WASTE AND WANT

Services, legacies, and transitions in Jabalpur and Raipur

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I could see or hear of no ancient remains there, but a choked-up well is traditionally said to contain buried treasure, though why, if so, the people have not attempted to exhume the treasure is a mystery.

-J.D. Beglar, *Report of a Tour in Bundelkhand and Mandla, 1871-72 and in the Central Provinces, 1873-74*

Those who take the meat from the table
Teach contentment.
Those for whom the taxes are destined
Demand sacrifice.
Those who eat their fill speak to the hungry
Of wonderful times to come.
Those who lead the country into the abyss
Call ruling too difficult
For ordinary folk.

-Bertolt Brecht, *From a German War Primer*

On the sidewalks, encased in spotless plastic bags, the remains of yesterday's Leonia await the garbage truck. Not only squeezed tubes of toothpaste, blown-out light bulbs, newspapers, containers, wrappings, but also boilers, encyclopedias, pianos, porcelain dinner services. It is not so much by the things that each day are manufactured, sold, bought that you can measure Leonia's opulence, but rather by the things that each day are thrown out to make room for the new.

-Italo Calvino, *Invisible Cities*

Abstract

Changes in service provision in urban India have resulted from changes in development strategies and ideologies. Amendments to the Indian Constitution have provided a detailed framework for remodeling urban and rural local government and introducing decentralized democracy, but implementation of these reforms in the states of Madhya Pradesh and Chhattisgarh has been uneven. In the mid-sized urban centers of Jabalpur and Raipur, previous solid waste and wastewater management practices have harmed the urban environment and destroyed ancient infrastructure. This was the result of longstanding development perspectives that prescribed certain ways of perceiving the utility and character of solid waste and wastewater, and pursued expensive and large-scale works to address urban environmental problems. Smaller-scale approaches that use more natural and socially desirable systems are promising, but institutional relationships between NGOs and the state can support or erode the gains made by decentralized networks of formal and informal organizations.

Les changements de la disposition de service en Inde urbaine ont résulté des changements des stratégies et des idéologies de développement. Les amendements à la constitution indienne ont fourni un cadre détaillé pour transformer le gouvernement local urbain et rural et présenter la démocratie décentralisée, mais l'exécution de ces réformes dans les états de Madhya Pradesh et Chhattisgarh a été inéquitable. Les centres urbains mi-classés de Jabalpur et Raipur, procédures précédents de gestion des déchets solides et d'eau usagée ont nui à l'environnement urbain et ont détruit d'infrastructure antique. C'était le résultat des perspectives de longue date de développement qui ont prescrit certaines manières de percevoir l'utilité et le caractère des déchets solides et de l'eau usagée, et des travaux chers et à grande échelle poursuivis d'adresser des problèmes écologiques urbains. Les approches sur une échelle plus petite qui emploient plus normal et les systèmes socialement souhaitables sont prometteurs, mais les rapports institutionnels entre les ONG et l'état peuvent soutenir ou éroder les gains faits par les réseaux décentralisés des organismes formels et informels.

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In Ahmedabad, project researchers **Vivekanand Gupta** and **Gaurav Jain** helped me get my bearings, both practically and in relation to the issues at hand. Their openness in sharing their ideas and findings with me, and the quality of their own theses on Jabalpur and Raipur, provided me with the foundation on which to add my own observations and analyses. Their classmates at **CEPT Ahmedabad** confirmed that planning (and architecture) schools are much the same even on the other side of the world**, and** helped me in countless small ways throughout my stay there.

In Jabalpur, I was greatly assisted by the staff of **SAMVAD**, particularly **Bina Agrawal** and **Anil Pandey**, in touring the city and speaking with local notables. The **Verma family** welcomed me into their home for meals and meetings.

In Raipur, I was the guest of our NGO partner **Lahar**. I had the good fortune to meet and spend time with two associates of Lahar, **Rajendra Sahau** and **Virendra Koushik,** who offered incisive questions over our many shared meals. Lahar's director, **R.K. Shukla**, orchestrated my visit and helped me make contacts in the nearby cities of Champa and Bilaspur. The **Shukla family** graciously

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Throughout India, I was informed and enlightened by countless conversations with many informants, many of whom spoke with me frankly about matters of corruption and other sensitive issues. I could not write down every name, but to the many **formal and informal interviewees and acquaintances** who in small and large ways helped clarify an outsider's confusion in encountering an unfamiliar research subject and an even more unfamiliar country.

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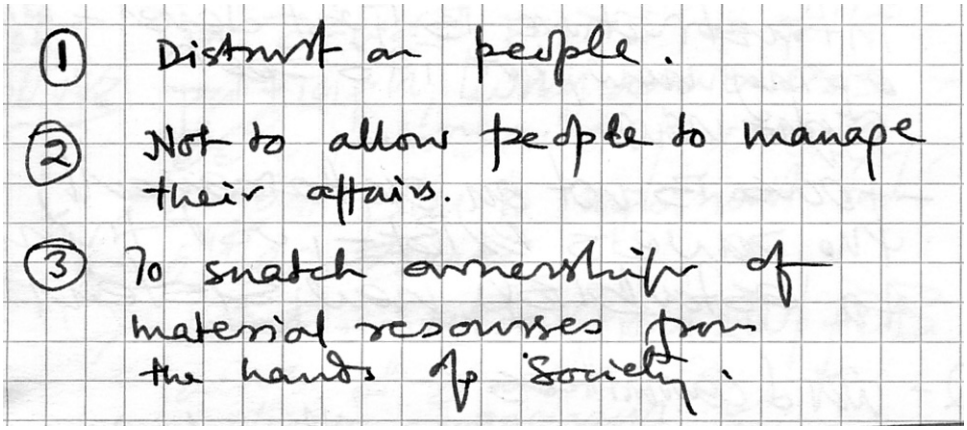
One of the more pleasant consequences of preparing a paper such as this is that I have found myself constantly returning to my field research, my first trip to the subcontinent, in my mind. In the absence of reliable data, I was led to try and comprehend a cultural, political, and linguistic environment that often hid its secrets well. I could not have reached the understanding that I have presented in this thesis without the hospitality and intellectual comradeship of **Jayant Verma** of SAMVAD. His perceptive explanations of his city, and the many institutions and people that shape it, were invaluable to my efforts to process what I was seeing and hearing. I am grateful to him both for offering me explanations, and for showing me places and scenes that did not require any.

At our first meeting, he described his view of the three principles by which the British governed the country and that still serve as an unspoken creed for India's powerful. I offer them here as a prologue to my work and the understanding which I developed of it, as he wrote them in my notebook:



1. Introduction

NEW NOTIONS OF CITIZENSHIP

The emergence of new ways of orienting, articulating, and carrying out development has changed the way in which new projects and reforms have been proposed. This entails changes beyond the choice of delivery mechanisms, attitudes towards the market, or interactions with implementation partners. In fact, it suggests a new and radically different notion of citizenship, and presents a lack of clear distinction between description and prescription, both of which serve to subvert clear lines of accountability in government.

A change in the idea of citizenship is effectively a change in the basis of political belonging. Questions of citizenship are questions about the political subject, and changes in the way that political demands are channeled and answered imply changes in the nature of that subject, in the processes by which needs are formulated and articulated in acting with others. In making rhetorical shifts, advocates of decentralization and governance have steered away from approaching or analyzing the impacts of such shifts on their operant idea of citizens and citizenship. In examining decentralization, governance, and the kinds of participation used to justify both, the approach here will continue to represent city dwellers as political subjects and not customers, consumers, end users, or service recipients. As will be seen in discussing the fully-built yet inoperative sewer system in Raipur, methods of providing urban services can be designed to fulfill certain criteria of economic or technical success but fail politically or culturally. When political subjects are given only limited access to the security of citizenship, the political failure of a development project often calls into question not the suitability of the project, but the suitability of the subject – the "worthiness" of citizens to

receive the benefits of development, and their incomplete compliance with projects proposed and executed by government agencies.

Holston and Appadurai (1999) see the essential dynamic of citizenship as an Enlightenment project of uniform and universal entitlement, whose failures and blind spots exclude some groups and thereby spur demands that reconfigure the political process: "Overwhelming other titles with its universal *citoyen*, citizenship thus erodes local hierarchies, statuses, and privileges in favor of national jurisdictions and contractual relations based in principle on an equality of rights. On the other hand, the mobilization of those excluded from the circle of citizens, their rallies against the hypocrisies of its ideology of universal equality and respect… generate new kinds of citizens, new sources of law, and now participation" (ibid: 1). This dynamic is portrayed as how civil society changes citizenship from a universal entitlement given to individuals, to a contingent and always-threatened political accomplishment achieved through collective action. What this perspective misses, though, are important qualitative issues that effect the discursive frame of reference and broader political articulation of the demands and responses: what the nature of the demands are, and how the state reconfigures itself to meet them.

This thesis addresses those questions in reverse order, first by detailing the Indian state's proposed method of incorporating the processes of civil society in creating new local political and administrative spaces, and second by examining the sites and the nature of the urban problems that this reform is meant to address. Unlike other studies, this thesis does not emphasize how globalization serves as the spur for these reforms. Addressing the decentralization reforms as efforts to bring international capital markets into play at lower levels of government, however valid such a research strategy may be, places emphasis on how cities find themselves with "new" needs to attract investment and highlights administrative changes needed to meet the challenge of attracting capital and managing its deployment in the city. Yet the demands of the development project do not substantively change in moving to the new dispensation, despite supposedly dramatic changes in the administrative structures that formulate them and the modalities of financing them. The same sewer networks, regular garbage collection, paved roads, and recreational facilities are the goals of both the state-centered traditional development model and the new decentralized and privatized one. This suggests common aspirations to two physically similar visions of Indian modernity, visions which varied dramatically in their conceptions of the political subject and of the social relations surrounding local government services. The problems of household trash and sewage that urban solid waste and wastewater management services are meant to address are themselves the product of the unfolding of Indian modernity, both in a physical and conceptual sense: they are the physical outcome of social and economic processes of consumption, but they are the conceptual outcome of a social and economic process of defining waste, filth, and emptiness. What is classified as trash, the social status of those who handle it, and the role of waste-related economic activities in providing livelihoods to slum dwellers are all crucial issues that lie at the intersection of economics and

culture, and are visible at the macro and micro scales in the city. While decentralization and governance recast the administrative and financial relationships surrounding efforts to address urban problems, they remain stuck in narrow and inappropriate definitions of the problems themselves.

Though a marvelous array of rights and entitlements exist on the books, the rule of law is not so robust in India as to render that alone sufficient to secure those rights in reality. Therefore, it is not particularly informative to focus merely on policies, but instead to see the means by which government recognizes and extends rights (or fails to do so) as an interrelated set of policies, institutions and processes; policies which establish *entitlements* to assets and the institutions and processes that permit or forbid *access* to them (Farrington et al 2002). These assets include human, social, natural, physical and political as well as economic capital. Similarly, Chambers (1995) makes a distinction between tangible assets such as resource streams and the intangible assets that different actors marshall to gain control of or access to them. This paper broadly recapitulates this approach by reviewing the laws that structure urban government and services, and then examines how urban development and political realities have led to the actually existing degrees of access to assets in Jabalpur and Raipur.

This thesis was written as part of a Shastri Indo-Canadian Institute research project, connecting McGill University in Montreal with CEPT in Ahmedabad. Previous theses were written by Gaurav Jain and Vivekanand Gupta, addressing metropolitan governance and solid waste and wastewater management in Jabalpur and Raipur. This thesis is intended as the third in an ongoing series of student works, and uses Jain and Gupta's work as a starting point from which to ask a series of questions about rhetoric and reality in India's new institutions of urban governance. By focusing on two cities, a few hundred kilometers apart in east central India (and located in the neighboring states of Madhya Pradesh and Chhattisgarh – the latter a new state and formerly a part of Madhya Pradesh), the project was intended to enable a comparison of two different institutional approaches while gaining in-depth knowledge about each context. The research strategy originally planned to explore these problems of urban policy was straightforward: discover how and when a change in policy was carried out, select indicators with which to evaluate success or failure, and analyze the effect of the policy change on the indicators. However, the tangled political and institutional reality surrounding the implementation of new frameworks for municipal government and participatory democracy made it difficult just what policy changes have actually occurred in Jabalpur and Raipur. Indicators were often unavailable and of questionable reliability, with different organizations offering markedly different figures.

Given these difficulties, this thesis instead follows a research strategy of determining what is *possible* under India's new systems of urban governance, in their incomplete and inconsistent application; though the formal arrangements mandated by law are described in detail, the innovative and promising strategies developed by

Indian communities, conceived as a way for citizens to deploy and manage urban services themselves without waiting for urban government to improve, are of particular interest. The political and intellectual shifts that led to the current preoccupation with markets and multiple-stakeholder institutions are outlined first in Chapter 2, in a brief review of the concepts of decentralization, governance, and participation. Chapter 3 describes the typical systems of urban government seen in India nationally and in the state of Madhya Pradesh, before the passage of the 73rd and 74th Amendments to the Indian Constitution in 1991, discussed in Chapter 4. In Chapter 5, the implementation of these Amendments in Madhya Pradesh is assessed. From the national-level changes, Chapter 6 moves to local conditions and urban development in Jabalpur; a more detailed review of the practices surrounding solid waste management, wastewater disposal, and urban water bodies in Jabalpur is presented in Chapter 7. Chapter 8 presents the city of Raipur and discusses the conditions of its urban environment as well as its aspirations to better urban services as the newly-designated capital of a newly-created state. Chapter 9 offers alternative systems to handle trash and sewage.

Shifts in development approaches and theories, debated and tried out throughout the world, can profoundly affect the lives of millions as governments structure their investments to place massive bets on the suitability of development frameworks. In taking urban citizens – particularly those in the developing world – from citizens to consumers, new ideas about development have changed the way governments see their own citizens. The alternative systems presented here, operating at a small physical scale, can help permit urban residents to reclaim their citizenship, find a new space of political belonging and shared efforts in ways that move beyond traditional national citizenship and a new consumer role. These groups may be small and fragile now, but in finding ways to progress and methods of self-help in the spaces of possibility created in an incomplete and poorly-understood transformation of urban management, they suggest that they may be able to bear great hopes.

2. Decentralization, governance, and participation

This chapter outlines the evolution in the development concepts behind recent Indian, and in fact international, governmental reforms. From a discourse of decentralization to one of governance, the notion of public **participation** in new structures of public administration and service delivery has been used to offer democratic *bona fides* for projects that fundamentally recast civic citizenship and the entitlement to quality of life. Decentralization is presented as a step beyond the discourse of rights and entitlements, which governance broadens and compounds. In both, market relationships are held both as a norm to which relationships between stakeholders should aspire, and as a descriptive strategy for the currently existing relationships between social actors which argues that stakeholder behavior is best understood in neoclassical economic terms. Each approach conceptualizes non-market allocative processes as market distortions that prevent fair, efficient, and transparent allocation among a broad cast of actors. The conflation of the normative and descriptive aspects of markets is a key feature of the current techno-managerial approach to the Indian city.

DECENTRALIZATION

Decentralization was frequently viewed by earlier studies as a national-level effort intended to achieve national ends. Rondinelli et al. (1994) discussed decentralization in terms of the administration of national

programs pursuing national outcomes, rather than the reapportioning of responsibilities among different levels of government. To the extent that local governments are assessed at all, it is because "local governments or administrative units, it is assumed, can be effective channels of communication between the local government and national communities" (p. 6). Despite holding that "decentralization is an ideological principle, associated with objectives of self-reliance, democratic decision-making, popular participation in government, and accountability of public officials to citizens" (ibid.: 8) and that "attempts to counter centralization are intensely political activities; they inevitably produce political consequences" (ibid.: 2), there is little real discussion of the political content (as opposed to administrative prescriptions) of decentralization. Explicitly political goals remain tacit.

Rondinelli proposes six objectives which decentralization is supposed to achieve:

1. Achieving broad political objectives [national development as such, the survival of the political system]
2. Administrative effectiveness [of both smaller and larger units of government]
3. Economic and managerial efficiency [cost-effectiveness]
4. Increasing government responsiveness [to interest groups]
5. Self-determination and self-reliance [among both lower tiers and NGOs]
6. Appropriateness [of programs to achieving their particular goals]

Though relatively uncontroversial – who could argue against efficiency? – they do reveal the political orientations of the decentralization project as they stood in the early 1980's. Criterion 1 connects decentralization with the nation-building project of development previously cited as the failed and repudiated undertaking which promoted centralization (ibid.: 1). Likewise, criteria 2, 3, and 6 are relatively uncontroversial, reinforcing decentralization as an essentially administrative reform with little to say about the substance of the projects concerned. The closest the reader gets to an affirmation of equity and democracy is in criterion 4, which itself claims not better representation and popular involvement but "needs and demands of various interest groups" (ibid.: 29). If the decentralization that Rondinelli describes is indeed a political project, it is not so political as to propose a structural bias towards the poor or disenfranchised (for example) in prioritizing responses to the many pressures on government from interest groups (not yet known as "stakeholders"). Criterion 5, however is part of the fundamental bargain that decentralization of this sort presents to the population: greater local say in decision-making, in exchange for abandoning not just centralized political control but "centralized economic planning, intervention and control" more broadly, along with views of market mechanisms as "immoral and anarchic," in favour of "removing obstacles in order to allow the market to operate more freely" (ibid.: 1). Simultaneously reducing national economic planning while downloading responsibility (and sometimes funds) to lower levels makes for increased competition between locales – not just for additional private investment, but for the very public investment that makes private investment possible. That is exactly the point; the allocation of tax revenues for public purposes by

legal, executive, or bureaucratic means is regarded as less desirable than competitive market-based decision-making mechanisms for allocating funds, setting legally enforceable user fees, and making recourse to national or international financial markets to raise further capital.

Rights and democracy figure prominently in this and other market-oriented views of decentralization, but not as political or human values so much as avenues to better administration. The public's ability to reward or punish local service-delivery bodies is essential to the "public choice" framework. From this perspective, residents choose not a place to live so much as a local government, basing their choice on the services it offers and the level of taxation it levies to fund them; sellers (governments) offer and buyers (citizens) bid, with buyers able to discipline sellers by moving away or voting out officeholders (Smith 1985: 32-35, Ostrom and Ostrom 2000). This extension of the market as the desirable, appropriate, and just norm of social relationships renders the exercise of rights as merely one of the many kinds of signals sent between market actors, and one generally held to be less important than prices. The public choice faithful have been vocal in promoting market relationships over institutional or political ones in addressing housing and slum upgrading, with the granting of formal tenure to slum dwellers and other who currently hold only informal tenure to their dwellings. Informal and perceived property rights structured by cultural understandings of tenure have been offered, however, as more meaningful factors in attempts by poor households to secure property and housing, and the complexity of various kinds of entitlements to land and land development may have been mistaken by earlier observers as an absence of a robust property rights regime. The local political climate, in the sense of a set of institutions such as parties and advocacy groups that have a political commitment to a particular social base, is potentially more relevant to the outcome of the decentralization experiment than the institutional structure (Crook & Sverisson 2001, Myrdal 1968).

Effective domination of democratic institutions by local elites is certain to block either the transmission of market signals or the exercise of democratic rights. What helps break down existing power relationships that hamper the self-determination of the poor and secure institutional clout and democratic legitimacy for local decision-making is not the traditional three legs of state, market, and civil society (Friedmann 1998) but administrative capacity of government institutions committed to popular decision-making, along with electoral systems that give political voice to the poor and civil society institutions that can advance their needs (Devas 2001). While "urban government and management studies tend to assume that the state (or the local state) is in a position to control what actually happens" (Devas 1999: 2), the local political reality may in fact set up channels of potential influence and control that range beyond explicit legal and administrative spheres.

GOVERNANCE

By the 1990's, decentralization had come to be understood not just as a means but as a component of a larger framework, that of governance. Decentralization figures as one of the "normative goals for the inclusive city," a set of hoped-for outcomes of the governance viewpoint proposed by UNCHS (2000), paired with participatory democracy on a list that includes efficiency, equity, and security. The governance perspective is more oriented to the analysis of institutions than the earlier focus on decentralization, manifested as increased attention to the scope and scale of bodies for decentralized management along with a continued instrumental view of participation and local decision-making. Rao (1989:1399) noted that "the growing literature on decentralized planning seems to equate progress with the making of statutory provisions for setting up district and lower level governments coupled with administrative and financial measures for devolution" while holding that the effectiveness of this system "would depend in the long run on the soundness of its economic perspective, of objectives and criteria guiding it and of an information system for feedback and hearing." Governance continues to view the public's role as largely informational, and participation as one of multiple feedback systems.

This institutional focus emerges from the realization that the organizational and institutional structure of bodies to manage development, as well as their decision-making and financial capacity, were equally important as their position within the administrative hierarchy. The nature and structure of urban institutions became highlighted and problematized when the rate of urbanization started to outstrip the rate of growth both in the revenues and in the technical capacities of urban local government. This led to the establishment of specialized agencies by higher levels of government to attempt to deal with urbanization and its attendant challenges, which has had three negative consequences: functional fragmentation and a weakened lower tier of local government with fewer responsibilities and resources, the emergence of complex management issues between a growing number of agencies, and a minimal impact on the urban poor's access to services (Cheema 1984). These "parastatal" agencies soon started exhibiting problems of their own, leading the World Bank to call for their privatization and a further-reaching reorganization "to cope with the institutional modernization demands that emerged from the structural adjustment process" (WB 1994:2). Urbanization, itself in part a result of the impacts of structural adjustment policies and on rural livelihoods, generates five problems for local government. A municipality can lose legitimacy due to a loss of capacity to carry out its traditional functions; the urbanized area can expand far beyond its boundaries, putting pressing urban problems beyond its legal reach; other levels of government can ineffectively take over its former core functions; higher-level administrations can drag it into squabbles over its authority and functional domain; or municipalities themselves can come to see parts of their territory, especially informal settlements, as being administratively, legally, and politically aberrant and therefore not legitimately entitled to services (Devas 1999).

The capacity of local governments to provide effective public administration goes to the heart of their political legitimacy in the eyes of affected citizens, both as effective representative bodies from which citizens can expect a hearing for their grievances and as effective service providers from which citizens can expect the competent management of common resources. Even in state-led development schemes, complementary action is required from the population and local businesses, at the very least in that they show the behaviors and make the improvements which development projects are intended to induce. In recognizing that structures beyond the state are responsible for development outcomes, the notion of government as being the single relevant actor was replaced by that of governance, recognizing a range of decisive factors and actors. Governance is thus "understood to include not only the political and administrative institutions of government (and their organization and interrelationships) but also the relationships between government and civil society" (Nunan and Satterthwaite 2001:410). This defining recognition of plurality is called governance here, but a number of names have been applied: "urban management," "strategic town planning" (Godard 1996, Borja 1992), or "new managerialism" (Desai and Imrie 1998), among others. Despite differing emphases on the exact mix of public-, private-, and community-sector responsibilities, all of these frameworks are centered on the need for a greater degree of coordination between a greater number of actors. Government is no longer regarded as the exclusive provider of services, but as the guarantor of services that may be offered by the private sector, community groups, or through various kinds of public-private cooperation.

Again, there is a lack of clarity on the issue of the political character and substance of governance. The World Bank, for its part, disavows any "political" content in its analyses or recommendations, as the Bank's charter limits it to addressing only "economic" issues:

> Governance, in general, has three distinct aspects: (a) the form of political regime (parliamentary or presidential, military or civilian, and authoritarian or democratic); (b) the processes by which authority is exercised in the management of a country's economic and social resources; and (c) the capacity of governments to design, formulate, and implement policies, and, in general, to discharge government functions. The first aspect clearly falls outside the Bank's mandate. The Bank's focus is, therefore, on the second and third aspects. (WB 1992:3 n1)

It is difficult to see just what beyond the nature of central authority could be considered some worthily "political" issue under this framework. If the management of resources is to be regarded as merely an economic or administrative function, the scope of the Bank's potential action is large indeed. In a later report, the Bank was somewhat less circumspect in its terms, describing its governance focus as an acknowledgement of non-governmental institutions that are "central to how power is exercised" (WB 1994:55). It still casts governance as a technical strategy developed in response to external constraints (the limits of earlier state-led development regimes and the demands of a globalized economy) but one that entails, a shift in the balance of social power "from a pattern of control and intervention to one in which the role of government in the economy is to provide an *enabling environment* for the private sector. Hence the requirement is for

macroeconomic management, selective intervention, greater use of indirect means for the delivery of public services, and a capacity to regulate where private providers enjoy a monopoly" (ibid: 56). To disavow any direct attempt to intervene in some class of phenomena defined as "political," and then make claims about the far-reaching transformative effect of one's policy principles in political and social life, can at best be considered dissonant and at worst disingenuous. Recasting the state from coach to referee, and a referee institutionally biased towards particular types of players, is hardly apolitical unless one considers the administration of the economy to be a purely (or at the very least largely) technical question, addressed by technical expertise that is applicable across various political orders. Doing so would, however, require one to reject or disavow broadly accepted ideas about the relationship between social structure and political framework (e.g. Moore 1966), the very relationship that gives the Bank's recent reforms their much-heralded transformative power in the first place.

An economics-led approach to governance does not necessarily entail a perspective that ignores or overcircumscribes the political. Elsenhans (2001) held that the formation of civil society, representing resources committed by workers, required labor market scarcity to occur. In the classic bargain of capitalist societies, increasing wages spur demand, requiring that producers find capital to increase output, which increases productivity, which in turn increases both profit and wages. Both classes have access to this higher marginal product, workers in the form of wages and producers as profit. Given the nature of political contest between classes under capitalism, classes will channel this higher marginal profit into competition over public goods and regulatory advantage. State, market, and civil society are traditionally understoond to each develop and thrive most successfully without interference from the others, and their successful interrelationship is usually summarized as the avoidance of excess in any one segment. In economies with low productivity, however, the virtuous circle of increasing productivity, wages, and capital becomes vicious, broken by a high labor surplus that blurs boundaries between state, market, and civil society (or more accurately political, economic, and social power) as various actors struggle to appropriate state-controlled rents. The concentration of land ownership occurs by political, not economic, means and forces landlords into competition for political power, drawing in populations bound to low-productivity agricultural tenancy and reducing the state-market-civil society triad to a contest between various clientelistic factions:

> As there are no classes which can increase their economic resources without control of the state, which bestows privileges and limits competition, non-state actors will organize institutions which are independent of those wielding powers of the state merely with the aim of improving their own bargaining power vis-à-vis the state in the struggle over the allocation of rents under state control. They are not autonomous even if they are opposed to the state; they are part of the struggle over rents in the arena of the precapitalist state (ibid.: 41).

Therefore, while the character of the political system can be considered an outcome of particular economic conditions, control of the political system can end up as the only reliable route to capture economic resources for individual factions or classes if the cycle of capital investment, technological innovation, and increased

productivity goes haywire. Even the conditions of good governance in successful and growing capitalist economies can present problems when exported to a developing economy. The hoped-for synergy between different governance institutions, created by a highly articulated allocation of responsibilities and scales, can lead to inequitable cronyism between groups with preferential access to power, especially in contexts where civil and human rights are curtailed.

Elsenhans (2001) shows one way forward: working with the essential core of the governance discourse, the recognition of collaborative management between actors of different types as the terrain of success or failure for development, and taking a critical look at its political (in the broad sense of the term) content. If the starting point of inquiry in governance is to investigate the state of institutional relationships and the configuration of power, methods of political science are perhaps the most obvious tools with which to proceed; if the point of reform is to bring about economic conditions conducive to economic and political progress in an economy still dominated by agriculture, analytical approaches from economics can fruitfully be applied. The World Bank and other neoliberal development analysts claim to work from neoclassical *economic* principles, but almost immediately start addressing *finance*. In promoting recourse to private financial markets for a whole range of decisions across governing institutions with widely varying capabilities and challenges, their prescriptions start looking more like an ingrained reflex and less like a solution that can identify and accommodate the institutional position of the actor or actors involved. Moreover, a skeptical view of the poorly-defined categories of state, market, and civil society can suggest improved ways of delineating groups of actors and a better understanding of how particular political situations can limit an actor's effectiveness. Industrial development authorities, state-owned or state-run corporations, and planning areas, the "parastatals," continue to carry out important functions and maintain infrastructure with few effective means of bureaucratic oversight or accountability, and differ markedly from purely state or market actors. Risks to governance can come from bodies and dynamics such as these, falling outside of the traditional tripartite formula: "weakening interdependence of the various levels of governance… could develop in any of these events: (a) when local government is usurped by privileged groups, (b) when NGOs entertain relations of patronage with marginal populations as a substitute for the latter vocalizing their interests, and (c) when power of intermediate agencies, augmented by a necessary centralization for control, is used to distort the conditions for political competition (ibid.: 48). Elsenhans judges macroeconomic and trade policies to be more important than state-led investment for promoting industrial development, and a track record of implemented decisions the real indicator of the democratic control of institutions: "Voice does not mean only access to institutions, but also the capacity of these institutions to translate the signals received into implemented programs" (ibid.).

Adger et al. (2003) advocate an interdisciplinary, pluralist approach to examining environmental decision-making. They propose a four-way analysis of environmental decision-making, with each focus associated with

a relevant disciplinary perspective: efficiency (economics), effectiveness (engineering, planning, policy science), equity (sociology, law), and legitimacy (political science). These are to be brought to bear on a three-way definition of the subject of environmental planning: institutions (both as relationships and as rules), scale (in and across time, space, and administration), and context (biophysical as well as social). Adopting this kind of framework, one that requires input from multiple analytical perspectives while defining the subject at hand by defining plural ways of addressing it, simultaneously defines multiple streams of cause and effect and thus diversifies the range of relevant outcomes and indicators beyond conventional engineering and financial criteria.

PARTICIPATION

Within the current development discourse, participation by publics, neighborhoods, or households can take two forms: participation to legitimate institutional relationships, and participation to operationalize institutional relationships. In the first case, participation is the normative mode by which a particular project is implemented, with the target communities participating in design, implementation, or operation. In the second case, participation is introduced to legitimate or reinforce an institutional structure, to create a feeling of public "ownership" of a process concieved and managed by other interests. One important dimension, the instrumentality of participation, can cut across both of these categories. Both types are seen in instrumental versions, in which participation can be seen as an aid to accomplishing development goals, and noninstrumental ones, in which participation is seen as a good in itself. After a review of normative and legitimating styles of participation, this section concludes with a discussion of the problematic relationship of governance to culture.

Normative

The first variety of participation is typically drawn narrowly, to refer to the inclusion of NGOs (broadly drawn to include organized business interests in chambers of commerce and the like) in decision-making and implementation. The effect of NGO participation is often viewed as a kind of leavening of the state and market with civil society representatives that understand the role of trust and the value of reaching informal accommodations in getting things done. In this perspective, competition within and between state and market sectors "often tend[s] to weaken and undermine each other. It is the institution of the [sic] civil society that can intervene and inhibit such weakening and undermining" (Streeten 2002: 22). A similar idea – of one kind of institution being called upon to suffuse the other two in order to "open debate" and provide democratic legitimacy to all three – can be seen in the concept of deliberative democracy, in which democratic conversations extend throughout market and civil society institutions to bind them closer to the

state. This idea and Streeten's examples both come from more corporative styles of governance in European societies, in which clearly defined power-sharing between government, private firms, and civil society (typically organized labor) institutionalizes their relationships. It is no accident that the governance discourse developed around the same time that Northern liberal researchers such as Albert Hirschmann were rediscovering de Tocqueville and turning their attention to the way in which social and cultural patterns of meaning and trust create the public arenas of state and market. Such an instrumental view employes participation as a way to reshape social relations and positively effect cooperation between social actors. Without this concern with the social order, exhortations to better governance are reduced to demands that the government, the bureaucracy, and private firms shape up and adopt transparency in their dealings and adherence to the rules as a moral imperative (e.g., Jain 2001a). Another alternative is to not give civil society any real advantages vis-à-vis private firms, regarding them as yet another actor in the market; like other players, civil society should be ready to compete and be prepared to ante up before it joins the game. This is a non-instrumental view of participation, which allows civil society actors into service provision but does not regard them as a preferable option that can help create and sustain positive social dynamics for improved outcomes. Some have gone so far as to employ the term "social privatization" to highlight a desire to bring NGOs into the market for service provision, perhaps as a partner, perhaps as another rival:

> Social privatisation thus broadens the concept of privatisation from merely selling public enterprises to the private, often large-scale, business sector to a concept where all nongovernmental actors, whether small- or large-scale, profit- or non-profit-oriented, working in high- or low income areas, are considered partners in the city-wide waste management system, worthy of recognition and support. (van de Klundert and Anschutz 1999: 11)

These perspectives are relatively minor; the institutional term in economics and development studies has not imposed a uniform evaluation of civil society's participation in governance activities but has instead given rise to an acknowledgment ofs civil society as an actor among many, while singling it out for its better ability to reach the community and legitimate its actions.

Legitimating

In the second, legitimating, case, participation is meant to empower the subjects of a process to *feel* they have a stake and a say in the process itself, regardless of whether or not they actually do. When participation is sought to draw the population into an ongoing effort by outsiders to transform their lives, then the mere sensation of having voice is sufficient. Normative efforts similarly rely on participatory commitment to legitimate development projects, but structure participation to allow participants to more deeply involve themselves in the execution of the project itself. What might be termed the instrumental "strong program" of legitimative participation holds that community approval in and of itself is crucial to achieving the desired outcomes, even when that public is rendered as a subject that has had no contribution in articulating problems of setting goals. In this view, project success "depend[s] on the understanding, acceptance and ownership by the community of the initiatives made by the local authority" (CITYNET 2002:18).

"Community," though, is not the only relevant level of participation, and the inability of governance to clearly view the cultural basis of "community" or other units that participate is a critical gap. In its non-instrumental variant, participation can be called upon to assign blame; as will be seen in the discussion of Jabalpur's solid waste management practices, the city administration sees public participation primarily as a way to modify public behaviors that interfere with the administration's efforts to keep the city clean.

Cultures of participation

Relying on individual participation resonates with liberal approaches that regard the individual as the morally and technically relevant decision-making unit. Household participation is environmentally and economically relevant, as the basic site of activities such as water consumption or solid waste generation that are concomitant to reproducing labor. Neighborhood participation is similarly relevant to the scales at which services are delivered and waste is managed. Yet each of these categories conceal or reproduce hierarchies that are essential to how demands are formulated and voices encouraged to speak. Individuals will frame political involvement in terms of caste, class, ethnicity, and language; households will contain dynamics that reproduce unjust gender relations; and neighborhoods (in dense urban conditions where spatial segregation by class operates in different and finer-grained ways than in the Northern urban context) can form alternate "micropolitical" terrains of contestation that limit some voices in favor of others. All political units called upon to contribute their "voice" will be faced with choosing institutional processes by which that voice speaks; the point is not to dismiss the participatory project as being hopelessly compromised, but to show that the level at which participation is defined will determine the conflicts and processes that articulate the interests of the participating person or group. Nearly all the modes of participation discussed here operate at the household or neighborhood/geographical "community" scale. This is not always couched in terms that suggest local elites or patterns of interest are to be shunted aside. In fact, some hold that the networks of patronage surrounding and institutionalizing the ability of a political leader to retain office have a stabilizing effect on politics; when carried out responsibly, patronage politics constructively organizes group participation in democratized and participatory schemes and avoids the very similar but undesirable patterns of clientelism (Manor 1999).

