to be "trade-restrictive."

Bangalore and New Delhi are India's first major cities to implement NURM, and they showcase the kind of water future the World Bank is working to create. I see this, as does Vandana Shiva, as a future akin to "hydro-apartheid," where some individuals have 24 hour unlimited access to piped water and those who can't afford it have none: a future with no public water sector, no community management of or rights to water, only individual rights and the private interest (Shiva 2005). This future is, as Shiva puts it, clearly one that puts markets above water and people:

> "Water does not exist in the Bank's vision, nor do people with inalienable, fundamental rights to water. All that exists is markets. Markets can grow while water resources shrink. Corporate profits can grow, while people's water rights shrink. The self-organized community based water systems are the

19 See James (1995) for the history and affects of IMF liberalization and "neo-colonial plunder" that were initiated to "alleviate" India's economy during the fiscal crisis of 1991

backbone of India's water democracy and water culture. By deliberately destroying community-based systems, the World Bank is ensuring total dependence of people on water markets controlled by water corporations and water mafias." (Shiva 2005)

**The Human Right to Water; A Legal 'Mirage'?**

National legislation ("hard law"), international conventions ("soft law"), and India Supreme Court rulings have all recognized water as a "human right." For instance, Article 21 of the Constitution of India, which guarantees the "right to life," has been repeatedly interpreted by the Supreme Court to include the "right to water" (Singh 2004: 69). The Fundamental Rights enshrined in Part III of the Constitution guarantee basic rights to the people – which the court has ruled to include water – entrusting the State by Articles 38 and 48A as the entity whose primary responsibility it is to ensure that its people have access to water that is fit for consumption, a duty which has importantly been ruled by the India Supreme Court as non-delegable (CAWP 2004).

The Human Right to Water has also been enshrined by numerous United Nations International Conventions, Declarations, and Covenants: including the Convention on the Elimination of all forms of Discrimination Against Women, the Convention on the Rights of the Child, the Universal Declaration on the Eradication of Hunger and Malnutrition, the Declaration on the Right to Development, the International Covenant on Economic, Social, and Cultural Rights, and the Committee on Economic, Social and Cultural Rights (Singh 2004: 43). The "International Year of Freshwater" was declared by the United Nations in 2003 and we are currently in the midst of the proclaimed International Decade for Action, Water for Life 2005-2015. The most pronounced and extensive international instrument detailing the human right to water is undoubtedly General Comment Number 15 of the Committee on Economic, Social, and Cultural Rights, issued in November 2002, which emphasizes that water is a prerequisite for the realization of other human rights. It "entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses" (McInerney-Lankford and Salman 2004: 15). Yet declarations, general comments, and resolutions have zero legal enforceability, and while Conventions and Treaties are said to be "legally binding" on states that signed and ratified them, so far they have great shortcomings when it comes to being enforced (McInerney-Lankford and Salman 2004: 12).

The main reason why international legal instruments are not enforced is because they give the obligation of enforcement to the very entity that is most responsible for the non-fulfillment of most human rights: the state itself. Every few years, participating states will meet with the International Convention they have ratified and present a report on their own performance with regard to the rights they have the "duty" to respect, protect, and fulfill. The "duty to protect," for instance, requires governments to "diligently take all necessary feasible steps to prevent third parties from interfering with the right to water (McInerney-Lankford and Salman 2004: 29). Yet take one look at the India's National Water Policy of 2002 to see how diligently the state lays the groundwork for the

privatization of water, a process that methodically strips away the right to water for the poor (GOI National Water Policy 2002)[20]. States have by and large been co-opted by global economic elites, thus centralized states (nor the private sector) cannot be reliably depended upon for the realization of the human right to water.

Given these obvious shortcomings, it is important to further recognize that the hegemonic conceptualization of human rights in the international arena is based on universalistic presuppositions about the nature of rights, validating Western individualist conceptions of rights and refusing to recognize diverse epistemological conceptions of rights such as collective rights (Santos, Nunes, Meneses 2007: xlvii). It seems to me that the right to water and the rights of water are what Santos calls "*ur*-rights," or rights that exist only in the process of being negated, founding fundamental rights which Western colonialist and capitalist modernity suppressed in order to build human rights (Santos 2007: 29). Shunning the anthropocentric underpinnings of the Western epistemological human right to water, water rights under alternative epistemologies would recognize not only the collective group right to water, but also the rights of all life-forms to water and the rights of water itself. While it may be a while before the international legal apparatus begins to widen the rights discourse to recognize diverse epistemological conceptions of rights, sustained political mobilization at the state or regional level offers the real possibility of expanding the epistemological canon and the equitable access to clean water.

