Mike Davis lives in San Diego. He is the author of *Buda's Wagon, Prisoners of the American Dream, City of Quartz, Ecology of Fear, Magical Urbanism, Late Victorian Holocausts,* and *Dead Cities*.

Further praise for *Planet of Slums*

"There can be no doubt about the achievement of *Planet of Slums* ... it forces us, angrily, to confront the deplorable realities of slum existence and the limitations of slum policies in many developing countries." *The Times*

"The astonishing facts hit like anvil blows ... Davis has produced a heartbreaking book that hammers the reader a little further into the ground with the blow of each new and shocking statistic." *Financial Times*

"The Raymond Chandler of urban geography ... In *Planet of Slums*, Davis's genre is the global disaster movie, as directed by the chroniclers of Victorian poverty: Engels, Booth and Dickens. The scale of modern squalor revealed in his brilliant survey dwarfs its predecessors ... [a] coruscating tragedy." *Independent*

"Packed with rigorous analysis and heart-stopping facts this is a brilliant exploration of how millions of poor city-dwellers worldwide are being driven to the squalid periurban shadowlands of today's megaslums ... Davis's book is absolutely vital reading." *Big Issue*

"Davis's descriptions of the conditions endured by slum-dwellers provide reason enough to read this book. His analysis is full of gripping stories from globalisation's frontline." *New Statesman*

"While many case studies have described what it means to reside in a *favela*, *basti*, *kampung*, *gecekondu* or *bidonville*, Davis provides a properly global portrait ... And whereas urban specialists have focused on questions of space and land use in their discussions of slums, and developmentalists on the issue of their 'informal' economies, *Planet of Slums* commands our attention as a broader historical synthesis of the two." *New Left Review*

Planet of Slums

MIKE DAVIS

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for my darlin' Roisin

quest of deracinated Third World elites for a "real imitation life," modeled on television images of a mythified Southern California, that "to succeed must be bounded – [i.e.], isolated from the ordinary landscape."[86]

Fortified, fantasy-themed enclaves and edge cities, disembedded from their own social landscapes but integrated into globalization's cyber-California floating in the digital ether – this brings us full circle to Philip K. Dick. In this "gilded captivity," Jeremy Seabrook adds, the Third World urban bourgeoisie "cease to be citizens of their own country and become nomads belonging to, and owing allegiance to, a superterrestrial topography of money; they become patriots of wealth, nationalists of an elusive and golden nowhere."[87]

Back in the local world, meanwhile, the urban poor are desperately mired in the ecology of the slum.

86 Ruggeri, "Palm Springs."
87 Seabrook, *In the Cities of the South*, p. 211.

6

Slum Ecology

> Those who went to the metropolis have fallen into a desert.
>
> *Pepe Kalle*

A *villa miseria* outside Buenos Aires may have the world's worst *feng shui*: it is built "over a former lake, a toxic dump, and a cemetery and in a flood zone."[1] But then a hazardous, health-threatening location is the geographical definition of the typical squatters' settlement: whether it is a *barrio* perched precariously on stilts over the excrement-clogged Pasig River in Manila, or the *bustee* in Vijayawada where "residents have door numbers written on pieces of furniture because the houses, along with the doors, [are] washed away by floods every year."[2] Squatters trade physical safety and public health for a few square meters of land and some security against eviction. They are the pioneer settlers of swamps, floodplains, volcano slopes, unstable hillsides, rubbish mountains, chemical dumps, railroad sidings, and desert fringes. Visiting Dhaka, Jeremy Seabrook describes a small slum – "a refuge for people displaced by erosion, cyclones, floods, famine, or that more recent generator of insecurity, development" – that has found a Faustian bargain in a precarious ledge of land between a toxic factory and a poisoned lake. Precisely because the site is so hazardous and unattractive, it offers "protection from rising land values in the city."[3] Such sites are poverty's

1 Stillwaggon, *Stunted Lives, Stagnant Economies*, p. 67.
2 Verma, *Slumming India*, p. 69.
3 Seabrook, *In the Cities of the South*, p. 177.

niche in the ecology of the city, and very poor people have little choice but to live with disaster.

Unnatural Hazards

Slums begin with bad geology. Johannesburg's shantytown periphery, for example, conforms unerringly to a belt of dangerous, unstable dolomitic soil contaminated by generations of mining. At least half of the region's non-white population lives in informal settlements in areas of toxic waste and chronic ground collapse.[4] Likewise, the highly weathered lateritic soils underlying hillside *favelas* in Belo Horizonte and other Brazilian cities are catastrophically prone to slope failure and landslides.[5] Geomorphological surveys in 1990 revealed that one quarter of São Paulo's *favelas* were located on dangerously eroded sites, and all the rest, on steep hillsides or erodable river banks. Sixteen percent of squatters were under imminent to medium-term "life risk and/or loss of their property."[6] Rio de Janeiro's more famous *favelas* are built on equally unstable soils atop denuded granite domes and hillsides which frequently give way with truly deadly results: 2000 killed in debris flows in 1966–67, 200 in 1988, and 70 at Christmas 2001.[7] The worst natural disaster in the postwar United States, meanwhile, was the avalanche following heavy rains that killed some 500 people in the shantytown of Mamayes, built on a precarious hillside above Ponce, Puerto Rico.

Caracas (2005 population, 5.2 million), however, is the soil geologist's "perfect storm": slums housing almost two thirds of the urban population are built on unstable hillsides and in deep gorges surrounding the seismically active Caracas Valley. Originally, vegetation held the friable, highly-weathered schist in place, but brush clearance and cut-and-fill construction have destabilized the densely inhabited hillsides, and the

4 Malcolm Lupton and Tony Wolfson, "Low-Income Housing, the Environment and Mining on the Witwatersrand," in Main and Williams, *Environment and Housing in Third World Cities*, pp. 115, 120.

5 Claudia Viana and Terezinha Galvão, "Erosion Hazards Index for Lateritic Soils," *Natural Hazards Review* 4:2 (May 2003), pp. 82–89.

6 Taschner, "Squatter Settlements and Slums in Brazil," p. 218.

7 Richard Pike, David Howell, and Russell Graymer, "Landslides and Cities: An Unwanted Partnership," in Grant Heiken, Robert Fakundiny, and John Sutter (eds), *Earth Science in the City: A Reader*, Washington, D.C. 2003, p. 199.

result has been a radical increase in major landslides and slope failures, from less than one per decade before 1950 to the current average of two or more per month.[8] Increasing soil instability, however, has failed to prevent squatters from colonizing precarious perches on the hillsides, on the slopes of alluvial fans, or in the mouths of regularly flooded canyons.

In mid-December 1999, northern Venezuela, especially the El Avila massif, was clobbered by an extraordinary storm. A year's average rain fell in a few days upon already saturated soil; indeed, rainfall in some areas was reckoned to be "a once in a 1000 year" event.[9] Flash floods and debris flows in Caracas – and especially along the Caribbean coast on the other side of the Avila mountains – killed an estimated 32,000 people and left 140,000 homeless and another 200,000 jobless. The coastal resort of Caraballeda was devastated by the onrush of 1.8 million tons of debris, including boulders as big as houses.[10] A Catholic prelate implied that it was divine retribution for the recent election of the leftist government of Hugo Chávez, but foreign minister Jose Vincente Rangel responded: "It would be a harsh God who took out his vengeance on the poorest section of the community."[11]

What the Caracas region is to landslides, metropolitan Manila is to frequent flooding. Situated in a semi-alluvial plain bordered by three rivers and subject to torrential rains and typhoons, Manila is a natural flood basin. After 1898 American colonial authorities dug canals, dredged tidal channels (*esteros*), and built pumping stations to drain storm waters and protect the central parts of the city. Improvements in the system over recent years, however, have been counteracted by vast volumes of waste dumped into drains and *esteros* (the bottom of the Pasig River is supposedly a 12-foot-deep deposit of refuse);[12] subsidence due to overextraction of ground water; the deforestation of the Marikina and Montalban watersheds; and, most of all, by the ceaseless

8 Virginia Jimenez-Diaz, "The Incidence and Causes of Slope Failure in the Barrios of Carracas," in Main and Williams, *Environment and Housing in Third World Cities*, pp. 127–29.