There are three general patterns to participatory schemes to bring citizen groups closer to the decisions and systems that provide public services. In the first, local government enlists NGOs or community groups to partner for the delivery or management of a service; in the second, NGOs or community groups propose and/or implement services, with or without government funding; and in the third, the population is autonomously inspired to take control of service provision themselves (Godard 1996: 2.3). This describes the genesis of particular efforts, and not necessarily their final form. Over the life of a project, as will be seen in chapter 9, the type of relationship between local government and target communities can shift between the three patterns listed above. As Godard notes, conventional local electoral politics has become so ritualized

and confrontational that it can no longer function as an effective arena of local decision-making. Local governments may come out well compared to aggressively unaccountable higher-level government bodies and private enterprise: some claim that in existing at a smaller scale, local government is by definition more easily subject to popular pressure, and thus in and of itself is sufficiently representative to give local citizens voice to "[provide] a counterweight to the power of private firms and government's own politico-bureaucratic interests" (Faguet 2002: 1). The widely observed failure of Indian local government and politics to develop a vibrant and independent municipal culture of government has placed a heavy new burden of problem-formulating and coalition-building on NGOs, as more reliable formulators and arbiters of group interest. Civic and other cultures determine the customs that create and sustain organizational legitimacy, which is key to the coordination of interest groups and actors that underlies governance. Governance is advanced as a set of near-universally applicable best practices, and yet it relies profoundly on very local cultures and their ability to negotiate difference in less than ideal conditions – in a contest where state, market, and civil society each function to the detriment of rival types of actors.

If culture cannot be controlled for within governance, how else can governance elicit culturally-conditioned modes of participation? Bottom-up factors are not the only determinants of success in participatory endeavors. How governments structure participation, how open they are to voice, determines what voices will be heard and what they will be expected to say.

The incorporation of the public into development projects is a central part of how those projects themselves are legitimated; otherwise, the challenge to existing ways of doing things is reduced to a fairly bloodless change to the standard "process sequence of political choice, administration and management, and quality of life outcomes" (Divay et al. 2002: 7). What makes participation valuable to development actors is how it helps implicate development in profound processes of social change, which some proponents of an expanded definition of governance do manage to identify as political. Hyden (2001) defines governance itself as explicitly political – not just institutional or administrative – and a new way of viewing the political process: "the ultimate end of constitutive politics, or governance, is the realignment and management of relations between state and citizens with a view to enhancing the legitimacy of the public realm… changes in power relations are the result of leadership interventions from above as well as citizen initiatives from below" (p. 19). By letting in politics through the back door, as an instrumental measure, governance sends usefully mixed signals to different observers: subject communities see themselves as partners in the enterprise, with a real say in how goals and problems are formulated, while other development actors are free to maintain that governance is culturally-neutral and strictly administrative, about "getting things done" or "doing things better." Participation is regularly called upon in this way to legitimate governance; it is another way in which governance moves between claims to different kinds of effectiveness to justify itself.

PARALLEL SHIFTS

It should be pointed out the plural approach of governance has brought about two parallel changes in considering development and urban services: a change in the *focus* of development studies, and a change in the *scale* at which challenges and results are examined.

From a focus on legal frameworks to focus on results, governance has led to a shift from a discourse of citizenship – of formal rights and entitlements based on membership in political communities – to a discourse on outcomes achieved through both formal and informal cooperation and multi-stakeholder arrangements. To the extent that the governance discourse brings in rights and politics as such, it speaks of "democracy, human rights and civic participation in decision-making processes" (UNCHS 2001:211) as ways in which a narrow range of collective goods are achieved. The emphasis shifts from specific benefits to which individuals are entitled, to a human right to "civic" participation that is obtained through membership in groups or participation in private schemes. Similarly, we move from a viewpoint of political participation as an end in itself, a moral imperative of citizenship, to political participation as a means by which consumers secure better services.

Simultaneously, and somewhat concomitantly, there has been a shift from attention to national-level processes, indicators, and outcomes to a concern with the local dimension. Part of this comes through recognizing that sub-national and local actors and institutions have been much more involved in the provision of frontline services. Recognizing this factor has led to the devolution of responsibility (and sometimes financial capacity) to these local bodies to effect better local outcomes, a process generally referred to as decentralization. The direct participation of various international aid organizations in reorganizing the affairs of municipalities has also served to undermine the hierarchy of decision-making power between local, state, and central governments. A desire to incorporate the public in development projects – and extend services to the household level, as in most of the examples reviewed in this thesis -- is similarly facilitated by smaller-scale projects in which face-to-face contacts are required to identify and overcome localized and short-term problems. As reviewed in chapter 9, service-providing systems and techniques can fail to incorporate the local sphere, or can be designed to address service provision (particularly in waste management) as a series of highly localized operations.

These two parallel shifts, of focus and of scale, entail a movement away from clearly defined, legally guaranteed, and justiciable rights, safeguarded by formal democratic processes and traditionally the sphere of the national state, to a quest for positive outcomes in service provision, traditionally in the municipal and local spheres. The subject of democratic government is the citizen; the subject of urban governance is the consumer of services. Even those studies which explicitly prioritize the democratic dimensions of

decentralized governance do so in pursuit of improved services: "The major promise of democratic decentralization… is that by building popular participation and accountability into local governance, government at the local level will become more responsive to citizen desires and more effective in service delivery" (Blair 2000:21). The transformation from citizen to consumer reconfigures the service-consuming public as a universe of consumers to discipline traditionally unresponsive state providers of collective goods, changing "the bureaucratic-professional conception of the user as passive to one where consumers are conceived of as core to defining their specific needs" (Desai and Imrie 1998:643-4).

3. Before the Amendments

OVERVIEW: LOCAL GOVERNMENT BEFORE THE AMENDMENTS

Many local bodies in India, especially rural ones, are the persistent remnants of a dizzying array of administrative structures employed by various dynasties and states over the past several hundred years. The most lasting such institution is the panchayat, a village assembly usually headed by a high-caste male who inherited the position. Panchayats governed the use of collective property resources and often collected local taxes to fund irrigation works and other pieces of local, usually agricultural, infrastructure.

In independent India, local government has been until recently the exclusive purview of individual state constitutions and governments. Local government was assigned to the states, not as one of their obligatory, justiciable responsibilities but in the Constitution's Directive Principles – a sort of wish-list of governmental priorities to be honored in spirit if not to the letter. These reflect areas of particularly contentious debate during the drafting of the constitution in the late 1940s; Gandhi himself was upset at the failure to include any mention of panchayats in an early draft. Accordingly, Directive Principle 40 enjoins state governments to "take steps to organize village panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of self-government." No definition of "self-government" is offered, here or elsewhere in the Constitution; it is commonly observed that both before and after the Amendments, Indian local government has not been invested with the autonomy and clearly defined

competencies that would permit it to be more than a mechanism for state-controlled service delivery (Anand 1995).

The system of local government that existed before the Amendments is generally referred to as a three-tier structure, though the levels were not explicitly nested or hierarchical. Gram sabhas, "village assemblies," were informally constituted town meetings with varying forms of suffrage in different areas. Notified area committees were a form of proto-municipal government intended for urbanizing areas and rarely used in some states – only seven such committees existed in urbanizing Madhya Pradesh in 1991 (Mathur 2001). Municipal councils were set up by legislation in various states, some of it dating to the earlier part of the 20th century and substantially revised in the 1950s and 1960s, to cover smaller cities. Settlements had to reach a certain size and level of economic activity before municipal councils were established for them, and the standards differed in each state. Municipal corporations, which granted somewhat more decision-making power to large cities, were established by states that often passed separate legislation for each city. Urban military cantonments are a common feature of modern Indian cities, governed by cantonment boards that are partially elected and partially appointed by military officers. Cantonment boards manage the provision of urban services and are regarded as cleaner and better-run than the urban areas near them. These date back to the British regime and are centrally overseen by the Ministry of Defence in Delhi.

The system of district government deserves special mention. The Mughal emperors originally implemented a system of administrative districts, and the British made these the backbone of local administration during their regime, overseeing police, public health, education, forestry, justice, and civil works. By the time of independence, the district system had spanned the subcontinent for over two hundred years and helped keep the country together through the chaos of Partition and the reorganization of the states. A District Collector served as the chief financial and administrative officer, and oversaw the collection of a land tax which paid for district services. Beyond his formally delimited capacities, the Collector would govern the use of various common property resources such as water bodies (ODI et al. 2004: 97). In his capacity as District Magistrate, the Collector served as the chief judicial officer of the District as well. Placed under the purview of the states by the Constitution, districts became tightly associated with the administration of development schemes and lost much of their general role (Rao 1996). Still, usually considered the head local bureaucrat, the District Collector had final sway over municipal budgets in most states (Milbert 2004).

The district administrations worked to facilitate the work of state government departments, though the departments had their own district, block, and village presence, controlled from the state capital. Much of this was done through the District Rural Development Agency (DRDA), which evolved over the 1970s and 1980s as the primary vehicle for the local delivery of integrated streams of upper-level development funding (Gaiha et al. 1998). When implemented in the early 1980s by several state governments, panchayat systems

were viewed as a way to minimally involve local populations in the implementation of state-funded and state-implemented development schemes, which usually were run by the District Collector (Vyasulu 2001). Other pre-Amendment attempts to involve local government in the delivery of state or Central development schemes made use of village panchayats, the DRDA, and the District Collectors. They employed various models of decentralization and popular consent, to varying degrees of success.

LOCAL GOVERNMENT IN MADHYA PRADESH: JABALPUR AND RAIPUR

After early forms of local administration were snuffed out by expanding British control, the government of the Central Provinces – which covered most of the territory of the modern states of Madhya Pradesh and Chhattisgarh – established municipal governments at Jabalpur in 1864 and Raipur in 1867. British authorities revised the Central Provinces' municipal system at roughly 20-year intervals thereafter, with the last reforms coming in the mid-1920s. Jabalpur was rechartered as a municipal corporation in 1948, with new boundaries and a new setup that included municipal wards and a city council composed of 34 elected and 9 appointed members. A revised municipal statute for the state, granting municipal corporation status to both Jabalpur and Raipur and establishing other municipal entities in growing nearby towns, was passed in 1961 after a wave of administrative and border changes that created modern Madhya Pradesh (District Gazetteers Department [MP DGD] 1968: ch. 14, MP DGD 1973: ch. 14).

Table 3.1: Urban development grants in Madhya Pradesh in the 1961 reforms

City size	Rs per capita
Municipal corporations	.50
Municipalities > 50,000	.75
Municipalities between 20 and 50,000	1
Municipalities between 10 and 20,000	1.25
Municipalities < 10,000	1.50

Adapted from Maheshwari 1971: ch 14

This reform covered several growing cities, known as the "GIRJ" towns (Gwalior, Indore, Raipur, and Jabalpur), at once. Madhya Pradesh set up "classes" of municipal corporations, with larger and more prosperous cities receiving greater responsibilities, as did other states (Maheshwari 1971, chs. 13 & 14). To maximize local revenue streams, the state required cities to impose the full range of taxes permitted to them (Datta 1970). These sources of funding were implicitly recognized as insufficient, as the state government issued annual general-purpose grants to cities specifically for urban development purposes, calculated by city population as per Table 3.1. Few other states did the same, and it was considered a forward-thinking policy to encourage the introduction and upgrading of urban services (Maheshwari 1971: ch. 14).

Table 3.2: Urban expenditure in Raipur, 1956-1970

Year	Expenditure (Rs)	Deficit (%)	Eductn (%)	Str. lighting (%)
1956-57	1,909,785	-	-	-
1957-58	3,018,726	17.8	-	-
1958-59	3,111,223	8.7	-	-
1959-60	3,695,891	6.2	-	-
1960-61	4,124,705	9.5	20.1	2.9
1961-62	3,098,076	-	-	4.1
1962-63	3,622,549	-	26.3	4.5
1963-64	3,409,419	-	25.0	4.8
1964-65	3,488,567	-	13.4	3.3
1965-66	3,514,946	-	16.4	3.5
1966-67	4,521,486	8.5	20.5	3.3
1967-68	5,350,036	1.7	15.2	3.9
1968-69	6,658,144	18.6	11.5	4.8
1969-70	5,879,991	1.6	13.9	3.8

Source: Adapted from MP DGD 1973: ch. 14

It is unclear in both cases exactly what taxes or grants made up the city budgets at various points, and there is no more than a rough idea of the relative weight of different categories of expenditure. Shifting budget styles and the constant repackaging of national- and state-level aid programs by upper levels of government further serve to muddy the picture of just what funds are obtained from what sources for what purpose. Pre-independence municipal taxes in Jabalpur included an octroi, water and public works levies (the latter referred to as a "conservancy cess"), tolls, and fees from markets and slaughterhouses (MP DGD 1968:506). Judging from the partial figures available for Raipur, municipal corporation expenditure plateaued during the late 1950's and mid-1960's, with a sharp spike in the total budget numbers in the late 1960's as the industrial development brought to the region by the Bhilai steel plant (chapter 8) got up to speed. It is difficult to determine the structure of municipal expenditure before the Amendments and the more recent reforms at the state level in Madhya Pradesh; luckily, information on its current state is available and more qualitative information about Jabalpur and Raipur's urban journeys can fill out the before and after picture (chapters 6 and 8).

4. The 73rd and 74th Amendments

Substance

The 73rd Amendment, dealing with panchayats, and the 74th Amendment, dealing with municipalities, were introduced by the National Front government in 1990, only to die on the table with the dissolution of the government and reintroduced in September 1991 after a round of elections. The preambles to each explicitly mention the shortcomings of the previous regime, such as "absence of regular elections, prolonged supersessions[1], insufficient representation of weaker sections like Scheduled Castes, Scheduled Tribes and women, inadequate devolution of powers and lack of financial resources" in the 73rd, and "the failure to hold regular elections, prolonged supersessions and inadequate devolution of powers and functions" in the 74th. Though both are firmly focused on the states' neglect of procedural and electoral issues, it is interesting to note that an emphasis on representation of socially marginalized groups is present in the preamble to the rural Amendment and absent in the urban one.

Both Amendments are binding, though they do require legislation from each state to bring the affected municipal codes into conformance. This has, as we shall see, offered recalcitrant state authorities opportunities to drag their feet in setting up the system laid out in the Amendments. Though the specific responsibilities of local government are listed – in the Eleventh Schedule for panchayats, and in the Twelfth

[1] The Indian Constitution permits the Central government to "supersede" state government in an emergency situation, dismissing the elected legislature and appointing a new cabinet to run the government. This power has been wielded regularly by New Delhi, often for years at a time, to rein in uncooperative state administrations or simply get rid of governments it does not like. The states have similar powers of "supersession" over city governments, and have been similarly unafraid to use them: Chennai/Madras was without an elected mayor or city council for almost twenty-five years.

Schedule for municipalities – the devolution of powers and resources to meet those responsibilities is wholly optional. Additional divisions between obligatory and optional procedures permit further leeway for states to avoid the spirit of the Amendments while hewing closely to their letter.

Table 4.1: Municipal responsibilities in the Eleventh and Twelfth Schedules

Eleventh Schedule responsibilities	Twelfth Schedule responsibilities
1. Agriculture, including agricultural extension	1. Urban planning including town planning
2. Land improvement, implementation of land reforms, land consolidation, and soil conservation	2. Regulation of land-use and construction of buildings
3. Minor irrigation, water management and watershed development	3. Planning for economic and social development
4. Animal husbandry, dairying and poultry.	4. Roads and bridges
5. Fisheries	5. Water supply for domestic, industrial and commercial purposes
6. Social forestry and farm forestry	6. Public health, sanitation conservancy and solid waste management
7. Minor forest produce	7. Fire services
8. Small-scale industries, including food processing industries	8. Urban forestry, protection of the environment and promotion of ecological aspects
9. Khadi, village and cottage industries	9. Safeguarding the interests of weaker sections of society, including the handicapped and mentally retarded
10. Rural housing	10. Slum improvement and upgradation
11. Drinking water	11. Urban poverty alleviation
12. Fuel and fodder	12. Provision of urban amenities and facilities such as parks, gardens, playgrounds
13. Roads, culverts, bridges, ferries, waterways and other means of communication	13. Promotion of cultural, educational and aesthetic aspects
14. Rural electrification, including distribution of electricity	14. Burials and burial grounds; cremations, cremation grounds and electric crematoriums [sic]
15. Non-conventional energy sources	15. Cattle pounds; prevention of cruelty of animals
16. Poverty alleviation programme	16. Vital statistics including registration of births and deaths
17. Education, including primary and secondary schools	17. Public amenities including street lighting, parking lots, bus stops and public conveniences
18. Technical training and vocational education	18. Regulation of slaughter houses and tanneries
19. Adult and non-formal education	
20. Libraries	
21. Cultural activities	
22. Markets and fairs	
23. Health and sanitation, including hospitals, primary health centres and dispensaries	
24. Family welfare	
25. Women and child development	
26. Social welfare, including welfare of the handicapped and mentally retarded	
27. Welfare of the weaker sections, and in particular, of the Scheduled Castes and the Scheduled Tribes	
28. Public distribution system	
29. Maintenance of community assets	

Section 243B of the 73rd Amendment sets up three nested levels of panchayats at the village, intermediate,[2] and district levels, in which the chairperson of each level is part of the panchayat of the next level – the chair of a village panchayat is a member of the intermediate panchayat, and so on up the chain. Further sections require the reservation of seats for Scheduled Castes (SCs) and Scheduled Tribess (STs) in proportion to their population in the area and reserve one-third of all seats (be they SC, ST, or general) for women (243 D), regular elections (243 E), the placement of panchayats under the jurisdiction of state election commissions (243 K), and the establishment of a finance committee to make recommendations about the distribution of tax powers and revenues between the state government and the panchayats (243 I). The election and finance committees are new bodies, which did not exist previous to the Amendment and are an attempt to inject some expert supervision into areas which have previously been subject to political whim. The list of panchayat responsibilities added by the Amendment as the Eleventh Schedule is long, and focuses on social welfare, agricultural needs, infrastructure, and common resources. Yet the administrative changes needed to give real teeth to panchayat responsibilities are optional, rather than obligatory. States *may* devolve the powers and functions needed to address the Eleventh Schedule issues, including economic development and social justice (243 G), reserve seats for "backward classes" other than STs or SCs (243 D), or grant financial resources or tax powers (243 H) – these are discretionary responsibilities.

The 74th Amendment is laid out in a similar way. Section 243 Q maintains the basic, pre-Amendment distinction between municipal councils, municipal corporations, and bodies for urbanizing areas (now called nagar panchayats). Again, the administrative landscape is finely delineated, directing states to reserve seats and chairpersonships for SCs, STs, and women (243 T), hold regular local elections (243 U), and bring supervision of these elections under the purview of the state Election Commission (243 ZA). Ward Committees are to be set up in sufficiently large cities, composed of the local councilors representing the ward and whomever else the state nominates, though the Ward Committee is to be chaired by one of the councilors (243 S). States are further required to set up state finance commissions to review the distribution of revenues and tax powers, and state governors are required to report the actions taken in response to each issue raised by the commission to the legislature (243 Y). One difference in this Amendment is the mandated insulation of any state electoral decisions pertaining to municipalities, including the delimitation of electoral boundaries, from court "interference," thereby removing municipal elections from any sort of judicial oversight (243 ZG). Beyond the elected members, states may allow municipal committee chairs, experts or specialists in municipal administration (in a nonvoting capacity), the members of the Lok Sabha (the lower house of the national parliament) and the state Legislative Assembly who represent an area, and members of the Rajya Sabha (the upper house of the national parliament) and the state Legislative Council who live there to have a seat on the municipal board; in fact, this could be construed to mean that states may permit other

[2] Most states use the "block" or "tehsil" unit as the base for intermediate panchayats, while others use the slightly smaller "development block" previously used by national rural relief programs such as the Jawahar Rojgar Yojana.

elected officials to outnumber municipally elected officials on the town council (243 R). Again, as in the 73rd Amendment, states may devolve powers and responsibilities to the municipalities, including those listed in the Twelfth Schedule (243 W), grant tax powers or assign state tax revenues to them (243 X), or reserve seats for other backward classes (243 T).

The 74th Amendment mandates a planning system at the district and metropolitan levels. States are required to set up District Planning Committees, at least 80 percent of whose membership is to be taken from district panchayat and town council members, to "consolidate" both panchayat and municipal plans into a district development plan and consider "spatial planning, sharing of water and other physical and natural resources, the integrated development of infrastructure and environmental conservation" as well as examine available financial resources and consult any organizations that the state's governor may mandate (243 ZD). A flexible new category of "metropolitan areas" allows states to establish planning bodies that can cross municipal and district boundaries (243 P). Section 243 ZE requires the establishment of metropolitan planning committees, again composed largely (66 percent) of elected panchayat or municipal officials from the area in question. In addition to considering issues, consulting organizations, and accounting for available resources for the district planning process, this section further requires that the committee "have regard to" the plans of area local bodies, "likely" investments by other levels of government or public agencies, and "overall objectives and priorities" of the Central or state governments (243 ZE). The appointment of elected officials to district and metropolitan planning committees is up to the state governments but must reflect, in the relative numbers of town councilors and panchayat members, the relative proportion of urban and rural residents in the district or area concerned.

Both Amendments, then, are highly specific about administrative form but leave the core issues in decentralization, a better distribution of responsibilities and capacities, undefined. The Eleventh and Twelfth Schedules are essentially suggestions for areas of municipal competence, and state conformity acts show wide variation in the responsibilities they assign to municipalities, especially those that are traditionally the purview of the state or Central levels (Mohanty 1997). The ability of the Centre to effectively sanction state governments that willfully ignore either Amendment is constitutionally limited to the extreme step of dismissing the state government, though litigation could be initiated by either the Central government or another interested party to force compliance (Aiyar 2002). Though panchayats at the intermediate and district level are required to elect their chairperson from their own ranks, the chairpersons of village panchayats, district and metropolitan planning committees and municipal councils can be selected by whatever system the state government chooses, and (at least for district planning committees) the states have frequently assigned the chairpersonship to government ministers or other state officials (Pal 1999). The state government's power to select village panchayat chairpersons can be (and has been) used to effectively limit the membership of intermediate and district panchayats to direct or indirect state appointees. The flow of

accountability and power within the municipal system is less complex than in the panchayat system, but also less clearly defined; the effective status of municipalities is therefore somewhat more dependent on individual states' implementation of their particular municipal regimes.

5. The 73rd and 74th Amendments

Implementation

NATIONAL IMPLEMENTATION

Given the structure of the Amendments and the latitude they afford state governments, it is no surprise that the implementation of the new municipal order has been uneven and heavily criticized. Lists of proposed municipal functions and revenue sources are found throughout the literature, often accompanied by calls for a new constitutional amendment to fully implement them (e.g., Muherjee 1994, Mohanty 1999). Though both upper levels of government have been forced to redefine the terms of their interaction with municipalities, neither have much incentive to surrender administrative leverage to grassroots village bodies. Under the Amendments, after all, "the state legislature is thus the sole determinant of what constitutes 'self-government'" (Srivastava 2002). Party structures both in and out of government have been equally intent on controlling the panchayat system, given its resonance in both neo-Gandhian and neoliberal rhetoric, and its potential to enable elected officials and parties to sidestep conventional bureaucratic channels. A recent commentator reviewed the overly centralizing implementation of panchayati raj by state governments widely considered to be exemplary decentralizers and reasonably concluded that "decentralisation has not been programmatised in the agenda of political parties" (Chathukulam 2003). State and federal entities instead exercise various strategies to keep municipalities and panchayats on a tight leash.

The system of district administration was directly threatened by panchayati raj, which was indeed aimed at blunting district bureaucratic power. The District Rural Development Agency, in particular, is a federally-administered district-level poverty alleviation program that acts in multiple areas of specific district panchayat competency but exists largely to act as a district-level clearinghouse for federal and state funding, and yet continues to exist a full ten years after the Amendments (Aiyar 2002, Singh 1994). The role of district local bodies is effectively split between responsibilities spelled out in the five-year plan and funded directly by the central government, and state development spending outside of the plan. Local bodies are funded so minimally as to preclude any discretionary spending, and ostensibly general funding comes dedicated to specific concerns (Girglani 1994).

Even when constituted and given something to do, local bodies function as an administrative dumping ground for state governments. The lowest-performing state officials, as well as those most hostile to decentralization, are often the ones delegated to panchayats (Singh 1994). The tax powers relegated to municipalities are typically minor and inelastic sources of revenue, tied to marginal or declining activites; frequently, less than half of the revenues from municipally-earmarked taxes collected by the states are actually passed on to local bodies (Girglani 1994). Despite years of institutional change, municipal governments still do not write their own budgets or set their own tax rates, and even small expenditures by municipal governments – as little as Rs 8000 in the case of Tamil Nadu – require state approval (Jha 1993). The result of these financial handicaps is the tiny (albeit growing) share of national and state GDP accounted for by municipal expenditures: .41% in Chhattisgarh, .36% in Madhya Pradesh, and .71% nationally (Makur & Thakur 2004:48).

Finally, elected local bodies are implemented as upwardly accountable entities, responsible not to their electorate but to State-level ministers. Though panchayats at the intermediate and district level are required to elect their chairperson from their own ranks, the chairpersons of village panchayats, district and metropolitan planning and municipal councils can be selected by whatever system the state government chooses, and (at least for district planning committees) the states have frequently assigned the chairpersonship to government ministers or other state officials (Pal 1999). State governments have approached local bodies not as democratic vehicles for communicating priorities and concerns up from the local level and the popular masses to the state government, but as avenues for adding a veneer of democratic rhetoric and local legitimacy to a clientelistic and heavily bureaucratized top-down system. Goel and Dhaliwal (2002: ch. 3) argue that the increased municipal powers spelled out in the 74th Amendment directly threaten state governments, setting up conflict over local government's latitude. They propose five types of control exercised by states on municipalities: executive, legislative, penal, financial, and judicial. Though the

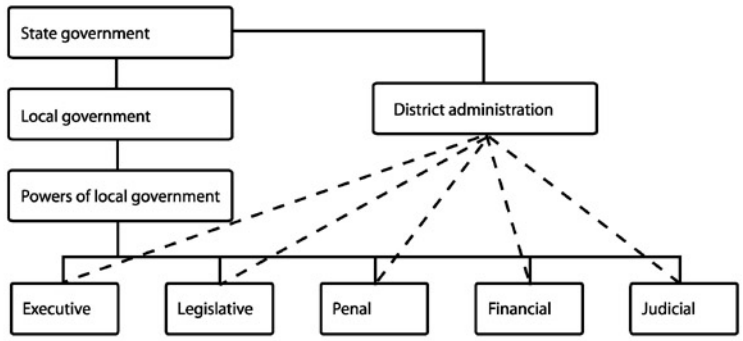


Diagram 5.1: Municipal-state relationships and sources of tension

Source: Adapted from Goel and Dhaliwal 2002

authors acknowledge the narrowness of state financial and legislative control, they find the ability to dismiss local government members and dissolve local governments entire to be root of state supremacy over local governments. More everyday administrative dominance is exercised through the relationships illustrated in Diagram 5.1, in which district administration forms an avenue of indirect state control over municipal functions leading to a tug-of-war between local and state government over operations.

IMPLEMENTATION IN MADHYA PRADESH

Madhya Pradesh has moved aggressively towards district decentralization, both within and beyond the framework outlined in the Amendments.[3] Digvigay Singh, the Congress Chief Minister who came to power in 1993, was a keen supporter of decentralization, and took care to cultivate zilla (district) panchayats as a power base and grant them extra powers over the bureaucracy. Multiple waves of municipal reforms, some related to the implementation of the 74th Amendment and some not, have also gone forward throughout the 1990's. They have resulted in some impressive-sounding numbers: 4.8 million participants in joint forest management committees, 344,424 panchayat members, 51,086 trained village community

Panchayats and districts

Madhya Pradesh passed its conformity legislation in January 1994, with panchayat elections held successfully in September 1994 and April 1999 (Kumar 2004). Combined with other administrative reforms that concentrated power in the Chief Minister's office, district-level panchayat structures effectively permitted him to maneuver around recalcitrant State departments and his own legislative caucus (Mason 2004). Under the first decentralization effort, governed by the 1994 *Madhya Pradesh Panchayat Raj Adhinyam*, the standard three-tier system of village, block, and district panchayats was established. Funding streams – some mandatory, such as those Madhya Pradesh had imposed in the 1960's to force local bodies to increase their reliance on locally-generated revenue – were assigned to all three tiers, from a stamp duty and multiple

[3] Chhattisgarh has become a separate state only recently, and the Madhya Pradesh framework of municipal regulation discussed in this section will continue to apply there until the state pursues its own municipal policies.

agricultural land revenue taxes. Village panchayats were given the ability to levy *optional* taxes on water and drainage, as well as fees for the use of common resources ; they were *obligated* to levy taxes on nonagricultural land, buildings, public latrines, and professions, along with fees for lighting, private latrine cleaning, markets, and animals sold (Rajaraman et al. 1996). Accompanying legislation, the *Madhya Pradesh Zila Yojana Adhiniyam* of 1995, established District Planning Commitees (DPCs) as the cornerstone of district government. Though formally reserved to the planning functions not already allocated to panchayats or municipalities, the DPCs are charged with the considerable task of coordinating local policy and planning across the district:

> [T]here shall be constituted in each district a district planning committee to consolidate the plans prepared by panchayats and municipalities in the district and to prepare the draft development plan for the district as a whole having regard to (i) matters of common interest between panchayats and municipalities, including spatial planning, sharing of water and other physical and natural resources, integrated development of infrastructure and environmental conservation, (ii) the extent and type of available resources whether financial or otherwise and consult such institutions and organizations as the state government may, by order specify. (Madhya Pradesh 1995, in Minocha 1999)

This Act assigned full planning functions to the DPCs, including:

- [I]dentification of local needs and objectives within the framework of national and state-level objectives;
- collection, compilation and updating of information relating to the human and physical resources of the district;
- listing and mapping of the facilities at the village, block, and district level;
- determination of priorities for the development of the district;
- formulation of annual and five-year plans in their socio-economic, temporal, and spatial dimensions;
- consolidation of plans prepared by panchayati raj institutions and municipalities and submitting to the state government the district plan for incorporation into the state plan;
- estimation of financial resources for financing the district plan;
- monitoring, evaluation and review of progress;
- identifying schemes of development requiring institutional finance;
- ensuring participation of voluntary organizations in the overall development process;
- making suggestions to the state government with regard to the state sector schemes having significant bearing on the process of development of the district;
- allocation of sectoral and sub-sectoral outlays within the overall framework of the district development plan.

(Minocha 1999)

The role of DPCs was further augmented by an amendment to the 1995 Act, passed in 1999, which permitted the district governments to exercise whatever additional powers the state saw fit to grant them. The devolved functions in pre- and post-Amendments were centered around economic development functions, again highlighting the tight connection between decentralization and efforts towards development and social justice. The district tier of governance, and the activities of the DPCs, were explicitly envisioned to coordinate the separate rural and urban local bodies, themselves constituted to further economic development and social justice (Behar 1999). In a sense, district governance addresses the basic development goals of decentralization, but expands the scale of administration up from localities to districts. In receiving

decentralized state functions, the DPCs "were deemed to be *subordinate bodies* of the state government and as such regulated by the state government" (Minocha 1999, emphasis mine).

A revised system of district government, incorporating the thrust of the 1999 amendment, was passed in 2001: the *Madhya Pradesh Panchayat Raj Evam Gram Swaraj Adhinyam* further concentrated power in the hands of DPCs and ministers and marginalized the zilla panchayats. For each district, a district minister is assigned as the chair of the DPC, and state departments have been directed to restructure their staffs on a district basis, breaking up centralized statewide departments into individual district administrations answerable to the district minister – 33 state departments, out of a total of 51, had done so by 2002 (Mason 2004). The total membership of each DPC is either 15, 20, or 25, depending on the size of the district; four-fifths of the members of each are to be elected by and from the zilla panchayat and the district's municipal councils, and the proportions of rural and urban members are to reflect the relative proportion of rural and urban residents in the district (Behar 1999). The district collector, a state-appointed tax official that wielded great power in the old system, functions as the secretary of the DPC. Other members include the president of the zilla panchayat, one (sometimes two, depending on the population of the district) state appointee, and the state and Central elected officials who represent the district (Singh 2001, Venkatesan 1999).

It should also be noted that the heavy concentrations of SCs and STs in certain mostly rural districts has led to the designation of 11 of 61 total districts as Scheduled Areas, and 19 as partially Scheduled Areas containing 70 Scheduled Area blocks and 95 non-Scheduled Area blocks in total (ODI 2002a: 28). Though seat reservations for STs, SCs, and women remain in effect outside of the Scheduled Areas, the area designation does have an effect on the level and administrative setup of certain kinds of Centrally- and state-administered funding. This is less directly relevant to cities, but it is a factor in how decentralization operates and is perceived in Madhya Pradesh's largely caste-based politics (Singh et al. 2003). Singh's government, along with Ajit Jogi's Congress in Chattisgarh, went down to defeat in 2004 partly because of the rise of upwardly mobile Other Backward Castes (OBCs) loyal to the BJP and resentful of the large-scale reservations for SCs and STs in India's adivasi heartland (Mason 2004). The way in which district government incorporates both rural and urban constituencies opens up space in which rural issues and structures can have a marked effect on the political control of municipal affairs.

Municipalities

The Municipal Corporation Act also specified new systems of city government, including participatory local committees, to broaden the tax base and capabilities of urban government while reforming its representative institutions. A 1994 amendment to the Municipal Corporation Act set up wards committees that cut across conventional "ward" boundaries, in order to create a level of coordination that covers broad areas of the city at once; one for every 100,000 residents in municipalities with populations of over 300,000. Ward

committees are composed of the city councilors who represent the area, along with two local residents per ward, nominated by the mayor, who serve *ex officio*. These committees are intended to bring ward councilors into contact with their constituents and to permit councilors to facilitate and lead community development projects. The Act also specifies government/community committees, m*ohalla samiti,* at some smaller level. This can correspond to individual municipal wards, each represented by a single councilor who sits on the committee, but the exact composition and configuration of *mohalla* committees are left open (Madhya Pradesh Municipal Corporation Act [MPMCA] ss. 48a, 48b). Neither kind of committee is active in Jabalpur or Raipur as of this writing.

Other notable provisions of this Act, especially relevant to the factors under consideration here, are the introduction of a mayor-in-council system, and a new committee structure for city council; the introduction of recall provisions for panchayat and municipal council members, including panchayat presidents and mayors; and the placement of solid waste management under the remit of the city Health Officer (Sharma 2002). The mayor-in-council vests executive power in an eleven-member board composed of the mayor and ten councilors of his or her choosing, who may be also serve as the heads of city departments to form a kind of municipal cabinet. In addition to these optional "ministers," each department forms an advisory committee to directly inform the mayor-in-council about the department's affairs (MPMCA ss. 37, 46). Though this resembles the executive committee systems often seen in North American municipalities, city councils in most Indian states are considered to be strictly legislative branches of local government, with no formal oversight of municipal departments. Executive authority rests in a state-appointed municipal commissioner, who often ran the entire municipal government during the frequent supersessions of elected local bodies in the 1970's and 1980's.

The MPMCA requires the imposition of a range of municipal taxes:

- a property tax, calculated based on the property's gross annual rent value;
- a water tax on those properties connected to the municipal system;
- a sanitary cess, to pay for public toilets and solid waste removal;
- a lighting tax, to pay for street lighting;
- a fire tax, to fund the city's fire brigades;
- a "local-body tax" or octroi, capped at four percent and charged only on certain items listed by the state government.

