Thoughts on Poverty from a South Asian Rubbish Dump

Gender, Inequality and Household Waste

Jo Beall

IDS Bulletin Vol 28 No 3 1997

1 Introduction

In cities throughout the Third World there are legions of men, women and children who make a living from the recovery, sorting and selling of retrievable items of solid waste[1]. In countries where exclusion from formal labour markets is the norm rather than the exception, involvement in waste recycling often constitutes the first point of entry as well as a last resort for thousands of workers in the informal economy. These are the waste pickers who have become the ultimate symbols of urban poverty, rummaging through the bins and garbage dumps of Calcutta, or living off the waste heaps of Manila. During field work conducted in 1995 in Bangalore, India and in Faisalabad, Pakistan[2], research was conducted among the men, women and children who from the heaps of organic waste, buffalo dung, dust and ash, retrieved pieces of metal, paper, plastic, broken glass and bone for sale, to dealers in the recycling industries of South Asia.

Waste pickers, while the most visible participants in the informal waste economy, are only one of a number of groups who are dependent for their livelihoods on the complex recycling chain which begins in the urban household (see Figure 1)[3].

[1] Solid waste or garbage, has been usefully defined as the 'organic and inorganic waste materials that have lost their value in the eyes of the first owner' (Cointreau, 1984). Solid waste management (SWM) refers to the collection, transportation and disposal of garbage. Liquid waste, by contrast, is the concern of sanitation services. Although the term 'waste' generally refers to both solid and liquid waste, it is used here as shorthand to refer to solid waste alone.

[2] The research was conducted towards an ESCOR funded research project on formal and informal solid waste management systems conducted in four cities in India and Pakistan. The other two cities were Calcutta and Karachi. The research was undertaken together with the Development Assistance Group at the Institute of Local Government, University of Birmingham and the Water, Engineering and Development Centre, Loughborough University.

[3] Other groups among whom research was conducted were householders and domestic workers who separate waste items in the home, door-to-door hawkers or itinerant waste buyers to whom they sell waste material with residual value, and municipal and private sanitary workers or sweepers who collect and remove the unwanted waste that remains. This article draws only from the semi-structured interviews and observational work undertaken in both cities. For the findings of the household survey and a full discussion of the methodologies employed, see J.D. Beall (1997).

Together they are not only symbolic of urban poverty but are emblematic of the paradoxes of resource conservation in the South: namely that affluence produces abundant waste while poverty does not[4]; that poverty encourages efficient reuse and recycling of waste materials while affluence does not; and that sustainable livelihoods from waste are predicated upon persistent inequalities in income and consumption. The persistence of wealth and poverty also threatens ecological sustainability as consumption levels and inefficient use of natural resources go unchecked[5]. These paradoxes were identified by tracing what happened to household waste once it had been generated and had lost its value in the eyes of the first owner (Cointreau 1984).

The article reflects on the interlocking circuits of accumulation and consumption that characterise waste generation, its recovery and re-use. It examines how these circuits of accumulation intersect, in turn, with multiple axes of inequality and interdependence characterising social relations in the household and residential neighbourhood. The most obvious axes of inequality and interdependence relating to waste work in South Asian cities are those of class and caste. Everywhere people involved in waste work, be it street cleaning, waste collection or scavenging, do it because they have little choice and are stigmatised by virtue of the dirty work they do. They are often from marginalised groups such as ethnic or religious minorities, or are rural migrants who compete for urban livelihoods (Sicular 1992).

In much of South Asia, the low social status of people working with waste is compounded by the idea that people are born to this work. For example, in predominantly Hindu countries such as India, work with waste has been and still is done by ***Dalit*** groups[6] (Masselos 1981; Prashad 1995; Searle-Chatterjee 1981; Talwar Oldenberg 1984). In other parts of South Asia, including Islamic countries such as Pakistan, waste work is often the preserve of hereditary status groups which are associated with waste work, either through tribal origin or ancestral occupation (Streefland 1979). For example, sanitary workers or sweepers in Pakistan are part of the Christian minority, having converted under the British in the late 19th century. Before this they constituted a rural Punjabi Hindu caste called ***Churhas***. To this day, sanitary workers are identified in this way and in everyday speech they are called interchangeably, 'sweeper', 'Christian' and '***Churha***'.

A second level of enquiry stems from the fact that gender stereotypes have deemed women closer to nature (Mies 1986; Ortner 1974), have characterised them as custodians of the natural environment (Shiva 1989), and have linked women to dirt and disorder (Douglas 1966). In turn, these associations have fed into accepted gender divisions of labour which in the household, at least, reserve the dirtiest and most demeaning tasks for women. In parts of South Asia this has been reinforced by notions of women's ritual impurity[7]. The paper will explore both how women's responsibility for waste management in the gender division of labour is mediated by wealth and poverty, and how class and caste or hereditary group status are mediated by gender relations in the context of solid waste management (SWM). Finally, the paper considers some of the policy implications of the micro-politics of domestic waste both for SWM and anti-poverty strategies.

---

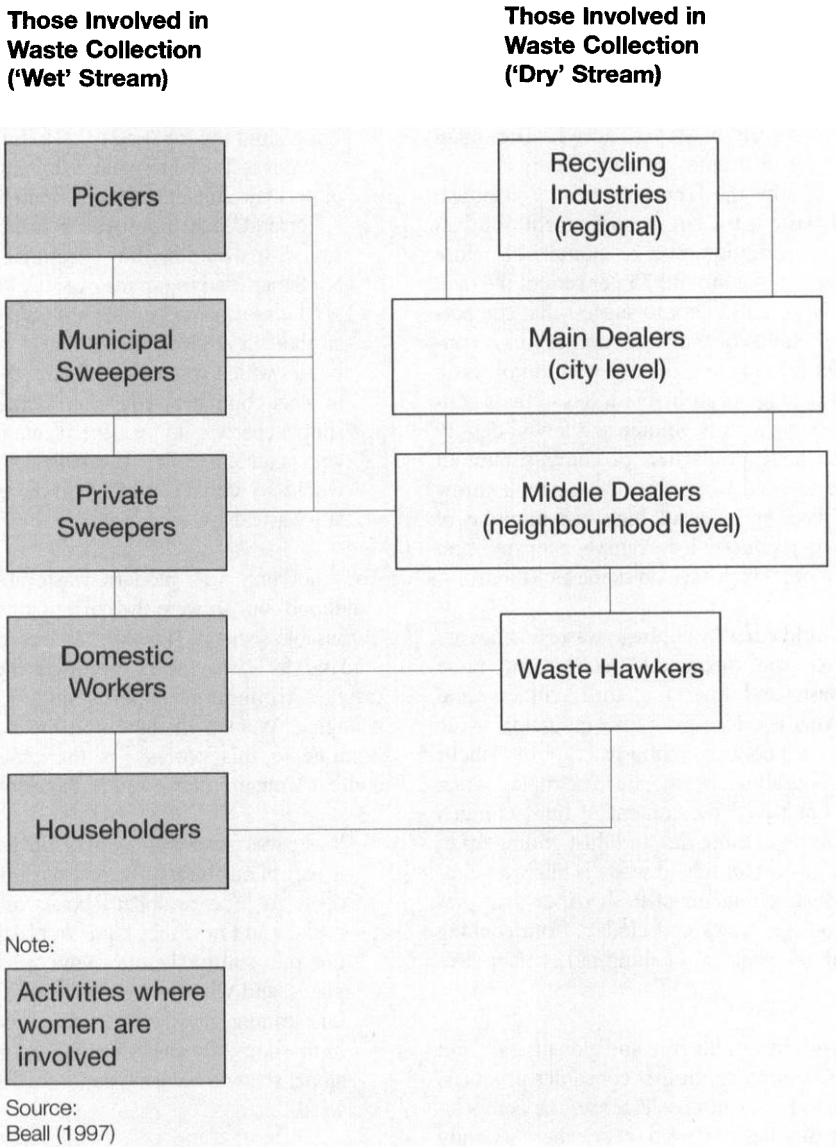
[4] Recycling only occurs spontaneously a) when people are poor enough to need to recover waste and b) when local and regional economies have viable markets for cheap, recycled goods. In other circumstances, recycling may occur as a result of public concern or political will regarding the environment.