9 Gerald F. Wieczorek et al., "Debris-Flow and Flooding Hazards Associated with the December 1999 Storm in Coastal Venezuela and Strategies for Mitigation," US Geological Survey, Open File Report 01-0144, Washington, D.C. 2000, p. 2.

10 Pike, Howell, and Graymer, "Landslides and Cities," p. 200.

11 Quoted in Richard Gott, *In the Shadow of the Liberator: Hugo Chávez and the Transformation of Venezuela*, London 2001, p. 3.

12 Berner, *Defending a Place*, p. xiv.

encroachment of shanty housing into wetlands. The housing crisis, in other words, has transformed both the character and magnitude of the flood problem, with the poorest fifth of the population exposed to regular danger and property loss. In November 1998, for example, flooding damaged or destroyed the homes of more than 300,000 people, and on another occasion, the squatter colony of Tatlon was drowned under more than 6 meters of water. In July 2000, moreover, a typhoon deluge caused the collapse of a notorious "garbage mountain" in Quezon City's Payatas slum, burying 500 shacks and killing at least 1000 people. (Payatas has been the subject of several remarkable documentaries by Japanese filmmaker Hiroshi Shinomiya.)[13]

The Caracas and Manila examples illustrate how poverty magnifies local geological and climatic hazards. Urban environmental vulnerability, or *risk*, is sometimes calculated as the product of *hazard* (frequency and magnitude of natural event) times *assets* (population and shelter exposed to hazard) times *fragility* (physical characteristics of built environment): risk = hazard × assets × fragility. Informal urbanization has everywhere multiplied – sometimes by a decimal order of magnitude or more – the inherent natural hazards of urban environments. A textbook example was the August 1988 rainstorms and Nile flood that displaced 800,000 poor residents of Khartoum: scientists point out that while the flood highwater mark was lower than the 1946 peak, it did *ten times* as much damage, largely due to the increased sprawl of slums without drainage in the floodplain.[14]

Wealthy cities in hazardous sites such as Los Angeles or Tokyo can reduce geological or meteorological risk through massive public works and "hard engineering": stabilizing landslides with geotextile nets, gunnite, and rock bolts; terracing and regrading oversteep hillsides; drilling deep drainage wells and pumping water out of saturated soils; intercepting debris flows with small dams and basins; and channeling storm runoff into vast systems of concrete channels and sewers. National flood insurance programs, together with cross-subsidization

13 Bankoff, "Constructing Vulnerability," pp. 224–36; *Asian Economic News*, 31 December 2001 (about the film on the Payatas disaster).

14 Hamish Main and Stephen Williams, "Marginal Urban Environments as Havens for Low-Income Housing," in Main and Williams, *Environment and Housing in Third World Cities*, p. 159.

of fire and earthquake insurance, guarantee residential repair and rebuilding in the event of extensive damage. In the Third World, by contrast, slums that lack potable water and latrines are unlikely to be defended by expensive public works or covered by disaster insurance. Researchers emphasize that foreign debt and subsequent "structural adjusment" drive sinister "trade-offs between production, competition and efficiency, and adverse environmental consequences in terms of potentially disaster-vulnerable settlements."[15] "Fragility" is simply a synonym for systematic government neglect of environmental safety, often in the face of foreign financial pressures.

Yet state intervention itself can be a risk multiplier. In November 2001 the poor districts of Bab el-Oued, Frais Vallon, and Beaux Fraisier in Algiers were struck by devastating floods and mudslides. For 36 hours torrential rain washed fragile shacks from hillsides and flooded low-lying tenement neighborhoods, and at least 900 people were killed. In the face of laggardly official response, rescue efforts were mounted instead by local people, particularly the youth. Three days afterwards, when President Abdelaziz Bouteflika finally made an appearance, angry residents shouted anti-government slogans. Bouteflika told the victims that "the disaster was simply the will of God. Nothing, he said, could be done about that."[16]

Locals knew that this was nonsense. As civil engineers immediately pointed out, the hillside dwellings were a disaster waiting to happen: "These were weak structures vulnerable to heavy rain. Across the country, these kinds of housing constructions have suffered much damage from rain because of degradation, inadequate repair, aging and neglect."[17] Even more to the point, much of the destruction was a direct consequence of the government's war against Islamist guerrillas – to deny insurgents hiding places and escape routes, the authorities had deforested the hills above Bab el-Oued and sealed the sewers. "The blocked drains," writes social scientist Azzedine Layachi, "left rain waters with nowhere to go. Corrupt authorities also gave permits for

15 Mohamed Hamza and Roger Zetter, "Structural Adjustment, Urban Systems, and Disaster Vulnerability in Developing Countries," *Cities* 15:4 (1998), p. 291.

16 Azzedine Layachi, "Algeria: Flooding and Muddled State–Society Relations," *The Middle East Research and Information Project (MERIP) Online*, 11 December 2001.

17 "Flood and Mudslides in Algeria," *Geotimes* (January 2002).

shoddy housing and other construction in the riverbed, enriching individual contractors at the expense of public safety."[18]

Even more than landslides and floods, earthquakes make precise audits of the urban housing crisis. Although some long-wavelength quakes, like the 1985 Mexico City disaster, single out tall buildings, seismic destruction usually maps with uncanny accuracy to poor-quality brick, mud, or concrete residential housing, especially when associated with slope failure and soil liquefaction. Seismic hazard is the fine print in the devil's bargain of informal housing. "Relaxed attitudes to planning regulations and standards," emphasizes Geoffrey Payne, "has enabled the urban poor in Turkey to obtain relatively easy access to land and services for many decades, yet a similar attitude to the enforcement of building regulations led to a heavy death toll and massive destruction when earthquakes struck in 1999."[19]

Earthquakes, hazard geographer Kenneth Hewitt claims, destroyed more than 100 million homes during the twentieth century, mostly in slums, tenement districts, or poor rural villages. Seismic risk is so unevenly distributed in most cities, Hewitt explains, that the term "classquake" was coined to characterize the biased pattern of destruction.

> The problem was, perhaps, most starkly evident in the February 1978 Guatemala catastrophe in which almost 1.2 million people lost their homes. In Guatemala City, nearly all of some 59,000 destroyed homes were in urban slums built in ravines, above and below steep, unstable bluffs, or on poorly consolidated young fluvio-volcanic sediments. Losses to the rest of the city, and among more expensive homes, were negligible, since they occupied much more stable sites.[20]

With the majority of the world's urban population now concentrated on or near active tectonic plate margins, especially along Indian and Pacific Ocean littorals, several billion people are at risk from earthquakes, volcanoes, and tsunamis, as well as from storm surges and typhoons. If the December 2004 Sumatra mega-earthquake and tsunami were relatively rare events, others are virtually inevitable within the next century. Istanbul *gecekondus*, for example, are the ultimate bull's-eye for the earthquakes creeping inexorably westward along the "opening zipper" of the North Anatolia transform fault system. Likewise, Lima authorities predict that at least 100,000 structures – mostly in the *turgurios* and *barriadas* – will collapse during the major earthquake expected sometime in the next generation.[21]

18 Layachi, "Algeria."
19 Geoffrey Payne, "Lowering the Ladder: Regulatory Frameworks for Sustainable Development," in Westendorff and Eade, *Development and Cities*, p. 259.
20 Kenneth Hewitt, *Regions of Risk: A Geographical Introduction to Disasters*, Harlow 1997, pp. 217–18.

But the urban poor do not lose much sleep at night worrying about earthquakes or even floods. Their chief anxiety is a more frequent and omnipresent threat: fire. Slums, not Mediterranean brush or Australian eucalypti as claimed in some textbooks, are the world's premier fire ecology. Their mixture of inflammable dwellings, extraordinary density, and dependence upon open fires for heat and cooking is a superlative recipe for spontaneous combustion. A simple accident with cooking gas or kerosene can quickly become a mega-fire that destroys hundreds or even thousands of dwellings. Fire spreads through shanties at extraordinary velocity, and fire-fighting vehicles, if they respond, are often unable to negotiate narrow slum lanes.

