Cities, sewers and poverty: India's politics of sanitation

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SUMMARY: *This paper discusses the political circumstances which help explain why the insanitary living conditions of such a large section of India's urban population have been ignored, and contrasts these with the circumstances which explain successful sanitary reform in Britain in the second half of the 19th century. In India, there is little middle class pressure for sanitary reform, in part because of the ability of the middle classes to monopolize what basic urban services the state provides, in part because modern medicine and civil engineering have lowered the health risks that they might face from the sanitation-related diseases that lower income groups suffer. In addition, the 'threat from below' including organized trade union pressure was more influential in mid 19th century Britain than in India today. The paper ends by reflecting on what factors might change this.*

I. INTRODUCTION

INDIAN CITIES, LIKE many of their post-colonial counterparts, are beset by immense environmental problems at the end of the twentieth century. As the growth of urbanization continues, these problems are escalating. While environmental problems such as air pollution and toxic wastes are occasionally addressed by governments when given publicity, the most profound of these environmental problems, the insanitary living and working conditions of large sections of the urban population are ignored. It is only when the threat of epidemic occurs that government authorities intervene in an attempt to control the public health risk. Such was the case during the 1994 plague outbreak in western India which caused thousands of people to flee Surat to escape infection. It was the dramatization of events by Indian and foreign media which forced the various levels of government to intervene.[1]

The environmental conditions in Indian cities are in many ways comparable to those of nineteenth century cities in Great Britain and Europe. Industrial cities like Liverpool and Manchester were described by Friedrich Engels as having "…streets [that] are generally unpaved, rough, dirty, filled with vegetable and animal refuse, without sewers or gutters but supplied with foul, stagnant pools instead."[2] Such descriptions are just as appropriate to the slums of late twentieth century Calcutta, Delhi or

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1. Burns, John, E. (1994), "Thousands flee Indian city in deadly plague outbreak", New York Times (national edition) 24 September.

2. Engels, F. (1987), *The Condition of the Working Class in England,* Penguin Books, London (first published in 1844), page 71.

Mumbai. The Industrial Revolution, which brought about massive migrations of impoverished rural workers to the cities, along with a rapid increase in the number of factories, exacerbated the existing environmental problems in nineteenth century cities. These conditions only improved when three factors brought about the political change necessary to implement sanitary reform. These were the campaigns by medical practitioners along with reform of local government, advances in science and engineering, and the presence of a "threat from below" in terms of diseases and organized labour.

In India, a similar pattern of urbanization has emerged. Impoverished rural migrants have moved to cities in search of employment. The consequent lack of housing has produced slums, while the factories that employ them have polluted their surrounding environments. Totally inadequate sanitation and water supply systems have turned rivers into sewers and have contaminated ground water supplies. While epidemics of cholera and typhoid occur infrequently, it is the recurring endemic diseases such as gastroenteritis, dysentery, diarrhoea and malaria which have devastating and long-term impacts on the health of the poor and slum dwellers.

The reason that such environmental conditions exist in Indian cities, this essay will argue, is because the middle-class has been able to monopolize what basic urban services, such as sanitation, the state has provided. The consequence has been a lack of interest in sanitary reform and the exclusion of large sections of Indian society from access to these basic urban services. Instead, public health and environmental policies have frequently become exercises in crisis intervention instead of being tools for effective long-term planning and implementation. By examining the reasons for the success of the sanitation movement in nineteenth century Britain and then comparing them with twentieth century India, it will be shown that new approaches are now needed if sanitary reform is to take place.

The middle-class in India has been able to monopolize urban services because of the nature of the state and its relationship with society which has developed since independence. Instead of the modern state being an instrument of socio-economic change that would transform Indian society, it has been dominated by the Congress Party using the principles of consensus and compromise to create a political regime that was, in reality, based on a coalition of classes. This coalition included sections of the bourgeoisie, landlords, rich peasants and professional groups. The class content of this coalition, which was interested in preserving its position within Indian society, greatly influenced, and thus limited, the state's ability to implement social change. This coalition of classes in reality defined the state's strategy of development and governance. The outcome has been a weak Indian state that has been dominated by reformism rather than social change. Being dependent on this coalition, the state therefore has needed to accommodate their interests to maintain their support.[3] Hence, the middle-class has been allowed to monopolize the provision of urban services while large sections of the population have remained disadvan-

3. Hasan, Z. (1989), "Introduction: state and identity in modern India" in Hasan, Zoya, Jha, S.N.

and Rasheeduddun Khan (editors) (1989), *The State, Political Processes and Identity: Reflections on Modern India*, Sage Publications, New Delhi, pages 11-13.

taged because they are unable to exert pressure on the state to improve their living and working conditions.

