

Sustainability, degradation, and livelihood in third world cities: Possibilities for state-society synergy

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The quality of life at the end of the twenty-first century will depend fundamentally on whether a way is found to solve the problems of third world cities. At least three-quarters of the new membership in the world's population during the twenty-first century will live in third world cities. Their hope of enjoying a liveable environment will depend on a fundamental transformation of the political economies of those cities. Without such transformation, degraded, debilitating living environments will confront most third world citizens. Economic growth and new technology may help, but will not resolve the problems of third world urban environments. Political and economic institutions must be reconstructed to confront the complex and contradictory challenges of making urban environments liveable.

Conventional approaches to the political economy of the state suggest little in the way of positive strategies. Realist analysis of the ways in which states use their power as sovereigns to maximize the "national interest" suggests pessimistic conclusions when it comes to environmental problems. It is not only global environmental issues, like the ozone layer, that will be neglected if the traditional logic of competing sovereign states prevails. States primarily concerned with enhancing their sovereign power are also unlikely to focus on domestic environmental issues. Economic and military prowess depend on sound environmental policy only in the long run.

If traditional state-centred politics have little to offer in the environ-

mental arena, calls for curtailing the role of the state offer even less. The “natural” logic of markets leaves environmental improvements as under-supplied collective goods and degradation as a negative externality for which both producers and consumers will try to avoid responsibility. Shifting incentives in a way that forces private economic actors to pay real attention to environmental issues implies more state involvement, not less.

Efforts to analyse the role of the state in fostering livelihood and sustainability in third world cities may have to leave behind both pre-occupations with states as unitary geopolitical and military actors and outmoded “state versus market” debates. Such efforts are much more likely to profit from a focus on the myriad local manifestations of the state – the city governments and local public agencies that confront urban economic problems on a quotidian basis. Such organizations are certainly as important to third world cities as foreign ministries. Even the consequences of decisions made by finance ministries depend in part on the imagination and effectiveness of such local public institutions.

While no one understands clearly how to make third world cities work, some things are plain. First, solutions cannot be individual – they require the massive provision of collective goods and therefore depend on public institutions. Second, governments – local and national – while they must be a part of the solution, can only be a part. Excepting élites, most third world urban dwellers even supply their own housing, using their own labour, savings, and ingenuity. Public solutions will only be effectual if they are designed to complement the actions of communities.

Markets by themselves are not solutions either. While more effective markets certainly help solve the problems of affluent urban dwellers, they cannot solve the most pressing problems of the urban poor. By themselves, more effective markets will neither give the urban poor secure tenure in the areas where they need to live in order to work, nor provide them with the infrastructure and urban services necessary to make cities liveable.

For solutions that speak to the needs of the urban population as a whole, popular initiatives and institutional responses must come together in a mutually supportive synthesis. Unfortunately, this proposition is easy to put forward as an abstract principle but extremely difficult to turn into systematic general practice. There are innumerable examples of community initiatives prospering with the support of official agencies, but antagonistic stalemates in which both state and society end up frustrated losers are just as prevalent.

The real question is whether the development of shared understandings of the political dynamics of third world urban environments can outpace the changing reality of the problems themselves. Extracting

commonalities from successful cases while delineating the contextual specificities that limit transferability is the first step toward successful strategizing. Most proposed generalizations will be shot down, but some will survive in reconstructed form. Generating and implementing useful ideas faster than urban environments degenerate is a daunting challenge, but that is no excuse for abandoning the effort.

This chapter will look at how variations in state capacity make a difference to urban degradation and sustainability, but it also starts from the assumption that the effectiveness of state action depends on how the state is connected to society. For empirical examples, this chapter will draw on some cases from Brazil. It will examine the provision of infrastructure, including transportation, sewers, and water, and problems of pollution control. Provision of infrastructure draws the state into a “productive” role, either organizing the delivery of the services in question or providing them directly. Trying to control pollution involves the state as a regulator. What is interesting is that in both cases success depends on the character of the relation between public agencies and societal actors, whether the societal actors play the role of “co-producers” of urban infrastructure,¹ sources of political pressure to expand environmental action, or implementers of state-constructed strategies. This chapter argues that, in all these cases, the exploitation of different kinds of possibilities for “state-society synergy” is crucial to fostering more sustainable outcomes.²

Brazil is a good laboratory in which to examine the relations between the state and urban sustainability or degradation, because it offers a range of political variation under the aegis of a single national state (Ames and Keck 1997, 2). In some regions, the structure of local politics has created space for imaginative local politicians to come up with innovations that are copied around the world. In other cases, the structure of local politics has had the opposite effect, crippling innovative efforts by state agencies and forcing imaginative public servants to abandon their efforts to improve the urban environment.

The discussion begins with a story of a failure, the breakdown of FEEMA (Fundação Estadual de Engenharia do Meio Ambiente), Rio de Janeiro’s once promising regulatory agency. The case illustrates the ways in which lack of coherence in the overall organization of the state apparatus can destroy the capacity of even a technocratically solid individual agency, and undercut the efficacy of even massive infusions of external funding. It also illustrates the potential (ultimately unrealized in this case) for increasing efficacy by building ties with polluters themselves.