Slum fires, however, are often anything but accidents: rather than bear the expense of court procedures or endure the wait for an official demolition order, landlords and developers frequently prefer the simplicity of arson. Manila has an especially notorious reputation for suspicious slum fires. "Between February and April 1993," explains Jeremy Seabrook, "there were eight major burnings in the slums, including arson attacks on Smoky Mountain, Aroma Beach and Navotas. The most threatened area is close to the docks where the container terminal is to be extended."[22] Erhard Berner adds that a favorite method for what Filipino landlords prefer to call "hot demolition" is to chase a "kerosene-drenched burning live rat or cat – dogs die too fast – into an annoying settlement ... a fire started this way is hard to fight as the unlucky animal can set plenty of shanties aflame before it dies."[23]

21 Leonard, "Lima", p. 439.
22 Seabrook, *In the Cities of the South*, p. 271.
23 Berner, *Defending a Place*, p. 144.

Figure 11
Combustible Poverty

	City	Homes destroyed	Population homeless
2004			
January	Manila (Tondo)	2500	22,000
February	Nairobi		30,000
March	Lagos		5000
April	Bangkok	5000	30,000
November	Dhaka	150	
2005			
January	Khulna City		7000
	Nairobi	414	1500
February	Delhi		3000
	Hyderabad	4000	30,000

In India's Cinderella city of Bangalore, where land values are soaring and the poor are frequently in the wrong place, arson is also employed as *ad hoc* urban renewal. "Partly these fires, " Hans Schenk writes, "are said to be organized by slum leaders who can cash (part of) the government compensation money; partly by some political party-affiliated gangs to clear 'unwelcome' categories of the urban poor; partly by private landowners who want their land cleared in an easy way from (illegal) squatters and have it 'developed.'"[24]

Pathologies of Urban Form

If natural hazards are magnified by urban poverty, new and entirely artificial hazards are created by poverty's interactions with toxic industries, anarchic traffic, and collapsing infrastructures. The chaotic form of so many Third World cities – "urban mandelbrots," according to urban theorist Matthew Gandy – annuls much of the environmental

24 Hans Schenk, "Living in Bangalore's Slums," in Schenk (ed.), *Living in India's Slums: A Case Study of Bangalore*, Delhi 2001, p. 34.

efficiency of city life and breeds the small disasters that constantly terrorize metropolises like Mexico City, Cairo, Dhaka, and Lagos. ("Lagos," explains Gandy, "does not really exist as a city in a conventional sense: its boundaries are unclear; many of its constituent elements appear to function independently of one another....")[25] All the classical principles of urban planning, including the preservation of open space and the separation of noxious land uses from residences, are stood on their heads in poor cities. A kind of infernal zoning ordinance seems to surround dangerous industrial activities and transport infrastructures with dense thickets of shanty housing. Almost every large Third World city (or at least those with some industrial base) has a Dantesque district of slums shrouded in pollution and located next to pipelines, chemical plants, and refineries: Mexico's Iztapalapa, São Paulo's Cubatão, Rio's Belford Roxo, Jakarta's Cibubur, Tunis's southern fringe, southwestern Alexandria, and so on.

In his book about the poor cities of the South, Jeremy Seabrook chronicles the relentless calendar of disaster in Klong Toey, Bangkok's port slum sandwiched between docks, chemical factories, and expressways. In 1989 a chemical explosion poisoned hundreds of residents; two years later a chemical warehouse exploded and left 5500 residents homeless, many of whom would later die from mysterious illnesses. Fire destroyed 63 homes in 1992, 460 homes in 1993 (also the year of another chemical explosion), and several hundred more in 1994.[26] Thousands of other slums, including some in rich countries, have similar histories to Klong Toey. They suffer from what Gita Verma calls the "garbage dump syndrome": a concentration of toxic industrial activities such as metal plating, dyeing, rendering, tanning, battery recycling, casting, vehicle repair, chemical manufacture, and so on, which middle classes would never tolerate in their own districts.[27] Very little research has been conducted on environmental health in such settings, especially the risks that arise from synergies of multiple toxins and pollutants in the same location.

25 Matthew Gandy, "Amorphous Urbanism: Chaos and Complexity in Metropolitan Lagos," manuscript, November 2004 (published in *New Left Review* 33 [May/June 2005]), pp. 1–2.
26 Seabrook, *In the Cities of the South*, p. 192.
27 Verma, *Slumming India*, p. 16.

The world usually pays attention to such fatal admixtures of poverty and toxic industry only when they explode with mass casualties – 1984 was the *annus horribilis*. In February a gasoline pipeline blew up in Cubatão, São Paulo's "Pollution Valley," and burned more than 500 people to death in an adjacent *favela*. Eight months later, a Pemex liquefied natural gas plant exploded like an atomic bomb in Mexico City's San Juanico district, killing as many as 2000 poor residents (no accurate count of mortality was ever established).

> Hundreds never woke up. They were killed even before they realized what had happened. Enormous flames leapt from the nearby gas storage plant and shot a mile into the air. Bodies simply disappeared in the fireball, snatched from the earth without a trace. People ran through the street, some with their clothes and hair on fire, all screaming in fear. The sun had not yet come up, but the light from the flames lit up the scene as if it were noon.[28]

Less than three weeks later, the Union Carbide plant in Bhopal, the capital of Madhya Pradesh, released its infamous cloud of deadly methyl isocyanate; according to a 2004 study by Amnesty International, 7000 to 10,000 people perished immediately and another 15,000 died in subsequent years from related illnesses and cancers. The victims were the poorest of the poor, mainly Muslims. The pesticide packaging plant – "a relatively simple and safe activity" – had been constructed on a site already long occupied by squatters. As the plant expanded and changed over to the more dangerous production of pesticides, *bustees* burgeoned around its periphery. Up to the moment when they found their children dying in the streets, poor squatters had no idea of what was produced in the plant or the apocalyptic hazard posed by massive quantities of methyl isocyanate.[29]

Slum-dwellers, on the other hand, are acutely aware of the dangers posed by the wild traffic that gridlocks the streets of most Third World

28 Joel Simon, *Endangered Mexico: An Environment on the Edge*, San Francisco 1997, p. 157.

29 Amnesty International, *Clouds of Injustice: The Bhopal Disaster 20 Years On*, London 2004, pp. 12, 19; Gordon Walker, "Industrial Hazards, Vulnerability and Planning," in Main and Williams, *Environment and Housing in Third World Cities*, pp. 50–53.

cities. Sprawling urban growth without counterpart social investment in mass transit or grade-separated highways has made traffic a public-health catastrophe. In spite of nightmarish congestion, motor vehicle use in developing cities is soaring (see Figure 12). In 1980 the Third World accounted for only 18 percent of global vehicle ownership; by 2020, about half of the world's projected 1.3 billion cars, trucks, and buses – along with several hundred million motorbikes and scooters – will clog the streets and alleys of poorer countries.[30]

The automobile population explosion is driven by powerful forces of inequality. As Daniel Sperling and Eileen Clausen explain, transportation policy in most cities is a vicious circle in which the declining quality of public transport reinforces private auto use and vice versa:

> Public transport is heavily subsidized in almost all cities because of its large positive externalities (reduced need for roadways and reduced congestion) but also to ensure access by poor people. Nevertheless, many

Figure 12
Motorization of the Third World[31]

		(Millions)	
Cairo	1978	0.5	
	1991	2.6	
	2006	7.0	
Bangkok	1984	0.54	(private cars)
	1992	10.5	
Indonesia	1995	12.0	(motorized vehicles of all kinds)
	2001	21.0	

30 M. Pemberton, *Managing the Future -- World Vehicle Forecasts and Strategies to 2020, Vol. 1: Changing Patterns of Demand*, 2000; and Daniel Sperling and Eileen Clausen, "The Developing World's Motorization Challenge," *Issues in Science and Technology Online* (Fall 2002), p. 2.

31 M. El Arabi, "Urban Growth and Environment Degradation: The Case of Cairo", *Cities* 19:6 (2002), p. 294; Expressway and Rapid Transit Authority of Bangkok, *Statistical Report*, 1992, Bangkok 1993; US Department of Energy, Energy Information Administration, "Indonesia: Environmental Issues," fact sheet (February 2004).

