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### Unruly urbanisation on Delhi's fringe

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*Document Version*

Publisher's PDF, also known as Version of record

*Publication date:*

2000

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Bentinck, J. (2000). *Unruly urbanisation on Delhi's fringe: Changing patterns of land use and livelihood*. [Thesis fully internal (DIV), University of Groningen]. [s.n.].

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## 7 CONCLUSIONS

The force of urbanisation generated by Delhi's rapid growth has a strong impact on the land and the villagers in Delhi's rural-urban fringe. Recalling the research questions, this process has four different dimensions. The first and most prominent dimension is the changing occupational structure and the livelihood of the villagers: how they prepare for and react to circumstances such as the decreasing availability of agricultural land, the improved access to the city, the location of more economic activities in and around the villages and the arrival of large numbers of migrants during the last two decades. This dimension is elaborated in Chapter 5, which is preceded by a description of the research setting, an analysis of land-use changes and an overview of which 'actors' play a role in the urbanisation process. After a discussion of the impacts on livelihood, Chapter 6 describes the problematic situation regarding the changing living conditions of the residents of urbanising villages.

With respect to the livelihood of villagers, this study takes an approach that is common in rural studies, namely village-level surveys. This level of research is not often used to study urbanisation. In this case, however, it is appropriate because the study concerns (former) village populations. It is also relevant because it provides insight into the issue of urbanisation from a micro-level perspective – that is, from the angle of villages and the village households. Furthermore, the approach positions villages in the specific geographical context of a rural-urban fringe. That context is not very prominent in the debate on rural transformation. The eclectic methodology – mixing household surveys with in-depth interviews and taking additional information from remote sensing and various other sources – proves to be a fruitful way to tackle this subject.

The conclusions can be summarised as follows:

*Land-use changes* occur very rapidly, especially in villages on the immediate urban fringe of Delhi and its satellite towns and along the main transport routes. It is mainly agricultural and other rural land that is converting into permanently built-up areas and covered with infrastructure. But there are many other types of land use that are linked to urbanisation, such as sand and loam excavations, brick kilns, farmhouses, and vacant land. Physical criteria (e.g. decline of fertility, reduction of vegetation cover, waterlogging) are of limited use as indicators of degradation from a socio-economic point of view. This is particularly true for a rural-urban fringe. There, the degraded condition of the land is usually temporary, and the local population is able to combine agricultural use with other uses. Remote sensing helps us to demonstrate how physical and socio-economic characteristics of land are interrelated. This technology also provides the images that are used for designing maps.

Diverse *local-level actors* have a role to play in the urbanisation of land in the rural-urban fringe. These actors are local landowners (mostly farmers), local property dealers, various government agencies, politicians and political parties, private entrepreneurs, speculators and colonisers, and new settlers. The strategies used by the actors, and the interaction between them, elucidate more abstract problems such as the shortage of urban land and housing, environmental pollution, and congestion. The land market is partially monopolised by the government and partially characterised by a chaotic 'free' market. Its

dual nature is a source of legal conflict and uncertainty, which in turn results in an inadequate supply of land, congestion, human hardship, and environmental hazards. The informal sector is particularly quick to fill the gap left by inadequate formal government planning. The result is rampant growth of 'unauthorised colonies' and industrial/commercial areas on former agricultural land of the villages.

Urbanisation causes village households to improve and diversify their *livelihood situation*. Much of this diversification is explained by increasing opportunities for commuting to the city. These opportunities are intensively used by the local population, mainly for government employment and other formal and informal work in the service sector. Other new ways to earn an income are linked with the emerging (non-agricultural) economic activity in and around the villages. Villagers participate actively in commercial activities and in the construction and transport sectors, but they are hardly involved with running local factories. Considerable income is derived from renting out property to tenants and entrepreneurs. In general, there is convincing evidence that the conversion of agricultural land into urban use contributes to a wide range of options for the villagers to earn a livelihood. Besides, the agricultural decline is only partial. Many of the agricultural fields that are left are used for intensive agriculture and horticulture. Combined with the added value derived from transporting crops to the city, this brings good revenues for enterprising farmers. Similarly, dairy farming is an increasingly commercial 'rural' source of income in rural-urban fringe villages.