From FEEMA, the analysis moves to one of Brazil’s most touted successes, its “ecological capital” of Curitiba. Here an innovative local state apparatus has achieved dramatic successes in the delivery of urban infra-

structure, most clearly in the form of its system of collective transport. Curitiba's success immediately poses the question, "What were the sociopolitical prerequisites underlying effective state action?" At the same time, Curitiba's success as a city has been accompanied by an explosive growth in its urban periphery, much of which is still not served in terms of basic infrastructure like sewers and water. This in turn raises the question of how the structure of state-society relations, which has served the middle-class core of the city so well, can incorporate the marginalized poor whose problems are at the heart of urban dilemmas in any growing city.

To explore the possibility of state-society synergy even when the societal counterparts are marginalized communities, the analysis uses the prism of political struggles over the provision of sewers and water in the advanced industrial centre of São Paulo, a case that shows how mobilized communities (however economically marginal) can increase the efficacy of state agencies, even when the relations between these communities and the state is confrontational.

The overall result is more optimistic than the perspective provided by a conventional political economy of the state. Together these Brazilian stories suggest some potential propositions concerning the conditions under which state and society might come together in a productive, mutually supportive synthesis. These cases suggest, in short, that a "state-society synergy" perspective is a particularly appropriate way of looking at problems of sustainability and degradation in the urban contexts.

The concluding section of the chapter moves from the level of cases back to the level of general analysis. It highlights the variations in state-society synergy revealed in the individual cases, and returns to a more general discussion of the role of the state in relation to urban environmental issues. Finally, this concluding section comments on the possible implications of the analysis for the potential role of the United Nations in confronting problems of sustainability, degradation, and livelihood in third world cities.

Pollution control in Rio

The evolution of FEEMA during the late 1990s illustrates, sadly but well, the extent to which the capacity of state agencies depends on a stable and supportive political context.³ Founded in 1975, FEEMA was the linchpin of the system of pollution abatement for the metropolitan region of Rio de Janeiro and the striking bay (Baía da Guanabara) around which the city sits. With an initial staff of 700 employees, it was in charge of monitoring air and water quality and regulating the roughly 6,000 industrial

firms that discharged organic waste and heavy metals into the bay each day (GEDEG undated). Initially, FEEMA was well funded, able to pay good salaries, and therefore able to attract a high-quality body of professionals. It became a model environmental agency within the Brazilian context and was internationally recognized for its work on environmental management (Margulis and Gusmão 1997, 3).

In the 1980s, however, both the fiscal situation of the state government and the place of FEEMA in the government's priorities shifted, to the agency's disadvantage. Salaries declined and by 1992 were less than one-quarter the level they had been at when the agency was founded. Falling salaries made it impossible to maintain previous standards of excellence. The general level of commitment of the professional staff fell along with their salaries. Absenteeism reached the point at which only about half the staff was on duty at any particular time. Even worse, staff began to depend on private consulting jobs in the very sectors that FEEMA was supposed to be regulating. Gradually, FEEMA's reputation for professional excellence was corroded by allegations of corruption and its ability to perform even its routine monitoring tasks was compromised (Margulis and Gusmão 1996, 11).

Just how intractable FEEMA's problems had become was demonstrated by a failed attempt at reviving the agency in the mid-1990s. At the beginning of 1995, a newly inaugurated state government invited a young environmental economist, Sergio Margulis, to take over the presidency of FEEMA (and become simultaneously Sub-secretary for Environment in the state government). Margulis entered his office with the proclaimed aim of revitalizing FEEMA, recovering the full glory of its pioneering past, and making it again a centre of scientific excellence and an institutional model. While recovering the agency's past, he also wanted to transform and modernize its role. His goal was to leave behind the old "command and control" model of environmental management which focused the agency on policing tasks. Instead, he advocated building ties with entrepreneurial and community groups so as to "turn them into active participants in the execution of goals and strategies of environmental management" (Margulis 1995a, 3). He offered, in short, a vision that would go beyond the old "command and control" model of environmental management and move toward a "state-society synergy" model.

Sixteen months later Margulis' visions of a revitalized FEEMA were dust. He had resigned from the presidency, wiser but disillusioned by his experience. He had discovered that without being able to recuperate the basic capacity of the agency as a professional and bureaucratic organization, building state-society synergy was impossible, and without the support of a politically coherent, committed state government, recuperating the basic capacity of the agency was a goal beyond reach.

Lack of commitment was clear in the budgetary process. In order to recuperate staff morale and commitment, FEEMA would have had to make some progress in improving salaries, which in turn required that the state government commit new resources. Instead, the budgetary process proved disheartening. It began with the state legislature cutting FEEMA's proposed budget by 12 per cent. Worse still, only 40 per cent of the reduced budget allocation was actually transferred to FEEMA. (Margulis and Gusmão 1996, 7; 1997, 8). Lack of commitment to environmental issues was also illustrated by the fact that revenues specially earmarked in the Constitution for a fund for environmental control (FECAM – Fundo de Controle Ambiental) were at first not channelled into the fund at all and then channelled into the fund but not released to environmental agencies like FEEMA.

The state government's inability to project a coherent overall approach to environmental management was evident in the conflict-filled relationship between FEEMA and the state water company (CEDAE – Companhia Estadual de Águas e Esgotos). A contract with CEDAE for the regular analysis of water quality in CEDAE's system absorbed about 60 per cent of the resources that FEEMA could devote to water-quality monitoring. Instead of being a partnership between the service provider (CEDAE) and its technical auxiliary agency (FEEMA), this relationship was characterized by debilitating conflict. When FEEMA fulfilled its obligation for public disclosure by announcing water-quality problems in certain parts of the CEDAE system, CEDAE simply denounced FEEMA as unqualified to do the analysis. From the beginning of the 1990s, FEEMA was unable to collect payment for its monitoring services, a debt that amounted to over US\$5 million by the middle of 1996 when FEEMA finally gave up monitoring the water quality in the state company's system (Margulis and Gusmão 1996, 7–8; 1997, 8–9).

