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COMMUNITY PERSPECTIVES ON URBAN ENVIRONMENTAL PROBLEMS IN KINGSTON, JAMAICA

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Abstract

Research into urban environmental problems frequently ascribes greater importance to technical measurements than to the lived experience of the city's inhabitants. In this paper, I utilise participatory research methods to illuminate environmental issues in Kingston, Jamaica, from the perspective of those who are most acutely affected by them. The frequency and severity of environmental problems vary socio-spatially across the city, and different groups of people are motivated to respond to these in different ways. This study not only helps to identify the most pressing environmental

problems, but also shows the potential of individuals and communities to respond to these.

Introduction

Traditional understandings of the city have focussed on the role of global capitalism, the state, and the activities of urban residents in shaping the physical and geographical profile of urban development (Smith and Feagin 1987). Yet despite this acknowledgement, the influence of individual citizens in producing the city has frequently been overlooked. Individual perspectives on and constructions of the urban environment can affect the political processes occurring in the city, and can therefore effect changes in the physical environment. The way in which space is produced is increasingly understood as a dynamic field of social action, ideological confrontation, and political struggle. In this paper, I assess some of the ways in which the urban environment and urban environmental problems are constructed by a variety of groups in Kingston, Jamaica, thereby describing some of the 'imaginary' landscapes of the city (Lowenthal 1961, Gregory 1994). By examining the ways in which the city and its spaces are produced, both mentally and physically, the bases for political struggle can therefore be better understood.

With a population of almost 600,000 people (2001 census), the Kingston Metropolitan Area faces a variety of environmental challenges. It is often wrongly assumed that environmental problems in Third World cities are concentrated in huge mega-cities, that these are primarily caused by the high concentration of population and production, and that these problems are accurately represented in existing documentation (Hardoy *et al* 1992). However, there is no clear relationship between urban size, prosperity and environmental problems (Drakakis-Smith 1995), and the population of central Kingston (the Parish of Kingston) has declined consistently over the last forty years (from 123,400 in 1960 to 95,810 in 2001). Yet whilst still having to deal with the public health and sanitation issues that plagued western cities in the 19th century, the city also has to deal with more recent problems such as those created by industrialisation, heavy automobile traffic, large quantities of solid waste, and informal sector activities. Although Kingston has been widely studied by social researchers (and, to a more

limited extent, by environmental researchers) I believe it is important to attempt to link the political and ecological processes occurring within the city. The fact that some of these issues are now beginning to be addressed from a policy perspective by both national and international actors only serves to make research of this kind particularly timely[1].

The Environmental Context

Before presenting data on the ways in which individuals understand the environmental problems facing their communities and the city, I will briefly introduce some of the main problems identified in the official literature about the city. A 1995 study suggested that only 80 percent of Kingston's population was covered by the Metropolitan Parks and Markets (MPM) waste collection. A considerable number of people are thus left without this facility, and although there are 15 officially recognised disposal sites in Jamaica, none of these operates as a 'sanitary landfill', preventing fires, with facilities for proper effluent discharge and with daily covering of the waste (NRCA 1997). In 2000, the five regional bodies (including MPM) with responsibility for dealing with garbage were merged into the National Solid Waste Management Authority, although 'the length of time taken to collect garbage, transportation of the waste, the lack of adequate landfills and holding stations and the question of who is actually responsible for garbage collection' remain major public concerns in 2003[2], a situation no doubt aggravated by the nearly 60 percent increase in domestic waste generated annually between 1995 and 1999 (NEPA 2001).

Uncollected and uncovered waste results in 'foul odours, vermin and flies' (Ministry of Local Government 2001: 3), and is frequently dumped in gullies (artificial drainage channels). This provides a habitat for disease vectors, and by blocking the channels can result in flooding after heavy rains. In some of these gullies, 'rubbish piles up nearly as high as the walls', and elsewhere 'raw sewage flows several feet high'[3]. The deficiencies of this system may also be compensated for by the burning of refuse, which has been identified as 'an important contributor to poor air quality' (NEPA 2001: 56), with the consequence that 'deterioration of air quality in the major urban population centres has been a persistent cause for concern' (Ministry of Environment 1998: 42).

Sewage treatment and effluent quality is also an issue in Kingston, with concerns that sewage plants 'often do not generate effluent that meet acceptable standards for disposal' (NEPA 2001: 15). The largest treatment plant for Kingston's sewage, with a capacity of 52.8 million litres / day, was not operational during 2000, yet continued to receive sewage which was discharged untreated into Kingston Harbour (NEPA 2001). While the proportion of Kingston's households with exclusive access to a water closet is higher than the rest of the country, one-third of households do not have exclusive access to this facility (Planning Institute of Jamaica 2000). The combined impacts of inadequate sewage treatment and improper solid waste disposal have drastically affected the condition of Kingston Harbour, the seventh largest natural harbour in the world, causing it to be classified as a 'Heavily Contaminated Bay' by the United Nations Environment Programme (UNOPS 1998).

