

**MIXED USES IN RESIDENTIAL AREAS**  
**A PILOT STUDY**

**Final Report for ODA Research Project No. 6265**

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## **Introduction to informal sector enterprises**

Home-based enterprises (HBEs) are part of the informal sector; a part of the economy first identified by Keith Hart (1973) in his seminal paper on Accra. The informal sector has three defining features on which most commentators would agree and which all appear to apply to HBEs:

1. A substantial overlap between providers of capital and providers of labour in each enterprise.
2. The prevalence of near perfect competition (i.e., competitive markets with easy entry and labour surplus).
3. Largely unorganised, unincorporated enterprises to which legal restrictions on employment do not apply (Lipton, 1980).

Hugon (1990: 71) points out that the term "Informal Sector" implies poverty, in that it generally involves

"activity too poorly paid to meet basic human needs or ...exclusion from the welfare or solidarity networks; ...[and] small-scale production, deriving from particular modes of technology management, factor utilisation and performance."

HBEs are generally small enough to fall into the category of micro-enterprises. From experience in Africa, Hugon (1990) summarises some of the common features of micro-enterprises as:

1. the people in charge are young,
2. entry is not onerous in terms of seed capital, which normally derives from private saving,
3. technology is simple, and
4. relationships have a non-wage basis.

There tends to be a lack of bookkeeping so that production and domestic activity are undifferentiated. Hugon suggests that maximising operating profits is not the prime purpose. In fact, the general strategy is one of "minimising risks in an uncertain world, coupled with efforts to diversify by those who have managed to create a surplus" (Hugon, 1990: 73). Small producers seek to maximise returns relative to cash outlays while they cater for a strongly fluctuating demand among relatively poor people. Their goods and services are thus prone to be sold in 'penny-numbers' tailored closely to their clientele (what Hugon calls "highly fractionable and customised" p. 73). Their activities also tend to be based on family, ethnic, caste or corporative ties.

While micro-enterprises in the informal sector may not appear in any economic statistics, they are obvious to the eye and part of everyday experience for all income groups. The car driver can count on the pavement mechanic or streetside garage for the repairs he needs, the rickshaw puller can quench his thirst on iced water, the office worker can buy and light his single cigarette at break time, and the poor housewife can buy her cup of flour and single onion on credit till Friday.

They are also a coping response to poverty. The lack of transport, water and washing machines, electricity supplies and such appliances as irons and cookers in the home, are responsible for such activities as carriers, street laundries, and food kiosks. Traditional healers stand in for official health services, private creches replace missing public nursery schools (Hugon, 1990). That these activities are outside laws and regulations may have more to do with an inappropriate legal framework or the inadequacy of enforcement than with any perniciousness involved in such activity or the rule of the black market.

### **Introduction to HBEs**

*"Concentration of work in factories and office buildings had little momentum until the Industrial Revolution, and doctrines about separating residential and working zones followed that. Nevertheless, whether or not some time and space in the dwelling might not be advantageously used for producing extra income is an issue still weighed by millions of households in countries at all income levels."*  
(Strassmann, 1986: 498)

*"If there is one lesson for planners in the massive literature on slums and squatter community life, it is the finding that housing in these areas is not for home life alone. A house is a production place, market place, entertainment centre, financial institution and also a retreat. A low-income community is the same, only more so. Both the home and the community derive their vitality from this multiplicity of uses. The imposition of artificial restrictions on both, would only hinder their growth and development."* (Laquian, 1983)

It is generally acknowledged that there is a need to consider the inter-relatedness of housing and income generation in low-income settlements. Three recent publications from the United Nations (UNCHS, 1989; UNCHS, 1993, and UNCHS/ILO, 1995) confirm the need for research in this link. In fact, the last proposes both research on mixed uses and the establishment of some pilot projects in which work-place and residential space are integrated in a variety of housing types and different cultures to examine the implications of planning for mixed uses.

In low income areas, the complex web of economic linkages present in and between the home-based enterprises (HBEs) allow all but the destitute to eke out a living and have access to some shelter. There is believed to be a symbiotic relationship between housing and HBEs. Owners may be enabled to consolidate their dwellings through the income earned in an HBE. Many households would not have their dwelling without the HBE and many enterprises would not exist without the use of the dwelling. Thus, housing plays an important part in the existence and operation of the informal economy in many countries.