II. THE POLITICS OF SANITATION REFORM IN NINETEENTH CENTURY BRITAIN

THE EXPERIENCE OF rapid industrialization, urbanization, economic growth and environmental degradation in nineteenth century Great Britain was replicated in varying degrees in Europe, North America and other countries such as Australia. In the twentieth century, the experience of the newly industrializing countries has many similarities. It has generally been supposed that economic growth will, first, bring about improvements in living standards, and then environmental issues will be rectified as the country's middle-class grows. But is this what actually happened in Britain? Rapid economic growth, Simon Szreter has argued, brings about a disruption in a society's structures of authority, social relations and ideologies. The result, in the second and third quarters of the nineteenth century in Britain, was, first, a period of political and administrative inaction in dealing with urban deterioration. Such inactivity was precipitated by the flight of the middle and upper-classes to the suburbs on the edge of cities. This residential segregation meant that "...the educated, literate élites no longer dared or cared to know their cities first hand", with the result that the inner suburbs became places of "deprivation, disease and death".[4]

4. Szreter, Simon (1997), "Economic growth, disruption, deprivation, disease and death: on the importance of the politics of public health for development", *Population and Development Review* Vol.23, No.4, pages 702-3.

It is against this background of political and administrative inactivity in dealing with environmental degradation that the sanitary idea was brought to the attention of the middle and upper-classes by Edwin Chadwick and other sanitary reformers. In 1842, Chadwick published his famous *Report on the Sanitary Condition of the Labouring Population of Great Britain,* in which he argued that it was insanitation and poverty, rather than defects of character that inflicted the damage on the morals and habits of the working-class.[5] Hence, the guiding principle underlying the argument for sanitation reform was that the prevention of further environmental degradation was cheaper and more effective for society than continuing with expenditure on poor relief. Thus, sanitation reform became a political issue because it required state intervention to be implemented.

5. Flinn, M.W. (editor) (1965), *Report on the Sanitary Condition of the Labouring Population of Great Britain* by Edwin Chadwick (first published in 1842), Edinburgh University Press, pages 58-9; also Fraser, Derek (1984), *The Evolution of the British Welfare State: A History of Social Policy Since the Industrial Revolution*, Macmillan, London, pages 62-3.

This inability of municipal governments to tackle environmental problems largely resulted from the rise of a middle-class electorate following the 1835 Municipal Reform Act which created representative local government based on property ownership. The elected councillors, in these reformed municipalities, generally represented the populations living in the crowded and polluted industrial and commercial areas of cities because, even though their wealth had increased, they were not able to afford housing in the new outer suburbs. Thus, even though they were acutely aware of urban environmental degradation:

> "...they could not be induced to vote for, still less campaign for, the extensive municipal measures that might have saved

their own lives...The problem was that the benefits to be gained from extremely expensive urban improvements to clean up the environment were too abstract, remote and speculative to carry conviction for this class of practical men, whose principal attention was consumed with week-to-week survival in trade and avoidance of bankruptcy."[6]

This obstruction by the middle-class was evident in the rebellion against the 1848 Public Health Act. Even though the Act did not contain a system for a comprehensive national sewage plan or public health commissions, it did have local public health boards and established the Central Board of Health with Chadwick as its salaried commissioner. As such, boards were only compulsory in localities where the death rate exceeded 25 per 1,000 and could only be established elsewhere on petition by one-tenth of the ratepayers; it could at best only be a partial system. The outcome, then, was that this first attempt by the state in Britain to intervene in public health decision-making was, at best, tentative and easily opposed by local political interests.[7]

It was only from the late 1860s onwards that the public health/ sanitation movement became genuinely effective. This was marked by the Sanitation Act 1866 which made available to all localities the sanitary powers that had previously been restricted to the local boards of health under the 1848 Act. As a result of the technological and civil engineering advances made during the preceding decades, most parts of London had covered sewers by the 1870s and cesspools had been abolished. Between 1880 and 1891, urban authorities borrowed UK£ 7,738,522 for sewage works and UK£ 3,225,500 for waterworks and, in the process, they transformed sewage and water supply services from being private concerns into public enterprises. The outcome was that the provision of such services became a true public good and so was extended to all citizens. As these new sanitary arrangements were so effective and successful, they soon became uncontroversial and just a part of everyday life.[8]