Although little documented, the effects of informal sector activities have an important influence on the urban environment in Kingston (Lloyd-Evans and Potter 2000). Whereas these may contribute to good health by providing livelihoods, in some circumstances waste, effluent, and air pollution from these can pose serious environmental health threats (McGranahan *et al* 1999). Not only are these activities unregulated, but they frequently take place in residential areas, with heavy industrial traffic and uncontrolled emissions in close proximity to people's homes. Informal enterprises include activities such as smelting, in which scrap metal is melted down to produce pots, pans, spoons and other metal objects. As well as providing employment, these small-scale operations represent one of the very few examples of recycling taking place in the city, and provide cheap locally-produced utensils, thus reducing the need for Jamaicans to buy more expensive imported products. However, the furnaces are fuelled by waste engine oil and produce thick black smoke, and working conditions are unpleasant at best and dangerous at worst (Dodman 2003). Illegal petrol filling stations are another example of activities in this sector, with inadequate safety procedures and unsuitable or dangerous equipment. In January 2001 a fire which began at an illegal petrol station in Greenwich Town destroyed 3 houses leaving 45 people homeless[4], and less than three months afterwards another such facility went up in flames, 'causing damage estimated at millions of dollars'[5].

Other activities related to automobile maintenance, such as the improper disposal of waste engine oil from unlicensed garages and the lack of facilities for dealing with

discarded car batteries, have damaging environmental side-effects. Whereas about 120,000 car batteries are discarded in Jamaica each year, only about half are collected and exported to the USA whilst the rest remain uncontrolled in the Jamaican environment (NEPA 2001). Jamaica's soil is naturally high in lead, which means that the presence of additional lead from discarded batteries can cause extremely high soil and water levels of this element. This in turn results in high blood lead levels, causing a potentially serious health risk, particularly to children (Anglin-Brown *et al* 1996). Pollution from motor vehicles has also increased in recent years as second-hand vehicles have been imported which do not meet the emissions control regulations of their home countries (Ahmed 1998). Despite still exhibiting some of the characteristics of 'urbanisation without industrialisation' (Clarke 1989: 21) large-scale industry also exists and can cause environmental problems in Kingston, with bulk chemical industries, cement manufacturing, brewing, and petroleum refining being just some of the processes taking place within the city (Government of Jamaica 1987).

Environmental hazards are also important, if intermittent, problems facing Kingston. The city experienced major earthquakes in 1692 and 1907, and serious hurricanes in 1951 and 1988. As Pelling (1999) has shown for Guyana, the geography of natural hazards in urban environments can be seen to co-evolve with political, social, and economic systems. Negotiations between political actors for control over urban development resources results in the production of different geographies of vulnerability, in which poorer households are squeezed into a situation of accepting less secure locations. These problems are often worsened by modification of local hydrology through the urbanisation process (Gupta 1998), a situation which has taken place through the development of the Sandy Gully drainage system in Kingston.

Some of these environmental problems are manifested in health issues in the city. A recent Jamaican newspaper report suggested that 'although there is limited local research linking environment to respiratory, intestinal and other illnesses, health officials say that anecdotal stories from caregivers and research from other countries, regarding the harm caused by dust, smoke and bad environmental practices, provide enough evidence for authorities to take the impact of environment on especially children's health, seriously'[6]. Another report identified an outbreak of gastro-enteritis, caused by poor sanitation, among children in south-eastern Jamaica (including Kingston) which 'has left eight people dead within the last two weeks'[7]. On a broader

scale, the 'child crisis' of malnutrition and disease has been separated from discussions of environmental problems, although this crisis is frequently caused by exposure to pollutants and pathogens and a lack of access to natural resources (Satterthwaite *et al* 1996). Other important processes impacting on health which cannot be entirely separated from the physical environment include the consequences of crime and violence which are often accentuated through overcrowded living conditions (Eyre 1984, 1986). Yet the condition of the urban environment is just one of the factors which operates against the health of the urban poor, along with the direct correlates of poverty (low income, limited education, bad diet) and the social and psychological conditions of insecurity (Phillips 1990).

The patterns of morbidity and mortality resulting from these environmental concerns frequently vary according to location and social class. This was shown by Fox in Mexico City (1972), although similar processes were noticed as long ago as the 1850 cholera epidemic in Kingston. Clarke (1975) quotes a contemporary account of this event which stated that 'while death was thus raging in every direction among the great mass of the people, the well-conditioned classes all but escaped' (p43). Within Third World cities more generally, the good health experienced by the wealthy is often at the expense of the health of the poor:

> [T]he air conditioned car which protects the solitary wealthy passenger in cities adds an extra dose of pollution to the city; the maintenance of the swimming pool is often at the expense of drinking water in poor areas of cities. The arguments of principles such as 'the polluter pays' stress the dirty diesel buses used by the poor and the dirty home industries in the informal sector. Off the agenda are the inequities in society which drive the poor's reliance on polluting resources. Such inequities are rarely analyzed, let alone put on the policy agenda (Stephens 1996: 17).

Power Relationships and the Environment

In both Jamaican and international discourses, Kingston is frequently portrayed as a violent 'Third World City', described by the UK's *Guardian* newspaper as 'a tropical version of Belfast at its worst'[8]. By their association with the city, Kingstonians (particularly young men) are often seen to be both threatening and shiftless (Austin-Broos 1995, Skelton 2000). However, like any other city (Castells 1983, 2000),

Kingston is not homogeneous – it has been identified as a plural society (Smith 1965), a situation manifested in spatial segregation (Clarke 1975; Clarke and Howard 1999) described by Norton (1978: 2) as representing 'two Kingstons'.