The *living conditions* of the villagers are improving in terms of civic amenities, housing conditions and infrastructure. But there are also evident negative consequences of urbanisation for the conditions in which residents live and work. Congestion, pollution and stress on amenities are present to varying degrees. The situation is not (yet) very serious for villages in the rural-urban fringe. However, in some of the urban villages, the dense mix of industrial land use with residential areas poses a threat to health. The labour-class migrants living in slums, at or near the industrial sites, or in crowded conditions in the original village settlement, are more vulnerable than the original village population.

In the subsequent sections, the conclusions are discussed in greater detail. They follow the order in which the topics are presented in this thesis.

## **7.1 Land-use changes due to urbanisation**

Land use, land-use changes, and the physical condition of the land are closely related to the livelihood of the villagers residing in the rural-urban fringe. In rural areas, land degradation is mentioned frequently in relation to environmental concerns. One of the questions is whether land degradation occurs in the rural-urban fringe. The answer depends on how land degradation is defined. According to a socio-economic definition, it is "a process on the land that decreases the use to its user(s)" (Blaikie and Brookfield 1987, p. 6). In a rural-urban fringe, the deterioration of physical conditions (such as soil, water and vegetation) does not always reflect a decline of use to its user(s). The uses are too diverse, and the owners have many different possibilities to take advantage of the land. Besides, the livelihood situation in the rural urban fringe is very dynamic, offering a wide variety of income-generation possibilities. As the empirical research demonstrates,

the local population generally benefits from urbanisation of land in terms of providing a better household income position. Occasionally an owner or other user of land is confronted with the disadvantages of urbanisation, which causes at least agricultural income to decline.

Instead of using physical indicators, this study distinguishes types of land use on the basis of functional criteria. The diverse types of land use are classified as either rural or urban uses. Generally, urban land uses advance at the cost of rural land uses. The distinction is not always easy, since the land shows urban and rural aspects simultaneously. The most common urban land uses are for built-up areas (including residential areas, industrial and storage sites, and commercial land use), infrastructure (e.g., roads, sanitary landfills and radio broadcast centres), brick kilns, excavations, farmhouses and vacant lots. The usual rural land uses are for agricultural, horticulture/floriculture, orchards, common land, and forests. Within the category of agricultural land use, the incentive created by the expanding markets in Delhi results in an intensification of agriculture at many places. Floriculture and horticulture expand at the expense of staple crops (e.g. wheat, rice, fodder etc.). Some villages specialise in high-value perishable crops and even take advantage of the possibility to market the produce themselves.

The agricultural sector faces some problems due to the expansion of urban land use. The most obvious one is that fields become increasingly fragmented. Occasionally the farmer has trouble getting to his land due to 'urban' obstacles. Brick kilns require the excavation of soil and thereby have adverse effects on nearby and adjacent agricultural land. Erosion of plots, difficult access to water for irrigation, and run-off of agricultural chemicals are the most frequently observed problems. The effects, however, are not consistently negative, neither from brick kilns nor from other urban land uses. Besides the advantage of better access to urban markets, the positive effects include three that are linked with urbanisation. First, the easier access to fields through better roads; second, the removal of higher grounds through excavation improves the reach of the irrigation facilities; and third, the construction of flood dams, meant to protect settlements, also lowers the risk of flooding of agricultural fields. Weighing the negative and positive effects, the research does not find a net-negative effect of urbanisation on agricultural land.

To understand more about how urbanisation relates to the physical characteristics of land, it is useful to apply remote sensing (RS). The physical indicators that the RS sensor uses to distinguish characteristics of the land frequently overlap with the land use types differentiated earlier. Consistent results came out for agricultural land and brick kilns, other land use types overlap in the remote sensing classification, of which the distinction between vacant barren land and built-up land is most problematic. Nevertheless, knowing how the physical characteristics correspond with types of land use, it is possible to make useful maps with the RS images. RS is particularly important when land-use maps are unavailable, out of date or contain an inappropriate classification of types of land use, as is the case in the research area.