> poor people still cannot afford transit services. Thus cities face pressure to keep fares very low. But in doing so, they sacrifice bus quality and comfort. Middle-class riders react by buying cars as soon as they can. With low cost scooters and motorcycles, the flight of the middle class is hastened, transit revenues diminish, and operators reduce quality further as they serve a poorer clientele. Although the quality of service suffers first, a decrease in quantity of service often follows.[32]

International development agencies encourage destructive transport policies by their preference for financing roads rather than rails, as well as by encouraging the privatization of local transportation. In China – formerly the home of the egalitarian bicycle – planners now give irrational priority to automobiles. Beijing has destroyed vast swaths of traditional courtyard housing for the poor as well as its picturesque *hutong* (back alley) network in order to make room for boulevards and motorways. Simultaneously, bicycle commuters have been penalized by new license fees, restrictions on using arterial roads, and the end of the bicycle subsidies formerly paid by work units.[33]

The result of this collision between urban poverty and traffic congestion is sheer carnage. More than one million people – two-thirds of them pedestrians, cyclists, and passengers – are killed in road accidents in the Third World each year. "People who will never own a car in their life," reports a World Health Organization researcher, "are at the greatest risk."[34] Minibuses and jitneys, often unlicensed and poorly maintained, are particularly dangerous: in Lagos, for example, the buses are known locally as *danfos* and *molues*, "flying coffins" and "moving morgues."[35] Nor does the snail's pace of traffic in most poor cities reduce its lethality. Although cars and buses crawl through Cairo at average speeds of less than 10 kilometers per hour, the Egyptian capital still manages an accident rate of 8 deaths and 60 injuries per 1000

32 Sperling and Clausen, "The Developing World's Motorization Challenge," p. 3.

33 Example of Beijing in Sit, *Beijing*, pp. 288–89.

34 Study by WHO-funded Road Traffic Injuries Research Network, quoted in *Detroit Free Press*, 24 September 2002.

35 Vinand Nantulya and Michael Reich, "The Neglected Epidemic: Road Traffic Injuries in Developing Countries," *British Journal of Medicine* 324 (11 May 2002), pp. 1139–41.

automobiles per year.[36] In Lagos, where the average resident spends an incredible three hours each day marooned in angry gridlock, private commuters and minibus drivers literally go berserk – indeed, so many drivers jump curbs or drive on the wrong side of the road that the Traffic Ministry has recently imposed mandatory psychiatric tests on offenders.[37] In Delhi, meanwhile, the *Hindustan Times* recently complained that middle-class commuters seldom bother to stop after running over homeless ragpickers or poor children.[38]

The overall economic cost of road deaths and injuries, according to the World Health Organization (WHO), is estimated as "almost twice the total development assistance received worldwide by developing countries." The WHO, indeed, considers traffic to be one of the worst health hazards facing the urban poor, and predicts that road accidents by 2020 will be the third leading cause of death.[39] China, where cars are wresting control of urban streets from bicycles and pedestrians, will unfortunately lead the way: almost one-quarter-million Chinese were killed or seriously injured in traffic accidents in the first five months of 2003 alone.[40]

Rampant motorization, of course, is also exacerbating the nightmare of air pollution in Third World cities. Myriad old cars, beat-up buses, and superannuated trucks asphyxiate urban areas with their deadly exhaust, while the dirty two-stroke engines that power small vehicles emit ten times as much fine particulate matter as modern cars. According to a recent study, foul air is most deadly in the sprawling megacities of Mexico (300 bad ozone smog days per year), São Paulo, Delhi, and Beijing.[41] Breathing Mumbai's air, meanwhile, is the

36 El Arabi, "Urban Growth and Environmental Degradation," pp. 392–94; and Oberai, *Population Growth, Employment and Poverty in Third World Mega-Cities*, p. 16 (accident rate).

37 Glenn McKenzie, "Psychiatric Tests Required for Traffic Offenders," *RedNova*, 20 June 2003; and Peil, "Urban Housing and Services in Anglophone West Africa," p. 178.

38 *Hindustan Times*, 1 February 2004.

39 WHO, "Road Safety Is No Accident!" (November 2003); and Road Traffic Injuries Research Network cited in *Detroit Free Press*, 24 September 2002.

40 *People's Daily* (English), 24 June 2003.

41 Asim Khan, "Urban Air Pollution in Megacities of the World," *Green Times* (Spring 1997); published by Penn Environmental Group). See also: "Commentary: Urban Air Pollution," in *Current Science* 77:3 (10 August 1999), p. 334; "World Bank Group Meets to Clean Up Asia's Deadly Air," Associated Press, 22 July 2003.

equivalent of smoking two-and-one-half packs of cigarettes per day, and the Centre for Science and the Environment in Delhi recently warned that Indian cities were becoming "lethal gas chambers."[42]

Encroaching on Environmental Reserves

Cities in the abstract are the solution to the global environmental crisis: urban density can translate into great efficiencies in land, energy, and resource use, while democratic public spaces and cultural institutions likewise provide qualitatively higher standards of enjoyment than individualized consumption and commodified leisure. However, as urban theorists, beginning with Patrick Geddes (the true father of bioregionalism), have long recognized, both environmental efficiency and public affluence require the preservation of a green matrix of intact ecosystems, open spaces, and natural services: cities need an alliance with Nature in order to recycle their waste products into usable inputs for farming, gardening, and energy production. Sustainable urbanism presupposes the preservation of surrounding wetlands and agriculture. Unfortunately, Third World cities – with few exceptions – are systematically polluting, urbanizing, and destroying their crucial environmental support systems.

Urban open space, for example, is typically buried under uncollected waste, creating small utopias for rats and insect vectors like mosquitoes. The chronic shortfalls between the rates of trash generation and disposal are often staggering: the average collection rate in Dar-es-Salaam is barely 25 percent; in Karachi, 40 percent; and in Jakarta, 60 percent.[43] Likewise, the city planning director in Kabul complains that "Kabul is turning into one big reservoir of solid waste ... every 24 hours, 2 million people produce 800 cubic meters of solid waste. If all 40 of our trucks make three trips a day, they can still transport only 200 to 300 cubic meters out of the city."[44] The content of the waste is

42 Suketu Mehta, *Maximum City: Bombay Lost and Found*, New York 2004, p. 29; Karina Constantino-David, "Unsustainable Development: The Philippine Experience," in Westendorff and Eade, *Development and Cities*, p. 163.

43 Vincent Ifeanyi Ogu, "Private Sector Participation and Municipal Waste Management in Benin City," *Environment and Urbanization* 12:2 (October 2000), pp. 103, 105.

44 *Washington Post*, 26 August 2002.

sometimes grisly: in Accra, the *Daily Graphic* recently described "sprawling refuse dumps, full of black plastic bags containing aborted fetal bodies from the wombs of *Kayayee* [female porters] and teenage girls in Accra. According to the Metropolitan Chief Executive, '75 percent of the waste of black polythene bags in the metropolis contains human aborted fetuses.'"[45]

Peripheral greenbelts, meanwhile, are being converted into ecological wastelands. Food security is imperiled throughout Asia and Africa by the needless destruction of farmland by unnecessary urban overspill. In India more than 50,000 hectares of valuable croplands are lost every year to urbanization.[46] At the height of the "peasant flood" in China between 1987 and 1992, nearly 1 million hectares were converted annually from agricultural to urban uses.[47] In Egypt, the most densely settled agricultural nation on earth, sprawl has clearly reached a crisis point: around Cairo, urban development consumes up to 30,000 hectares per year, "a land mass," Florian Steinberg points out, "roughly equivalent to the land gains for agricultural purposes from the massive irrigation projects which were initiated with the inception of the Aswan High Dam."[48]

Peri-urban agriculture that survives development, moreover, is contaminated by the toxics found in human and animal manure. Asian cities, as seen from the air, have been traditionally surrounded by a bright green corona of high-productivity market gardening, extending to the radius of the economic cartage of nightsoil. But modern industrial sewage has become toxic with heavy metals and dangerous pathogens. Outside Hanoi, where farmers and fishermen are constantly uprooted by urban development, urban and industrial effluents are

45 *Daily Graphic* (Accra), 12 August 2000, quoted in H. Wellington, "Kelewle, Kpokpoi, Kpanlogo," in Ralph Mills-Tettey and Korantema Adi-Dako (eds), *Visions of the City: Accra in the Twenty-First Century*, Accra 2002, p. 46.