[5] Obvious urban examples of this are, at one end of the spectrum, the use of fossil fuels through use of the private car which has an environmental impact far beyond the boundaries of the city. At the other end, many low-income urban households are compelled through poverty to use environmentally costly alternatives to electricity for cooking, such as wood and charcoal.

[6] Those who fall outside the caste system who are considered 'untouchable', who Gandhi called ***Harijans*** and who call themselves ***Dalit***.

[7] Under Islam, for example, women are considered to be polluting at certain times, notably during menstruation and after childbirth, and a woman remains impure until she has performed the full cleansing bath. Until this is performed, there are several restrictions on her activity (Jeffery 1979: 110).

Figure 1: Participants in Waste Collection and Recycling



2 Waste and Inequality: The International Context

The most obvious disparity with regard to solid waste are differences in accumulation and consumption globally. In 1990, the global burden of solid waste was estimated at 1.3 billion metric tons. At this time, more than 50 per cent of the world's population lived in low income countries. They in turn generated just under half the total global municipal waste but contributed less than 20 per cent of the world's gross domestic product. Third World countries, therefore, generated a disproportionate share of waste relative to their share of world income. By contrast, the industrialised economies consumed more resources and produced waste

disproportionate to their share of population (Beede and Bloom 1995).

However, domestic or household waste is part of municipal SWM, and in the industrialised economies municipal waste only counts for a small fraction of overall waste produced. The main sources of waste overall are agriculture, industry and mining[8]. In the Third World by contrast, municipal waste is the largest component of urban solid waste, with domestic or household refuse often accounting for around 75 per cent of the total (Flintoff 1984). This is not to suggest that comparatively, households of the South are the mass consumers. On the contrary, the composition of waste in the North suggests far higher levels of mass consumption; being high in volume and low in density due to the large proportion of combustibles. In terms of household work, from what people throw away we have evidence of high consumption of convenience products, for example prepared and packaged food, which save on domestic labour[9].

In Third World cities by contrast, waste arisings are more dense and putrescible, comprising more organic waste and fines (i.e. dust, cinders, and ashes)[10]. What is evidenced by the municipal waste of the South is poor urban infrastructure and labour intensive household work. For example, when roads are not paved the content of fines is much greater, leading to more dirt and dust ending up in municipal waste. Household waste is likely to comprise the organic remains of fresh rather than prepacked food and ashes and cinders from cooking with woodfuel, charcoal or dung rather than electricity.

However with rising affluence and globalisation and with a proliferation of cheaper consumer products, packaging and built in obsolescence, the composition of waste has changed everywhere (Gandy 1994). This is captured in the description of an elder woman interviewed in Bangalore, of the changes she had seen in her lifetime:

> When I was a young child we did not make much waste. Now we make ten times as much. Food waste cows used to eat. When I was younger provisions were wrapped in newspaper cones. Lentils and everything came like that. Now everything comes in plastic bags. When I was a child my job used to be to fill the kitchen containers. I used to make a hole in the bottom of the cone and let the goods drain into the container and each thing would make a different sound. It would be fun – peanuts, rice, lentils. My father used to rap me over the knuckles and say I was wasting paper! Milk we used to buy so that they filled our own steel container, or bottles which you took with you. We bought oil in steel containers you took to the shop. The shopkeeper would measure it out and put it in your container. For vegetables and fruit we would go with a cloth bag. So there was hardly any waste. Now for everything there is a packet.

Thus not only was modern waste absent in her childhood, but so were the current attitudes of the 'disposable society'. However, as incomes rise, the demand for convenience products increases and taste, consumption patterns and attitudes are changing. Women in the South are by no means immune to this process, as the observations of another woman interviewed in Bangalore suggest:

> Waste was never a problem before and recycling is part of our history. Before, our things used to come in little cardboard boxes or newspaper packets and now they come in plastic. This was not our culture before. Now we have paper plates, and whereas we used to use old clothes for cleaning, now we are using dusters bought from shops. By the time my daughter comes along, she will be using paper towels like in the west!

Thus as the total volume of waste generated goes up, so the proportion of 'wet' waste such as food waste, dung, excrement and garden declines, while that of 'dry' waste such as paper, metals and plastic

[8] Matthew Gandy (1994: 111) estimates municipal waste in industrialised economies to be no more than 4 per cent of the total.

[9] It should be borne in mind here that high volumes of combustibles in municipal waste, such as paper, would also derive from commercial and institutional sources as well as residential waste.

[10] In South Asia the dung of domestic animals such as cows and buffalo also makes urban household waste heavier.

increases (Flintoff 1984)[11]. This in turn has led to a higher proportion of recyclable materials being discarded, materials that feed the informal livelihood strategies for the estimated one to three per cent of the urban population in developing countries involved in waste collection, picking and buying (Cointreau-Levine 1990).

Despite these trends, there are still stark differences in municipal SWM in cities of the North and South[12]. In the North, regular and effective refuse removal services have developed, with general compliance and cooperation on the part of householders and other service users. However, waste minimisation and recycling remain continued preoccupations. Although there is little disagreement that they should be primary goals of environmental management, and today they are automatically included in any formal waste management hierarchy[13], current markets in recycled goods in the North are rarely profitable and to develop them requires political will which itself can be a scarce commodity (Gandy 1994). Moreover, as Gandy (1994: 111) points out, in industrialised countries where municipal waste accounts for such a small proportion of the overall waste stream, 'the recycling of materials in **household** waste will not in itself stave off environmental catastrophe' (emphasis added). However, as he goes on to argue, the promotion of domestic recycling still has advantages in that it at least raises public environmental awareness about waste minimisation and reuse.

As the quote cited above suggests, by contrast householders in cities such as those of South Asia need less prompting to conserve and reuse waste items with residual value. Moreover, there are viable city-level, regional or national markets for many waste materials and, although informal, they are well-organised and profitably produce affordable products for local use (Ali 1996). Thus householders participate willingly and conventionally in recycling activities. This does not always extend to waste which is discarded after separating, sorting, saving and selling waste in the household (source separation) and the major municipal waste problem faced in Southern cities relates to the collection and disposal of unwanted household waste. They rely on antiquated institutional arrangements and paltry and unreliable tax bases to sustain what are increasingly ineffective refuse removal services. For developing countries as a whole, it has been estimated that only around 70 per cent of solid wastes are transported to final disposal sites daily and only half of households are covered, with low-income urban dwellers being the worst off (Cointreau 1987).

An **Economist** (29th May 1993) survey of solid waste began with the following observation:

> When archaeologists want to discover how primitive people lived, they delve into pre-historic rubbish heaps. What will they make of the tips from the late 20th century? They will certainly have plenty to pick over. As people buy more objects, they throw more away. And as they use more plastic, chemicals and metals, so what they discard becomes increasingly durable and potentially poisonous.