## **7.2 The roles of 'actors' and their influence on the urbanisation of land**

Actors present at the local level strongly influence the process of urbanisation. These actors include local landowners (mostly farmers), other residents, colonisers, property

dealers, factory owners, brick kiln owners, farmhouse owners, speculators and many government agencies. Official planning, as formulated in the Delhi Master Plan, is selectively practised or even ignored by all actors, including the government. The government has many conflicting interests within. Besides, the urban growth rates are so high that the government cannot keep up with developments at the city's fringe. Given this situation, the wide variety of planned and spontaneous spatial developments is not surprising. While government-housing schemes are being built at one place, construction of unauthorised colonies is underway at other places. Industry, warehouses and other commercial land uses are mushrooming, especially along the main roads. Farmhouses are constructed without conforming to the land-use regulations that prescribe an agricultural purpose.

Delhi has a relatively powerful Development Authority (DDA) in charge of land supply. Nevertheless, the DDA only makes plans for part of the area that has been conquered by the city. In areas ignored by planning, there is a more spontaneous and unregulated urbanisation process going on. This process provides slums for the urban poor, unauthorised colonies for the poor and lower-middle class, as well as factories and farmhouses for industrialists and upper-class residents. In most of the villages selected for this study the government has very little influence on changes in land use. Legal restrictions are widely violated, even (or especially) by politicians who depend on their popularity among the local population. Ineffective control leads to a wide discrepancy between what the city authorities are planning (through the Delhi Master Plan) and what really happens. Large spaces designated as green belts are actually converted into built-up land.

The landowning villagers are certainly no underdog. While 25 years ago the villagers were easily deceived by outside private parties and government acquisition, nowadays they participate actively in land transactions. There are some indications that in many cases the villagers are better off without government control, since then they can decide when and how much land to sell at their own convenience. In areas where the government (usually through the DDA) acquires the land, the land-owning villagers receive monetary compensation. They bargain hard with the government and apply several tricks to obtain higher monetary compensation. Nowadays, the compensation rates are quite high, at least compared with the value of land as a production factor for agriculture. However, land prices as determined by the free market soar in relation to the location and other features of the particular plot. Furthermore, once it has been announced that acquisition will take place in a particular village, the actual construction and compensation process may take many years. In the meantime, the original households remain in a state of uncertainty, and few property transactions are conducted due to the fear of acquisition. Acquisition by the government generally leads to endless judiciary conflicts between local landowners and government agents. The conflicts do not benefit either side and hampers the development of infrastructure and services. When spontaneous developments are initiated by the private sector, the original land-owning households have more influence on the changes in land use. Moreover, they can sell out if they want to cash in while prices are high. Private land transactions mostly involve much black money as well, but it can be used for construction or other property business without much difficulty. The most influential players in private land transactions are large urban-based property dealers. They dictate the prices and determine when and

where land can be sold. Prices are kept high even when there is a temporary slump in the market. Property dealers benefit most when prices rise, as this keeps land in short supply. Land administrators, the police force and other local authorities are usually part of the system and share in the benefits of an artificial shortage.

The result of land development by the DDA is that housing and infrastructure are more planned. After developing it, the DDA sells much of the land directly or indirectly to property dealers. Consequently, land speculation is rampant at these places as well, although at a later stage. Besides, the DDA itself is often accused of pursuing speculative strategies. The DDA furthermore runs into legal conflicts with villagers and other landowners who feel that the price they obtain for their land is too low. An additional problem that arises when the DDA plans new residential areas is that coordination with the provision of civic amenities is poor. Other government authorities are responsible for putting in sewers, supplying electricity and water, and paving roads. All in all, the process of official housing supply is slow and lengthy. Unauthorised colonies also start out with a shortage of civic amenities, but the usually poor settlers accept this situation for the time being.

