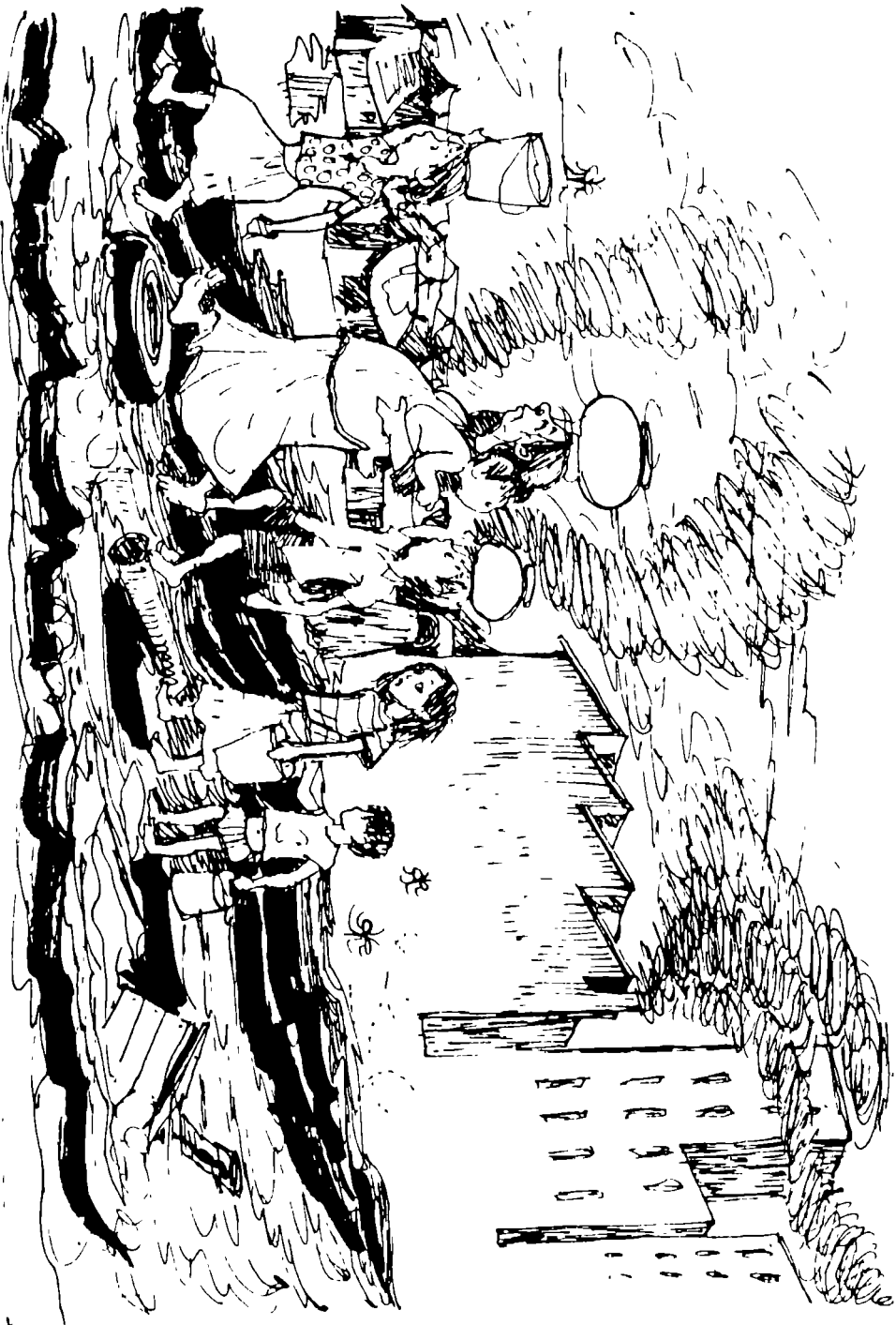


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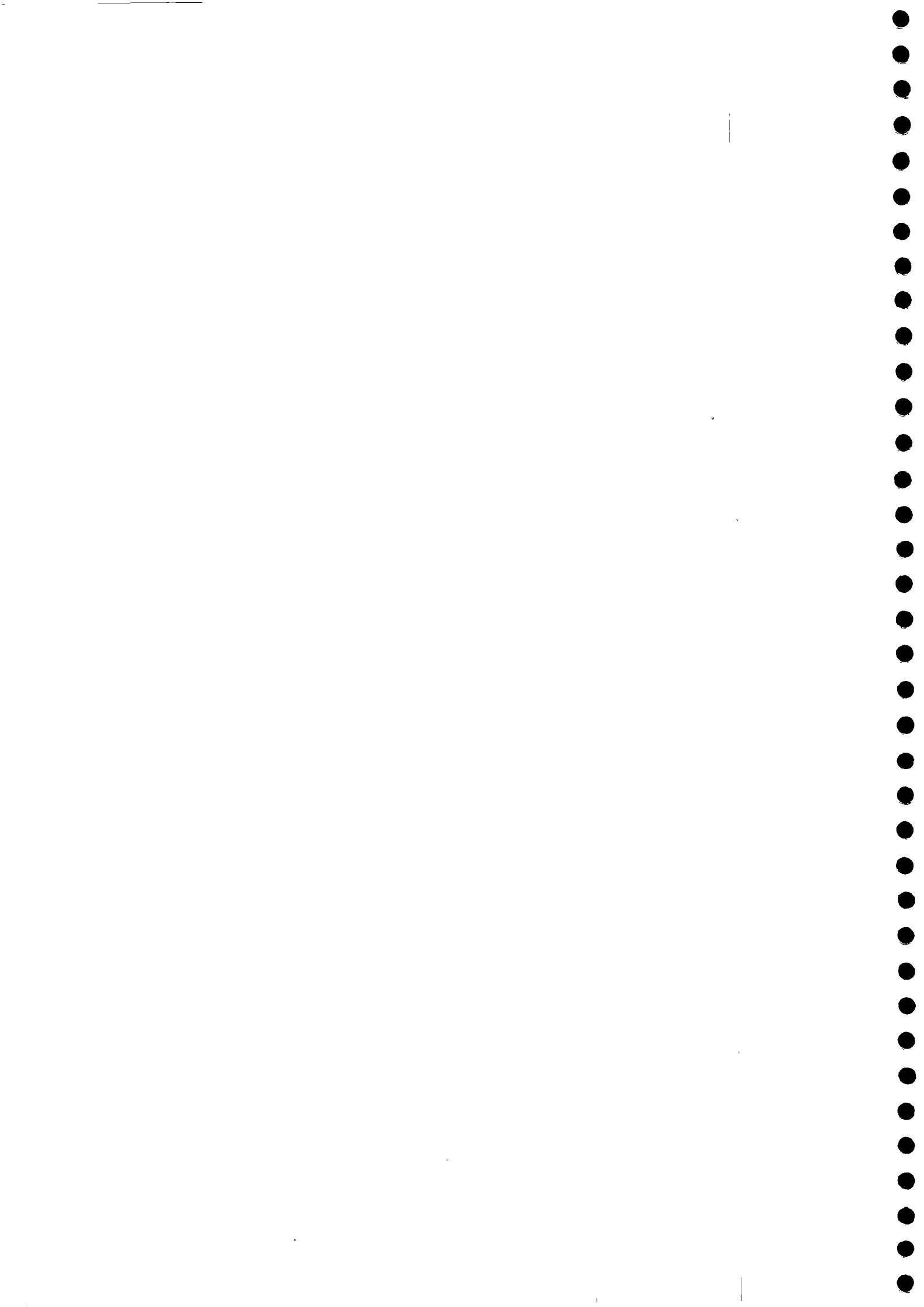
page 71