While this may be the case for the North where as yet multitudes of people do not sustain themselves from what others discard, it is not true for many Third World cities. Future archaeologists delving

[11] Waste in the 'dry' stream is understood to comprise those items which are separated at source by householders or which are recovered from waste sources such as bins and dumps for sale within the recycling chain, for example metals, paper, glass and plastic. The 'wet' waste stream is understood to comprise the putrescible and organic waste which remains. The significance in terms of South Asian notions of purity and impurity is that 'wet' waste is considered impure.

[12] Within Southern countries themselves, urban solid waste contrasts with that in rural communities where incomes, along with quantities of waste arisings, are low and where most materials are recycled anyway, for example organic waste being fed to animals and worn-out clothes being used as rags (Lohani *et al.*, 1984:1). This pattern is also discernible in low income urban settlements where the volume of waste is low and where reclamation and reuse is extensive.

[13] Agenda 21 which came out of UNCED in 1992 warned that globally, unsustainable consumption will cause waste arisings to quadruple within a generation and that disposal costs will treble. A first order intervention is seen to be source reduction or waste minimisation in the production process as part of a pollution prevention strategy. A second order strategy is waste reuse in the production process, followed by prolonging the life of products through recovery, reuse, repair and recycling, being the creation of new raw materials out of those retrieved from the waste stream (Gandy, 1993).

into the final disposal sites of Faisalabad or Bangalore would find very little to pick over, not because of consumption deficit but because of their having been thoroughly picked over already.

3 Gender, Waste and Inequality in the Case Study Contexts

The patterns described above for Third World cities broadly apply to both Bangalore and Faisalabad, although, as well as similarities, there are differences between them. Bangalore is presently the fifth largest metropolis in India, estimates placing its population at between 5–7 million people, with much of its growth having occurred over the last two decades. While internal population growth accounts for much of its expansion, in-migration to the city continues apace. It is commonly said that Bangalore used to be known as the 'Garden City' of India but due to a rapidly expanding population and declining urban services, including SWM, it is now dubbed 'Garbage City'. Bangalore which is Karnataka's state capital, is known as the 'Silicon Valley' of India. Despite its reputation and attraction as a city of wealth and opportunity, however, Bangalore is host to a growing population in poverty, an estimated tenth of whom live in slum settlements and over 40,000 of whom are street and working children, the majority of whom spend some periods of their days, weeks or lives picking waste.

Faisalabad is Pakistan's third largest city, situated near Punjab's provincial capital, Lahore and with an estimated population of around two million people. Present-day Faisalabad reflects is roots as a market town. However, it is better known as an industrial city and is referred to as the 'Manchester of Pakistan' by virtue of the large textile industry which has come to dominate its economy. The city has expanded rapidly since Independence and Partition in 1947 and this has put enormous pressure on urban infrastructure and services which were designed and established for a much smaller population and an area of about 10 square kilometres. The rapid increase in population and the five-fold growth in the geographical size of the city has put the system under tremendous pressure. For all its problems in relation to urban infrastructure and services, levels of poverty in Faisalabad do not match those in Bangalore. For example, the number of people dependent on the informal waste economy in Faisalabad is probably less than that in Bangalore, and, to the extent that children are involved, they are usually part of families which have a range of livelihood strategies, only one of which is waste picking.

Furthermore, in both cities there is a thriving informal waste economy involving the male dominated activity of hawking, whereby itinerant waste buyers go door-to-door purchasing 'dry' waste items from householders and domestic workers[14]; middle dealers who buy from them and sell on to main dealers and manufacturers of recycled goods. Whereas picking involves men, women and children, hawking and dealing in waste constitute all-male spheres of activity, but ones which are fundamentally dependent on women in households separating and sorting waste items for reuse and sale.

Among the sweepers of Bangalore and Faisalabad both women and men are to be found. Although unpleasant and stigmatised work, being a sweeper in both cities means a relatively well-paid job in which incumbents believe themselves to be secure. This is partly because of the terms and conditions which have governed this area of public sector employment since the time of British rule, and partly because they believe this work will always remain theirs by virtue of their caste or hereditary group status[15]. Traditionally, both men and women do this work, although the evidence from Faisalabad, at least, suggests that as competition for public sector employment increases, Christian women's access to municipal jobs is declining relative to men[16].

There is a major difference in gender relations

[14] I use the term 'domestic worker' to refer to people who are paid to do housework rather than the more stigmatising term 'servant' or 'domestic'. This is not to imply that women householders do not themselves do domestic work as part of their reproductive responsibilities. With regard to waste work, women predominate among both the householders and domestic workers.

[15] See Akerlof (1976); Bose and Blore (1993) and Jagganathan (1987) for discussions of how caste or hereditary group status is used to protect customary occupations in the context of fierce competition for access to work and income-earning opportunities.

[16] A fuller discussion of sweepers is beyond the scope of this article; see J.D. Beall (1997).

between Bangalore and Faisalabad. In Bangalore, both rising affluence and increasing poverty have given rise to more women doing paid work outside the home and the majority of women are not secluded. In Faisalabad by contrast, ***purdah*** or seclusion is strictly observed across all classes, but especially among women in middle income households and neighbourhoods[17]. Few women do paid work outside the home and women's mobility is severely restricted, although as Kabeer (1995) and others have pointed out, women employ cultural strategies to overcome this. Gender relations and women's concomitant responsibilities in the gender divisions of labour in Bangalore and Faisalabad, have implications not only for their own involvement in household waste management, but for the livelihood opportunities for others in the informal waste economy.

4 Gender, Thrift and Poverty in Household Recycling

Unlike in many cities of the North, therefore, householders in Bangalore and Faisalabad needed little encouragement towards household source separation of recyclable waste items. In addition to being part of traditional housewifery, the practice had an economic logic, given viable markets for waste materials. Moreover, the door-to-door service provided by itinerant waste buyers, made for a convenient service which facilitated the tasks of house cleaning. If women householders did not separate, domestic workers or children did. It was not an activity that the men of the household ever got involved in. When asked if he ever sold waste to a hawker, a man interviewed in Faisalabad replied, 'Men have one thousand tasks to do and they leave their houses early in the morning .... this is petty selling and not a man's job'. However, most knew a lot about how selling and bargaining went on from when they sold waste for their mothers or on their own account as children.

The widespread practice of household waste separation can be explained in large part by thrift, considered an important sign of good household management. In low income households, thrift was about catering for one's family within one's means, saving, bargaining and skilfully cutting corners without depriving one's husband or children. Although thrift was less a matter of necessity in better-off households, it was still considered a virtue. In most Bangalore or Faisalabad households nothing was wasted.

Although all households separated waste, whether or not it was sold (as opposed to being reused or given away) varied. For example, in Faisalabad, the most common item separated across all income groups was bread and this was separated for religious rather than environmental reasons[18]. Bread was followed by used clothing, separated by around three quarters of high and middle income households and over half of households in low-to-middle and low income areas of Faisalabad. Again, this practice derived not from environmental but from social concern and cultural or religious attitudes towards giving and charity. Thus clothing was either passed on to relatives or in better-off households it was either given to charity organisations or to domestic workers and sweepers at festivals such as *Diwali* or *Eid*.

When the women interviewed about household recycling were asked whether they did it because of environmental awareness or customary practice, they confirmed this picture. An overwhelming majority of respondents in both cities asserted custom, as the following extract from an interview in Faisalabad suggests:

> I do what my mother did and she did what her mother did .... We keep *roti* and dry it and sell it. Bottles we also sell and each and everything that can be used again .... This is not for the environment. People here are not aware about the environment .... I think mostly they have the idea, "why not sell these things and get the money and bring in something else?"