The costly absence of a coherent shared project among state agencies whose work should have been inherently complementary was equally apparent in the operation of the massive (US\$800 million) Programme for the Clean-up of Guanabara Bay. Funded by the InterAmerican Development Bank and Japan's Overseas Economic Cooperation Fund (OECF), this project consisted primarily of the construction (by private contractors) of sanitation and water supply infrastructure, mainly in the less privileged "suburbs" to the north of Rio city proper. Monitoring and assessing the changes in the bay's water quality, clearly a crucial function if the project was to succeed in accomplishing its goals, was FEEMA's obligation. The importance of FEEMA's role was underlined by the funders when they earmarked US\$20 million of the project funds for strengthening FEEMA's institutional capacity. Yet the agencies implementing the project, in part because they were primarily concerned

with its public works aspects, resisted the release of the environmental control part of the funding (FEEMA's part), aggravating rather than ameliorating FEEMA's institutional problems (Margulis and Gusmão 1996, 8; 1997, 10).

Ironically, FEEMA had greater success building productive alliances with the polluters it was in charge of regulating than it had with its sister agencies in the state government. Consistent with his view that FEEMA's chances of achieving results via a "command and control" strategy were unlikely, Margulis decided to work with the local industry association (FIRJAN – Federação das Indústrias do Estado do Rio de Janeiro) to see if a system could be devised that would make smaller demands on FEEMA's increasingly precarious organizational and professional capacity, but still promise a reduction in industrial pollution. In fact, the industry association was quite receptive and an interesting plan emerged. Potentially polluting industries were divided into five groups according to their location on different river basins which fed into the bay. Each group was constituted as a consortium with collective responsibilities for reducing pollution levels in their river basin. The plan meant that FEEMA could focus on enforcing lower pollution levels for each basin as a whole, leaving it up to individual firms to decide among themselves on the most economical means of meeting the goals, given each firm's capacity to respond to its specific emission problems (Margulis and Gusmão 1996, 13–14; 1997, 15–17).

While this effort at state-society synergy did reduce the demands on FEEMA (in comparison to what would have been required to produce the same results by means of monitoring specific emissions from each individual firm and then enforcing reductions), the system still depended critically on FEEMA's being able to sustain a certain minimal level of capacity and credibility. Collective responsibility for overall levels of pollution is attractive only as long as the alternative is enforcement of specific levels of emissions at each individual company. If FEEMA becomes too decrepit to enforce individual standards credibly in any case, then there is little incentive to participate in the collective consortia. In short, the same organizational and professional capacity that is the basis for successful execution of traditional pollution control tasks also underlies more innovative "state-society synergy" approaches.

Buses and parks in Curitiba

During the 1970s Curitiba, the capital of the southern Brazilian state of Paraná, was the fastest-growing city in Brazil. Between 1970 and 1990 a

million people were added to the city's population, so that by 1990 what had been a quiet town of 140,000 at the eve of the Second World War had become a metropolis of 1.6 million people with another 650,000 living in the surrounding metropolitan region.⁴

Given such explosive growth, degradation in the quality of urban life would be a normal expectation. Curitiba's problems could certainly have been expected to follow this pattern since one of the major impetuses for the growth of its population was the shift from a more labour-intensive form of agricultural production (coffee) to a more capital-intensive one (soy) in the northern part of the state, which left massive numbers of untrained rural workers without a source of livelihood. Nor did Curitiba have any obvious natural advantages which might have allowed it to sustain such growth. It was not a port or a major industrial centre. Its relatively cold, damp climate did not lend itself in any obvious way to tourism. It was certainly not a major financial centre like Rio or São Paulo.

Despite its rather ordinary economic prospects and burden of rapid growth, Curitiba emerged from its growth period with a firm claim to the title of "Brazil's Ecological Capital." During the fanfare stimulated by the 1992 UN Conference on Environment and Development in Rio, Curitiba was touted by the full range of international media, including conservative business journals like *The Economist*, *The Financial Times*, and *The Wall Street Journal*, as being a model of ecological success.⁵ While local critics who claimed that intensive marketing of the city's image played an important role in generating this international fanfare (e.g. Garcia 1997) are unquestionably correct, there is nonetheless substance underlying Curitiba's "ecological capital" claim.

An extraordinary system of public transportation is perhaps the single best example of the city's success. It is sufficiently efficient and inexpensive to attract 75 per cent of the city's commuters, 28 per cent of whom previously travelled to work by car. The result is not only less-congested city streets and lower transportation costs than in most Brazilian cities but also a 25 per cent saving in fuel consumption and consequently one of the "lowest rates of ambient air pollution in Brazil" (Rabinovitch and Leitmann 1993, 29).⁶

This surprisingly effective system was initiated in the early 1970s along with a new city plan that emphasized growth along particular "axes" spreading out from the city centre. Each axis is served by a "trinary" system of roads which includes two lanes restricted to buses only as well as lanes for local traffic (immediately adjacent to the bus lanes) and express roads for cars and trucks, one block away from the bus lanes on either side (Rabinovitch and Leitmann 1993, 21). Zoning rules helped ensure that high-density urban development (in the form of high-rise

apartments, for example) would take place along the axes. The resulting pattern of land use made an efficient system of collective transportation possible.