# URBAN ECOHEALTH

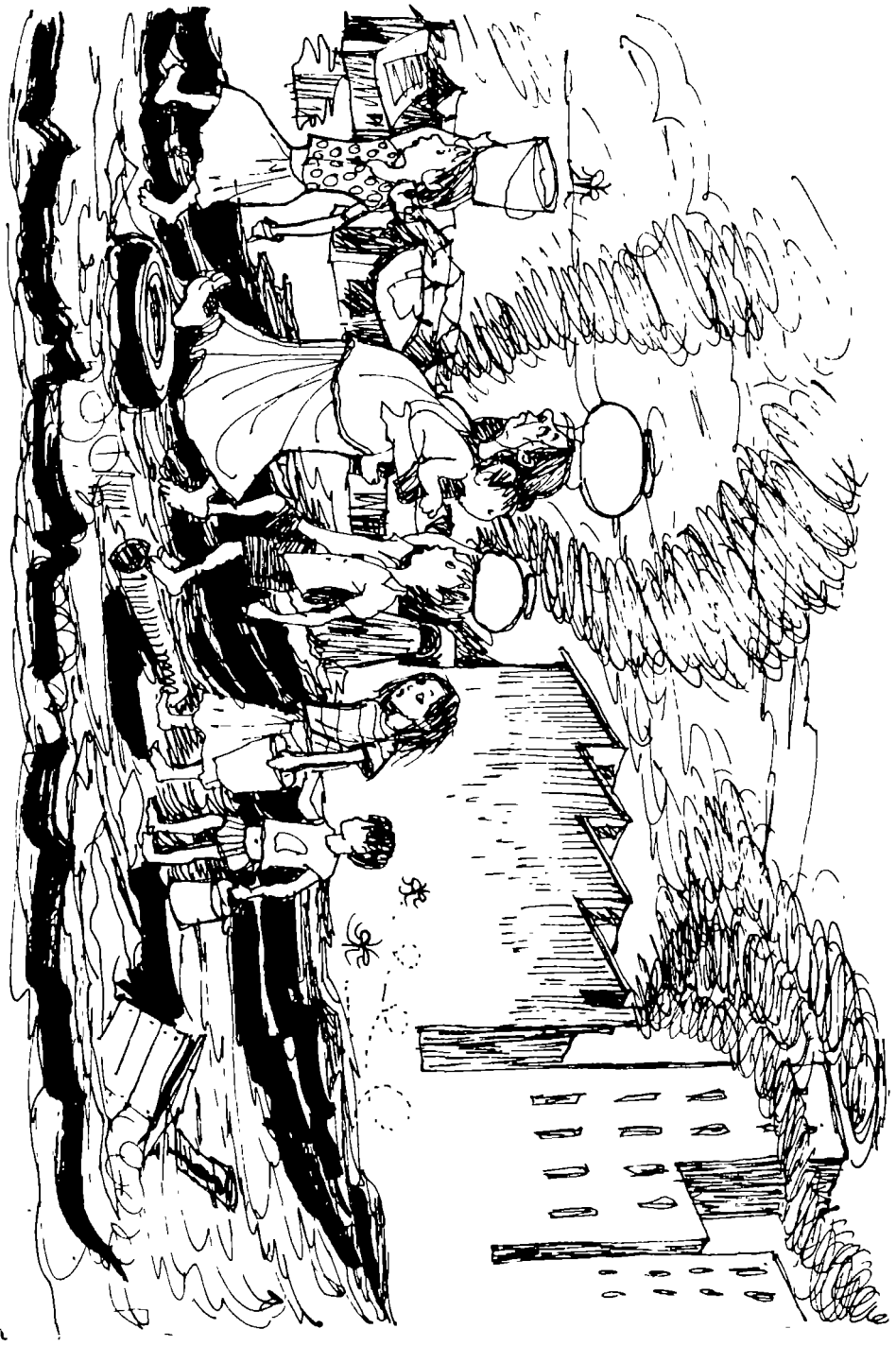


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# URBAN ECOHEALTH



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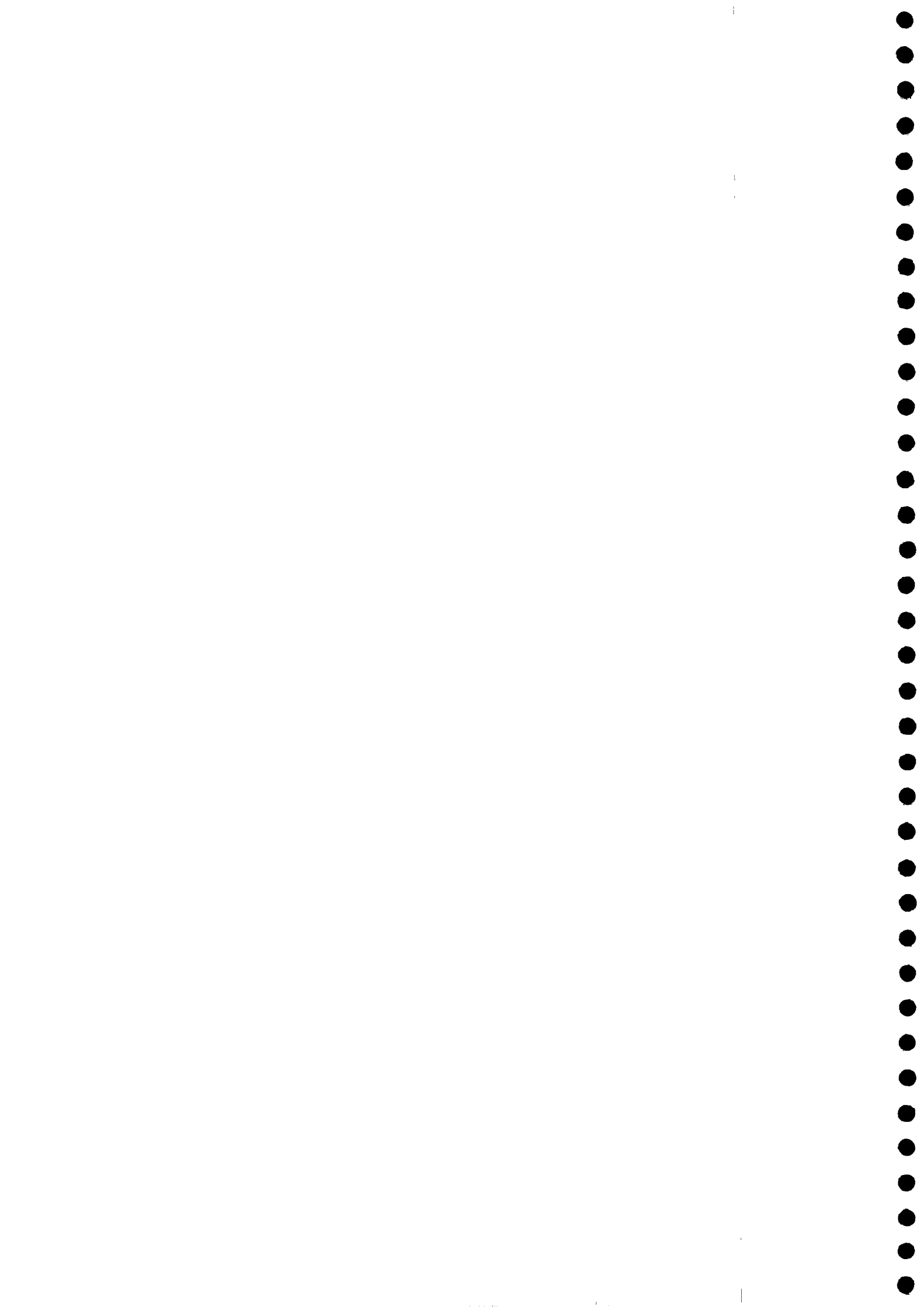
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## **PREFACE**

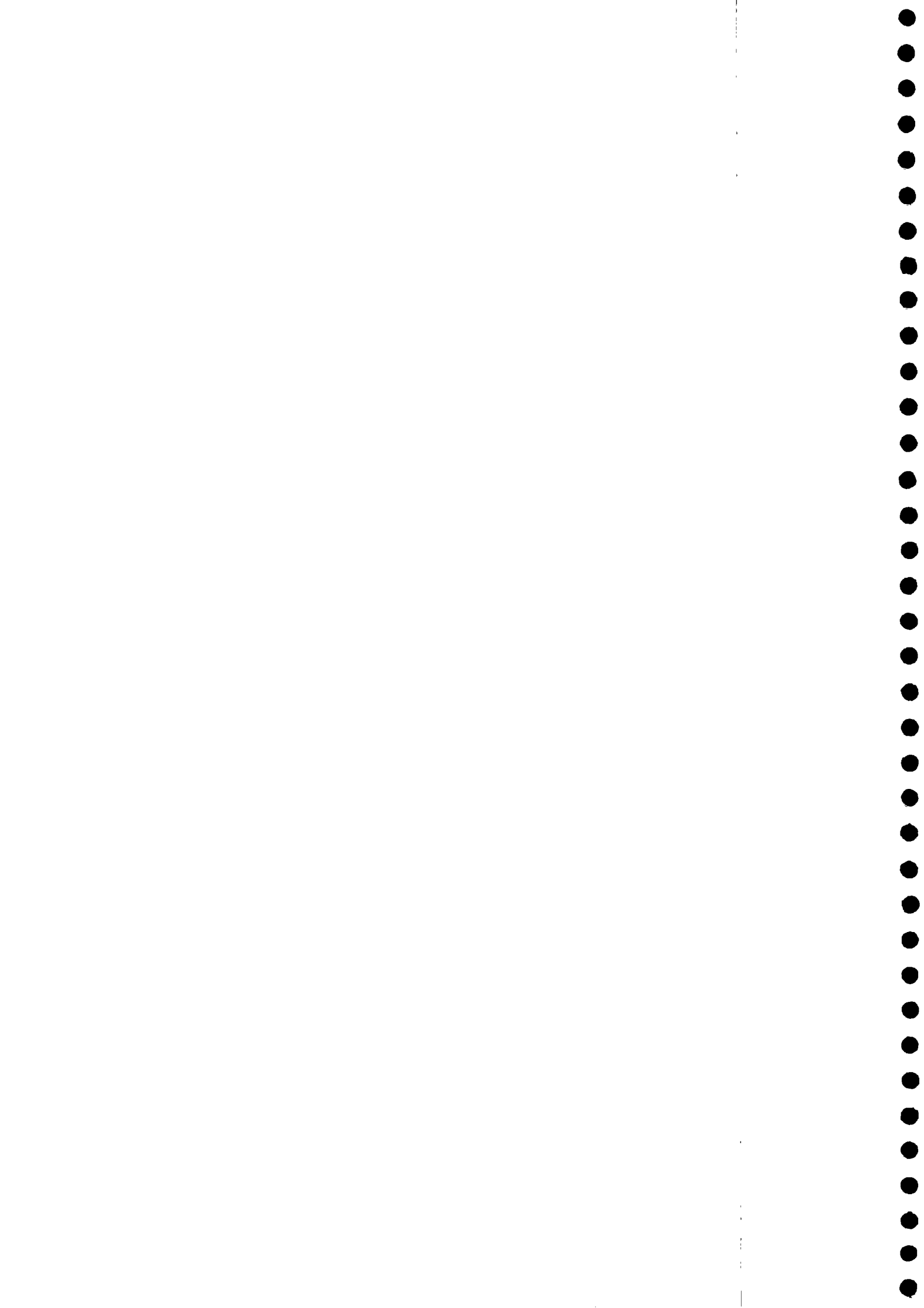
*This publication, the fifth in our Ecohealth Series was taken up because of the growing interest in environmental hazards in urban settings and its impact on people's health and well-being. This publication deals with the situations in the metropolitan cities of Delhi and Bombay as a means to understanding the stresses under which our populations are operating.*

As it is being observed, governmental efforts to halt the urban decay has been grossly inadequate and common people, particularly the poor are finding it hard to cope with the severe ecostress. Voluntary action programmes is the call of the day for restoration of a healthy urban ecosystem.

Voluntary action groups engaged largely in primary health care, education, savings and small-scale income generation projects for the underprivileged, are increasingly feeling the importance of responding to the common people's needs and aspirations for a better work and neighbourhood environment. Yet the NGOs are finding it difficult to grapple with the complexities of urban decay and its impact on people, before they can make any intervention.

South-South Solidarity introduces this document for voluntary action groups and hopes that this publication along with the larger ecohealth programme will inspire more NGO action on environmental hazards in the urban settings in the years to come.

**JILL CARR-HARRIS**  
April, 1994



## **ACKNOWLEDGEMENTS**

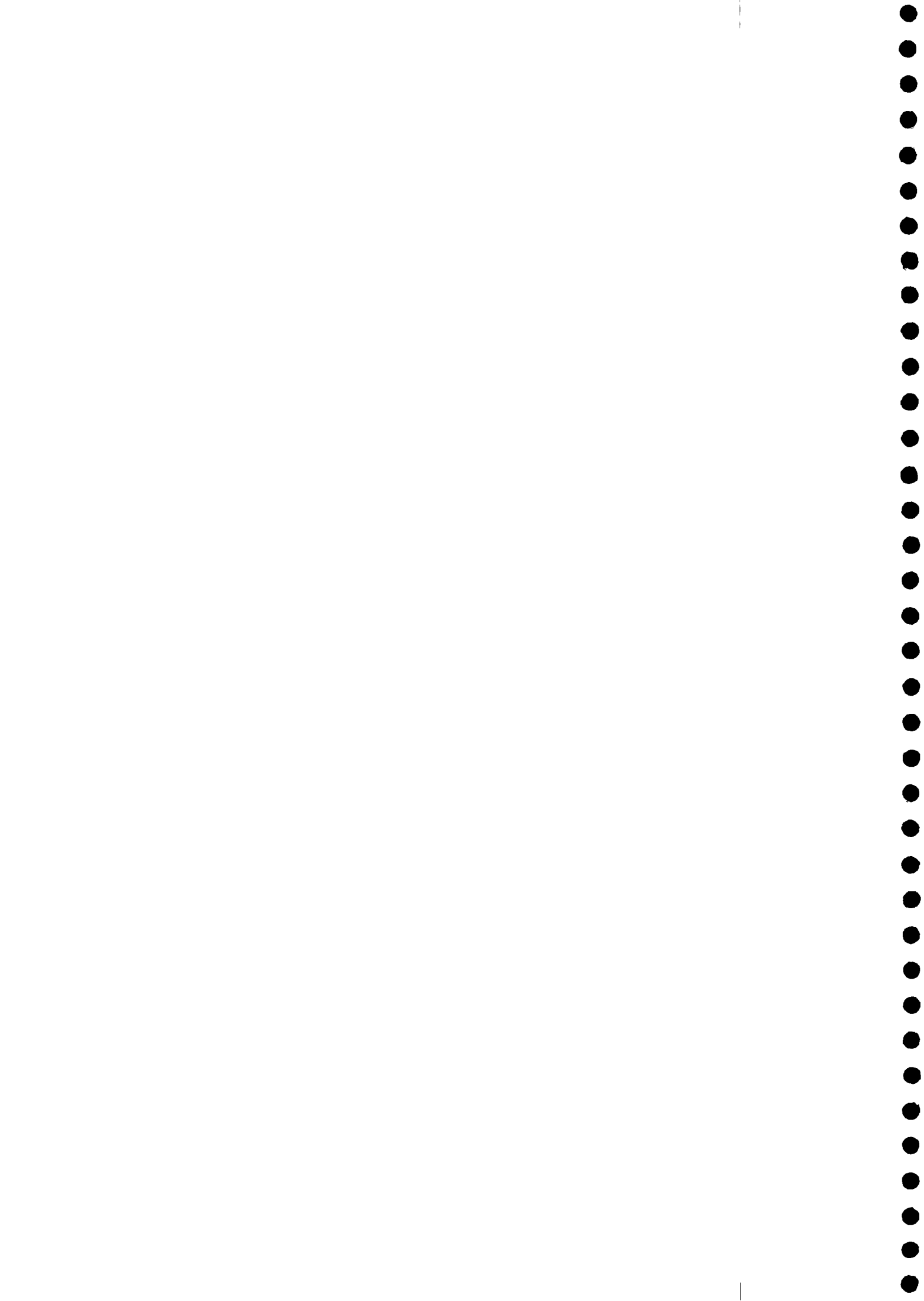
Many thanks to all those that made this report possible.

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## INTRODUCTION

*The problems within our urban centres are assuming volcanic proportions. We recognize the declining quality of urban life. The decay is leading to destruction. Yet the rate of rural-urban migration continues unabated with high natural population growth rate creating unwieldy pressures on civic facilities, public utilities and so on. Coupled with these pressures and shortages, is the increasing pollution loads due to industrial and domestic refuse. This creates an ever declining environment.*