The second consequence of rapid economic growth in nineteenth century Britain was the emergence of the "threat from below". These were the threats of the spread of disease and of social revolution. Whilst diseases such as typhoid, typhus and diarrhoea, for instance, were more devastating to the health of the working-class, it was cholera (especially during the four epidemics in 1831-2, 1848-9, 1853-4 and 1866), and its unpredictable nature which sometimes saw it spread to middle-class suburbs, which was so terribly feared. The spectre of cholera "...brought together in one grand obsession the preoccupations with the predicament and comportment of the poor, with the sanitary dangers these implied for the established citizens and with the need for urban sanitary and administrative reform."[9] Eventually, an "...awareness of the interdependency and a sense of responsibility for the plight of others (became) combined with a conviction that these others ought to be helped" developed within British society. That is, people realized that the threat would remain until assistance was given to the poor

6. See reference 4, page 705.

7. See Flinn (1965), reference 5, pages 71-3.

8. de Swaan, Abram (1988), *In Care of the State: Health Care, Education and Welfare in Europe and the USA in the Modern Era*, Polity Press, Oxford, page 142.

9. See reference 8, page 124.

to improve their living conditions, and the funds provided for public works needed to ensure a safe water supply and sanitation system. Such a concern, or social consciousness, is a hallmark of a modern society, and the role of "anonymous caretaker" has been assumed by the welfare state.[10]

The threat of social revolution was initially demonstrated by the 1848 revolutions which showed that the possibility existed of an uprising by the working-classes. The short lived Paris Commune of 1871 was perhaps more powerful as a symbol of what might come, rather than for what it achieved, and "...if it did not threaten the bourgeois order seriously, it frightened the wits out of it by its mere existence."[11] In Britain, the growing public awareness of poverty, and the increasing middle-class concern that "...the masses would march onto the stage of politics, whether rulers liked it or not",[12] eventually helped to force the state to include the working-class in the democratic process. The result was the enfranchisement of urban and rural workers which, along with the growing influence of the trade union movement, forced the state to mediate in the process of how the benefits of such rapid economic growth were being distributed within British society.

Sanitary reform in Britain was therefore the outcome of a change in the nature of the relationship between the state and society brought about by rapid economic development. The dominance of the middle-class, based on the exclusion of the working-class from political participation and a belief in the distributive justice of the market place - *laissez-faire* economics - was gradually replaced by the beginnings of the welfare state and the inclusion of the working-class. Against this background was advocacy for sanitary reform, conducted by medical practitioners and concerned citizens, the enlightened self-interest of the middle and upper-classes that recognized the interdependence of all groups within society, and the demands by trade unions for better working and living conditions. The success of the sanitation movement also brought about a "disciplining of human behaviour" as government intervention in daily lives introduced the restraints and controls that have become necessary to allow people to live in densely populated areas and, more generally, to keep a modern industrialized society functioning.[13] Such values were predominantly middle-class, and so the "disciplining" of the working-class further lessened the perceived "threat from below" and brought about their inclusion in the political process.

III. INDIAN CITIES

THE BENEFITS OF the sanitation movement had a very limited impact on the population as a whole in nineteenth century India. Whilst the colonial government did implement some of these ideas when attempting to control cholera epidemics, most of the expenditure went on military sanitation and protecting the health of government personnel. That is, "...the colonial régime built the unequal treatment of the native and colonial areas into the

10. See reference 8, page 255.

11. Hobsbawm, E.J. (1977), *The Age of Capital 1848-1875*, Abacus, London, pages 200-1.

12. Hobsbawm, E.J. (1994), *The Age of Empire 1875-1914*, Abacus, London, page 85.

13. Schoenwald, Richard L. (1973), "Training urban man: a hypothesis about the sanitary movement" in Dyos, H.J. and Michael Wolff (editors) (1973), *The Victorian City: Images and Realities, Vol.2*, Routledge and Kegan Paul, London, pages 669-92.

sanitation system itself: spatial domination was the everyday metaphor for colonial domination." Due to fiscal conservatism, municipalities were unable to provide the funds for a new sanitation system based on the construction of sewers and labour-saving technologies. Instead, the colonial government intensified the use of labour in the manual scavenging of night soil and refuse removal, despite calls for the abolition of such practices. When the obvious inefficiencies of such a system were highlighted, colonial officials blamed the work practices of the scavengers.[14] Such unequal treatment in the provision of sanitation has continued in independent India.