To exploit the possibilities created by the urban design it had fostered, the city government created a remarkably efficient bus system. The choice of buses rather than a metro or light-rail system made it possible to build a comprehensive system without forcing the city into bankruptcy.⁷ Because the buses were part of an urban plan which gave them exclusive traffic lanes rather than leaving them to fight their way through normal traffic, the time it took passengers to arrive at their destinations was cut in half. Other innovations cut commuting time even further. The local Volvo factory produced “articulated buses” which expanded the capacity of a single bus from 80 to 270 passengers. New “tube stations” allowed passengers to enter and pay their fares prior to the arrival of the bus and then board the bus at the level of seating, as though it were a metro train. The overall result was a bus system that rivalled a metro system in terms of efficiency, but could cover the entire city at a fraction of what a metro system would have cost.

Curitiba’s bus system is a perfect example of how a capable, coherent public administration can make “state-society synergy” work. On the one hand, the creation of the system depended absolutely on the existence of a coherent, publicly enforced plan of roadways and land use designed to make collective transportation feasible. Yet the city government was acutely aware of the limits of its own capacity and the necessity of relying on private partners. A number of different private companies are licensed to operate different routes (ensuring that none of them has any monopoly power *vis-à-vis* the city). The payment they receive is based on the number of passenger/kilometres they deliver, giving them an interest in maximizing the utilization of the system. In addition, their return depends on the capital they have invested in the bus fleet, which helps account for the fact that the average bus in Curitiba is only three years old (as opposed to eight years old in other Brazilian cities) and therefore has substantially lower emissions levels (Rabinovitch and Leitmann 1993, 29).

Relying on private companies to undertake the operation of the system undoubtedly helps make Curitiba’s buses run more efficiently than those of other cities. If the city had tried to operate the system by itself it would have risked the kind of bloated, clientelistic, 200-employees-per-vehicle public transport systems that plague some other Brazilian cities. Such a strategy would also have sapped scarce public managerial capacity which could be better used elsewhere. Nonetheless, the role of public authorities remains as central to the operational side of the system as it was in creating the initial preconditions for its success.

The city carefully regulates the private companies, to ensure that both

the level of service is maintained and the companies get a sufficient level of return to make operating the system an attractive proposition from their point of view. With the assistance of the City Planning Institute (IPPUC – Instituto de Pesquisa e Planejamento Urbano de Curitiba), a parastatal company (URBS – Urbanização de Curitiba; a parastatal organization is one which is separate from the normal bureaucratic machinery of government, but which is owned/controlled by public authorities) sets the parameters of the system, including “calculation of bus timetables and frequencies, development of new bus routes, determination of the necessary number of buses, monitoring the performance of the system, training drivers and conductors, and responding to suggestions and complaints from the bus users” (Rabinovitch and Leitmann 1993, 22). City Hall and URBS also set the level of fares for the system, managing to maintain some of the lowest fares in Brazil while still providing enough incentives so that the companies continue to invest. This is a market-oriented operation – Curitiba’s bus system pays its own way on the basis of the fares collected – but it is a market carefully shaped by the visible hand of public planning and regulation.

In addition to public transportation, a variety of other successes validate Curitiba’s claim to being an “ecological capital.” The city’s green space per inhabitant was expanded 100fold from 0.5 m²/inhabitant to 50 m²/inhabitant between 1970 and 1993 through an aggressive programme of recuperating underutilized and abandoned areas and turning them into parks (Rabinovitch and Leitmann 1993, 37). Over 70 per cent of the city’s households participate in a recycling programme by sorting their solid waste (Rabinovitch and Leitmann 1993, 36). A carefully planned industrial zone on the edge of the city has generated 200,000 jobs with minimal negative impact on the environment by recruiting low-environmental-impact industries (Rabinovitch and Leitmann 1993, 43).

Looking at Curitiba’s accomplishments, two questions remain. First, how can this extraordinary success be explained? What are its sociopolitical underpinnings? Second, can the admirable quality of life that has been provided to the middle-class population living within the city limits be extended to include the population of the metropolitan region surrounding the city, a population which is substantially poorer, still lacking in basic infrastructure like sewers, and expected to match Curitiba’s projected population of a 1.5 million people with 1.5 million of its own over the course of the next 12 years (Samek 1996, 70, 158).

The sociopolitical roots of Curitiba’s success probably begin with the fact that the city’s politics were not dominated historically by a traditional oligarchy. As Ames and Keck (1997, 15) point out, “Paraná lacks the kind of traditional economic and social oligarchy that is common in much of Brazil.” The *erva mate* (a bush whose leaves are used to make the *mate*

tea commonly drunk in southern Brazil, Argentina, and Paraguay) growers who were the state's first agrarian élite never achieved the kind of semi-feudal level of domination enjoyed by sugar-growers in the north-east. The potential power of traditional agrarian élites was further diluted by the arrival in the latter half of the nineteenth century of a diverse set of immigrants, many of whom managed to make their way as independent farmers.