The existing mix of formal land development and an unsuccessfully restricted, and therefore profitable, private property business results in an insufficient supply of serviced urban land. This is directly connected with the enormous housing shortage in Delhi. The number of households needing a dwelling is high, and most of them have very limited financial means. Given the present situation of land and housing supply, Delhi's residents, particularly the recent migrants, have to cope with too low (quality) supply for too high prices.

### **7.3 The effect of urbanisation on the villagers' livelihood**

Due to increasing levels of urbanisation, the villages can offer local residents more and more income- and employment opportunities. This is mainly the result of better linkages to the city. Meanwhile, income and employment opportunities expand locally as well. There is a general shift of occupations away from agricultural to typical urban activities. This shift is illustrated by the analysis of data from the Census of India. It proves that in the typical rural-urban fringe village, the proportion of non-agricultural workers rises sharply before any significant growth of urban land use occurs at the expense of the agricultural land. Commuting makes a very important contribution to the household's livelihood, especially for the original population. But agricultural employment certainly does not disappear. In fact, agricultural employment tends to increase in villages where the fields are still cultivated and declines sharply in villages where land is becoming urbanised.

Based on the socio-economic diversity of the population, it is relevant to distinguish between three groups. Group I consist of long-time original residents who are from the land-owning caste(s). Group II comprises the other (mostly lower) castes in the original population, households owning little or no agricultural land. Group III is the migrant community in the village. Each of these groups takes its own path in the transformation of its livelihood.

Members of groups I and II participate in government employment, work in commerce and in the transport sector, and engage in many kinds of formal and informal service activities. Among those working for the government, many are either in white-collar or blue-collar jobs in the public utility sector such as with the bus company, the electricity board, the water supply board and the public works department. Locally, residents of the larger and rapidly urbanising villages have opportunities to start shops, go into the construction materials business, or operate buses and small trucks. Rent from tenants is also an important source of income, as is property dealing and brokerage in land or other property.

Group I enjoys considerable privileges, including the possibility to sell off land and invest the revenue in other businesses. A large part of that money is invested to secure the household's livelihood. Part of the investment is speculative (e.g. in empty plots of land), but many also generate direct employment for household members and others. Members Group I buy trucks and buses, for which demand is growing due to the increasing local economic activity and intensive links to the city. They also frequently invest in real estate as rental property. Being the original landowners, Group I certainly had a head start in the lucrative business of property dealing, both in real estate and land. As a result, almost all of the very wealthy households in the villages belong to Group I. The persistent claim made in the press – that the revenues of land sales go mainly into consumption goods, prestigious personal housing and other status-enhancing expenditure – is baseless.

The following question arises with respect to Group I: how do farmers find new employment after they (have to) sell their agricultural land? Selling the land obviously has a profound effect on the employment structure of the household. The land-owning cultivators, almost exclusively found in Group I, usually cease their land-based agricultural activity. There are rare cases of farmers who turn around and buy agricultural land elsewhere and cultivate it. The experience of urbanisation often coincides with a generational transition within households, and the younger generations clearly prefer non-agricultural employment. Consequently, when farmers sell their land, they usually invest in local property for rent, for shops, for speculative purposes, and for 'buying' jobs in government service. For enterprising farmers who retain their agricultural land, highly capital- and labour intensive cultivation (horticulture, flowers) can be a rewarding option. They cash in on increasing added value by transporting the crops to the city on daily basis. Finally, many households among Group I are expanding their cattle-rearing activities, which generate substantial profits. This activity is viable due to the proximity of the city and the increasing demand for dairy products.

Both Group I and II entered into government jobs on a massive scale, especially during the 1980s when the government was still expanding its labour force. Generally, workers in Group I are employed in better positions than Group II workers. But there is a large area in which the jobs of both groups are similar, especially in clerical functions. Lower-educated members from Group I who are only qualified for blue-collar jobs prefer to work in transportation (as bus drivers, truck drivers, conductors) or as police officers. White-collar jobs are becoming increasingly common among the villagers, with the improvement of education and urban connections. These jobs include clerical positions, bank employees, higher staff, police officers, and teachers. The availability of government positions declined in the 1990s. Therefore, private commercial and service

jobs, previously only found among the urban middle class, are becoming common among the villagers as well.