There are three factors that have prevented a successful sanitation movement being replicated in India. First, as in nineteenth century Britain, is the political and administrative inability of local government to deal with the problems associated with unplanned and haphazard urban growth. Such inability, along with corruption and inefficiency, has in some circumstances almost reduced urban local government to a position of irrelevance. These deteriorating urban conditions have precipitated a flight of the growing middle-class to new suburbs - which often have self-contained apartments and segregated living. The outcome, to date, is that the middle-class has yet to show any real interest in, or responsibility for, pressuring governments to improve environmental conditions. To fund such urban improvements, the financial status of local government has to be drastically improved, which means the regular collection of property and income taxes. This obstruction, or lack of interest in India, though, is not based on the exclusion of the lower-classes and urban poor from political participation (after independence, India became "the world's largest democracy") but is the result of the political subservience of local government to the interests of the middle-class. This has occurred because:

> "As a class they began to have a vested interest in the state administration so as to corner jobs immediately for their kith and kin and to acquire power for getting resources from the state…This process encouraged corruption. When extra money was not available, an indifference towards assigned work and a consequent inefficiency crept in. Among the white-collar employees in the public sector, the work ethic required for the efficient functioning of modern institutions failed to develop. Callousness and indifference towards public responsibility increased."[15]

Thus, whilst there has been some advocacy for sanitary reform by such people as planners, medical professionals and non-government organizations, their efforts have been greatly undermined by the corrupt and incompetent nature of municipal authorities and the indifference by the middle-class towards the insanitary conditions in which the urban poor live and work.

The second factor is the antithesis of the British situation - there is an absence of a "threat from below". Trade unions in India have predominantly represented only the interests of white-collar professional workers and, at most, have covered only for-

14. Prashad, Vijay (forthcoming), *Untouchable Freedom: A Social History of the Balmikis of Delhi*, Chapter Four: Sanitation, pages 95-8.

15. Shah, G. (1977), *Public Health and Urban Development: The Plague in Surat*, Sage Publications, New Delhi, page 31.

mal sector employees who comprise about 8 per cent of the workforce. The other 92 per cent are employed in the informal sector which comprises small industrial units, agriculture and self-employed people. This is the realm of the unprotected worker, who has no employment security. Women and children, migrant workers and bonded labourers are some of the workers in this informal sector.[16] As these workers do not comprise a social group, there is little possibility of collective action and so they are excluded from the resources the state provides for the provision and distribution of basic services.

Thirdly, the very developments in modern medicine and civil engineering that contributed to the success of the sanitation/ public health movement in nineteenth century Britain have enabled the middle-class to largely ignore environmental problems and the resulting diseases. The use of antibiotics and insecticides have generally contained potential epidemics in slum areas, and hence not generated a mutual awareness among the middle-class that it would be in the interests of the whole of society if the poor were provided with decent living conditions. Also, the obsession that Indian governments have with capital intensive Western science and technology has meant that alternative approaches to sanitation based on appropriate and low-cost technologies have received little attention and support, until very recently.

IV. THE ROLE OF LOCAL GOVERNMENT

MUNICIPAL GOVERNMENT IN India is, to a great extent, a colonial legacy. Generally, it remained structurally unchanged until 1992, when the Lok Sabha passed the 74th Amendment to the Constitution.[17] The consequence has been political neglect which has led to the institutional marginalization of municipal government, as well as its financial and political dependence on state governments. This marginalization has been compounded by state governments as they have intruded into the functions expressly delegated to municipal authorities - public health and sanitation; water supply and drainage; roads and public works; and primary education - by establishing single purpose institutions and urban development authorities (such as the Delhi Development Authority, housing boards and urban improvement trusts) which operate in the same functional areas. These single purpose institutions "...widen the power domain of particularistic functional interests at the cost of general government and through its field of administration, thus creating subsequent problems of resource allocation, personnel management and institutional coordination."[18] In other words, these authorities are "bureaucratic in composition and unaccountable to local people" and tend to "function in an authoritarian manner" that is "heavily influenced by state-level politics".[19] These urban development authorities usually build the infrastructure for water supply and sanitation systems and other urban services but leave the maintenance to municipal corporations. Lacking financial resources and technical staff, and having insuffi-

16. Ramaswamy, E.A. (1995), "Organized labour and economic reform" in Oldenburg, P. (editor) (1995), *India Briefing: Staying the Course,* M.E Sharpe, New York, pages 98-9.

17. The 74th Constitutional Amendment seeks to make urban governments more participatory and accountable by reserving seats for women, scheduled castes and tribes, and other backward classes.

18. Datta, A. (1994), "Institutional aspects of urban governance in India", *Indian Journal of Public Administration* Vol.40, pages 622-3.

19. Mukhopadhyay, Asok (1996), "Politics and bureaucracy in urban governance: the Indian expe-

rience", *Indian Journal of Public Administration* Vol.42, No.1, page 44.

cient numbers of employees, municipal authorities are left in a seemingly impossible situation when attempting to maintain such infrastructure.