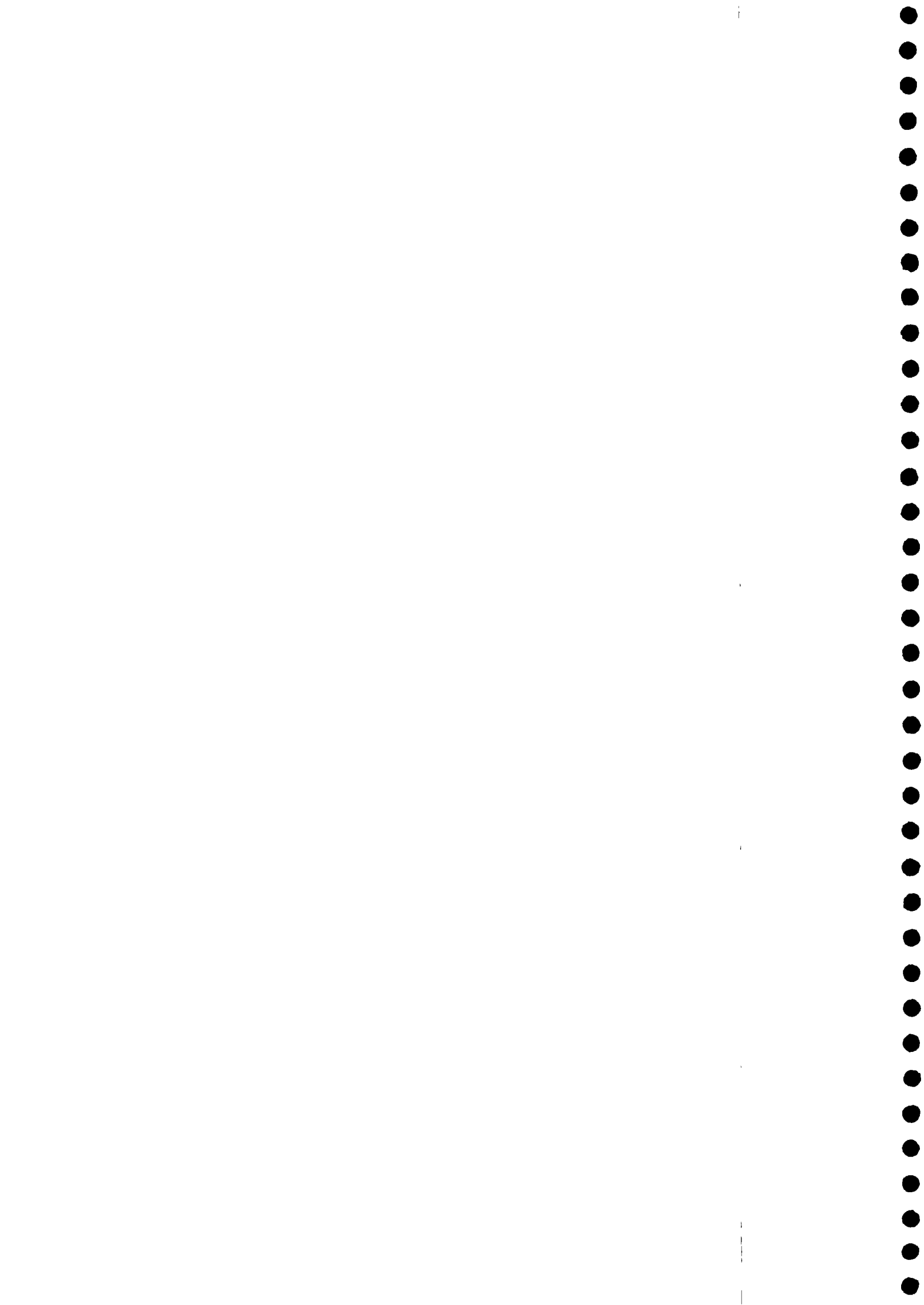
Over the past three decades political compulsions have compelled respective governments to spend huge amounts of its resources for rural development, largely to improve the quality of life for the rural masses but this has not slowed down migration. Currently governments are recognizing the importance of urban renewal programmes. This is being taken up as the government is deregulating services and utilities.

Over the past forty years things have changed for the better, but marginally. The push factor is perhaps partially centralised, yet the mythical "pull factor" remains a predominant phenomena. The quality of city life continues to be perceived and equated with the difference in rural-urban wages. Hence urban population swells everyday, with large numbers streaming in, hoping for a better life. But ask the rickshaw puller, the vendor, the daily-wager in the streets of urban centres, they will tell you the real story. There are disproportionately more rickshaw pullers than users, many more vendors or daily wages than their services are required, resulting in a steady decline in their real wages. The migratory workers will tell us how the difference in wage gets neutralised because of the amount they spend on housing and health care due to ecurrent diseases like malaria, filaria, gastro-intestinal disorders etc.

Problems added by migrant populations apart, high rate of natural growth rate in terms of population, unplanned growth of urban centres, slumification, unregulated industrialisation, an excessive ground-water use by industries and the domestic sector within a small geomorphological region are all serious problems. Add to that the ecostress affecting the urban population. The poorer sections are the worst hit with very little to buffer themselves from the hazardous onslaught.

The stress felt is much talked about, yet the dynamics is less understood in terms of how common peoples' health and well-being is being affected. This is largely due to the sectoral and how it development interventions. Insanitary conditions, pollution, diseases and stress result from a lack of basic civic facilities. In the absence of a more comprehensive intervention coping with the urban decay and destruction has been difficult.

It is precisely, to reduce this gap that an urban ecohealth has been formulated. As test cases Delhi and Bombay are chosen to understand the urban ecostress. Though it is felt that it is an effort which reveals the tip of the iceberg, it is hoped that this exercise will throw some light on important aspects for future interventions.

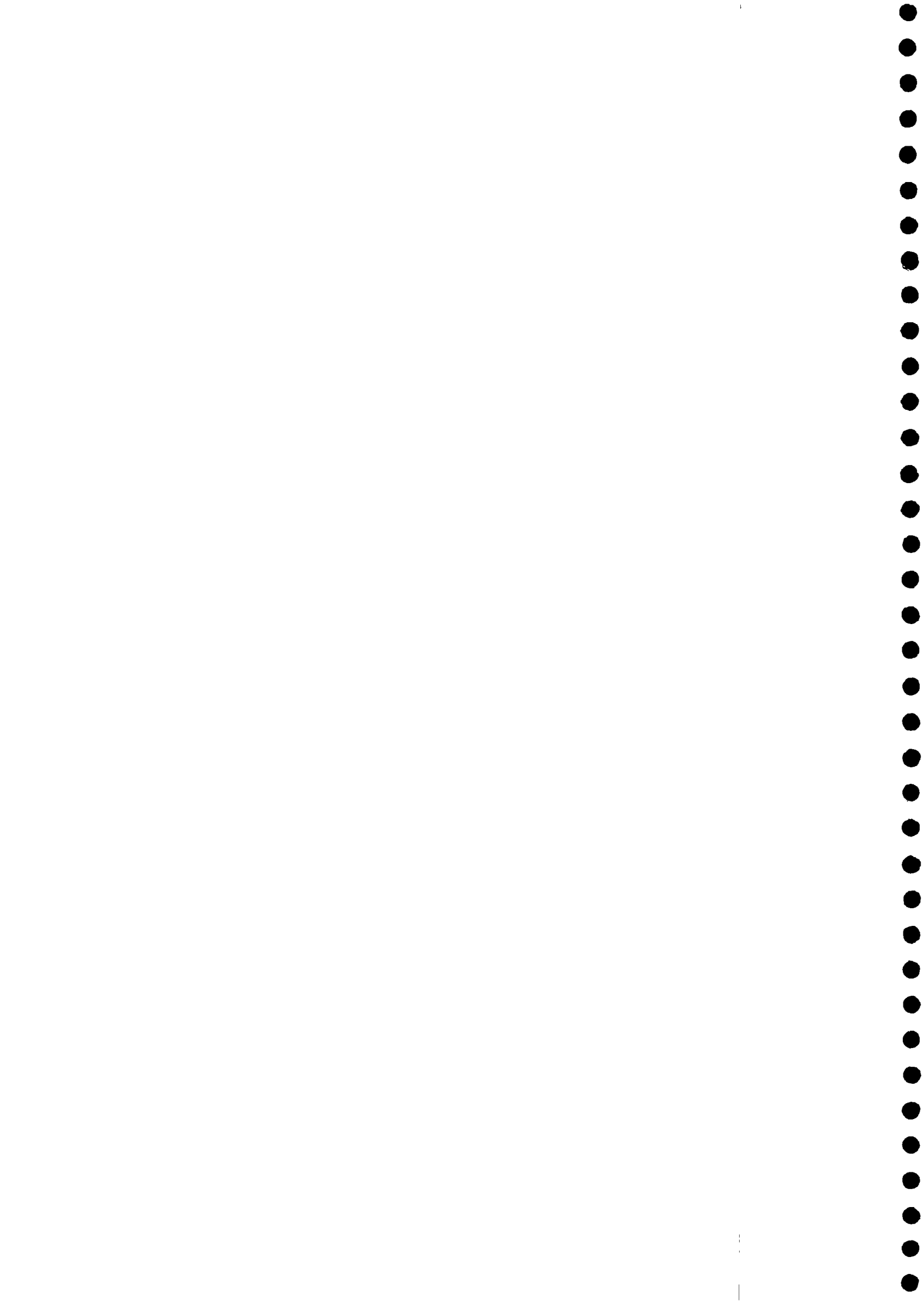


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## URBAN ECOSYSTEMS HEALTH APPROACH

An urban ecosystems health approach to health is different from the conventional approaches adopted by health or urban planning specialists. *This wholly-new approach focuses on the impact of people on their environment, and simultaneously, the impact of the environment on people.*

In this chapter we attempt to characterize the ecosystems health approach. The fact that our cities are degenerating and are ceasing to be healthy environments is conditioned by the fact that the residents are using the city in ways that are compounding the decline and accelerating urban deterioration. *With the increase in population coupled with inadequate supply of financial resources, urban decay cannot be halted unless efforts are made by people at the local and urban level.* For such action it is imperative that there exists an integrated urban ecosystems health approach.

For people to respond to ecosystems health means that they have to relate to urban decline both in terms of its impact on them and their immediate habitat, and the impact on the larger city environment as well. *Ecstress emanates from the environment it acts both on individuals and on the*

*environment. By identifying the ecostresses which affect a given population, we can learn something about the ecohealth of the population and the overall ecosystems decline.* With greater awareness of ecohealth, standing methods for reducing ecostress can be taken up in the normal course of life. Since this is not a conventional approach, we have provided two diagrammatic sketches.

DIAGRAM-1

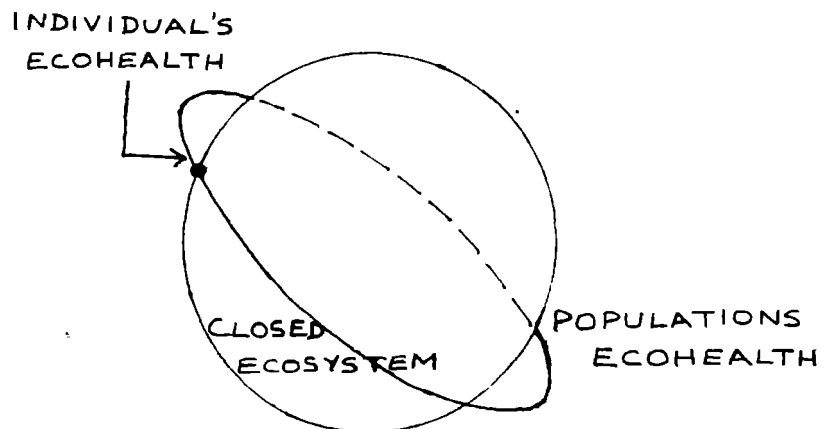
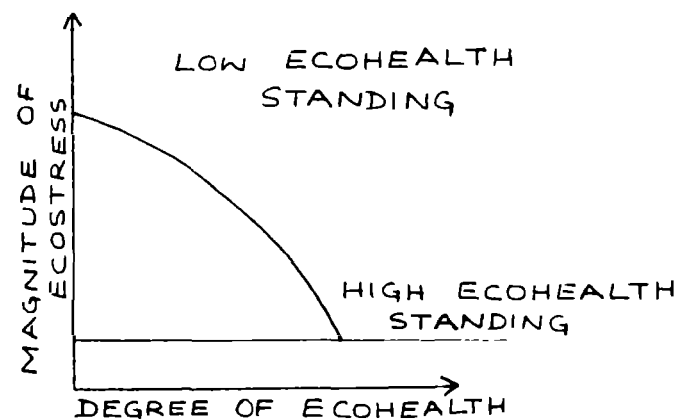


DIAGRAM-2



## **Reducing Ecostress**

The urban ecosystem in which we live is our immediate environment, (which we may refer to as habitat, settlement, etc.), as different from the larger urban environment. In other words, we are used to identifying ecostress in the immediate urban environment which we inhabit (i.e. work-place, markets, schools, home, parks etc.) in terms of water availability or sanitation facilities, and we may know how to identify ecostress in the larger city environment (i.e. air pollution, congestion, lack of sanitation, etc.), *but we may not know how to work towards a better ecosystems health in our own environment that will positively impact on the larger environment* This entails reducing ecostress to restore our ecohealth standing and also of an urban population

### **Reducing Ecostress Requires a Holistic Approach**

Reducing ecostress in the immediate environment in our individual capacity is similar to preventing disease. However, it means that we have to look at the *people-environment relationship in a holistic perspective*. Take for example, women who are working in a home-based industry which involves hazardous processes. Suppose that the household industry is reducing the women's ecostress in so far as it is giving a minimum income to them and to the household, and is providing a certain

sense of social status. The work processes on the other hand, may be increasing their ecostress by creating hazards which in turn may impact on the entire household. A holistic approach which responds to the various ecostresses simultaneously may be the only method to effectively reduce ecostress.

### **Reducing Ecostress through Coping Mechanisms**

People develop *coping mechanisms* when there is a health and environment imbalance. Coping mechanisms can be created for many purposes but in most cases they serve to reduce ecostress. A woman may see having a lot of children as a way of increasing her chances of survival. A given community may see a cooperative savings society as a means of according social status to women. What-ever the nature of the coping mechanism, it is essentially directed at rebalancing the health and environment and reducing ecostress.