46 Shahab Fazal, "Urban Expansion and Loss of Agricultural Land – a GIS-Based Study of Saharanpur City, India," *Environmental and Urbanization* 12:2 (October 2000), p. 124.

47 See "Loss of Agricultural Land to Urbanization" at www.infoforhealth.org/pr/m13/m13chap3_3.shtml#top; and "Farmland Fenced off as Industry Makes Inroads," *China Daily*, 18 August 2003.

48 Florian Steinberg, "Cairo: Informal Land Development and the Challenge for the Future," in Baken and van der Linden, *Land Delivery for Low Income Groups in Third World Cities*, p. 131.

now routinely employed as free substitutes for artificial fertilizers. When researchers questioned this noxious practice, they discovered "cynicism among vegetable and fish producers" about the "rich people in cities." "They don't care about us and fool us around with useless compensation [for farm land], so why not take some form of revenge?"[49] Similarly, in Colombo, where slums sprawl into fields, "a unique form of cultivation known as *keera kotu* has emerged, whereby urban waste, including that which is hygienically unsuitable, is used to grow vegetables as fast as possible and wherever possible."[50]

As the housing crisis worsens in most cities, slums are also directly invading vital ecological sanctuaries and protected watersheds. In Mumbai, slum-dwellers have penetrated so far into the Sanjay Gandhi National Park that some are now being routinely eaten by leopards (ten in June 2004 alone): one angry cat even attacked a city bus. In Istanbul *gecekondus* encroach on the crucial watershed of the Omerli forest; in Quito, shantytowns surround the Antisana reservoir; and in São Paulo, *favelas* threaten to further contaminate the water in the Guarapiranga reservoir – already notorious for its unpleasant taste – which accounts for 21 percent of the city's supply. São Paulo, indeed, is waging an uphill struggle, as it is forced to to use 170,000 tons (or 17,000 truckloads!) of water-treatment chemicals per year to keep the water supply potable. Experts warn that such expedients are an unsustainable solution.

> Half of São Paulo's *favelas* are located on the banks of the reservoirs that supply water to the city. This puts public health at risk, since the squatters throw their wastes directly into the reservoir or into the brooks that supply water to it. Systems for quality control of the municipal water network have had numerous problems in the last few years. In addition to increasing water chlorination to prevent enteric diseases, they can hardly control algae proliferation since it grows enormously with the accumulation of organic material.[51]

49 Van den Berg, van Wijk, and Van Hoi, "The Transformation of Agriculture and Rural Life Downsteam of Hanoi," p. 52.

50 Dayaratne and Samarawickrama, "Empowering Communities," p. 102.

51 Taschner, "Squatter Settlements and Slums in Brazil," p. 193; Luis Galvão, "A Water Pollution Crisis in the Americas," *Habitat Debate* (September 2003), p. 10.

Sewage everywhere poisons sources of drinking water. In Kampala, slum runoff contaminates Lake Victoria, while in Monrovia – swollen to 1.3 million residents after years of civil war, but with an infrastructure designed for less than one quarter million – excrement fouls the entire landscape: beaches, streets, yards, and streams.[52] In poorer parts of Nairobi, piped water is no longer potable because of fecal contamination at source.[53] Meanwhile, Mexico City's essential ecological buffer zone, the Ajusco recharge area, is now dangerously polluted by sewage from surrounding *colonias*.[54] Indeed, experts estimate that fully 90 percent of Latin America's sewage is dumped untreated in streams and rivers.[55] From a sanitary viewpoint, poor cities on every continent are little more than clogged, overflowing sewers.

Living in Shit

Excremental surplus, indeed, is the primordial urban contradiction. In the 1830s and early 1840s, with cholera and typhoid rampant in London and the industrial cities of Europe, the anxious British middle class was forced to confront a topic not usually discussed in the parlor. Bourgeois "consciousness," Victorian scholar Steven Marcus explains, "was abruptly disturbed by the realization that millions of English men, women and children were virtually living in shit. The immediate question seems to have been whether they weren't drowning in it."[56] With epidemics believed to originate from the stinking fecal "miasmas" of the slum districts, there was sudden elite interest in conditions like those catalogued by Friedrich Engels in Manchester, where in some streets "over two hundred people shared a single privy," and the once-rustic River Irk was "a coal-black stinking river full of filth and garbage." Marcus, in a Freudian gloss on Engels, ponders the irony that "generations of human beings, out of whose lives the wealth of

52 *The News* (Monrovia), 23 January 2004.

53 Peter Mutevu, "Project Proposal on Health and Hygiene Education to Promote Safe Handling of Drinking Water and Appropriate Use of Sanitation Facilities in Informal Settlements," brief, Nairobi (April 2001).

54 Imparato and Ruster, *Slum Upgrading and Participation*, p. 61; Pezzoli, *Human Settlements*, p. 20.

55 Stillwaggon, *Stunted Lives, Stagnant Economies*, p. 97.

56 Stephen Marcus, *Engels, Manchester and the Working Class*, New York 1974, p. 184.

England was produced, were compelled to live in wealth's symbolic, negative counterpart."[57]

Eight generations after Engels, shit still sickeningly mantles the lives of the urban poor as (to quote Marcus again), "a virtual objectification of their social condition, their place in society."[58] Indeed, one can set Engels's *The Condition of the Working-Class in England in 1844* side by side with a modern African urban novel, such as Meja Mwangi's *Going Down River Road* (1976), and ponder the excremental and existential continuities. "In one of these courts," wrote Engels of Manchester, "right at the entrance where the covered passage ends is a privy without a door. This privy is so dirty that the inhabitants can only enter or leave the court by wading through puddles of stale urine and excrement."[59] Similarly, Mwangi writes of Nairobi in 1974: "Most of the paths criss-crossing the dewy grassland were scattered with human excrement.... The cold wet wind that blew across it carried, in the same medium with the smell of shit and urine, the occasional murmur, the rare expression of misery, uncertainty, and resignation."[60]

The subject, of course, is indelicate, but it is a fundamental problem of city life from which there is surprisingly little escape. For ten thousand years urban societies have struggled against deadly accumulations of their own waste; even the richest cities only flush their excrement downstream or dump it into a nearby ocean. Today's poor megacities – Nairobi, Lagos, Bombay, Dhaka, and so on – are stinking mountains of shit that would appall even the most hardened Victorians. (Except, perhaps, Rudyard Kipling, a connoisseur, who in *The City of Dreadful Night* happily distinguished the "Big Calcutta Stink" from the unique pungencies of Bombay, Peshawar, and Benares.)[61] Constant intimacy with other people's waste, moreover, is one of the most profound of social divides. Like the universal prevalence of parasites in the bodies of the poor, living in shit, as the Victorians knew, truly demarcates two existential humanities.

57 Ibid.
58 Ibid., p. 185.
59 Friedrich Engels, *The Condition of the Working-Class in England in 1844*, Marx–Engels Collected Works, Volume 4, Moscow 1975, p. 351.
60 Meja Mwangi, *Going Down River Road*, Nairobi 1976, p. 6.
61 Kipling, *The City of Dreadful Night*, pp. 10–11.

The global sanitation crisis defies hyperbole. Its origins, as with many Third World urban problems, are rooted in colonialism. The European empires generally refused to provide modern sanitation and water infrastructures in native neighborhoods, preferring instead to use racial zoning and *cordons sanitaires* to segregate garrisons and white suburbs from epidemic disease; postcolonial regimes from Accra to Hanoi thus inherited huge sanitation deficits that few regimes have been prepared to aggressively remedy. (Latin American cities have serious sanitation problems, but nothing to compare with the magnitude of those in Africa or South Asia.)