City divisions often form around distinct issues, such as education or the environment. Diane Austin noted that 'the uneducated, it is often suggested, deserve their position at the bottom of society, and thus does a laudable aspiration come to serve the cause of class subordination' (Austin 1984: xiv). Environmental issues may now also occupy this same position, with justifiable concern over the state of the urban environment being used by more powerful actors in the process of continual suppression of the weak. However, these power relationships do not take place strictly along class lines. There are many other actors involved including local elites, environmental NGOs and the Jamaican government. Despite this, Lundy's (1999a, b) study of environmental groups in Jamaica suggests that membership of environmental organisations is 'overwhelmingly drawn from the middle classes and the better educated' (1999b: 86) with a 'substantial influence of expatriates' (1999b: 79).

The theoretical framework of urban political ecology has the potential to illuminate the complicated ways in which these social and environmental processes interact and influence each other. A political ecology approach reflects an awareness that understanding the changes that have occurred and are occurring within urban environments must inherently be understood within the context of economic, political, and social relations (Swyngedouw and Heynen 2003), and thereby attempts to integrate a structural focus on state and society with poststructuralist insights on the interactions between a variety of actors that co-construct enviromental discourses and narratives. This approach might then 'contribute to new forms of environmental explanation by providing more inclusive means to acknowledge local environmental concerns' (Forsyth 2003: 9).

Yet this concern with understanding and explaining urban environmental problems is not in itself sufficient to address these. Environmental justice is a more politically charged term that connotes some remedial action to correct an injustice imposed on a specific group of people (Cutter 1995). Whereas environmental injustices are often perpetrated and perpetuated through an unjust social order, urban environmental problems can provide the site for resistance to far more than environmental injustices

(Watts and Peet 1996), in which 'the coupling of the search for empowerment and personal self-respect on the one hand with environmentalist goals on the other means that the movement for environmental justice twins ecological with social justice goals in quite unique ways' (Harvey 1996: 386-7). The environmental justice movement, although limited in scope and frequently marginalised by mainstream environmentalists, may therefore have the potential to redefine the environment itself as incorporating the totality of life conditions in the urban setting, as well as recognising and seeking to redress both spatial and temporal injustices.

Methodology

This study attempts to redress some of the biases inherent in previous representations of urban environmental problems in Kingston, whilst never losing sight of the particular social situation described above. This is achieved through a participatory research methodology, in which a recognition of the roles people play in the socio-ecological processes affecting their own lives in the city leads to a methodological focus involving the inhabitants of the area being studied in the process of research. This approach is both practically and ethically beneficial – information gathered from the people who experience the conditions which are being researched are able to provide more in-depth information about this than 'experts' who are further removed from the issues; whilst there is a moral component involved in amplifying the voices of those whose opinions are seldom heard. Rather than scientifically documenting the urban environmental problems of the city, these problems are displayed from the perspectives of the people who are most affected by them, thereby focussing attention on the human aspects of the environmental crisis. In the Jamaican context, this approach is of fundamental importance – as Paul Gilroy has convincingly argued, 'where lived crisis and systemic crisis come together, Marxism allocates priority to the latter while the memory of slavery insists on the priority of the former' (Gilroy 1993: 40).

Participatory approaches provide innovative ways of conducting research in situations in which traditional methods are inadequate or impossible. The techniques utilised in this study are broadly aligned with Participatory Rapid Appraisal / Participatory Rapid Assessment (PRA), particularly as developed by Robert Chambers (1983, 1997). In contrast to other environmental assessment techniques, participatory appraisal prioritises the political aspects of local environmental problems, and utilises NGOs and

other community organisations as the forum for research rather than government offices or universities (McGranahan *et al* 2001). The specific methods used follow those suggested by various international and Jamaican organisations for participatory research in communities, and are described in Pretty *et al* (1995) and elsewhere. These techniques involve working with groups, in order for concepts to be suggested and discussed by a variety of participants, as well as to provide an opportunity to observe the ways in which power relations within these groups operate. They also stress the use of visual methods, in which diagrams and drawings are used to both generate and record discussions.

This research was conducted in nine focus group meetings in December 2001 and January 2002 (Table 1). These discussions took place in locations as varied as suburban verandahs and street corners in informal settlements. Two meetings were held in a community college in a low-income area of West Kingston, one with only male students and one with only females; four meetings in low-income downtown communities; one with a group of women in a middle-class suburb; one with a mixed group in a high-income gated community; and one with high school students who were members of a city-wide environmental club. The sites for the focus group discussions were chosen to cover the spatial and social differences in Kingston's society, and were facilitated through individual contacts, community organisations, NGOs, and a community college. The groups were generally comprised of between six and twelve people, and in almost all cases the number of participants varied throughout the meeting as individuals moved in and out of the discussions.