In Strassmann's (1986) work, 68 per cent of respondents said that they needed the HBE in order to afford the dwelling. Thus, he assumes that housing conditions would have been worse without HBEs.

"Conversely, 70 per cent of [Strassmann's] HBE operators said that their enterprise would not exist if the dwelling space were not available. Over 80 per cent of repair workers and male-head-dominated 'sturdy' manufacturing operators said the business income was necessary for the dwelling. Less than half the dwellings with women weaving or dispensing medical services were dependent on such income. Yet these female-operated businesses, including laundries, retail trade, and personal services, were the ones most dependent on

the dwelling as a site. About three-quarters could not operate elsewhere, while about half of the 'sturdy' activities were considered moveable. Although the income of the male-headed HBEs was more, their dwellings had lower value than those with HBEs operated by women, partly because total household income was less." (Strassmann, 1986: 497)

Lipton (1980): 190-1) discusses HBEs in the guise of "family mode of production enterprises" (FMPEs) whose characteristics are:

1. that the family controls most of the land and capital to which its labour is applied;
2. that most of the family's land, capital and labour are used in the enterprise; and
3. that most of the labour applied is provided by the family.

He also stresses the advantages that HBEs (FMPEs) derive from being able to treat resources fungibly. The concept of fungibility is important for us here. It means that a resource can be converted swiftly, conveniently and without loss from one use to another. Cash is the ideal fungible resource in that it can be used to buy food, pay tax, pay a worker, save, invest in education, or any one of thousands of functions. In research on economic activities, fungibility is normally applied to the conversion of resources within a single sphere, e.g., within the enterprise. Lipton (1980) argues, however, that the family mode of production allows fungibility to extend beyond the bounds of the enterprise and to impinge on the domestic sphere as well. Thus, time spent in domestic activities can be converted to time spent in the HBE as the ebb and flow of domestic work permits; food intended for sale can be consumed for the family's evening meal; space which is used for, say, sleeping during the night, can be utilised for making paint brushes during the day and, if a person is ill and needs to lie down, can be converted back to sleeping space even in the daytime; money can be spent on improvements in living conditions or in working conditions (or both at the same time). All these changes are made virtually without cost and inconvenience.

Lipton (1980) calls this extension of fungibility between the economic and domestic spheres "extended fungibility". He offers small family shops as an example of where extended fungibility is a vital effort in the survival and profitability of an HBE. In the family shop, work and the reward for it can be

flexibly picked up and laid down according to family convenience all within a building which is flexibly warehouse and home. The shop owner is probably earning less than he/she could in a formal shop or supermarket but (s)he would be reluctant to give it up because it offers income and employment opportunities for the children and others in the family. This may operate at different levels. Firstly there is the obvious wish to leave a business to the next generation. However, Gilbert (1994: 620) suggests that there is a more immediate reason for a household to include their children in the work. By having them occupied in the home or immediate neighbourhood, they can be protected from temptations and dangers in the wider world. By being occupied in work, they can be learning a skill or gaining experience which will prepare them to be the household's provider.

Many women and children are not available for full-time employment but can divide their time between household chores, education and the HBE. However, as Lipton (1980: 218) explains,

"[The] advantages of extended fungibility have to fight against scale economies, capital:labour ratios and capital specificities; gains from specialisation; and, often, State power."

The aspect of extended fungibility which most interests us in this study is that of space. It appears that the distinction between reproduction (domestic activities) and production (economic activities) is not clearly drawn in developing country households (Hays-Mitchell, 1993). However, planning policies and land use regulations have been based on the separation of these two functions. In these, the formal sector, acting through the state, is seen as

"...defending itself against externalities - whether they are unseemly sights and smells and (usually exaggerated) health hazards, or family mode of production enterprises' competitive challenges - ...through inappropriate rules on building, housing and trading" (Lipton, 1980: 223-4).

Policy-makers and commentators have often been highly critical of home based enterprises from several standpoints.

1. In countries where the government is a large scale housing provider, there is a moralistic bias against private economic gain arising from social housing support (Strassmann, 1987).