### **Reducing Ecostress on Populations helps to Reduce Individual Ecostress**

Mass influx of rural migrants into a city may create extreme pressure on the urban facilities and services which in turn affects a large population. A high population growth in poor settlement areas of a city may in turn, put a high ecostress not only on the poor populations, but on the urban ecosystem as a whole. In these cases

the ecostress placed on a larger population rebounds as ecostress on individuals

To reduce the ecostress on individuals and the environment at one and the same-time, urban planning specialists maintain that population influx into urban centres has to be curbed through certain measures such as providing subsidies to rural populations. If the people are educated about ecostress and informed about the negative health and social impacts of urban migration, they will be better equipped to balance income incentives against ecostress incentives

### **Reducing Urban Ecostress and Restoring Urban Ecosystems Health**

People view the reduction of urban ecostress as that which is done by public authorities. Urban planners for instance, may work to reduce ecostress (without calling it that) at the all-city level through planning and zoning. Pollution control agencies may be reducing ecostress through regulating emissions of polluting industries. Municipal corporations may alleviate ecostress by installing water supply and sewage lines. These are geared to maintaining the ecohealth standing in specific ways. We can learn a lot about ecostress by examining people's and government's responses

Striving to achieve a positive urban

1 See VHAJ State of India's Health Report 1991

ecosystems health at a macro level means that the processes of urban decline have to be addressed. Two of the processes of urban decline discussed here are *slum expansion, and hazards resulting from industrialisation*. These are given more detailed description in chapter two

### **1. Slum Expansion**

One of the processes of urban decline may be what we call for lack of a better word —*slumification*<sup>1</sup>. This refers to slum expansion and its impact on the larger city environment. In many metropolitan cities in South-Asia, such as Bombay, Kathmandu, Karachi, and Dhaka, it is hard to refer to slums as isolated pockets or ghettos, they are an integral part of the whole city. They are part of a process of mass deterioration of the entire urban ecosystem.

*Slumification* is a feature of our cities that needs to be addressed by the entire urban population with the intention of restoring the population's ecohealth. This has not been a priority hitherto because of the interests of the elite or middle-class communities *to buffer themselves against slumification* through various means. This *buffering* approach is neither sustainable nor is it going to reduce the urban ecostresses in the long term. Urban ecostresses will impact on people whether or not they have been able to protect themselves within their neighbourhoods.. This is the irony brought out in a recent

publication entitled *Tale of Two Cities*<sup>2</sup>

Usually urban planners respond to the process of slumification and the mass influx of rural migrants into cities with measures for increasing services, by opening areas that are close to industries, by creating housing stocks and so on. We have found in our studies of Delhi<sup>3</sup> and Bombay<sup>4</sup> that there has been a decline in the rate of migration from rural areas in recent times given the reduced employment opportunities. Yet the processes of slum expansion continue.

*Slumification* applies increasing pressure of existing populations on the urban ecosystem and not just on urban services. An urban ecosystem is more than a functional space. This is borne out by a discovery we made in a comparative study of a resettlement colony and a slum settlement in Delhi: *the resettlement colony clearly had the basic amenities which the slum community did not, yet the ecostress was equally high if one looked at the conventional parameters of child mortality and so on*. This was due to the fact that the resettlement colony experienced high ecostress because of an external slumification process which impacts on it. (See chapter 4 for a more detailed discussion on this point)

## 2. Hazards Resulting from

2. VHAJ Tale of Two Cities (1993)

3. Basu, Urban Slums of Delhi

4. D'silva, (1993)

## Industrialisation

Another process of urban decline may be unregulated industrialisation. The range of environmental hazards that result from industrialisation are numerous. Increasingly we need a typology of the effects of industrial hazards on people's health\*. These hazards not only increase urban environmental decay, but they impact on people who are, in turn, providing a negative *feedback* to the environment. This is particularly the case with the environmental hazards found in slum settlements.

Poor populations living with high levels of air and water pollution are suffering from weakening disorders in the form of chronic diseases, disabilities and low immunity. This makes them less capable of maximum productive output. It seems that changing the environment in the slums is not feasible. This is borne out by the fact that slum tenements which are built for transient populations, in fact, house permanent populations. Data from the cited Delhi and Bombay studies suggest that people live much longer in slum tenements than originally planned.

## 3. Ecohealth as a Development Intervention

Current policies address urban ecostresses but not in an integrated manner treating each urban ecostress in a disjointed manner. Policy options need to be considered keeping all ecostresses in view. Some



modifications that could be considered within the present policy thrust that may lower ecostress to some extent are given below

#### **DEVELOPMENT INTERVENTIONS**

- Take up educational programmes in rural areas for potentially urban bound populations on the hazards they will face, and the attendant health and social costs
- Create incentives for employment in all areas relating to recycling of material, chemical and biological wastes and resources that also work to reduce urban ecostress. This could include metals, papers, industrial parts as well as that related to garbage collection and scavenging so that occupational and environmental hazards can be reduced at one and the same-time
- Provide for standardization of wages and working conditions for all occupations related to the informal sector
- Create habitat development programmes that help to build up cooperative arrangements and a sense of community
- Government-sponsored health services need to take into account changing morbidity patterns due to industrialisation and work out curative and preventive services
- Health promotion and education needs through community workers to build up focus on environmental problems with particular reference to pollution and to hazardous chemicals
- Regulation of pollution in slum areas, both in terms of large and small-scale industries

#### **PARAMETERS FOR MEASURING ECOHEALTH**

All urban inhabitants will work to reduce their individual ecostress and *have a balanced individual ecohealth*. A group formation is required if a community is intent on a balanced community ecohealth. The ecohealth could be marginally restored if the group simply seeks more governmental services. But this does not address some of the fundamental causes (See chapter 6 for Community formation)

A positive state of ecohealth is said to prevail when there is a reduced ecostress

Reducing ecostress involves

- working towards the end of restoring a sense of well-being,
- regaining loss of productive labour by counteracting weakening disorders or diseases,
- creating buffers which limit exposure to air or water hazards, and
- gaining awareness of work-based and environment-based hazards resulting from industrialisation

#### **Restoring well-being**

Restoring well-being is a goal. *When there is low ecostress, there is a high level of well-being*. Well-being and balanced ecohealth are mutually

compatible.

Although *well-being* has never been easily quantified except in so far as it is the perceived "good" of an individual or family, and results from the positive interaction between people and environment, *ecohealth in contrast*, is easily identified because it is not subjective or dependent on an individual regime. It is possible to identify parameters for measuring and describing ecohealth status. Just to take an example, there may be a kitchen garden as a means to bolster nutritional levels, and as a means to recycle compost. This will lead to a higher level of ecohealth and lower ecostress.

### **Regaining the Loss of Productivity by Counteracting Weakening Disorders**

Loss of productivity due to the onset of weakening processes or chronic disease has been observed to be the result of occupation-related stresses (i.e. working in an unregularized and exploitative work environments), and as a result of unclean habitat. (sanitation, water contamination etc.)

This needs to be examined at three levels.

*Firstly* in terms of the individual whose loss of productivity is characterized by long-term chronic disorders, which is compounded with high ecostress. *Secondly* in terms of the loss of productivity of the community through a poor habitat.

*Thirdly* with the loss of children's health associated with high fertility. You will note that a description is given below, and more detailed examples are given in Chapter 4.

### **Loss of Individual Productivity**

Within the poor settlements, many of the occupations are labour-intensive, and are not structured. This is supported by the large populations working in the informal sectors. This means that people who have high ecostress suffer setbacks in their productive work-life. They are disposed to high incidence of morbidity and early mortality (See DIAGRAM 3).

Measuring the loss of one's productive capacity can be viewed in ecohealth terms. Considerable work has been done on characterising nutritional disorders such as anaemia, malnutrition, and so forth. These need to be further understood in terms of the hindrance to one's productivity.

One of the parameters for judging the ecohealth standing is by understanding chronic diseases, disabilities and low resistance levels. With respect to diseases over a long-period of time, they can be more easily co-related with environmental



factors. (See diagram 3)

### **Decline of Women's Productivity**

Most women in slum areas participate in informal work activities to gain some income. It is noted that the participation rate for women in India as a whole was 13.99 per cent in 1981 while the corresponding rate for urban areas during the same year was only 7.28 per cent<sup>4</sup>. Although these rates are partial as they are calculated only for the organised sector, it can be concluded that the rate in slums far exceeds the national urban average.

Very often the processes involved in this kind of work are dangerous. Moreover because their home is often the space for carrying out their occupational activities, it is dangerous for the children.

Yet, it is evident with respect to the general-status of women that women's livelihood does result in a higher ecohealth standing in the sense that it gives her status. The women in the resettlement colony have a much lower status owing to the lack of participation in the work-force.

### **Poor Habitat**

People are clear about the need for a good habitat as a way to maintain high productivity. In a Delhi slum study<sup>5</sup>, sixty percent of the responses indicated that the surrounding environment was the primary cause of general ill-health. About 73 per cent of the responses from a Bombay

slum study said the same. This indicates that productivity is related to, the lack of basic urban amenities and a proper habitat. (See diagram)<sup>6</sup>.

Resettlement colonies where there is land ownership and access to basic services no doubt have reduced ecostress. Playgrounds, open spaces and trees/plants are an important part of a good habitat.

The habitat has been a target of health and development planners in the last two decades because of the increased awareness of the impact of the environment on health. For instance, the slum development programs have been taken up as a way to upgrade peoples health and particularly children's health. The *cared for child*, a motto promoted by UNICEF and its constellation of welfare agencies, requires that the habitat have sufficient means to provide the child with a meaningful life.

### **Fertility as an Indicator**

Fertility is a very important indicator of a woman's individual ecostress. Continuous child-bearing is physically difficult. In poor communities, the more children that are borne, the less the probability of them enjoying a life that is relatively free of ecostress.

Maternal and child care has become an important concern in preventive health care. Providing women with some adequate nutrition during, prior to, and after, child-birth is essential

for the child's well-being. With low nutritional levels, children are bound to face weakening disorders, and be predisposed to higher rates of chronic disorders leading to morbidity and mortality as well as loss of productivity owing to malnutrition. Prevalence of malnutrition among children was very high in the slum studies consulted

### **CHILD MORTALITY**

High child mortality results from the impinging weakening disorders on women. Children start out disposed to weakness, and the conditions and ecostress in slum settlements increases these weakness

Infant mortality in Delhi was 32.66 per thousand (1990)\* and the national average is about 95 per thousand. A slum studied in Delhi showed a figure of 212 per thousand. When compared to other slum settlements, this was about average.

### **Creating Buffers which Limit Exposure to Air or Water Hazards**

Ecohealth will increasingly be protected by creating buffers which eliminate direct exposure. Ecostresses related to chronic toxic poisoning are not identifiable as a disease as such but are manifest through respiratory disorders, stomach ailments, fatigue and so forth.

5 See forthcoming publication in Ecohealth series on Leather Tanneries in Jajmau

Many work environments put direct pressure on workers in the form of occupational hazards and often there are other indirect environmental and industrial hazards that are not recognized but which can be equally lethal.

There are few coping mechanisms to buffer workers and their habitat from these hazards. Increasingly, people will be forced to pay more for creating *shields* against direct exposure. This could include paying higher land values for living at greater distances from industrial centres.

There is an expanding body of public interest law that defines the liabilities of the polluter and gives rights to claim damages to the litigant<sup>5</sup>. This will always be weak as long as people are not aware of their rights, and aware of the hazards.

### **Gaining Awareness of Work and Environmental Hazards Resulting from Industrialisation**

Maintaining ecohealth will require awareness generation and education programs that effectively popularize existing environmental hazards.

In the matter of slum settlements, it is normally the case that people had chosen the location of the settlement because of its proximity to the workplace. The settlement may have been an attractive place at the beginning but as industrialisation proceeded the environment became increasingly difficult.

Some of the problems of industrial air pollution and its impact on poor settlements have been brought out in the recent studies.<sup>6</sup> They show that the increased incidence of T.B., cancer and cardio-vascular diseases, are very common where air pollution prevails. (See Bombay air pollution study in Chapter 6).

Similarly in a study carried out in 1992 in Kanpur's Jajmau area,<sup>7</sup> the ground-water was notably contaminated with chromium. This has no doubt led to skin problems and to the ulceration of the stomach. To what extent it has caused cancer is not known, but it is clearly a serious ecostress on the local population.

### **Women and Ecohealth Education**

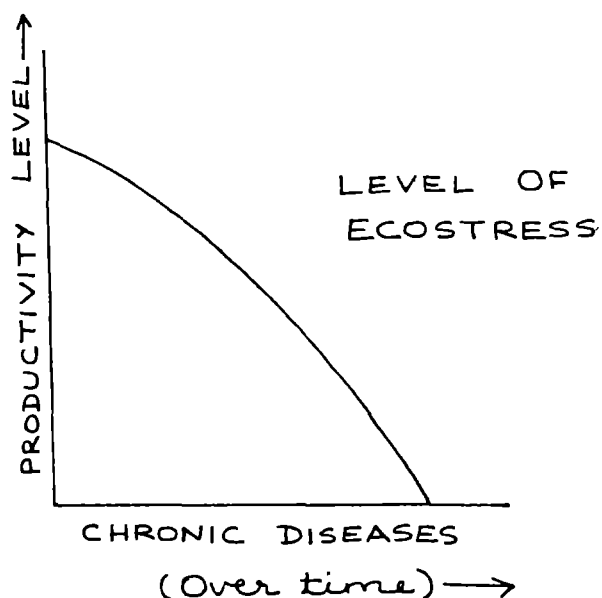
The home environment is largely dependent on women. Therefore women are important in the promotion of a balanced ecohealth. If women are suffering from high levels of ecostress because of low self-esteem, this will, no doubt, affect the household enhancing the status of women therefore, is a precondition for lowering ecostress in the home environment.