The intervention by state governments in the municipal domain has also precipitated the dismissal of elected local government members, usually on the grounds of mismanagement, and the subsequent suspension of elections. Delhi was without an elected local government for 14 years until 1997, when the capital government had to comply with the 74th Constitutional Amendment requirement to conduct regular and fair municipal elections. With municipal authorities being run by state government appointed administrators (usually a senior Indian Administrative Service officer), the outcome has been a lack of accountability, corrupt and inefficient bureaucracies, internal struggles and public apathy toward the institutions of local government.[20] The result has been a political and administrative paralysis when dealing with environmental problems and little interest in the equitable distribution of urban services.

20. Chaplin, Susan E. (1997), "Scavengers: still marginalised", *Administrator* No.42, page 147; also see reference 19, page 35.

The dependent relationship that exists between the middle-class and the state has brought "...a significantly higher investment in per capita terms and better maintenance of the facilities in relatively well-off areas."[21] In 1983, the national sample survey showed that around 50 per cent of people in the higher-income brackets had access to flush latrines that are usually connected to sewerage systems. Such systems are maintained by local authorities. As users are only levied a nominal charge, it is easy to argue that the provision of sanitation facilities for the middle and upper-classes is heavily subsidized. By contrast, fewer than 40 per cent of the poor (i.e. households with a monthly per capita expenditure of Rs 85 or less) were found to have access to a latrine and about 70 per cent of those with latrine facilities shared them with others.[22] The 1991 census showed that while 63.9 per cent of the urban population have access to a toilet facility, only 38.3 per cent of scheduled caste households have such a facility. When the provision of safe drinking water, electricity and toilet are combined, the urban coverage is 50.5 per cent, while for scheduled castes the figure drops to 32.3 per cent.[23] The reality on the ground is in fact often worse than these statistics suggest. Even when people have access to sanitary latrines, this may mean that dozens of families are sharing one latrine. Being predominantly public latrines, they suffer from poor maintenance and frequently do not have a constant source of water to keep them clean. A 1990 survey in Delhi showed that the 480,000 families in 1,100 slum settlements had access to only 160 toilet seats and 110 mobile toilet vans. The lack of toilet facilities in slum areas has forced slum dwellers to use any open space (such as public parks) and this has created tensions between them and middle-class residents over defecation rights.[24]

21. Kundu, A. (1993), *In The Name of the Urban Poor: Access to Basic Amenities*, Sage Publications, New Delhi, page 76.

22. See reference 21, page 248.

23. New Delhi: Ministry of Home Affairs (1993), *Census of India, Housing and Amenities: A Brief Analysis of the Housing Tables of 1991 Census, Paper 2 of 1993*, page v.

24. Roychowdhury, A. and Rahul Shrivastava (1995), "Squatters' rights", *Down To Earth*, 28 February, pages 5-7.

With the available resources being monopolized by middle and upper-class interests, local governments have a poor record for implementing sanitation and water supply and urban poverty alleviation programmes. An example is the Urban Basic Services programme, which was funded by the government of India,

state governments and UNICEF, and launched in 1985 as a pilot project in selected towns with the aim of upgrading the quality of life of the urban poor. The programme was designed to help women and children by providing water and sanitation services, immunization and other community welfare measures, and was contingent upon community participation. In 1990, the National Commission on Urbanization recognized the potential of the programme and recommended that it be centrally funded (following the withdrawal of UNICEF financial support) and implemented nationwide. Renamed the Urban Basic Services for the Poor (UBSP), it was implemented in over 245 towns by the mid-1990s. Whilst the UBSP delivered material benefits to many slum communities and helped women realize that they could overcome some of the problems affecting them, effective implementation was undermined by poor efforts to integrate it with the services of different development departments, and to involve non-government organizations with certain components. Successful implementation was further undermined by the severe financial constraints imposed on the UBSP when state governments failed to release funds on time and municipalities could not contribute their share. The UBSP was discontinued in 1997 (along with two other urban poverty schemes) and replaced by a new scheme, the Swarna Jayanthi Sahari Rozgar Yojana.[25]