2. Single-use zoning has been a tenet of town planning for decades, thus, residential areas should not be sullied with commercial or industrial uses. As Home (1992: 197) points out, however, distinctions based on social bias have been made as "professional groups such as doctors and dentists have been allowed a freedom to use part of their homes for business, but the small shop-keeper or garment-worker has not." In Delhi, income generation within planned neighbourhoods is illegal and so requires some form of political patronage to continue (Benjamin, 1993).

3. The isolation and lack of visibility of home-workers allows exploitation of the HBE proprietor by factories and middlemen, and of the workers by the proprietors. This is especially evident in outworking systems whereby an industrial establishment employs workers to carry out processes in their homes, ostensibly as self-employed entrepreneurs but, in reality, as dependent workers or disguised wage-earners. There is rarely any guarantee of future work and so any bursts of activity are coped with for fear of losing out when times are slack (Bose, 1990). Furthermore, as many only make a small element in the whole product, job satisfaction and variety of task can be almost completely absent.<sup>1</sup> Workers tend to be exploited through intolerable wage levels, frequent lengthening of the working day, and lack of safety, security and the right to organise (Young, 1981; UNCHS/ILO, 1995).<sup>2</sup> An example of such exploitation on a massive scale is given by Bose (1990) who reports that 100,000 lace makers in Narsapur, generating 90 per cent of the state's export earnings, received only Rs0.56 (about 4p) per day for fine skilled work.

4. Control over HBEs is virtually impossible because, by their very nature, they blend into the residential environment as much as possible.

However, in spite of official disapproval, poor households continue to establish and operate HBEs.

Although few small-scale informal sector operations move up to become large, successful formal sector firms (the Amways and Microsofts of this world have

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<sup>1</sup> We observed an elderly lady in our case study area who made the ends of decorative shoe laces as an outworking task. Such narrow jobs must be very tedious and soul-destroying and the remuneration is likely to be niggardly.

<sup>2</sup> Hays-Mitchell (1993) indicates that HBE operators may not be the worst off. She points out that street hawkers (*ambulantes* in Lima) fare even worse.

been through the process with spectacular success), they do sustain the poor in marginal livelihoods in a way which the formal sector cannot. Gilbert (1988) points out that HBEs exist between founding and floundering; they are founded, operate for a time with more or less success, and then close down. During this time, they provide a flow of goods, services, employment, and income which sustain many poor households. When they close, something else is founded and the process is repeated, often not far out of the jaws of destitution but at least out of them.

The absence of HBEs in many dwellings demonstrates that they are not a universal solution to even part of the income gathering function of households. Some households are content with, or prefer, the separation of work and home. However, others sacrifice considerable portions of their living space to accommodate the paraphernalia necessary to earn a living, even to having machinery in the living room, sacks of goods behind the bed, and relatively unpleasant processes (e.g., the sorting of garbage) occurring close to eating spaces. The balance between dwelling as desirable living space and as workplace is likely to vary depending on the income and aspirations of the household and their neighbours, the profitability and nature of the economic activity, alternative opportunities for making a living, and many other variables.

The number and types of HBEs in a neighbourhood affects the quality of neighbourhoods and its dwellings in many ways. Strassmann (1986) attempted to find out whether or not dwellings are larger, of better quality, possessing more amenities, and of higher value if an enterprise is operated there. He found that, in general, dwellings with HBEs were better than others without them in poor neighbourhoods in Lima; dwellings with HBEs had a resale value one-third higher as estimated by owners. Furthermore, they were located on sites 11 per cent larger, had 30 per cent more floorspace, and were 24 per cent more likely to have a sewer connection than those without HBEs. Occupants with HBEs had expanded their dwelling from 2.3 rooms to 3.5 rooms, while others had expanded from 1.9 to 3.2 rooms, or about the same amount (Strassmann, 1986: 495).

By contrast, in conventional neighbourhoods, dwellings with HBEs were declared to be worth 26 per cent *less* than those without, were on smaller sites, but had dwellings of about the same size. The HBE occupants had added slightly fewer rooms and were less likely to have sewer system connection. In better-off neighbourhoods, HBE operators were likely to be relatively poor



households trying to keep up; while in the low-income neighbourhoods, HBE operators were the elite (Strassmann, 1986).