The state government can establish minimum rates of the water, sanitary, lighting, and fire taxes; it is unclear what those rates are at present (MPMCA, s. 132). It is also unclear how the local body tax does not qualify as a form of octroi – a tax on goods entering or leaving a city, calculated and collected at tollbooths – which other sources list as having been abolished in Madhya Pradesh at some point in the past. In any case, the state government has imposed a tightly defined schedule of the goods to be taxed and the rate at which to tax them, and done so in a way which forces the municipal corporations to violate the procedural rules regarding public notice, hearings and the like before the taxes are imposed (Jindal 2004:146-47). The definition of

assessed value and the procedure by which this value is assessed is highly unclear. The Act contradicts itself on whether the property tax is to be self-assessed by property owners or calculated by the municipal corporation, and does not even properly empower the municipal corporation to do so (Jindal 2004: 154-161).

Several other municipal taxes are optional:

- a latrine tax on private latrines cleaned by the municipal corporation;
- a drainage tax, in areas where drainage systems have been established;
- taxes on professions;
- a toll on vehicles or animals entering the city;
- a fee for the registration of cattle sold in the city;
- a fee on those selling goods in public markets;
- a "betterment tax" or windfall tax on properties whose value increases "as a result of [a] town planning scheme;"
- a tax on those making a religious pilgrimage to the city;
- a tax "on persons… according to their circumstances and property" [an income or wealth tax?]
- tolls on new bridges;
- a tax on advertisements outside of newspapers;
- a tax on theatres and public performances;
- a tax on goods or animals being exported from the city;
- any other tax that the state government can impose, subject to the permission of the state government.

Cities can continue to levy whatever other taxes that they have collected continuously since before 1961, even if they are not in either of the above lists.

The tables below outline the revenues and expenditures of Madhya Pradesh municipalities for the 1997-1998 budget year, before the revised post-Amendment decentralization scheme was implemented. Note the marked reliance of municipalities on state transfers, especially annually renewed grants, and the relatively atrophied tax revenues. This may be in part due to other states' reliance on octroias a reliable and significant source of revenue, which is particularly stifling to commerce, open to fraud, and difficult to collect and administer. Madhya Pradesh wisely abandoned the octroi system for a kind of state octroi, collected at the borders of the state and distributed to municipalities in proportion to their previous octroi receipts (Sharma 2002; see above). On the expenditure side, Madhya Pradesh municipalities spend relatively little per capita (though the lack of true "megacities" in the state, and the higher proportion of rural residents, skews the state towards smaller municipalities with lower levels of expenditure and infrastructure). Taken together, these two factors suggest a high load of infrastructure, built with state funding and forced on municipalities that have to meet operating expendiutres out of a relatively meager funding base. In short, these figures indicate that Madhya Pradesh municipalities are still heavily dependent on state transfers for revenue and state funds for capital projects, and are relatively lacking in autonomy.

Table 5.1: Sources of municipal revenue, 1997-1998

	Total revenue (billions Rs)	Own sources (% of total)			Transfers (% of total)			
		Tax	Non-tax	Total	Shared taxes	Grants	Others	Total
Madhya Pradesh	114.728	22.61	24.73	47.34	11.80	39.90	.88	52.66
Other large states	1634.135	56.40	26.38	82.78	4.05	11.99	1.19	17.23

Source: Adapted from Morris 2001, Table 9.1.5

Table 5.2: Categories of municpal expenditure, 1997-1998 (%)

	Wages & salaries	Operations & maintenance	Interest & debt service	Other
Madhya Pradesh	51.01	37.67	.61	10.71
Other large states	60.32	20.00	7.17	12.51

Source: Adapted from Morris 2001, Table 9.1.7

Table 5.3: Per capita municipal expenditure on core services, 1997-1998 (Rs)

	Water supply	Sewage/ drainage	Conservancy/ sanitation	Municipal roads	Street lighting	All svcs
Madhya Pradesh	79.44	31.92	37.1	27.19	13.16	322.74
Other large states	125.77	93.21	123.36	70.19	23.28	747.02

Source: Adapted from Morris 2001, Table 9.1.8

NB: "Other large states" in the above tables refers to average data for the larger Indian states, generally excluding smaller states in the less-urbanized northeast and the Union Territories.

ASSESSING DECENTRALIZATION

Given the unevenness in implementation between states, how should we site Madhya Pradesh's record on district decentralization? Agrawal and Ribot (1999) note that decentralization is most frequently justified by "the assumption that greater participation in public decisions is a positive good in itself or that it can improve efficiency, equity, development, and resource management" (ibid.: 477). They suggest that a conventional tripartite examination of the political, fiscal, and administrative aspects of decentralization is inadequate to evaluate how or whether its implementation has realized its promise – the the environmentally sensitive and economically crucical forest areas whose institutions considered by Agrawal and Ribot present environmental

and managemental challenges markedly different than those found in urban habitats. Their alternate framework focuses on three different dimensions, namely actors, powers, and accountability. Assessing actors requires assessing not just the powers devolved to them, but their interests and capabilities. The authors separate decision-making powers into four broad categories: making rules, making decisions, ensuring compliance, and adjudicating disputes. The particular way in which these four powers are apportioned to different actors at different levels will permit or obstruct the ability of actors to effectively carry out roles and functions. Though these first two categories formally enact decentralization, accountability is how decentralization itself is procedurally enforced. Accountability is understood as being both relational, and therefore a part of the interaction between different actors, and about the ability of "those subject to actors holding decentralized power… [to exercise a] counterpower to balance arbitrary action" (ibid.: 478).

This approach requires relatively close attention to the administrative processes and discretionary powers assigned to local bodies by the individual states in order to determine whether true decentralization of decision-making power or mere deconcentration of administrative responsibility has taken place. Despite incomplete information on the decentralization regime, an initial assessment is possible.

Actors

Rural villagers exercise control over the village panchayat through the village assembly or *gram* samiti, elect members every five years, and can recall them.
City residents can elect city councilors and mayors, subject to the same elections and recalls.
Elected officials from both types of local body sit on the block and zilla panchayats, as well as the DPC.
The **DPC** is formed by both elected officials and state appointees.
The **state government** selects the village panchayat chair, the district collector (and therefore the head of the DPC), one or two members of the DPC, and the district minister.
Notably, **block panchayat members** are not included in this list. The purpose and powers of block panchayats have been left unclear by the district-based reforms, and little information beyond this fact has been found.

Nature of powers devolved

Rural villagers and **city residents** have powers of election and recall as noted above; before the decentralization initiatives, these did not exist in their current form. The regulation of elections by the state electoral commission, and the reservations for SCs, STs, and women, did not exist before the reform and may change the role of marginalized groups within a state historically dominated by upper castes.
The **DPCs** have significant leeway over district administration, including: transfer of class II, III and IV employees barring police, municipal and panchayat employees; grants to NGOs; sanction of works by public water, health, and irrigation departments; changes to municipal limits; changes in territorial jurisdiction of

police stations; rationalization of government staff within the district; allotment of land; purchase of medicines for hospitals; appointment of notaries; declaration of three local holidays; naming of roads, buildings and dams; renewal of firearm licences; bus permits; purchase of food for jails; and compensation for damage by wild animals (Singh 2000), in addition to the preparation of district plans incorporating those of lower-tier jurisdictions as listed above. They have powers to create rules about development, decide on the use of self-generated resources, implement regulations on lower tiers of government and decentralized departments and ensure the compliance of some kinds of state officials. Their powers of adjudication are limited to the planning sphere.

State government has the power to appoint the heads of the DPCs and of the village panchayats. It retains the ability to approve moderate- and large-scale expenditures by local bodies, though it is unclear whether this power remains with the government in Bhopal or has been devolved to district ministers or DPCs more broadly. It assigns taxes to local bodies at different levels, makes specific grants to them, and forwards them a share of state-collected taxes. It retains most powers to create and implement rules and make decisions, especially financial ones; despite the measures specified in the Amendments dealing with the structure of local government, the state has total sway over the autonomy afforded to lower levels of government, including the entire system of district decentralization. It retains the ability to adjudicate disputes about the disposition of senior staff, as well as the formal judicial functions which remain centralized.

The **panchayats** and **municipalities** administer development-related programs, narrowly defined and funded by Centrally and state-funded grants, and can spend their own funds within state oversight as above. They have, therefore, limited powers to make decisions, formulate rules, or ensure compliance with them. Their powers of adjudication are basically nil, though local cultural traditions may empower them – especially village panchayats – with traditional adjudication functions.

Accountability

Rural villagers and **city residents** maintain basic powers of election and recall as noted above.
DPCs are largely upwardly accountable, as the state government appoints a number of their members; other elected officials who serve on the DPCs are electorally accountable to their constituents. Importantly, elected officials are downwardly accountable only as elected officials and not as the members of the DPC. They are horizontally accountable to the other elected officials who form the pool of electors to the DPC.
Panchayats and **municipalities** are downwardly accountable at the village level, though the ability of state governments to appoint panchayat chairs makes higher-level panchayats upwardly accountable to the state governments. They are upwardly accountable to the state and central governments for all of their funding, though the variety of ways in which that funding is distributed connects different funding streams to different parts of the state government.

The **state government** is upwardly accountable to the Central government for certain funding streams, though it exercises some discretion about how some of those funds are distributed. It is downwardly accountable to the electorate.

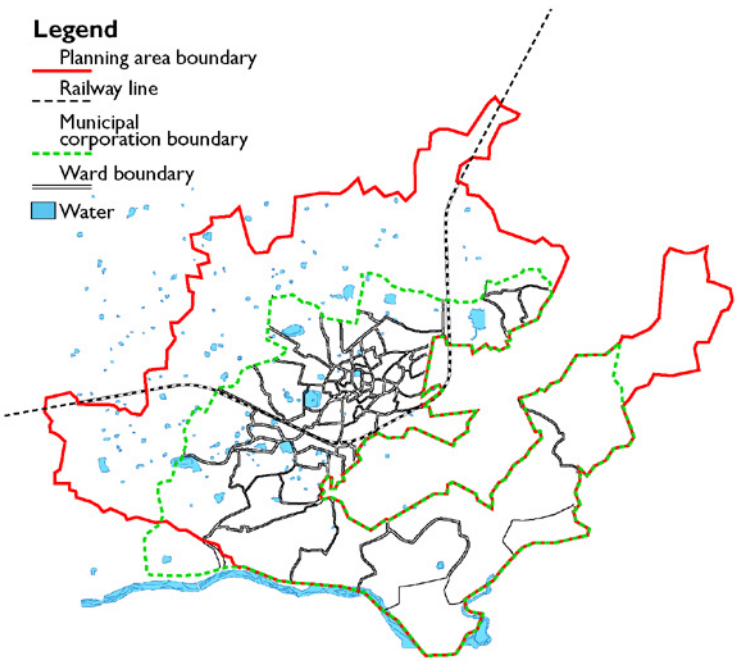
Assessed in Agrawal and Ribot's terms, the Madhya Pradesh system of district decentralization shows aspects of both decentralization, in which power is distributed to the periphery, and deconcentration, in which powers are devolved to a greater number of state-appointed actors. The state government and local bodies are both downwardly accountable to their constituents. The structure of elections gives the electorate significant powers over the state and local governments, but this is exercisable over multi-year time-frames and subject to regulations themselves formulated by the state governments. Even at best, local elections are questionable sources of popular legitimacy, offering intermittent opportunities to influence the overall direction of the institutions concerned; as Devas (1999) puts it, the model of local elective democracy is characterized by "low voter turnouts at local elections, often little effective political choice, with voters being offered very broad policy packages and minimal scope for the electorate to influence specific decisions" (5). Upper-level panchayats and DPCs are more upwardly accountable to the state government itself, especially in their more significant decision-making powers and sources of funding, with only partial or hybrid downward accountability to lower-level bodies and the electorate, often through multiple layers of intervening bodies. To a great extent, the DPCs have been empowered as local arms of the state, and function as buffers between state and local administration by receiving powers from both.

Agrawal and Ribot assert that "the critical questions to ask… relate to the nature of powers that are devolved and the type of accountability that is instituted" (1999: 493). In that sense, powers are *not* fully devolved from the state government, and the elected bodies are far more upwardly accountable than downwardly so. Financially, the state government (along with the Central) has remained in control, devolving minimal revenue-generating powers to lower-level bodies and minutely specifying the ways in which the grants, which make up the lion's share of local-body funding, are to be spent. Adjudication in particular has remained vague: citizens have a limited ability to challenge the decisions of decentralized bodies, while the state government retains the ability to replace the key officials within DPCs and within the departments spun out to the districts. The experience in Madhya Pradesh has been one in which the state government implements Centrally-mandated decentralization on its own terms, which effectively amount to administrative deconcentration with only some truly decentralizing aspects.

6. Jabalpur: State of the city

The Jabalpur Municipal Corporation (*Nagar Nigam Jabalpur*, or JMC) serves a population of 950,000. Near the heart of the city, a major military cantonment serves as the municipal government for a vast swath of urbanized territory populated by 66,000 people. Though Jabalpur has something of a reputation as a multicultural university town, its people are overwhelmingly Hindu and Hindi is the language of public life. Long an administrative center for eastern Madhya Pradesh, the city is the state's judicial capital, home to the headquarters of the state electricity board, and the site of an Indian Railways divisional headquarters.

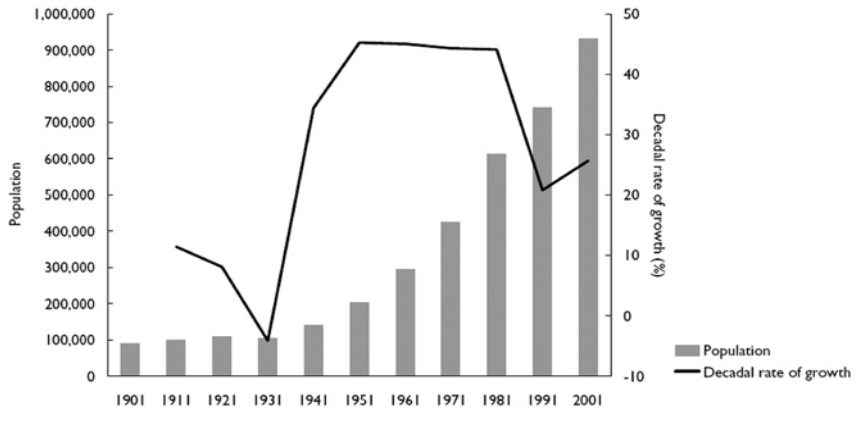
The core city is dominated to the southwest by the Madan Mahal Hill, a plateau with several summits; the low, rocky ridge dotted with trees rises behind Jabalpur in much the same way that Mount Royal forms a backdrop to the Montreal skyline. One of the summits is crowned by a 12th-century palace and lookout, the original Madan Mahal, that is often employed as a symbol of the city. To the south of the city, the terrain becomes hilly and rocky as it slopes down to the Narmada River. To the north and west is a flat plain of rich black cotton soil, used for agriculture until the period of explosive urban growth in the 1970's. The small streams that run through the city drain down to this plain, eventually reaching the Pariyat River to the north, and carried water and nutrients to the fields until urbanization. Some of them fed the ponds and tanks that dot the landscape, most built by various Kalchuri and Gond dynasts.



Map 6.1: Jabalpur – Current political boundaries

Base cartography by Gaurav Jain and Jian Ma

Jabalpur's municipal corporation covers the southern two-thirds of the planning area, leaving out industrial suburbs to the north around the railway line, and some rapidly developing areas to the northwest of the city. The military cantonment occupies a broad southwest-northeast swath across the city and planning area, and is governed by a military commission that is answerable to the Defence Ministry. Founded by the British in 1826, the cantonment is home to several military units, a substantial civilian population, and a well-known concentration of military industry. Large factory complexes dedicated to the production of heavy trucks and artillery carriages lie outside the municipal corporation boundaries to the north, concentrated around the railway line. The railway has a heavy physical presence to match its administrative one, running variously on an embankment, in a cut, and at grade level across the city. The special purpose and tight development control exercised by the cantonment, along with the limited number of crossings at the busiest and widest section of the railway, near the passenger and freight depots at the heart of the city, have limited access to and the development of the city's southeastern wards beyond the cantonment.



Graph 6.1: Jabalpur MC – Population and growth

Source: Census of India 1981-2001

Jabalpur's population remained relatively stable, around 100,000 people, until the 1930's began a period of explosive growth – the kind of rapid urbanization usually associated more closely with the post-independence period. This growth slowed again during the 1980's and

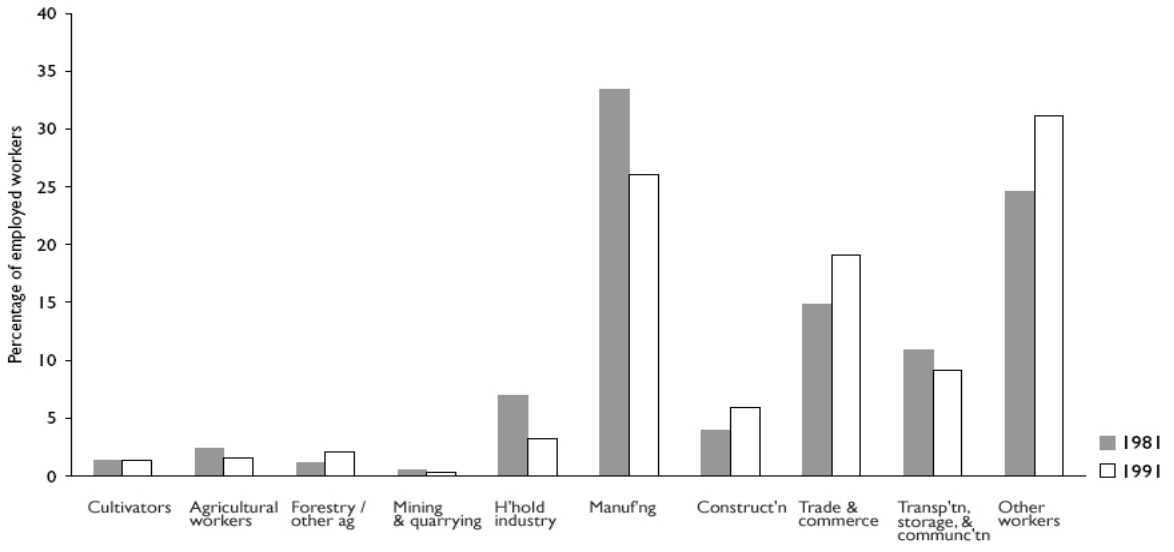
1990's, though population increases remained substantial in absolute terms.

Table 6.1: Jabalpur and Madhya Pradesh – Population

	Population	Scheduled Castes (%)	Scheduled Tribes (%)	Literacy rate (%)
Jabalpur (UA)	1,049,847	13.0	4.0	74.7
Madhya Pradesh (urban)	15,967,145	27.1	3.6	69.4
Madhya Pradesh (rural)	44,380,878	33.3	13.8	52.9
Madhya Pradesh (total)	60,346,023	31.7	11.1	57.3

Source: Census of India 2001

Jabalpur lies within the northwestern portion of India's core tribal area, a region spanning eastern Madhya Pradesh, Chhattisgarh, northern Andhra Pradesh, and parts of Orissa and Bihar. These tribal cultures continue to survive in a variety of contexts, with some tribals living in slums in the larger regional cities such as Jabalpur, while others carry on subsistence agriculture in forests or work as tenant farmers on the marginal paddy fields hacked out of the jungle a generation ago. With their low position in the caste hierarchy – some upper-caste orthodox Hindus do not even consider them Hindus at all – many have joined evangelical Protestant denominations, which have brought new life to the crumbling Gothic stucco churches of the British-built Napier Town area. Jabalpur's role as a regional metropolis in an agricultural area is likely responsible for its slightly higher-than-average urban concentration of Scheduled Tribes, a dynamic described in more detail in the Raipur chapter. The higher literacy rates found in the city may be attributable to the presence of higher educational institutions and the Madhya Pradesh High Court; the latter attracts a visible concentration of robed and collared lawyers, sufficient to sustain a number of notaries, law bookstores, and other providers of legal services.



Graph 6.2: Jabalpur UA – Occupational structure, 1981-91

Source: Census of India 1981, 1991

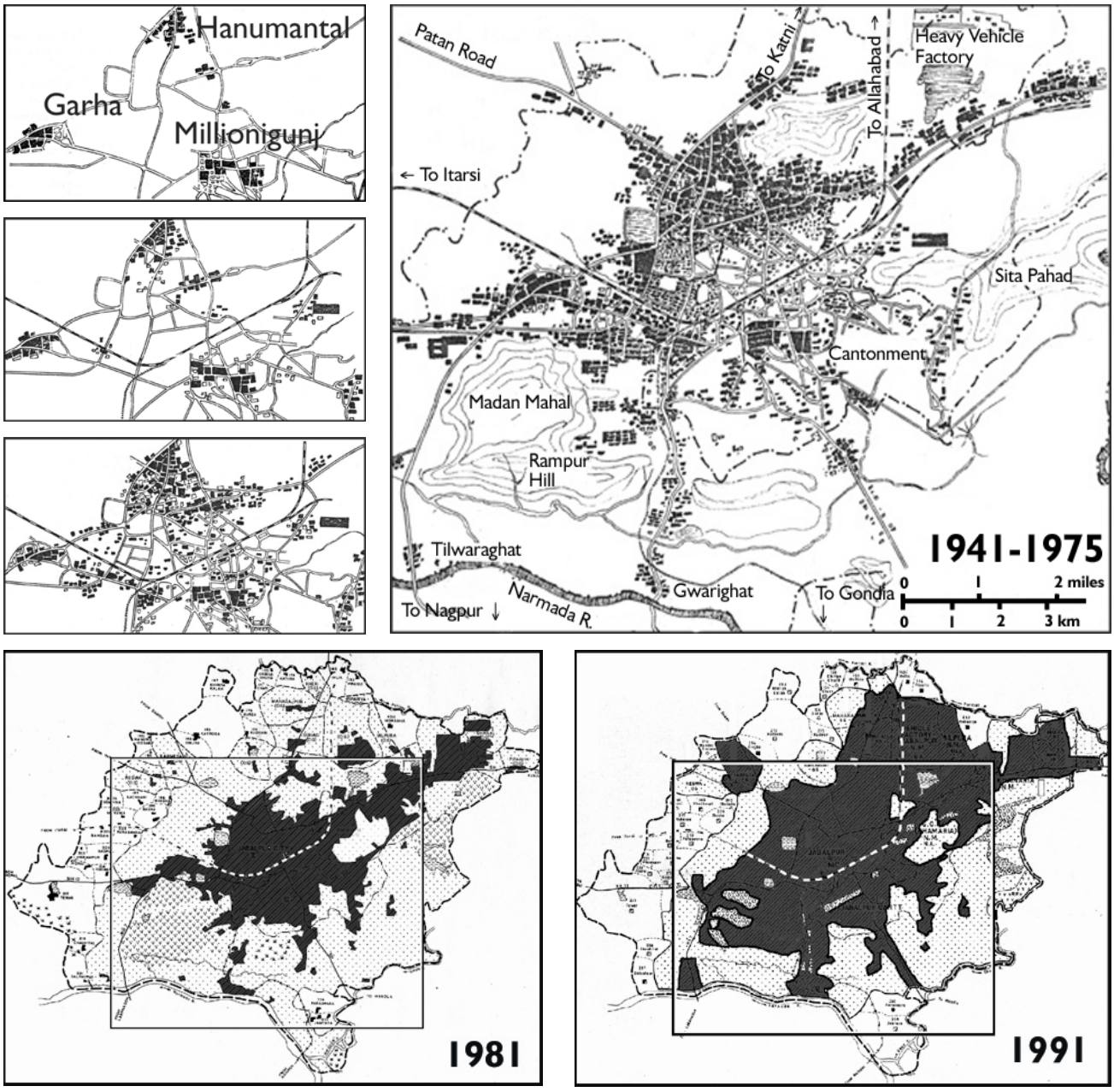
Though full 2001 data have not been released by the Census of India, 1981 and 1991 data presented in Graph 6.2 indicate a pronounced shift away from secondary to tertiary activities. The percentage of workers in household industry – a category that encompasses a range of economic activities conducted in the home, from more traditional crafts such as the manufacture of *khadi* (homespun cloth) to vehicle repair and even light manufacturing – and manufacturing sectors declined sharply. Moreover, the more purely service-oriented tertiary sectors of trade and "other" workers (encompassing mostly government and service employees) took up this slack, while the freight and warehousing industry (decidedly low-tech and a far cry from the capital-intensive freight logistics operations common in more advanced industrial economies and heavily dependent on information technology) declined slightly. Despite this shift, which has likely continued through to 2001, Jabalpur's imports and exports remain prosaic, dominated by low-value added consumer products such as *bidi*, small cigarettes usually rolled by children in factories.[4] Agriculture and related fields form a persistent, if minor, component of the workforce, suggesting continued urban agricultural activity; the presence of livestock in urban settings remains a visible hallmark of Indian city life. The continued extension of the boundaries of the urban agglomeration has likely also brought more peri-urban agricultural land into the sample.

Table 6.2: Jabalpur – Major imports and exports, 1991

Principal imports	Principal exports	Principal commodities manufactured
• Sheet iron	• Handloom	• Handloom
• Sugar	• Soap	• Soap
• Tobacco	• Chinaware	• Bidi

Source: Census of India 1991

[4] The estimates of imports and exports were calculated for the JMC only, and therefore exclude the heavier industrial complexes in the Cantonment and on the city's northern fringe.



Map 6.2: Jabalpur – Growth of urbanized area

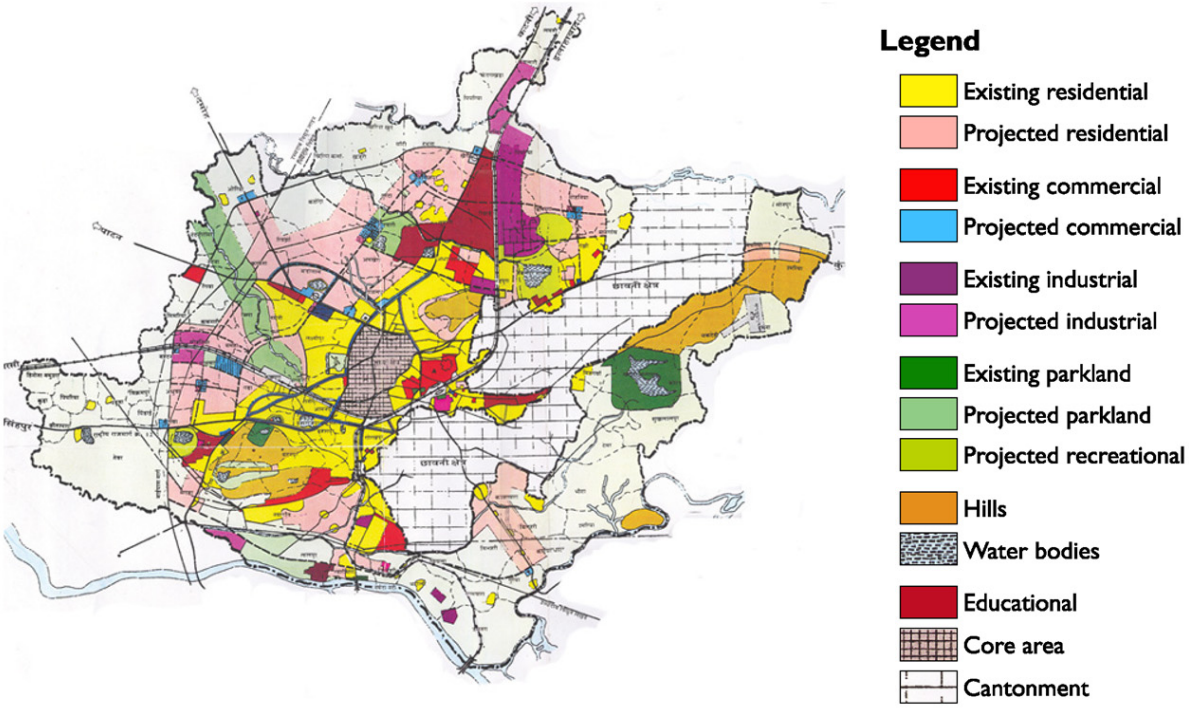
Sources: Census of India 1981, 1991

URBAN FORM AND LAND DEVELOPMENT

Jabalpur has grown around a nucleus of three original settlements: Garha, a lower-caste village at the base of Madan Mahal that is believed to have developed within now-destroyed Gond fortifications; Hanumantal, a commercial node centered around the tank of the same name; and Millionigunj/Cantonment, straddling the Cantonment boundary south of the railway line, which took on a commercial and industrial character. The period after Independence saw industrial development continue in and around the Cantonment, with the

construction of the Gun Carriage Factory, Ordinance Factory, and Telecom Works.[5] Over the same time, Jabalpur's higher educational institutions were founded: the Engineering College (1947), the Veterinary College (1948), the Medical College (1956), and the Home Science College (1960, now a more general women's college) (MPDG 1968).

The choice to direct urban development to the northwest was made in the 1977 Jabalpur Development Plan. Expansion into the plains was intended to advance, among other goals, the "decentralization of work places," the development of "self-contained planning units with disposition of facilities, services and amenities on the basis of hierarchical order," "separate pedestrian and cycle tracks for slow-moving traffic in new development," and the "improvement of sanitary conditions and evolving efficient garbage disposal system" (MP TCPD 1977: 153-4). The primary conceptual tool used in the plan is the designation and consolidation of specific land uses, which constitutes a significant break from the traditional tight mix of activities found in Indian cities. Of the fifteen major "incompatible" facilities or land uses listed on p. 249 of the 1977 Plan, only two are not industrial enterprises; of the proposed replacement uses, only five are not retail or residential. The development of a hierarchical system of roads is another primary focus, intended to direct and help segregate different kinds of traffic through the layout of a new supergrid system, bypasses and ring roads to alleviate congestion in older areas, and a precise delineation of road widths.



Map 6.3: Jabalpur land use

MP TCPO

[5] A unit of the Signal Corps has long called the Cantonment its home, and even today a massive concrete communications tower is the most visible landmark of the Cantonment. No mention was made, in any official or unofficial source, of any resultant potential for telecoms development – possibly due to the high degree of Central government control and/or tight vertical integration of military industrial activity, which would limit potential local spinoffs.

Implementation of the new land use regime was to be carried out through zoning, though the 1977 Plan is unclear as to what agency or level of government would be charged with enforcement of its provisions: the state Town and Country Planning Department (now known as the Town and Country Planning Office or TCPO) "will provide necessary guidance by rendering technical advice and arranging proper scrutiny so as to ensure that the proposed constructions conform to… the approved Development Plan" (MP TCPD 1977: 266). It charges the Jabalpur Development Authority, then only "likely to be established" (ibid.), with implementation of the plan, while expressing the hope that the JDA and other state agencies coordinate their activities. The proposed budget and schedule for the first phase of the new Jabalpur mention only the relocation of conflicting land uses, the provision of recreational facilities, and the construction of new roads (ibid.: 265-77), despite highlighting "Provision of integrated water supply and sewerage system for the entire city, particularly, areas which are devoid of these services" (ibid.: 155) as one of the considerations that were used to "form a basic guide for the Development Plan" (ibid.: 154).

TRASH AND SEWAGE: BLAME AND PROGRESS

By the 1990's, the sanitary and stormwater drainage system had grown too decrepit to ignore. The infill and development of tanks obstructed natural watercourses, eliminated the capacity of the tanks to retain stormwater surges, and placed new development in low-lying areas that flooded during the rainy season. Local consultants retained by the JMC noted "It is very apparent that the problem of storm water stagnation and flooding is more man made, as the conversion and use of low lying areas for residential building purpose[s] [has] been done without proper survey and investigation" (R.K. Builders: 3). In its own studies, the local office of the state Public Health Engineering Department did not mention the functional characteristics of the previous open drain system, failing to account for its operational capacity or performance while insisting on the necessity of replacing it with a conventional sanitary sewer system and wastewater treatment plant. No consideration is given to the role of domestic wastewater in the groundwater system, or the positive or negative consequences of a flow of treated effluent from a treatment plant sent directly to the Narmada River (MP PHED 2003). The consequences of not building a sanitary sewer system are laid out in stark terms: the situation is presently "hopeless" and shortly "will become acute and unmanageable," while "it would not be an exaggeration to predict that Jabalpur will become one of the most dangerous endemic centres of filariasis and other diseases… Jabalpur will then struggle for survival in its own sewage" (ibid.: 26).

In parallel with the call for a sewer system, the JMC has made efforts to develop and implement a solid waste collection system. Among its goals were to set up primary collection (especially in slums), a street-cleaning system, an improved secondary storage and collection system, as well as broader goals such as "institutional strengthening" and promotiong "public and private partnership." (JMC 2001: 2-3). Beyond the

technical or governance goals, however, one objective stands out: "to devise systems to eliminate the age old practice of throwing garbage on the streets or outside the dustbins causing nuisance to the people and posing a threat to the health of the community at large" (ibid.). This is largely to be accomplished through the provision of simple household garbage cans, a rarity in a city where many households have an informal garbage pile somewhere within throwing distance of the kitchen or front door. Additional measures to segregate (or at least address) hotel, hospital, market, and construction wastes are proposed, and a system of primary and secondary collection – including the tasks, equipment, and staffing levels of street sweepers – is outlined in detail. Disposal options are given short shrift: aside from describing methods such as composting, sanitary landfilling, and incineration, the report comes to no conclusions about the most appropriate way of dealing with non-compostable and non-recyclable waste, and the budget gives an arbitrary figure of Rs 2.5 million for "landfill site development" and Rs 60 million for the erection of a compost plant (ibid.: 82).[6] Though the legal guidelines currently in force for sanitary landfills are included in an annex to the report, it does not use those or any other criteria to propose disposal sites.

One can make out, in these official perspectives and the realities they alternately address and ignore, both a vision for the future city and a reading of the existing one that point out some contradictions in Indian modernity. The selective absence of infrastructure is itself treated as a confusing failure: "It is rather odd that in the 21st century reasons have to be searched and advanced to justify an underground sewage project. In this space age, such a thing as a sewerage project should be elementary and should be taken for granted. The modern city dweller [can]not imagine a city without sewers. It is a **MUST** and no reasons or explanations should be required to justify such a project" (MP PHED 2002:47). The imperative is not sustainable, sanitary, or cost-effective wastewater management but a sewer system, in and of itself assumed to be sufficient to the task. The tone of the document suggests bafflement and exasperation at the need to explain its own reasoning; that exasperation is itself evidence of a cultural divide between the technical legitimation relied upon by the PHED and the everyday world of households that must ultimately pay for and connect to the proposed system.

The document goes in search of the "special feature[s] peculiar to Jabalpur" (ibid.) that prevent the development of the sewer, such as the technical challenges (excavation in rocky areas, the difficulty of installing the system in built-up neighborhoods) that promise to raise the cost of such a major infrastructure

[6] The compost plant is one of the several starred line items in a one-page outline of the capital budget included in the report that the PHED considers optional, including household bins and equipment to handle medical waste. A note comments that "On these items [the] corporation need not invest. This amount of 678.50 lacs [approximately 68million rupees, slightly more than half the proposed total] should be got invested [sic] through [the] private sector. (MP PHED 2003: 83). Further notes indicated that the compost plant could be developed by a private entrepreneur, who would recoup his or her investment by selling the compost as fertilizer. A similar system was tried in the Chhattisgarh city of Bilaspur, where the composting facility was sold to a private concern upon the departure of the Collector who had spearheaded it.

project. The inability of households to pay for the installation of a connection to the sewer system – an allocation of costs to individual households which the document does not question or justify – is an obstacle that even the authors admit is "a very pertinent point against this project and perhaps this single point may have delayed the execution of this project" (ibid.:48). Yet the answers to these problems are presented in the same blankly imperative terms as the call to action: "cost should not perhaps stand in the way of safeguarding Public Health" (ibid.) and compelling households to connect to the public trunk system "may need patience, encouragement, persuasion and when everything else fails, compulsion under the law to achieve the objective" (ibid.:49). This vision of a Jabalpur that works is a vision of a particular kind of public, one that understands the necessity of a sewage system and that agrees to pay for it, with an effective means of coercion in place to enforce the correct outcome when civic-mindedness fails.