Not all the women interviewed placed as much emphasis as this respondent on the income from waste. Nevertheless, they played a major role in separating and sorting waste items, supporting the

[17] See H. Papanek (1971, 1979) for a discussion of the function ***purdah*** plays in social upward mobility in Pakistan.

[18] Islam forbids the discarding of bread so it was either fed to animals or sold to hawkers who sell it on to animal-owners.

argument that to be seen to be thrifty was an important factor in household management. This was confirmed not only by the household survey but by interviews with domestic workers who said that, even when they were given the waste itself or the money from waste items, it was often the women of the household who separated the waste.

Of those items which fed into the informal recycling chain, there were differences in the items available for sale, influenced by household well-being levels. For example, ***ghee*** (oil) tins might be used to store grains and pulses in the middle income home, they might be sold by high income households, while in the poorest households there was little left from accumulation or consumption to sell on to any hawker and in fact they might buy used ***ghee*** tins from them.

In middle and high income households, who sold what depended on the nature of the material. For example, metals fetched the highest price and were sold by the householder or her children, rarely getting passed on to domestic workers to sell. Other items were not worth the while of better-off women to separate and sell and would get passed on. In middle income areas, especially in Faisalabad, children did a lot of the selling, either because their mothers or grandmothers observed ***purdah*** and would not go out on to the street to bargain, or because they were allowed to keep the proceeds from the waste buyer. In high income areas, the waste with less value usually went to domestic workers. Talking of her own attitude to waste, the comments of a woman from a high income household in Bangalore are illustrative:

> When something is no use to me I simply throw it out and I know a rag picker might use it. But my servant who lives in, she very meticulously collects things and every month or two she sells them. Milk comes in milk sachets and she washes these milk sachets and collects them. So every month or two she sells a kg of them for three to four rupees. For me it is not worth it. She collects and sells bottles, she collects plastic things like broken buckets. She has a trader who comes and collects all kinds of plastic waste and she gets things in return like utensils, brooms. We get a lot of junk mail. It is too much of a nuisance to collect it up, but she does and sells it to one of the hawkers. The guy who takes scrap iron and broken down electrical things my maid enjoys haggling with him. It takes ages and I wouldn't have the time but she enjoys it. Newspapers I collect and when they are piled up I take them in my car to the dealer because she says the hawkers who come door-to-door cheat with the scales. She collects them, keeps them and reminds me when to go so then we share the money together. Say after three months we make 75 rupees on paper, I give her 25 or we go and buy a big pack of ice cream.

Like most other women interviewed, this respondent played down the importance of the activity men referred to as this 'petty selling'. However, although not always motivated by financial gain, it had more significance than was sometimes acknowledged. When viewed not as part of household resource management but as an opportunity for discretionary spending on the part of women, the money received from the sale of waste materials takes on a different dimension. It was money, however little, that escaped the scrutiny of men and allowed women to enjoy and bestow little extravagances without losing their reputation for prudent household management. Thus even in middle and high income areas household women supervised not only the separation and sorting of waste but the income derived from its sale as well. The proceeds which went to domestic workers or children of the household did so only with their permission or blessing.

There were a number of differences both between and within the two cities. In the far less Westernised city of Faisalabad, women of the house kept greater control over source separation. This was partly to do with customary attitudes towards housewifery and partly because fewer women did paid work outside the house. In Bangalore, those women who were involved in paid work outside the home were less concerned about waste sorting and selling than those who did not. Indeed, domestic workers confirmed that although the workload was greater in nuclear households where both husband and wife worked, conditions were better. This they explained in terms of less constant scrutiny and the ability to pace their work themselves, and perks such as being able to access waste items for sale. There were obvious class differences involved as well. In some cases the well-being of the household depended on

a woman's ability to economise and bargain for the best rates possible, whereas in cases such as the one cited above, clearing the house of waste meant a little more latitude or treats for some.

In both cities, older women were more conscientious and interested than younger women about the sale of waste materials. Thus, while all women were concerned with waste **separation**, it was mainly older women who kept control over its **sale** and the rates received. The reasons for this were not uniform. In some cases it was because they enjoyed the *largesse* this discretionary income allowed them. In other cases, for example in middle income areas where fortunes had risen, younger women in the house saw less need for frugality than their mothers and mothers-in-law who had learnt their housekeeping in different conditions. For example, in Faisalabad where a majority proportion of the households interviewed had been affected by Partition, older women who had contributed to rebuilding lives and homes after the disruptions of 1947 were intolerant of anything that deviated from prudence and conservation in housekeeping. The hawkers interviewed confirmed they preferred dealing with younger women who were just concerned with getting unwanted items outside of their homes on a cleaning day, or children who wanted a few rupees to spend on sweetmeats or fruit (often provided by the hawker himself). Older women they found to be far more knowledgeable about, and concerned with, the rates they paid for waste, as indeed were domestic workers.

Christine Furedy (1990b), an important writer on the social dimensions of solid waste management has argued using examples from China and Malaysia, that there may well be a decline in household source separation with the rise in living standards and other economic indicators. However, evidence from Bangalore and Faisalabad suggests the contrary. The vast majority of households covered, in both the survey and semi-structured interviews, separated waste at source irrespective of income and well-being levels. For as incomes rise, so others are employed to do household work and they continue the practice. Moreover, the older itinerant waste buyers who were interviewed said that nowadays all householders selling waste were more conscious than in the past about the rates they received in payment. A number of them put this down to the increased media attention on recycling, for example on the radio and in the press. If they are to be believed, then environmental campaigning in Faisalabad and more particularly Bangalore where there is a broad network of NGOs concerned with the urban environment, has had the effect of raising awareness about the commercial value of waste itself, without necessarily having had any impact on the overall management of solid waste.

The hawkers or waste buyers to whom householders sold recyclable waste were always male, sometimes young boys who had elevated themselves from picking, sometimes old men, hawking in lieu of a pension. Some had done it all their lives, others moved in and out of waste buying according to the availability of other work. Some bought and sold waste to pay for a sister's dowry, others to pay off a father's debt. Indeed some young boys had been 'sold' by parents to dealers for just this purpose. From the point of view of waste buyers, although high income areas yielded better quality waste materials, they said they had better luck in middle income areas where women of the household were more likely to sell themselves, rather than give waste to domestic workers. This was because they were more interested in cleaning their houses and getting rid of the waste for a little return, than in adding a second crust to their livelihoods. Domestic workers by contrast, relied extensively on the 'extras' they derived from the households in which they worked, sometimes even more than the wage itself. Hence they haggled assiduously over rates.

Domestic workers in Bangalore, for example, bemoaned the advent of the fridge which had drastically reduced the amount of left-over food they were given to take home for their families. They preferred working in households where both husband and wife worked away from home so they were free to separate and sell waste without interference. When their employers were at home they said it restricted them. One young woman gave the example of her employer complaining that she was wasting water when she washed out milk packets to store for selling. Another said, 'When they stay at home they are more stingy. They don't give us money from waste and with the money they get, they buy all the vegetables. So what do I do? When I see it, I grab it and hide it for myself'.

For housewives from middle and high income households, the value of 'dry' or recyclable waste was more symbolic than monetary. Even in the face of the greater poverty and need of others, waste was sufficiently significant for many women not to relinquish control over the process of separation and sometimes the proceeds of household recycling. As one woman in Faisalabad said, when asked what time she preferred hawkers to do their rounds:

> Their timings don't matter to me but it is better if they come in the morning when men are not at home because they get irritated with this petty business. But if waste accumulates in the house, they get irritated about that as well.