20 See the Participatory Section of the GOI National Water Policy, 2002, here: http://www.indiawaterportal.org/data/policies/natinal_water_policy.pdf.

# *Section 3*

## Rain-Water Harvesting as Resistance: Abundance and Self-Sufficiency By Design

If in traditional human-rights discourse, state institutions are entrusted with the obligation to protect, fulfill, and respect our "right to water," then what are local communities left to do when the state hands over the control and ownership of public water infrastructure and common water supplies to private corporate bodies with no accountability? When "the ideologies and discourses of the state idea transform from ostensibly serving and protecting citizens to openly accommodating multinational corporations" and international trade institutions, what protections can communities employ? (Moodie 2006: 68) Is it possible for the people of India, the people of any land, to actualize the Ghandian ideals of *swaraj* ("self-government") and *swadeshi* (local self-sufficient home economies), to liberate themselves from dependency on foreign financial institutions, the market, and the welfare of the state? *What role does water play* in the actualization of Ghandi's vision of a confederation of self- governing, self-reliant, and self-employed people living in village communities and deriving their livelihoods from the products of their homelands (Ghandi 1939)? Given that power and imperial control over water has historically allowed colonial empires to centralize socio-economic and political control, can water also be used to free human communities from economic colonization by producing sovereign economic and ecological wealth?

This chapter addresses these questions by refocusing the debate over "natural" water "scarcity" and the world's water crisis to show that human design systems are actually responsible for creating water scarcity and its inverse, water abundance. The farmers and hydraulic engineers of pre-colonial India, like permaculture designers[21] today, understood that it was possible to totally eliminate surface runoff, to harvest nearly every single drop of rain on a given landscape, and to use freshwater many times over to produce all the food, clothing, fuel, and shelter for a community – even in semi-arid and arid climates. Such practices go beyond water and soil conservation to regenerate freshwater aquifers and build topsoil and microbiotic soil life. These knowledge systems and indigenous technologies have survived the onslaught of colonial rule and the modern state, and traditional rain-harvesting practices continue to irrigate hundreds of thousands of acres throughout India.

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21 Permaculture, or permanent culture/agriculture, is a synergistic system of design for human settlements that mimics the ecological principles and patterns found in natural systems in order to efficiently recycle and re-use energy and nutrients to create local self-sufficiency and ecological abundance (Mollison 1997).

## Historical Development of "Water Scarcity" and Water Dependence

In this section I will detail how the British Colonial government, through the implementation of private property laws, the dissolution of common property and the implementation of a centralized tax code, sought to transfer control over water from community management to state management, placing the maintenance of India's intricate water harvesting systems into centralized bureaucracies which inevitably led to the demise of most of these delicate systems. The post-colonial state, with its reason-for-being tied directly to its quest to modernize India with scientific socialism, continued these colonial policies, centralizing state ownership of water and privileging inappropriate and violent modern technologies such as mega-dams over the ingenuity of its own native water knowledges and water cultures. I conclude with the argument that the resurgence of ecologically and technologically appropriate water harvesting systems in combination with more recent sustainable water design systems – such as the "Keyline System" developed in Australia by P.A. Yeomans – have the potential to liberate local communities and local economies from external dependence and thus provide the breeding ground for an emancipation and de-colonization of diverse knowledge systems and epistemologies.

## The Tanks, Ponds, and Reservoir Systems of Fertile India

When the British engineers and government bureaucrats first came to India, many were astonished by the sophistication and magnitude of India's rainwater harvesting technologies. The British agricultural system did not depend on irrigation, and so few British engineers had any knowledge of water management systems at all before their arrival in India (Shiva 2002). In contrast, the Indian semi-arid agricultural system could not have flourished without water conservation and irrigation systems. The Centre for Science and Environment's study entitled *Dying Wisdom: the Rise, Fall, and Potential of India's Traditional Water Harvesting Systems*, analyzes variant water harvesting strategies and management systems in 15 diverse ecological regions across the subcontinent, noting how each region developed its own technology and coordinated maintenance structure to address local community needs in that particular micro-ecology (Agarwal, 1997). Hundreds of thousands, possibly millions of tanks of all sizes were built, in almost every region throughout India; so many that Major Shankey, the first British Engineer of the Mysore state, wrote: "to such an extent has the principle of storage been followed that it would now require some ingenuity to discover a site within this great area suitable for a new tank" (Barah 1996: 20).

Rainwater has been harvested across India since antiquity by building up water-storage structures made of local earthen materials, allowing farmers to store monsoon downpours; use them throughout the year to irrigate livestock pastures, forest land, orchards, and vegetables; and protect their villages against drought, crop failure, and famine. Most often, these systems would include hundreds of interconnected tanks irrigating thousands of hectares. The tanks did not only provide for the material livelihood for thousands of villages throughout India, they also served ceremonial, ritual, political and religious functions as well.