People who have some political and economic clout, but not enough to be able to rely solely on political connections and economic privilege to ensure that their needs are met, are more likely both to care about collective goods and to foster the public institutions that deliver them. So it is not surprising that a social structure like Curitiba's might generate the most robust public institutions.⁸ Nonetheless, the particular pattern of institutional development that led Curitiba to its position as an "ecological capital" involves a combination of path-dependent institution building and political entrepreneurship that is worth underlining.

The "Plan Agache," created for the city by the French planner Alfred Agache, is usually cited as the beginning of Curitiba's transformation. While the centre of the contemporary city is still marked by some of the avenues created under this plan, its cultural legacy may have been more important than its physical one. It established the idea that growth could be directed rather than simply accepted. Thus, when the city later doubled in size over the course of the 10-year period between 1950 and 1960, the response was to turn again to the possibility of directing the pattern of growth. In 1963 URBS, the parastatal that would eventually manage the transportation system, was created. In 1964 two firms from São Paulo won the bid to provide a new city plan (IPPUC 1996, 45; Rabinovitch and Leitmann 1993, 8). The following year, IPPUC was created as a planning institute that would generate the local expertise required to implement the plan. IPPUC would eventually grow to an organization of over 200 people, including 100 professionals. It would also provide the incubator and training ground for Curitiba's most famous mayor, Jaime Lerner, as well as the current mayor, Cassio Taniguchi (Rabinovitch and Leitmann 1993, 10).

Curitiba's success, then, is built first of all on a socio-economic structure in which groups with a strong vested interest in the provision of urban collective goods have sufficient political weight. This socio-economic context made it easier to legitimize a culture in which collective responses to shared problems could be anticipatory rather than reactive. The legitimacy of planning allowed the institutionalization of a set of organizations devoted to the shaping of effective shared responses. A solid set of public institutions increases the likelihood that policies will be success-

ful and successful policies reinforce, in turn, political support for public institutions.

If institutional advantages can be leveraged through imaginative political entrepreneurship, the possibility of positive outcomes is further enhanced, and Curitiba has certainly benefited from political entrepreneurship. Jaime Lerner, who moved from the presidency of IPPUC to become mayor of the city in 1971 and served as mayor for a total of 12 years over the course of the next two decades,⁹ is without question a skilful and imaginative political entrepreneur whose creations (from the first pedestrian mall to the “tube stations”) captured the imagination of the citizenry. While it is important to recognize the role of political entrepreneurship and creativity, however, it is also important to recognize that without the infrastructure provided by a robust set of public institutions, and the culture and personnel that go with them, the ability of even the most imaginative planner to “deliver the goods” is severely constrained.

If Curitiba were a small island, like Singapore, or located in a national context of high welfare and low population growth, like Sweden or Switzerland, then it might be appropriate to simply celebrate the city’s victories and try to figure out how to copy them. But Curitiba is located in Brazil in an epoch where increasingly capital-intensive agriculture continues to push populations out of the countryside and an increasingly capital-intensive industrial sector lacks the capacity to generate a commensurate number of manufacturing jobs. In part precisely because its past success makes it an attractive destination, Curitiba must face the same problem as other third world cities: how to deal with a growing but impoverished peripheral population which can neither secure the private income to participate in the urban land market nor generate the tax revenues that are necessary to provide it with conventional urban services.

The city government clearly recognizes that its future as an “ecological capital” depends on its ability to extend its success to the poorer surrounding communities, yet it also recognizes that such an extension is a daunting challenge. Over the course of the two decades from 1991 to 2010, the population of Curitiba is expected to grow by only about 25 per cent. The population of some of the poorer communities in the surrounding metropolitan area, like Colombo and Almirante Tamandaré, will come close to tripling in size. Instead of representing almost 90 per cent of the population of the metropolitan region, as it did in 1970, Curitiba will represent less than half by 2015 (COMEC 1997, 8; Samek 1996, 158).

In 1991, over 90 per cent of heads of households with incomes greater than 10 minimum salaries lived in the city proper, whereas heads of household earning less than two minimum salaries a month were already

close to becoming the majority in the surrounding communities. Once economic disparities are reflected in spatial segregation, the potential for overt political conflict between rich and poor, something which has been strikingly absent from public political debates in Curitiba,¹⁰ is undeniable.¹¹

Land occupations (or, as they are more pejoratively labelled in the press, "invasions") are a good example of how the governance of urban growth can be forced outside the boundaries of consensual planning into the arena of political struggle between the dispossessed and their more privileged fellow citizens. Obviously, Curitiba's city government could not sanction the take-over of land by those who don't own it without alienating its essentially middle-class constituency. Yet the popular movements that initiate occupations have little option but to "live outside the law." Participants in these occupations, like Sebastiana (Tiana) Oliveira Motta, an activist in the 1988 Xapinhall occupation, are convinced that urban real-estate markets hold only "the death of high rents." Successfully staking a non-market (and therefore illegal) claim to some land is viewed as the "passage from death to life" and pursued with corresponding fervour.¹² Dealing with the irreducible conflict of interest between those fortunate enough to own land and those, like Tiana, who know that they will not be able to afford decent housing requires a quite different definition of "state-society synergy" than the one that has worked so well for Curitiba in the past. Nor are the problems of city government likely to end with the regularization of an occupation. Tiana ends her diary of the Xapinhall occupation by saying, "This is only one successful step. Now it is the fight for water, electricity and the construction of a decent house. There is a lot of struggle ahead." (Motta 1991, 40). Political struggle is likely to become part of the process of infrastructure development as well as part of the process of land allocation.