Table 1: Groups involved in focus group research

Description of Group and Community
• Group of citizens involved in a community development organisation / NGO • Low-income downtown community, near the Spanish Town Road (West Kingston)
• Group of citizens gathered by a community leader • Low-income downtown community, but with infrastructure projects supported by local and international NGOs (East Kingston)
• Residents of the community at a "cook shop" bar / restaurant, facilitated by staff at the local Community Development Organisation (who also live in the community) • Low-income community in West Kingston (near Three Miles); part of the community has proper houses, but the part in which the focus group took place is made up entirely of 'shacks'
• Members of a Fishing Cooperative (primarily male) • Low-income community located on Kingston Harbour, but less deprived than many due to fishing and music industries (East Kingston)
• Woodwork students at a vocational training college (all male, aged 16-18), some of whom live in the community and some of whom do not • Low-income and frequently violent community in the heart of West Kingston
• Dressmaking students at a vocational training college (all female, aged 16-18), some of whom live in the community and some of whom do not • Low-income and frequently violent community in the heart of West Kingston
• Group of professional women and housewives, meeting in one of their homes • Middle-class neighbourhood in Uptown Kingston
• Strata meeting for a recently completed housing development • Luxurious new gated community, located in one of the most prestigious parts of Uptown Kingston, inhabited mainly by high-ranking professionals
• Members of a city-wide high school environmental club, sponsored by a large environmental NGO • Non-geographic group, students from a variety of backgrounds, all of whom attend school in Kingston

In general, the participants in each group were from similar socio-economic backgrounds, with marked differences between the groups. Apart from the groups made up entirely of men or women, and those made up entirely of high school or community college students, each group was made up of both men and women of varying ages. The main variable being explored in the study was that of social class, although age and gender were also taken into account. The linkages between race and class in Kingston are well documented (e.g. Clarke 1975, Phillips 1988, Clarke and Howard 1999), as are the relationships between race and the environment in North America (Cutter 1995, Harvey 1996: 366-402, Heiman 1996), especially as they are related to concepts of social and environmental justice (Haughton 1999; Pulido 2000a, 2000b; Pastor *et al* 2001; Shrader-Frechette 2002). Questions of race were therefore not explicitly addressed in this study: racial identity remains a highly complex and controversial topic, and the classification of individuals and their opinions on the basis of the researcher's observations would have only served to trivialise this.

A similar programme was followed with each group, although the very nature of this sort of activity precludes accurate replication of methods. The meetings began with an

introduction to the research project, and a brief description of the format the discussion would take. Seven of the groups were asked to identify the environmental issues that affect their neighbourhood or community, with the aim of enabling the group themselves to identify the problems in their surroundings. The two remaining groups (in the high-income gated community and with the high school environmental club) were asked to identify the main environmental problems in Kingston as a whole.

These issues were written up on flipchart paper, before being ranked using a matrix system. The issues identified in the brainstorming were written along both the horizontal and the vertical axes, and each issue was paired against each other issue. The group was asked the question: 'Which of the two issues being compared is most important?' or, if this did not provoke discussion or caused confusion, 'If you could only address one of these two issues, which would it be?' The discussion was noted, and where possible the group came to some form of consensus about which of the two issues was more important. This was repeated until all issues had been addressed. The issues were ranked according to which had been chosen as being more important the most often, and the results were discussed. It must be stressed that although the actual 'results' are of interest and facilitate comparisons between the different groups, the contents of the discussions are also of great relevance, as these provide an understanding of the ways in which decisions are made and the processes by which people relate to their surroundings.

Constructions of Environmental Problems in Kingston

The seven groups that took part in discussions about environmental problems in their communities identified a total of 27 different issues, ten of which were identified by two or more groups (Figure 1) and the remainder by only one group (Table 2).

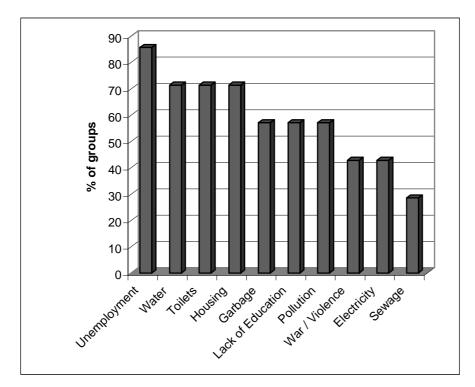Figure 1: Environmental problems identified by more than one group

Table 2: Environmental problems identified by only one group

Description of Group	Problem (Ranking)
Female community college students	food (3)
	poor policing (3)
	street boys (5)
	drugs (6)
	no human rights (6)
	transport (10)
Middle-class suburban women	dumping (1)
	mosquitoes (2)
	stray Animals (3)
	cars 'Racing' (4)
Fishing co-operative on Kingston Harbour	'no love in the youth' (2)
	no community centre (3)
	need bigger boats for fishing (5)
Low-income community in west Kingston	bad roads (5)
	no telephones (5)
Low-income community in east Kingston	lack of communication (2)
Low-income community in west Kingston	overcrowding (8)
Male community college students	*no unique problems identified*

Unusual Groups

The proportion of the problems identified in common with other groups varied greatly. Whereas all of the problems identified by the male community college students were also identified by other groups, two-thirds of the problems identified by the women in the suburban location were unique to that group. The very high proportion of responses unique to this group suggests that these individuals experience a very different set of environmental problems. The issue of dumping was identified as the most important

one affecting this community. Although the dumping of garbage in gullies was mentioned, much of the discussion referred to the disposal of garden waste, and focussed on the aesthetic issues related to this. Much of the blame for this problem was placed on the gardeners working in the community, with one participant complaining that 'the gardeners – despite all you do and say – they throw it over the open land' (Uptown Kingston, 21/01/02), although another did recognise that the householders were also responsible, suggesting that 'we have more control over the dumping – I suppose if we follow up our gardeners and check that they do what we say' (Uptown Kingston, 21/01/02). The issues of mosquitoes, stray animals, and cars 'racing' on the streets around the neighbourhood were also mentioned solely by this group.