Despite the promises of the TCPO, the new areas waere developed without sanitary sewers. The system of improvised open drains running along the building line, flowing to larger collector *nalli*, was and is replicated in new construction throughout the city. Solid waste continues to be thrown out of the doors and windows of rich and poor alike, and the promises of waste segregation appear to have gone unmet. The push to develop the agricultural plain was set forth as the vehicle for the modernization of Jabalpur, a project to be carried out by the JDA and using land use planning and the construction of a new road network as the primary development tools. The development plan defines development in terms of capital construction and new facilities, their existence alone a point of pride and fulcrum of development, and not in terms of the provision of ongoing services.

The sewer system is, similarly, held up as a key to progress and improvement. If "not taken up at all, then Jabalpur city will stand where it is, surrounded by its own sewage and other cities will march ahead" (MP PHED 2002: 49). In making the current systems of solid waste and sanitary management totally objectionable and without possible merit, official discourse has effectively rendered them featureless and blank, without function or beneficial results. The proposed conventional sewer systems are expensive and clearly inappropriate for the context, and have failed numerous times in other Indian cities, but are the only option considered in any depth and held up as desirable goals in and of themselves. The logic of solid waste and sanitary infrastructure – the logic of development – is posed as so transformative and beneficial as to require no justification beyond its promised benefits. The obstacles to this logic (the high cost of the proposed sewer system, and the allocation of some of those costs to landowners) are presented as problems that are best overcome by a more rigorous application of the logic itself (an emphasis on the compelling desirability of the goal, and more elaborate efforts at suasion and enforcement). The population's failure to use inadequate and ineffective systems is described as a moral failure of the citizenry, and not as the technical failure of those systems as they currently operate.

7. Trash, tanks, and modernities

JABALPUR'S DEVELOPMENT AND URBAN ENVIRONMENTAL SYSTEMS: OUTCOMES

The environmental systems and discourses of Jabalpur have led to a set of unsatisfactory environmental outcomes in solid waste management and sanitation; citizen concern about this situation led to the involvement of a local NGO in this research project. The plans examined in the previous chapter share a negative assessment of the city's waste management situation, but make an additional move to assess responsibility. The inability of the public to make the existing system of haphazard secondary collection work is instead highlighted as one of several shortcomings, and an influx of resources into the existing regime is proposed as a solution. The vision set forth in the plans is justified cy invoking goals of development and public cleanliness, with the understanding that the current system has limited the pace of development so far. Yet the state-led development that the same authorities have pursued to fulfil this vision is intimately connected with the pattern of externalities generated by the current solid waste system. "Development" here can apply in both of the senses in which it is used in this paper: a strategy to raise living standards and facilitate capital accumulation in one sense, and a strategy to intensify land uses in another. As a service center, Jabalpur has attracted higher-level command-and-control functions as a function of state-directed investment: railway administration, public power development and management, universities, and courts. Current efforts are focused on adding new residential districts on the periphery and larger buildings amid the existing built-up plots of the central districts, supported by higher-level infrastructure of questionable utility,

such as stadiums and a velodrome. These new signs of urban accomplishment have been built on the sites of urban water bodies long since turned into municipal landfills; the very foundations of the new Jabalpur are the residue of rising household consumption.

Jabalpur's patchwork of poorly-maintained collection efforts can be contrasted with its more deliberate and sustained, if inappropriate, disposal practices. Both levels of waste management incorporate the informal sector, area residents, and local ecological systems. This system is contingent, pursued through everyday practices and unofficial ententes between actors, and may not conform to planning documents or the official discourse. Nonetheless, it constitutes a real and working waste management system, one that relies on and enacts particular ideas of utility, waste, place, and development. The following two sections: a) describe the overall state of SWM in Jabalpur and how current development policies play themselves out in SWM, and b) outline a framework for understanding tanks and urban water bodies as places where multiple policies, practices, and economies intersect. A final section will review the connections between waste and the choice of modernities on offer in urban India.

SOLID WASTE MANAGEMENT

Primary collection of solid waste – the door to door pickup of household garbage – is not provided in Jabalpur. Instead, residents are to bring their refuse to one of six hundred depots, found in almost every conceivable context throughout the city. These roadside secondary collection points range from low-walled concrete enclosures with a capacity of approximately fifteen cubic meters to battered metal skips and dumpsters. Nearly all of the depots observed by the author were surrounded with heaps of garbage, and due to the extraordinary frequency of incidental trash heaps it was often difficult to differentiate between formal and informal sites. The container pictured above – photographed in Raipur, though identical bins are found throughout Jabalpur – is cleaner than most.

Secondary waste collection bin, Raipur

Photo: Vivekanand Gupta

The scene pictured at right, also from Raipur, is more typical of the situation around most roadside waste depots. Cattle and other animals have free access to the bins and are adept at pulling out bags and scattering their contents in search of food. The city empties the containers infrequently, which leads to overloading of vehicles and bins and poor conditions at the secondary collection points.

Secondary waste collection bin, Raipur

Photo: Vivekanand Gupta

Trash and a nalla alongside the Narmada Road

Disposal is hardly more orderly. Solid waste is often used to fill in land to accommodate urban development in various ways beyond tank infill (as discussed in the subsequent sections). Despite claims to sort waste, unsorted household garbage is used in these operations. Above right, a shoulder of the Narmada Road south of the city center is being widened by building up an embankment of trash, to accommodate a new residential development across the street as proudly advertised on the sign. Waste pickers were observed collecting material from the pile, another indicator that the garbage deposited there has not been sorted. At the base of the embankment, a bend in a creek (likely a tributary of Khandari nalla) creates a calm pool (above left) – before the monsoons, when heavy rain may erode the banks – where water buffalo come to wallow. In the background, a newly built mansion overlooks this encounter between wastewater, solid waste, urban cattle, and land development.

The city's solid waste collection and management are carried out by the Jabalpur Public Health Department (PHD), an agency of the municipal corporation. Headed by a Health Officer, typically a medical doctor, the PHD is responsible for general sanitation, including keeping drains and nalli clean. To organize the department's activities, the city has been divided into eight zones, each headed by a Zonal Health Officer who oversees PHD work (including garbage collection) in the ward. Staff problems have been endemic in the department. Over 100 positions are filled by state government employees, assigned to work at the municipal level due to their special skill sets. The department claims to employ 2,650 sweepers to clean streets and drains, but requires only 2,045 and has 1,700 currently on staff – the discrepancy of 950 sweeper positions left unfilled is unexplained. No new sweepers have been hired since 1994. The share of establishment expenditures, 4/5 of which are paid out as sweeper's salaries, in the total departmental budget has stayed between 35-42% between the 1996-97 and 2000-01 budget years. Though accurate figures for total departmental expenditure were unavailable, the tax revenues collected to fund "conservancy" (solid waste/sanitation services) has varied widely, from Rs 5 million to over Rs 45 million before declining again to roughly Rs 12 million (Jain 2004: s. 5.3.4). The point is twofold. First, that over a period of time in which the PHD has had access to a greatly increased stream of revenue, and is likely to have had greatly increased budgets as a result, it reported declining numbers of sweepers. Second, that the share of salaries in those rising budgets remained steady – that the expenditure on salaries in fact increased in absolute terms, even as the number of salaried employees declined. No reference has been found to any raise in pay for sweepers, certainly not the sharp escalation that could explain the discrepancies in the budget. Controlling access to public-sector jobs is one of the perquisities of municipal government power; that the number of jobs has declined suggests not just a rethinking of SWM but a rethinking of how to maintain that power.

Table 7.1: Jabalpur – Composition of solid waste (% of total wet weight)

Material	% ot total
Compostable matter	53.57
Ash and fine earth	32.94
Bricks and stones	7.04
Wooden matter	2.42
Coal	2.14
Rags	1.36
Plastics	0.14
Rubber & leather	0.11
Glass	0.12
Metals	0.11
Bones	0.05

Source: MP Environmental Status Report 2000, Environmental Planning & Coordination Organization, Bhopal, Table 18.16

The increasing importance placed on the private sector in the discourse of national politics, and in the structure of the decentralizing and market-oriented policies promoted by the BJP (and many within Congress as well in recent years) when in power at both levels, has spurred a turn to privatization. The Municipal Solid Waste Handling Rules, a 2000 Supreme Court directive that sets standards and monitoring responsibilities for the management of urban household waste, has directed government attention to SWM collection and handling. Though the standards for sorting set in the Rules and the high fraction of compostable matter in Jabalpur's waste stream – over half the total tonnage, as seen in Table 7.1 – would seem to require a strong composting program, no composting facilities were reported by interviewees or observed by the author. Dr. M.R. Tiwari, Jabalpur's current Health Officer, reports that the

Rules have helped regularize procedures and cut down on the haphazard disposal of waste next to the main roads out of the city. In early 2004, the PHD launched improvement drives, two collection zones at a time, that sought to raise public participation in waste sorting and awareness of proper SWM practices, which managed a 60% improvement in collection rates. The department claims to have collection equipment to handle sorted waste, and to be engaging in some kind of recycling or recovery; only unsorted waste was seen by author at collection points and disposal sites. In sixteen of sixty wards, a US$8 million Asian Development Bank loan has been used to purchase equipment to turn over to private contractors brought on in a privatized secondary collection and transport scheme. The aim is to have half of the city's wards managed by private firms, in order to avoid the risks of monopoly public or private provision, and to examine the tendering of contracts for additional transportation and disposal services. The push toward privatization is a response to the shortage of sweepers – Dr. Tiwari says that only roughly 1000 sweepers are employed by the PHD at present and that this is 50% of the required staffing level – as expanded participation by private firms is cheaper and easier to administer.

In a particular way and to a certain extent, liberalization policies have worked: SWM-providing bodies can call on greater tax revenues to support increased SWM spending, which have enabled them to improve services and cut labor costs through private contracting. The political calculus has changed, in that municipal officers are led to appeal to local and international financial agencies and contracting firms, instead of more traditional political constituencies trying to obtain public-sector jobs and better services. The increasing involvement of international development agencies in Jabalpur (such as the USAID FIRE team, touting budgetary and financial reforms) has come through the use of financial assistance that encourages the expansion of municipal government activities through private-sector means, and not through community-based ones as described in chapter 9. Beyond the choice of partners and investments, even the basic electoral and procedural frameworks of municipal decentralization have been neglected. Dr. Tiwari reports that zonal SWM committees incorporating city councilors and zonal health officers are in place, even if ward committees (*mohalla samiti*) have yet to be implemented; but the system of public participation and consultation has been weak overall, he believes, and that public participation may reach a sufficient level in ten to fifteen years.

This amounts to a structural bias away from public involvement and participation, one built into the way in which new decentralization and reform ideas have come down into Jabalpur's city departments. The public is seen as a kind of poorly-behaved subject of urban services, whose main fault is to have failed to respond to earlier efforts to increase spending and improve conditions. Analyses coming out of the governance discourse, such as the FIRE project, similarly identified public behavior as a problem; two in particular were "Roadside drains… blocked by residents" and "Runoff to natural drainage channels blocked due to unauthorized construction enroute and in low-lying areas." (FIRE 2001). This highlights a shared feature of the governance

discourse and that of the local government: the problem is caused by *residents* (i.e., not the local government) and their actions are *unauthorized* (i.e., lacking local government sanction). The public is the problematic, and administrative authority can provide the resolution. To be sure, irresponsible handling of household waste is chronic, and the practice of shifting one's garbage problem to a neighbor's doorstep reflects a troubling lack of consideration and solidarity. Yet when in the course of its strategic use of solid waste – not in the unsanctioned and illegal practices, such as dumping on vacant land, but in the officially-sanctioned activities that link land development with SWM – these same municipal authorities, as we shall see in the next section, filled 32 urban water bodies in thirty years. The unofficial behavior of the public seems far less troubling than such evidence of short-sighted and unsustainable thinking on the part of city decision-makers.

TANKS AND WATERWAYS: A NEXUS OF SYSTEMS

Water management: An institutional and hydrological legacy

Urban sanitation is not a new concern in urban India. The great Harappan cities of the Indus Valley were served by ingenious systems of gutters, closed drains, and sewers to drain the streets and buildings. During the course of the field research for this work, interview subjects and various members of the public often bemoaned the failure of contemporary Indian cities to address their sanitary infrastructure needs, and more frequent and unfavorable comparisons to the apparently much-renowned success of ancient Indian cities in doing so. The colonial period, coinciding as it did with the first stirrings of the public health movement in the mid and late nineteenth centuries, brought new concerns with public health and sanitary infrastructure. Much of this was formulated, of course, in a framework that relied on classical colonial oppositions of ignorance and wisdom, dark and light, filth and cleanliness. British colonial transplants and their families suffered greatly from endemic fevers and common tropical diseases to which many Indians had developed greater immunity. British disruption of the traditional feudal relationships that supported irrigation and drainage networks led to a sharp decline in urban conditions at the beginning of the colonial period, making the cleanliness of cities a continual preoccupation. Rather than restore Delhi's Mughal drainage network, which lay intact if choked with garbage, British officials built a modest new system; even this ran into financial difficulty, and higher levels of government refused to fund further work until the outstanding debt was paid down (Prashad 2001).

The frustration with the state of the modern Indian city and the condition of the country, fifty years on from the formal end of the disastrous colonial experience, was expressed by many in modern Jabalpur as an awe of the other Asian cities that have rebuilt themselves from nondescript towns to (often equally, if differently, nondescript) glittering urban showcases. Those who have traveled extensively speak knowingly of the clean streets of Europe or Singapore, and wonder how a civilization capable of having built tidy cities at the dawn

of antiquity could fail to do so now. Perhaps some of this pessimism and bitter regret about the fate of the country can be traced to the intellectual legacy of colonialism in which "the colonized's [self-]devaluation thus extends to everything that concerns him: to his land, which is ugly, unbearably hot, amazingly cold, evil smelling; such discouraging geography that it condemns him to contempt and poverty, to eternal dependence" (Memmi 1965:67). A glimpse of the city's former grace can be made out around Hanumantal, where the mansions of wealthy families are ringed around a calm pool of water studded with small temples. A large and established clan of Marwari Jains has inhabited one impressive compound, seen below at right, for many years. At dusk, birds swoop above the tank as the amplified chants of the temple and the muezzin's call mingle in the air.

Hanumantal

Both Raipur and, to a far greater extent, Jabalpur, are home to a large number of tanks. These urban water bodies can range from small stone-lined ponds adjacent to temples, to lakes several hectares in size, and most are not natural formations but are remnants of an ancient system of water management. The 52 urban tanks (a 1977 count) of Jabalpur were once a well-known feature of the city, and still survive in the names of neighborhoods or building complexes. Coming through the hot and dusty streets of the crowded and densely built city centre today, one can still turn a corner and suddenly come upon an open area, sometimes lined by trees and small temples, with a quiet pool at its centre. Farther afield in less densely and more recently developed outer districts, stepwells dot the landscape. As their name suggests, stepwells are characterized by a broad and gradual flight of deep steps extending down to the water at the bottom of a square or octagonal well, itself with flights of narrow steps set into the sides. A metal grille, likely a later addition, is often employed to prevent thirsty animals from plodding down and drinking directly from the well. Other stonework once allowed teams of animals to pull larger volumes of water up and over the well's edge using large leather buckets. Stepwells were built in urban contexts as well; the Kalchuri dynasty built one large stepwell in its capital, now the site of the Tewar village west of Jabalpur. It still remains there, its walls built of stones from even older Bhuddist temples. Before widespread rural electrification, these substantial and high-capacity wells yielded roughly a quarter of all irrigation water used in the unpartitioned subcontinent

(Williamson 1931). Though not as grandiose as those found in more arid regions such as Gujarat or Rajasthan, smaller stepwells are scattered throughout Jabalpur in varying states of repair; some have been razed to street level and appear as H-shaped holes in the pavement covered with an iron grille, while others show peeling coats of whitewash and repointed stonework.

The tanks and stepwells that surround the city form a massive hydrological legacy, a system of groundwater management that was maintained and developed for almost four hundred years. Though feudal rulers organized the construction of some of these facilities, they were frequently built as public-spirited endeavours by the wealthy and not as state-supported undertakings. Percolation through the bottom of tanks, canals, and flooded fields sent runoff water through layer of soil, purifying it before it reached the aquifer and the stepwells.

Tanks and the irrigation works attached to them have supported long-established forms of community cooperation and have served to sustainably manage natural resources, as evidenced by the sustained achievement of increased agricultural productivity at low cost. In an agricultural context, tanks and the irrigation works attached to them can form a tremendous asset:. "Even in their present decrepit state, Rajasthan's tanks are a socio-ecological and economic marvel":

> First, they help capture, conserve and store what little rainfall the region receives, and in the process reduce soil erosion by cutting the pace and momentum of run-off waters. Second, they provide low-cost flow irrigation. Third, they help recharge groundwater aquifers, which provide a stable and reliable source of irrigation and domestic water supply. Fourth, they reduce the intensity of flash floods and droughts… Fifth, tanks concentrate silt and minerals contained in rainwater run-off in tank beds and in the command area and fertilize the soil (Shah and Raju 2001:525).

Traditional institutions to build and manage irrigation vary considerably across the country. Some were built by feudal rulers, marshalling their moral authority to direct surplus capital and labor into building infrastructure that would raise the yield of the land, of the crop and therefore the feudal charges paid to nobles and feudal landowners. Some have been managed through a number of systems of hereditary responsibility, sometimes eventually extending to virtually all the villagers after centuries of intermarriage. Others pass responsibility for directing maintenance to a single line of hereditary office-holders. In Tamil Nadu, a form of hereditary tank management often took place, with a large body of villagers that carry out maintenance on the tanks and the canals that they feed, and undertake other community work such as planning religious or patriotic festivals The development of borewells and electric pumps permitted farmers to rapidly extract water from the deeper water table and opt out of tank management institutions (Janakarajan 1993).

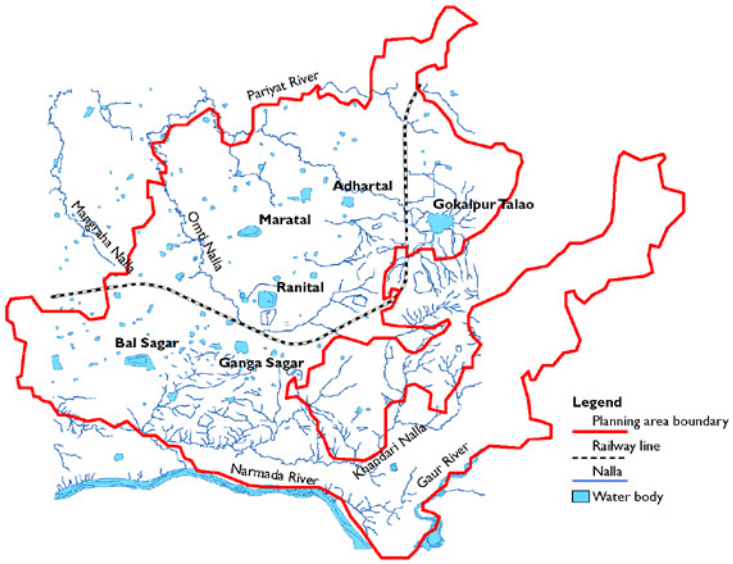
Though the advantages of traditional irrigation systems largely apply to arid agricultural areas like those Shah and Raju describe in Rajasthan – the concentration of materials in suspension in urban wastewater is

dramatically higher than that in rural areas, and the same processes that collect runoff water from a wide area can collect and concentrate contaminants from the same area – there are some lessons that apply to Jabalpur's urban tanks as well. First is the groundwater recharge that tanks promote, in which water percolates through the tank bottom and successive soil layers to the aquifer, adding a much-needed supplement to groundwater flow. This effect can also contaminate the groundwater with the pathogens contained in low-quality urban wastewater, particularly if the necessary soil layers are not present or the hydraulic pressure is insufficient (see chapter 9). Second is the role that NGOs can play in water management. By reviving older gravity-fed techniques of capturing and channeling rainwater and applying them over a large area, a Rajasthan NGO has provided groundwater recharge (and therefore more irrigation water) to borewell users both within and beyond the project area. By managing and improving borewells in addition to surface water systems, the scheme has helped keep well users participating in water management institutions. Borewell users as well as ditch irrigation users were brought together in the organization and shared in its success. The community-based group used the early success of these efforts to create broad-based committees to manage each micro-watershed in the district, and committees went on to federate and offered cooperative sources of seeds and credit (Shah and Raju 2001).

Other proposed projects to improve tank performance have centered on maximizing the ability to extract water and farm more intensively (Anbumozhi et al 2001, Balasubramanian and Govindasamy 1991). Some are skeptical about the potential of more intensive tank upgrading, holding that the technologies and institutions emerging around flow irrigation are interdependent. Even seemingly marginal mechanization and increased drawing capacity, such as that sponsored (inadequately) by Madhya Pradesh in a rural tank rehabilitation program, can disrupt the collaborative patterns of water sharing that traditional management institutions carefully sustain (Shah 2004). The ability of more collaborative institutions to carry out basic, low-cost maintenance on unimproved tanks may be a more socially significant source of capital with which to achieve and sustain more modest gains in productivity (Bagla 2003) or sharply increase revenue (Palanisami and Meinzen-Dick 2001). However, the deeper reach of management regimes accommodated by practices of "collaborative" NGO-state management has its roots in older colonial attempts to renew tank infrastructure and build patterns of obligation between tank users and the state; the autonomous character of community management institutions should not be taken for granted (Mosse 1999, Sharma 2003).

The nalli

Jabalpur's hills are drained by a system of creeks and streams called nalla or nalli. Map 7.1 shows Omti nalla, a larger stream which roughly parallels the curve of the railway line through the core area. Like Omti nalla, other streams drain north to the small Pariyat River, while some – particularly Khandari nalla, which drains the streams fanned out across the rolling terrain south of the city centre – flow to the larger Narmada. Urbanization has occurred around the nalli, making most central city streams little more than narrow concrete-lined channels snaking between buildings and under roads. Less well understood is the degree to which the nalli have served urban development by functioning as a gravity-fed wastewater drainage network integrated with the city's open streetside drains, and how they accommodate drinking water networks. Despite some severe drawbacks, this is a functioning if overwhelmed system of urban wastewater drainage.



Map 7.I: Jabalpur – Tanks and nalli (1964)

Base cartography by Jian Ma

Open drains are one of several places where solid waste, drinking water, and wastewater come together in the lined or unlined box-shaped trenches run along either side of Jabalpur's city streets. Drains are of irregular dimensions, typically roughly one foot wide and one foot deep on small city residential streets, but proportionately wider and deeper on larger central area streets and smaller and more rudimentary along minor peripheral roads or in more open areas. Since the drains are open on top and flush with the street (though sometimes bridged or plated over by slabs of a reddish shale or sandstone) they expose their contents to the open air. The frequent use of concrete in buildings and roads makes it difficult to make cuts in the roadway to lay or access drinking water pipes, which requires a large amount of labor and disruption to carry out. Households string water pipes along in the open drains to provide connections from house to house. When gaps develop in the fittings and water pressure is slack, a regular occurrence in some areas where water flows through the system for only a few hours each day, pathogens from the open drain can enter the water pipe and thereby the household water supply. As a result of infrequent street cleaning and the flow of runoff water, decomposing street trash easily accumulates in the open drains, reducing their capacity when it becomes tangled on drinking water pipes or other debris, adding additional odor and pest hazards. Sudden

rains can temporarily clean out open drains, but the trash is merely flushed out with the overflow and deposited once more on city streets, where it is likely to end up carried into the drain again. Eventually, broken-down solid waste mixes with construction waste and mud to form silt, which either accumulates in the drain (sometimes to substantial depths, as in Table 7.2) or is washed downstream to accumulate at the bottom of one of the larger nalla or rivers. The city has failed to enforce standards and agreements on the design and construction of drainage networks in new developments, leading residential developers ("colonizers," those who build residential colonies, in Indian parlance) to build their own drainage systems and improvise a connection to existing drains or nalli, or forego connecting the drains at all and direct runoff to a convenient nearby field. At the city's southwestern edge, builders are erecting Jasuja City, a posh new residential complex where several large concrete apartment buildings are under construction. Next to an imposing stucco gateway with ersatz-Egyptian reliefs, the same errors of drainage are being repeated as a small concrete box drain is already clogged with refuse. Across the street, a slum has arisen. At the center of the photograph below right, a pool of stagnant water, a latrine (hidden behind a flimsy curtain of sticks and scraps of plastic), and a hand pump cluster in tight proximity. In fairness to the builders, it should be noted that it is not known what other, less visible, wastewater facilities they may have included. What can be seen, however, gives scant reason for optimism.

Table 7.2: Drains in Jabalpur

Zone	Total no. of drains	Open drains (km)	Roads with drains (%)	Average depth of silt in drains (ft)
Garha	25	667	58.5	5-6
Gorakhpur	10	734	86.6	3-4
S. Gandhi Market	20	862.96	95.26	4-5
Civil Lines	18	676	79.9	3-4
Ghanta Ghar	37	588	64.36	4-5
Bhantallaya	22	695.66	91.45	3-4
Cherital	19	657.35	68	3-4
Ranjhi	22	270	83.3	2-3

Source: Jabalpur Municipal Corporation

"Jasuja City:" Drains little better than those in the slum across the street

Similarly, solid waste can build up in larger quantities in nalli and obstruct their flow. Wider and deeper than the street drains, they receive a concentrated load of contaminants from gray and black water sources over a

broader urban area. They have been narrowed in many places as a result of large-scale encroachment, in which the city has contravened both of the development plans in force by permitting construction up to the water's edge. According to one of Jabalpur's city planners, most of the land along the banks is in fact owned by the city or one of its agencies, but is leased to individuals as a repayment for political debts or a reward for allies. The JMC itself proposes the leases to state TCPO officials, without consulting its own planning staff as to whether the proposals are in keeping with existing policy. The regional TCPO branch office then issues its approval if the use conforms to the broad outlines of the land use plan (Map 6.3). Once the approval has been granted, even in contravention of municipal by-laws on encroachment, the proposal is finally forwarded to the city planning department, which almost always issues permission for the work to go ahead. The drains of the new building will likely discharge directly into the nalla, the waterway will be narrower and its flow faster as a result, and waterside construction will release a major load of silt.

Table 7.3: Water quality in major nalla

Parameter	Moti nalla	Omti nalla
pH	8.0	
Chloride (mg/l)	580	310
Total solids (mg/l)	1,759	1357
Total dissolved solids (mg/l)	1314	1065
Total suspended solids (mg/l)	445	322
B.O.D. (3 days, 27°)	390	NA
C.O.D.	730	NA

Source: MP Pollution Control Board for MP PHED

A standing pool at a drain outlet

Aside from the Narmada and the Pariyat, other water bodies admit flow from open drains and nalli. The level of water in tanks, even ones too small to collect much rainwater on their surface, visibly increases with rainfall, indicating either underground recharge or, more likely, inflow from the drains and nalli from surrounding streets. When tanks are filled, little consideration seems to be given to the drains and watercourses that flow into an urban water body; the inlets are plugged and those upstream are left to make their own new arrangements. At the edges of the city, the outlets of drains or nalli are directed to open fields, sometimes by enterprising farmers who use wastewater as a cheap source of irrigation water that is rich in nutrients (if similarly rich in pathogens and environmental contaminants). Merely directing outlets to vacant land is another quick expedient, even if the resultant pool of waterlogged land is likely to pose a flood and health hazard to adjacent residents. Sometimes a mixed land disposal context is present. In the photograph above, a large street drain runs underneath the

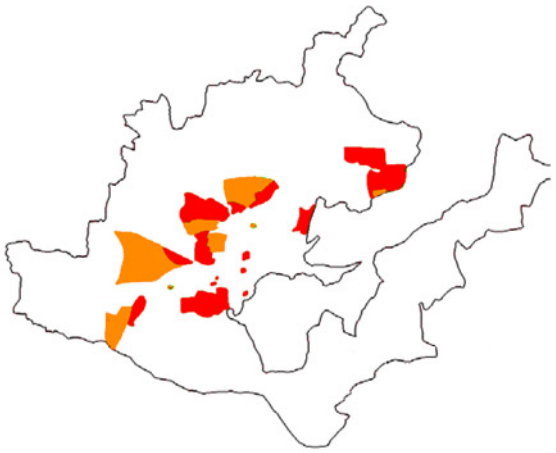
street to discharge at the margins of a filled-in tank, seeking its former outlet – wastewater pooling on ground that is itself mostly decomposing trash, forming a kind of mini-wetland.

Ranital

Rani Durgawati ruled Jabalpur and the surrounding area between 1548 and 1564, ending her reign by killing herself rather than face defeat at the hands of Mughal forces after a series of hard-fought battles; the institutions, business, and places that today bear her name are witness to her status as an enduring local hero. Her legacy of public works includes three significant tanks: Ranital, formerly the largest of Jabalpur's water bodies, Adhartal, named after one of her ministers, and Cherital. The latter was built by Rani Durgawati's maidservant (*cheri*), who according to local legend "requested her mistress to allow the people employed on the Ranital to take out of the small pond [Cherital] one load every evening before they closed their day's labour" (MP District Gazetteers Department 1968: 86n). Ranital itself was built a few kilometers to the north of the Garha village that served as the seat of Gond power and the namesake of the Gond kingdom; though accessible to the town, it was intended, and accepted with evident gratitude, as a gift to small farmers. Like other tanks, it was built to gather and store rainwater, using a network of canals to capture runoff, diverting the flow of natural streams, and permitting rainfall to pool directly in the tank bed. A network of earthwalled open channels spread from a headworks at a point along the lip of the tank, permitting water to follow gravity downhill to fields arrayed along the channels. Mechanical works were and are rare in these systems, which rely on manual labor to open or close the flow of water to certain fields and ditches and direct water so that it reaches all users of the tank.

Frequently, tanks have been managed by hereditary managers or committees drawn from the population of the village or villages within the tank's catchment and command area. In Tami Nadu, tank committees could recruit labor from villagers, who were then paid directly by farmers with a share of the crop. Despite dramatic changes to the social structure after independence, with transformative efforts from the national and state governments to empower lower-caste families, many traditional irrigation institutions based around specific caste roles in organizing and carrying out system management and operations still persist. The arrival of large-scale borewell irrigation undercut both the traditional agricultural land market, which assigned a higher value to plots closer to canals, and participation in the institutions that maintained the surface irrigation system. In this way, rural electrification changed the value of land and the value of participation. Farmers could choose between groundwater, a common-property resource with no norms or institutions governing its use, or tank water, a common-property resource that demanded labor, participation in decision-making, a small share of one's crop, and respect for commonly-agreed rules (Janakarajan 1993).

However they were built and maintained, the tanks and their related works stood for centuries and stabilized the settlement of agricultural land carved out of the Central Indian jungle. Increased crop yields meant increased revenue for feudal rulers, giving them ample incentive to set up these systems. The British Colonel Sleeman, later to gain fame for his vigorous campaign against banditry in the district, commissioned a survey which found "2,286 tanks, 209 large wells with flights of steps extending from the top down to the water in its lowest stages, 1,560 wells lined with masonry but without stairs" among the pre-British public installations in *one portion* of Jabalpur (MP District Gazetteers Department 1968: 96). Currently, only ten tanks remain in the entire city; the rest have been gradually filled in keeping with local urban development policy. A similar story is visible in Raipur, although the lack of reliable maps prevents a more detailed assessment of which tanks survive and which were filled in. However the resultant infill projects, with their distinctive appearance – usually six- or seven-story concrete buildings erected in close proximity, often adjacent to a garbage-strewn open area yet to be built upon – dot the centre of Raipur and suggest a program of similar scale. In both cases, the practice of tank infill is considered uncontroversial and necessary, rarely remarked upon during interviews with residents or officials. Though the state TCPO called for most tanks to be filled for use as recreational land or to build new residential areas in the 1976 and 1995 Development Plans, its role is generally confined to setting policy.



Map 7.1: JDA projects

Source: Adapted from Jain 2004

Implementation, at their own cost and by their own means, is the responsibility of the Jabalpur Municipal Corporation and the Jabalpur Development Authority. The JDA, currently chaired by a wife of a former municipal official involved in the construction industry, is charged with executing urban development projects within the municipal corporation area. Its offices occupy one of the bulky concrete blocks it has erected over the filled-in Mahatal – a clear sign of the pride in modern accomplishment and contemporary facilities which the JDA wishes to project. It has directed tank infill projects and other urban development works throughout the city, focusing mainly on the northern and western edge of the central area as seen in Map 7.1 above, with completed projects shown in red and proposed or ongoing ones in orange.

The process of filling is simple. Over a twenty- to thirty-year period, solid waste is unceremoniously dumped into a tank, turning the water body into a pit of soaking garbage that attracts scavenging dogs, pigs, goats, and cattle. It is not known if the JDA has to fund the costs involved in bringing solid waste to the tank sites, or if the waste used comes directly from secondary collection points in nearby zones. By spreading the solid waste evenly across the tank bed, areas of open water are confined to the center of the tank or crowded along its

edge. The sheer weight and bulk of the garbage serves to block up wastewater inlets, which presumably leaves the backed-up drains and fetid puddles that pool behind the obstruction to be dealt with by someone else. There is little active decay at the bottom of these landfills; anaerobic decomposition is a slow process that tends to preserve organic matter for very long periods. Rather, settlement and compacting occur under the weight of the new waste continually added to the tank; the new structures of Ranital are several feet lower than the active lanfill surrounding it, and large structures likely require concrete slabs or other heavy foundation work to stabilize the ground and block leachate infiltration. The sharp decline in the total number and acreage of tanks is not entirely attributable to the JDA, so a smaller-scale version of this process, with concomitantly smaller structures and amounts of capital must occur informally in smaller water bodies.

The household solid waste used to fill the tanks is collected as a bulk item, picked up en masse at secondary collection points, packed into trucks, and driven off. This prevents the sorting, re-use, or composting of materials in the waste stream; mixing different household waste materials lowers their value through cross-contamination and the higher cost of post-source sorting. Letting waste accumulate and fester at infrequently-cleared collection sites serves to further lessen the value and increase the nuisance of the waste stream. Effectively, these practices preclude the recovery, yet alone the efficient recycling or re-use, of household waste materials – the way in which the waste is collected renders it worthless. The utility or disutility of solid waste is not just a social construction, though social processes mediate the attribution of value; it is rooted in the condition and characteristics of the materials involved. The wrong handling practices can destroy the value of waste and reinforce its status as waste material; they go on to compound this socially obtained definition by disposing of the waste in ways that induce the creation of additional waste materials and their release as environmental contaminants (leachate, etc.) as it slowly decays.

Despite the noxious smells and instability of the filled-in areas, the conveniently located land (if left undeveloped) attracts squatters, many of whom can make a living from finding and selling reusable items. As seen in the Ranital page, the waste pickers' homes, the tank, and the opportunity to sell their finds are separated by only a few steps. This activity is clearly visible around Ranital, where dealers will specialize in one particular kind of waste material (non-ferrous metals, paper, cloth, specific kinds of plastic, et cetera) kept in unwieldy stacks around their building. In peri-urban areas, organic waste is frequently recovered directly by farmers and used as fertilizer. Traditional Hindu strictures classify the work of collecting and sorting trash as degrading and highly polluting, requiring contact with refuse and filthy water and therefore unfit for upper-caste individuals. Locals report that most occupants of the slums to the north of the tank are indeed lower-caste migrants from the nearby state of Andhra Pradesh; as slum dwellers and lower-caste individuals they face a double hurdle in being recognized as legitimate residents of the city or practitioners of a legitimate and even necessary trade.

