*UNDERPINNINGS*

## Indian Informational Capitalism:
## Revisiting Environment and Development Studies

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While development projects in the early years of Indian independence were marked by infrastructural and ideological commitments to the poor, more recent investments have responded to the needs of the information technology (IT) sector, in the belief that what is good for IT is good for the nation. The recently opened Bangalore International Airport, the highway under construction ringing the city of Bangalore, and the extensive road and township networks designed for the Bangalore-Mysore Infrastructure Corridor are symptoms of the kinds of Indian development projects driven by informational capitalism.[1] To represent the present moment as a complete departure would be an overstatement, however. Fabian socialist legacies cannot simply be erased, and the current generation of leaders combine, in contradictory ways, a historical allegiance to rural constituencies, a nostalgic belief in income redistribution and class equity, and a growing conviction that globalization just might work towards strengthening India's position in the world economy. At the same time, an emerging generation of IT entrepreneurs (with a quite different set of contradictory commitments) seems poised to supplant the civil service bureaucracy, promising efficiency and technological solutions for administrative problems. (An example of this is the National Identity Card plan, a government program headed by IT businessman Nandan Nilekani, in which electronic databases promise to seamlessly accomplish everything an army of colonial-era-style clerks seem to bury in delays and confusion.)

The contradictions continue: in mid-2009 the success of the United Progressive Alliance (UPA) in national elections was read as support for aggressive extension of liberalization and technology, and international markets rejoiced. But the first budget of the newly elected government, with its pro-poor budget allocations, was dismissed by the business elite as a budget for the *aam aadmi* ("common man"), and the day saw sharp drops in Mumbai's stock exchange. On August 15, 2009, India's sixty-third national Independence Day, Prime Minister Manmohan Singh invoked technology and the farmer, urban growth and rural subsidies, and global strength and local development as if they all fit together comfortably. But of course the fit is deeply uncomfortable, and the rifts show up in farmer suicides, expanding slums, digitized land records, and the rush to manage—and profit from—rural connectivity.[2]

There are long-reaching changes afoot in the meanings of Indian post-colonialism. Our existing political scientific analytics for the study of nationalism, development, politics, and perhaps

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[1] "Informational Capitalism" is Manuel Castells' term. See Manuel Castells, *The Rise of the Network Society, The Information Age: Economy, Society and Culture Vol. I.* (Oxford: Blackwell, 1996). Castells' use of the concept tends to reify both information and identity; but it remains a useful shorthand for the political economic, cultural, and technoscientific shifts of the late 20th century.

[2] There are numerous studies on these and related phenomena, such as Priti Ramamurthy, "Why Is Buying a 'Madras' Cotton Shirt a Political Act? A Feminist Commodity Chain Analysis," *Feminist Studies*, Vol. 30, No. 3, 2004, pp. 734-769; Benjamin, Solomon, et al., "Bhoomi: 'E-Governance', or, an Anti-Politics Machine Necessary to Globalize Bangalore?," CASUM Working Paper, Bangalore, 2007; and a range of work in the field of Information and Communication Technology for Development, e.g., www.i4donline.net.

even the activist rubrics for population, environment and technology, need revisiting. Although research in Indian history has been productive in the context of pre-independence studies, numerous gaps remain in our post-1947 analytics, and predictable polarities characterize analyses of the post-1991 phase of globalization. There is a rich tradition of Marxist theorizing in Indian political science, but its methods are still dogged by a certain mechanical materialism (another 19th-century legacy), and its concerns leave out much of the rich post-19th century radical critiques of science, technology, and the so-called knowledge economy. What challenges do the new informational economies pose for interdisciplinary studies of environment and development?