Group II has made remarkable socio-economic progress, although they lag behind Group I in average standard of living. Many old people can still recall the days when there was hardly anything else to do besides agricultural labour for the owner/cultivators and marginal caste-bound local services. As a source of livelihood, agriculture has lost almost all significance for Group II. They benefit considerably from the nearby city, taking jobs in government institutes and working in the informal transport and trade sectors. Within government employment, it is striking how many of Group II work in the agencies providing municipal utilities, such as water, electricity, and sewerage. Most Group II workers perform blue-collar jobs. Part of the explanation of the relatively easy access for Group II to low-level government employment is the fact that some of the professions are socially unacceptable to the higher castes. Older generations still do manual labour, but the younger generations increasingly manage to obtain better occupations such as clerks and teachers. Private-sector jobs are also on the rise. Group II people run many shops: repair shops, telephone offices, tailors and distributors of building materials. Others are 'self-employed' as labour contractors, builders, masons and other small proprietors.

Urbanisation is very instrumental for the progress of Group II, which consists mainly of the lower castes. It facilitates better access to the city but also an easier spread of information, awareness, and education than in remote areas. The caste system, although still quite strictly observed in social life, is losing some of its rigidity in economic life.

It is remarkable that the original villagers are hardly involved in the industry that is being established in their villages. They let the space but do not run the factories and are not employed as labourers. Outsiders, usually urban entrepreneurs, dominate the local industrial sector. They choose to locate factories in the villages because of the availability of cheap land and weak government regulations regarding land use, labour and pollution. Industrialists prefer to employ migrants, who accept lower wages and have a weaker power base in the village. They are easier to dispose of, and labour disputes do not become village issues. The original villagers give various reasons why they do not own industries, including the high degree of technical and commercial expertise that is needed and which they do not possess, and a lack of funds to make the initial investment capital. An exception is the brick kilns: about a third to half of the owners come from villages in rural Delhi. The labourers, however, do not (anymore) come from the villages; they are (seasonal) migrants.

Group III, the migrants, are steadily replacing Group II as the poorest labour class. The villages in the rural-urban fringe attract many migrants from poor areas in the rural periphery of India, mostly Eastern Uttar Pradesh and Bihar. Earlier migrants originate from Rajasthan and Haryana. Some of the earlier migrants have managed to move up on the social ladder. A minority of migrants have previously lived in the city and come to the fringe villages to find accommodation at low rents. Sometimes they buy relatively cheap 'unauthorised' plots of land in the 'colonies' near the villages. Some originate from other states but settle first in the city before they come to a village at the city's periphery. Group III hardly has access to government employment for two reasons. The first is that they have a lower level of education. The second is that they lack the necessary contacts, both in local society and with employment agents in Delhi.



Most of Group III workers are either employed as local labourers or commute to urban Delhi for jobs in the industrial sector or informal service activities. Some do agricultural work on the land of local landlords. Like the owners of factories, local landowners prefer migrant labour to original villagers, the latter of whom prefer not to do this type of work anymore. However, much of the agricultural labour is seasonal (not included in Group III). These transient workers arrive at the time of preparing land, sowing crops and harvesting. A large number of migrant families work at the brick kilns located on the village's agricultural land. They reside at the kilns for eight to nine months a year. They spend the rest of the year back in their home village, and/or working at rice mills and in agriculture.

For all Groups of local residents, the household remains a very important unit; it provides security for the individual. The strong family ties also explain why so few members from original households move away from the village; they prefer to commute across very long distances rather than lose that sense of security. The urbanising environment offers many opportunities but no guarantees. The household bond prevents the unable or unlucky individuals from slipping into economic deprivation. Despite the creation of new jobs, the unemployment rate is high – especially among the original population. These people no longer consider taking a low-status job. Very few women are involved in the labour market, notwithstanding their role as homemakers or in dairy production. The low participation among original households is explained by the cultural preference to keep women in the house, by the scarcity of work in the fields, and the possibility to rely exclusively on male 'providers' in the household.