These sanitation programmes, though, have been largely dominated by schemes that have attempted to improve the working conditions for the scavengers and sweepers who still perform the basic sanitary services in urban areas. The first formal scheme to improve their socio-economic circumstances, as well as improve methods of night soil collection, was implemented by the government of Bombay in 1949. This was followed by the Scavengers' Living Conditions Enquiry Committee in 1952 and the report of the Scavenging Conditions Enquiry Committee published in 1961. Such schemes, though, have largely failed as manual scavenging still persists in many parts of India today. The basic reason is that having such a degrading occupation, scavengers have been treated as untouchable, unapproachable and unseeable. Such marginalization by Indian society, which is further reinforced by caste with its powerful ideology of discrimination, has meant that there has been no political interest by the middle-class in actually having such programmes implemented. Living on the margins of Indian society, scavengers have not been able to make demands upon governments for better access to health, education, housing and welfare services, and have been unable to form alliances with other untouchable or scheduled castes. The only avenue of protest available has been that of strike action, which has achieved limited success in improving wages and working conditions.[26]

V. LACK OF "THREAT FROM BELOW"

ORGANIZED LABOUR IN India has failed to become part of the "threat from below" because trade unions have been major beneficiaries of the protectionist economic policies implemented by

25. Srikanth, H. (1996), "State, NGOs and urban community development", *Social Action* Vol.46, No.1, January/March, pages 46-54; also Anon. (1998), "Poor planning in anti-poverty schemes criticised", *The Hindu Online*, 16 July (www.webpage.com.hindu-section national).

26. See reference 20, pages 128-137.

27. See reference 16, pages 97-8.

28. Breman, Jan (1996), *Footloose Labour: Working Conditions in India's Informal Sector*, Cambridge University Press, page 247.

29. Sheth, N.R. (1993), "Our trade unions: an overview", *Economic and Political Weekly* Vol. 28, No. 6, 6 February, page 233.

government. These policies insulated the private sector from competition and the public sector from inefficiencies and debilitating financial losses. In such an economic environment, industries did not have to battle to survive and so were willing to share the benefits with organized labour. This relationship created a narrow focus for workers in the formal sector, such that they became alienated from the great majority of informal sector workers.[27] In fact, established trade unions fear that pressure from the masses below could actually lead to an erosion of their rights and benefits.[28] Being dependent on political patronage, trade unions have instead been content to pursue short-term goals for their members. This has resulted in "fragmentation, disunity, internecine wars, rivalries and a scramble for leadership within unions".[29] Trade unions, therefore, have been largely indifferent to the appalling living and working conditions endured by the informal sector labour.

The second reason that a "threat from below" has not arisen in India is the very nature of employment in the informal sector. After independence, the great expansion in the building trades in urban areas along the west coast attracted an influx of migrant workers from impoverished rural areas. This seemingly inexhaustible reservoir of unskilled workers means that employers have very few problems satisfying their demand for labour. This "...footloose proletariat is made up of an enormous mass of men and women, adults and children, who possess little if any means of production of their own and who lead a circulatory existence in the lowest regions of the labour system."[30] This commodification of labour has become more pronounced since the implementation of the New Economic Policy as textile mills, for instance, have been abandoned for power looms employing eight to 15 workers. Even large industrial units are predominantly made up of casual or temporary employees with a core of permanent white-collar professionals. In such circumstances, tensions are generated as unskilled workers must compete against each other, be highly mobile, and work 12-hour days in degrading conditions. Working under such conditions means that after ten to 15 years of operating a power loom, workers are so exhausted that they are replaced by "fresh blood", new immigrants and seasonal workers from rural and other urban areas. Never having earned enough money to bring their families to the cities, these workers are forced to return to their towns and villages.[31] In contrast, nineteenth century British industrial workers gradually severed their rural links, bringing their families to the cities to become members of growing urban communities which laid the basis for collective action.

This commodification of labour has two consequences which undermine collective action for improved working and living conditions. First, "...the closed-shop nature of most sources of employment...prevents proletarian consciousness from being transformed into class solidarity and its manifestations in class struggle."[32] When combined with constant insecurity and problems of daily survival, there is little possibility for the urban poor being able to cross the boundaries that perpetuate the in-

30. See reference 28, page 243.

31. See reference 28, page 227.

32. See reference 28, page 257.

equalities within Indian society. Secondly, being migrants who will usually return to their home village in the future, they rarely develop a lasting sense of community in cities like Surat. Having no "stake in the city", they do not develop a notion of civic sense, the lack of which applies equally to migrant entrepreneurs and industrialists. In the aftermath of the plague outbreak in Surat, a common complaint was that these migrant industrialists had made no financial contribution to the city's infrastructure and that they were not involved in any voluntary organizations.[33]