Sometimes, solid waste does not come into play in the JDA's efforts to develop water bodies: Sangram Sagar, a long narrow lake in the Madan Mahal hills, was originally created some hundreds of years ago by building a check dam at one end of a stream valley. Situated in a saddle-shaped depression between two peaks that funneled winds from the west over the original city, the lake served to cool the jet of air and lower the ambient temperature in the hot summer months. After the check dam was broken sometime in the early twentieth century, the lake dwindled and the JDA eventually gained title to the land. Originally designated for a zoo in the 1976 Development Plan, the 1995 Plan slated it for recreational use. As a consequence, the JDA has only been able to develop the valley's eastern extreme and leaves the rest, for the moment, to be used by hilltop farmers as pastureland.

Far from being perceived as a failure, these filled-in tanks are seen as a success. Indira Gandhi's *Urban Land Ceiling Act* of 1975, a piece of legislation from the Emergency period which forbids individuals from accumulating large urban landholdings, is frequently cited as a market-distorting law which has driven up central city land prices.[7] Many residents of central Jabalpur and Raipur have uncertain title to their dwellings, or live in compounds owned by government agencies, corporations, or other large institutions, which serves to limit the residential property market to a few major property owners and limit turnover. The sorry state of transportation networks, and the slowness of walking or bicycling across town, further serves to concentrate population and render centrally located dwellings vastly more desirable, especially for the many who are too poor to afford even a bicycle and are frequently forced to squat in the city centre. For some or all of these reasons, urban governments in India face an acute shortage of urban land in central areas.

Filling in tanks offers itself as a ready solution to this problem. The tanks are defined as empty areas with no valid function, a void that should be filled to make valuable developable land. Solid waste is defined as garbage, a worthless bulk appropriate only for use as fill. Lower-caste and tribal migrants are defined as excess population, a rural social catastrophe inflicted on urban India. Tanks filled with unsorted solid waste are, therefore, construed as places where the low use values of urban water bodies and household trash can be brought together, in a patient and slow process that makes a commodity that can be economically and politically valued – urban land – out of commodities that lack social or institutional frameworks that can assign them economic or political value. The externalities generated by this process are unpleasant and pernicious, creating a zone of depressed land value around the tank for the duration of its transformation, and into this gap in the urban land market steps migrant people in search of livelihoods and land.

[7] While neoclassical economists rail against this measure, it is unclear whether it has significantly restricted the ability of wealthy clans or individuals to assemble property. The area around Hanumantal in Jabalpur, still home to prominent local families, is said by locals to be owned largely by the gods who inhabit the local temples. The families transfer their title to a particular god, and continue to exercise control over the land through religious trusts established in the god's name. Getting human landowners to follow urban land use laws has proven immensely difficult, and the awkward legal questions surrounding the notion of enforcing development regulations on a divine being are likely to be much thornier.

A similar situation has been observed in Hyderabad, where the trend became alarming enough that the Hyderabad Urban Development Authority collaborated with the World Water Institute in holding a workshop presenting urban lake conservation research and case studies. The city has lost about 20% of its original lakes to urbanization, having been filled in and given over to residential development, slums, garbage dumps, and public facilities. Possible remedies offered for discussion at the workshop included rainwater harvesting and decentralized groundwater recharge (HUDA-WWI 2003). Though the arid conditions of the context (Hyderabad is notoriously short of water) put the issues in sharper relief, the point is clear that urban tanks do fulfill important functions and can be rehabilitated. There are alternatives to the current sorry spectacle of a city obliterating both the past and the present by stuffing yesterday's legacy with today's trash, while a cluster of despised and impoverished families eke a hard living out of an urban lake's slow death.

WASTE AND THE PURSUIT OF A NEW URBAN MODERNITY: FIVE CITIES

The literature reviewed in the first section of this chapter firmly established that tanks are a key piece of rural infrastructure, that has a tremendous influence on the social structure and institutions of rural society. It builds a pattern of land values related to differential access to traditional gravity-fed irrigation canals and sluices, and is generally viewed by the current research as well-suited to use as a vehicle to increase rural productivity and capital accumulation. Tanks are a way of valuing land and ordering relationships to it, helping to structure land and "natural systems" for agricultural exploitation. In an urban context, the physical structure of tanks remains but the environmental and institutional structure changes. The tank no longer has irrigation value, though it may achieve groundwater recharge, and thereby benefit local well users. While in rural areas irrigation is carried out on the surface, urban patterns of hydraulic exchange between tanks and groundwater are invisible and difficult to measure. Because the institutional context has disappeared with the irrigation-related outworks, and the persistent environmental relationships between tanks and other water systems are socially and literally invisible, there is no effective institutional regime governing the use of groundwater and tanks get little credit from the public for maintaining the groundwater supply. Unless they come to provide some ceremonial function or are located near the homes of the wealthy, there is little visible reason to maintain the bund, keep the tank clean, or otherwise improve water quality.

When tanks become urbanized, they affect the value of land around them differently. Systems designed to maximize agricultural utility will not affect urban land, with its own particular utility, in the same way. Urban land regimes and water systems place no real value on tanks, even if they do absorb local externalities such as wastewater flows and provide benefits such as groundwater recharge. In a sense, those functions take place not as the result of a contemporary social relationship as the consequence of the tank's very existence – the

final, invisible payoffs from a capital investment made hundreds of years ago. Little or no direct value is attributed to this by the land market, other than the value of having a productive well on one's property; the tanks are effectively waste land. The same markets assign a high value to vacant land near the city center, as the expense and difficulty of transportation renders easily accessible central plots highly desirable. Public agencies respond to this market cue and seek to increase the supply of developable land by filling in tanks with another poorly-valued commodity, household solid waste. Development actors in local government value vacant land, serviced at the minimum level that can support development, and accord low priority to providing services above that level. Land development at the periphery, as seen in the new Jabalpur on the city's northwest, is facilitated by the same agencies that pursue tank infill, using the same strategies. The authorities provide roads and power, the bare minimum required to start the land development process, and leave other promises that could accelerate land development and raise living standards (water supply, wastewater removal, recreation areas, branch facilities) unfulfilled.

The process of moving from one type of land development regime to another, from rural to urban, is regarded by the participants as an important step in economic and social development, desirable in and of itself as a sign of progress. The JDA seeks to modernize Jabalpur by building desirable residential neighborhoods, office blocks, and large sports facilities. The modernity that they embrace sees these as the glamorous, physical manifestations of development, an attempt to make Jabalpur seem more important. Singapore's lonely stadia, white concrete apartment blocks, and office towers, strung out along wide landscaped roads, are the visual analogue of this aspiration: a city under control, an orderly and successful development process, an eager, receptive, and uncritical public.

Tanks lie at the convergence of agricultural and urban land markets, hydrological systems, and development strategies. They also are a nexus between systems of waste materials flow, cycles in which social organization and technology play a decisive role. Finally, they are a site of policy decisions that bring together economies of government expenditure, political influence, and real estate development. The history of the tanks is the history of successive administrative orders, each pursuing its own strategy to quicken the accumulation of different kinds of capital. In each configuration of systems, a vision of Jabalpur, a different possible city, is invoked. The first is a long-disappeared ancient city, where ancient systems worked under wise leaders – the idyllic vision of life before the British conquest. The second city, modern city, is understood as the disastrous product first of oppressive foreign rule and mismanaged independence. This modern city is condemned, ironically enough, by putting it first in a modernist opposition between an implied "before" and "after," a more harmonious and "developed" future that can be realized if one casts off the entanglements of social reality and the poor decisions that created existing city. The third city is the Singapore of dreams, the future city that can be realized through cutting-edge management techniques and other means of proving the country's bona fides to footloose finance capital. A fourth city can be imagined too, the increasingly insistent

social city of the *altermondialistes*: the small-scale cooperative city, the reality wrested out of our own by the local efforts of a thousand neighborhoods, the city of patchwork systems and small victories made possible by the social and environmental technologies discussed in Chapter 9. This alternative vision, the revenge of the local, relies on the work of the poor to bring decision-making and implementation into their own hands, in the hopes that these efforts can succeed, deepen, and cooperate to achieve more ambitious goals. But the fervent modernizing wish for a tabula rasa can grapple too with urban reality: pretentions to the rigors of successful management are cast aside when deals are to be made, and land is sold without the services and ongoing commitments that could make the Singaporean dream come true. This is the fifth and final city: the city of messy dispute, the city of accommodation, in which the social and environmental realities of the place comes back repeatedly over the course of successive development processes to undermine the attempt to build a city intent on ignoring them. It is the product of a thousand compromises between an intolerable state of affairs and a questionably desirable future; it is the city that stands today between the rivers, once amid the jungle, now on the plain.

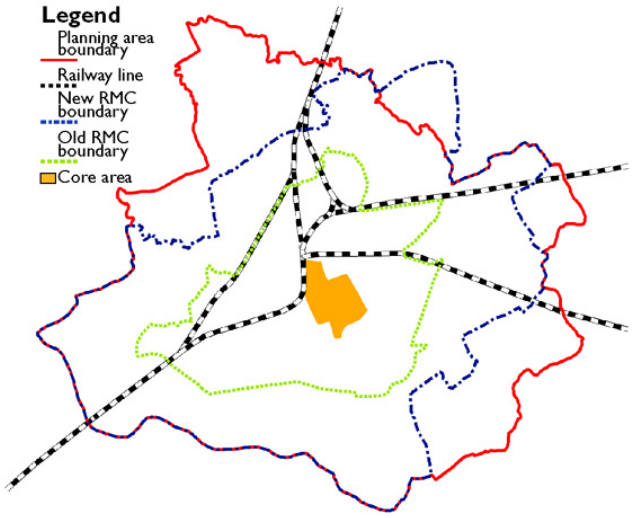
8. Raipur: State of the city

Before the extension of its boundaries, the Raipur Municipal Corporation (*Nagar Nigam* Raipur, or RMC) administered an area of 55.03 hectares, with a 2001 population of 605,747.[8] The city lies on the low plains of central Chhattisgarh, with ranges of forested hills to the north and south, making it an important stop on the east-west highway and rail routes that snake through the gap in the hills to connect Madhya Pradesh and central India with Calcutta and the east coast. The Kharun River, a relatively minor tributary of the Seonath, flows along the southwestern edge of the metropolis, where a reservoir impounded by a dam provides drinking water for the city. The river collects runoff from several *nalli* in the western half of the city; the terrain is almost entirely flat, and slopes slightly from east to west.

Raipur first came to prominence when it became the capital of a late Kalchuri dynasty in the 14th century. Alternating periods of Maratha and British rule began in the 18th century, with both using Raipur as a regional administrative center. The 1857 uprising, in which Raipur played a role, started a cycle in which the colonial administration focused more and more energy on repression, as witnessed in the massive central jail that still stands a few hundred meters from the state government secretariat. Other British efforts, in the 1890's, connected Raipur to Nagpur and Calcutta by rail and completed the Great Eastern Road. In addition to these connections, the construction of the government steel works at Bhilai in 1957 spurred the construction of

[8] The boundaries of the RMC changed after 2001, more than doubling in size to incorporate another ring of peri-urban villages. The Census figures for Raipur used here and throughout this thesis apply to the old boundaries of the RMC; figures for the Raipur Urban Agglomeration (a census area covering the 89.23 hectares of the city and its outskirts) do not correspond exactly to these expanded boundaries, but all of the economic and demographic statistics used here show little or no variation in key indicators between the RMC and the RUA.

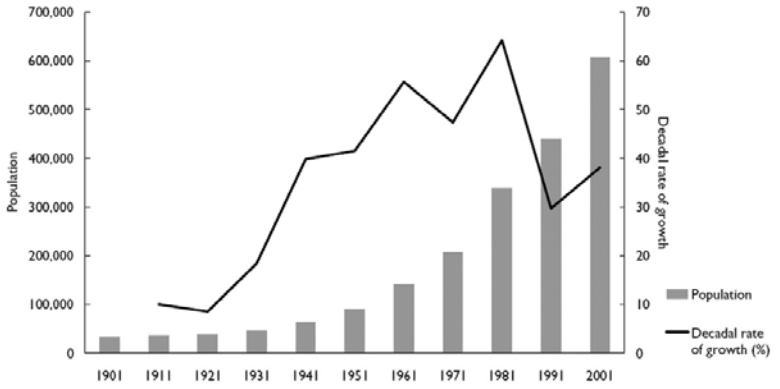
transportation links to mines and quarries over fifty kilometers away, the establishment of massive cement plants that dominate rural landscapes of villages and flooded fields, and the development of an active metalworking sector in nearby Durg. Large-scale industrial infrastructure has been placed deep within agricultural areas, transforming Raipur's economic hinterland and fuelling the city's growth as a center for tertiary functions. In addition to the long-established medical school and teaching hospital complex in the city center, the establishment of Pandit Ravishankar Shukla University – named after the politician who played a major role in bringing the steel plant project to the region – in 1964 gave rise to a cluster of university and college campuses along the main east-west highway. The university serves the above cities and all six districts of Chhattisgarh, giving the region an apex educational institution and helping to create the kind of elite discursive space that often gives rise to regional consciousness and demands for local control of the modernizing national project (e.g., Anderson 1983). Now, as the capital of the newly created state of Chhattisgarh, Raipur has dramatically expanded its hinterland and added government to the portfolio of higher services it provides to the area.



Map 7.2: Raipur – Current and former political boundaries

Base cartography by Vivekanand Gupta

This state-level change of scale has spurred a revision of the boundaries of the RMC to include more of the surrounding area. Village boundaries still exist on some maps, cutting across both old and new city lines, but no clear explanation of the function or continued relevance of these village designations within the RMC (or the similar village areas depicted on some maps of Jabalpur, for that matter) could be found; they may have a social or cultural significance or demarcate some sphere of traditional rural governance. This last extension is only the first of several such reconfigurations of the municipal and ward boundaries, keeping urban growth areas within the jurisdiction. Proposals for a new satellite city to house the state government have been mooted, but several design proposals have come and gone without a conclusive decision on a site.



Graph 7.1: Raipur MC – Population and growth

Source: Census of India 1981-2001

Raipur's population began to grow rapidly in the 1930's. The Bhilai steelworks were built between 1957 and 1961, giving stable jobs to both skilled and unskilled workers and bringing new workers into what was already the region's biggest city. The continued expansion of the plant into the 1970's was mirrored by the growth of families and the expansion of businesses that took advantage of Raipur's access to the markets and products offered by the plant, doubling the 1961 population by 1981. Though the rate of growth slowed in the 1980's and 1990's, the absolute number of new arrivals absorbed by the city has remained impressive, fluctuating around 100,000 per decade. Despite a public and official image tightly linked to tribal peoples and cultures, Chhattisgarh's tribal population has failed to follow other economic migrants into the city and Raipur's percentage of Scheduled Tribes remains lower than that of other Chhattisgarh cities. A relatively high literacy rate, both in Raipur and in other urban concentrations, is witness not only to Raipur's status as the capital but to a high degree of concentration of professionals and services in urban areas across a state in which three-quarters of the citizens live in the countryside.

Table 7.1: Raipur MC and Chhattisgarh – 2001 population

	Population	Scheduled Castes (%)	Scheduled Tribes (%)	Literacy rate (%)
Raipur	670,042	12.3	4.0	81.1
Chhattisgarh (urban)	4,185,747	12,4	8.4	80.6
Chhattisgarh (rural)	16,648,056	11,4	37.6	60.5
Chhattisgarh (total)	20,833,803	11,6	31.8	64.7

Source: Census of India 2001

The principal commodities produced by the city demonstrate the pervasive influence of the heavy industrial economy centered around Bhilai. The production of steel furniture, for instance, adds value to the primary product of ferrous metals while requiring robust transport networks – the same ones used to move materials to and from the plant – to get a bulky and heavy finished product out to a national market. Plastic goods are a more indirect offshoot of Bhilai's presence, as iron smelting and steel production require considerable

Table 7.2: Raipur – Major imports and exports, 1991

Principal imports	Principal exports	Principal commodities manufactured
• Edible oils	• Paddy husk	• Rice
• Sugar	• Iron bars	• Steel furniture
• Paddy	• Plastic goods	• Plastic goods

Source: Census of India 1991

petrochemical inputs and have given rise to a cluster of petrochemical industries in the cities of central Chhattisgarh. Raipur's relationship to an agricultural hinterland largely given over to the cultivation of paddy and rice, its more traditional role in the region, provides a steady flow of inputs to food processing operations.

Industrial sectors make up only part of the employment picture, however. The structure of Raipur's workforce is (in 1991 figures) heavily skewed towards tertiary sectors and services. The continued presence of agricultural workers and cultivators suggests that the earlier extension of municipal boundaries had successfully drawn the periurban fringe under municipal administration, even before the more recent expansion. The number of manufacturing jobs has also increased, keeping pace with the growth of the population. The largest single category of workers is "other," reflecting the numerous professionals and government employees established in the city. That proportion has likely grown during the development and launch of Chhattisgarh's new state institutions, along with the number of workers employed in a construction industry that has to build offices, facilities, and housing for the new bureaucracy. Though transportation still makes up an important sector of the workforce, its share declined during the 1980's; perhaps a sign of a well-established sector in which firms compete to be the most efficient and will only reluctantly take on new workers, or the fruits of capital investment (from the private or public sectors) that improved overall labor efficiency in the sector.

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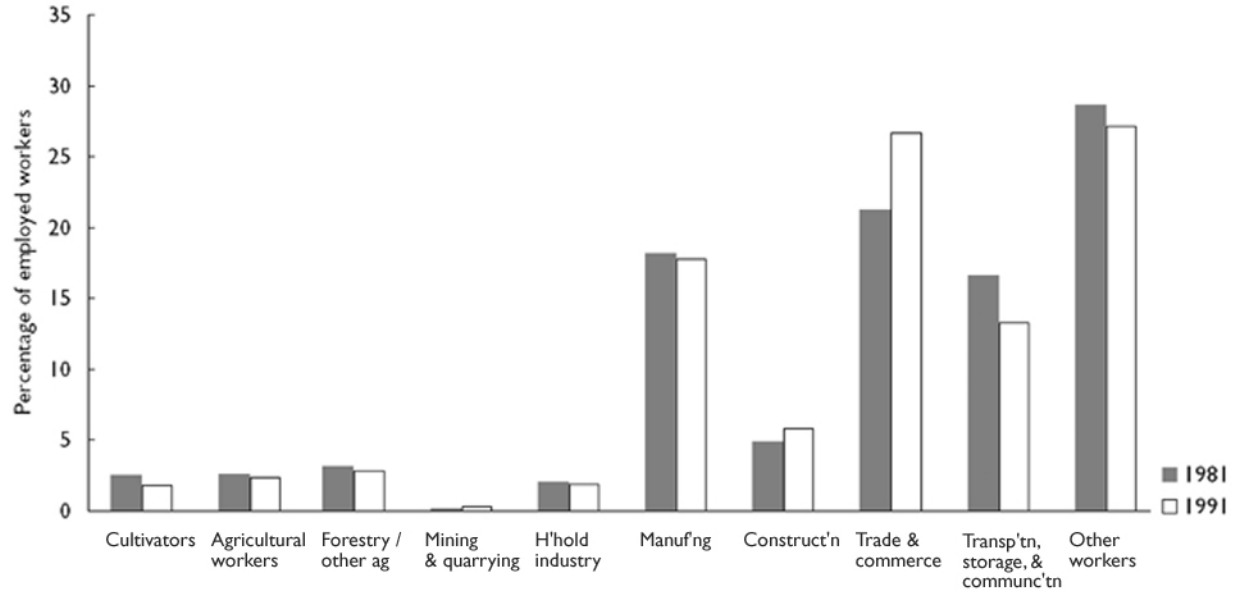
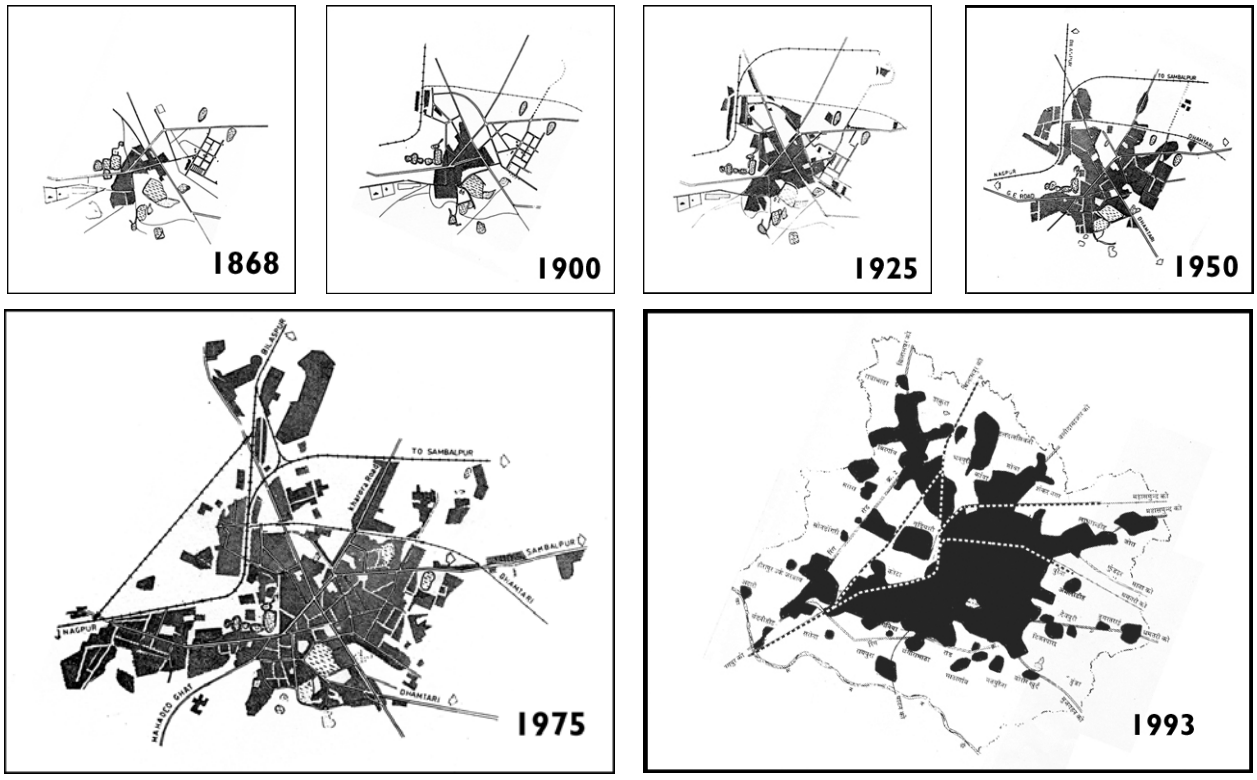


Graph 7.2: Raipur – Occupational structure, 1981-91

Source: Census of India 1981, 1991

Raipur has managed to develop the infrastructure to expand and keep pace with the development of its region. While the story of the funding and construction of each investment – how political capital was marshalled to direct the deployment of finance capital – remains obscure, some of the features of topography and geography have shaped the pattern of growth. Mononuclear Raipur has directed growth both radially, along roads fanning out from the city center to the other cities of the region, and concentrically, intensifying development between highway corridors closer to the urban core.

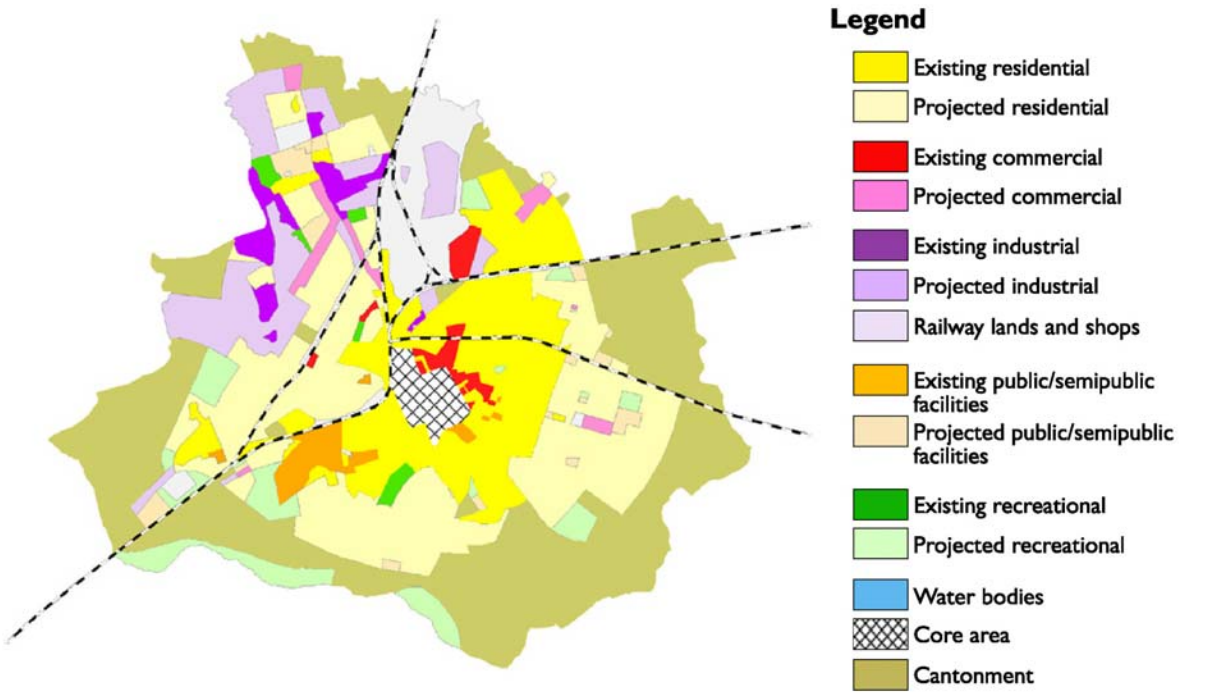


Map 7.3: Raipur – Growth of urbanized area

Sources: MP TCPO 1975 (1868-1975), MP TCPO 1995 (1993)

Before 1950, Raipur remained compact, growing towards the railway station north of the original settlement towards the gridded Cantonment (abandoned by the military in 1902 and rapidly designated the city's Civil Lines) to the west, and along the Great Eastern Road to the southwest. The 1975 growth map shows the first fruits of the city's post-Bhilai boom, as development spread towards the railway works and industrial estate to the north. The result is a reasonably coherent hub-and-spoke configuration of development, with growing villages swelling on the southern and western periphery of the city. Development has stretched along the city's principal streets, particularly Malviya Road, which cuts across the city northwest-southeast and

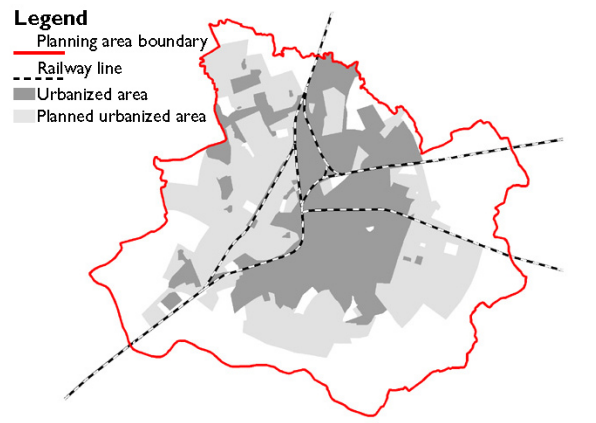
connects Bilaspur and Dhamtari, and the Great Eastern Road (locally called Jawaharlal Nehru Marg), that runs southwest-northeast from Nagpur to Mahasamund and beyond.



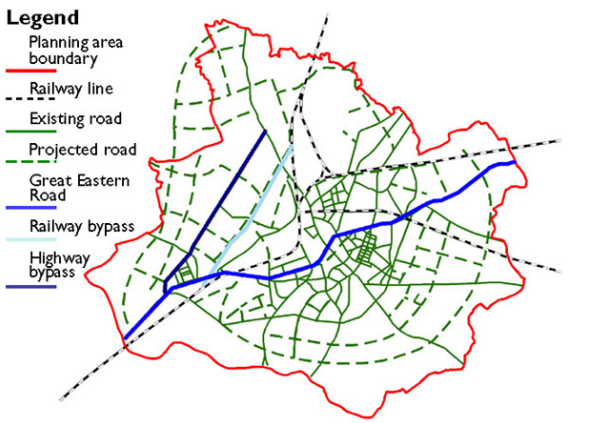
Map 7.5: Raipur – Existing and projected land uses, 1995

Source: Adapted from MP TCPO 1995, cartography by Vivekanand Gupta and Jian Ma

The different roles played by Jabalpur and Raipur in their respective regions, coupled with the different patterns of development observed and prescribed for each, helps to highlight some similarities and differences in the development plans for the two cities, both prepared by the same TCPO at roughly the same times. Whereas Jabalpur was trying to update its urban form to direct urban land development and facilitate intra-urban trade and displacements, the 1976 Raipur Development Plan focuses more on the ability of traffic within the region to bypass Raipur's congested central streets and pass through areas to be developed instead, as shown in Maps 7.6 and 7.7.



Map 7.6: Raipur – Existing and projected urbanized area, 1995 Development Plan



Map 7.7: Raipur – Proposed and existing transportation routes, 1995 Development Plan

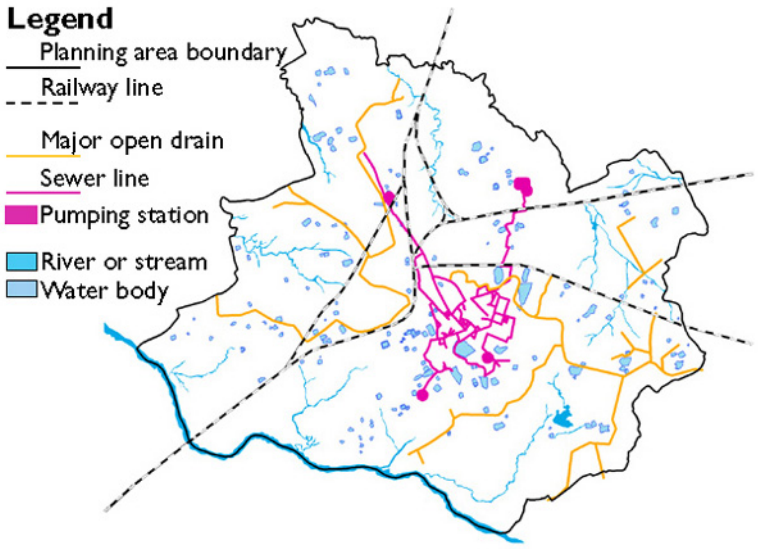
Source: Adapted from MP TCPO 1995, base cartography by Vivekanand Gupta and Jian Ma

Both Raipur plans see the city's radial pattern as an unfortunate side effect of ribbon development, in which "large chunks of urbanisable land in between the radial roads will remain un-utilised" (MP TCPO 1976:181), and which should be replaced by more efficient "concentric city growth" spurred by the "development of ring road No. 1 and 2" (MP TCPO 1995:33). The Raipur and Jabalpur plans, however, share a focus on the development of a supergrid road system to accomplish the infill of relatively central undeveloped areas, supported by a highly detailed and hierarchical system of roadways. The Great Eastern Road that runs through Raipur from the southwest to the northeast is a British legacy and is much larger than any comparable street in Jabalpur; the ring road and bypass highway planned to relieve it are regional infrastructure intended to permit the smoother functioning of a regional economy. The curve of the railway through Raipur does not differ greatly from the railway's progress through Jabalpur, but is supported by a bypass line permitting freight traffic to avoid the passenger station as well as a large wagon shop in the city's north end – no such facility exists in Jabalpur, despite being an important railway logistical hub and the divisional headquarters.

The use of tanks for development and the layout of supergrid roads were employed as key strategies in Raipur as it was in Jabalpur. Both Raipur plans addressed the same 188 km^2 planning area, which encompassed 1,943 hectares of developed land in 1976 (MP TCPO 1976:5) and 3,596 hectares of developed land in 1994 (MP TCPO 1995:3). The 1976 Plan noted 130 tanks covering 340 hectares, and proposed to intervene in 64 of them covering 207 hectares. 30 of those were to be filled in and the remaining 34 retained as open water bodies: some for recreation, others dedicated to agricultural irrigation or village water needs, and others for religious reasons (MP TCPO 1976:259-71). Out of the 56 tanks visited in the 1995 Plan, only 4 of the 21 slated to be reclaimed in 1976 had been actually filled in, and those only partially. Among the tanks to be

retained for recreational purposes in the 1976 Plan, the intended upgrading of *bunds* (tank walls) and other investments appear to have been left incomplete. The 1995 Plan proposes to resume spending on the remaining tanks and fully implement the general scheme of tank infill, retention, and management presented in 1976 (MP TCPO 1995: Table 2-T-17).

Seen in Map 7.3, the old city core lies southeast of the curve of the main railway line. Relatively flat terrain and a simple initial settlement pattern have permitted transportation infrastructure to direct urban growth with relatively few natural obstacles. The same landforms have resulted in a radial pattern of nalli that do not reach very far into the heart of the conurbation, as the city center is situated on a sandstone ridge above lower areas with more porous soil , keeping nalli on the periphery and directing runoff to the Kharun.



Map 7.4: Raipur – Nalli, drains, and tanks
Cartography by Vivkeanand Gupta and Jain Ma, adapted by author

To complement the natural channels, a system of human-built large open drains covers certain areas of Raipur. The drains and nalli have been judged marginally sufficient to draw off heavy monsoon rainfalls with minimal flooding, due to the relatively few low-lying areas found in the city, but insufficient to handle the full volume of household, commercial, and industrial runoff of a growing town (MP TCPO 1976, 1995). Urbanization raises not just the number of people generating wastewater, but the behaviors that generate wastewater can change if new arrivals are able to raise their standard of living and in doing so increase their water consumption (Shobnath et al. 2000).

Though English-language information on Raipur's sewer system are virtually nonexistent, some facts can be determined. The local branch of the MP Public Health and Engineering Department (PHED) completed a sewer system, depicted in Map 7.4 and covering roughly one-quarter of the RMC, in 1991. Though the PHED had intended to turn over the system to the RMC's Public Health Department, a dispute of some kind over costs prevented this from occurring for some time. Raipur's former Commissioner, Sonmoni Borah, recalls that household connection charges were set around Rs 100, a modest fee even by Indian standards, but bringing the sewer connection to the individual dwelling itself proved difficult and expensive due to the

Unused oxidation pond, Raipur

Photo: Vivekanand Gupta

relatively good condition of Raipur's streets. Roadways in the city are built from heavy concrete slabs, cast in place; merely cutting the concrete to lay connecting pipes between the sewer main running in the middle of the street and the buildings on either side of the steet would run into the thousands of rupees per connection, even if one disregards the difficulty of restoring the roadway afterwards. Raipur's current Health Officer, Dr. Chopra, believes that the current number of connections to the sewer system hovers around one thousand, and that connection charges and the sanitary tax collected to fund it are woefully insufficient. It is unclear just how (or even if) the system operates with such a low sewage flow; other student researchers on the project were given tours of the unused oxidation ponds (pictured above) and pumping stations, maintained in good condition and even staffed – with everything in place, it would seem, other than the sewage to fill it.

NATIONAL IDEOLOGY, REGIONAL DEVELOPMENT

Raipur has grown and developed as the beneficiary of two Indian national projects: state socialism, as exemplified by the nearby Bhilai steel complex, and decentralization, as carried out in the formation of Chhattisgarh state. National projects such as these stem from deep ideological commitments, paradigms of national development that structure action across political, economic, and social scales. These two projects sought to more deeply integrate the east central regions of the country into national and international economies and institutions, and the attendant transformations have been partly routed through and facilitated by Raipur's urban infrastructure.