Data on living standards, indexed in terms of material belongings of households, indicate that the level of socio-economic development is far above the Indian average. The villagers are aware of that and refer to their village as 'developed'. This explains why most villagers feel that urbanisation has more merits than drawbacks. Village life compares less favourably to middle-class life in urban Delhi. Villagers increasingly compare themselves to that population, relative to whom they feel disadvantaged in terms of political strength. Occasionally, individuals in Group I bemoan the changing cultural and economic values, saying the changes are affecting community spirit in a negative way. However, this is not the opinion expressed by the majority. Especially in the press, negative reports predominate. Newspaper articles on 'lavish unproductive spending' and 'criminalisation of local youth' in the villages are highly exaggerated. They certainly do not do justice to the majority, who earns an honest living. Some farmers feel sorry that they (may) have to stop farming the land, but they do not represent a majority opinion. Poor and deprived households do not blame their situation on events related to urbanisation. Rather, they see it as a result of personal misfortune such as the death of the provider(s), illness, lack of education, or addiction. Situations like that occur everywhere. Thus the influence of urbanisation on the livelihood of the population is considered positively.

#### **7.4 Urbanisation and living conditions**

Some villages experience serious environmental problems, although as their income situation improves, so do their household amenities and housing as well as urban

infrastructure. In some urban villages, there are severe problems regarding congestion, pollution and strain on services. This research studied one heavily industrialised village (Samaipur) to illustrate the local-level environmental concerns. In the majority of rural-urban fringe villages, the situation is not that bad. Nevertheless, living conditions in an urban village should be investigated since many villages are heading for a similar future.

One of the main problems of a deteriorating environment is the adverse effect on the health of the population. This health effect is very difficult to analyse. Apart from the state of the environment (such as pollution and congestion), there are many other factors that determine disease patterns. In legal terms one could say that the evidence is only circumstantial. Furthermore, there is a gap between the appearance to the outside observer and local perception. For example, even heavy smoke from factories may be perceived differently, ranging from environmental deterioration to a symbol of progress and wealth. It must be noted that the living conditions have improved greatly with better housing conditions and the spread of public amenities.

The authorities in charge of land-use planning have hardly any effective jurisdiction over the residential areas of urbanising villages. In the case of the village selected for a case study, factories were located in and near the residential areas, regardless of their type and scale of production. To an outside observer, the local environment looks extremely degraded. The small-scale factories producing goods such as plastics, steel and dyed clothes do not invest in pollution control or workers' safety. An urban mix of functions, originating from uncontrolled urban development in and around a village, is probably detrimental to the living conditions of the residents. Although the villagers frequently emphasise the economic benefits, there is some concern as well. The poorest inhabitants – migrant labourers who have to worry about their daily bread – are less concerned about the living conditions. However, they are also the ones who are most precariously situated, residing in slums adjacent to the factories and working under very dirty conditions. Most vulnerable are the workers living close to the factory area, who work under hazardous conditions. The incidence of tuberculosis is extremely high, while other infectious diseases also (seasonally) claim many victims. Skin infections and respiratory problems (e.g., asthma) are certainly more prevalent than normal. Accidents at work happen almost every day. Doctors in the area frequently mention the high number of psychiatric patients, possibly connected with the extremely high population density in the slum and the inhabitants' displacement from their place of origin. The informal sector caters for the health problems of the poor; there are many 'quacks' and illegal pharmacies in urbanised villages. Thus, many relatives from poor rural areas (ironically) come to the slum settlement in search of a cure.

In view of the current chaotic process of urbanisation, there are still many Samaipurs in the making. The government is planning to relocate the factories to industrial areas. However, the resulting policies will not improve the situation very rapidly. The implementation of the policy is slow and imperfect. Even if the present factories are forced to relocate, the factory compounds that are abandoned will again be put into use for new industrial activities.