In Indian elections this year, when the victory of the center-left UPA returned Manmohan Singh—India's architect of economic liberalization—to the Prime Minister's post in May 2009, the rupee showed its biggest jump since 1986; following suit, the Dow Jones Industrial Average and the Standard & Poors 500 on the American Stock Exchange both gained about 3 percent the same day. Earlier, in Fall 2008, George W. Bush's "United States-India Agreement for Cooperation on Peaceful Uses of Nuclear Energy" (H.R. 7081) had precipitated a split between left and centrist Indian political parties in which the Left presented a strong critique of nuclearization. But the May 2009 electoral victory left the communist parties in disarray, seemingly rejected by voters over their opposition to the U.S.-India nuclear deal. The UPA win was widely interpreted as not only a mandate for liberalization, but also an explicit vindication of Indian nuclear ambitions. The legacy of environmentalist and anti-imperialist movements of the late 20th century did not seem to have any force against the technological benefits of becoming the U.S.'s partner in their "shared struggle against violent Islamic extremism."[3]

The new convergence of South Asian and U.S. interests are constituted by the twin priorities of state security and private enterprise: security implies "counterterrorism," while privatization proceeds under the banner of public-private partnerships.[4] Research in issues at the nexus of environment and development will have to account for the ways in which security and privatization favor particular kinds of neoliberal choices. The discourses of terrorism enable new global alliances and differently raced, gendered, and classed narratives of environmental threats; in turn, different environmental solutions will appear inevitable. Cultural critics and scholars of Science Studies have elaborately explored the links between narratives of nature and the outcomes of environmental policy; Indian environment and development studies has much to gain from such studies.[5]

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[3] Asia Society Task Force, , "Delivering on the Promise: Advancing U.S. Relations with India," January 2009, online at: http://www.asiasociety.org/policy-politics/task-forces/delivering-promise-advancing-us-relations-india, accessed July 30, 2009. Interestingly, the Asia Society Task Force Report recommended working "toward a second Green Revolution in India." Prime Minister Manmohan Singh's August 15, 2009 Independence Day address reiterated this goal.

[4] Despite the apparent voter consensus, the anti-nuclear movement has not, in fact, ended. In June 2009, a hundred organizations, united as the National Alliance of Anti-nuclear Movements, issued an anti-nuclear statement, the Kanyakumari Declaration. See http://www.cndpindia.org. It denounced "nuclearism" as "a political ideology that cannot stomach any transparency, accountability or popular participation," and opposed it on grounds of environmental unsustainability, public health, and secrecy. Invoking the neocolonial argument, it warns that the recent increase in collaborative nuclear projects will soon make India "look and feel like the colony of several East India Companies."

[5] This is more complex than the claim that racism, sexism, and classism lead automatically to exploitation of nature. However, the move away from first-wave, analogical and metaphorical readings of ecological narratives should not entail the abandoning of discursive, historical, and theoretical readings altogether. For two examples, respectively offering readings of the ways in which race and gender play into water policy in Israel/Palestine, and public health policy in the U.S., see Samer Alatout, "Bringing Abundance into Environmental Politics: Constructing a Zionist Network of Water Abundance, Immigration, and Colonization," *Social Studies of Science*, Vol. 39, No. 3, 2009, pp. 363-394; and Gwen D'Arcangelis, "The Bioscare," Ph.D. thesis, Women's Studies Department, University of California, Los Angeles, 2009.

Public-Private partnerships will characterize large development projects in India's near future. This means that we have to do more than merely hold the State accountable to commitments such as transparency and poverty alleviation. While it remains important to hold the State accountable to welfarist policies, environmental activists have had to update their analytics to account for the ways in which the State itself has a new palette of commitments, ones significantly driven by corporate forces. State-run development projects based on assumptions of trickle-down market effects have changed the shape of civil society, and thus implicitly the future contours of public sphere contestation. "Right to Information" arguments are useful but not sufficient to address the range of infrastructural and cultural changes that accompany the move from large-scale public projects to the direct investment of foreign and domestic capital in public goods.

**Commodifying Mobility**

India recently declared the road sector as an industry, whereas it had previously been understood as public works. This move is a symptom of diverse changes. At a macro-economic level, it suggests that India's largest road project, the National Highways Development Project (NHDP), is open for private investment.[6]

Private road building goes hand-in-hand with the acquisition of land, the construction of planned towns along the highway, the "cleaning up" of haphazard village-road interactions, and wide-ranging cultural shifts in the use of space. The large infrastructure corridor connecting Bangalore to other towns has precipitated years of conflict, including political disputes over land acquisition and corruption as well as allegations of physical violence by corporate executives against environmental protestors.[7]

A private corporation founded by a developer returned home from a career in the U.S., Nandi Infrastructure Corridor Enterprise (NICE), embodied road building ambitions emblematic of the mismatch between existing forms of land use and technocratic imaginations.[8] It crystallizes the high stakes in land ownership due to the unprecedented increase in land values following from the region's IT growth. At the same time, such conflicts characterize the opposition between different spatial visions: on the one hand, we have the complexity and efficacy of so-called "haphazard" and ad-hoc, historically layered uses of space, which is defended by many urban theorists and activists; on the other side shimmer corporate India's smooth and speedy spatial visions of the future.