Sethuraman (personal communication, 1992) regards the density of income per square kilometre as a major determinant of the incidence of many types of small-scale enterprises, particularly those which provide retail and other services. Factors which affect both the occurrence and the profitability of HBEs will change according to such factors as transport, proximity to formal sector enterprises, and degree of unemployment in an area.

### **The aims of this pilot project**

In an attempt to begin to understand the phenomenon of mixed uses in an international context, we proposed a pilot study in New Delhi as a preparation for a major international survey. The pilot survey had the following aims:

1. To define a set of variables which, when examined, will describe the causes, nature, and extent of mixed uses in residential areas, both from a housing point of view and for their economic implications. The study would include both a quantitative analysis of discrete variables and a qualitative examination of people, places and activities.
2. To carry out preliminary analysis on the data collected to establish appropriate methods of questioning and data gathering, minimum sample sizes, suitable methods of analysis, and likely outputs such as estimates of costs and benefits, employment and income, etc.
3. To establish hypotheses to be tested, and provide inputs for policy-seeking data collection and analysis in a main survey.

In order to set the scene and define a first set of variables, we conducted a review of literature to complement that already done by Dr Tipple (1993). It is clear that many of the issues involved in HBE research are very difficult to collect data about. This was reinforced by experience as we attempted a quantitative survey.

In our proposal, we specified that the survey would experiment with both qualitative and quantitative data collection techniques. In order to do this in an effective way, we attempted to frame quantitative questions for all aspects that we had decided to cover to see how effective they could be in our subject matter. It was a sink-or-swim strategy. As we tried hard to use quantitative

methods, because of their obvious policy generating value and the ability to link dependent and independent variables, we could determine how far qualitative methods should be used by judging in what ways the quantitative methods were unsuccessful.

### **Choice of collaborator**

The first stage of the work was to choose a collaborator in the city agreed with ODA for the pilot survey: New Delhi. We approached three well established and internationally respected research organisations with whom we had contacts;

1. Society for Development Studies (SDS), headed by Dr Vinay Lall.
2. Human Settlements Management Institute (HSMI) of HUDCO, headed by Dr Kulwant Singh.
3. National Institute of Urban Affairs (NIUA), headed by Dr Dinesh Mehta.

We wrote to each setting out our needs and each replied in the affirmative and demonstrated their capability of doing the work satisfactorily. There was so little to choose between them from a distance that we decided to visit India to hold brief discussions with each, visit proposed survey locations, and then make a choice. This was done in May, 1995, at the hottest time of year (46°C), and NIUA was chosen.

### **Choice of survey site**

Part of the reason for our choice of collaborator rested on their proposals for the survey site. NIUA suggested the informal settlement (*jugghi*) of Jahangir Puri as the study area. They have good connections with the Urban Basic Services Programme (UPSB) workers there and it seemed to present a good range of HBEs operated by people who were evidently of low income.

### **The squatter settlement (*jugghis*) of Jahangir Puri**

The environment in the two parts of Jahangir Puri is very different. In the squatter settlement, where there have been demolitions periodically, the environment is very poor and crowded. Dwellings are small (2-2.5m wide and maybe 3m deep) and vary from very small indeed (one tiny room) to only two or three rooms. A minority have a second storey. The streets are irregular in width. While most are wide enough for a rickshaw to pass through, some places narrow even more so that they are only wide enough for a pack animal.

At one point, a room is built out over the narrow part of the street and the flattish roof opposite provides an informal (and quite dangerous) play area for children. There are some small open spaces on the streets, often merely irregularities in dwelling frontages or ends of cul-de-sacs, but there are also a few more formal community spaces such as a temple courtyard and spaces next to small temples. There are a few trees.

Drainage is evidently a problem. The site is relatively flat and many of the drains are badly blocked. They are swept twice a week but, when we were there, the drains were full of household waste water even before having to cope with rainwater. There is garbage everywhere, children defecate in the drains and on the streets. Some of the wastes are eaten by pigs and cattle, some are recycled. The dirty environment tends to affect the inside of the dwellings through the proximity of the (often blocked, inevitably smelly) drain to the door of the dwelling. Many of the floors are level with or below the street. Where bricks have been used as paving, they have been laid on top of the existing street and their depth utilised to provide a drain if none existed. The efficacy of this is doubtful in the long term but undoubtedly is providing local relief from muddy streets. In one place, the laying of bricks onto a sloping surface without a curb has led to bricks simply sliding into the gutter. One has to wonder whether they will stay on the ground or be acquired for use in house-building.