The only other group in which more than half of the topics identified were unique was also the only other group made up entirely of female participants, although these young women (students at an inner-city community college) were of a very different age and social background. This has implications both for the understanding of gender as a factor affecting experiences of the urban environment, as well as for questioning the validity of participatory methodologies which typically treat the community as a homogeneous entity. This does not imply a commonality of women's experience throughout the city independent of class and race, but does suggest that within any urban social group or community there are certain environmental experiences unique to women. This group of dressmaking students identified food, poor policing, street boys, drugs, no human rights, and transport as environmental problems affecting their community. Although this group mentioned violence as a problem, they saw poor policing and the presence of 'street boys' as causes of this: 'there is a lot of police that are not doing their job', and 'because you have a lot of street boys on the street that need to go to school, because some of them that are not going to school can become gunman' (West Kingston, 10/12/01). The issues of human rights and the drug problem were also seen to be part of a broader set of social problems affecting the lives of individuals in the community. These young women were also particularly aware of occasional limitations in food supplies, represented by scarcity or high costs in the markets – it is likely that they, rather than their male counterparts involved in a similar course of study, have responsibility for the practical aspects of feeding family members.

Unemployment and Lack of Education as Environmental Problems

Unemployment was mentioned as an environmental problem by all six of the groups which met in downtown communities, but by none of the other groups. In general, it also tended to be identified as one of the more important problems facing the community. One senior male in (East Kingston, 24/01/02) spoke at length about this issue:

> Unemployment is one of the major problems here… Even though there are times when agencies come in and give lectures or give training to members of the community, especially the young people, they are not willing to put full participation in it and that is what cause a lot of the environment that develops in our communities. Because you have quite a lot of teenagers in our community that if they would just at least stick to a skill they would at least become more better people, you know, more what you call it, have a much more better community relationships. Because they go out and they learn a skill and it helps them to learn a dollar or two. For instance, Mr S there. He wasn't employed you know, he was going to school too. I think he feel like learning a skill or preparing himself to get a job out there is something that he had to do. But many of the other young people there they not willing to… What is one of our main problems is that no-one is responsible and if you don't have responsibility in our community you will have a lot of environment… For instance, if I go out there and I earn $2000 for the week[9], I can come in and give my mother $500 and give my baby $500 and keep $1000 for myself… three people that would help.

Unemployment was also mentioned as a barrier preventing other issues from being dealt with. In several groups it was mentioned that employment would enable people to provide certain facilities (such as toilets) for themselves, and that in this way unemployment caused the environmental problems. As one woman expressed, 'mi would work – for mi can work fi put a pipe inna mi house, inna mi yard' (West Kingston, 28/11/01), meaning that if she had employment she would be able to pay for a water connection into her house.

This problem of unemployment was not seen in isolation, but in several cases was linked to problems with education. Indeed, in two cases lack of education was identified as the most important environmental problem in the community. In several cases, the linkages between employment and education were discussed in depth, as were the linkages between employment and violence, although these were sometimes

seen to be complex, as evidenced in this discussion between male community college students (West Kingston, 3/12/01):

- You see – if you solve the problem of education, you solve kind of everything
- But wah dem a go do wid education if dem dead-off?
- But if dem educate before dem nah go turn to di gun.

The lack of education was also linked more directly with other environmental problems, with one participant near Kingston Harbour explaining that 'if yuh don't have education, yuh don't know how to keep the toilet clean, or the garbage, or anything' (West Kingston, 15/12/01). However, in another group there was considerable discussion between the male and female participants as to whether education or water supply was more important. The female participants placed the priority on the immediate issue of water availability, perhaps because these participants are most responsible for the physical burdens of carrying water from standpipes. However, after a somewhat heated discussion, the male viewpoint, that addressing the problems related to education was more important, prevailed. Were this mechanism to have been used to actually set priorities for community development, the women's priorities for physical infrastructural development would have been sidelined. The participatory approach may therefore sideline particular viewpoints because of the micro-political inequalities inherent in groups and communities.

Water and Sanitation

Together, the issues of water and sanitation were mentioned by all of the groups, although the emphasis differed between the supply of clean water and the removal of dirty water. Several groups mentioned that 'water is life', the motto of Jamaica's National Water Commission, and one participant explained that although substitutes could be found for other resources, there was no substitute for water.

However, the importance ascribed to water and sanitation problems did vary between the groups. In the suburban community, water was identified as the second lowest priority following the pairwise ranking exercise. The problem with water supply there was one of temporal inadequacy, in which water shortages occur in certain months of the year, resulting in temporary lock-offs. The occasional brown colour of the water was also a cause for concern. This was identified as affecting 'every aspect of what we do, from flushing the toilet to washing your hands, just proper hygiene, it affects

everything' (Uptown Kingston, 21/01/02). In contrast, the water supply problems in the poorer communities had both a temporal and a spatial component. In one location, for example, 'yuh have to walk far to get water' (West Kingston, 28/11/01), and water could be scarce because of 'gang warfare' preventing people from leaving their own yards to fetch water from a standpipe on an adjacent street.