Thus women's independence or control with regard to waste recycling has to be evaluated within the context of what are often essentially circumscribed lives. In low income households or indeed better-off households where women were expected to run the home on a tight or inadequate budget, any discretion they had in deciding how to spend money from selling waste constitutes a dubious prerogative. Even where frugality was not required, by no stretch of the imagination did women's volition over selling and spending in the area of recyclable waste constitute real power.

5 Gender and Inequality in Household Waste Removal

The discussion to this point has concerned recyclable 'dry' waste items separated within the household. The unwanted 'wet' waste (see footnote 11), the potentially impure remains of household accumulation and consumption, is the responsibility of women within the household itself. This was the case both for Bangalore and Faisalabad and across all income groups. Survey responses and interviews with male household members revealed that, true to gender stereotypes, women were associated with waste work along with other household work. Men knew even less about 'wet' waste management inside the home than they did about 'dry' waste separation and recycling. Among women household members, younger women of the household were responsible for the heavier cleaning work and waste removal duly fell to them. There were some differences between Bangalore and Faisalabad here because of the strict observation of ***purdah*** in the Pakistani city. While younger women did the heavy work inside the home, it was older women who took on tasks that involved leaving the seclusion of the house, such as taking waste to communal waste stands outside the neighbourhood.

However, the research shows that as the income or well-being level of households rises, the reproductive work formerly done by women household members is done by paid workers. As Ursula Sharma (1986) observed for Shimla in India, and it holds true for Bangalore and Faisalabad as well, paid household labour is financially within the reach of many housewives and a number of domestic tasks are off-loaded on to domestic workers, even in homes with only a moderate income. This was not true for all domestic tasks. For example, for a range of reasons women invariably chose to do the cooking themselves. Where there were a large number of women at home, in joint or extended families or where there were many unmarried daughters, they continued to do much of the cleaning work themselves. However, when household work was going to be delegated, it was invariably waste work which was the first to be shed.

As soon as they can afford it, therefore, householders employ someone else to remove their garbage. For example, in the informal settlements surveyed in both Bangalore and Faisalabad, the younger women in the settlement were prevailed upon to clean communal areas on a regular basis. However, when these got very dirty, for example after a holiday period, women would club together to pay a sweeper to clean up. In middle and high income households, the task of waste removal fell to domestic workers but when for reasons of cost or choice[19], domestic workers were not employed, other workers were paid to remove waste. The most common pattern was for householders to pay a sweeper privately to regularly collect waste from the house. In both cities, sweepers could be municipal employees doing private work either in or after official time. Alternatively, they could work privately, although they were often related or linked to

[19] For example, households where there were many women commonly chose not to employ domestic workers.

municipal sweepers in some way. In Faisalabad particularly, gender relations played an important part in determining how and where sweepers worked. Primarily, though not exclusively, men did the municipal work cleaning streets outside, with some private work collecting household waste from doorsteps. Women sweepers, on the other hand, did more of the private work inside, collecting waste bins and sometimes cleaning floors and toilets. In Bangalore where ***purdah*** was less of an issue, the gender division of labour among sweepers was not so obvious, with both women and men doing inside and outside work.

Ultimately, however, women householders wanted a discreet and unobtrusive waste removal service. In some cases they claimed an easy relationship with private sweepers and domestic workers, describing them as 'just like a family member'. Others opted for a more arm's-length relationship and even preferred employing children or male workers to ensure this. As one ***purdah***-observing woman in Faisalabad put it:

> Sardar comes daily but is honest and doesn't need supervising. He just shouts '*Kora*!' [waste] and we know to hide ourselves until he has gone. We prefer male sweepers as women sweepers tease us and keep asking for different things; for food, clothes and everything. But male sweepers never ask for anything except their wages[20].

From the perspective of sweepers, while domestic workers complained of too much supervision and scrutiny, sweepers talked of being invisible. 'They do not see us', one woman sweeper said, and in Faisalabad male sweepers down-played the stress householders put on observing ***purdah***, saying that it did not apply to them. 'As long as we have hair in our eyes [i.e. don't look at them] they don't worry about us'.

In middle income areas sweepers were often the only household workers employed. In more affluent homes, where domestic workers were also employed, sweepers were kept on to remove waste, but domestic workers were taking over more and more of the other tasks sweepers formerly performed, such as cleaning bathrooms and toilets. This was partly to do with changing employment patterns for household work and partly to do with the replacement of outside toilets with the inside toilet and flush latrine, dispensing with the need for sweepers to be employed to remove nightsoil. In Bangalore the trend towards domestic workers doing inside household work was further advanced, especially in apartment blocks where domestic workers also disposed of waste. In both cities, where there was more than one domestic worker it was usually a female who was responsible for removing waste from the house. However, increasingly common were households employing daily or part-time female domestic workers who were engaged for several hours a day and who did all the heavy cleaning work.

For the most part, sweepers, whatever their sex, were not able to make the transition from jobs as sweepers to jobs as domestic workers because of caste-based or religious prejudice. For example, in almost all households surveyed in Faisalabad, the majority of domestic workers were Muslim women. One of the women interviewed from a middle income household explained why, expressing a commonly held view:

> People prefer to have Muslims if they can get them because if you employ Christians in domestic work you run the risk of touching things they have touched. I know in England you people don't hesitate about this, but here we hesitate. So if you employ Christian workers then they can only wash the bathrooms and floors. And of course we prefer females. If there are two females, a Christian and a Muslim then we would prefer a Muslim woman because she can do washing and utensil cleaning and even cooking. At the same time she can perform the duty of a sweeper as well.

For both Bangalore and Faisalabad, what was not clear was whether waste work was considered polluting or simply the most demeaning aspect of household work. What was clear was that it was done either by women only, or by women or men of groups which were considered destined to this

[20] This has echoes of Tranberg Hansen's (1990: 12) observations on colonial Zambia, where white women did not want Zambian women in their homes and that while they preferred male domestic workers: 'In the view of their employers, these African men servants were part of the household inventory.'

work. In Bangalore somewhat more than Faisalabad, it appeared that caste-like attitudes were changing, reflecting the way in which the content and meaning of work, including waste work, can differ between societies and across time. More intransigent in the face of changing patterns of accumulation and consumption, was the fact that in terms of household work at any rate, waste work being done by a woman was less negotiable than it was being done by someone from a group traditionally equated with waste. In other words, when working with waste fell to a household member, it was almost always a woman. If men assisted it was within the privacy of the home. Men could not be seen doing waste work in front of the neighbours and if they did it was newsworthy[21]. However, in the strict ***purdah***-observing areas of Faisalabad men were frequently found to be supervising the male and female sweepers operative in their neighbourhood.

What this picture suggests is that the gender-based inequalities and interdependencies that characterise household work are intensified by other axes of inequality and interdependence, notably class and hereditary group status or caste. In the case of waste work itself, the inherent power differentials between employers and workers, whatever their sex, are overlaid by inequality deriving from the work itself. Household work in general is devalued and waste work brings with it its own heavy measure of stigma. This has historically provided a labour market niche for sweepers and has provided livelihood opportunities for women of this group, opportunities which may well be under threat.

In Faisalabad where this issue was explored in more depth, Christian sweepers were being squeezed out of livelihood opportunities doing waste work privately inside households, by domestic workers increasingly taking over the tasks they formerly executed. This particularly impacted on women sweepers who were chiefly involved in private work. Women also appeared to be more vulnerable in the face of increased competition for existing municipal jobs, where men were faring better. Women's vulnerability can only increase with trends towards sub-contracting waste collection services to private operators. Sub-contracting had already begun in some areas of Bangalore and in Faisalabad it was under review at the time of research[22].