Even deeper shifts in spatial-cultural practices loom on the horizon. Debates over car use in India have recently focused on Tata Motors' Nano, the affordable "people's car." Urban boosters and consumer analysts see great gains in mobility and convenience for a growing middle class, while environmentalists fear greater road congestion and air pollution. The debate is structured around polarized assessments of the technology itself, as if this particular car were responsible for all the changes in contemporary road conditions. The Nano's affordability does place it at the nexus of these shifts, but broader historical and political analytics are needed, such as those we find in the

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[5] This is documented at: http://india.gov.in/sectors/transport/public_private.php, accessed August 16, 2009.
[6] See http://www.esgindia.org/campaigns/bmic/images/BMIC_assault.html.
[7] For an interview with the entrepreneur Kheny, see:
http://www.ourkarnataka.com/Articles/starofmysore/akheny08.htm; for the corporate website, see
http://www.nicelimited.com.

historical anthropology of science and technology.

In studies of early 20th century automobile use in the U.S., cultural historian Sarah Jain shows how cars transformed the social order. The division of public space between human and technological mobility, the construction of bystanders as interfering with the free movement of technological devices, the social shifts in public and private gender relations, and the psychic shifts in the relation of humans to landscapes are only a few of the irreversible changes her work documents. Although many of the legal regimes and technological design decisions that Jain documents have already been set in place internationally, there are in progress enormous local dislocations brought by new road and automobile cultures in India. Multi-lane divided highways today cause severe accidents when, for example, drivers decide to take a fuel-saving shortcut by driving against traffic on the "wrong" side of the road rather than proceeding to the next exit. Bullock carts, pedestrians, bicyclists, and a variety of other transportation modes coexist on highways designed for a homogenized type of high-speed mobility. The homogenization of space and speed so as to optimize the car's trajectory means the de-optimization of numerous pre-existing life-worlds.

The shifts in sociality and speed often express themselves in the form of nostalgia, contrasting the laid-back pace of the past with the hectic pace at which the future approaches. The financial newspaper *Business Line* carried an article in 2005 that typified the dismay with which the average Bangalore dweller viewed the changes of the last decade, citing 76-year-old engineer Balaji Srinivasan: "I knew it would change, but we were not prepared for these concrete monsters. So, Bangalore, for me, is a kind of nostalgia." The writer of the article explains:

> Bangalore was originally known for its salubrious weather, laidback citizens and luxuriant greenery. But today, Bangalore's claims to fame include a pollution rate that is among the highest in India, a green cover that is fast vanishing, and a raging debate over its paucity of efficient power, water and transport services.[9]

The demands of road traffic have resulted in the loss of thousands of trees in Bangalore in the past year. Although the uprootings mobilized vigorous citizen protest,[10] the sheer volume and rate at which car traffic is increasing as well as the distances and time involved in traveling among Bangalore's technoscientific hot spots—Electronic City and the Infosys campus, the Indian Institute of Management campus, the Indian Institute of Science campus, and the Devanahalli airport, for example—make road widening and tree-cutting appear to planners, legislators, and technocrats alike as inevitable choices on the path of modernization. The car here, as in Sarah Jain's histories, carries in its technological body a network of implications for legal, spatial, governmental, and resistance strategies. The greening of the Infosys campus necessarily goes hand-in-hand with the shredding of Bangalore's grand colonial-era trees—but neither nostalgia nor boosterism is analytically useful (although both are deployed strategically in everyday discourse). What might help is a combination of scholarly and activist attention to the co-emergence of practices in science, technology, culture, law, and urban political ecology.

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[9] Aditi De, "Bangalore X-Rayed," *Business Line*, December 24, 2005.
[9] See the campaigns of the Environment Support Group, http://www.esgindia.org/campaigns/campaigns.html, accessed August 1. 2009.