Tanks collected rain for the sacred bath of temple deities, were built to honor beloved ancestors, and to fulfill the virtuous charity of providing free water for thirsty travelers and their livestock (Barah 60). Construction and maintenance of tanks were often sponsored by kings, chiefs, and priests for purposes of revenue enhancement, tax concessions, and religious merit. But they were managed, maintained, and used by local farmers (Shankari, 136: 1997).

Because the tanks were associated with such important functions, culturally diverse and locally situated political institutions were developed to maintain and manage the water bodies. Near Bangalore and throughout Karnataka state, it was the duty of the Panchayat to regulate and allocate the distribution of water (based on the crops each farmer was growing), to supervise the *Nirgantis* (the social group responsible for on-field water distribution), to hear complaints and adjudicate disputes, and to levy and collect fines from those who neglected their contribution to the tanks' regular maintenance and repair (Reddy, S.T 1996: 224).

**The Ery System of South India**

Perhaps the largest and most intricate water harvesting and irrigation system in all of India is the *Ery* structures of semi-arid South India. An *Ery* is a reservoir of water contained behind earthen bunds or embankments. The bund surrounds the reservoir on three sides; the fourth side faces upslope allowing the water to flow down from above to collect in the *Ery* (Mukundan 1996: 72). Often a series of *Erys* would be designed and built as an inter-connected chain. The largest *Ery* at the top of the catchment would fill first, and its overflow would be directed to the rest of the *Ery* chain extending all the way down the valley. Gravity powers the whole process, with water reaching the fields down below to irrigate agricultural and grazing fields (Mukundan 1996: 72-73).

This system is designed to take advantage of the monsoon cycles. Most of the rain falls during a very short period of time, thus it is necessary to slow down this water, catch and store it for the dry seasons, spread it out onto irrigation fields, and allow it to sink into the ground to charge the groundwater and fill domestic wells. The system works as a flood control device, an instrument to minimize soil erosion, as insurance against drought, and as an integrated part of a intricately designed system that not only provides a micro-climate for agriculture in a semi-arid region, but also enables the yield of a wealth of other livelihood assets; such as village forest resources (timber, food, fodder, and organic matter for green manure), mud for pottery and soil amendments, and ponds for drinking water and aquaculture (Mukundan 1996). Indeed, this holistic design system enabled villages to provide for themselves all the physical, biological, and ecological wealth needed to sustain the community.

Although many *Erys* have been developed as construction sites today, it appears that the original grand plan was a large network of interconnected chains of *Erys* irrigating millions of hectares all the way from the Eastern Ghats to the Bay of Bengal (Mukundan 1996: 75). Such a vast network seems to necessitate the integration of supra-village localities, while at the same time, each *Ery* would need to be locally managed because each one irrigates the fields lying within a

single village (Mukundan 1996: 76). Pre-colonial writings and inscriptions give details of the systems of village management in which maintenance was overseen by a local governing agency called *Ery Variyam,* or the "Committee for Supervision of *Ery"* (Mukundan 1996: 77). This committee made grants for the construction and maintenance of irrigation works to a designated group of *Voddas* who specialized in the excavation and desilting of earth works, and a portion of the income collected from fishing in the *Ery* was utilized to pay for the deepening of the tank and repairs (Mukundan 1996: 79-82). The work of such professionals is absolutely vital to the endurance of this fragile system, for tanks will silt up and become inoperable if ignored in as little as one year (Bharan 1996).

**Colonial Destruction of Water Harvesting Systems**

> "There are multitudes of old native works in various parts of India. These are noble works, and show both boldness and engineering layout. They have stood for hundreds of years. When I first arrived in India, the contempt with which the natives firstly spoke of us on account of this neglect of material improvements (i.e. tank maintenance) was very striking; they used to say we were a kind of civilized savages, wonderfully expert about fighting, but so inferior to their great men, that we would not even keep in repair the works they have constructed, much less even imitate them in extending the system"
>
> —Arthur Cotton, the founder of modern irrigation programs (quoted in Shiva 2002: 122).