## 7.5 Some reflections concerning the literature

There is a large body of literature from different disciplines that is concerned, directly or indirectly, with the impact of urbanisation in the rural-urban fringe. Four of the five stages of urbanisation of rural-urban fringe villages as identified by Ramachandran (1989) are applicable to Delhi's rural-urban fringe. The omitted stage is the second, of agricultural land-use change; the cultivation of most villages on Delhi's fringe resembles the larger rural region of which it is a part. According to the operationalisation, the research area includes mainly villages that are in stage two (stage of occupational change) and stage three (increasing urban land use).

McGee (1991) positions Delhi in 'league 2' of 'desakota regions', the fast-growing Asian rural areas near large cities. His evidence is clearly derived from experience in Southeast Asia. For Delhi, he hypothesises that the area develops into a highly interactive economic environment, combining highly productive smallholder agriculture with a phenomenal increase in non-agricultural employment. The case presented here demonstrates that urbanisation should not be perceived as negative development because, in economic terms, the already densely populated rural areas absorb a fast population growth successfully. This case study of Delhi differs from McGee's description on a few vital points. First, large-scale manufacturing with international links is hardly found in the present study area. Second, the image that emerges from this study does not include an increase in women's participation in paid work, as observed in 'desakota'. Third, local villagers are hardly involved in industrial activity. McGee describes this situation as primarily 'Asian'. This seems doubtful because, the situation resembles cases outside of Asia, such as Caracas (Rodriguez 1995), Montevideo (Zoomers en Kleinpenning 1996), and Mexico City (Banzo 1998). Certain developments in the 'desakota' that McGee does not treat are examined more closely in this thesis. For example, he does not identify which members of the local population take part in the process of transformation. In ignoring the question of "who does what" he disregards the importance of migration flows.

Environmental issues are treated by different sources and take a different angle. For example, Hardoy (1992) sketches a rather dramatic image of severe degradation as a consequence of urbanisation. Douglass (1992) fears that the villagers are pushed out because degradation of their land forces them to go elsewhere. But the present study gives evidence to the contrary. Improved livelihood and the fact that hardly any cases of villagers have been 'pushed out' by urbanisation suggest that Hardoy's conclusions do not generally apply to Delhi. The environmental problems that do occur are usually very localised resulting from crowded conditions and unplanned location of industry, problems which can nevertheless be quite serious. Pugh (1990) and many others associate the shortage of land and housing supply with systematic institutional shortcomings. In contrast, this study emphasises how the interplay between 'actors' at the local level can lead to insufficient supply of land and housing in qualitative as well as quantitative terms.

Rural transformation in villages is a frequent topic of research in developing countries. Researchers usually try to find one or more representative villages as a model for describing the process of rural transformation. It should be noted that villages in the rural-urban fringe take a shortcut to development. From comparison with more remote villages, it can be concluded that in a socio-economic sense the villages that are studied

are rather fortunate to be located in the rural-urban fringe. But in a physical sense, there is a mixed effect of improvements of infrastructure and housing versus environmental problems, in many cases leading to adverse living conditions for the poorest people.

## **7.6 Epilogue**

The inhabitants of urbanising villages are generally not displaced or victimised by urbanisation but participate actively in the process. They particularly benefit from the increased opportunities related with the proximity to the city. This is valid for all investigated villages, even the ones farthest from the city. Urbanisation in general does involve a radical and sometimes involuntary change in socio-economic position and living conditions. But, in a socio-economic sense, the situation of the villagers in Delhi's rural-urban fringe cannot be compared with small hillside farmers confronted with soil erosion, for example. The dynamic situation usually results in socio-economic progress for the great majority of the original households. Urbanisation should not be equated with environmental degradation in a socio-economic sense. Adverse living conditions can nevertheless occur spot-wise, mostly due to unplanned and chaotic urbanisation. This has a negative impact on the residential and work environment. However, there is evidence that major environmental problems occur due to uncontrolled and mismanaged urban expansion and leads to dramatic shortages of developed urban land and housing, particularly for the economically weak (mostly migrant) households. The increasing dispersion of urbanisation in India and other developing countries will involve large numbers of villages into types of development like those described in this thesis.