**Privatizing Water**

Like trees, water is a classic ecological resource that constitutes a crisis at the nexus of these changes. And like South Africa and many Latin American economies before it, Indian markets are seeing complex changes in the way water is managed, with public-private partnerships being promoted by international financial institutions. At the same time, "right to water" social movements offer some resistance. Once again, the seemingly transparent and efficient strategies of private enterprise and the needs of a growing middle class appear to make privatization the inevitable outcome. But as environmental sociologist Priya Sangameswaran warns, "although public-private partnerships are increasingly being advocated as an alternative to purely public or private provision of water, it is important to keep in mind that a partnership has to be between equals; hence the concept of a partnership between a municipality in a developing country and a multinational corporation is problematic."[11] Sangameswaran charts the growing international activism around the "right to water" as a human right. Economic, social and cultural rights are increasingly invoked in defense of livelihood, community survival, and resource use. This movement suggests how powerful pressure on global environments is challenging the simple liberalism of human rights discourse. Always a part of the original Human Rights charter, "economic, social and cultural rights" were often dismissed in NATO Cold War discourse as part of a bundle of rights that communist-bloc countries used to block electoral freedoms or political and civil rights. While strategically useful, eco-social rights do not solve the problem entirely. The contradiction between nation-based rights discourses and the global scale of environmental crises forces further questions about the national limits of human-rights approaches. Rights, conferred as they are by nations upon its citizens, are insufficient to encompass the looming cross-border crises in water. As Kenneth Pomeranz has pointed out, river diversion projects in China have the potential to precipitate major resource conflicts along borders between China, India, and Bangladesh.[12]

India and China are urbanizing at rates unprecedented in their histories. Their growing infrastructure, commodities, and consumer markets have become attractive to a range of Western investors. Green issues, women's participation, and boycotts of sweatshops and child labor have become a fixture of liberal opposition to globalization and indeed have become incorporated into "updated" development discourses. But more complex configurations of labor, environmental, and sexuality issues tend to be visible only from more radical, but increasingly marginalized, combinations of red-green political ecology. China and India projected robust growth rates while most Western economies struggled in early 2009; this should alert us to look for new ways in which U.S. markets will forge links with growing economies. This re-linking is not characterized by simple extraction or enforced underdevelopment. Rather, it looks more like a reversal in progress, in which Western economies seek to hook their own sputtering economic engines to healthier "developing" ones. Recent Euro-American news reports have speculated whether China's economy will help pull the U.S. out of its recession. Although there is unlikely to be a simple inversion of power structures between so-called core and peripheral economies, the complex relationship between the Chinese and U.S. economies is going to shape the emerging world economy.

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[10] Priya Sangameswaran, "Review of Right to Water: Human Rights, State Legislation, and Civil Society Initiatives in India," Center for Interdisciplinary Studies in Environment and Development (CISED), Technical Report, January 2007, p. 30.

[11] Kenneth Pomeranz, "The Great Himalayan Watershed: Agrarian Crisis, Mega-Dams and the Environment," *New Left Review*, Vol. 58, July-Aug 2009. p. 37.

How, indeed, do India's socialist-oriented history of non-alignment and China's history of a communist command economy shape their emerging negotiations with the G8 nations, their power within the G20 nations, their membership in multilateral economic organizations, and their bids to take new leadership positions in the global economy? To analyze new conflicts that will emerge at the nexus of environment and development in these new global configurations, we have at hand a rich legacy of studies in development economics and colonial environmental history, as well as in Third World political ecology. But critical gaps remain, especially in modeling the new global class formations and in analyzing the transition of developing country states from welfare-oriented bureaucracies to market-optimizing strategists. These major economic transitions are imbricated in complicated ways with particular forms of global environmental crises, such as water and climate, and with particular forms of global technological change, such as software and informational service economies. The modes of imbrication among forms of technology, patterns of environmental harm and remediation, and social-cultural formations, can be productively analyzed only with serious interdisciplinary collaboration.

Any environmental study of the 20th century has had to contend with the phenomena of postcolonialism and globalization. Formal de-colonizations at mid-century coincided with the beginning of a rhetorical and economic reworking of the system of extracting raw materials from peripheries for the manufacture of goods in the colonial centers, so as to display a better "fit" with the "post-industrial" narratives of ecological modernization and free market global democracy. But globalization has entangled our futures and complicated the relations between culture, nationalism, and sustainability.