Locally specific and culturally situated institutions of repair and maintenance, which coordinated village financial allocations to specific professionals who kept tanks operable, were systematically destroyed when colonial bureaucratic institutions (Public Works Department, Irrigation Department, etc) assumed control and ownership of what had always been managed as common property. The state initiated "Tank Ownership Schemes" in parts of Madras in the 1870s, giving legal proprietary tenure of some tanks to private landowners (Reddy, M. A. 1996: 111). The rest of the tanks were subjected to new land tenure and revenue policies that transferred ownership of the *Erys* from village control to the jurisdiction of the colonial government, which was then able to seek revenue from the system by heavily taxing the surpluses produced from *Ery* cultivation (Mukundan 1996). The colonial administration took the responsibility of maintenance away from the *Voddas* and Panchayat village councils and put the onus for the upkeep of these elaborate and delicate systems into the hands of revenue officials and civil engineers from the British army (Bharan 1996).

Instead of the locally managed systems of repair and maintenance of tanks, the colonial system created a bureaucratic nightmare that took fundamental powers of decentralized governance away from the Panchayats. "When a tank needed repair, the Tahsildar goes to the divisional officer, he to the Collector, to the Executive Engineer of the PWD, who writes to the Superintending Engineer

stationed far off, who writes to the chief office at Madras who rules how important it is" (Bhar and Shiva 2001).

But the government soon found that "it was impossible for this centralized system, managed by engineers unfamiliar with the indigenous irrigation structures and organization to take care of the *Erys"* (Mukundan 1996: 79). By the end of the 19th century, it became clear that the Public Works Department could not maintain functional tanks without the cooperation from local users, and that the poor condition of the *Ery* system was closely linked to the series of famines that plagued South India, including The Great Famine of 1876-77 (Reddy, M.A. 1996: 115). To the dismay of the colonial government these famines greatly reduced state revenue, so a series of laws were passed that attempted in different ways to *force* local users to repair the structures and "return them to their original state" (Mukundan 1996). But due to the paucity of funds allocated to the mission, village officials found themselves helpless in organizing free labor to carry out the necessary de-siltation and maintenance of the *ery* system (Reddy, M.A. 1996: 114). Thus the number of *Erys* in operation in Madras declined from more than 43,000 when the British arrived to 5,447 under the Madras Presidency in 1856 (Mukundan 1996: 75-79). Being as most tanks are part of an interconnected system, when a larger tank higher up on the watershed falls into disrepair, so do the tanks it feeds water to lower down in the valley.

**Transfer of Power from Civil-Society to the State**

Through the introduction of private property laws, the establishment of new tax codes, the fast expropriation of common property resources, and the coordinated implementation of centralized water management systems, the colonial regime affectively stripped civil-society of its power and right to regulate its own resources. Thus began a long historical process whereby absolute power would become vested not in civil-society but in the state, enabling first the colonial state, then the post-colonial state, to "legally" exploit resources at its will without any accountability to the people (Singh 1992).

After independence, the post-colonial state adopted the same legal system crafted by the colonial regime, leaving in place hegemonic control by the centralized state over India's natural wealth: the land, water, and forest resources that are vital to the health and well-being of the Indian people. With the Central Indian Govermenet's insistence on mega-irrigation projects, the state super-ceded nature as the supplier of water (Narwani 2005). Ashis Nandy (1995) writes that the project of nation-building undertaken after Independence is really just a polite term for the cultural and ideological homogenization of the population. Infatuated with the "beatitude of development," the post-colonial state attempted to take the nation through clear-cut stages of progressive economic growth; necessitating a restructuring of its "pre-modern" culture, the abandonment of those parts that were "retrogressive," and the cultivatation of traits more compatible with the ideology of progressive modernity (Nandy 1995: 265). This model of progress was explicitly part of the ideology of individualization, inducing an alienation from community and kinship structures and the commodification of production (Chatterji 2000). By disorganizing locally appropriate and culturally situated

water management systems, these policies ate away at the fabric of the village system and disrupted village sovereignty, which directly led to widespread impoverishment, malnourishment, famine and drought. The process of historicizing the colonial, post-colonial, and neo-colonial usurpation of power and control over community water systems is thus a indispensable component of an archaeology-genealogy[22] of man-made water-scarcity and its handmaiden: poverty.

22 I draw on Foucault (1970) in an attempt to extend his archaeology-genealogy of the human sciences, with its focus on power dynamics, to the dynamics of bio-power inherent within the construction of the modern state as the centralized owner of natural resources.