The megacity of Kinshasa, with a population fast approaching 10 million, has no waterborne sewage system at all. Across the continent in Nairobi, the Laini Saba slum in Kibera in 1998 had exactly ten working pit latrines for 40,000 people, while in Mathare 4A there were two public toilets for 28,000 people. As a result, slum residents rely on "flying toilets" or "scud missiles," as they are also called: "They put the waste in a polythene bag and throw it on to the nearest roof or pathway."[62] The prevalence of excrement, however, does generate some innovative urban livelihoods: in Nairobi, commuters now confront "10-year-olds with plastic solvent bottles wedged between their teeth, brandishing balls of human excrement – ready to thrust them into an open car window – to force the driver to pay up."[63]

Sanitation in South and Southeast Asia is only marginally better than in sub-Saharan Africa. Dhaka, a decade ago, had piped water connections serving a mere 67,000 houses and a sewage disposal system with only 8500 connections. Likewise, less than 10 percent of homes in metro Manila are connected to the sewer systems.[64] Jakarta, despite its glitzy skyscrapers, still depends on open ditches for disposal of most of its wastewater. In contemporary India – where an estimated 700 million people are forced to defecate in the open – only 17 of 3700 cities and large towns have any kind of primary sewage treatment before final disposal. A study of 22 slums in India found 9 with no

62 Katy Salmon, "Nairobi's 'Flying Toilets': Tip of an Iceburg," *Terra Viva* (Johannesburg), 26 August 2002; Mutevu, "Project Proposal on Health and Hygiene Education."
63 Andrew Harding, "Nairobi Slum Life" (series), *Guardian*, 4, 8, 10 and 15 October 2002.
64 Berner, *Defending a Place*, p. xiv.

latrine facilities at all; in another 10, there were just 19 latrines for 102,000 people.[65] The filmmaker Prahlad Kakkar, the auteur of the toilet documentary *Bumbay*, told a startled interviewer that in Bombay "half the population doesn't have a toilet to shit in, so they shit outside. That's five million people. If they shit half a kilo each, that's two and a half million kilos of shit each morning."[66] Similarly, "a 1990 survey of Delhi," reports Susan Chaplin, "showed that the 480,000 families in 1100 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 thus has created tensions between them and middle class residents over defecation rights."[67] Indeed, Arundhati Roy tells of three Delhi slum-dwellers who in 1998 were "shot for shitting in public places."[68]

Meanwhile in China, where urban shantytowns reappeared after the market reforms, many in-migrants live without sanitation or running water. "There are reports of people," writes Dorothy Solinger, "squeezed into shacks in Beijing, where one toilet served more than six thousand people; of a shantytown in Shenzhen housing fifty shelters, in which hundreds subsisted without running water; ... [and] a 1995 survey in Shanghai revealed that a mere 11 percent of nearly 4500 migrant households actually possessed a toilet."[69]

Being forced to exercise body functions in public is certainly a humiliation for anyone, but, above all, it is a feminist issue. Poor urban women are terrorized by the Catch-22 situation of being expected to maintain strict standards of modesty while lacking access to any private means of hygiene. "The absence of toilets," writes journalist Asha Krishnakumar, "is devastating for women. It severely affects their

65 UN-HABITAT, *Debate* 8:2 (June 2002), p. 12.

66 Quoted in Mehta, *Maximum City*, p. 127.

67 Susan Chaplin, "Cities, Sewers and Poverty: India's Politics of Sanitation," *Environment and Urbanization* 11:1 (April 1999), p. 152. Such class struggles over the "right to defecate" are a continuation of a chronic conflict in colonial cities. Gooptu, for example, cites the 1932 case of squatters in Kanpur who, after the Municipal Board rebuffed their attempts to acquire potable water and sanitary latrines, invaded a field next to civil service bungalows and used it (in protest) as their communal latrine. The police were promptly called in and a riot ensued (Gooptu, *The Politics of the Urban Poor in Early Twentieth-Century India*, p. 87.)

68 Arundhati Roy, "The Cost of Living," *Frontline* 17:3 (5–8 February 2000).

69 Solinger, *Contesting Citizenship in Urban China*, p. 121.

dignity, health, safety and sense of privacy, and indirectly their literacy and productivity. To defecate, women and girls have to wait until dark, which exposes them to harassment and even sexual assault."[70]

In the slums of Bangalore – the high-tech poster city for "India Shining" – poor women, unable to afford the local pay latrines, must wait until evening to wash or relieve themselves. Researcher Loes Schenk-Sandbergen writes:

> Men can urinate at any time at any place, whereas women can only be seen following the call of nature before sunrise and after sunset. To avoid hazards, women have to go in groups at five o'clock in the morning ... often [to] marshy land where snakes would be hiding, or some deserted dumping ground with rats and other rodents. Women often say that they do not eat during the daytime just to avoid having to go to the open field in the evening.[71]

Similarly, in Bombay women have to relieve themselves "between two and five each morning, because it's the only time they get privacy." The public toilets, explains the writer Suketu Mehta, are rarely a solution for women because they seldom function: "People defecate all around the toilets, because the pits have been clogged for months or years."[72]

The solution to the sanitation crisis – at least as conceived by certain economics professors sitting in comfortable armchairs in Chicago and Boston – has been to make urban defecation a global business. Indeed, one of the great achievements of Washington-sponsored neoliberalism has been to turn public toilets into cash points for paying off foreign debts – pay toilets are a growth industry throughout Third World slums. In Ghana a user fee for public toilets was introduced by the military government in 1981; in the late 1990s toilets were privatized and are now described as a "gold mine" of profitability.[73] In Kumasi, for instance, where members of the Ghanaian Assembly won the lucrative contracts,

70 Asha Krishnakumar, "A Sanitation Emergency," *Focus* 20:24 (22 November–5 December 2003).

71 Loes Schenk-Sandbergen, "Women, Water and Sanitation in the Slums of Bangalore: A Case Study of Action Research," in Schenk, *Living in India's Slums*, p. 198.

72 Mehta, *Maximum City*, p. 128.

73 Deborah Pellow, "And a Toilet for Everyonel," in Mills-Tetley and Adi-Dako, *Visions of the City*, p. 140.

private toilet use for one family, once a day, costs about 10 percent of the basic wage.[74] Likewise, in Kenyan slums such as Mathare it costs 6 cents (US) for every visit to a privatized toilet: this is too expensive for most poor people, who would prefer to defecate in the open and spend their money on water and food.[75] This is also the case in Kampala slums such as Soweto or Kamwokya, where the public toilets cost a daunting one hundred shillings per visit.[76]

Baby Killers

"In Cité-Soleil," says Lovly Josaphat, who lives in Port-au-Prince's largest slum, "I've suffered a lot."

> When it rains, the part of the Cité I live in floods and the water comes in the house. There's always water on the ground, green smelly water, and there are no paths. The mosquitoes bite us. My four-year-old has bronchitis, malaria, and even typhoid now.... The doctor said to give him boiled water, not to give him food with grease, and not to let him walk in the water. But the water's everywhere; he can't set foot outside the house without walking in it. The doctor said that if I don't take care of him, I'll lose him.[77]

Green smelly water everywhere. "Every day, around the world," according to public-health expert Eileen Stillwaggon, "illnesses related to water supply, waste disposal, and garbage kill 30,000 people and constitute 75 percent of the illnesses that afflict humanity."[78] Indeed, digestive-tract diseases arising from poor sanitation and the pollution of drinking water – including diarrhea, enteritis, colitis, typhoid, and paratyphoid fevers – are the leading cause of death in the world,

74 Nick Devas and David Korboe, "City Governance and Poverty: The Case of Kumasi," *Environment and Urbanization* 12:1 (April 2000), pp. 128–30.