Generally social status of women in India is low: Their health also receives low priority. As a result they have learned to ignore their illness and they keep suffering from chronic

ailments like body-ache, fatigue and weakness and a range of gynaecological problems. This neglect has long-term implications on their physical, mental and social condition. Limited access to health care facilities and lack of faith in the same leads to a recourse to local healers and quacks, thus endangering their health to a greater extent.

Providing women with a sense of ecohealth through education is crucial if they are to be a positive change agent. This would require an integrative approach in which women's status, income levels and other pressures are reduced. So she enjoys a balanced ecohealth.

DIAGRAM - 3



6 D'silva, et al (1993)

7 PSI study

## WOMEN AND ECOSTRESS

For the average woman apart from the stress and strain imposed on her by her efforts to supplement family income, the pressure on her to conform to patriarchal values in all aspects of her life is immense, male dominance is manifested by the imposition of regulations and emphasis on the familial side of women. Information on self-perceptions indicates that she associates herself with the lack of intelligence, dependence, vulnerability, helplessness and in-built carelessness. The internalisation of gender roles and images right from childhood lays emphasis on her prime duty of serving man. Moreover the alien urban environment severely limits the field of interaction of a woman Her interaction is limited to an average range of 1,000 square yards within her local area which includes a few houses within this physical limit. This impinges on her awareness and knowledge base \*

Violence on women is another manifestation of male dominance and is quite widespread in slum communities Women have traditionally accepted violence as part of their destiny. Any deviation in the part of wife-mother roles is checked by violence in the form of verbal and physical abuse Men too, are used to beating their wives so there is little deterrence against violent behaviour Even when the woman knows that she is correct and it is the man who is responsible for the violence, there are not many choices available to her. No support systems, social or economic exist to enable her to walk out and fend for herself The woman is so beset by personal problems that she has only the faintest awareness of 'anything outside her immediate environment

The alien environment, conflicting urban-rural patterns of behaviour, lack of recreational avenues, economic hardships and a struggle for survival are responded to by an increasingly degenerating social order in the slums. Again it is the woman who is most often a hapless victims of the social evils, like alcoholism, addiction, prostitution, and sexual abuse. Even within the marital relationship, she is often subjected to marital rape by a demanding and most often alcoholic husband.

This cruel subjection of the woman to respond to man's sexual needs not only deprives her of her sense of dignity and privacy, but also leads to repeated and unwanted pregnancies This increased frequency of pregnancies has a cumulative impact on the woman's life in terms of additional burden on her to cater to the needs of a family, a declining share in the resources of the family and consequent physical and mental incapacitation. In Box 1 we have identified some of the perceived ecostresses acting on women in a slum area and a middle-class resettlement colony It is noteworthy that the ecostresses relating to status were higher in the resettlement colony.

## Ecohealth Interventions

Providing coping mechanisms for women in urban areas is one means of restoring ecohealth. The breakdown of the extended family system means that the entire burden of maintaining the household and looking after the children falls on the women in the family. The household helps to offset chronic diseases which impign from the habitat.

A relatively recent development is a gradual gaining of strength and confidence by some of the younger generation of slum women. This has been enabled by their exposure to the media and more importantly, their interaction and association with voluntary agencies. This is being opposed by the male members of the community and the demands of these women for space and dignity are leading to greater curbs and restrictions. This we look at in detail in Chapter 6.

Another noteworthy coping mechanism for poor women is their high dependence on living resources like fuel wood, cow dung and other biomass in urban slums. The problem is, however, that there are new hazards in the slum settlements in the form of toxins and inorganic substances which are poisonous. It is therefore much more risky for women to depend on coping mechanisms that are heavily dependent on living resources.

## Conclusion

In this chapter we have analysed the ecosystems approach, characterized ecostresses, and explored the impact of ecostresses on people. In the sections that follows, we will first examine the urban ecosystem, and then look at alternative approaches that currently exist and that are forwarding the cause of a sound ecosystems health.



## URBAN DECAY AND ECOHEALTH

*Urban decay and slum expansion are inextricably linked.* If urban development continues in such a way that affluent neighbourhoods have to pay more to buffer themselves against increasing slums, even then urban decay is not being halted. Such urban decay affects the ecohealth of all residents of a city. It affects the urban ecosystem as a whole. At the same time the poor communities are exposed to higher levels of ecostresses because they do not have the disposable income to buffer themselves which in turn negatively impacts on the environment.

Take Delhi as an example, for in spite of the disproportionately high expenditure on services, there is a marked shortage of clean drinking water; environmental hygiene is lacking for more than half the city's population. Add to this the high level of air pollution as a result of 15,000 registered industries, two thermal plants, and 20 lakh vehicles (1991) on the roads everyday. It is the urban poor who, without basic services and without functioning systems, have to contend with increasing number of hazards. The costs will increase for all urban residents to maintain a productive environment because the

slum inhabitants are not able to pay for rehabilitation of the environment.

Slums are characterized by inadequate housing, deficient facilities, overcrowding and congestion. Slums are viewed as a closed system -- settlement as well as a culture. For instance the sociologist Clincial<sup>1</sup> defines slums as subcultures with a set of norms and values, which is reflected in poor sanitation and health practices, deviant behaviour and characteristic attributes of apathy and social isolation. People who live in slum areas are usually isolated from the general power structures and are regarded as inferior; and slum dwellers in turn, harbour suspicion of the outside world. Slum dwellers exhibit fatalism, apathy, unrestrained behaviour, spontaneity, lack of stable employment and a sense of powerlessness.

One way through which slum inhabitants are linked with the urban ecosystem is employment. It is commonly observed that rural migrants from most areas and small towns join the ranks of slum dwellers in bigger metropolitan cities. As Papola (1981)<sup>2</sup> has observed, the migrants without easy access to jobs in the formal sector, settle for odd jobs in the informal sector. In due

1 Clincial (1990)

2. Papola (1981).



course quite a few of them manage to get a job in the formal sector as a skilled or unskilled labour.

But occupational mobility, from the informal to the formal sector, does not in most cases, lead to a change of residence from slums to habitats of better residential areas. This phenomenon may be explained by the fact that after several years of stay in the slums, people get used to such environments, and because they pay relatively very low or no rent for the hutments, occupational mobility rarely brings about a change of residence. For such a change to a better residence means a quantum jump in house rent, which most people can ill-afford.

### **Population Growth as an Eco-stress**

The rapid growth of population in the cities has resulted in an acute shortage of housing and basic services. One reason for this shortage is the failure to supply an adequate amount to even those who have the ability to pay for accommodation and services. However, the problem of shortage is more acute because not many of the new migrants to the cities have the capacity to afford housing and basic services. As a result, the population bereft of the ability to bear the costs of living in the formal sector live in the slums. Shortage of housing and basic services is widespread in all urban

areas and they are more acute in the larger cities. As an example of the shortage of shelters in the large cities, one can note that Delhi, the city with the highest per capita income in India, officially has a shortage of 0.3 million units<sup>3</sup>

At the national level, the estimated housing shortage of 5.9 million units has been considered as an under-estimation by the National Commission on Urbanization. The rate of formation of slums in urban India has reached enormous proportions. Although an exact estimate of slum population in urban India is not available, information suggests<sup>3</sup> that 18.75 percent of this population was living in slums in 1981<sup>4</sup>. The Seventh Plan document adheres to this estimate. Assuming the existing rate of growth of urban population, the Task Force projected that there will be 62 million to 78 million people in the slums out of an estimated total of 310 million urban population by the turn of the century.

Slum formation has not been uniform for various city sizes, as is apparent from the fact that the proportion of slum population has been much higher in the larger cities than the smaller ones.

It is clear from the statistics that the plight of the slum population is much worse in the metropolitan cities than the smaller cities and towns. While this class of cities account for 39-43 percent of India's slum population,

<sup>3</sup> Bureau of Economics and Statistics Delhi (1990-92)

<sup>4</sup> Delhi Master Plan 5

the proportion of people living in slums in this class is somewhere between 33 and 38 percent

### **Industrialization and Ecòstress<sup>5</sup>**

Increasingly, we are becoming aware of the hazards of industrialisation. Today we are realising that there are a whole range of hazards that are as threatening to our health as epidemic diseases. At the same time we want to know more about regulating industrial processes as a means to reverse the gradual decline of our environment and our changing ecohealth

Until the Bhopal catastrophe of 1984, little about industrial hazards was known to the public. After witnessing the gruelling deaths of thousands owing to hazardous chemicals spewing uncontrollably out of the Union Carbide factory, we came to know about some of the quiet hazards - that can persist in our environment for a long time.

With industrialisation we have to pay a very heavy price in terms of the impact on health and environment. The industrial growth pattern in the country has strained our urban ecosystems to such an extent that their continued stability is threatened. In order to establish the link between industrialization and pollution, it is important to examine how their growth has progressed. Over the

<sup>5</sup> This section was taken from a Monograph by Jayant Upadhyay published by South-South Solidarity (1993)

years, there has been tremendous increase in production of industrial chemicals, petrochemicals, motor vehicles and electrical equipments which are growing at a much faster rate than industries that are providing our basic necessities like food grains, cotton fabrics, sugar, milk etc. There is a very clear trend that chemical-based industries, which are the forerunners of industrial pollution, are fast displacing older technologies - natural fibres being displaced by synthetic fibres, farm yard manure by inorganic fertilizers, animal driven transportation by gasoline-driven automobiles, mud by cement etc. This pattern of industrial growth is creating a hazardous chemicals' environment around us.

In the process of producing huge amount of chemicals, by products and wastes are generated, which must be disposed off. The wastes often contain undesirable elements that degrade the environment

The mode of interaction of industrial waste with the environment depends on whether the waste is degradable or non-degradable. Nature has its own internal mechanisms of dealing with waste, provided it is degradable. Millions of tons of industrial and domestic dumps in the environment is countered by nature and cleared. For example, the industrial organic wastes discharged into river-waters, are broken down by oxygen consuming bacteria, rendering the water clean. Alternatively, rain water acts as a periodic dilution mechanism,

reducing the concentration of wastes in water bodies. As long as the natural restorative process can cope with the dissolution rate, air, water and soil can remain clean. But, today

the situation is such, that the quantum of degradable industrial wastes is overtaking nature's self purifying cycle and it is breaking down under stress.

The non-degradable waste is cause for ever greater concern. Today industries are synthesising ecologically non-degradable chemicals like plastics, DDT, detergents, dioxins and CFCs that cannot be accounted for by the self-purifying capabilities of nature. These wastes do not destruct easily and thus persist in the air, water and soil indefinitely. As a result, the shelf-life of pollutants is increasing, ranging from several months to decades.

Though industrial wastes account for only a tenth of the total urban waste volume, the pollution they generate is much more serious.\* This is because the pollution potential of wastes depends of their toxicity in addition to the volume of waste generated. Unlike domestic waste, industrial wastes are more toxic and persist in the environment for extended periods of time.

Besides, pollutants unleashed in nature today can spread far beyond their sources. As a result of increasing dispersion of pollutants, we are faced with yet another hazard of unknown synergistic effects. As the pollutants travel away from their sources, they come in contact with other pollutants and the interaction between them may result into disastrous effects, that we are unaware of. The Century Rayon tragedy that occurred near Bombay in March 1993 is a case in point. A power failure at the plant triggered the overflow of a large quantity of sulphuric acid into a drain that runs through a residential area. The sulphuric acid reacted with chemicals discharged from neighbouring factories, which are unleashed into the same drain. The result - a toxic gas was generated claiming 9 lives and endangering 40 others.\*\*

The accidental release of chemicals by industries has become a major pollution hazard. As the alarming death tolls of recent industrial accidents indicate, the increasing toxicity of chemicals has magnified the damages manifold. The release of methyl-iso-cyanide in Bhopal claimed the lives of 2,000 and endangered 20,000 to 50,000 (Roy).

## **RESPONDING TO URBANIZATION AND INDUSTRIALISATION**

It is apparent from the above facts and figures that about one-fifth of the country's population and around one-third of the population in the metropolitan cities live in slums. By living in degrading slum environments, the populations subject themselves to numerous hazards. Slums are usually located in the least suitable places for human habitation

which are low-lying and frequently flooded and areas which are the least accessible. Basic services to most slums are awfully limited as very few households can access safe drinking water; garbage disposal and collection are severely lacking, latrines are rare, and health-care facilities are almost non-existent. In addition to the scarcity or absolute unavailability of amenities, the extreme density of population due to scarcity of space in the slums is another serious

concern. The impact of this degrading slum environment on people's health is bound to be tremendous.

Some of the factors impeding ecohealth in urban areas can be classified under three broad heads:

- a. Unequal or lack of access to public utilities and urban infrastructure,
- b. Proximity to industrial or other polluting sources; and
- c. Inadequate living space for the population.

The impact of slum environment on people's health is reflected on morbidity and mortality rates. The prevalence of respiratory, gastro-intestinal and other communicable diseases can be expected to be significant in any slum environment. In some instances, industrial pollutants can also cause serious damages to people's health in the slums.