Does this mean that Curitiba's efforts to become an ecological capital will inevitably be undermined by the larger contradictions of a society that current President Fernando Henrique Cardoso characterizes as "not underdeveloped but unjust"? Not necessarily. Dealing with land that is occupied by one set of people but owned by another set is a generic problem for third world "megacities" and has stimulated a variety of creative responses.¹³ Curitiba's problems are less extreme than most and its public institutions are more robust and creative than most. There is no reason to believe that it will be incapable of dealing creatively with processes of urban growth that are more conflictual than those of the past. In fact, a quick look at struggles over infrastructure in Curitiba's much less ecologically successful neighbour, São Paulo, suggests that conflictual relations between poor communities and state agencies can be a source of productive state-society synergy.

Sewers in São Paulo¹⁴

The *favelas* (slums) of São Paulo are less famous than those of Rio de Janeiro, but their population is no less numerous and their living conditions no less difficult. In 1973, only 20 per cent of São Paulo's *favelas* had potable water. Fourteen years later, in 1987, 99 per cent did. During the same period there was also a 15 fold increase in the proportion of *favelas* served by sewers. For the Curitiba metropolitan region, where the proportion of the households served by sewers in 1993 was only 46 per cent¹⁵ and some of the region's communities had no sewers at all,¹⁶ the dynamics of São Paulo's phenomenal increase in the provision of basic collective goods are of obvious relevance.

The extension of sewer service to marginal communities is not necessarily conflictual. In other Brazilian contexts, the story of the extension of sewer systems began, like Curitiba's bus system, with the imagination of technocrats working inside the state and then proceeded through the construction of state-society synergy based on what Ostrom (1996) would call "co-production." "Condominial sewers," originated by Brazilian engineer José Carlos de Melo, have been very successful in giving poor communities an avenue for cooperating with state agencies in building their own sewer systems, and have enabled a considerable expansion of sewer systems to poor communities.¹⁷

In São Paulo in the 1970s and 1980s, however, the expansion of basic infrastructure to poor communities was based on a different sort of synergistic interaction of communities and state agencies. The starting point in São Paulo in the 1970s and 1980s was not an innovation promoted by progressive technocrats within the state. It was the poor communities themselves that took the initiative. Neighbourhood associations, originally mobilized to demand cost-of-living adjustments from an authoritarian military regime, began to fight for the provision of normal urban services. Neighbourhood women fought small battles for improvements in health care and schooling for their children (Watson 1992, 40–41).

These quotidian struggles were punctuated by larger confrontations with state agencies in which men were more likely to become involved. Over the course of such conflicts, communities learned to work together and to pressure government agencies in more sophisticated ways. Public demonstrations in which busloads of people from the *favelas* arrived at the headquarters of the state sanitation company (SABESP) with buckets full of undrinkable water were combined with small meetings in which association leaders proposed alternative technologies, discovered through contacts with university housing specialists, to SABESP technicians (Watson 1992, 34–35, 45).

What is most interesting about the contestation between these com-

munities and the state agencies they were pressuring is that contestation was always combined with engagement. In their meetings with agency staff, neighbourhood activists learned about the technical and legal problems that stood in the way of state action. Having learned, they formulated new strategies that would circumvent these problems. Perhaps even more important, they learned about the organization of the public agencies with which they were dealing. They learned how to use more sympathetic state agencies to pressure less sympathetic ones, and which arguments were effective in which offices.

Eventually, as democratization replaced military appointees with elected mayors and governors, neighbourhoods found allies whose pressure from above would complement their own pressure from below. Pressure, channelled through sympathetic parts of the public sector, led to small organizational changes that made big differences.

SABESP, the state sanitation company, was a well-managed company with a high level of technical competence, but it was determined to stick to the provision of conventional water and sewer hook-ups and therefore very reluctant to serve *favelas* with dubious legal status and no real streets. Communities responded by focusing their efforts on other, more sympathetic organizations and gained their first successes. With the help of pressure from a new elected mayor, the Municipal Bureau of Social Welfare and the Municipal Development Agency were persuaded to set up a pilot organization (Profavela) that would work in poor neighbourhoods with neighbourhood associations and connect them up with SABESP's regular networks (Watson 1992, 57–67). Profavela not only succeeded in multiplying the number of *favela* water connections enormously (from 2,000 to 27,000) but also gave SABESP district offices some experience in dealing with *favelas* (Watson 1992, 63–64).

Later, with help from a newly elected state governor, SABESP was persuaded to set up its own internal “*favela* team,” whose technocrats became insider allies for the outsider neighbourhood associations. These insiders figured out what techniques for the extension of water and sewer networks into *favelas* would be most acceptable to SABESP's engineers. They then used the threat of neighbourhood mobilization as a way of persuading the organization to adopt new techniques. Thanks to this insider/outsider combination SABESP began putting water connections into the *favelas* at an unprecedented rate, so that by 1987 99 per cent of all *favelas* had at least partial water connections and the majority had water service going to all households.

What the São Paulo example suggests is that state-society synergy need not always be consensual and conflict-free in order to be effective. As long as contestation between communities and the state is combined with engagement, conflict can play a vital role in creating synergy. Even more important, this case underlines the fact that the state is not a monolith.

There are likely to be some potential reformers in even the most hide-bound agencies. Aggressive community action empowers these internal reformers and helps transform the character of the agencies in which they work.