VI. MEDICINE, SCIENCE AND TECHNOLOGY

WHILST THE THREAT of epidemics still exists in India, it does not induce a persistent fear amongst the middle-class. This response is partly due to the very advances in medicine and science that contributed to the success of the nineteenth century sanitation movement. Instead of being the tools of reform, medicine and science can be used to insulate the middle-class from threats of epidemic and endemic diseases. The spraying of insecticides is commonly used to stop disease vectors spreading from slums and other congested areas. The use of antibiotics and oral rehydration therapy have greatly reduced the "spectre of cholera". Such a lowering of the distribution of risk, combined with a greater ability to treat their health effects, enables the middle-class to consistently avoid death or illness to the detriment of the poor. The creation of such health inequalities and health inequities[34] further disadvantages the poor and enables the middle-class to continue ignoring their insanitary living and working conditions. The outcome is that the middle-class do not place pressure on governments to implement preventive public health policies. Instead, governments attempt to enact crisis management to deal with disease outbreaks.

In 1988, Delhi had an outbreak of cholera/gastroenteritis which principally struck the city's resettlement colonies and the illegal slum settlements. The first responses were *ad hoc* measures which showed a lack of coordination among the various agencies. After a visit by the Prime Minister, an action plan was drawn up with cholera vaccinations (despite its limited effect after an outbreak has occurred) being the main objective along with garbage removal, drain-cleaning and some street-paving. Such measures contained the epidemic but did little to remove years of accumulated garbage, and the water in the newly paved drains now flowed backwards in some areas, flooding open spaces nearby.[35]

The response of municipal, state and national governments to the plague outbreak in Surat in September-October 1994 was another example of such crisis management. Despite early warnings about the possibility of an outbreak, officials ignored them. When the plague affected many areas, there were not enough municipal staff available to effectively carry out the collection of garbage and the spraying of insecticides. Also, there was only a minimal staff available to distribute medicines. Many residents

33. Fernandez, Clarence (1994), "Surat indifferent to civic sense", *The Times of India* (Bombay), 26 September, page 13; also Quadri, Rafat N. (1994), "Surtis disheartened by disloyal migrants", *The Times of India* (Bombay), 29 September, page 8.

34. Stephens, Carolyn (1996), "Healthy cities or unhealthy islands? The health and social implications of urban inequality", *Environment and Urbanization* Vol.8, No.2, page 13.

35. Priya, Ritu (1989), "Mr. Pitroda goes to Sunder Nagari", Seminar 354, pages 1-4.

responded by fleeing the city. Even information given to the public conflicted - while one public official said it was the plague, another denied it. When the municipal commissioner said eight people had died, the collector said it was 17. At the state level, the chief minister conflicted with the health secretary. When assurances were given that "the situation is under control", these only increased the prevailing crisis of confidence in public authority,[36] which is a legacy of the lack of accountability, corruption and ineffectiveness of local government. This lack of confidence was reinforced by the fact that the municipal corporation did not have an elected council at the time because it had been superseded in 1993.

This dependence on capital intensive Western technology when dealing with epidemics as well as when designing sanitation schemes which are heavily biased in favour of civil engineering solutions has meant that very little attention has been paid to the question of what is the most affordable and appropriate sanitation system for Indian cities and towns. As only 29 per cent of the population have access to sanitation facilities, this means that over 700 million people still rely on dry latrines or defecation in open spaces. To rectify this situation, according to the official Indian report prepared for the second UN Conference on Human Settlements in 1996, adopting a water borne system for the entire country would cost Rs 728 billion, a septic system Rs 416 billion and a twin-pit-out-flush system Rs 250 billion. These figures only represent the capital costs, so maintenance, operational costs and depreciation have to be factored into these estimates.[37] Then the question has to be posed: where does the water come from to supply these sanitation systems? To provide water for an additional 200 million toilets would require the building of at least another dam in the Himalayas.

VII. CONCLUSION

THE ENVIRONMENTAL CONDITIONS in Indian cities are continuing to deteriorate because the middle-class is actively participating in the exclusion of large sections of the population from access to basic urban services. The consequence of such monopolization of state resources and benefits is that whilst an awareness of environmental problems is growing amongst the middle-class, to date they have been more concerned about the inconveniences they suffer on congested roads and the resultant air pollution[38] than about the risk of epidemic and endemic diseases. When the British Queen called Delhi a "dirty city" the municipal corporation reacted with yet another "cleanliness drive", spending millions of rupees of a one-off campaign that only has a net effect for a day or two.[39] This reaction symbolizes government environment policies - crisis intervention rather than institutionalizing a system for maintaining infrastructure and implementing policies.

The other response to environmental problems is that of a committed individual. In the aftermath of the plague outbreak in Surat, a new administrator, S.R. Rao, was appointed in May

36. See reference 15, page 216.

37. Anon. (1996), "Sanitation facilities for all, an uphill task", *The Hindu Online*, 14 August, www.webpage.com.hindu - section national).