Bhilai

The strategy of state-led heavy industrial development pursued by the Congress party in the first decades of independence sought to quicken the pace of capital formation through the substitution of imported raw materials. A plentiful supply of domestically-produced primary products would, the reasoning went, accelerate capital accumulation directly (through newer, more efficient plants) and indirectly (through encouraging the secondary and tertiary sectors). By targeting specific industries and sectors, it was hoped to lengthen the chain of value-added activities that occurred within the country and draw capital to isolated or

impoverished regions. A more conventional Keynesian stimulus was also generated by the need to marshall labor and purchase construction materials to build the new facilities.

While the outlines of this strategy were laid out in the First Five-Year Plan, it was only with the introduction of the Second Plan in 1955 that the Central government chose an industrial approach centered on rapid growth in metallurgical industries. The Second Plan propsed building three integrated iron and steel plants, each with a certain degree of specialization toward one or two types of steel, and do so simultaneously. To gather the necessary expertise to build up-to-date plants, the government had to partner with foreign governments and firms, and send hundreds of engineers abroad to be trained in new technology and study steelmaking operations. By 1957, the sites for the plants had been chosen: a German plant at Rourkela, a British plant at Durgapur, and a Soviet plant at Bhilai. British and German involvement was structured more as turnkey projects, with Indian workers observing and learning. The speed with which Bhilai reached its rated capacity is frequently credited to a closer and more collaborative relationship between the Indian and Soviet staff (Krishnamurthy 1988).

An otherwise unprepossessing village on the outskirts of the small city of Durg, Bhilai was chosen because of its proximity to iron ore deposits roughly 150 kilometers away, the sources of limestone, used as flux in the furnaces, 50 kilometers distant, and because of its position on the east-west mainline railway linking Bhopal with Calcutta. Other inputs for steel production and transport facilties offered themselves as well; the nearby Korba electrical generating station had sufficient capacity to dedicate a substantial share of its production to power the mill, a large village tank offered a ready-made cooling pond, and north-south canals crossed the railway line close by. To exploit these and other inputs – such as coal, iron ore, and manganese – state-led enterprises built railway branch lines to connect Bhilai with massive new mines (Chaudhuri 1975). As a result of these efforts, the construction of the complex did far more than just attract economic migrants from neighboring states, but sparked a sudden jump in the number of industrial firms throughout the districts of central Chhattisgarh. Simply by virtue of its size and proximity to the steelworks, Raipur could attract migrants and provide a natural home for secondary and tertiary enterprises that wanted to be close to large-scale primary producers but required capital and had more specific needs for specialized facilities, services, and labor, all of which could be more easily obtained in a bigger town. A few years after the start of production at the plant, it was reported that "the whole belt from Bhilai to Raipur is buzzing with industrial activity," and the number of commercial firms operating in Raipur had doubled (Choubey 1975:100).

The particular qualities of the raw materials exploited at Bhilai had unexpected effects on the configuration of the industry. The local iron ore is high in phosphorous, requiring more elaborate and chemically-intensive processes to work it or make steel from it. Chhattisgarh's coal is impure and needs to be "washed" before burning it, another stage of processing between mine and mill that takes up significant amounts of space,

time, and labor. Similarly, the limestone quarried for the works has proved to be high in rocky impurities, increasing the amount of slag and ash produced in the smelting process. The steady supply of cheap slag and useful chemical byproducts offered by the steel mill attracted cement manufacturers to the region; the chemical industry came to buy from and sell to with both the steel and the cement industries. Bhilai's multiplier effects were not strictly limited to secondary and tertiary sectors or metallurgical firms, but in fact spurred the production of additional basic industrial materials and expanded the potential for capital accumulation to other sectors of the economy (Saxena & Rath 1991).

Crook (1993) contrasts the effects of the Bhilai plant with those of a UK plant that was built at the same time with the same technology, and that employed 25% of the workers in a region with 25% of central Chhattisgarh's population. In their new technology and larger size, both plants sought technical economies of scale. Yet Bhilai's economy of scale did not lead to labor savings, given the relatively low cost of labor and the high cost of capital in India (versus the high-wage labor and "cheap" capital found in the UK example). The marginal cost of hiring additional workers was low and a high number of unemployed migrants could be counted upon to keep labor costs down, but there was little local capital bulit up in the early stages of the product to invest in housing these workers and their dependants. The Central government company that built the works had all available capital tied up in the construction of this and other steel mills, a capital-intensive operation carried out before cash flow could start. Housing and other basic needs were effectively an indirect startup cost of the plant that was only partially socialized, in that state and local governments could only provide part of the infrastructure and households were left to their own devices to fill any gaps. The "multiplier sector workforce" of employees in secondary and tertiary firms took several years to start growing, but helped sustain urban growth (and the increased need for additional real estate development capital) until the Bhilai migrants' children entered the workforce. The early period of high population growth rates and industrial construction was driven by the low cost of labor, but prolonged by a lack of sync between demographic and economic cycles and a lack of capital at key moments within them. In these aspects, the transformative effect of Bhilai on the workforce of urban Chhattisgarh can be attributed in part to the cost of capital and in part to the timing of its availability.

Chhattisgarh

The state of Madhya Pradesh was created from the Central Provinces as demarcated by the British. Pursuing political balance, the Central government designated Bhopal, in the more urbanized north central part of the state, as the capital, forgoing Jabalpur – a prominent organizational center in the struggle for independence that was expected by many local people to become the seat of government. The push to set state boundaries along linguistic lines put the Oriya-, Telugu-, and Marathi-speaking parts of the Central Provinces into the states of Orissa, Andhra Pradesh, and Maharashtra, leaving the Hindi-speaking remainder of east central India

in Madhya Pradesh. The new boundaries removed Raipur and Jabalpur from the influence of Nagpur, now the chief city of eastern Maharashtra and cut off from its former Maratha administrative hinterlands.

The new state was immense, far and away the largest in India; Raipur is almost five hundred kilometers from Bhopal. The prevalence of the Chhattisgarhi dialect of Hindi and a high proportion of tribal peoples made Chhattisgarh distinct from other parts of rural eastern Madhya Pradesh. Central India's indigenous peoples mostly live in rural areas, speak their own tribal languages, and have distinct cultural practices, isolating them both culturally and physically. The tension between national projects to integrate indigenous areas with the national economy and questions of the status of tribal peoples as "Indian" or "other" is familiar across the developing world; consider the case of Chiapas, in southern Mexico, an isolated and indigenous-majority rural state whose hydro dams produces a third of the country's electricity and where the poverty and misery of the Maya and other peoples (regarded simultaneously as relics of the precolonial past and intensely "Mexican," in representing a founding element of the *mestizo* nation created out of conquest) grew so intense as to provoke the Zapatista uprising. Indian tribal people have been written into the nation's history as noble savages, living a free and egalitarian life outside of the strictures of caste and Hinduism. In the first decades of independence, some (usually on the left) advocated that the Central government protect tribal groups until they were "ready" for self-determination, while others (usually from the growing Hindu nationalist right) considered tribals as lost brothers who have fallen outside of the Hindu mainstream and that should be deliberately reincorporated into it (Corbridge 2002).

State-directed efforts to "open up" isolated rural areas can call both the project and the vehicle of national integration into question when local populations bear the brunt of ecological impacts and are denied a stake in the economic benefits. The controversial work of British anthropologist Verrier Elwin, who drew from his widely-read study of a Chhattisgarhi tribal people in the 1930's and 40's proposals to extend infrastructure to tribal areas while limiting the presence and cultural influence of non-tribal people, started an ongoing discussion of indigeneity in India (Elwin 1960). These more basic debates over the desirability of offering "modern" life to isolated peoples uncomfortably highlight the internal colonial relationships established between urban centers and rural hinterlands as well as those between majority cultures and indigenous groups.

The establishment of a separate Chhattisgarh state was promoted as a vehicle for increased tribal self-determination and a way of defusing the tensions this created within Madhya Pradesh. The strategy of creating new states was employed throughout the 1950's as linguistic groups coalesced and demanded administrative and political spaces in which to pursue their own interests. More recently, it was used to challenge longstanding patterns of political and economic dependence not only in Madhya Pradesh but in southern Bihar (now the state of Jharkhand) and northern Uttar Pradesh (now the state of Uttaranchal). Two

justifications were advanced for this move, after more than thirty years of agitation both inside and outside of parliamentary channels. By carving out chunks of some of India's largest and worst-run states, it was hoped that smaller states would prove more responsive to citizens and permit the establishment of more dynamic public services. In addition, poor results from existing efforts to improve conditions for rural Scheduled Tribes were attributed to the inability of non-tribal politicians and administrators to understand a fundamentally different "tribal culture."

The decision to create the three new states was taken by a BJP-led central government, which is not the kind of political formation that has traditionally been friendly to India's minority cultures. Adopting the longstanding demands of tribal organizations was just one step in an unexpected and successful push by the BJP to gain votes from tribal and lower-caste communities that are routinely disenfranchised in order to rig the vote for Congress and regional parties, particularly the Rashtriya Janata Dal of Laloo Yadav in Bihar. In Chhattisgarh's 2003 elections, the result was an electoral surprise in which an unprecedented one-third of tribal votes went to the BJP, leading to the downfall of the state's Congress government (Tripathi 2004). Campaign promises of inexpensive meals and a cow for every family were buttressed by years of efforts by Sangh Parivar groups to set up hundreds of schools, clinics, and other community institutions, developing a network of Hindu nationalists throughout tribal districts and creating the conditions to instill a "saffron" Hindu nationalism in a generation of tribal youth (Gopalakrishnan 2004). The BJP successfully cast a shadow over state Congress leader Ajit Jogi by suggesting that he was not, as he claimed, of tribal descent, and that as a Christian he was party to a conspiracy with Congress President Sonia Gandhi (Venkatesan 2000). Efforts to give tribals a louder voice have, therefore, quickly revealed complex and surprising political configurations in Chhattisgarh, suggesting that the social structure and cultural orientation of tribal groups may be becoming ever more dissimilar from Elwin's statically egalitarian vision. The industrial transformations engendered by Bhilai have played a part in this, providing non-agricultural work opportunities, consuming agricultural land, and lowering the demand for traditional and craft skills (Kumar 1985).

Chhattisgarh's smallholder and tenant farmers have long migrated to more productive lands for several months a year in search of opportunities to work bringing in the harvest, a practice mobilized by the British to attempt to increase the volume of wheat and cotton exports in the late nineteenth century. Frequently, these laborers were paid in grain – not the valuable export grain they were employed in reaping, but a lower-quality crop grown expressly for this purpose – and the large number of potential workers kept labor plentiful and wages low. As a result, short-term and short-distance migrations facilitated labor reproduction in the countryside (particularly when the farm family's own marginal crops failed) and export production in the city, drawing rural people into systems of regional, national, and imperial economic relationships. Marginal rural populations required non-farm income in order to fend off starvation, and larger landholders relied more and more on migrant work. The typical migrant/farmer family was unable, however, to receive decent

remuneration for their work, creating an "underdeveloped" countryside whose residents had no capital with which to improve the productivity of their land (Bates 1984). The few who could gain access to land title rapidly became a kind of rural low-caste landed middle class, who could educate their children and compete most effectively for the government jobs reserved for Scheduled Castes and Scheduled Tribes. The result was a new tribal elite, one well situated to take control of government projects involving tribal lands or communities.

Similar connections persist between land tenure, rural-urban dependency, social exclusion, and hydrological cycles. The soil of Chhattisgarh's river valleys is poor and fit only for a single paddy crop per year. The fields, most of which are tended by tenant farmers (frequently tribal or lower-caste families) in heavy and often inherited debt to landowners, are bounded by low earthen bunds punctuated by gates to permit irrigation water to flow in through ditches and flood the plot. Without a sustained period of heavy rains to flood the fields for several weeks after sowing, paddy crops will not take root, making this form of agriculture dependent on the success of the annual monsoon rains. During the author's visit to Chhattisgarh in August of 2004, the monsoon was already weeks late and many farmers had gone into debt to plant crops two or even three times in the hopes that rain was imminent. R.K. Shukla, of the project's NGO partner, has been working with farmers in the region and explained that the failure of the crop would eliminate not just the family's income but its food supply for the coming year. In this situation, farm families trek to cities in search of menial work to buy food and pay down debts; boomtowns such as Raipur are all the more attractive for being nearby.[9] In the city, relationships of debt and coercion are quickly reestablished as unskilled laborers jockey for jobs working hard manual labor, often on construction sites or in relatively dangerous occupations such as rickshaw pedaling. Professor Mitashree Mitra, an anthropologist who studies the health of tribal communities, has observed the formation of tribal slums on vacant land a few hundred meters from her office in Raipur's university district in the southwestern corner of the city. These are beginning to grow large enough that Professor Mitra is considering assigning graduate students to start collecting demographic information on the settlements, as tribals represent a growing proportion of new slum dwellers even if the overall number of urban tribals is still relatively small.

The development of Raipur as Chhattisgarh's capital is occurring not as part of a new commitment to tribal self-rule but is instead a reflection of the more recent phenomenon of middle-class and upper-caste Hindu aspirations for a modern urban center for trade and services. There is no sign that the new state institutions are going to change the basic nature of the relationship between Raipur and the agricultural regions over

[9] Urban slums in India count many groups that traditionally make their living moving from town to town. In Jabalpur, the author observed a tank slum that was temporarily home to a caravan of a few dozen families from Bihar engaged in the manufacture of ceremonial drums. Their settlement consisted of huts built of plastic sheeting and a few wagons, with piles of wooden drum shells and discs of rawhide stacked neatly about. In Raipur, the author visited a more permanent slum, built of durable materials along a lightly-used railway line, occupied by a group whose traditional function is to perform dances (of some uncertain ceremonial import) depicting certain animals.

which it holds sway, and in fact may serve to make the gaps and dependencies between the city and the countryside, and between rich and poor, even more profound. The new political space has succeeded in give Chhattisgarh a greater presence on the national scene; it has managed to implicate the state more deeply in national political trends of religious and social polarization, and is now actively seeking to expose it to the influence of foreign private capital. Chhattisgarh is coming to be perceived as another front in the battle to consolidate a Hindu nationalist culture, and a BJP majority, spanning India.

CAPITAL EXPENDITURE: GATHERING AND WIELDING POWER

Relatively sudden and late growth in Raipur, driven by a classic state-socialist industrialization scheme, led to a later period of more dramatic population growth in the post-independence years. Chhattisgarh has long been known as India's isolated heart, a place outside the Hindu mainstream. The agenda of local elites – many of them upper-caste Hindus eager to modernize Chhattisgarh's tribal majority – was to bring the region into the centre of the developmental project during the first decades of Independence. The Bhilai steel plant was the vehicle for the modernization of not only Raipur and Durg, but the whole network of cities in northern Chhattisgarh including Bilaspur, Rajnandgaon, Dhamtari, and Dongargarh.

The creation of Chhattisgarh state was a long-awaited chance for this elite to claim a higher level of prestige and investment. The placement of state institutions has required the planning of both short- and long-term investments in physical infrastructure both in Raipur and in the nearby city of Bilaspur, where the state High Court has set up in a former school building. In Raipur, the Mantralaya (Secretariat), the seat of ministerial offices and the effective state capitol, has been set up in the centrally located quarters of the former DK Hospital (Vajpayee 2000). A scant three years after the formation of the state, the Mantralaya is a already a warren of offices; dusty files wrapped in cloth and tied in ribbons crowd the desks, stacked to the ceiling or in metal file cases painted in chipped green enamel. The prospect of sleek modern government vaulting over the bureaucratic encumbrances of the past seems rather remote.

Former Raipur Commissioner Sonmoni Borah, a respected young officer of the country's mammoth civil service, the Indian Administrative Service, now fills several administrative roles in the neighboring city of Bilaspur. Direct and well-spoken, he met the author in his Vice-Chancellor's office at Guru Ghasidas University and offered frank criticism of the state of Raipur's administrative capacity for urban development. Chhattisgarh has not yet transferred all the municipal and panchayat responsibilities specified in the Amendments, such as control over the land use master plan, and Mr. Borah reported that local officials have such a parochial attitude that several successive Commissioners have taken the lead in moving forward with efforts to develop infrastructure. When asked about the development of administrative continuity and expertise in urban development – the Raipur Municipal Corporation employs neither an architect, nor an

urban planner – he recalled with pride his efforts to outsource the contract to design the new capitol complex. Since he failed to find a single Indian firm up to the task, he teamed up with the World Bank and gave the contract to a Malaysian firm. He believed that the development of a true municipal-level internal knowledge base about planning and architectural issues is unlikely given the current management practices of the state government, and offered the aggressively neoliberal recent governments of Andhra Pradesh, Tamil Nadu, and Maharashtra as examples of better state-level competence due to their willingness to employ the private sector in urban development initiatives. A more robust debate and a fragmented consensus, as seen in Madhya Pradesh and Chhattisgarh, are perceived as preventing the necessary reforms: "When there is more democracy, you cannot have these visions."

The Lal Ganga Shopping Mall and its tidy parking area

Photo: Vivekanand Gupta

The conversion of the city's main charitable hospital into the state's administrative center was a hasty decision. In the Lal Ganga Shopping Mall, a sleek new complex next door to the Mantralaya, various ambitious young entrepreneurs sell clothing, electronics, and "network marketing" services à la Amway in a five-storey atrium of chrome and polished granite. As if to reproach the squalid commercial and government buildings around it, the building's *parvis* is swept nearly spotless all day by an attendant and the floors are constantly swabbed down by women wielding damp rags and trailed by their children. In the fourth-floor office of Sharad Tamrakar, who sells insurance and offers consulting services with his brothers out of two spotlessly clean air-conditioned rooms, the author happened to meet the contractor who had carried out the conversion of the hospital. He was proud of his accomplishment, which had to be carried out in twenty days of round-the-clock work during October of 2000 to be completed in time for the new government to begin operations on November 1st. Why such a short and no doubt difficult schedule was required, disrupting the work of the hospital and incurring high costs by assembling labor, building materials, and equipment on short notice, is unclear. A permanent home for the state government has been considered for the outskirts of Raipur, though the defeat of the previous Congress government has left the exact site uncertain. The plans circulated in glossy brochures suggest a High Modernist planned city not unlike Islamabad, Chandigarh, or Dhaka; wide

boulevards, ribbons of green space running through superblocks, and ministries and other major complexes at prominent sites at the periphery.

Dr. Rajendra Dubey is a Raipur political figure, a local chief of the Rashtriya Swayamsevak Singh[11] and a prominent member of the ruling (at the Central, state, and local levels) BJP. He is currently the Joint Convenor of the national BJP's Doctor's Cell (BJP 2004) and at least one local website lists him (and his home phone number) among the current politicians without a state or local office (Chhattisgarh.com 2004). He was the last chairman of the Raipur Development Authority before it was shut down in the 1990's. During the course of meetings with local officials, Dubey's presence elicited nervous deference, and other contacts spoke of him in extremely respectful terms. His home was set up to accommodate a large number of people, with a large front room set up as a waiting area with chairs and magazines, and a small office off of this main room for private meetings. In short, Dubey is clearly a powerful man with connections that extend far beyond Raipur.

The designation of Raipur as state capital served to extend, not create, Raipur's regional dominance in service and commercial functions, including government services located there by the Central and state governments. After the Congress-led government in Delhi made moves to cancel a planned medical research institute for Raipur, Dubey led a coalition of likely and unlikely business and political organizations in support of the institute, which staged a demonstration a week after the author left Raipur in August 2004. This coalition "included the Indian Medical Association, Chhattisgarh Chamber of Commerce and Industries, Wholesale Cloth Merchant's Association, Maheshwari Samaj, Wholesale Medicine Trader's Association, Akhil Bharatiya Vidyarthi Parishad [a BJP-aligned national student organization] and a number of the BJP activists" (Sahu 2004).

Though unsuccessful, this instance does demonstrate the BJP's (and Dr. Dubey's) ability to mobilize professional and trade associations to promote external investment and the development of very particular kinds of new infrastructure, which would serve to reinforce the service and administrative functions of the city. Raipur Mayor Sunil Soni is part of Dubey's circle, and when appearing at a public event (the project's

[11] This literally translates as "National Volunteer Corps;" the RSS is a nationwide organization of right-wing Hindu fundamentalists who promote a Hindu identity for the country. Along with the constellation of organizations in the broader nationalist *Sangh Parivar* or "family," the RSS has been repeatedly implicated in progroms and massacres against Muslims as well as in the promotion of Hindu identity among lower-caste tribal people (Shah 2002). The RSS organized and led the Gujarat riots of 2002, in which Muslim sections of the city were looted and burned and thousands of Muslims were brutally murdered, by mobs equipped with police-supplied lists of Muslim homes and businesses (Zakaria 2002). By providing services to the Hindu poor and performing other charitable acts, as well as presenting public spectacles of Hindu identity and "defending" Hindu practices from a Muslim and secular "threat," the RSS and SP have gained the respect and loyalty of millions (Tetreault and Danemark 2004). Despite the killings and violence linked to them, these organizations continuesto thrive and expand in India and its diaspora communities, and has been crucial to assembling the financial and political support that allowed the BJP to come to power (Blom Hansens and Jaffrelot 2003).

Raipur workshop, where the media were at least briefly in attendance) with Dubey, received considerably less visible attention and deference despite his high elected office. Mayor Soni came to prominence as one of Raipur's most successful chicken farmers. As it happens, a poultry farming zone was one of the few initiatives from the 1977 Plan to have been implemented by the time that the next Plan was being prepared in 1995 (MP TCPO 1995: Table 1T5).[12]

The rhetoric surrounding the foundation of Chhattisgarh is of modernization, flexibility, and reform: a new state without baggage, ready to embrace India's new decentralized reality and make a new vision of development work. The new urban paradigm of decentralization and governance promises a more modest institutional scale, where integrity and responsiveness are enforced by markets and democracy. The development of Raipur as the capital, however, shows little evidence of these principles in action. Already, the effort to set up the new government manifests more of the "edifice complex" of an arriviste political class than a real commitment to do things differently. The drive to recruit financial support from the Central government to spruce up the city is framed as an effort to give the state a worthy capital – a rather conventional reliance on upper levels for infrastructure funding, even if the emphasis is placed on privately-driven multiplier effects instead of direct outcomes. Reliance on bond markets, perhaps the key element of the neoliberal prescription for urban upgrading, would demand some degree of financial transparency on the part of government and require that powerful local actors renounce recourse to grants from the upper tiers, effectively denying them some of the fruits of their political weight. Similar hurdles are faced by the mass democratic organizations theoretically instituted by the 73rd and 74th Amendments.

[12] Dubey is not the only politician of national stature to come from Raipur. Purushottam Koushik was a socialist and Janata Dal MP during the JD-led coalition governments of the late 1970's and served in the cabinet as Civil Aviation minister for two periods. Koushik's reputation for social conscience and honesty (he publicly opposed the massive spending on new facilities, much of it housing for ministers and higher civil servants, that accompanied the foundation of Chhattisgarh) may not have served him well in getting Central government money spent in his Raipur constituency; Raipur has only recently restored service to its once-decrepit airfield, inactive since 1975.

9. Alternatives

ALTERNATIVES OR RECOMMENDATIONS?

As previously noted, there is a kind of diagnostic compulsion in studies of environmental services in urban India: researchers both domestic and foreign can easily find horrifying examples of filthy conditions and a lack of legally-mandated (and taxpayer-funded) services in urban contexts. The analyses that result generally limit themselves to addressing financial capacity issues, and they recommend funding structures that encourage local bodies to develop their own tax bases, fund capital works, impose user fees, and pay for operations and maintenance. The studies commissioned by the Twelfth Finance Commission, a Central government body charged with reviewing the fiscal relationships between levels of government, share this general approach (e.g., Mathur and Thakur 2004 on relationships between municipalities and higher levels, IPE 2004a on sanitation, and IPE 2004b on solid waste management). Few bring themselves to describe the winners and losers of the current urban regime, or the potential political and institutional configurations that could pressure local and state governments to adequately fund, build, and maintain services.

Systems to manage sewage and solid waste have to respond to the volume and character of waste being generated (Is industrial, commercial, or household waste the chief component of the waste stream?), the climate of the region (Will garbage freeze or fester?), and the landforms and physical characteristics of the city itself (Will waterways carry sewage away from the town, or will effluent pool and concentrate?). These apply both at the urban scale and at the scale of the site for which the facility is planned. The nature of

wastes has two principal impacts on proposed efforts to remediate sanitation and waste management problems. First, one-size-fits-all recommendations based on "best practices" will not account for the specific environmental context in which environmental services must operate. Second, the configuration of funding or jurisdiction is only one part of a puzzle, in which broader commitment by households and other waste generators must be elicited and applied *regardless* of the entity charged with providing services. Serious investigation of waste streams that create both socioeconomic and ecological dynamics must understand components of the waste system not just as actors interacting with resources, but as linked systems in biological cycles of water and nutrients (Langergraber & Muellegger 2005).

Recommending waste treatment systems, therefore, must rely on a detailed analysis of social, institutional, and environmental contexts for the cities concerned, including highly specific technical information on soil and hydrological conditions as well as close attention to the communities and neighborhoods that make up the city – an analysis which is beyond the scope of this work. This perhaps applies more directly to wastewater, a more immediately biologically hazardous form of waste, than to comparatively inert solid waste that poses problems of accumulation and more gradual contamination of nearby water and soil, though both problems require a thorough understanding of the economies, environments, and societies involved if projects that affect them are to be economically, ecologically, and socially sustainable. This chapter outlines systems for handling wastewater and solid waste that are relatively low-cost and low-capital, and which can be applied in a variety of contexts. They are *alternatives* that offer a way out of the environmental problems described in the preceding chapters, and not *recommendations* that would require moving far beyond the data discussed here. Though closer study and community engagement would be required to select and implement them, they offer the distinct advantage of being implementable at a variety of scales and in a variety of contexts. Though cooperation from the authorities can create supportive conditions for these alternatives, and administrative hostility can interfere with them, effectively organized urban neighborhoods do not have to wait for a higher (or indeed any) level of government to gather and configure the proper resources, and can themselves immediately work towards providing improved environmental services as long as consciousness of the problem is coupled with a will to address it.

This chapter discusses the main elements of sustainable, smaller-scale systems for maintaining and improving solid waste and wastewater management. This review is intended to give an idea of the range of alternative approaches, and discuss the potential implementation of those approaches in Jabalpur and Raipur. The SWM systems consist of well-understood practices, but call upon innovative institutional structures to implement them, while the wastewater management systems are technically less well understood, but can be implemented by more conventional means. Both offer a way out of the current low-equilibrium trap of low-quality services and wasted resources observed in the study's subject cities.

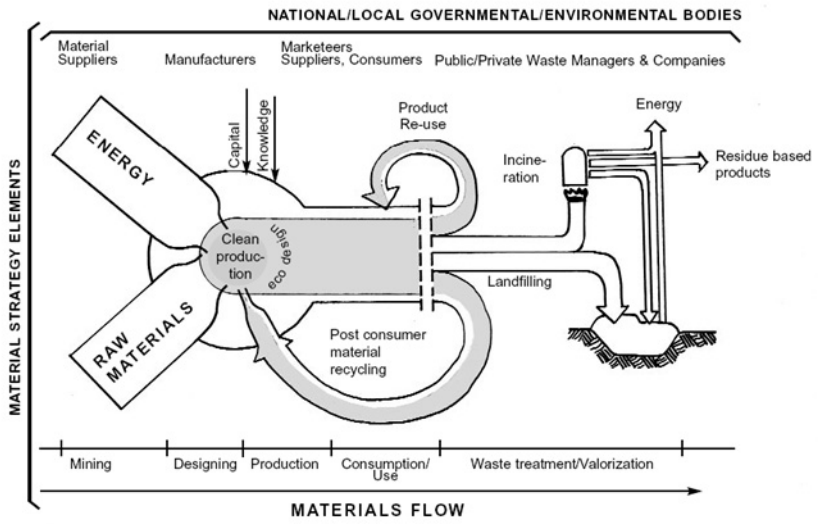


Figure 9.1: Materials flow in sustainable waste management

Source: van de Klundert and Anschütz 2001

SWM is, as seen in the chapters on Jabalpur and its tanks, more of an aspiration than a reality in Indian cities. The waste stream, as diagrammed at right, contains a large amount of potentially reusable materials that are typically sent instead to be burnt or deposited in landfills (though it does omit the significant recuperation of materials by scavengers before and after landfilling takes place). Mostly limited to secondary collection, municipally-run services have a poor track record in maintaining sufficient regular pickups, restricting the use of inappropriate or illegal dump sites, and properly disposing of the waste they do manage to cart away. Current landfill practices, even when followed, are environmentally questionable; the deliberate use of unsorted garbage to fill urban water bodies or in landscaping operations such as road-widening is, at best, just as harmful and unsustainable as poorly-managed conventional landfills. Street-cleaning is often complicated by the presence of open drains along either side of the roadway (many of which contain drinking water pipes) which regularly clog and inundate the street with - sheets of sewage and refuse.

The growth in the urban population, and the increased volume and different mixture of household waste produced by economic prosperity, have exacerbated solid waste problems in recent years, leading to the current 1 to 1.33% annual increase in India's amount of waste generated per capita (Shekdar 1999). Even more aggressive growth rates are foreseen in the emission of methane from landfills, the land area required for landfill sites, and the total tonnage of municipal solid waste generated, at the national level (Singhal and Pandey 2001). The national capital exhibits conditions and practices that characterize the failing efforts of municipal SWM systems across the country: despite extensive and expensive mechanization, only 62% of Delhi's daily solid waste is collected, while less than half of the sanitation vehicle fleet manages to get out of

the garage on a typical shift, due to poor maintenance and long fuel queues (Singh 1999). Primary collection is typically nonexistent, creating a challenge in getting solid waste to secondary collection points.

Table 9.1: Solid waste per capita in urban India

City	Population (in millions)	Solid waste (kg/cap/day)
Ahmedabad	2.677	.59
Bangalore	4.130	.48
Bhopal	1.063	.51
Mumbai	12.288	.44
Kolkata	9.643	.38
Coimbatore	.816	.43
Delhi	8.412	.48
Hyderabad	4.099	.38
Indore	1.092	.32
Jabalpur	**1.120**	**-**
Jaipur	1.458	.40
Kanpur	1.874	.64
Kochi	.670	.52
Lucknow	1.619	.62
Ludhiana	1.043	.38
Chennai	4.753	.66
Madurai	.941	.39
Nagpur	1.625	.27
Patna	.917	.38
Pune	2.244	.31
Raipur	**.606**	**.41**
Surat	1.499	.60
Vadodara	1.031	.39
Varanasi	1.031	.40
Visakhapatnam	.752	.40

Figures for Raipur are from 2001; all others from 1995. Sources: Jain 2004 (Raipur), World Bank 1999 (All others)

Looking at Table 9.1 at left, it is hard to discern patterns among cities as to the amount of waste they generate, beyond a tenuous positive relationship with population. Even then, smaller cities such as Surat and Coimbatore generate as much or more waste per capita as Kolkata or Delhi. A stronger relationship may exist between a city's level of economic development and the overall amount of waste generated per day, though again poor Kolkata generates more waste per capita than prosperous Bangalore. Regardless of the economic conditions, any concentration of solid waste in an Indian city will attract scavengers, both human and animal, and become part of the economy of sorting and re-using waste described in Chapter 7.

SWM in Jabalpur and Raipur, when it does occur, does not fundamentally change the nature of refuse; what starts out as an externality at the household scale is assembled in larger and larger volumes to become an externality at the neighborhood and city scales. To the extent that the waste is subsequently put to other purposes, such as filling tanks, its utility is defined by its worthlessness – it is merely something suitably cheap and bulky which one can apply to the landscape. A poor definition of solid waste itself is the core problem of the current SWM regime and is the source of the systemic drawbacks of the current practices: the creation of environmental nuisances at and beyond the generation site, the negative impacts on water quality and drainage, the limited livelihoods in and resources obtained from the handling of the waste stream, and the environmental and economic constraints on the expansion of landfills. Community-based SWM institutions have grown in response to similar problems in south Indian cities, and are attracting increasing notice in the literature as well as in the administration of other developing-world urban centers. In these systems, primary collection and street cleaning are handled at the block or neighborhood level by workers employed by a local community-based organization. The organization collects a small fee from participating households every month, to pay the workers and pay down startup loans. Households are obligated to sort their refuse, but the reusable materials are often recovered and sold (or composted) to

support further development of the project, leaving only a small amount of waste to be taken to a city secondary collection point. Waste collection at a finer geographical and organizational scale helps overcome "first mile" problems of disconnection between communities and existing services, in much the same way that Northern telecom systems face challenges in cost-effectively connecting extensive high-capacity data networks with individual houses.

Urbanization increases the amount of waste generated and concentrated within the city, and the increased population sharpens competition for the land and funding dedicated to SWM. Systems that reduce the total volume of solid waste destined for municipal secondary collection and landfilling can give municipal budgets and administrations greater headroom in their disposal and collection capacity, permitting cities to focus their activities and improve their own waste management performance. Perhaps more importantly, sustainable SWM both represents and emerges from a move from *service-based* SWM to *commodities-based* SWM. In service-based perspectives, SWM is paid for by households or municipalities, and the service offered is the removal of waste from some unit of space (the household or street) or work (such as the linear meters of gutter swept or the total volume of waste collected). The jobs so generated are service jobs, poorly paid, sometimes dangerous, and always dependent on the ability of the sponsoring household or city to pay (at all, if not always on time). Commodities-based approaches, in contrast, are oriented not around the service being provided but by the materials recovered thereby. Waste collectors are expected to sell recovered materials and strike deals with specialized dealers and brokers to do so, though this exposes them to the vagaries and nested levels of regional, national, and international commodities markets.[13] The commodities turn in thinking about solid waste permits both more market-oriented services focused on accessing new streams of revenue, and more community-oriented integrated SWM systems focused on supporting inexpensive and equitable services by keeping costs down while by increasing local capacity to pursue ecological SWM options (Muller and Scheinberg 2002). While not mutually exclusive in principle, service-based and commodities-based approaches are organized around markedly different economies that tend to focus activity in different ways. By redefining waste as a resource, and placing that resource under community control, community-based SWM opens up channels by which communities can develop their own assets.

Though these more environmentally-sensitive schemes take a dim view of conventional disposal practices such as landfilling and incineration, these options should not be dismissed out of hand. Sensitivity to local needs and contexts does not preclude recognizing certain unsustainable practices as perhaps the most

[13] Menegat (2002) describes how a municipal system that promotes household sorting and the assembly of recovered materials for bulk sale can lessen the negative environmental and economic impacts of conventional SWM, carried out by municipal employees without direct participation from community-based actors. His example comes from Porto Alegre, which has gained renown for incorporating participation at higher levels of budgeting and planning if not in actual operations; these different levels at which participation is applied are perhaps more suitable for a more economically-, politically-, and socially-developed context.

appropriate option for certain situations. Still, conventional practices do not significantly advance the capacity of poor communities to advance their own self-determination. The ability to center capital accumulation and social development around SWM and livelihoods from it is the most salient characteristic of the alternative SWM regimes described here. As mentioned in the introduction, the idea of assets can be financial, human, natural, physical, social, and political. Community-based SWM can be such an avenue for the accumulation or restoration of capital, but requires the active participation and goodwill of member households as well as support (or at least non-interference) from the municipal government to sustain the endeavor.