A majority of dwellings are built in brick, some to quite high standards, e.g., full storey height, good quality of workmanship, etc. Others are crudely built in bricks roughly laid. Many have very low roofs and most are likely to leak. Where there is a second storey, access is either by a steep and narrow staircase or by a crude ladder with widely spaced rungs. We saw people of all ages (from toddlers up) using these ladders.

In addition to the occasional water pumps, there are pipes protruding from the ground at intervals along the streets. These appear to be illegal connections to the mains which end in bare pipe ends only 150-200mm above the ground. Water comes out continually but in a fairly slow stream, as there is very little pressure, adding to the contents of the drains. We saw a little girl stick a plastic tube down the pipe and suck the water into a siphon to fill a bucket. The health ramifications of these bare pipe ends is potentially serious.

### **The resettlement colony of Jahangir Puri (K block)**

The resettlement area is laid out in a regular rectangular grid with some streets wide enough for vehicles and others only for rickshaws. The dwellings are almost all multi-storeyed with one or two rooms and a steep narrow staircase to each floor. They are back-to-back and side-to-side so light and air are generally only available from the front facade. Where there are two rooms, the internal one is neither lit nor ventilated directly. They are built in brick and in-situ reinforced concrete to a standard seen all over Delhi which must be close to fulfilling all the requirements for *pucca* construction.

Although some of the original allottees remain, most appear to have sold out to higher income households and much of the development reflects middle income aspirations in facade treatment, doors, windows, air-conditioning units, etc. The businesses which exist within the area reflect a higher income than the squatter area. However, there are the local shops which sell snacks and drinks, and groceries in very small portions to local people. Our Indian counterparts felt that original allottees who remain probably feel out of place in the largely middle income environment which now pertains.

There appear to be far fewer HBEs in the resettlement colony although there is a concentration of commercial activity along the main street. Originally it was flanked by the sides of plots as if the planners had not expected the commercialisation to take place. Now, however, most plot sides have been divided into two or three lock-up shops on the ground floor and either have similar divisions on the first and subsequent floors or are left as single units up there. Some are undoubtedly residential on upper floors but many are commercial. Most shop owners are tenants, sometimes with the owner in one of the shops. We found some HBEs despite appearances of their being very few. One lady ran a sewing business with her husband. He sells clothes at weekly markets around Delhi and takes orders for clothing. She cuts out the cloth and either sews herself or puts out the cut cloth to other women in the area (some in the squatter area) for them to sew it. They buy the cloth from Chandni Chowk. We hoped to have at least some of the sample from this area but, in the event, none were interviewed there.

Buvinic and Berger (not dated) found that many HBE operators in Peru used money-lenders from time to time and paid between 10 and 35 per cent per month interest (over 500 per cent per annum)

### **Questionnaires and survey documents**

In response to the issues raised in the literature review, we selected a series of issues which should be addressed in the pilot survey in our attempt to collect useful and well-focused data. A draft list of variables was produced and converted into a draft questionnaire which was faxed to India for comments and local input.

Two members of CARDO travelled to India in October/November 1995 for two weeks each. From the beginning, we were aware that we would have to collect some data through qualitative methods. For this reason, Dr Kellett followed Dr Tipple one week later. This allowed us to concentrate on quantitative methodological issues in the first week, identifying problem areas for examination by qualitative methods. The second week was devoted to starting the survey and introducing qualitative techniques with the intention that week three would be devoted to learning and testing qualitative techniques. Unfortunately, the third week's programme had to be postponed as Dr Kellett's mother died and he had to come home. He made a further visit for one week in January to redeem the third week's activity.

The Indian team was led by Prof. S. Joardar (a planner) and comprised Mr Abhay Jha (a community development worker and former journalist) and Mrs Smita Krishnamurthy (an architect). This was later reduced to Mrs Krisnamurthy and two research assistants who had not been involved in the earlier discussions and training. Dr Tipple took a draft of the questionnaire to India in October, 1995, and the team spent time together refining the questions especially with respect to their translation into simple Hindi.