Many physical ailments of the slum population result from difficulties in adjusting to a new environment. In urban slums, migrants find the circumstances different from those they had experienced before. Moreover, little or no control over the work place as well as alienation from the traditional society result in alcohol consumption and drug abuse, sexually transmitted diseases, and

mental disorders all of which have an adverse effect on the overall health and well-being of the population. In addition to the directly visible impact on physical health, psycho-social stresses also adversely impact people's health. Such stresses can induce suicides, ageing, drug and alcohol abuse, crime and delinquency.

### **GOVERNMENT INTERVENTIONS<sup>6</sup>**

The Government has been responding to these processes through a multiple set of interventions since independence. The approach to the formulation of these policies has mainly been sectoral, with primary emphasis on housing issues. In the 1950s, several schemes were introduced, of which **Integrated Subsidized Housing Scheme for Industrial Workers and Economically Weaker Sections** (1952) and **Slum Clearance and Improvement Scheme** (1956) were the only ones which directly and explicitly addressed the urban poor. Of the two schemes, the latter gained more popularity.

The slum clearance and improvement scheme emphasized improvement in the physical environment of the slums. Under the clearance part of the scheme, provisions were made for demolition of buildings declared unfit for human habitation and rehousing of the occupants of the demolished buildings. Under the improvement component, provisions were made for acquisition of slum land at low costs in order to facilitate improvement of

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<sup>6</sup> This section on Government Interventions was taken from a monograph produced by Devajyoti Deka

the area. The scheme also assured subsidies from the central and the state governments to the weaker sections. For the purpose of rehousing, provision of both tenements and serviced plots were made. The tenements and developed plots were to have the provision of latrines and bathrooms. The scheme was not as successful as expected at the time of its inception as actual costs of rehousing far exceeded the expected. The scheme became a responsibility of the state governments towards the end of the 1960s.

Efforts continued in the 1960s in a slightly more comprehensive manner. While the First and the Second Five Year Plans emphasized special schemes focussing on social housing schemes for the urban poor, efforts during the Third Five-Year Plan were guided mainly by the consideration that the crises in the large cities were mainly due to the lack of physical planning. Policy-makers thus saw physical planning of cities as the cure to urban problems, for both the rich and the poor. This was the period when the Delhi Water Plan was initiated and the Delhi Development Authority established to carry out the plan.

During the Third Five-Year Plan, a few committees were set up to look at the problems in the urban areas, of which the **Committee on Augmentation of Financial Resources of Urban Local Bodies** (1962) and the **Rural-Urban Relationship Committee** (1963)

were important. While the former committee dealt essentially with physical planning aspects of water supply, sewerage, drainage and roads, the latter was to examine the functioning of urban local bodies. Although the social housing schemes continued during this period, it was realized by this time that the ability of the urban poor to pay even subsidized costs of housing was restricted, necessitating a review of the existing housing standards. Efforts during the Third Plan were thus not very effective in mitigating slum problems, as *"the problems of urban poor, particularly the provision of urban services to them, were not seriously comprehended beyond expressing a concern about their growing number and the general deteriorating conditions in slums"*. The 1960s also saw the inception of the Fourth Five-Year Plan (1969-74). It was realized by this time that the unit cost of providing basic services was much higher in the large cities and that slum clearance schemes led to the creation of new slums.

The 1970s saw a few schemes which were directly or indirectly related to the problems of the urban poor. The schemes introduced during this period include the **Scheme for Environmental Improvement of Slums** (1972), the **Integrated Urban Development Programme** (1974), and the scheme for **Integrated Development of Small and Medium Towns** (1979).

The **Scheme for Environmental**

**Improvement of Slums** clearly recognized that slum clearance and rehousing would not be feasible because of the low affordability of the slum dwellers and the lack of resources available for a greater degree of subsidization. The objective of the Scheme was to provide the basic minimum amenities such as water, community latrines, and proper drainage. The emphasis of the Scheme was on economic regeneration rather than physical form or design. The entire cost of provision of amenities was to be borne by the Central Government. The scheme is criticized mainly for its inability to provide security of tenure, a requirement for promoting self-help and collective community action.

The **Integrated Urban Development Programme** was launched during the Fifth Five-Year Plan (1974-79). With the objective of evolving a healthier pattern of human settlements, it emphasized that State Governments establish development authorities in cities to promote development which will be self-financing. The programme continued with the town planning approach for solving urban problems.

The programme has not only neglected the urban poor but has created an environment which is detrimental to the welfare of this group. The solution to urban problems which was essentially being sought through land use planning rather than socio-economic planning, did not have much to offer to the poor. With its emphasis on high-

income suburbs, the programme deprived the slum areas of the much needed resources. The financing methods of urban development under this programme restricted the supply of land to the urban poor.

**The Integrated Development of Small and Medium Towns** came into being in 1979 with the objective of restricting the growth of large cities by attracting rural migrants to the small and medium sized towns. Under this programme, development of small and medium towns became the joint responsibility of the Central Government and State Governments. In addition to providing incentive to the growth of towns, special attention was paid to the urban poor. The programme emphasized sites and service-projects for the economically weak.

The most comprehensive policy so far aiming at the welfare of the urban poor came into being in the form of the Urban Basic Services (UBS) programme, with substantial collaboration from the UNICEF. *The UBS programme is designated to enhance the survival and development of children and women of the urban low income areas by extending child care and health services, water and sanitation services, pre-school and other learning opportunities for children in and out of school, and income generating training facilities for women.*

The programme emphasized voluntary efforts in building community action

and mobilisation of resources. The physical planning components of roads, housing, drainage, sewerage and recreation are beyond the scope of this programme, although such provisions could be made for selected slum areas.

Another policy which was meant to have some effect on the urban poor is the **Urban Land Ceiling and Regulation Act, 1976**. The policy aimed at social control over the scarce resource of urban land with a mind to ensuring its equitable distribution amongst the various sectors of society and also avoiding speculative transactions relating to land in urban agglomerations. If successfully implemented, the policy would have helped the urban poor by bringing down land values on the one hand, and providing some of the acquired surplus land for social objectives on the other. However, there are numerous loopholes in this policy for which it has drawn criticism from all quarters.

Finally, the **Integrated Rural Development Programme** is another policy with an indirect impact on the urban poor. The improvement of quality of life in the rural areas resulting from this programme would impede rural-urban migration and thus reduce the pressure on urban slums.

In addition to the above laws having consequences for all urban people, there are the **Water (Prevention and**

**Control of Pollution) Act, 1974** and the **Air (Prevention and Control of Pollution) Act, 1981**, which have a bearing on urban populations from the point of view of pollution control of industries.

The **Factories Act, 1948**, the **Workmen's Compensation Act, 1923**, the **Employees State Insurance Scheme, 1948**, the **Employees' Provident Fund Act**, are some of the regulations with emphasis on the protection of workers' health and welfare. The laws relating to industrial workers are discussed in some detail in the section on industrial pollution in the Jajmau area of Kanpur.

### **Conclusion**

Being neglected on the one hand and being victims of misguided policies on the other, the urban poor have so far endured ill-health to a great extent. They bear the stress involved in migration from rural areas to the urban slums, their participation in the work force being mainly in the informal sector they are usually overworked, stress induced to the extent that they indulge in vices. They are the victims of industrial pollution, and they have significantly higher mortality rates and morbidity prevalence than the general population. With a low health status they are in no position to contribute positively to the environment.

## INTEGRATING ECOHEALTH INTO THE PLANNING PROCESS

There have been numerous government programmes created since independence to ensure that the processes of urbanization and industrialisation go on smoothly. In that sense these programmes are designed to enhance urban ecohealth.

However, the health impacts of development have not been an integral part of the planning process. Cost-benefit analysis consider labour productivity, impacts on human habitat and family well-being peripherally

By integrating ecohealth into the planning process in the same way that environmental impact assessment has been, will go a long way in reducing ecostress

In what follows, we look at various government interventions in urban development. These are

- \* Employment
- \* Housing
- \* Basic Services
- \* Population control
- \* Pollution Regulation

We look at these with a view to understand how they reduce ecostress and enhance ecohealth

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<sup>1</sup> This section was taken from a monograph produced by Devajyoti deka (1994)

### EMPLOYMENT<sup>1</sup>

Most of the cities in this country face problems of growing unemployment and underemployment. A large chunk of the urban population is either without any gainful employment and another section is underemployed. Exact estimates of the number of persons unemployed or underemployed are difficult to come by, as large sections are engaged in the informal sector in the urban areas which goes unreported.

The main economic problem in urban slums is not so much due to unemployment per se, as due to underemployment and the related lack of security, which compounds the problems of poverty. This leads to high levels of ecostress which as noted earlier, when compounded by extended chronic disorders, leads to a loss of productivity

Large sections of the labour force in slum areas find employment in the informal sector, which has the ability to absorb great numbers of workers, but at extremely low wages. Since the urban informal sector does not have any need for literacy or skill, occupations within this sector are the only ones which can cater to the employment needs of the slum



population, many of whom are recent migrants from rural areas without any skill or education. Although the informal sector of the urban areas is the main attraction to the prospective migrants in the rural area, this sector provides only a subsistence level of wage, or less. Because of the low wages, participation in the work force is relatively high in the slum areas, although higher participation sometimes cannot guarantee even subsistence to a slum family.

The effect of mass underemployment in urban slums reverts back from the people themselves to the society at large in numerous ways. Unemployment and underemployment implies lack of or reduced earning for the people, which forces them to seek livelihood in manners other than those legal or socially acceptable. This motive for illegal activities is compounded by the disparity of the rich and the poor. As such, the employment situation in the urban slums can be easily attributed as one of the reasons for increasing crime in urban areas as a whole. Aside from crime, underemployment among the slum populations has serious economic implications for everyone in society. Willingness of the slum population to work for wages below the market rate provides an opportunity to the employers to pay low wages for jobs which in turn distorts the economy. This distortion in the job-market affects the entire society.

A major dimension of urban poverty is that all those who live below the poverty line are not at the same level of subsistence. On the other hand, the disparity between the rich and the poor seems to be widening. The spatial dimension of urban poverty indicates the fact that escalation in land values and construction costs in the metropolitan cities has led to the lower income groups seeking shelters in slums or in settlements declared as slums by the government under the slum legislation.

### **HOUSING**

The housing problem in urban areas can be viewed in the ecosystems health perspective to show that shortage of appropriate and adequate shelter affects not only the urban poor but also the general population. Housing the urban poor is a problem not only to those who need to be housed but for society in general. The problem of housing shortage is clearly beyond the market mechanism of demand and supply, as the concerns are mainly of housing need, rather than demand.

While authorities in the urban areas have not been able to meet this need apparently because of paucity of funds, the lack of available shelter for the urban poor is having an adverse effect on society as a whole. Lack of proper housing for the people means living in environmentally degenerating areas such as slums, which are not only aesthetically unpleasant to the passerby, but are

## Employment Schemes

Some efforts have been made by the government towards solving the economic problems of the urban poor. With a package of programmes started in 1986, certain measures were taken by the government to look into the problem of urban employment. **Self-employment Programme for the Urban Poor** (1986) and **Nehru Rozgar Yojana** in 1989 are two such examples. It was only the **Seventh Five-year Plan** (1985-90) which has addressed these employment issues more comprehensively. The recent **National Housing Policy** (1990) has also, to some extent shown, sensitivity to employment goals in the shelter sector.

Urban employment promotion and poverty alleviation are done in tandem. Stimulating employment is seen as the key. In this context, employment generation in housing, slum improvement and provision of basic services is integral. These still have a long way to go to address the labour market imbalances that are an outcome of migration, population pressure, settlement patterns, etc.

The **National Commission on Urbanisation** (NCU) in its comprehensive report submitted in August 1988, has identified various issues of urbanisation for consideration. The supporting studies and working-group reports have considerable information on many aspects of urbanisation. During 1989, the initiative to amend the constitution focussed some attention on the role of local bodies.

The debate on National Housing Policy was carried forward in 1990. This elicited a constructive response from a cross-section of the people. The **Nehru Rozgar Yojana** launched in 1989 also marked the realisation that urban poverty alleviation has to be a multi-point platform of action as suggested by the NCU.

According to 1987-88 estimates, approximately 30 million persons or 18.98 percent of the total urban population are below the poverty line, i.e., those who did not have the monetary income to obtain 2100 calories' equivalent of food intake per day. In terms of the nutritional intake criterion, the incidence of poverty is significantly higher in several states like Uttar Pradesh, Bihar, Madhya Pradesh.

The incidence of urban poverty has registered a significant decline during the period 1903 to 1987-88 leading many to believe that the poverty alleviation programmes have begun to make their impact. It is confined to nutritional aspects and does not take into account the physical manifestation of poverty in terms of access of the people to employment, shelter and basic services.

As regards employment, while it is a fact that open unemployment is low among poor households, they are more affected by irregular and casual employment making them extremely vulnerable. Nearly 14.25 percent of the poor have irregular and casual employment (1987-88).