Problems with toilet facilities, sanitation, and sewage were also mentioned. In several cases, the problem was related to toilets not functioning properly, or to the inadequate number of toilets in the community. This caused a variety of problems, such as a lack of privacy, described by one participant as 'the toilets, bathrooms, washrooms – whatever you call it. Not all of them is probably working inside here, but all of them is overcrowded… and the lack of privacy – cause you can never have privacy really in the ghetto' (East Kingston, 24/01/02). It could also result in the improper disposal of human waste: 'wi need toilet more cause some people all use the toilet a turn garbage… what mi mean by dat, dem faeces in a scandal bag and jus a throw it on the road, or open land' (West Kingston, 03/12/01). Yet these complaints were not simply a request for assistance, as education and employment were ranked as more important problems. In general, the people wished to be employed in order to be able to provide sanitary facilities for themselves: 'when yuh get a work yuh can buy yuh own toilet' (East Kingston, 15/12/01).

Poor Housing Conditions

Poor housing conditions were mentioned as an environmental problem in five of the six downtown communities, and were seen as being particularly important in the locations where much of the housing stock is in poor condition. Whereas approximately one-quarter of the houses in Jamaica are constructed with wood, among the poorest consumption quintile this figures rises to 39 percent (Planning Institute of Jamaica 2000), and many of the houses in the lowest-income areas studied were made of this material. This situation was also frequently linked with inadequate toilet facilities, as it was assumed that if housing conditions were upgraded that indoor plumbing would be included. People also expected that addressing the problems of unemployment would enable them to improve the standard of their own homes.

The physical standard of a house was judged to be important for both practical and emotional reasons. It was seen to be important to have a house capable of withstanding

bad weather, fire, and gunfire: several young men explained how bullets could pass through walls made of wood and harm people inside a building. Wooden houses were also judged to be vulnerable to the risk of fire, with one man expressing his feeling that "wi waan fi live inna concrete" (West Kingston, 24/01/02). Proper housing conditions also create peace of mind, enabling more productive employment to be found. One participant explained this in the following way:

> If you do not live in a proper house then it affects the mind. If you are even employed, then you are probably wondering when it rains what will happen to my furniture… you will be wondering how long will this house last, how long before it collapses? And as long as you are not living comfortably then you are unable to produce at work and school in the way that you should (East Kingston, 24/09/01).

Pollution and Garbage

Although widely mentioned, these problems did not score highly in the pairwise ranking exercise. It appears that whilst they are commonplace, they are not viewed as requiring such urgent attention as the problems of unemployment, water, and sewage. Air pollution from the burning of garden waste was identified as a problem in the suburban community, although this was ranked as the least important problem overall. The only other group which specifically mentioned air pollution was the male community college students, who identified smoke from the incinerator at the Kingston Public Hospital (KPH) as a problem. One participant vividly described the situation as: 'KPH smoke come over – when baby born and die, or dem cut off a man hand or him foot, dem have something what dem burn it in and di smoke come over and nasty up wi clothes and wi house, bad smell, everyting' (West Kingston, 03/12/01). Despite the horrendous nature of this description, this problem was ranked as the least important of the problems identified in this location.

Pollution of Kingston Harbour was identified as a problem by the members of the fishing co-operative based on its shores. Although this community borders the harbour, and the pollution has affected livelihoods by depleting fish stocks, this problem was not ranked highly in the pairwise ranking exercise. The sources of the pollution were identified as the General Penitentiary (Kingston's main prison, formally known as the Tower Street Correctional Institution), businesses located on the coastline, and the four main gullies that empty into the Harbour. Because of these gullies, it was noted that

'when the rain fall is when yuh get the most garbage in the harbour' (East Kingston, 15/12/01). Large ships were also blamed for polluting the harbour:

> Ship come in the harbour more time, and changing their engine oil, and jus a dump it in the harbour. Mi doan know if a night dem do it, dem let it out a night and di current push it and yuh doan know which part it coming from. Cover di shore and di net (East Kingston, 15/12/01).

The problems of the pollution of the harbour were also linked to broader problems of garbage disposal, which were explained as 'pollution is jus like di garbage yuh know – when yuh a deal wid pollution is di garbage yuh a deal wid' (East Kingston, 15/12/01).

Garbage was also not ranked as one of the most important environmental problems facing communities. In some cases, this was because the problem had been addressed – large skips had been placed at the entrance to one community by the government agency responsible for solid waste management, and I was assured that all community members were conscientiously depositing their refuse in these. However, the description given by one woman ('True di garbage deh deh, and dem doan collect di garbage on time, it breed rats… and up to when you see a girl baby, and it bite up the baby, and the baby have to admit into children hospital'(West Kingston, 28/11/01)) may explain why the problem was thought to be more serious here.

Crime and Violence

Crime and violence were not generally identified as environmental problems, and two of the three groups that identified this issue gave it a relatively low ranking in terms of importance. However, the group made up entirely of young men from the inner-city identified this as the most important environmental problem facing their community. Young men in inner-city communities are the group who are most likely to be affected by violent street crime, and are therefore potentially the most acutely aware of this as a serious, indeed life-threatening, problem, although they also stated that crime and violence in their community were determining factors in preventing them from receiving education and employment. The identification of crime as an 'environmental' problem by this group may be related to their experience of crime and violence in the public space of the community, in contrast to domestic violence in the private sphere of the household. This is supported by their particular focus on the frequency of gun violence, as shown by the comments when the problems of water and violence were

compared: "A nuh like water gaan every single day, but gunshot every day… every day somebody dead by gunshot" (West Kingston, 03/12/01).