There are various understandings of the term 'private' embedded in the above discussion. First the private nature of the ***purdah***-observing home in Faisalabad provided livelihood opportunities for women sweepers. Second, they were privately employed in the context of an informal waste economy operating within and alongside the official municipal system and threatened by a parallel informal system of paid domestic work. At a third level in Bangalore at least, the sub-contracting of municipal waste collection to private operators in the context of privatisation strategies meant preference was given to male employees. In all three kinds of 'private', the livelihoods of different groups are privileged in gender mediated ways.

6 Poverty and Vulnerability: The View from 'the Dump'

This article began by suggesting that scavenging for retrievable waste was only the most visible of multiple livelihoods derived from waste. It is questioned here whether it is the most vulnerable. In Bangalore, waste pickers were either recent migrants or were very young or very old. They were undoubtedly among the most deprived and vulnerable of the city's poor. Included among them were not only women and men but a majority of the city's estimated 40,000 street children. Some used waste picking as a stepping stone to something better. For example, several of the hawkers and waste dealers interviewed had begun as pickers, while others had moved out of waste work completely[23]. Others were

[21] For example, during a municipal sweepers strike in Faisalabad in 1993 the young men of one of the areas studied hired donkey-carts and organised neighbourhood waste removal themselves. This got extensive media coverage in the local press.

[22] While women appear to be most vulnerable in the face of the changing conditions of employment that come with sub-contracting, entire groups which have dominated sweeper jobs may themselves be at risk, see J.D. Beall (1997).

[23] Researching those who had left waste work was obviously problematic and even if time and resources had permitted, a tracer methodology would have been difficult, given the nature of the research population. Thus here the research relied on reporting by organisations working with waste picking children who remained in touch with ex-pickers and their families.

less fortunate and the activity proved to be a route to even greater vulnerability. For example, in Bangalore, a number of ex-pickers were found to be drug addicted or involved in prostitution.

However, many simply remained trapped in waste picking as a livelihood. Women and girls who picked waste in Bangalore were often from female-headed households with no other sources of income. They had their fair share of sexual harassment and moved in groups for social protection, only going out to pick after first light. As a result, they accessed the least valuable waste materials, left over after other pickers had finished. Young boys, out and about before the dawn, got better pickings but were more vulnerable to police harassment, often being suspected for stealing and other misdemeanours. While picking was precarious and the associated relationships were asymmetrical and often exploitative, insecurity was countered by networks of interdependence and mutualities of inclusion and exclusion.

For example, among street children in Bangalore, gangs would provide peer support and protection, but gang leaders would take their cut from members' incomes derived from waste picking or other activities including theft. Likewise, the bonds of loyalty between middle dealers and pickers were strong and welfare or development projects which have tried to break these bonds have usually failed. As one of the original founders of the Ragpickers Education and Development Scheme (REDS) in Bangalore explained:

> We realised that a street boy has the greatest affiliation towards those who purchase from him .... he will normally give five or ten rupees to the boy, a kind of understanding that he will look after him when he is sick. Sometimes they hold back money for a few days as a subtle way of keeping him attached .... Sometimes it is hard, very hard. The young fellows cannot really protest or run away. They will be caught and will be beaten up and a lot of harassment takes place .... But you can't look at the retailer [dealer] again as a tyrant. Sometimes he is more than a parent to the child. Like the way he looks after him when he is sick and when he is in the police station he will go and pick him up and come. He will do all those things. At the same time he can be a tremendous exploiter. So it is cruelty with co-existence.

Most projects working with waste picking children have focused mainly on street boys. A worker at a second project in Bangalore explained that girls were more difficult to reach and to rehabilitate than boys, a major problem being public attitudes. Allowing girls in their night shelter, for example, had led neighbours to accuse them of running a brothel. While vocational training and work placement for boys was difficult it was not impossible and boys were offered opportunities to train for jobs such as auto-rickshaw drivers, mechanics and carpentry by a number of projects in the city. At a third Bangalore project that did reach out to girls, the only alternative to waste picking they could offer was domestic service and even then project workers found it enormously difficult to find placements. REDS itself has recently begun working with girl children after a decade and a half of working exclusively with boys. This has accompanied a change in their strategy to target families rather than children alone.

Pickers can also be dependent on sweepers for access to waste which they get in return for myriad favours including money payments and payment in kind such as tea, cigarettes and even sexual services. This was easier to monitor in Faisalabad, although not necessarily more prevalent, because instead of numerous communal street bins from which pickers scavenged for waste, residential waste was taken by sweepers to neighbourhood waste stands or dumpsites to await transport to final disposal sites. Different dumps or portions of dumps at different times of the day, were in the hands of particular family networks of pickers, under the ***aegis*** of their patrons who might be municipal workers themselves or someone who guarded and controlled access to the dump with their permission.

In Faisalabad, although poor, pickers were less socially and economically deprived than those studied in Bangalore. Picking was primarily a family activity and, for many, was undertaken by some family members as one of a number of household livelihood strategies. In Faisalabad, pickers came from one of two main groups, the ***Dindars*** and the ***Changars***. The ***Dindars*** had converted to Islam in 1947 and as a result the women were not seen

picking. The ***Dindars*** also had livelihood options outside of waste picking. As Muslims they were often wooed for their support by politicians or religious leaders. Methods included providing access to employment as well as welfare-oriented projects. For example, research with one group of ***Dindars*** revealed that they had acquired security of occupation on serviced land as a result of the intervention of a religious leader.

Among the ***Changars*** females did engage in waste picking, usually as part of a family group in which boys and men covered the commercial areas while women and girls gleaned the less lucrative but socially safer residential areas for waste. Children's contribution to household income through waste picking was important. However, their parents and grandparents participated alongside them in a range of activities including weaving baskets and driving donkey-carts. Seasonal activities included providing agricultural labour such as to landowners at harvest time and picking and selling wild fruit berries. In Faisalabad, while both ***Changars*** and more particularly ***Dindars*** were beginning to move out of customary occupations, they continued to spread risk and reduce their vulnerability by engaging in a range of old and new rural and urban livelihood activities. For example, whereas in the past, whole families would be peripatetic, moving between town and country and from one area to the next, some family members now remained in the city protecting assets and access to resources including waste, while others moved around, retaining customary relationships of rural labour obligation. Thus ***Changar*** children while poor, were less vulnerable and insecure than their counterparts in Bangalore[24].

Waste picking has been conventionally associated with low social status and poverty (Furedy 1984, 1990a) and, indeed, pickers are undoubtedly deprived, insecure and often exploited within the informal waste economy. However, some research suggests that pickers can earn better livelihoods than workers employed in casual work such as construction labour, or in other informal sector activities. Moreover, waste picking and urban life is said to provide greater flexibility within an admittedly limited range of options, than, say work in sweatshops or within the oppressive functioning of a rural caste system (Venkateswaran 1994). The vulnerability of waste pickers is not only to do with the precarious nature of picking as a livelihood strategy, but is associated with both **who** and **where** they are.