While environmental improvement of slums had been initiated earlier, special schemes such as the **Self-Employment Programme for the Urban Poor** (SEPUP), **Urban Basic Services** (UBS) and **Urban Community Development** (UCD) were either initiated or enlarged during the early 1980s.

also a health threat to the inhabitants and the rest of the urban population. Inadequate or improper housing, as in the slums of the large cities, are breeding grounds for diseases which eventually affects the entire urban population. The extreme congestion in the slums, the lack of ventilation in slum-dwellings and improper building material used in them all add up to poor health in the slums. The impact of poor health conditions in the slums is felt not only by the slum population but by the entire urban population because diseases born in the slums spread to other areas and the cost of health services of the slum population is borne not by the slum residents alone but by the society as a whole.

With the shortage of dwelling units running into millions, provision of housing is indeed one of the most pressing needs in urban India. Just as urgent a problem is that of the deteriorating condition of the existing structures. In urban centres across the country, over 20 percent of the people inhabit dilapidated structures. This is compounded by the density of population within these homes.

A survey of 4,000 households in nine slums in Bombay\* revealed that in 40 percent of the homes, two to four people occupied one room, and in 35 percent there were nine to ten persons per room. In Delhi too, it is common to find seven to eight persons residing in 8' x 10' hutments. In addition to limited living space, the house is often used for home-based

processing in which precious space is used for storing raw materials. Ventilation, which is provided by small holes or glass panes in the walls, is inadequate, particularly in winter when food is also cooked indoors.

Another problem relating to housing and health are the materials used in construction. As poor people generally build their own homes without any government subsidies, they are forced to use hazardous materials. During visits to four or five squatter areas in Delhi, it was noted that asbestos was a material commonly used for roofing, when it is known to have a carcinogenic effect. Several homes had brick walls with black polythene that is believed to be associated with the high incidence of coughs, colds, pneumonia and tuberculosis, as polythene provides inadequate cover against cold and damp. Yet other homes had tin roofs which are inappropriate for indoor cooking.

The investment in housing has declined over the years. The resources available with the public sector have been far too meagre to meet demands. The increasing prices resulting from shortages has led to a situation where housing units created for the poorest sections are being utilised by the relatively better-off sections of the population. The inadequacy of government interventions in this sphere is perhaps best reflected in the fact that the public sector's share of the total

investment in housing has been far below the share of the private sector and has in fact been declining from over 21 percent in the First Plan to less than 9 percent in the Seventh Plan.

The policy makers have a general tendency to hold population explosion responsible for the critical dimensions of housing shortage and rise in slum population, but the truth remains that the problem has been essentially one of the absence of planned investments. Although housing stock rose from 68.8 million to 102.7 million units between 1961-81, there is still a massive shortage with no definite indication about the investments required to tackle the problem.

Improper allocation of funds is a major constraint in achieving the desired success in the field of environmental improvement of urban slums. The per capita cost of implementation of such a programme is estimated to be Rs 500. If the slum population of India was estimated at around 40 million in the mid-1980s, the Seventh Plan allocation for funds for this population should have been approximately 2,000 crores. The actual outlay, however, was only Rs 270 crores.

### **BASIC SERVICES**

As is the case with shortage of housing, for the ecosystems health approach, scarcity of basic services is a problem concerning not only those

deprived households in the urban slums but the urban population in its entirety. Lack of proper services in the urban slums is known to be one of the major causes of disease for their populations. While lack of basic services to the general urban population is a cause of slum formation, it in turn helps further degeneration of the environment. Scarcity of basic services in the urban areas compel the poorer sections of the population to look for alternative means for these services, which result in people using water from polluted sources, throwing garbage in the open, relieving themselves in the roadsides and open fields.

These activities not only help breed disease but also aid spreading them among the slum and general urban populations. By relieving themselves in the open people are contaminating the groundwater on the one hand, and on the other, by consuming polluted water from shallow tubewells, they are subjecting themselves to health hazards. The filth, garbage and stench generated in the slum areas often spread out of the slums by means of waterbodies, seepage and through animals. The germs bred in the slums may spread easily to areas outside the slums, thereby posing health threats to the entire urban population. The recent outbreak of malaria in Vasant Kunj, New Delhi, serves as an example of such spread of diseases (see box in page ). As such, provision of basic services for the urban slums is a necessity not only for the sake of the

## **Housing Policies**

Announcing the much delayed draft **National Housing Policy** in 1990 the government hoped that the yearly investment in this sector during the Eighth Plan would be Rs 15,000 crores. At the same time, at 1985 prices, the investment in the 1991-2001 period will have to be Rs 1,40,000 crores to wipe off the backlog and meet additional needs.

The proposed **National Housing Policy**, the report of the **National Commission on Urbanisation** (1988) and several recent policy statements by the **Ministry of Urban Development** stipulate the role of the government in the housing sector as that of a facilitator. Housing Boards, development authorities etc. have been, therefore, shifting towards self-financing schemes. These schemes unfortunately do not attack the problem of housing for the weaker sections. It is evident that usually under such schemes, loans are provided to the majority of populations much above the low income brackets. Also, for the kind of housing finances which are available to these weaker sections, one can acquire only a hutment in a squatter settlement or a place of land in an unauthorised colony.

The picture for the next two decades could be that India will become increasingly industrial and there would be more people in urban areas. In these circumstances, housing cannot be treated as an isolated issue, but in close relationship with several connected aspects. The unchecked growth of big cities needs to be checked by upgrading small and medium sized towns, as well as improving facilities in the rural areas.

**The Task Force on Housing and Urban Development**, appointed by the **Planning Commission**, offered two estimates. The low estimates indicated that at least 20 percent of the urban population in India resided in slums in 1981. This figure would rise to 26 percent if a more liberal estimate is made.

The emergence of slums is essentially the product of three forces: demographic dynamism of a city, its inability to meet the rising demands for housing and existing urban land policies which prohibit the access of the poor to the urban land market. At the same time, slums are inherited in the form of an old village or a haphazardly growing locality within the extended territorial limits of a town. Also, poor migrants settling on any public or private land is much more typical a feature in the making of a slum area though a climate in favour of low cost housing through self-help is being built. The basic issue of urban land policy deserves serious rethinking.

slum dwellers alone but for the entire urban population. Ecosystems health approach therefore emphasizes a solution to the problem of scarcity of basic services as a need for the entire urban population rather than that of the slum population alone.

With increasing population and rising densities, an increasing number of slum dwellers are not getting access to basic services. More than 90 percent of slum households do not have access to individual latrines. The fact that many of the community toilets are defunct explain the use of open space by the slum dwellers. More than 40% of the slums in the cities are waterlogged giving rise to intestinal, respiratory, and skin diseases, according to Vacent Study.\*

It has been acknowledged that the rapidly increasing urban population is a major factor contributing to the inability of the municipal bodies to do proper financing and management of provisions. Beside growing urban ecological problems, this factor has limited the ability of the local governments to produce and distribute services adequately, which has resulted in a disequilibrium between the demand and supply of public services.

### **Water Supply Policies**

The present system of piped water supply was introduced in the country about 100 years ago. The State Municipal Acts have made it very clear that water supply is one of the

prime functions of the local bodies. Minimum standards of water quantity have been set by the **Central Public Health Environmental Engineering Organisation** (CPHRRD) at 125 to 200 litres per capita per day for cities with a population of 50,000 and above. **The Zakaria Committee** had, however, suggested that a per capita supply of 157.5 to 270.0 litres per day would be an ideal goal for cities with population of 100,000 and above. The national water standard is 70 to 250 litres per capita per day with an average supply of 140 lpcd irrespective of the population size of a town or city.

The underutilisation of water resources to the extent of 82.68 per cent and lack of piped water supply are the two major causes of water supply problems and on an average, nearly 73 per cent of the population at the all India level is being served by piped water in urban areas. It is noteworthy that in almost half of the States, the population covered is less than this average.

Unlike water supply, standards for sewerage and drainage have not been specified. Many towns in India have not been covered with the sewage system primarily because of the prohibitive costs involved. Since the Sixth Plan, the Central Government has been providing finances for sewage disposal, but this is only a matching grant that can be allocated only if sufficient local resources are available.

Even in cities which have seen a

certain level of industrial development, urban sewage is a problem. Kanpur was once a thriving city owing to tanning and other local industries. It still has 151 large tanneries, but is widely regarded as a poor city where provision of basic services has been grossly neglected. There has been little expansion in the urban infrastructure over the last few years, with the result that 47 percent of the people live in slums known as *Abatas*. In addition, Kanpur has a very high population density — about 1,210 persons per sq hectare. It is evident, therefore, that the improvement of basic services does not necessarily follow automatically in proportion of municipal revenue generated.

### **Health Care Services**

Health care facilities for the urban poor need more attention than has been given so far. Such need arises because the cost of ill-health for a section of its population has to be borne by the entire society and not only by those who directly suffer from such conditions. Morbidity in any form, implies lower productivity for the worker and mortality at a young age implies loss of actual or potential productive labour. In spite of the emphasis of government policies on conventional economics, such rationales are somehow lacking in the overall corruption of the problems. Such rationales are, however, important considerations for the ecosystems health concept.

Health care facilities can be perceived in terms of either prevention or cure of diseases. Preventive health care facilities normally include immunization programmes, awareness generation about health and sanitation, basic services, etc. Contributions to preventive health care of the slum populations have so far come from both the governmental and the non-governmental sectors. To a great extent, preventive health care depends on the provision of basic services, which has mainly remained a responsibility of government agencies.

The contribution of international organisations in such provisions is also significant, although their involvement is normally only in terms of providing funds for such activities

Other governmental programmes towards preventive health care include spraying of insecticides, organising immunisation programmes in the slums and so on. Yet another responsibility of the government in this regard is the control over industrial pollution, which has a serious impact on the prevention of diseases for the urban population. In spite of the extensive nature of government responsibilities in preventive health care, provisions in almost all categories have been inadequate. Such inadequacies have been elaborately discussed in various sections of this report.

In terms of the provision of curative health care facilities, contributions of

the government can not be termed as adequate either. Although such provisions may be appropriate for certain sections of the urban population, the extremely poor health standard reflected in the high mortality rates and morbidity prevalence among their populations speaks of the standard of government health care services available for slum dwellers

In the slum areas, there is either a total absence or gross inadequacy of public health facilities and services. As a result, the urban poor, who are exposed to hazardous environmental conditions characterised by poor health care consciousness, unhygienic habits and sanitation practices, suffer from a high incidence of mortality, morbidity and malnutrition.

### **Medical Services**

In terms of medical services' provision, urban India is much more privileged than the rural areas. This is apparent from the fact that in 1981 there was one hospital per 32,000 persons, one dispensary per 31,000 persons and one bed per 382 persons in the urban areas compared to one hospital per 288,000 persons, one dispensary per 38,000 persons and one bed per 6,057 persons in the rural areas.\*

Notwithstanding the superior medical services provided in urban areas, health standard of the urban slum dwellers is not necessarily better than the rural population. The poor health

of the urban slum dwellers results primarily from the disparity between the rich and poor in the cities, as the standard medical facilities in these areas are not affordable to the poor slum population. Another reason for the poor health standard of the slum population is the degrading environment in which people live and work. The degrading physical and social environments of the slums contribute heavily to the poor health of the population.

In spite of the high incidence of diseases and mortality rates in the urban slums, there have not been many policies aimed singularly towards improving health standard of the slum dwellers. While some contribution have been made from the voluntary sector, efforts aimed at disease prevention or cure have been grossly inadequate from the government side. Besides, any policy aiming at improving health standards of urban slum dwellers, needs to address not only the factors which are manifested in diseases, but also the psycho-social stresses of the people. Such a policy also needs to be comprehensive in nature, which will include housing issues, basic services, industrial and air pollution, crime and delinquency, and mental and physical ailments. So far, not only has such a comprehensive approach been missing, but also the sectoral approaches have been grossly inadequate. Basically, there is a need for redefining health in the context of the urban poor.



The most comprehensive programme so far in this direction is the Urban Basic Services programme (UBS), adopted under the Seventh Five-Year Plan to integrate water supply and sanitation services with basic health care. It appears that the Urban Basic Services Programme, despite its comprehensive nature, falls short in addressing environmental health problems related to industrial pollution and occupational hazards, which are some of the major causes of ill-health in the slums

### **Industrial Pollution**

As with other urban issues, ecosystems health approach views the issues relating to industrial pollution within the framework of the people-environment-people relationship. While industrial pollution may occur due to callousness of the industries and negligence or ignorance of the government, such occurrences affect the entire society in the long run. Since the individuals or groups causing damages to the environment are not the same individuals or groups receiving the direct impact of the degeneration, there is an urgent need for the society to see that the adverse impact is distributed equitably among all people in terms of the degree of damages done by the individuals or groups.

The impact of industrial pollution is the most on the urban population in general and the urban poor in particular. Due to the availability of a mix of skilled and unskilled labour

force, proximity to market for their finished products, and the availability of intermediate products used in the production process, most industries prefer to locate their plants in or around large urban centres. The primacy of certain large metropolises in the country has led industries to select these cities over the smaller cities, which has had a significant impact on the growth of urban India. Today a large proportion of the country's industries are located either within the limits of cities or in the fringe areas. Although on the one hand these industries are contributing to the country's economy by generating income and creating employment opportunities on the other hand these industries have been responsible to a great extent for the degeneration of the urban environment.