Conclusion: State, society, and the struggle for liveable cities

Examining the role of the state in relation to environmental issues in third world cities produces a discourse quite different from that which dominates most discussions of the state in the contemporary global political economy (Evans 1997c). The discussion here has been able to proceed without reference to the supposed evaporation of the power of the state. If the declining ability of nation-states to counterbalance the private power of transnational corporations played a role in the local urban dramas that were the focus of attention in this chapter, it was a diffuse and indirect one, not the centre of the story. Yet the authoritative legitimacy of public organizations and the fact that they can be held responsible for the realization of collective interests, both of which are at the essence of the concept of the state, were absolutely central to the unfolding of these local dramas. One of the implications of this analysis may well be that preoccupations with the changing relations of states to the global political economy should not distract analytical attention from the persistently essential role of public institutions in confronting collective dilemmas like the degradation of urban environment.

The organizational capacity of city governments to deliver public goods is crucial to making cities liveable, but public institutions also play a critical role because they articulate shared interests. Sometimes this means taking inchoate needs and aspirations and giving them a form that captures the imagination of the community, as in Curitiba. Even when public agencies are the targets of indignation because of their inability to meet obvious societal needs, as in the case of São Paulo, they are still lenses that help focus communities on the pursuit of their collective interests.

Because public institutions are so central to the dynamics of environmental politics, their capacity as institutions is a decisive determinant of whether environmental goals are likely to be realized. It is hard to overstate the importance of simple quotidian kinds of capacity in the form of trained, competent personnel, sufficiently well rewarded to be willing and able to devote themselves to carrying out organizational goals. The contrast between the devastation of organizational strength in the case of FEEMA and the gradual construction of institutional capacity in the case of Curitiba made the point nicely.

Public institutions are also sites for innovation, imagination, and political entrepreneurship. From José Carlos de Melo's invention of the con-

dominial sewer to Jaime Lerner's genius for making ecological success a major source of civic identity, it is clear that changing urban environments depend on being able to transcend quotidian routines. Yet, as the experience of Sergio Margulis showed, attempting innovative public policy without basic organizational capacity is a formula for frustration. The FEEMA case also underlined the fact that the construction and sustenance of capacity is not simply a technical problem. The capacity of individual agencies, and ultimately the state apparatus as a whole, is rooted in political support.

However fundamental the capacity and entrepreneurial initiatives of the public sector are to the outcome of these cases, the cases also make it clear that government cannot confront urban environmental issues as an independent actor. Pursuing environmental agendas depends on engaging the interests and energies of communities and societal actors. Synergistic interaction of state and society does indeed seem to be what produces environmental results. The symbiotic relationship between the city government and private companies that produced collective transportation in Curitiba illustrates the point nicely. Less obvious types of state-society synergy are equally important. José Carlos de Melo and his shanty-town co-producers, SABESP and its community critics, and even Sergio Margulis and his industrial polluters are all examples of how the ability of the state to deliver basic collective goods depends on societal collaboration.

State-society synergy involves combining complementary public and private capacities to allow the production of collective goods that neither public nor private sector could produce by itself. It also involves uncovering shared interests in the creation of new collective goods. Private companies could never have created Curitiba's bus system, but it would have been foolish and wasteful for the city to try to operate the system on its own. URBS and IPPUC function as very "visible hands" channelling the private pursuit of profit into the satisfaction of public needs. They have structured the system so that private companies pursue their interests in profits via strategies which increase passenger numbers and decrease emissions.

The relationship between poor communities and SABESP illustrates a very different relationship between public and private interests. When poor communities realize their particular interests in gaining access to water and sewers, they are also furthering the general interests of the city in reducing the health and environmental hazards associated with open sewers and pit latrines. In this case, the realization of general interests depends on pushing the public organization, SABESP, to go beyond its particularistic organizational interest in preserving established routines and avoiding challenges that would stretch its capacity.

The FEEMA-FIRJAN relationship illustrates still another possibility.

FEEMA represents the collective interests in cleaning up Rio's air and water. Getting companies to commit their private resources to investments which will reduce emissions is a means to that end. Companies trying to minimize production costs have a private interest in avoiding such expenditure, whatever their general feelings about the environment. Public and private interests conflict. Yet as long as firms believe that pollution control will indeed be enforced, they have an interest in supporting an "efficient" form of regulation – one that will be least arbitrary, most predictable, and allow them to respond in ways that they feel minimize the private cost of a given reduction in pollution. At the same time, a regulator like FEEMA has a clear interest in finding forms of pollution reduction whose demands do not exceed its limited organizational capacity. As it turns out, there is a substantial overlap between these two particular interests. The intersection creates space for state-society synergy, despite the underlying conflict.

The point can be summarized simply. Societal actors play an important role in the struggle for more liveable urban environments in at least three ways. Private interests can be engaged in the implementation of environmental strategies, conserving scarce public capacity. The political energies of those most directly affected by degradation are important in pushing state agencies to make the most of their capacity to deliver collective goods. Even when particular societal interests are in conflict with the general interest in a cleaner environment, it is still possible to find space for state-society synergy. As long as societal actors are complemented by adequate state capacity, applied with some imagination and creativity, the problems of the urban environment are anything but intractable.