In terms of who they are, women and girl children appeared to be most vulnerable, not only because they had access to the least valuable waste which did not on its own provide a viable livelihood, but also because, from a far less powerful position, they were embroiled in networks of reciprocity and relationships of interdependence. This applied both to the more exploitative arrangements, for example between pickers and middle dealers, as well as the more benign and supportive family and kinship networks such as those observed among the ***Dindars*** and ***Changars*** in Faisalabad. In terms of where they were, vulnerability appeared to be greater among pickers in Bangalore where the competition and the risks were higher, due to more extensive poverty in that city and changing family relations. Waste picking children in Bangalore were less likely than children in Faisalabad to be part of a family where picking was one of a number of diverse livelihood strategies, while female pickers in Bangalore were more likely than those in Faisalabad to be part of women-headed households with no other means of support.

The notion that vulnerability depends on who and where you are can be extended by linking waste and accumulation on the local dump to patterns of global accumulation and waste. I was told by a number of informants in Bangalore that the local market for waste paper had declined. Recycled paper, which went from pickers and hawkers, through middle and specialist dealers to nearby paper mills and fireworks factories, no longer fetched rates as high as in the past. This was due to waste computer paper coming in through Bombay, from places such Singapore. Significantly, women and girl children were the paper pickers, as it was paper that remained when all others had had their pick.

[24] Concomitantly, projects targeted at ***Changars*** in Faisalabad focused less on providing vocational training as did those in Bangalore, and more on enticing children into education by providing schools that accommodated their contribution to household livelihoods.

7 Concluding Remarks and Implications for Policy

This article has reflected on the interlocking circuits of accumulation and consumption that characterise waste generation, recovery and re-use and how they in turn intersect with the multiple axes of inequality and interdependence that characterise social relations in the household and residential neighbourhood. Waste picking is certainly testimony to the co-existence of poverty and inequality at city level and more widely. However, as Venkateswaran (1994) pointed out, waste picking can also provide a certain degree of freedom and flexibility within admittedly circumscribed lives. A contrasting image can be painted of affluent women cloistered behind high walls, wanting for little materially but aspiring precisely to more freedom and flexibility. This picture is poignantly reflected through the musings of a woman householder interviewed in Faisalabad:

> I find I have to cook for my husband for hours and hours and do this and that in the house when I want to do something else. Educated women are fulfilled but middle class women, we are very frustrated. I am lucky in a way that my husband allows me to go out .... but you know I think I have wasted my life. I wish I could do something like you were talking about a moment ago, sitting on the garbage dump and talking to *Changars*; that I would like to do. Something else besides tea parties. I want to do something for other people, especially for the poor.

Thus just as poverty is multifaceted, so too is vulnerability. The lives of high income, as much as low income women, are traversed by axes of inequality and interdependence that are bulwarks against insecurity as well as poverty.

By the same token, *Dalit* and Christian sweepers in Bangalore and Faisalabad have held on to jobs seen as traditionally theirs by virtue of their 'untouchability' or association with contaminated and impure waste. Sweepers themselves have proactively retained access to and control over this occupational niche through conforming to caste-based conventions in much the same way as Deniz Kandiyoti (1988) describes women in corporate households acquiescing to what she calls the 'patriarchal bargain'. Such relationships give rise to a necessary urban service, namely waste collection, while at the same time providing vital urban livelihoods for socially excluded groups. However, as indicated above and discussed more fully elsewhere (Beall 1997), customary occupations such as waste collection and retrieval can come unexpectedly under threat. The ability to successful adapt or move on from these livelihood strategies is mediated by axes of inequality and interdependence informed by gender as well as caste.

In understanding the interlocking circuits of accumulation and consumption that underpin waste, a second conclusion that emerges from the discussion in this article and one which might usefully be generalised further, is that it is not enough to understand intra-household gender relations in the context of development, as is usually the case (World Bank 1995). Insufficient attention is paid to the relationship between men and women in households and those in the neighbourhoods and cities in which they are located and embedded. The importance of doing so is illustrated here (Beall 1997) in the context of one arena of urban services and the by-products of household production and consumption.

Protecting the environment is frequently posited as a process which can damage livelihoods as environments often **are** livelihoods, for example common pool resources (CPRs) such as common grazing land, fishing waters and so on. In the case of solid waste, livelihoods based on waste retrieval can contribute to the protection of the urban environment. However, outcome should not be imputed as cause. There has been much criticism (Jackson 1993) of the arguments linking women to nature and which suggest women have an intrinsic or essential affinity with both environment or dirt, gender stereotypes alluded to in the introduction. Certainly in respect of solid waste and the urban environment, it would be difficult to support the contention that the 'organic process of growth in which women and nature work in partnership with each other has created a special relationship of women with nature' Shiva (1989: 43). On the contrary, affluent women householders and their less well-off employees, discard waste from the house without further thought.

For those women and men who retrieve household waste, their interest is not in conserving what is

organic and natural but picking out what is recyclable and has monetary value. For those who remove it, their relationship to waste is no more determined by their caste than women's relationship to waste is biologically determined by their sex. On the contrary, in the case of both gender and caste-like relations, association with waste is socially constructed. Women in the household, and women and men outside it, are inserted into the process of resource conservation not for reasons of biological essentialism or even choice deriving from environmental consciousness. The overwhelming pattern emerging from the field research in both cities was that motivations were closer to need, greed and habit.

The implications for SWM policy, concerned both with the urban environment and integrated poverty reduction strategies, are threefold. First, households have to be seen as part of the private arena of waste management, in which both unpaid and paid relationships of reciprocity and exchange take place along intersecting axes of inequality and interdependence. Moreover, these relationships occur not only within households but between households and immediate and broader environments. What households consume is of significance to others. For example, plastic from an imported video tape which cannot feed local plastic recycling workshops is less valuable than broken plastic utensils that can. Packaging from food and other consumer goods can boost livelihoods, so long as the market for local recycled paper is not swamped completely by imported waste paper.

Second, strategies to reform SWM such as decentralised and community-based waste management programmes cannot simply rely on the labour and other inputs of women, based on the assumption that they have any 'natural' affinity with the environment (Mies 1986; Shiva 1989) or even that they will automatically take responsibility for community management (Moser 1993). There is a tradition of recycling and taking responsibility for 'dry' waste which has been positively reinforced by environmental campaigning in both cities, particularly Bangalore. However, this has not been successfully extended to the management of 'wet' waste which becomes very definitely someone else's problem, where the ***rangoli*** ends[25]. As Chakrabarty (1991: 27) poses the issue with reference to public space in colonial India, 'the space that collects garbage is the one that is not subject to a single set of communal rules .... the space that produces both malevolence and exchange between communities'.

Even separation of 'dry' waste at source has finite appeal, as revealed by the waste items women householders of different incomes and ages were prepared to separate and sell. This is not to suggest that those materials that were not worth their while did not eventually get retrieved and recycled by others such as domestic workers and pickers. However, this is the nub of the paradox of urban resource conservation in cities of the South, the reality that affluence produces waste while poverty encourages its efficient reuse, and that livelihoods from waste are predicated upon persistent inequalities in income and consumption.

Third, and with this in mind, deliberate policy interventions aimed to alleviate or change the conditions of those who earn a livelihood from waste, need to be cognisant of the advantages as well as the disadvantages to low-income urban people, both women and men, of work in the informal waste economy. It is important that interventions do not increase the vulnerability of waste pickers by displacing them without providing viable and sustainable livelihood alternatives (Bubel 1990; Furedy 1989; Sicular 1992). At the same time, policy needs to challenge both the social stereotypes that assume certain groups have a natural affinity with dirt, disorder and waste work, and the economic conditions that provide them with no choices aside from it. Recognising the micro-politics of household and residential solid waste management in policy formulation and planning will not only increase the likelihood of integrating anti-poverty strategies in efforts to improve the management of urban services but may well lead to more effective solid waste management itself.