The fact that no other group placed such an emphasis on crime and violence clearly shows the social and spatial dimensions involved in the identification of issues as environmental problems. The age, gender, and social background of the members of this group all contribute to their particular perceptions and understandings of their surroundings.

Metaphysical Environmental Problems

Several groups also identified more ephemeral concepts as being major environmental issues or having important environmental consequences. The female community college students were concerned about 'no human rights', whereas a group in East Kingston complained about the 'lack of communication'. One male participant in this group summed this up as follows:

> Let me just add one more to the list of environmental problems… the lack of communication… To sum that all in a nutshell, the time change and most person of those who is older now, to just put it into the word 'respect'… Where there is no respect the communication break down, and without communication nothing can function (East Kingston, 24/01/02).

One group poetically identified 'no love in the youth' as a major issue in that community. A member of this group suggested that because members of the community recognise this problem, levels of violence are low compared to other inner-city areas: 'if you check most community, more war inna it dan dis community' (East Kingston, 15/12/01). These concerns show a deep appreciation for the ultimate causes of social problems and environmental degradation. Whilst the surface conditions are observed, and possible fixes for the proximate causes of these can be identified, the ultimate causes of environmental problems are thought to be deeply rooted in social patterns.

From the affluent neighbourhoods of upper St Andrew, where it was suggested that only by addressing the values and attitudes of the population of Kingston could environmental problems be solved, to the shores of Kingston Harbour where 'love in the youth' was thought to be a central issue, there is a belief that addressing individual

attitudes and behaviour is an essential component of environmental improvement. There is undoubtedly some truth in these perceptions, and in the role of individual agency. However, much of this seems also to be associated with moralistic discourses focussing on the role of 'others', which belong with deterministic analyses such as Oscar Lewis's (1966) 'Culture of Poverty'. Individual and group demarcations of 'us' and 'them', 'self' and 'other', are used to ascribe blame to different groups or types of individuals in society. Environmental problems are therefore assumed to stem from deviant behaviour on the part of others, rather than from one's own actions or from systems and structures practised across the entire city. It is noteworthy that none of the groups mentioned structural issues, patterns of governance, or government responsibilities as root causes of the environmental problems facing their community or city.

Views of Environmental Problems in Kingston

Two groups discussed environmental problems for the entire city of Kingston: residents of an exclusive gated community in one of the most affluent areas of Kingston, and a group of young environmentalists who were members of an inter-school environmental club affiliated with a leading local environmental NGO. The priorities which these groups identified for Kingston are shown in Table 3.

Table 3: The most important environmental issues in Kingston

High School Environmental Club	Residents of Gated Community
• Solid waste management • Kingston Harbour • Sewage treatment • Air pollution • Hazardous waste • CFCs	• Values and Attitudes • Security • Sewage • Garbage • Kingston Harbour • Noise pollution • Drainage • Dust

Neither of these groups identified unemployment or a lack of education as environmental problems for the city – possibly because these would not be included in their understandings of the environment. They also failed to see poor housing conditions as urban environmental problems. Whilst they did identify problems with sewage, these were not placed in the context of sanitation and the lack of adequate toilet facilities for many people in Kingston, but rather the more public problems of sewage in drains and gullies. Similarly, water supply was not seen to be a problem,

although many of the downtown communities placed this as the most important issue affecting these locations. This suggests that although more affluent or more environmentally conscious groups are aware of many of the environmental problems facing Kingston, they are not aware of the smaller-scale water and sanitation related issues which have a daily impact on the lives of many citizens. Whilst their environmental knowledge is not solely confined to the 'green agenda' of conservation and inter-generational equity (McGranahan and Satterthwaite 2000), it fails to take individual struggles over issues with direct impacts on human health and livelihoods into account. The perceptions of these relatively powerful actors are likely to have a disproportionate impact on environmental decision-making, potentially retarding improved living conditions for many in the city.

Consensus and Conflict in the City

Although the changes in the environmental problems facing urban areas 'as they get larger, wealthier, and better managed' (Satterthwaite 1997: 216, Williams 1997) have been well documented, these have often focussed on large-scale and temporal differentiation; whereas in the case of Kingston spatial differentiation exists over a much smaller spatial scale. The wealthier suburban areas of Kingston enjoy extremely pleasant environmental surroundings, whereas the poorest inner-city areas continue to experience the characteristic problems of low income urban economies including the lack of basic environmental services such as water supply, sanitation, drainage, and solid waste collection. In between, there are communities which experience one or more of the problems of low levels of sewage treatment, air pollution, and inadequate solid waste management.

The issues which cause most concern among members of poorer communities are primarily related to the provision of sanitation and solid waste management. Whilst these same problems were identified by groups taking a broader view of the city, these tended to focus on larger-scale, more abstract problems, rather than on the everyday conditions which these inflicted on poorer groups of citizens. This difference can be observed in the terminology used to refer to problems of inadequate sanitation by the different groups: whereas residents of the more affluent parts of the city used the abstract term 'sewage' to refer to issues of this type, downtown residents used the more

concrete term 'toilets'. This contrasting terminology indicates both a material and a mental division: 'toilets' are household items which affect the immediate surroundings of the individual, whereas 'sewage' is an abstract concept that can be managed through a set of 'professional' and 'technical' procedures.