The Indian team suggested many of the changes as increases in efficiency contingent on a very well-trained team of surveyors (only two). We were happy to comply because the *modus operandi* currently favoured for the main survey involves a relatively long participant observation phase augmented by a quantitative survey carried out by only the chief investigator for the country or a few well-trained surveyors closely supervised by the investigator.

They advised a major structural change in the collection of income/expenditure data. We included a detailed expenditure schedule early on and income is then collected as part of the workers' details matrix now moved to the end of the questionnaire. Its position there has two advantages:

1. It allows some checking against previous information to ensure that all earners are included;
2. It is a tidy location for a potentially very variable data set.

They also felt that there may be important issues raised by finding out whether there were HBEs which have now stopped. Thus, we collect data on up to two previous HBEs in the dwelling.

We kept reminding ourselves that this is a pilot survey; that refining the survey techniques and documents are the important part (the main thing) and an accurate picture of mixed uses in Jahangir Puri is secondary. Thus, we decided that, if we found that a question was not working well in mid-survey we would change it. In the event, the only substantial change made was to discontinue two questions (see below).

### **Issues in collection of data on current HBEs**

Much of the work to date on HBEs has been concerned chiefly with their economic viability and their place in the general economy. While we are concerned with their economic implications, the coverage of our study includes both housing and economy and, therefore, reduces our ability to delve into both. It is important, therefore, that we keep a careful eye on how far to explore the business details of enterprises and how far to gain a general feel for their viability and place in the economy. In this, we felt, for example, that we need to be able to distinguish whether the HBE augments the household income or is the main economic base for the household. Also, we would want to differentiate activities which service residential areas and those which turn the area into a dispersed factory. These, and similar issues, are the basis for urban policies which could assist or hinder HBEs and their ability to improve housing, which is our main concern. Thus, we have been careful to explore economic issues only insofar as they are relevant to our main concern: the symbiosis of housing and economic activity.

In our discussions in India, we extended questions on the HBE to include whether the work is seasonal and a measure of production and turnover. As our discussions took place on the eve of Diwali, we were reminded how festivals

and other seasonal influences create temporary markets for products. At Diwali, for example, millions of pottery lamps are used, particular types of foods are consumed, etc. Many of these are made or packed by HBEs on short term assignments after which they will switch back to the regular trade.

In attempting to assess the scale of activity, we ask for production and turnover levels. Production tends to be measured in units processed. The major study would include attempts to estimate profit margins in each trade, as in Lall (1994). Of course, in the main work, this will be quite a major preoccupation.

We also ask about gender, training, and pay of main and other workers. The team discussed the issue of machinery, chiefly with respect to the purpose of the question. We decided to note whether the machine was motorised or not to enable some judgements on noise and other externalities, need for power infrastructure, etc.

We were faced with the issue of what to do about owners who may no longer live in the property but simply use it for a business premises. They may do this by renting it out to a commercial operator and/or residential tenants, or by using it themselves and living elsewhere. As we are interested in the commercial activity going on in residential areas, we include these absent owners and note their absence in the relevant question.

A further issue faced was the definition of skilled work. We are interested in the type of work done in an area because level of skill seems to be an important variable in whether people can survive relocation, whether the business has any chance of growing into something with more than local customers, and whether the HBE operator has a level of choice in his/her work. We would expect that a skilled person could survive changes in the neighbourhood better than someone who might be dependent on quite narrow demands for unskilled work. Skilled workers are likely to earn more and so constitute a more solid economic base in an area than unskilled workers.

We are not specialists in employment and we expected there to be a reasonably clear distinction between skilled and unskilled workers. However, we found that workers might be skilled in one thing but working in another (a motor mechanic keeping a grocery shop, say), or have a skill which could be learned in only a few weeks (e.g., assembling paint brushes). The Government of India defines a lift attendant among the skilled occupations so local definitions were not helpful to our rather narrow assumption about skills. In the event, very few

HBEs in Jahangir Puri appear to require high levels of skill and we are directed towards the ability of qualitative techniques to pick up nuances in skill levels.