Alternative SWM systems: Practices and elements

Table 9.2: Actors and actions in SWM

Actors	Actions
• State & district authorities • Municipal sanitation department • Community leaders • Community-based and non-governmental organizations • Neighbourhood collection groups • Industrial enterprises • Commercial enterprises • Restaurants and catering halls • Marketplaces • Places of worship • Schools • Waste pickers	• Waste generation and storage • Household separation at source • Primary collection • Recovery, re-use, and recycling • Street sweeping • Secondary collection • Transport from secondary collection • Disposal

Source: Adapted from Muller and Hoffman 2001

Developing-country sustainable SWM systems are outlined here as a set of practices carried out by organizations with a number of common elements. Practices, the actual services and operations that make up sustainable SWM, are described in the first half of this section. These are organized around street cleaning/primary collection and the components of integrated household waste management (separation at source, recycling and re-use of recuperable materials, and composting organic waste). The elements, the characteristic goals and means of the SWM systems under review, are presented in the latter half of the section. These include sustainable SWM, community participation, respect for local context, and livelihoods. Practices and elements alike are developed and implemented by a range of local *actors*, and fall into one of a few broad categories of *actions* in Table 9.2.

Practices

Street cleaning/primary collection: Though it is usually the statutory responsibility of the municipal government, public streets in residential areas are infrequently swept and various actors have started different kinds of programs to fill the gap. Street sweepers often "freelance" and hope to persuade local residents to voluntarily support their work; in more formal systems they are taken on by an area-based organization, join a municipal government program, or are hired by local politicians, and are sometimes required to pass on part of the fees they collect. Primary collection of household waste more effectively connects households with

secondary collection networks, and is frequently carried out by the same personnel and equipment that work in secondary collection. Frequently, municipally-employed sweepers are paid by participating households every week or month to collect garbage house by house; it is not clear whether any salary is paid by the municipal corporation over and above the amount collected from households. Different employment and operational policies have resulted in relationships of varying complexity between area-based street cleaning or primary collection personnel and other municipal systems. In one system in Senegal, female street cleaners take waste to refuse bins, which are emptied by male workers into the municipal dump trucks, requiring coordinated scheduling and reliable pickup from the municipal administration. In the Philippines, street cleaners deposit their haul at municipal secondary collection sites, emptied by the municipality once a week and therefore requiring only that the collection points are actually emptied on a regular basis, which is by no means a certainty (Bulle 1999). Table 9.3 describes a number of urban area-based programs that clean streets and/or provide primary collection in urban neighborhoods of Faisalabad and Karachi.

Table 9.3: Street cleaning and primary collection provided by urban area-based SWM organizations in Pakistan

Organization	Activity	Payment
Noor-ul-Amin	Additional mun'pl corp sweepers assigned to area, monitoring, liason with upper mun'pl corp officials	Informal; sweepers receive tips on festival days etc.
Muslim Town Welfare	Contracted private sweepers before annexation by city. After annexation, continued to pay sweepers	Hholds pay monthly charge to area-based organization
Liaquat Town Welfare	Obtained four additional mun'pl sweepers in area; handled street cleaning & primary collection for 600 hholds. Org'n can fire sweepers, punish hholds that fail to pay	Pk. Rs 20/month/hhold
M.A. Jinnah Development	Two sweepers for 100+ hholds, one private, one municipal. Loaned private sweeper money to buy donkey, cart. Cleanliness campaigns & social pressure on hholds that fail to pay	Pk Rs 20/month/hhold; sweepers pay 25% to area-based organization
Sulemania Welfare	Additional mun'pl sweepers, transferred delinquent sweepers	Pk Rs 2/week/hhld paid to mun'pl sweepers
Ayub Welfare	Monitoring of mun'pl sweepers	Some hhlds pay Pk Rs 3/week to mun'pl sweepers
Green Peace Welfare	Seven additional mun'pl sweepers, who get access to land at local ag rsch inst in exchange for compostable waste	Pk Rs 3/week/hhld
New Public Welfare	One private sweeper, voluntary payment	Pk Rs 10/month/hhld to sweeper
Suzuki System	Politician-initiated system using Suzuki vans; provided street cleaning only to 1000 hhlds	Pk Rs 15/month/hhld; later Pk Rs 25/month/hhld

Source: Adapted from Ali and Cotton 2001: 13-4

Integrated management: A group of Netherlands-based researchers known as WASTE have developed a specific methodology to examine and foster integrated management: the concept of Integrated Sustainable Waste Management (ISWM) is defined not as a set of particular practices but as a process of choosing options

for six aspects of waste management: technical/operational, environmental, financial, socioeconomic, institutional/administrative, and policy/legal. Each aspect is used to describe the components of services as well as dimensions of the organizations that carry them out and each will be the product of cross-cutting institutional and technical choices. An initial and limited set of measures to improve current SWM systems and implement ISWM is proposed for each aspect, and is effectively limited to data-gathering efforts and broad regulatory and operational orientations (van de Klundert and Anschutz 1999). Subsequent elaborations of ISWM have been couched in fairly conventional planning language, emphasizing an array of assessment, monitoring, planning, and consultation processes suitable for improving existing services as well as developing new ones (van de Klundert and Anschutz 2001). In working tightly from the existing literature to structure its field efforts, the ISWM project framework can be used to summarize the understanding researchers have achieved of sustainable SWM more generally. Putting aside for these purposes its claims to process orientation, the practices most frequently associated with ISWM and sustainable SWM more generally can be grouped under three headings: sorting, recovery, and composting.

Sorting, both at the household level as well as at the service area level, is the cornerstone of integrated management. Separating different types of household waste in different receptacles maintains the quality of recoverable materials, lessening contamination by liquids or organic waste and simplifying the finer-grained sorting (separating different kinds of paper, plastic, and metal from one another) that maximizes the value of recyclables. Requiring households to sort waste reduces costs by requiring a certain degree of "sweat equity" from participating households; this unpaid and usually female labor is another household contribution, along with regular cash payments, to the SWM process. As a household activity with important repercussions for the economies and relationships that develop farther down the waste stream, sorting is an investment of labor power that increases the value of waste all along the commodity chain, from household waste to recyclable bulk commodity. The degree of sorting is itself dependent on the dynamics and relative complexity of commodity chains: a highly complex chain will require a more highly articulated set of waste types and streams, and connect local sources with wider patterns of materials flow (Baud and Post 2003). For actors downstream of households to assemble household labor into economies of scale requires them to coerce or induce household participation. A range of incentives was tried to encourage household sorting in urban Thailand, including giving residents eggs in exchange for sorted waste (Mongkolnchaiarunya 2003).

Recycling and re-use: The market for recyclable materials has risen in tandem with the increased consumption of recuperable materials (packaged consumer goods, inexpensive plastic household items, etc.) and the increased extent and volume of trade in recycled materials, particularly paper and plastic, which implicates community-based schemes in national and international materials cycles and markets. In the case of plastic, raw materials costs account for most of the production cost and a dramatic increase in the use of plastic in packaging has generated a large volume of potentially re-usable material. The shortage of domestic pulp in India and the low recycling rate of waste paper has led to increased imports of waste paper from

abroad, and again suggests a large potential market for recycled domestic paper (Gupta et al. 1998). Recovered by informal or formal waste pickers or sorting centers, recyclable materials must be collected and sold to waste brokers, who operate a local market for particular materials (van Beukering et al. 1999). At the metropolitan level, the Mexico City government has maintained formal relationships with unionized waste pickers for decades to support a job-generating sector that helps reduce the cost and impact of landfills, eventually building dedicated separation plants to improve their living and working conditions (Berthier 2002).

Composting: Sorting and recovering non-organic materials increases the value of organic waste as well. Composting organic matter turns the largest part of the household waste stream into low-cost, high-quality agricultural inputs in the form of mulch and fertilizer, which help encourage healthy soil structure. Though most sorting to isolate compostable materials occurs at the source, post-collection separation is also feasible. Once materials are isolated, composting can occur in closed bins or piled into open windrows, depending on the need to limit odors and other local hazards (Dulac 2001). The need for agricultural inputs and the desire to use labor-intensive systems has led to sustained interest in composting across South and Southeast Asia ('t Hart and Pluimers 1996). Community-based composting systems have been implemented in urban Bangladesh and Indonesia by charitable or community organizations as well as for-profit enterprises. Depending on the level of investment, these schemes use a range of capital goods, from a few tools and carts to small fleets of vans and elaborate composting bins; the degree of capital investment changes with the need to recover costs (many schemes are started by charitable organizations that can cover deficits on an ongoing basis) and the scale of expenses incurred (UNESCAP 2003).

Elements

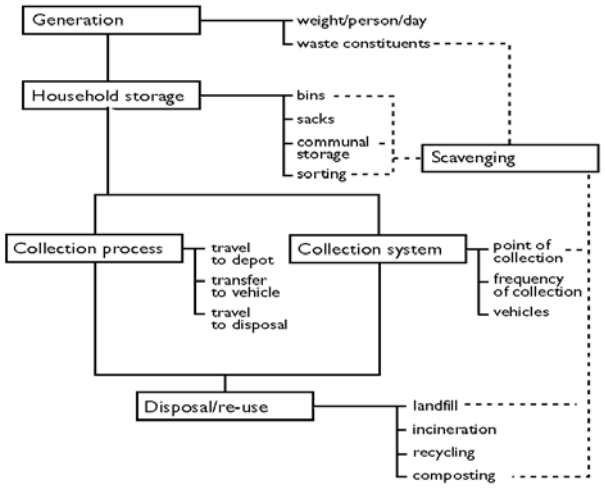


Figure 9.2: Dimensions of ISWM
Source: adapted from Cotton and Tayler 2000

***Sustainable SWM*: Whatever** their other potential benefits, community-based SWM organizations must provide sustainable SWM. Cotton and Tayler (2000) posit a model of SWM that covers generation, storage, and the collection process as well as the physical collection system. Disposal and the role of scavengers have been incorporated in their scheme in Figure 9.2. There are choices of strategy and technology open at each stage, and the challenge of SWM as a physical and social process is to connect the most ecologically optimal through institutional action.

SWM is operationalized through a series of processes carried out by a series of waste generators and handlers, all serving to gather garbage from across space in several steps that cover successively broader areas, necessitate a higher degree of mechanization, and involve larger and larger volumes of material. Most of the capital-, maintenance-, and energy-intensive technologies in conventional systems are applied in waste transport, so collection and processing at a smaller scale minimizes both the requirements for transport and the volume of waste passed on to high-cost disposal processes. Consideration of the occupational health consequences of handling solid waste can bring considerations of SWM workers' individual health and, more widely, public health into the dimensions of human and social sustainability. The health impacts of handling household solid waste are also minimized when households sort their output, which helps regularize scavenging; waste pickers can work with smaller amounts of waste in better conditions (a neighborhood sorting site is likely smaller and likely less hazardous than an outdoor landfill), will not have to do as much manual self-sorting to find particular kinds of material, and may have access to rudimentary protective gear such as shoes and gloves (van Eerd 1996). All of these SWM efforts, to the extent that they can help handle and recover waste closer to the source, promote more sustainable management, and create linked livelihoods, can be a part of sustainability.

Table 9.3: Community-based organizations in SWM

Types of community-based organization	Roles of community-based organizations
• A community-wide development committee with subcommittee on sanitation or SWM • A coordinating committee of micro- and small enterprises active in waste services • An association of tradespeople or shopkeepers • Women's organizations • Youth organizations • A local religious organization • A property owners' association	• As partners in dialogue with the municipality • As clients of municipal waste services • As a platform for discussion and dissemination of new ideas • As a force to mobilize members for action in SWM • As a representative or advocate to convince households to subscribe to SWM services • As a supervisor and performance monitor for the services provided by the municipality/private sector

Source: Adapted from Muller and Hoffman 2001

Community participation: All of the alternative schemes under consideration require and define community participation in different ways. Usually this is accomplished through community-based organizations, either existing ones that decide to become involved in SWM advocacy or single-purpose entities established specifically to work on SWM. Muller and Hoffman (2001) offer a typology of community groups and a description of their possible roles, one that emphasizes their role as mediators and communicators between different actors and interests, rather than their actions as providers of services themselves (Table 9.3). The UNDP's Urban Management Programme (2001) sets out a range of forms of citizen participation, going from complete citizen control through milder forms of cooperation, such as consultation to outright political manipulation; such a scale, while useful for categorizing one-to-many relationships between the state and individuals, leaves out the organizational dimension whereby individuals join together to create formal and informal constituencies or community groups to articulate demands and

secure resources. Schübeler (1996) proposes a useful typology of applications for participatory infrastructure service management: community-based, area-based, functionally-based, and process-based. Each is centered on one essential dimension of a project (not necessarily to the exclusion of others), and that dimension structures how and when the community is brought into the project. Any one of these types may be well suited to improving the cleanliness of a street or neighborhood; whether the service is provided equitably and sustainably is determined by structural necessity, political action, or administrative commitment, and not necessarily by the application chosen.

More facilitative roles for community consultation are based on feedback and advocacy to the service providers, which are usually micro- or small enterprises, large private subcontractors, or the municipal government itself. In Manila, a citywide women's organization started an effort to formalize roles and create relationships between waste-sorting households, itinerant scrap dealers who go house to house buying sorted recyclables, and firms in the processing and recycling industries. By providing carts and uniforms and negotiating access to gated residential compounds, the women's group could offer better livelihoods to scavengers, create a small stream of income for households, and divert waste from landfills (van de Klundert and Anschutz 2001). Similar strategies use the informal channels and moral suasion exercised by community organizations at the neighborhood scale to connect households with the wider-area management systems applied across the city. The degree to which this is successful in transmitting political pressure from the bottom up, to advance neighborhood priorities, or from the top down, to favor metropolitan interests – how the political position of community-based SWM scheme, tugged between often divergent sets of actors, affects its character and the vertical relationships it establishes – is as yet unclear. Although the involvement of community organizations has the potential to boost democratic accountability and empower the marginalized by working at a small social and spatial scale, realizing equitable and socially-just outcomes will be dependent on the social and political character of the organizations themselves; the services they provide and the way that they provide them are always vulnerable to neighborhood clientelism and the reproduction of hierarchies of class, caste, and gender (Mitlin 2000, 2001). Challenging and breaking down these hierarchies is essential to employing SWM as a means to realize justice, but requires analysis and action that go far beyond the scope of this work.

Local context: Though more the case in handling wastewater, as seen in the latter half of the chapter, local context is brought in to determine the social, environmental, political, and economic conditions in which community-based SWM is executed. The definition of sustainability used in the WASTE studies explicitly poses sustainability as a condition determined by local dynamics: "the ways in which resources are used and how these fit into the local culture, context and society… A system is considered sustainable when it can reproduce itself without reducing the possibilities open to the following generation of systems" (van de

Klundert and Anschutz 2001:12). The converse of this argument is that unsustainability comes about when applying uniform and closed-ended systems across different local contexts.

Livelihoods: The role of natural resources such as land and water is widely recognized as being key to the informal livelihoods earned by the urban and peri-urban poor, most often in urban agriculture (Gordon et al. 2000). Resource-oriented analyses of the impacts of environmental degradation on livelihoods, more attuned to water and land resources, are not as readily applied to the strategies of city dwellers; they instead and focus on the peri-urban interface as a stepping stone into the city from rural life and livelihoods (Duraiappah 1996, Allen 2003). Taken at the opposite end of the scale, the national level, the number of jobs linked to the materials cycle can be maximized by recovering more material within the country. Less dependence on foreign sources could reduce the importation of waste paper, which would have positive macroeconomic effects that can be captured at the local level through sustainable SWM systems (van Beukering and Duraiappah 1996).

Some are skeptical about the ability of sustainable SWM to provide livelihoods of a markedly different character to the workers providing the service; although the schemes as well as the actors involved in them are different, the relationships between workers and the organization itself frequently remains the same as in private sector or less formal contexts (Ali and Cotton 2001). Beyond the formal livelihoods obtained through sustainable SWM, i.e. the paid jobs that are created by various means, the gendered distribution of labor and power within the household is also important to the social character of household-oriented systems (Beall and Kanji 1999, Dahiya 2003). Most approaches that rely on household sorting regard the household as a "black box" and do not directly address gender dynamics within social relations of reproduction, focusing instead on the distribution of resources between households (with the highly significant exception of womens' groups that develop community-based SWM schemes, e.g. Dahiya 2003a). The role of social networks among the poor also determines the SWM-related livelihoods that poor households can identify and access, both in the conventional formal and informal labor markets as well as through community organizations (Beall 2001b).

Table 9.5: SWM providers in a Bangalore ward

Initiated by	Managed by	Number of houses served
Academic partnership	Community-based org'n	90
Academic partnership	Community-based org'n	220
Academic partnership	Community-based org'n	390
Mun'pl corp	Mun'pl corp	2042
Mun'pl corp	Entrepreneur	400
Mun'pl corp contractors	Mun'pl corp	125
Mun'pl corp contractors	Mun'pl corp	247
Entrepreneur	Entrepreneur	330
Entrepreneurs	Entrepreneur	100

Source: Adapted from Iyer 2001: Table 2

More conventional collective-action approaches are skeptical of the potential of community-based SWM systems to gain real institutional depth, largely because they are perceived as inadequate to solve the basic collective action problems surrounding waste management. Unsurprisingly, private contractors and consumer choice are held as more feasible approaches, with community organizations relegated to "providing an informal framework of coordination" to facilitate the work of more involved actors (Bardhan 2000 in Anand 2003:235). More adapted approaches that coordinate multiple kinds of neighborhood-based primary collection (such as those present in one area of Bangalore, as shown in Table 9.4) are brought together through networking initiatives. A WASTE project in Bangalore integrated this approach with an effort to monitor and address SWM at the ward level, building networks across the ward to create larger scales of coordination and fill gaps in service by helping start new organizations to cover additional areas (van Beukering et al. 1999).

Raipur's former Commissioner, Sonmoni Borah, introduced a primary collection program along the lines of other city-led schemes that establish services and leave them in the hands of community-based groups to continue them. Borah purchased fifty rickshaws to provide door-to-door collection in certain wards, staffing them with street sweepers called "friends of sanitation." Private schemes, administratively obligated to hire poor local women to sort waste, have been implemented in 28 of 54 wards. Both are managed by some kind of ward committee, working in concert with the local councilor; it is unknown if these committees still exist, perform any other tasks, or are specifically intended to fill the letter or spirit of the Amendments or Chhattisgarh's enacting legislation. The current health commissioner claims that the "friends of sanitation" effort continues, though the author was unable to confirm that this is indeed the case.

Exnora's home neighborhood and headquarters, before and after

Photos: Exnora International

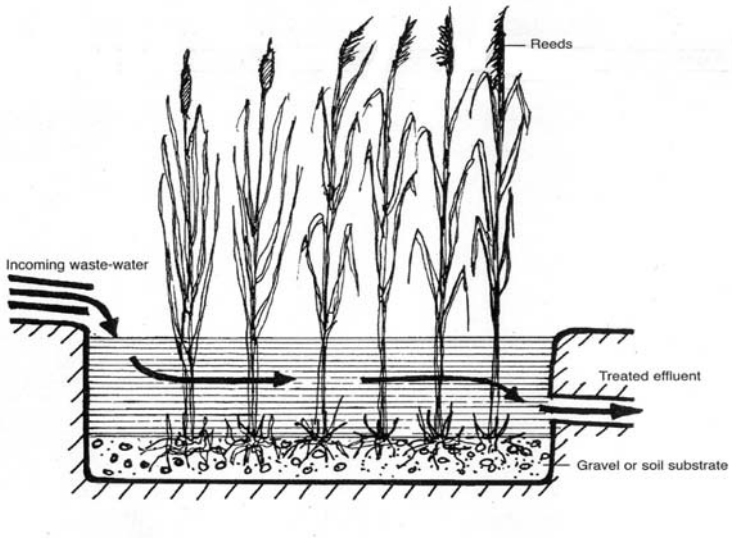
Borah confirmed that his primary collection system was developed to build on some of the most successful aspects of another participatory SWM model, called Exnora. As pictured above in its first project, carried out in the immediate surroundings of the Exnora headquarters, Exnora groups have made a visible difference in urban neighborhoods across South India. In Chennai, Exnora has spawned 1,500 community organizations in neighborhoods that are home to 450,000 people. In this system, a group of households (usually about 300 people total) in close geographical proximity form an area-based organization (itself usually called an Exnora or civic Exnora) to provide SWM, managed by volunteers or elected officers. One member, the "street beautifier," is provided with a cart and trained to sweep the streets and carry out primary collection. A monthly contribution from each household to the organization, on the order of Rs 10-30 per month, pays the street beautifier and is used to pay down a loan from Exnora International, the charitable parent body of the system, to purchase the cart and equipment (Anand 1999). Some Exnoras compost organic waste and try to develop accessible urban, peri-urban, or rural agricultural markets for the compost. More frequently, recovered non-organic materials are sold to recyclers by the street beautifiers,who keep the proceeds. Exnoras often take on other related environmental service projects in the participating neighborhoods, building local-scale sanitation and drinking water infrastructure (typically by improving connections to municipal services, though some autonomous systems can be included). The Exnora approach flourished in conditions where the municipal corporation made a deliberate choice of NGO-driven service delivery over private tendering, and has outstripped the efficiency of private operators in systems that include large private enterprises (Post et al. 2003). Though they produce tangible benefits for participating communities (and for the politicians who encourage them), the more localized and equitable distribution of those benefits can pose a challenge to current concentrations of economic and political power. Shifting political winds can put Exnoras into a conflict with local government and multinational corporations, as discussed in the conclusion.

Exnora activites in peri-urban Chennai: Waste sorting and composting

Photos: Dahiya 2003a

When applied across broad areas of Chennai, the waste recovery activities of Exnoras lowered the municipal corporation's waste management costs by reducing the total amount of waste to be collected and disposed. A relative lack of operational coordination between street beautifiers and the municipal collectors led to inadequate and infrequent emptying of secondary collection points (Baud et al. 2001). Conventional waste management systems were becoming unmanageable, particularly at the peri-urban interface where vacant land and poor social conditions led to the accumulation of large amounts of solid waste. In these areas where secondary collection is not offered, Exnoras had even greater incentive to pursue composting to reduce the volume of disposed waste and to increase the agricultural nutrients available to local agriculture (Dahiya 2003a). In Chennai, the visible success of Exnoras has increased demand for services and willingness to pay for them in mutually reinforcing ways – households reported more willingness to pay for more complex services that further reduce the volume of waste to be disposed (Anand 1999).

ALTERNATIVE WASTEWATER SYSTEMS



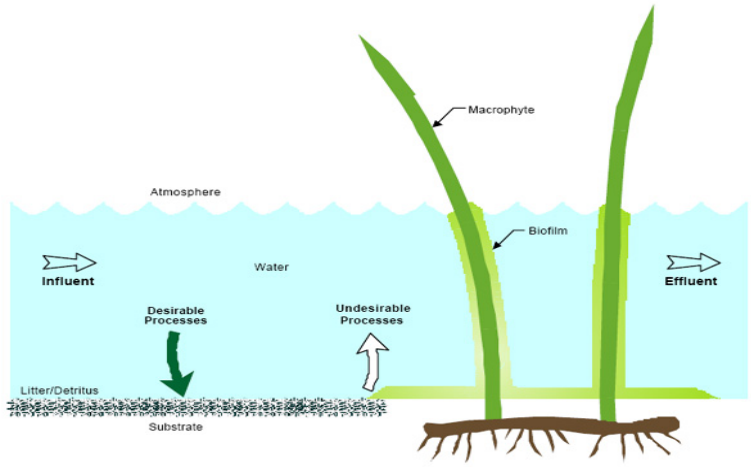
Water flow through an artificial wetland

Source: Adapted from

Wastewater management would seem a less likely candidate for decentralized, low-cost approaches than solid waste management. Wastewater cannot easily be transported to sorting or disposal sites, is typically gathered from over a wide area and processed in large central facilities, and carries pathogenic organisms such as bacteria, parasite eggs, and viruses that can remain infections for several years in the right conditions. The nuisances and risks associated with sewage and wastewater are difficult to mitigate at or near the point of generation, at least in an urban context, and can affect areas along the entire length of drains and around treatment and disposal sites. Using raw wastewater to irrigate fields, as is often practiced in peri-urban contexts, can lead to an overconcentration of certain soil nutrients and expose farmers and consumers to disease risks, even while providing a relatively drought-resistant supply of irrigation water and a cheap way to boost agricultural productivity (Bradford et al. 2003). Conventional wastewater treatment and disposal systems are capital- and energy-intensive, require highly trained personnel to maintain, and are expensive to operate. Only 23% of urban India's wastewater is subjected to any kind of treatment at all, with the remainder dumped directly into water bodies, watercourses, or the ocean (Juwarkar et al. 1994). In India, though the Central government sets different standards for the effluents generated by different industries, general wastewater standards and monitoring are a state responsibility (Mino 1993). The consequences of failure to properly manage sewage – widespread outbreaks of disease – are as diffuse as they are serious, and only a small minority of urban Indian families and individuals are sufficiently wealthy or well-informed to seek out effective medical care or properly treat themselves.

The specialized handling, treatment, and disposal of wastewater are basic public health necessities. The conditions seen in Jabalpur and Raipur, of overstressed local hydrological systems and increased pressure to contract out services and impose user fees, suggest that improvements to the wastewater drainage and treatment systems should seek to halt further ecological damage and improve water quality at a cost affordable to mid-size Indian cities with a limited ability to collect taxes. As climate change combines with

social and technical transformations to place further burdens on the freshwater supply in India and throughout the developing world – changing the amount and pattern of rainfall as well as increasing the rate of depletion of groundwater resources – the ability to conserve existing resources and establish new supplies will become essential to cities' social stability and very ability to support large population concentrations (Ragab and Prudhomme 2002). Techniques that employ wetland plants permit low-cost, sustainable, and ecologically sound wastewater treatment in large or small facilities (Nelson 2000). Relatively simple construction techniques, nearly identical to those that millions of Madhya Pradesh and Chhattisgarh farmers use to irrigate earthwalled paddy fields, can be used to build the basins, channels, and pools that make up the wetland system. The processes that occur in constructed wetland facilities can be no less complex than in conventional wastewater treatment systems, but wetlands can be effectively simplified and scaled down to handle the waste of a single house, village, factory, or urban neighborhood.



Water flow through an artificial wetland

Source: Merz 2000

Merz (2000) posits a conceptual model of a constructed wetland, reproduced at left. Various nutrients and materials are exchanged between the wastewater, the atmosphere, the substrate, the reeds or other plants, and the biofilm of algae and bacteria that clings to the reeds and works to break down contaminants. In contexts where capital is scarce and operating centralized "state-of-the-art" facilities consumes additional resources and generates additional pollution, low-energy and low-pollution technologies put the infinitely renewable resource of international experience and information to use – much as import substitution policies use international expertise and a highly educated local population to bootstrap industrial development (Khanna 1996). Strategies that replicate the landforms and natural processes that reduce pathogens and break down materials in human and animal waste can clean wastewater to the same high standards as conventional systems. This reliance on natural processes confers both advantages and drawbacks; it should be noted that the precedents and technologies reviewed here are not uniformly applicable across all climates and physical settings. Local research and experimentation is, given the nature of biological processes, not just a best practice or positive programmatic choice, but a technical imperative in developing and refining effective systems.

Wetlands and other systems: Definitions and processes

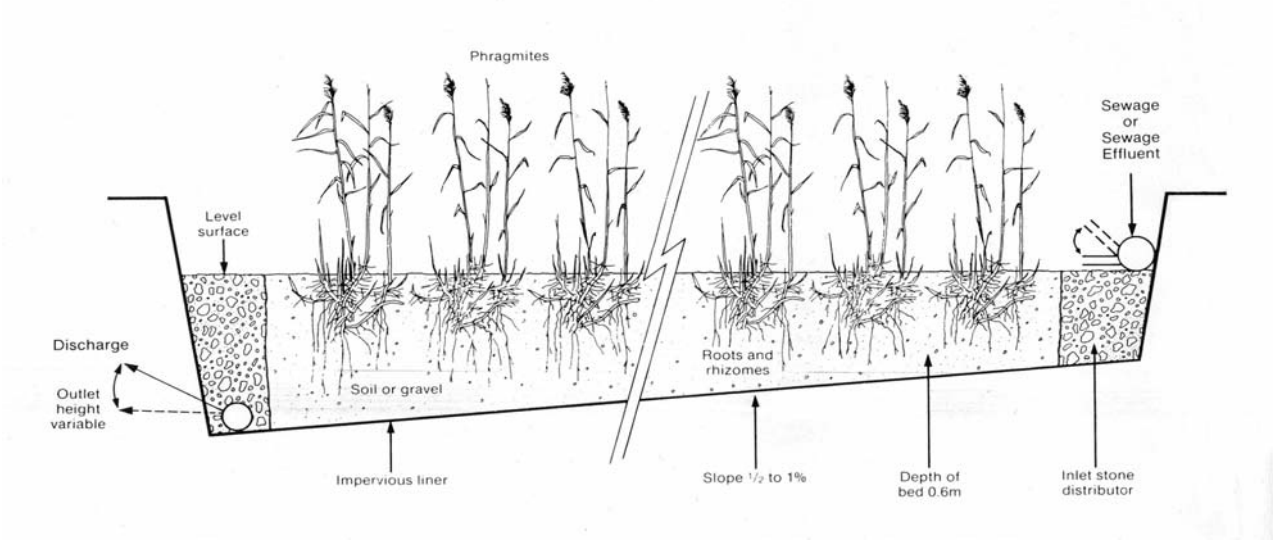
Several different methods of treating wastewater use soil, rocks, plants, and microorganisms to replicate the natural systems that filter out bacteria and organic matter. The technologies presented here all require very low levels of energy to operate, relying on gravity to move water from one stage to another. The relative efficacy of different systems to treat different levels of contamination is also an important factor; *primary* treatment refers to the treatment of raw sewage, straight from ditches, collectors, and open drains, whereas *secondary* and *tertiary* treatment refers to successive rounds of wastewater treatment after an initial step has been taken to clean it.

Land systems are not proper wetland systems, as they do not employ water bodies or wetland plants. Instead, they make use of the natural filtering properties, both chemical and mechanical, of soil and gravel to remove sediments and other materials from wastewater. Wastewater can be introduced via perforated conduits into mounds of earth, where layers of sand, gravel, and soil filter the water as it percolates through to the water table, pulled by gravity and hydraulic pressure. These same processes come into play in mitigating the impact of wastewater contaminants on the aquifer (Billore and Dass 1993). Other systems use unlined pools to more directly and simply introduce wastewater into the ground, relying both on the naturally deposited structure of different layers of earth to filter the water and the tendency of larger underground aquifers to disperse it, and are thus often referred to as soil-aquifer treatment systems (Nema et al. 2001). Land systems are generally regarded as being more effective in physically removing suspended solids and bacteria than they are at chemically removing phosphorous and nitrogen, though some mound systems are used to achieve partial removal of these compounds before secondary treatment in wetlands (House et al. 1994).

Settlement ponds (also known as waste stabilization ponds) are the most basic wastewater treatment facilities: a lined holding pond is filled with wastewater and left alone for several days, during which suspended solids gradually sink to the bottom of the pond. As with most of the technologies reviewed here, building settlement ponds in a linked series can markedly improve the final quality of the wastewater to be finally disposed or used. A system of connected settlement ponds used to treat sewage in Peru produces partially-treated water that conforms to World Health Organization guidelines for limited irrigation, and European Union stream discharge regulations, after 3 days (de Olivera et al. 1996).

Surface flow wetlands are lined channels or basins, longer than they are wide, with emergent vegetation (i.e., reeds or other plants with root systems below the water, and stems and leaves that emerge above the water line) growing in a substrate composed of some combination of sand, gravel, and soil. The water level is above the top of the substrate, directly exposing the standing water to the air and thus ensuring oxygen levels

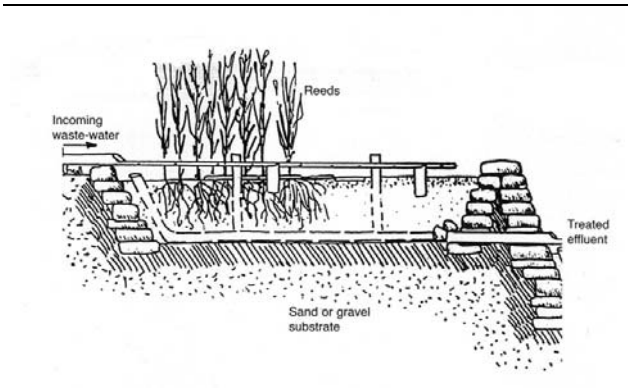
sufficient to support chemical processes that break down contaminants, such as nitrification and aerobic decomposition (Crites 1994). Water flows horizontally through the system, requiring a sloped substrate bed or strategically placed intake and outlet passages to maintain consistent flow. Controlling odors, mosquitoes, and disease vectors can be more difficult in this type of system (as in settlement ponds), as the wastewater is exposed to the air.



Subsurface flow reedbed

Source: Adapted from Cooper 1993

Subsurface flow wetlands are also long, lined channels or basins containing wetland vegetation. In this type, however, the water level is below the surface of the substrate. Wastewater is not exposed to the air above but is instead directed through the root zone of the plants, where they fix nitrogen and take up phosphorous. Like surface flow wetlands, this type relies on a consistent horizontal flow of wastewater, though it also promotes a degree of vertical percolation from the surface-level inlet to the subsurface-level outlet, so that much of the processing of waste materials occurs in the root zone of the plants instead of in the water. In this system, oxygenation is more difficult, and costs can run higher (Al-Omari and Fayyad 2003).



Vertical-flow reedbed

Source: Adapted from

Vertical flow wetlands, as their name suggests, do not require a horizontal flow of water through the root zone or plant surfaces. They rely on emergent plants, wetland bacteria, and algae to reduce contaminant levels, but introduce wastewater into the system by dripping or sprinkling it from above, using perforated pipes or mechanical sprinkler systems (Brix 1994). Their principal advantage is in hydraulic retention time, the number of hours or days it takes for water to work its way through the system; vertical-flow systems typically take far less time to treat wastewater than their horizontal-flow counterparts, though the construction techniques needed to establish the proper vertical percolation through roots appear somewhat more complex.

Though settlement ponds and mounds are fairly simple systems that rely on the gradual settling and filtering of undesirable materials, wetland systems have the same kinds of processes in common, dealing with suspended solids, nitrogen, phosphorus, and biological oxygen demand.

Suspended solids in sewage consist of plant matter, feces, and bacteria, which are to be filtered and removed by the wetland. By buffering water turbulence and wind, which agitate the water column and disturb sediments, emergent plants promote the sedimentation of suspended solids. The biofilms that grow on plant surfaces also capture and aggregate smaller particles, eventually clumping, falling to the wetland bottom, and becoming part of the sediment.

Nitrogen enters a wetland as ammonia, which is nitrified (converted into nitrates) by aerobic bacteria. Anaerobic bacteria denitrify (convert into nitrites and nitrogen gas) the nitrates, which then accumulate in emergent plants (Stauffer 1998). The oxygen required by these chemical processes is drawn from the dissolved oxygen in the water or from emergent plants. Though reeds supply oxygen to their root zones from within the plants, by directing airflow down hollow stems and to the root systems, oxygen flow through plants is at its highest only when plants are mature. Thus to keep the nitrogen cycle moving, wastewater must be sufficiently oxygenated (either by mechanically aerating it or relying on diffusion from areas of open water), biological oxygen demand must be reduced to low levels, and mature plants must be periodically removed to remove accumulated nitrogen despite being efficient at conveying oxygen to the root zone (Reed 1993).