The analysis that has been presented here underlines the irreplaceable contribution of local public institutions to the struggle for more liveable third world urban environments. It demonstrates the importance of preserving the capacity and defending the legitimacy of the general system of public authority that is rooted in the idea of the state. But what, if anything, might this analysis have to say about supranational public institutions like the United Nations? It could be argued that it suggests a role which does not fit neatly into either the "global manager" or the "global counsel" archetypes.

A state-society synergy image suggests a fluid political arena in which solutions to environmental problems emerge out of creative conflicts between local communities and state agencies. Small injections of new knowledge can play an important role in arriving at positive resolutions. Indigenous innovation is the most likely source of such new knowledge, but if each locality has to "reinvent the wheel" then problems may evolve more rapidly than local innovations are replicated. Public institutions or community/NGO networks at the national level may help diffuse

innovations across localities, but the degree to which cities in different countries and regions share similar problems is striking, and diffusing innovations across national boundaries is likely to depend on supranational organizations.

Since collective solutions to environmental problems involve, almost by definition, ideas from which the returns are not easily privately appropriated through markets, corporations won't do as vehicles. Ideas that could be put into practice by communities on their own may be most effectively spread by international NGOs. But if implementation depends on the joint action of communities and government agencies, UN agencies, which appear at the local level as a peculiar hybrid of global NGOs and supranational state agencies, may well have a special aptitude for complementing the local dynamics of state-society synergy.

Notes

1. See Ostrom (1996) for a discussion of the way in which citizens who are formally in the role of "clients" are often in fact "co-producers" of the services that they receive.
2. For an elaboration of the "state-society synergy" perspective see Evans (1996a; 1996b; 1997a; 1997b). For a very similar perspective which introduces some useful complementary concepts see Tandler (1997).
3. This section is based primarily on Margulis (1995a; 1995b) and Margulis and Gusmão (1996; 1997). The author would also like to thank Victor Coelho for sharing his extensive knowledge of the history of FEEMA as well as some of his archival material. Obviously, the way in which this material has been used to construct the interpretation of the FEEMA case presented here is solely the author's responsibility.
4. Figures cited in the text are from Rabinovitch and Leitmann (1993, 2). COMEC (1997, 8) gives slightly different figures.
5. See *The Economist* 1993; Kamm 1992; Lamb 1991; Maier 1991. All are cited in Rabinovitch and Leitmann 1993.
6. The interesting thing is that Curitiba has achieved its elevated use of collective transport and low emission levels despite having more cars per capita than any Brazilian city besides Brasília. (Rabinovitch and Leitmann 1993, 18).
7. Per kilometre served, the capital costs of bus systems are about 1 per cent of light-rail systems and 0.2 per cent of the cost of metro systems (Rabinovitch and Leitmann 1993, 23). If total costs per passenger/kilometre are considered the difference is less overwhelming, but buses are still a fraction of the cost (World Resources Institute 1996, 93).
8. For example, in 1990 the income distribution in the city of São Paulo was bimodal because of the small proportion (18 per cent) of the population earning between US\$290 and US\$360 per month, whereas in Curitiba this middle group was half as large again, containing 28 per cent of the population, while the proportion with very high incomes in Curitiba (>US\$1,500 per month) was only about 60 per cent of the proportion in São Paulo (4.3 per cent versus 7 per cent) (data are for 1990 from IBGE National Census and IPPUC, household survey cited in Rabinovitch and Leitmann 1993, 7). Yet at the same time it should be noted that Curitiba's social structure is hardly egalitarian. The city government reports the city's Gini index in 1991 to be 0.57 (Curitiba 1996, 7), only slightly less than Brazil's record level of 0.63 (World Bank 1997, 223).
9. 1971–1974, 1979–1983, 1988–1992 (Rabinovitch and Leitmann 1993, 13).

10. Ames and Keck (1997, 25), for example, contrast Paraná with Pernambuco, whose environmental politics reflects the "high level of left-right polarization in the state."
11. For a discussion of the way in which spatial segregation can stimulate class politics see Seidman (1993) on political mobilization in Brazil and South Africa in the 1970s and 1980s.
12. The quotes are from Tiana's diary (Motta 1991, 8). For her, the Xaphinal occupation was a perfect parallel to the flight of the children of Israel from bondage in Egypt to the promised land.
13. There is, of course, a very large literature on this issue. For example, Janice Perlman (1990, 6) goes so far as to argue that "it was recognized in the early 1960s that the self-built shanty towns of the Third World Cities were not the problem but the solution, and that giving land tenure to the squatters and providing urbanized lots in the peripheral areas yielded better results than the bulldozer." Douglass (1992, 19) notes some interesting Asian experiments and Pezzoli (1998) chronicles a particularly interesting case in Mexico City in which the occupying communities used a public commitment to developing more sustainable land use as one their political tools for maintaining their tenure.
14. The material that follows on São Paulo is drawn from Gabrielle Watson's (1992) MA thesis. For an earlier version of the author's interpretation of Watson's work see Evans 1997a.
15. COMEC 1997, 41, data from PNAD/93. Since the average for Brazil as a whole was 39 per cent (same source), this is an indicator on which Curitiba does not stand out as exceptionally advanced.
16. For example, Almirante Tamandaré and Colombo as of 1991; see Samek (1996, 70).
17. For an excellent description of the origination and expansion of condominium sewer systems in Brazil see Watson (1995). For a discussion of the export of the idea to Kenya, Paraguay, and Indonesia see Watson and Jagannathan (1995).

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