Although the problems of garbage and solid waste were widely recognised, these were also positioned in a spatially uneven framework. The identification of the location of solid waste problems suggested that these were seen by both more and less affluent individuals as primarily affecting the downtown area of the city. Yet as has consistently been shown, increases in affluence lead to an increase in the production of solid waste, and the volumes of waste produced by middle- and upper-class neighbourhoods in Kingston are inevitably greater than those produced by less wealthy neighbourhoods. Implicit in this mental map of the spatial extent of solid waste problems is what David Harvey terms a 'symbolic dimension' – 'are we not presuming that only trashy people can stomach trash?' (Harvey 1996: 368).

Yet despite this broad recognition of the main environmental problems facing Kingston, the issues of housing, education, and employment were only identified by inner-city residents. Indeed, it is noteworthy that members of poorer communities are concerned with receiving opportunities to address environmental problems directly, particularly through employment which would provide them with the money to improve their own sanitary facilities. This is in keeping with my broader argument that more affluent urban residents see environmental problems as technical issues to be solved through the exercise of professional skills and engineering technology. In contrast, the ways in which inner-city residents experience these problems means that they link them with broader issues of livelihoods and quality of life. For this group, the solution of solid waste or sanitation problems is not in itself a sufficient response to environmental challenges; instead, this requires addressing a broader suite of quality of life issues. The solutions to environmental problems are seen not only as being related to structural inadequacies, but also to the strengthening of human agency to deal with these issues.

However, this willingness to take personal responsibility for improving certain conditions should not be seen as the panacea to Kingston's environmental problems. For example, the proliferation of small-scale sanitary solutions involving the

construction of soak-away pits will increase groundwater pollution, and in certain locations may also further harm the ecosystems of Kingston Harbour. Whilst it is commendable for people to wish to take charge of their own situations, structural support is also essential for these to achieve any degree of environmental sustainability. This progressive disempowerment of the poor may have been exacerbated through the impact of structural adjustment programmes which have involved huge cuts in public expenditure (Redclift 1995), although it must also be stressed that the total transfer of control and responsibility to poor urban residents cannot be seen as the solution to this problem. Indeed, transferring responsibility to powerless groups may over-stretch their abilities, and consequently cause further disempowerment.

CONCLUSION

In some cases, Kingston's environmental problems are very different from those considered to be the norm in Third World cities. Rapid urban population growth is often thought to cause important economic, social and environmental problems in relatively small cities, and to overstretch the limited capacities of urban and national authorities (Drakakis-Smith 1995). However, although localised overcrowding is still a problem, the population of central Kingston has declined substantially in the post-independence period, and this is not the major cause of the city's environmental problems.

However, whilst it can be argued that some of the problems identified by the groups are not 'environmental' because they do not refer directly to the physical surroundings, it may also be misleading to refer to the conditions of the physical surroundings as environmental problems. These problems 'arise not from some particular shortage of an environmental resource (such as land or fresh water) but from economic or political factors which prevent poorer groups from obtaining them and from organizing to demand them' (Hardoy *et al* 1992: 204). Urban power relations and decision-making structures form the sites at which these mutually influencing issues are negotiated. Discussions of this sort can never be entirely objective, and rely heavily on the subjective feelings and representations of the city held by participants. Simultaneously, urban environmental problems cannot be understood or addressed without engaging with these political relationships.

This study's focus on local knowledges therefore helps to provide a link between structure and agency in the explanation of urban processes. The environmental problems experienced by different social groups in different communities are affected both by structural forces across the city, and by the actions of individuals in localised areas. In turn, the structures of urban governance both shape and are shaped by local knowledges, experiences, and actions. Recognition of these interconnections enables an understanding of 'the possibilities for actors operating within broader political and economic structures' (Bryant and Bailey 1997: 2), and creates a space in which the city's environmental problems can be addressed and solved.

Acknowledgements

NOTES

1. See, for example, Kingston and St Andrew Parish Development Committee (2001).
2. 'Garbage a Major Concern', *Daily Gleaner*, Kingston, August 8, 2003 [http://www.jamaica-gleaner.com/gleaner/20030808/news/news4.html].
3. 'Mayor McKenzie's early challenges' *Sunday Gleaner*, Kingston, August 10, 2003 [http://jamaica-gleaner.com/gleaner/20030810/lead/lead7.html].
4. 'Blaze Leaves 45 Homeless' *Daily Gleaner*, Kingston, January 6, 2001 [http://jamaica-gleaner.com/gleaner/20010106/lead/lead3.html].
5. 'Gas Station Blows' *Daily Gleaner*, Kingston, March 27, 2001 [http://jamaica-gleaner.com/gleaner/20010327/lead/lead1.html].
6. 'Enviro Pollution Taking Toll on Children' *Daily Gleaner*, Kingston, May 23, 2002 [http://jamaica-gleaner.com/gleaner/20020523/news/news4.html].
7. 'Gastro kills 8 – Virus mainly affecting children in the south eastern parishes' *Daily Gleaner*, Kingston, July 23, 2003 [http://jamaica-gleaner.com/gleaner/20030723/lead/lead1.html].
8. 'Bodies pave the way to Jamaican polls' *The Guardian*, London, July 12, 2001 [http://www.guardian.co.uk/international/story/0,3604,520256,00.html].
9. At the time of fieldwork, the national minimum wage was J$1,800 per week.

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