We discussed the logistics of multiple choice questions and made a decision to include show cards combining text and pictures to assist the illiterate. Smita Krishnamurty worked on their design. However, these questions proved to be very problematic, taking a long time to ask and producing data of very dubious merit.

In Jahangir Puri, occupants seem to make no distinction between living and working. We suspect that Jahangir Puri will be at the lowest end of income and environment for areas likely to be selected for a main international survey of mixed uses, but, where HBEs exist, they appear to use most or all of the living area while they are in operation. We tried to ask a question on whether the dwelling is a home that is worked in or a workshop/shop that is lived in, as follows:

30. Which of the following best describes the way you use the space in this house?

**(Show card)**

1.	It is a shop/workshop but we live in it (i.e., All the building is a shop/workshop but the people live in it as well)	
2.	Our shop/workshop has a small living area which we use for a home	
3.	The use of our home for work has no effect on the way we use it as a home	
4.	Our home has a small part which we use for a shop/workshop	
5.	It is our home but we use it for a shop/workshop (i.e., All the building is firstly a home but it is all used as a shop/workshop as well)	1.

In designing this question, we felt that it would be impossible to agree with 3 if a person also agreed with 1 or 5. In fact, respondents calimed to agree with them all. This is partly a problem of expressing nuances such as these in simple Hindi but it is also likely to arise from there being no differentiation between home or workplace, or between activities related to domestic or economic realms. For example, several respondents reported working more than 12 hours per day, seven days per week.

There is a similar circumstance in question 29:



29. Which of the following best sums up your feeling about your house? (**Show card**)

1.	I would not have the business if I did not have the house		
2.	The house helps me make more money from the business.		
3.	I would have the house even without the money I get from the business.		
4.	The money I make from the business helps me afford the house.		
5.	I would not have the house if I did not have the business.		2.

Again, respondents happily selected contradictory sentences as both being true so both of these questions were abandoned from the quantitative survey after 11 respondents. We felt that they had been given a reasonable test in the field and that they were not performing well. In hindsight, we might have been better asking "which **one** of the following..." Such issues would better be dealt with qualitatively.

The questionnaire is long, it takes more than one hour to ask the 31 questions. We feel that this is an issue because we are using people's economically productive time even though some continued to work during the questioning. They all ask, "What is in this for me?" While they seem easy to pacify with general comments about knowing more about the issues so that we can help government policy be more helpful, we would like to develop less time-consuming methods of questioning and also consider giving a donation in some way. Payment for time (say Rs50 -£1) for an interview would be fine in the budget but would cause problems of favouritism ("Why didn't you interview me for Rs50?") and set a dangerous precedent. We decided to donate Rs2,500/- to the nursery school at the end of the survey, perhaps in the form of school books. Mrs Krishnamurthy took on the task of consulting with the settlement committee about this.

Our analysis of the variables collected in the quantitative survey uses the normal statistical techniques to establish averages, data spread and frequency distributions, and experiment with multivariate analysis. The last demonstrates the suitability of quantitative data to the subject matter and the sample sizes required in the main survey to ensure reliable results.

The plans made in the pilot survey were not entered into GIS/ARCINFO to assess the effects of fungibility of space (Lipton, 1980), encroachments onto public space, issues of ventilation, lighting, access, etc., and externalities, because the surveyed dwellings were not sufficiently articulated to have distinctions between living and working space (see below).

## **Sampling**

We carried out a reconnaissance survey on two occasions, one before Peter Kellett arrived and one after. On the first visit, we met the UBSP field workers and wandered round looking at the general conditions of the settlement and talking to a few HBE operators. We followed a route similar to that taken on the exploratory visit in May. On the second, we first skirted the settlement on the west side where it is separated from a marshy area by a wall. The western part of the settlement appears to have been considerably improved by a brick-paving project. In both visits we walked along streets in the (formal sector) resettlement colony discussing the efficacy of sampling dwellings therein.

The team selected their sample through a mixture of observation and snowballing. As the pilot survey was intended to try out as many different circumstances as possible, a strict random sample was felt not to be appropriate especially as there would have had to be a preliminary census to find all the HBEs before a random sample could be attempted. Introductions are made in the first instance by UBSP workers and then snowballing is continued with questions such as, “Are there any more economic activities on this street?” Respondents are generally willing to talk.

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