Phosphorus comes into the waste stream with detergents and certain kinds of animal feces, such as those of birds and pigs, that are low in nitrogen. Macrophytes and algae make use of phosphorous in growth processes, so that a high level of phosphorous will aid the runaway growth of algae and the eutrophication of wetlands. Both biological and chemical processes consume and produce phosphorous in various forms in wetland environments, and phosphorous is likely to accumulate in partially-decayed plant matter if anaerobic conditions persist – peat bogs work in this manner, and are characterized by acidic environments and very slow decomposition. Phosphorous accumulation and removal is a major challenge for wetlands intended to treat sewage, and chemical or physical processes, such as mound filtration or removal of accumulated partially-decayed plants, may be needed to reduce phosphorous to acceptable levels.

Biological oxygen demand (BOD) measures the amount of dissolved oxygen in the water, that is required to break down complex organic molecules. A high BOD indicates wastewater in which suspended organic solids have not yet settled or precipitated out by other processes, and suggests that they will compete with organisms for dissolved oxygen; a low BOD is one indication of clean water with a higher level of dissolved oxygen. The balance between aerobic and anaerobic organisms and decomposition processes is delicate, and establishing appropriate BOD levels will permit the relatively rapid and complete decomposition of plant matter and waste materials, which itself minimizes odors and ensures a healthy wetland. Moreover, high BOD can leave little surplus oxygen left over for nitrification processes, phytoplankton, and other organisms.

Implementing sustainable wastewater management with wetland systems

Small wastewater system at the Bali office of the Indonesian environment ministry

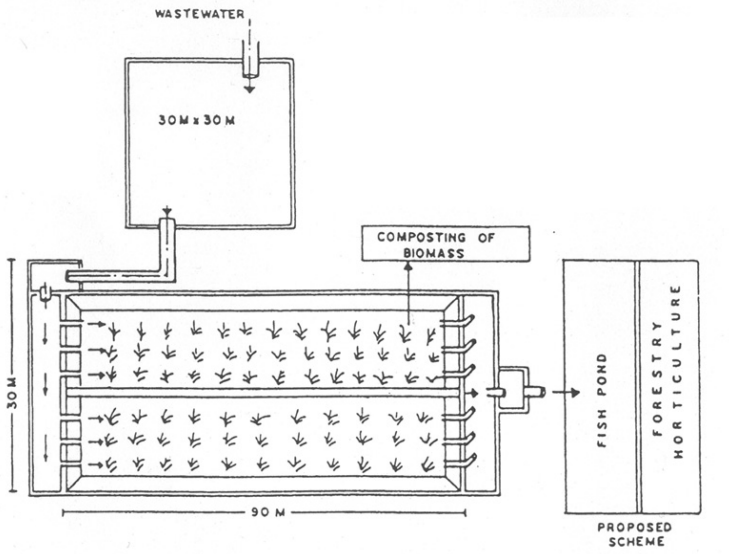
Source: Wastewater Gardens LLC

Constructed wetlands face three major constraints: load, time, and land. Load refers to both the hydraulic load, the total volume of wastewater entering the system over a given time, or the content of the wastewater, i.e. its level of nitrogen, sediment, BOD, or other materials. Sudden increases in hydraulic load can significantly reduce wetland performance, and spikes in wastewater nutrients can saturate removal mechanisms and affect the balance of the wetland. The amount of time that wastewater takes to flow through the

system and be cleaned, the hydraulic retention time (HRT), can also limit the total volume that a given system can handle over the course of a day. The area of wetland required to process a given amount of waste will vary with the desired capacity, type of wetland, climate, and wastewater composition. Many sources quote Stauffer (1998), who calculated that one square meter of constructed wetland was required to handle the daily sanitary waste of an individual person. A "pocket" system, such as the one in Bali shown above, can be tucked into a courtyard or adjacent empty lot of a institutional or government complex.

Despite their promise and low ecological impact, constructed wetlands have not been widely implemented in developing countries and have only recently caught the attention of international development agencies.[14] Denny (1996) offers several reasons for this: donors are primarily interested in more glamorous bricks-and-mortar projects and generating commercial spinoff for expensive technologies; inappropriate donor technologies and implementation efforts fail to account for subsequent social effects; and Northern techniques (particularly those developed in Germany and Scandinavian countries, where constructed wetlands have been implemented with success for nearly fifty years) that are frequently misapplied in Southern contexts. Denny views approaches that seek "win-win" outcomes that benefit the donor agency as well as the recipient country as a major factor, and recommends that a principal (and principled) focus on the recipient to ensure that recipient needs come first. Low-cost technologies may also face cultural and political hurdles, in putting forth reduced capital expenditure and not high-quality outcomes as the chief element of sustainability and appropriateness. There may be a skepticism often expressed towards visually unexciting and disappointingly "non-modern" infrastructure: "Most of these so-called 'low-cost' systems, undoubtedly, are low in capital costs, but high in maintenance costs… In the name of lowering costs, quality is sacrificed" (Dharmarajan 1990:33).

[14] Though they have been implemented widely in developed-country contexts, particularly by the US Tennessee Valley Authority to treat minewater waste (e.g. Gray and Biddlestone 1995, Luederitz et al. 2001) and have even been heralded for the potential in decentralizing wastewater in the US southwest (Robinson and Eddington 2001).



Schematic wetland layout, Bhubaneshwar

Source: Adapted from Juwarkar et al. 1995

At left is the layout of the constructed wetland in operation at Bhubaneshwar, in the state of Orissa (a poor state immediately north of Chhattisgarh and eastern Madhya Pradesh, and therefore climactically, socially, and economically similar to the cities discussed in this thesis). Wastewater enters a settlement tank at upper left, then flows to planted cells at lower left before being sent to a fish pond and eventually applied for agricultural purposes at lower right. This illustration includes some elements not discussed in depth here, such as the use of reeds, once removed from the basin, in composting or the use of partially-treated wastewater to feed fish (such as tilapia) which can be used to provide another kind of biological treatment and an additional source of income for the project. It also serves to highlight the need to remove plant matter from and provide further treatment to the wastewater in the system, in order to maintain the proper balance of nutrients and achieve suitable water quality. In both cases, finding appropriate markets for the additional commodities produced can be a problem, though they do have the potential to provide additional livelihoods and mimic other processes that occur in and around natural wetlands.

Table 9.6: Characteristics of some developing-country constructed wetlands

Location	Volume	HRT	BOD rmvl (%)	TSS conctrn. (mg/l)	Nitrogen removal (%)	Phosphorous removal (%)	Coliform removal (%)
Beijing	5,000 l²/day	4.3 days	85.8	~0-50	64.6	55.3	99.9
Turkey	140 l²/day	6 hours	-	~80-290	38.2	28	-
Yucatan, Mexico	-	-	95	~16.5	48	30	98.2
Bangkok	-	-	-	~2,670-3,800	52-93	-	-
Kathmandu	-	18 hours	-	4	38	75	-
Bhubaneshwar	180-200,000 l²/day	-	67-90	-	58-63	-	-

Sources: Li et al. 1995 (Beijing), Ayaz & Akça 2001 (Turkey), Wastewater Gardens 2004, Nelson 1998 (Mexico), Koottatep et al. 2001 (Bangkok), Bista & Khatiwada 2004 (Kathmandu), Juwarkar et al. 2001 (Bhubaneshwar)

Despite these obstructions, smaller constructed wetlands have gained some attention from development workers and policymakers, both for their ecological benefits as well as their bottom-line impacts (IDRC

2003). Table 9.1 below summarizes some of the parameters of constructed wetlands in developing countries .[15] Non-governmental applications have been pursued with greater success in the provision of public toilets, not discussed in this thesis, and India. Most often, these have been the result of leadership from the municipal government, in an effort to set up NGOs with a limited and uniform remit to handle certain sanitation facilities. In Pune, the municipal corporation funded NGOs' efforts to demolish decrepit public toilet blocks, and to build and maintain new ones (Hobson 2000, McLeod 2001). In Mumbai, the city solicited bids from NGOs to solicit current toilet block users for donations towards an operating fund; only after a certain threshold level of funds were collected did the city permit construction of new jointly-managed toilets (Nitti & Sharkar 2003).

ALTERNATIVE SYSTEMS IN JABALPUR AND RAIPUR

The smaller sustainable systems reviewed in this chapter suggest two parallel changes in the way we think about the interaction of scale and sustainability: a quantitative shift to viewing environmental problems and solutions at smaller spatial and social units, and a qualitative shift to viewing environmental outcomes as additive and contingent. In trying to reach ambitious standards, high-capacity systems over wide areas have not succeeded in extending realistically affordable services to the street and household level. Community SWM and wetland systems face physical as well as social limits to their capacities: they can handle a limited amount of waste, their specialized techniques work best when handling a discrete and consistent waste stream, and the territory that one or a few community-managed sweepers or wetlands can cover will necessarily be small. Ecological principles demand that waste be minimized and natural cycles incorporated as close to the source as possible, and sustainability requires that local communities, particularly those bearing heavy social or environmental burdens, be able to develop the institutional and financial capacity to pursue better quality of life outcomes.

On the qualitative side, the shift in thinking is perhaps more demanding. Conventional waste and sanitation systems build and rely on large-scale installations to manage complex and high-volume waste streams over large geographical areas, in an effort to make a significant impact on metropolitan environmental conditions. In pursuing wide coverage and complex systems, these approaches sacrifice institutional depth and the ability to grow in response to demand. This model, of a smaller number of facilities to process waste from the entire city (or large swathes of it), can be contrasted with one that prescribes a tapestry of small-scale installations and institutions to handle small and discrete waste streams. Embracing a multiplicity of incremental efforts entails a rejection by municipal stakeholders of one-shot solutions, public or private, and their attendant

[15] See also Von Sperling (1996) and Kivaisi (2001) for more comprehensive comparisons across different types of systems and contexts.

political benefits, and instead committing to a slower and open-ended process of creating sustainable relationships between new and established institutions.

Constructed wetlands are never going to be able to process an entire river or nalla's daily volume of polluted water – though larger installations could handle the volume of water from a smaller individual nalli or drain. Rather, they seem appropriate for wastewater remediation closer to the point of generation, and for handling a relatively even and consistent waste stream of a single complex or other institutionally coherent context. The sphere of services in the governance discourse and in the recent constitutional and administrative process within the Indian state, has held the metropolis as the appropriate scale for decision-making about large-scale infrastructure development (Bartone 1994, Anand 1995). This has come about largely through expanding the boundaries and responsibilities of municipalities, and attempting to set up streams of financing other than grants from the state and Central levels of government (usually national or international financial markets). Problems of scale plague conventional wastewater management systems. A wide (if not citywide) network of sewer lines will convey a widely varying stream of residential, commercial, and industrial wastewater to a small number of relatively centralized treatment facilities is a strategy that raises costs and administrative challenges. Implementing conventional systems on a citywide basis places substantial financial and operational responsibility for large, expensive, and technically complex systems on governments ill-equipped to sustain or extend their day-to-day operation and long-range planning.

Dealing with waste streams from major point sources one at a time reduces the scale of institutions and the magnitude of institutional challenges as well as simplifying the technology involved. Constructed wetlands permit such small-scale financing and operation, making them a relatively manageable undertaking for a single hospital, factory, apartment complex, neighborhood, or urban ward. The basic technique of filling large flat earthen basins by channeling a flow of water is widely employed in rural areas adjacent to both cities. Though constructed wetlands do require active management, monitoring, and maintenance to function, the techniques involved are certainly far easier to understand and implement than highly mechanized conventional systems. Relying on human labor and social organization, instead of finance capital and technically intensive processes, alternative wastewaster systems work with available resources to create beneficial spinoffs instead of bringing in new resources and creating costly environmental externalities. Parkinson and Tayler (2003) list four chief environmental and social advantages to more decentralized efforts to manage wastewater: decentralized decision-making ("increased responsiveness to local demands… and increased willingness of communities to pay for improved services"), more affordable financing for smaller-scale facilities, source segregation of wastewater (sorting grey water, chiefly urine and the residues of household cleaning and cooking, from black water, a more pathogenic mixture of water and feces), and more opportunities for wastewater re-use (promoting the employment of locally segregated and treated wastewater in local agriculture and aquaculture) (p. 80-82). Shrinking the scale of wastewater management infrastructure

permits wards, neighborhoods, campuses, and other small urban territorial units to seek an optimal solution for the waste they generate and the pattern in which they generate it.

As for potential applications for the processed wastewater, there is certainly no shortage of uses for freshwater in urban India. Untreated wastewater is already used for agricultural purposes on an extensive basis around Raipur (and in other cities such as Nagpur, as described in Chakrabarti (1995)), and wastewater must form a significant portion of the flow of the smaller nallis that feed the tanks of Jabalpur. In both cases, routing wastewater through a wetland at the point of disposal or outfall could effectively limit the potential pathogenic impacts of untreated wastewater use in agriculture, and raise the quality of water stored in nearby tanks and other components of the traditional hydrological system. Investigation that goes beyond treatment, to take into account the problems and possibilities of wastewater as a resource both in current conditions and in the future, is required to understand the economic impact of current wastewater practices. Down the Narmada from Jabalpur, in the city of Vadodara in Gujarat, irrigation with industrial and domestic wastewater generated over 825 million rupees' worth of agricultural products in the course of a single year; a healthy sum for marginal peri-urban agriculture conducted far away from conventional water supplies, and surely a sufficiently substantial economic outcome that it merits serious study and communication before disrupting the peri-urban agricultural economy (Bhamoriya 2002). Small-scale installations can have a considerable cumulative impact and face few legal or institutional barriers to implementation, but larger-scale regimes for wastewater management require a more robust legal setup that can pose serious challenges in implementation in an urban Indian context, including a defined legal status for wastewater and an enforceable system of tenure to it (WHO 1997).

As mentioned earlier, the planning, construction, and operation of constructed wetlands requires engineering expertise beyond that held by the author or the other participants in the research project. In Jabalpur and Raipur, educational institutions and government agricultural science centers are home to researchers and scientists who may have the appropriate skill sets and a detailed knowledge of local conditions.[16] Mobilizing them is, therefore, necessary to choose and implement suitable technologies and locations. As for community-based SWM, it can be introduced more rapidly and does not generally require advanced knowledge, though it does need stable organizations and neighborhood consensus to start and continue. Four problems and opportunities specific (though not exclusive) to Jabalpur and Raipur can be identified as potential sites for the implementation of more sustainable approaches.

[16] Professor M.L. Naik of Ravishankar Shukla University in Raipur has been researching the biological condition of natural wetlands in urbanizing areas in and around Raipur. Though he is interested in lending his expertise to effort to improve existing water bodies and pursue more sustainable wastewater practices, he has been unable to interest local officials in the dire condition of their tanks and streams despite presenting the results of his research to them on several occasions.

Unraveling the nexus: Both cities hold a number of sites where multiple social and environmental systems meet and interact. Reducing or ceasing the practice of filling tanks with garbage would permit remediation activities to begin, aimed at improving the quality of watercourses leading into the tank and the flow of water discharged from it. If cost-effective, Exnoras in the surrounding neighborhoods could attempt to recover further recyclable or compostable materials from the waste already deposited in the landfill, and eventually permit the restoration of part or all of a partially-filled water body. Constructed wetlands could be applied along with bioremediation and landscape technologies, not covered here, to treat leachate and reduce the level of certain contaminants in the ground itself.

Addressing water bodies: Other water bodies carry a heavy load of solid and sanitary waste. Where the streambed is wide enough, planted reeds in the verges of the channel help absorb sudden spikes in flow (such as an afternoon rainshower or monsoon deluge) and will likely carry out some level of purification, though few examples and little data appear in the literature. Regular cleaning of streets will reduce the amount of solid waste that finds its way into drains and nalli. Integrated projects could establish SWM schemes in neighborhoods adjacent to targeted water bodies and incorporate regular maintenance of a short segment of the channel into the responsibilities of street cleaners, or pay members to operate constructed wetlands to treat household graywater and effluent from toilet blocks.

Partnership with institutions/facilities: Institutional campuses are characterized by centralized systems to handle wastes, and large ones are likely to include a single system of wastewater drainage, a small number of centralized sanitary facilities, and a single system of trash collection. As large facilities managed by a single administration and serving a distinct purpose, institutional campuses can easily implement waste sorting while employing workers in on-site processing. They may also control areas of vacant land or be sited on or near reclaimed former water bodies, offering enough room and a steady stream of effluent to a constructed wetland. Universities may possess staff with relevant expertise or interest that could be called upon to support research projects on the campus and in the community to determine the techniques, species, and processes that offer optimal performance in the local climate.

Easing the administrative and operational burden: The existing secondary collection and disposal system in both cities is haphazard and visibly overtaxed. Community-based primary collection is intended to increase the volume of waste taken away from households, so in order to prevent that increased quantity from putting additional strain on the municipal system, an aggressive program of composting and recovery will have to be instituted. When a net reduction in waste flows is achieved, municipal workers could be redeployed to carry out more regular maintenance on SWM installation, clean public facilities, clear riverbanks, or perform other tasks. Local systems to treat wastewater have less predictable impacts, but could similarly free sanitary engineering departments to address persistent problem spots, supply expert advice, and monitor water quality.

10. Conclusion

Governance and the reforms carried out in its spirit recast both the substance and character of citizenship. New institutional arrangements for levels of government and local representation promise to add new procedural spaces of legal, "thick" citizenship, but their lack of implementation and susceptibility to manipulation by local elites often prevent effective participation in the political institutions of the local state. Non-state spaces of political action, such as membership in NGOs, political pressure groups, trade unions and the like are held to be spaces in which a much fuzzier and more consensus-based decision-making process prevails. The political clout facilitated by membership, and the sense of civic responsibility so generated, is to supplement the formal spaces of citizenship by providing other avenues of exercising political influence. This category groups organizations of widely variant character (democratic, fascist, humanist, racist), scale (from the block committee to the Sierra Club), and competence (in operating a kitchen or managing a factory). Participation in them may be more or less effective, but the voice or more concrete benefits that may result carry to other places or institutional contexts only with difficultly (Colchester et al. 2003). Efforts to create relationships between civil society groups in metropolitan, regional, national, and global contexts, such as the World Social Forum and other Social Forum experiments, are promising but tentative.

Civil society clearly cannot carry the weight of "thick" citizenship, as the movements and organizations that make it up are not, for the most part, yet able to exercise concomitantly thick political force, efficacy, or

loyalty. In the context of this study, one of the most effective and robust NGOs was found to be the Sangh Parivar, the "family" of various Hindu nationalist organizations operating around the RSS. The SP directs funds and action from millions of diaspora Indians, is deeply involved in politics in every level of government in India, and has a detailed hierarchy spanning the country. In the most extreme example of the Gujarat riots of 2002, this "civil society network" showed the ability to muster a level of violence and organization characteristic of state institutions. The example is disturbing, but shows just how large and well-organized civil society institutions have to be to carry the kinds of responsibilities states have.

The other option offered by governance is to replace the notion of urban services as often-denied privileges of local citizenship with an idea of services not as public goods but as outcomes to be achieved by a mixture of public and private aims – the citizen as customer. Consumer behavior is presumed to offer another, potentially more effective circuit of feedback. The difficulties involved in offering a choice of providers in the case of fixed infrastructure such as sewer and drinking water networks make the idea of more a rhetorical commitment than a practical one. As with garbage removal in Jabalpur, the private sector is usually brought in on a territorial basis by tendering contracts to serve individual areas; the customer in this case is the contracting authority, usually the municipal government, and the only power to discipline sub-par firms is in the hands of that authority. Limiting the possible negative impacts of private sector involvement requires that local government create a competitive environment, safeguard labor and service standards, effectively supervisor contractors, and control transaction costs (Post et al. 2003). Private monopolies are surely no more inherently responsive than public ones, and the questionable bottom-line gains provided by increased labor discipline would be negligible in the soft labor markets to be found in urban India. In these conditions, consumer power is minimally able to defend consumer interests, much less those of citizens.

WITHIN AND BEYOND GOVERNANCE

The kinds of urban regimes promoted by the governance discourse are markedly different than those that are actually implemented; the deal offered to the population is markedly different than the one they receive. Madhya Pradesh was the first to enact conformity legislation, but seems content to leave the law as its most significant effort. Far from the population embracing and rushing to organize through the new consultative structures, they are nowhere to be seen in Jabalpur and Raipur. It is perhaps anecdotal but certainly telling that not a single person interviewed by the author raised the issue of mohalla samitis, ward councils and the like in either city. Raipur's Exnora-like approach to primary solid waste collection, if it indeed exists, was an initiative of a civil servant, not an elected official, and may not have elicited the same level of enthusiasm that a locally-led initiative would require. In short, participation does not appear to be on the political radar of local government or concerned citizens.

The 74th Amendment pays little attention to implementation because it is most useful not as a functioning system but as a rhetorical device and as an ideal. Governance studies are mainly about institutional design, models of policy making, policy and planning processes, and so about steering and cooperation rather than, for instance, deception… In most cases, governance here is about new forms of steering and managing urban processes, in many cases ignoring the 'governmentalities' framing urban governance initiatives and experiments" (Ploger 2004: 73). Like the newer community-based approaches to improve environmental outcomes, the governance discourse comes from an understanding that the social and institutional relationships between actors is crucial to guiding the processes that define and control resources. Both hold environmental sustainability as a goal, and both are nominally focused on bringing services closer to recipients and recovering waste materials in order to reach that goal. Both face the principal challenge of incorporating an orientation towards social and economic sustainability into the functioning of the organization and the delivery service itself. Until the provision of environmental services is seen as a major infrastructural impediment to growth as deficient water, electricity, and telecommunications currently are, there is likely to be little administrative urgency felt about SWM and sanitation (Fox 1994).

Given that the laws governing urban administration, development, and services are spottily implemented, they exist as aspirations or statements of the way things should be rather than enforceable procedural rules. This has some value in and of itself, but perhaps not that which the drafters originally intended. Writing about an earlier and far larger scheme – the construction of high-speed commuter railways and satellite cities around Paris in the 1960's – Peter Hall argued that despite modifications and cuts to the original program, it provided valuable cues for other actors: "public plans can provide a set of clear signals to the private sector, thus enabling it in turn to make its own phased investment programmes. Audacity can work" (Hall 1996: 315). Laws offer non-state actors cues as to administrative tendency and overall process, not a detailed roadmap for administrative change.

Alternative systems institutionalize sustainability by developing streams of income out of socially sustainable practices of waste collection and recovery, and do so by increasing the depth of services and shrinking the physical scale at which they are provided. The plurality introduced into urban service provision by governance-based approaches is most often introduced to bring a variety of funding sources to bear, most of them private and tied to the development of financial markets that can fund (and discipline) ever-smaller levels of government, and to bring a variety of service providers, most of them private and tied to the development of service regimes that can recover costs and discipline end user through the imposition of fees, closer to the everyday life of poor city dwellers. This new plurality of providers and regimes is part of a thrust towards the "unbundling" of services from particular levels of government or service-providing bodies, which is intended to create new markets for services and lead newly empowered and redefined levels of government such as cities or urban wards to make choices between different levels of services and the cost of providing

them. But by moving away from guarantees of service and the justiciable right to hoped-for urban outcomes, and to a regime based around smaller territorial and economic levels, a space is opened in which smaller local organizations can pursue locally-relevant projects and sustain themselves through offering socially and environmentally sustainable urban services. As noted by Parkinson and Tayler (2003), the new fragmentation of service-providing scales of administration is not just an opportunity for private capital, but "can also cover the utilization of local resources through community-based and non-governmental initiatives" (p. 80).

Smaller systems suggest possibilities for two parallel changes in scale: a quantitative shift to viewing environmental problems and solutions at smaller spatial and social units, and a qualitative shift to viewing environmental outcomes as additive and contingent. Neighborhood environmental systems can work to supplant the political bargain of cross-subsidy between rich and poor areas – one that has not worked for poor and middle-class residential neighborhoods as well as it has for wealthier residents and commercial interests -- inherent to metropolitan government. By giving them an affordable option to collect, process, and re-use wastes, sustainable technologies can extend the ability to "secede" from limping metropolitan regimes to poor or middle-class neighborhoods, giving them a way out of the questionable bargain of privatized services and high user fees. If urban governments accept this and work out complementary responsibilities with community groups, they achieve better outcomes by increasing the institutional and operational space beyond their control. Qualitatively, the resulting patchwork of systems, economies, and service-providing organizations undercuts the search for citywide systems that can guarantee relatively uniform results, as well as undercutting the notion of services as rights extended by governments to citizens. Instead, services and the right to them is recast as the outcome of local practical political action, things which communities succeed or fail to secure and provide for themselves.

CHENNAI: A CAUTIONARY TALE

The success of the Exnora experiment discussed in chapter 9 came when the city government decided to support it and turn away from the zonal privatization approach it was considering. The city's accession to an implied model of solid waste as a resource was an important change in its environmental decision-making, and Exnoras took advantage of the situation and increased their numbers. But by the early 2000's, Exnoras were in trouble and the city was deepening its relationship with multinational corporations at a steep financial and environmental cost. What happened in Chennai, and what can the conflict that arose there tell us about the politics of urban waste?

By 1998, the Chennai Municipal Corporation (CMC) was operating two landfills and a fleet of vehicles, and managing 7,300 sweepers deployed across seven zones covering its territory. The total tonnage of garbage removed from the streets fell well below targets, though, and ongoing maintenance problems kept most

vehicles off the road; the response of the city was to attempt a fine-tuning of an expensive and heavily mechanized system to increase collection and enforce better handling practices. Private trucking firms were brought in to transport waste between transfer stations and disposal sites, though none showed interest at an early attempt to tender contracts for primary collection in a zone (Poornalingnam 1998). In March 2000, agreement was reached with Onyx – the solid-waste management arm of the French entertainment and utilities giant Vivendi Universal – to carry out primary collection and clean streets in three of the city's collection zones. The thousand tons of waste that the company collects every day – one-third the output of a city of 4.2 million people – are dumped in a low-lying area adjacent to the Pallikaranai wetlands at the city's southern edge. (Jayaraman 2002a) On the water side, a city-owned water company has invested heavily in new equipment, and is administered not by the CMC but by a regional intergovernmental agency, the Chennai Metropolitan Water Supply and Sewage Board. The push for greater cost recovery, coupled with increasing scarcity and the increasing expense of pumping larger volumes out of deeper wells, led to two- and three-digit percentage increases in water taxes and fees all throughout the 1990's (Bagchi 2003). The city-owned water company eventually turned to Vivendi, also of Vivendi Universal, to be its private-sector partner in further increasing the city's water supply (Jayaraman 2002). As a result, Vivendi now has subsidiary companies engaged in both water pollution and purification in Chennai.

During the 1990's, the CMC entered into partnership with community groups to clean streets and provide primary collection. A program called Clean and Green Madras City partnered with four NGOs that were working with street children employed as waste pickers. CMC funds provided equipment and paid the salaries of 250 children, though the program did fall apart over the CMC's inability to get funding to the NGOs on time. In one neighborhood, an Exnora was formed to support a CMC initiative to deploy "hydro containers," street waste receptacles that could be emptied mechanically into special trucks. Relationships with Exnoras were centered around similar coordination of primary and secondary collection, such as clearing secondary collection points on a regular basis (Grafakos et al 2001). The success of these community-based strategies led to an increased awareness of Exnoras as a practical alternative for other neighborhoods, despite low awareness of SWM issues or municipal government issues. The CMC embraced the Exnora approach and even worked language into the city waste management plan assigning responsibility for primary collections to NGOs (Anand 1999). A state government agency also got involved, supporting source segregation and community-based collection around Pallikaranai in an attempt to limit the impact of the area population on a wetland already at risk from Onyx's activities, amidst increased open burning of waste and dumping in the swamps (*The Hindu* 2002).

After the initial experiment with Onyx, the city council voted in November 2002 to privatize primary and secondary collection in the remaining collection zones and require Onyx to encourage source segregation and "scientific management." The company expressed interest in building a landfill and claimed to have no

control over the current dumping ground, but started to actively increase the tonnage of material taken to the dump by including a greater fraction of rubble and building waste – good business for a company paid by the ton, but bad news for a wetland filling up with materials that will never decay and are difficult to remove (Subramanian and Battacharya 2002). In the areas where Onyx had been collecting unsorted garbage free of charge and employing its own street sweepers, waste pickers found themselves out of work and Exnoras fell apart when households withdrew from participation to use the simpler, free services offered by Onyx (Jayaraman 2002a). Now in a new deal, the Australian firm Energy Developments Limited made an agreement with the Tamil Nadu state government in January 2003 to build a plant to burn six hundred tons of municipal solid waste per day – eighty percent of which is wet organic matter, ideal for composting and difficult to incinerate – on a state-owned site near the same wetlands where Onyx dumps its refuse. The proposal violates two international treaties and the Central government's own regulations. Though the electricity generated by this scheme will be sold to the state power corporation at a fixed rate, the toxic ash that remains from the process is to be transferred back to the municipality (Krishna 2003a, 2003b).

Effectively, the CMC's contradictory and ultimately destructive path was the product of a conflict between two definitions of the value of waste. Exnoras valued waste as a source of livelihoods and capital, and built networks around the flow of solid waste. They succeeded when residents and the city valued their services and invested in separating and raising the value of component materials. Onyx, in contrast, valued waste as it was paid to handle it – by the ton – and was rewarded for its success with additional contracts. Both systems "work" in that they effectively clean streets and remove household waste from neighborhoods, but vary markedly in the severity of externalities that they generate and in their overall social and environmental sustainability. Exnoras may be able to compete on price if user fees are imposed on the privatized services, but will likely face legal barriers designed to support Onyx's bottom line by restricting competition. The prestige of working with foreign private firms is considerable, and can burnish the careers of the politicians who are involved; sharing credit with a well-established network of hundreds of autonomous community groups may hold less appeal.

The result is a conflict over a resource, but one of a particular kind. In this case, the contending interests value waste in markedly different ways – as a resource that could be exploited to obtain materials of value on one hand, and a commodity whose value could be destroyed by applying various capital-intensive, mechanized, and profitable processes. Other struggles over environmental resources come over different configurations of use value: a factory may see a river as a potential outlet for unwanted by-products while an agricultural community downstream may see it as a potential source of irrigation water; a city may try to control a source of freshwater to augment its drinking supply, while farmers may desire the same source to irrigate their fields. In these more classic contexts, the parties have either classically opposed definitions of the resource in question, or represent broader social choices about the competing investment needs of urban

and rural communities. Chennai's example, instead, displays a case where a more sustainable definition of waste was chosen and then abandoned. Despite their success and the support received from the municipal government, the Exnoras were unable to mobilize their constituency to fight the privatization plan or stick with the existing local organizations when a cheaper service was offered. "Market-oriented" governance remedies still attract municipal and state politicians, even when more sustainable measures are in place and recognized within the development literature as best practices. When the relevant decision-makers have external influences leading them to interfere with sustainable management, the success oF the existing schemes may amount to little. The politically progressive aspects of community and NGO involvement can be threatened by the private sector and its desire to secure new lines of business.

MOVING FORWARD

To call for a greater degree of community self-reliance in service provision, obtained through NGOs, is to express an implicit belief in a dramatically expanded role for civil society in accomplishing improved urban environmental services. Though this perspective shares common preoccupations, such as including a broader range of actors and decentralizing services, with the governance discourse, some variants of participatory schemes require minimal if any participation from state and private interests. Decentralized, sustainable waste management and sanitation are in fact means to *reduce* the number of large institutional stakeholders in providing services, instead creating new community-managed organizations to handle local waste streams by securing local control over locally-generated resources. The possibilities highlighted by this paper imply, and to a certain extent simultaneously requires and fosters, the proposal and accomplishment of political goals through localized non-state political mechanisms. The new conception of citizenship that this process entails differs markedly from that entailed by the discourses of state-led socialist development and the more recent market-centered project promulgated by international organizations and the Indian state at both the Central and state levels. The new kinds of political agency and process that are likely to emerge from such a configuration are ways around clientelistic politics, avenues of action that remove corrupt communities of interest within the local state from the relationships that manage waste. To the extent that they create new resources, new streams of usable fresh water and recycled materials to be traded or used locally, they affect social hierarchies built on the current pattern of access to capital and other inputs (Bhamoriya2004, Scott et al 2004). Capital accumulated outside of market channels by democratic local organizations and reinvested in improved services for poor neighborhoods may be able to exert a similar effect.

When waste is seen as a resource, conflicts can arise over who controls it and exactly what kind of resource it is. When Chennai's city government and a multinational corporation pursued their own plan to capture the solid waste stream, they managed to do so by eliminating source segregation and user fees – incentives against participation in more solidaristic alternative institutions. Though local government's inability to provide

services led to the emergence of a community-based solution, the resumption of those services by the city undermined the new regime. The unsustainable nature of landfill-based disposal systems, especially those that are sited in wetlands, guarantees a major increase in capital expenditures or major new environmental externalities at some point in the future when the existing landfill sites reach capacity. It is likely that user fees, higher taxes, or (perhaps less probably, at least in the near future) bond issues, imposed or issued by municipal governments or corporations, will pass the costs of such investment onto citizens. It would appear that the new, conventional primary collection and street cleaning service has less to do with the provision of services and more to do with shifting costs onto the consumer while drawing deeper involvement by multinational corporations. Local politicians can then access the political credit for implementing business-minded reform, and the influence that such enthusiastic support of the multinational's involvement can bring. Using the Chennai example as a caution, it would appear that community-based sustainable practice does pose certain threats to existing power structures, if only by eliminating a potential source of political patronage and prestige.

It is likely that, if independently implemented by community-based organizations, the more sustainable waste management and sanitation measures reviewed here could eventually equip poor communities for a greater degree of self-management. This is a clearly "political" goal, centered around development as a process of reconfiguration of power, ecological relationships, and access to capital. The previous models of development each have provided an additional "new class" with particular relationships to the state and the development process it governs with: the state-socialist, with its cadres of civil servants and technical professionals planning and executing transformative industrial development or public works projects, and the market-oriented, with its genetic-engineer insurance salesmen networking amongst civil servants and RSS heavyweights. If community-based systems managed to firmly establish themselves and accumulate a small but decisive surplus for further capital spending, while creating a set of new resource streams for agriculture and trade, they could similarly reconfigure the relationship between the operating organization and its members and clients. A continued commitment to horizontal means of community control and participatory-democratic mechanisms would have to exist to counteract the emergence of previous patterns of corruption and clientelism.

As mentioned in the introduction, these groups are as yet small and fragile; the example of Chennai shows that households will opt for simpler and cheaper options for managing household waste, even when they are less environmentally sustainable, if they are offered. They are some of the most dramatic examples, however, of what communities can in fact accomplish on their own – without needing Central government directives or formal channels of participatory democracy to set things in motion. That lower levels of government, in pursuing alternate methods of urban management that privilege foreign expertise and private firms, eventually offered a competing service shows the degree to which the successful management of trash can

become a significant source of political capital. Exnora and the other participatory SWM setups that declined and disappeared after the arrival of Onyx were unable to bring that political capital to bear in a crisis that threatened their existence.

This suggests that though smaller-scale organizations are workable and effective, they are vulnerable to political challenge and as yet unable to mobilize political power in their own defense. What renders them still attractive as options for urban management, urban democracy, and urban citizenship is their synthetic nature: using the space opened up by the withdrawal of the state and the still-tentative presence of the private sector, community groups have instituted low-cost practices that are environmentally vastly more sustainable than the heavy and expensive approaches taken by government and business. Examples do exist of civil society organizations that can gather and wield political power on behalf of themselves and their members, but the nature of a politics centered around religious identity presents the disappointing possibility that the most potent political fuel for mass civil society organizations is an anti-humanist revanchism. There is hope to be found amid the trash of the Indian city, but it must be sought in the gaps between a faltering state, an assertive business community, and nationalist ideology. Though the possibilities opened by smaller organizations seem marginal, the urban social and environmental futures on offer from elites and interest groups represent much starker choices.

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