# *Conclusion*

## The Resurgence of Silenced Knowledges and the Re-Emergence of Ecological Design

> "The struggle of people against power is the struggle of memory against forgetting"
>
> —Milan Kundera (quoted in Shiva 2001)

I intend, as the farmers and activists I met do, to situate these struggles in Plachimada and Bangaluru within the context of the global neo-liberal effort to open up literally all aspects of biological life to the aegis of the market, allowing corporations to claim ownership over and seek profits from life itself. With the law as their economic weapon, they've lobbied for free trade agreements that have worked to convince us that it is somehow their "right" to control and own water, seeds, energy, food, and peoples' homes, that it is their "right" to dump toxins into life and land. With industrialization's increasing efficiency and speed, powerful alliances of local and global political and economic elites have been able to deprive entire communities from independent self-sufficient access to the staples of life – food, water, and shelter – resulting in a dependency that suffocates local knowledges, histories, and cultural diversity. This process has been systematically carried out in the United States and other "modern" societies to the point where the average modern citizen has lost sovereignty over their own physical existence and is now completely dependent upon the institutions of Market and State for the satisfaction of their most basic sustenance.

One unfortunate side-effect of "modern" ecological illiteracy is the widespread liberal notion that humans can "save" "natural" systems and undo the damage inflicted by industrialization by protecting "nature" from human influence via a specious attempt to remove us entirely from the nature we wish to "conserve". What is needed is a radical re-imagining and re-conceptualization of the human being as an inseparable part of nature, and the widespread recognition that abundant bio-diversity, like poverty or water scarcity, can be designed into human settlements.

Ivan Illich writes that the development apparatus has worked to lift people out of their cultural commons and dissolve their cultural bonds (1990). Through an effective cultural and ideological campaign against "traditional" technologies and identities, "development" and the modernity crusade have sought to replace diverse cultural knowledges situated in specific ecological contexts in favor of universalistic and violent technologies divorced from local environmental and cultural particularities. Faced against this deep plunder of culture and meaning, memory is resistance, and memory put into action can be transformative.

Today there is a resurgence of millennia-old knowledge and local, appropriate technologies that are helping us to sustainably harvest and store rainwater; recycle plant, animal, and human nutrients to quickly build topsoil

bursting with micro-biotic life; construct long lasting, energy efficient homes with local, non-toxic, and natural materials; and grow more food than we ever thought possible on highly diverse and decentralized organic farms. Just as human design systems have had a deleterious effect on multifarious ecosystems and life-forms, life-enhancing human designs based on the principles of ecological design and Permaculture[23] can facilitate the creation of new ecosystems and sustainable local economies just as fast.

An entire thesis should and could be written on this very subject, but take one example of how basic pattern applications arising from the observation and mimicry of natural processes can produce abundant food in even the harshest and driest of climates. Geoff and Nadia Lawton, two preeminent international Permaculture teachers and designers, took 10 acres of salted, flat desert near Nadia's hometown in Jordan (2 km from the dead sea and 6 km from the West Bank), in the lowest spot on Earth where summer temperatures go above 50 degrees Celsius, and turned it into a productive and diverse organic farm[24]. They designed a system with 1 ½ km of swales (water harvesting ditches on contour) that would harvest every single drop of rain onsite. Even with such meager rainfall, the swales fill up a couple times each winter, delivering 1 million litres of water directly into the soil each time. To conserve moisture in the soil, they covered the swales with organic matter recycled from nearby farms that would have otherwise been burned, planted hardy nitrogen-fixing trees on the uphill part of the swale to cast shade and structure the soil, and planted date palms, figs, pomegranates, guavas, mulberries, and citrus on the down-slope side of each swale. With the recognition that many human conflicts between religious and ethnic groups often stem from disputes over land, water, food, and the right to live dignified and healthy lives, Geoff and Nadia articulate their Permaculture projects within the framework of conflict resolution and community empowerment. Their work is being replicated throughout the Middle East, and tens of thousands of Permaculture projects are now taking place in over one hundred countries worldwide.

Whereas water privatization is designed to induce dependence of all citizens on a few corporations who monopolize access to water, the large-scale water harvesting technologies I've written about in this section show how local communities can liberate themselves from this dependence by facilitating the creation of local food and water security. Local food and water security leads to economic security, and it allows for cultural continuity and endurance. Thus, movements for water/ecological democracy must not only encompass legal, juridical, and political terrains, but also those of epistemological and cultural

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[23] "Permaculture (permanent agriculture) is the conscious design and maintenance of agriculturally productive ecosystems which have the diversity, stability, and resilience of natural ecosystems. It is the harmonious integration of landscape and people providing their food, energy, shelter, and other material and non-material needs in a sustainable way. " Quote taken from Geoff Lawton's website, www.permaculture.org.au

[24] "For more information on Geoff and Nadia's Permaculture project in Jordan, view the powerful and educational five minute video entitled "Greening the Desert" here: http://www.youtube.com/watch?v=LJ8pjOG4pXI"

survival: the diverse and culturally meaningful ways of knowing, thinking, farming, and living that have long allowed people to live self-reliant and dignified lives.

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