75 Salmon, "Nairobi's 'Flying Toilets.'"

76 Halima Abdallah, "Kampala's Soweto," *The Monitor* (Kampala), 19–25 November 2003.

77 Beverly Bell, *Walking on Fire: Haitian Women's Stories of Survival and Resistance*, Ithaca 2001, p. 45.

78 Stillwaggon, *Stunted Lives, Stagnant Economies*, p. 95.

affecting mainly infants and small children.[79] Open sewers and contaminated water are likewise rife with intestinal parasites such as whipworm, roundworm, and hookworm, and so on that infect tens of millions of children in poor cities. Cholera, the scourge of the Victorian city, also continues to thrive off the fecal contamination of urban water supplies, especially in African cities like Antananarivo, Maputo, and Lusaka, where UNICEF estimates that up to 80 percent of deaths from preventable diseases (apart from HIV/AIDS) arise from poor sanitation. The diarrhea associated with AIDS is a grim addition to the problem.[80]

The ubiquitous contamination of drinking water and food by sewage and waste defeats the most desperate efforts of slum residents to practice protective hygiene. In Nairobi's vast Kibera slum, UN-HABITAT's Rasna Warah studied the daily life of a vegetable hawker named Mberita Katela, who walks a quarter mile every morning to buy water. She uses a communal pit latrine just outside her door. It is shared with 100 of her neighbors and her house reeks of the sewage overflow. She constantly frets about contamination of her cooking or washing water – Kibera has been devastated in recent years by cholera and other excrement-associated diseases.[81] In Calcutta likewise, there is little that mothers can do about the infamous service privies they are forced to use. These small brick sheds sit above earthware bowls that are almost never cleaned on a regular schedule, thus ensuring that "the stinking mess around the *bustee*'s privy is washed straight into the ponds and tanks of water in which the people clean themselves and their clothes and their cooking utensils."[82]

Examples of poor people's powerlessness in the face of the sanitation crisis are legion. Mexico City residents, for example, inhale shit: fecal dust blowing off Lake Texcoco during the hot, dry season causes

79 See Pellow, "And a Toilet for Everyone!;" Nikhil Thapar and Ian Sanderson, "Diarrhoea in Children: an Interface Between Developing and Developed Countries," *The Lancet* 363 (21 February 2004), pp. 641–50; and Mills-Tettey and Adi-Dako, *Visions of the City*, p. 138.

80 UN Integrated Regional Information Networks, press release, 19 February 2003.

81 Rasna Warah, "Nairobi's Slums: Where Life for Women is Nasty, Brutish and Short," UN-HABITAT, *Debate* 8:3 (2002).

82 Chaplin, "Cities Sewers, and Poverty," p. 151.

typhoid and hepatitis. In the "New Fields" around Rangoon, where the military regime has brutally moved hundreds of thousands of inner-city residents, Monique Skidmore describes families living in the sanitary equivalent of the mud hell of World War I trench warfare: they cook and defecate in the mud directly in front of the tiny plastic sheets under which they sleep. The "New Fields," not surprisingly, are ravaged by cholera, dysentery, dengue, and malaria.[83] In Baghdad's giant slum of Sadr City, hepatitis and typhoid epidemics rage out of control. American bombing wrecked already overloaded water and sewerage infrastructures, and as a result raw sewage seeps into the household water supply. Two years after the US invasion, the system remains broken, and the naked eye can discern filaments of human excrement in the tap water. In the 115-degree heat of summer there is no other available water supply that poor people can afford.[84]

Sanitation crusades, meanwhile, come and go over the years. The 1980s were the UN's Decade of International Drinking Water and Sanitation, but as World Bank researcher Anqing Shi emphasizes, "At the end of the 1980s, the situation had not improved greatly."[85] Indeed, the WHO concedes that "there will still be about 5 million [preventable] deaths in children younger than five years by 2025 ... mostly caused by infectious diseases, within which diarrhoea will continue to play a prominent part."[86] "At any one time," a 1996 WHO report adds, "close to half of the South's urban population is suffering from one or more of the main diseases associated with inadequate provision for water and sanitation."[87] Although clean water is the cheapest and single most important medicine in the world, public provision of water, like free toilets, often competes with powerful private interests.

Water sales is a lucrative industry in poor cities. Nairobi, as usual, is an egregious example, where politically connected entrepreneurs resell

83 Skidmore, *Karaoke Fascism*, p. 156.

84 *Los Angeles Times*, 4 August 2004.

85 Shi, "How Access to Urban Potable Water and Sewerage Connections Affects Child Mortality," p. 2.

86 Thapar and Sanderson, "Diarrhoea in Children," p. 650.

87 1996 WHO report paraphrased by David Satterthwaite, "The Links Between Poverty and the Environment in Urban Areas of Africa, Asia, and Latin America," *The ANNALS of the American Academy of Political and Social Science* 590 (1993), p. 80.

municipal water (which costs very little to families wealthy enough to afford a tap) in the slums at exorbitant prices. As Mayor Joe Aketch recently complained, "A study shows that the population of Kibera slum pays up to five times for a litre of water more than average American citizens. It is a shame that the rich people of Nairobi can use their wealth to divert services meant for the poor, to their advantage."[88] Unable or unwilling to pay the extortionate price of water from vendors, some Nairobi residents resort to desperate expedients, including, two local researchers write, "the use of sewerage water, skipping bathing and washing, using borehole water and rainwater, and drawing water from broken pipes."[89]

The situation in Luanda is even worse: there, the poorest households are forced to spend 15 percent of their income on water that private companies simply pump from the nearby, sewage-polluted

Figure 13

Water: The Poor Pay More[90]

Water from vendor versus piped water
(price mark-up in percentage)

	%
Faisalabad	6800
Bundun	5000
Manila	4200
Mumbai	4000
Phnom Penh	1800
Hanoi	1300
Karachi	600
Dhaka	500

88 *Intermediate Technology Development Group (ITDG) East Africa Newsletter* (August 2002).

89 Mary Amuyunzu-Nyamongo and Negussie Taffa, "The Triad of Poverty, Environment and Child Health in Nairobi Informal Settlements," *Journal of Health and Population in Developing Countries*, 8 January 2004, p. 7.

90 Figures from UN Economic and Social Commission for Asia and the Pacific, 1997.

Bengo River.[91] "Water is as rare in Kinshasa" – situated on the banks of the world's second greatest river – "as it is in the Sahara." Although piped water is relatively cheap, report geographer Angeline Mwacan and anthropologist Theodore Trefon, the taps are usually dry, so the poor must walk kilometers to draw water from polluted rivers. Charcoal is too expensive to waste boiling water, and as a result 30 percent of medical visits are for water-related diseases such as cholera, typhoid, and shigella.[92] In Dar-es-Salaam, meanwhile, municipal authorities were pressured by the World Bank to turn over the water utility to the private British firm Biwater – the result, according to aid agencies, was a sharp rise in prices despite little increase in service; poor families have had to turn to unsafe water sources. "At a private well in Tabata," reports the *Guardian*, "a 20-litre jerrycan sells for up to 8p, a substantial sum in a city where many people live on less than 50p a day. Families too poor to buy this water dig shallow wells." Government officials, however, have won applause from Washington for their support of privatization.[93]

The Double Burden

The most extreme health differentials are no longer between towns and countrysides, but between the urban middle classes and the urban poor. The mortality rate for children under the age of five (151 per 1000) in Nairobi's slums is two or three times higher than in the city as a whole, and half again as high as in poor rural areas.[94] Likewise in Quito infant mortality is 30 times higher in the slums than in wealthier neighborhoods, while in Cape Town, tuberculosis is 50 times more common amongst poor blacks than amongst affluent whites.[95] Mumbai, as of old, remains a charnel house with slum death rates 50 percent higher than in adjoining rural districts. A staggering 40 percent of total

91 Hodges, *Angola*, p. 30.

92 Angeline Mwacan and Theodore Trefon, "The Tap Is on Strike," in Trefon (ed.), *Reinventing Order in the Congo: How People Respond to State Failure in Kinshasa*, Kampala 2004, pp. 33, 39, 42.