38. Anon. (1997), "Me and my city", *Down to Earth*, 31 March, pages 58-9.

39. Khanna, A.D. (1997), "Keeping Delhi clean", *The Pioneer*, 18 October, page 11.

40. A survey by the Indian National Trust for Art and Culture ranked Surat second to Chandigarh as India's "cleanest" city.

41. See reference 15, pages 249-56; also Venkatesan, V. (1997), "Metamorphosis in Surat", *Frontline*, 16 May, page 99.

42. See reference 15, page 260.

43. Anon. (1997), "Surat's citizens don't take their civic superman's transfer lightly", *The Times of India* (Bombay), 2 December, page 7.

44. Thottami, Jyoti (1988), "Not the same Surat", *Himal Online*, March (www.himalmag. com/march98).

1995. Rao transformed Surat from one of the filthiest cities in the country to the second cleanest in 1997 [40] by getting broad based public support for his campaign. This support and people's participation enabled Rao to deflect the pressures exerted by vested political, economic and religious interests against the demolition of unauthorized buildings, road-widening, the imposition of an administrative charge on leaking taps that discharged onto roads, the discharge of effluent on roads and the dumping of rubbish on streets. The Surat municipal council also recognized the need for basic services in slums and built more than forty pay-and-use toilets with the help of two non-government organizations - Sulabh and Paryavaran. The outcome was a 65 per cent reduction in the reported incidence of disease,[41] which directly benefits the poor.

The negative aspect of this reliance on a committed individual is that unless the new approaches, methods and attitudes are institutionalized the whole transformation will be undone. In Surat, it was evident that when Rao was absent from the city for periods longer than eight to ten days, the municipal workers who were directly under his supervision tended to revert to their haphazard approach to work. The other factor has been the failure to increase the participation of Surat citizens in the civic affairs of the city. While people have been actively involved in the clean-up campaigns, the prevailing feeling is that Rao was the motivating force and hence they feel powerless to now bring about further changes.[42] This powerlessness was demonstrated in December 1997 when, despite public protest and citizen anger, Rao was transferred to a new posting.[43] Surat, of course, faces the same problem that confronts the entire nation - how to fund sanitation systems and to make them equitable. Surat municipal council needs Rs 11,000 million (it spent Rs 62 million in 1996-7) to provide sewer and water supply services to its population over the next seven years. The city also needs adequate municipal services and long-term investment in this basic infrastructure [44] to prevent a reoccurrence of epidemics.

It would seem that the only real hope for sanitation reform in India that addresses the inequalities and inequities of the current situation lies with the development of a "threat from below" for the middle-class. As the middle-class is benefiting from the New Economic Policy that was implemented in the early 1990s (excluding those on fixed incomes), they are becoming increasingly enamoured of the consumer lifestyle. But such standards of living are very much predicated on the abundance of cheap labour available to work in their households and to produce the readily affordable goods. Therefore, it would seem that the only way they will be forced to develop an "awareness of the independency and a sense of responsibility for the plight of others" is when the poor become truly included in the political process. The rise of the Bahujan Samaj Party, which is attracting support from scheduled caste voters and other disadvantaged groups, is a step in this direction. Another is the increase in reserved seats for women (to 33 per cent) in municipal elections, as a result of the 74th Amendment to the Constitution.

45. Anon. (1997), "From house-keeping to city-cleaning", *India Today*, 30 April, pages 36-41.

This has resulted in more women becoming mayors, many of them scheduled caste women who have expressed a desire to address water supply and sanitation problems.[45]

The emphasis on community participation by non-government organizations and state agencies when implementing their developments projects is also beginning to provide the urban poor with the skills needed to gain access to services. If they can become effectively organized by participating in such projects, the poor may be able to provide a check on the nexus that has developed between the bureaucracy, technocrats and contractors, and to counter-balance administrative corruption. While such community participation has produced some small success, such as the residents of the unauthorized Delhi colony (Vijay Vihar) who managed to get sewer lines installed at their own initiative,[46] the problem remains whether such schemes can be replicated. It also focuses attention on the debate about collaborations between governments and non-government organizations, and the role of international organizations such as the World Bank and the World Health Organization in the design and implementation of sanitation and public health programmes. But the fundamental problem remains, that until the urban poor are able to satisfy their daily needs for food and shelter, it will be some time before they can really consider the issue of political participation and demand that the state give them equitable access to sanitation and other basic services.

46. Anand, Rita (1995), "Rising above the muck", *Down to Earth*, 31 May, pages 23-4.