In the first half of 2009, although the global economic crisis grew, U.S. liberals optimistically predicted change as newly elected President Barack Obama wrested the reins of a faltering empire from the Bush neoconservative wagon. But in the wake of the continued financial meltdown, confusion reigned at both ends of the class spectrum—working-class outrage was sparked by the multi-billion dollar state bailouts for corporations, while radical market uncertainty seemed to destabilize the meanings of taken-for-granted free-market concepts: valuations, futures, credit, and capitalism itself. World leaders from Nicolas Sarkozy to Henry Paulson have been heard publicly questioning the foundational axioms of capitalism and globalization; but how much has changed in the ways they envision the design of future economies? That question in all its complexity is too large to take on in its entirety in any one essay, but it forms the background against which discussions of non-Western development and environment proceed today. The new international grab for African land, the rush of consultants and entrepreneurs to emerging or war-ridden economies, and the grooming of Southern intellectual labor by U.S. technology and education industries all speak to the peculiar new configurations of environment, technology, and global imaginaries. One the one hand, these trends recall earlier periods of imperialism in which raw materials and markets were sought in the so-called peripheries of expanding world systems, and powerful states vied for the control of the natural wealth of those they kept underdeveloped. On the other hand, the agents of land acquisition and the modes of trade have changed. None of these trends, nor the numerous other new market formations, are limited to the movement of Western capital and know-how in search of non-Western markets or raw materials; rather, they often involve Asian, African, and Middle Eastern countries making exchanges that do not go through Northern economies or Bretton Woods institutions. These new directionalities remind us of the original flaws in core-periphery systems models, as they show up the contradictions in their assumptions that technological ability, higher education, and scientific capacity were inherently concentrated in the

core, while unskilled labor, economic backwardness, and superstition characterized the periphery.

Commentators on both sides of the political spectrum recycle tropes such as "neo-colonialism" and "improvement," but neither the colonial exploitation nor the benevolent State trusteeship models quite capture the particular mix of political strategies that are starting to coalesce. The disparity in growth rates between formerly "developed" and "developing" countries has significantly shifted, but not dispelled, the developmentalist rhetoric of industrialized economies helping the post-colonial world "emerge" as full-fledged economic actors on the world stage. Private-Public partnerships are a key component of the new economic strategies. U.S. Deputy Secretary of State James Steinberg, speaking at the Brookings Institute in March 2009, noted that the U.S.-India relationship will "require deep engagement with the private sector."[13] Similar kinds of development are afoot in Africa: the "New Partnership for African Development" sponsors corporate and private capital-friendly development; the Association for a Green Revolution in Africa (AGRA), is funded by the Bill and Melinda Gates foundation—a ubiquitous symptom of yet another kind of link between environmental futures and informational capitalism.[14]

Even as Obama delivered gender equality in the U.S. with his first bill in January 2009, mandating equal pay for equal work, drones delivered bombs within Pakistani territory, continuing the War on Terror. The implementation at home of gender equality, one of the many demands of 20th-century peoples' movements, does not contradict the implementation of foreign policy in continuity with older legacies of U.S. imperial ambitions. We must be alert to the particular ways in which states and corporations will increasingly work through intertwined discourses of green environments, clean technology, and equitable development in seeking to reshape capitalism for emerging world orders.

It's hard to predict precisely which way things will play themselves out, but what's clear is that we need interdisciplinary frameworks to help simultaneously keep in focus a wide range of environmental issues from coastal livelihoods and water rights to climate change and agricultural productivity; rising demands for land oriented toward high-tech needs; and financial trends, including private-public resource management, in the context of shifting technological nationalisms and transnational techno-scientific circuits.

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[12] Brian Lane, "What India's Elections Mean for U.S. Business," Industrial Market Trends Column, *ThomasNet News*, May 27, 2009, online at: http://news.thomasnet.com/IMT/archives/2009/05/understanding-india-2009-elections-and-what-they-mean-for-global-business.html.

[13] Glenn Ashton, "The New Land Grab," South African Civil Society Information Service (SACSIS), January 20 2009, available at http://www.sacsis.org.za/site/news/detail.asp?iData=220&iCat=1443&iChannel=1&nChannel=News.