93 Jeevan Vasagar, "Pipes Run Dry in Tanzania," *Guardian* (27 September 2004).

94 Herr and Karl, *Estimating Global Slum Dwellers*, p. 14.

95 Carolyn Stephens, "Healthy Cities or Unhealthy Islands? The Health and Social Implications of Urban Inequality," *Environment and Urbanization* 8:2 (October 1996), pp. 16, 22.

mortality, moreover, is attributed to infections and parasitic diseases arising from water contamination and wretched sanitation.[96] And in Dhaka and Chittagong, according to medical statisticians, "around one-third of the people in slum communities are thought to be ill at any given time" – the equivalent of a pandemic in any other urban context.[97]

Slum-dwellers, health researchers emphasize, carry a double burden of disease. "The urban poor," write a research team, "are the interface between underdevelopment and industrialization, and their disease patterns reflect the problems of both. From the first they carry a heavy burden of infectious diseases and malnutrition; while from the second they suffer the typical spectrum of chronic and social diseases."[98] "Hand in hand with urbanization," adds *Lancet* editor Richard Horton, "have come epidemics of diseases that heretofore were usually confined to rural areas, such as tapeworms, roundworms, schistosomiasis, trypanosomiasis, and dengue."[99] Yet diabetes, cancers, and heart disease also take their greatest toll amongst the urban poor.[100] This double burden, moreover, is usually heaviest, according to UN researchers, in the "smaller and less prosperous cities in lower income countries or in the lower income regions of middle income countries." Politically dominant megacities, it seems, find it relatively easy to export some of their environmental and sanitation problems downstream, using other regions as sinks for waste and pollution.[101]

The neoliberal restructuring of Third World urban economies that has occurred since the late 1970s has had a devastating impact on the public provision of healthcare, particularly for women and children. As the Women's Global Network for Reproductive Rights points out,

96 Jacquemin, *Urban Development and New Towns in the Third World*, pp. 90–91.

97 Abul Barkat, Mati Ur Rahman, and Manik Bose, "Family Planning Choice Behavior in Urban Slums of Bangladesh: An Econometric Approach," *Asia-Pacific Population Journal* 12:1 (March 1997) offprint, p. 1.

98 Edmundo Werna, Ilona Blue, and Trudy Harpham, "The Changing Agenda for Urban Health," in Cohen et al., *Preparing for the Urban Future*, p. 201.

99 Richard Horton, *Health Wars: On the Global Front Lines of Modern Medicine*, New York 2003, p. 79.

100 Thus 11 million of the 17 million deaths from strokes and heart attacks worldwide are in developing countries. See D. Yach *et al.*, "Global Chronic Diseases," *Science* (21 January 2005), p. 317, as well as the exchange of letters (15 July 2005), p. 380.

101 David Satterthwaite, "Environmental Transformations in Cities as They Get Larger, Wealthier and Better Managed," *The Geographical Journal* 163:2 (July 1997), p. 217.

structural adjustment programs (SAPs) – the protocols by which indebted countries surrender their economic independence to the IMF and World Bank – "usually require public spending, including health spending (but not military spending), to be cut."[102] In Latin America and the Caribbean, SAP-enforced austerity during the 1980s reduced public investment in sanitation and potable water, thus eliminating the infant survival advantage previously enjoyed by poor urban residents. In Mexico, following the adoption of a second SAP in 1986, the percentage of births attended by medical personnel fell from 94 percent in 1983 to 45 percent in 1988, while maternal mortality soared from 82 per 100,000 in 1980 to 150 in 1988.[103]

In Ghana, "adjustment" not only led to an 80 percent decrease in spending on health and education between 1975 and 1983, but also caused the exodus of half of the nation's doctors. Similarly, in the Philippines in the early 1980s, per capita health expenditures fell by half.[104] In oil-rich but thoroughly "SAPed" Nigeria, a fifth of the country's children now die before age five.[105] Economist Michel Chossudovsky blames the notorious outbreak of plague in Surat in 1994 upon "a worsening urban sanitation and public health infrastructure which accompanied the compression of national and municipal budgets under the 1991 IMF/World Bank-sponsored structural adjustment programme."[106]

The examples can easily be multiplied: everywhere obedience to international creditors has dictated cutbacks in medical care, the emigration of doctors and nurses, the end of food subsidies, and the switch of agricultural production from subsistence to export crops. As Fantu Cheru, a leading UN expert on debt, emphasizes, the coerced tribute that the Third World pays to the First World has been the literal difference between life and death for millions of poor people.

102 Women's Global Network for Reproductive Rights, *A Decade After Cairo: Women's Health in a Free Market Economy*, Corner House Briefing 30, Sturminister Newton 2004, p. 8.

103 Shi, "How Access to Urban Portable Water and Sewerage Connections Affects Child Mortality," pp. 4–5.

104 Frances Stewart, *Adjustment and Poverty: Options and Choices*, London 1995, pp. 196, 203, 205.

105 World Bank statistic quoted in *Financial Times*, 10 September 2004.

106 Quoted in *A Decade After Cairo*, p. 12.

> Over 36 million people in the world today are HIV/AIDS infected. Of these, some 95 percent live in the global south. In particular, sub-Saharan Africa is home to over 25 million people suffering from HIV and AIDS. ... Each day in Africa more than 5000 people die from AIDS. Experts estimated that the world community needs to invest US $7–10 billion every year to fight HIV/AIDS, as well as other diseases like tuberculosis and malaria. In the face of this humanitarian crisis, however, African countries continue annually to pay $13.5 billion in debt service payments to creditor countries and institutions, an amount far in excess of the United Nations' proposed global HIV/AIDS trust fund. This massive transfer of resources from poor African countries to wealthy Northern creditors is one of the factors that has critically weakened health care and education in the countries that are now worst affected by the pandemic.[107]

More recently the World Bank has combined a feminist rhetoric about the reproductive rights of women and gender equity in medicine with relentless pressure (in the name of "reform") on aid recipients to open themselves to global competition from private First World healthcare providers and pharmaceutical companies. The Bank's 1993 *Investing in Health* outlined the new paradigm of market-based healthcare: "Limited public expenditure on a narrowly defined package of services; user fees for public services; and privatized health care and financing."[108] A sterling instance of the new approach was Zimbabwe, where the introduction of user fees in the early 1990s led to a doubling of infant mortality.[109]

But the urban health crisis in the Third World is scarcely the fault of foreign creditors alone. As urban elites move to gated compounds in the suburbs, they worry less about the threat of disease in the slums and more about household security and the construction of high-speed roads. In India, for example, Susan Chaplin sees sanitation reform undermined by corrupt officials and an indifferent middle class:

107 Fantu Cheru, "Debt, Adjustment and the Politics of Effective Response to HIV/AIDS in Africa," *Third World Quarterly*, 23:2 (2002), p. 300.

108 Ibid., p. 9.

109 Deborah Potts and Chris Mutambirwa, "Basics Are Now a Luxury: Perceptions of Structural Adjustment's Impact on Rural and Urban Areas in Zimbabwe," *Environment and Urbanization* 10:1 (April 1998), p. 75.

> 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 than about the risk of epidemic and endemic disease.[110]

But in the face of plagues like HIV/AIDS that "shake the earth and churn the skies,"[111] urban segregation offers only an illusion of biological protection. Indeed, today's megaslums are unprecedented incubators of new and reemergent diseases that can now travel across the world at the speed of a passenger jet. As I argue in my recent book about the imminent peril of avian influenza (*The Monster at Our Door*, 2005), economic globalization without concomitant investment in a global public-health infrastructure is a certain formula for catastrophe.[112]

110 Chaplin, "Cities, Sewers and Poverty," p. 156.
111 Meja Mwangi, *The Last Plague*, Nairobi 2000, p. 4.
112 Mike Davis, *The Monster at Our Door: The Global Threat of Avian Flu*, New York 2005.

7

SAPing the Third World

> After their mysterious laughter, they quickly changed the topic to other things. How were people back home surviving SAP?
>
> *Fidelis Balogun*[1]

Slums, however deadly and insecure, have a brilliant future. The countryside will for a short period still contain the majority of the world's poor, but that dubious distinction will pass to urban slums no later than 2035. At least half of the coming Third World urban population explosion will be credited to the account of informal communities.[2] Two billion slum-dwellers by 2030 or 2040 is a monstrous, almost incomprehensible prospect, but urban poverty overlaps and exceeds slum populations *per se*. Researchers with the UN Urban Observatory project warn that by 2020, "urban poverty in the world could reach 45 to 50 percent of the total population living in the cities."[3]

The evolution of this new urban poverty, as we have seen, has been a nonlinear historical process. The slow accretion of shantytowns to the shell of the city has been punctuated by storms of poverty and sudden explosions of slum-building. In his collection of stories entitled

1 Fidelis Odun Balogun, *Adjusted Lives: Stories of Structural Adjustments*, Trenton (NJ) 1995, p. 75
2 Martin Ravallion, *On the Urbanization of Poverty*, World Bank paper, 2001.
3 Eduardo López Moreno, *Slums of the World: The Face of Urban Poverty in the New Millenium?*, Nairobi 2003, p. 12.