[25] ***Rangoli*** is a pattern with religious connotations drawn at the front entrance of each Hindu house in lime to keep out evil. It is suggested here that it also constitutes a symbolic divide past which efficient household management is no longer required.

References

Akerlof, G., 1976, 'The economics of caste and of the rat race and other woeful tales', **Quarterly Journal of Economics** Vol 90 No 4: 599–617

Ali, S. M., 1997, 'Integration of the official and private informal practices in solid waste management', PhD Thesis, Loughborough University

Barth, F., 1960, 'The system of social stratification in Swat, North Pakistan', in, E. R. Leach (ed) **Aspects of Caste in South India, Ceylon and North-West Pakistan**, Cambridge: Cambridge University Press

Baud, I. and Schenk, H, (ed.) 1994, **Solid Waste Management, Modes, Assessments, Appraisals and Linkages in Bangalore**, New Delhi: Manohar Publishers

Beall, J. D., 1997, 'Households, livelihoods and the urban environment: social development perspectives on solid waste management in Faisalabad, Pakistan', PhD Thesis, London School of Economics and Political Science

Beede, D. N, and Bloom, D. E., 1995, 'The economics of municipal solid waste', **The World Bank Research Observer** Vol 10 No 2: 113–50

Bose, A. and Blore, I., 1993a, 'Public waste and private property: an enquiry into the economics of solid waste in Calcutta', **Public Administration and Development** Vol 13: 1–15

Bubel, A. Z., 1990,' Waste-picking and solid waste management', **Environmental Sanitation Review** No 30, December, Bangkok: Environmental Sanitation Information Centre, Asian Institute of Technology

Chakrabarty, D., 1991, 'Open space/public place: garbage, modernity and India', **South Asia** Vol XIV No 1:15–32

Cointreau, S. J., 1984, 'Solid waste collection practice and planning in developing countries, in J. R. Holmes (ed), **Managing Solid Wastes in Developing Countries**, New York: John Wiley and Sons

——, 1987, **Solid Waste Recycling: Case Studies in Developing Countries**, Washington DC: The World Bank

Cointreau-Levine, S. J., 1990, 'Recycling from municipal waste: how do industrialised and developing countries compare?', Paper Presented at the World Congress of Local Governments for Sustainable Futures, 5–8 September, New York

Douglas, M., 1966, **Purity and Danger: An Analysis of the Concepts of Pollution and Taboo**, London and New York: Routledge

Flintoff, F., 1984, **Management of Solid Wastes in Developing Countries, Second Edition**, WHO Regional Publications, South East Asia Series, World Health Organisation Regional Office for South-East Asia: New Delhi.

Furedy, C., 1984, 'Socio-political aspects of the recovery and recycling of urban wastes in Asia, **Conservation and Recycling** Vol 7 No 2-4: 167–74

——, 1989, 'Challenges in reforming the philosophy and practice of solid waste management: a social perspective, **Regional Development Dialogue** Vol 10 No 3, Autumn

——, 1990a, 'Social aspects of solid waste recovery in Asian cities', **Environmental Sanitation Reviews** No 30, Bangkok: Asian Institute of Technology, Bangkok

——, 1990b, **Emerging Concepts of Citizen Participation: Cooperation and Education for Responsive Solid Waste Management in Asian Cities**, Ontario: York University

Gandy, M., 1993, **Recycling and Waste: an Exploration of Contemporary Environmental Policy**, Aldershot: Avebury.

——, 1994, **Recycling and the Politics of Urban Waste**, London: Earthscan Publications

Hart, G., 1995, 'Gender and household dynamics: recent theories and their implications', in M. G. Quibria (ed.), **Critical Issues in Asian Development**, Hong Kong: Oxford University Press

Huysman, M., 1994, 'Waste-picking as a survival strategy for women in Indian cities', **Environment and Urbanisation** Vol 6 No 2: 157–174

Jackson, C., 1993, 'Women/nature or gender/history? A critique of e cofeminist "development"', **Journal of Peasant Studies** Vol 20 No 3 April: 389–419

Jagannathan, N. V., 1987, **Informal Markets in Developing Countries**, Oxford: Oxford University Press, Oxford

Jeffery, P., 1979, **Frogs in a Well, Indian Women in Purdah**, London: Zed Press

Kabeer, N., 1995, 'Necessary, sufficient or irrelevant? Women, wages and intra-household power relations in Urban Bangladesh, **IDS Working Paper** No 25, Brighton, September

Kandiyoti, D., 1988, 'Bargaining with Patriarchy', **Gender and Society** Vol 2 No 3: 274–290

Lohani, B. N., Todino, G., Jindal, R. and Ludwig, H. F., 1984, 'Recycling of solid wastes', **Environmental Sanitation Review** No 13–14, Bangkok:

Environmental Sanitation Information Centre, Asian Institute of Technology

Masselos, J., 1981, 'Jobs and jobbery: the sweeper in Bombay under the Raj', **Indian Economic and Social History Review** Vol XIX No 2: 101–139

Mies, M., 1986, **Patriarchy and Accumulation on a World Scale: Women in the International Division of Labour**, London: Zed Books

Moser, C. O. N., 1993, **Gender Planning and Development: Theory, Practice and Training**, London and New York: Routledge

——, 1996, 'Confronting crisis: a comparative study of household responses in four poor urban communities, **Environmentally Sustainable Development Studies and Monograph Series** No 8, Washington DC: World Bank

Ortner, S., 1974, 'Is female to male as nature is to culture?' in M. Rosaldo and L. Lamphere (eds), **Woman, Culture and Society**, Stanford, California: Stanford University Press

Papanek, H., 1971, 'Purdah in Pakistan: seclusion and modern occupations for women', **Journal of Marriage and the Family** Vol 33 No 2, April

——, 1979, 'Family status production: the "work' and "non-work" of women, **Signs: Journal of Women in Culture and Society** Vol 4 No 4: 775–81, Summer

Prashad, V., 1995, 'Marks of capital: colonialism and the sweepers of Delhi, **International Review of Social History** No 40: 1–30

Sanjek, R. and Colen, S. (eds) 1990, 'At work in homes: household workers world perspective', **American Ethnological Society Monograph Series** No 3, Washington DC: American Anthropological Association

Searle-Chatterjee, M., 1981, **Reversible Sex Roles: The Special Case of Benares Sweepers**, Oxford: Pergamon Press, Oxford

Sharma, U. M., 1986, **Women's Work, Class and the Urban Household: A Study of Shimla, North India**, London and New York: Tavistock Publications

Shiva, V., 1989, **Staying Alive: Women, Ecology and Development**, London and Delhi: Zed Books/Kali for Women

Sicular, D., 1992, **Scavengers, Recyclers and Solutions for Solid Waste Management in Indonesia**, University of California, Berkeley: Centre for Southeast Asian Studies

Streefland, P., 1978, **The Sweepers of Slaughterhouse**, Assen, The Netherlands: Van Gorcum

Talwar Oldenberg, V., 1984, **The Making of Colonial Lucknow**, New Jersey: Princeton University Press

Tranberg Hansen, K., 1990, 'Part of the household inventory: men servants in Zambia', in R. Sanjek and S. Colen (eds) 'At work in homes: household workers in world perspective', **American Ethnological Society Monograph Series** No 3, Washington DC: American Anthropological Association: 119–145

Venkateswaran, S., 1994, **The Wealth of Waste: Waste Pickers, Solid Wastes and Urban Development**, New Delhi: Friedrich-Ebert-Stiftung