Numerous types of industries in India are responsible for the alarming state of the urban environment, the more significant types being petrochemicals, organic and inorganic chemicals, mining, distilleries, pesticides, fertilizers, cement, steel and thermal power plants. In addition to these, small- and medium-scale industries such as tanneries, stone crushers and foundries have added to the degradation of people's life support system. air, water and soil.

Industrial air pollution primarily affects the poor because of the location of their residences and work places close to the polluting industries. Although air pollution from vehicular traffic in

urban areas affects all inhabitants, its impact is more severely felt by the slum dwellers because of the location of slums in close proximity to major roads. It has been shown by scientific studies that inhabitants of urban slums with higher levels of air pollution suffer the most from respiratory diseases. For identical reasons, the brunt of water pollution by industries is felt mainly by the urban poor. Water pollution by industries occurs due to the disposal of untreated liquid or solid wastes in the open. Detailed discussions have been made regarding this type of pollution in the chapter on industrial hazards.\*

While air and water pollution issues in the country have received at least some attention, pollution from the disposal of solid wastes has remained grossly neglected. Solid waste pollution has assumed dangerous proportions in the developed countries and India will soon follow suit unless the issue receives immediate attention. A study conducted by the **National Productivity Council** revealed that 22 percent of the generated solid waste in India is classified as hazardous, out of which only 4 percent is channelised for processing while the rest is disposed of without proper processing or treatment. As much as 80 percent of the waste is dumped in low-lying areas without detoxification of the hazardous compounds. The untreated wastes do not remain immobile in the pits they are disposed of, they leach into the

aquifers and contaminate ground-water resources and surface-water as well at times of flooding.

Because of industrialisation, urban communities, especially the slum workers, they are far from adequate. The **Water (Prevention and Control of Pollution) Act**, 1974 and the **Air (Prevention and Control of Pollution) Act**, 1981, are some of the regulations with an effect on the control of pollution by industries.

The primary laws that govern occupational health and worker's safety in industries are the **Factories Act**, 1948, the **Workmen's Compensation Act**, 1923, and the **Employees State Insurance Scheme**, 1948. Another law relating to workers' benefits is the **Employees' Provident Fund Act**, although it precludes health implications altogether.

The Factories Act sets a number of statutory regulations for workers' health and safety. Industries are required to ensure the provision and maintenance of appropriate environment so as to secure the comfort and health of workers. The Act specifies that adequate ventilation be provided at work places and workers be segregated from dust and fumes generated in the industrial process. The act also outlines the minimum size of rooms to prevent overcrowding and suggests provisions for adequate lighting. In addition to these safety measures, factory owners

are required to maintain adequate facilities for the supply of safe drinking water, sufficient latrine and urinal accommodation. Under this Act, workers have a right of information about the hazards involved in their work.

The cleanliness provisions of the Factories Act are almost never adhered to by industries (in their entirety) While it may be unrealistic to assume that all of the smaller industries would and here to the requirements, they are certainly capable of keeping working areas and floors clean Yet, the response from the smaller industries in this regard is far from satisfactory The stipulations for dust and fumes are not adhered to by industries on a regular basis either.

The Employees' State Insurance Scheme is intended to provide benefits to employees in case of sickness, maternity and injuries sustained while at work This Act applies only to factories employing 20 or more persons, which precludes all the workers in smaller industries

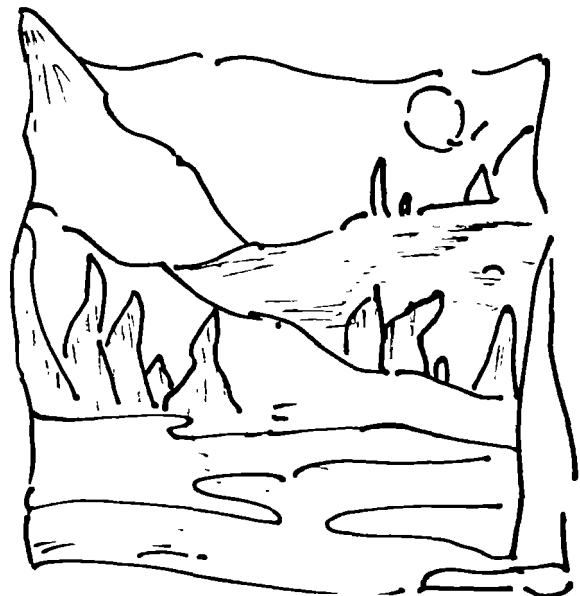
The most frequently violated law among the above is probably the ESI Scheme. It is a common practice among employers to withhold or avoid their monthly contributions under the Scheme In order to claim benefits under the Scheme, the worker must have worked in a unit for a minimum of 90 days and taking advantage of this loophole industries register workers for periods shorter

than this specified duration. The number of workers so recruited is not insignificant. Similar contraventions of the Employees Provident Fund Act Workmen's Compensation Act are also rampant.

### **Conclusion**

These policies and programmes are extensive. Without some intersectoral planning, these interventions will be of limited use in reducing large scale decline of our cities

By having some parameters for ecohealth, urban programmes will be more integrated. In what follows, we begin to assess ecohealth in the contexts of urban slum settlements in Delhi and Bombay. This is based on social research at a micro-level It may not be seen with reference to the measures required for integrating ecohealth into urban planning.



## ASSESSING ECOHEALTH IN PUSHTA SLUM DELHI

In this section we apply an ecosystem approach to a slum settlement in Delhi. The findings are carefully extrapolated from a social research study taken up in two areas of Delhi, which compared a jhuggi-jhompri cluster with one of the most well-maintained resettlement colonies.<sup>1</sup> (See description of study.)

The findings of the social research was designed to:

- characterise the differences between the two class of settlements, that is a slum and a resettlement colony;
- obtain the perceptions of the populations as to the ecostresses that impinge upon them in each, and then to compare them,
- evaluate whether the resettlement colony with its functioning basic services successfully reduced the ecostresses for the population.

The social research was designed to identify the various ecostresses in a particular slum keeping in view the required interventions that could be

introduced to reduce these stresses. In addition, we used it to explore the kind of methodology that would be required for altering our approach to slum development and which would adequately consider the ecohealth of an urban population.

### Altering the Approach to Slum Development

The research efforts had been initially directed towards understanding the complex interplay of the environment with peoples' health and *well-being*. It emerged through the case study approach<sup>2</sup> that the health of the ecosystem is mirrored in peoples' health, and that peoples' health provides a useful indicator as to the type of environmental care that needs to be taken up at the community level

This however does not seem like a useful finding unless we can identify and measure some of the ecohealth impacts. It was evident that people have created a variety of coping mechanisms to reduce their stresses, and this further confirms ecohealth as a development response.

Identifying ecostresses through coping mechanisms may not be easy. For instance coping mechanisms may vary from increasing the status of women,

<sup>1</sup> Basu (1992)

<sup>2</sup> D'silva, (1993)

to having more open spaces and playgrounds in the colony. These are all ecostress reducing measures.

### **Incorporating Ecostress Reduction into Present Policies**

On comparing the resettlement colony and the slum in the research study it became clear that the traditional urban development measures need to be strengthened to allow for greater reduction of ecostress. For instance:

- \* Introducing more health facilities that recognize the level of ecostresses operating in that locality and that may be in part, the cause of a particular ill-health
- \* Establishing basic services that take into account the need for community regulation and control
- \* Upholding damage suits of factories that are creating very high ecostress
- \* Taking on urban infrastructural development schemes i.e. road construction with some reference to reducing ecostress
- \* Incentives for increasing income if some disposable income is used for environmental care

### **COMPARATIVE STUDY OF J.J. CLUSTER AND A RESETTLEMENT COLONY**

The two settlements selected for the purpose of the study were Pushta Jhuggi Jhompri Cluster and Nehru Vihar Resettlement Colony. Pushta is located adjacent to the CPJ, J and K Blocks of Seelampur Resettlement Colony, on the north side of G.T. Road in the Trans-Yamuna area. Nehru Vihar, on the other hand, is located by the "Waste to Energy Plant" on the Wazirabad Road in North Delhi

The initial Jhuggis in Pushta are said to have appeared in 1966, to which substantial additions have been made over the years. Nehru Vihar Resettlement Colony came into existence only recently, in 1984, for the purpose of rehabilitating squatter families from parts of Old Delhi. Currently, the J.J. Cluster is reported to contain 4,500 hutments which house, according to the Pradhan, 27,000 people. In Nehru Vihar, on the other hand, 2,570 plots were provided at the time of its emergence which have now increased to accommodate the current population of around 15,000 persons.



### Temporary J.J. Cluster is a Myth

Around 79 per cent of the Pushta habitants perceive some rural area as their area of origin while only 50 per cent of the population in Nehru Vihar consider their origins rural. Around 86 per cent of the Pushta residents considered Uttar Pradesh as their place of origin while in Nehru Vihar, the proportion of residents considering Uttar Pradesh as their origin was identical with those considering Pakistan as their origin (29 per cent for each) About 44 per cent of the inhabitants of Pushta consider their last (immediately preceding the current) residence to be located in a rural area while the remaining 56 per cent had their last residence in some urban area. This observation contradicts the myth that the mass of the jhuggi jhompri dwellers are recent migrants from the rural areas of the neighbouring states. Among the rural migrants all respondents were found to be from Uttar Pradesh.

### PERCEIVED COPING MECHANISMS

The felt/perceived needs of the two populations can be summarised as in the table below.

Table 1 is the Prioritisation of the Felt/Perceived Needs in Pushta and Nehru Vihar.

### Pushta J.J. Cluster

Priority	Serial No	Need
I	1	Health Care Facilities
	2	Tap Water
II	3	Proper Garbage-Disposal Facility
	4	Children's Playground
III	5	Additional Public Latrines
	6	Awareness Generation on Health and Hygiene
	7	Incentive to Students

### Nehru Vihar Resettlement Colony

Priority	Serial No	Need
I	1	Proper Garbage-Disposal Facility
II	2	Institution for Children/Balwadi
	3	Integrated Action by Govt, NGO etc
	4	Incentive to Students
III	5	Health Care Facilities
	6	Children's Park/Playground
	7	Market Place
	8	Bank
	9	Post Office
	10	Awareness-Generationon, Health and Hygiene

It is apparent from the prioritisation of felt/perceived needs for the two settlements there is a :

- \* Need for health centre/dispensary (disease treatment) and supply of municipal water (disease prevention) constitute the top priority for the residents of Pushta, while proper garbage

ease prevention) constitute the top priority for the residents of Pushta, while proper garbage disposal (disease prevention) is the top priority for residents of Nehru Vihar.

- \* Need for proper garbage disposal facilities and a children's playground The residents of Nehru Vihar, on the other hand, consider a *Balwadi, integrated action and incentive to students as second-order needs*
- \* Priority III needs of the Nehru Vihar residents are diverse such as those for a bank and a post office

In conclusion, it can be said that the felt/perceived needs of the residents of Nehru Vihar Resettlement Colony are different from those in Pushta J.J. Cluster While the felt/perceived needs of the people of Pushta mainly reflect desires for such things as are necessary for mere survival, the needs of the residents of Nehru Vihar are typically representative of the expectations of a middle-class neighbourhood. The only perceived need of the residents of Nehru Vihar which distinguishes it from a usual middle-class neighbourhood is the one for proper garbage disposal, which speaks of the perceived relationship between the accumulated garbage and diseases.

Since some aspects of disease treatment and/or disease prevention occupy the top priorities among the felt/perceived needs of the residents in

both the settlements, one can conclude that, contrary to popular beliefs, people in both the living conditions are concerned about their health status.

### **IDENTIFYING AND MEASURING ECOSTRESSES IN A SLUM SETTLEMENT**

The two contexts in which to measure the ecostresses are with respect to:

1. Productivity and Chronic Diseases
2. Health Standing and Habitat

#### **1. Productivity and chronic disorders**

Peoples productivity diminishes with high ecostress. Many of the slum inhabitants carry out an unregulated amount of physical labour, so that it is likely that their productivity is bound to reduce over time. One way of identifying the loss of productivity is through occupational studies (degree of absenteeism and so forth).

In terms of identifying and measuring ecostresses, the best way is through the examination of chronic disorders. In the study of the slum settlement it was recorded that many of the health problems are chronic and clearly continue over long periods of time. Among the chronically ill in this study, almost 25 percent acquired the diseases more than six years ago and 65 percent of them at least a year prior to the study

## **Identifying chronic diseases - Malnutrition and Body Weakness**

Chronic diseases as weakening disorders are common-place. Apart from the cases of malnutrition and resultant anaemia, one has to consider the many occupation related minor cases of illness such as headaches, backaches and minor bodily injuries, which always go unreported in such studies.

One of the effects of malnutrition, particularly noteworthy in women and children is anaemia, which causes weakening of the body by bringing about reduced oxygen carrying capacity of haemoglobin. In a study of women slum dwellers carried out by Dr. Amla Rama Rao as many as 90 percent were found to be anaemic and seventy percent were suffering from acute anaemia (below 9gm hb%).

Information on the slum settlement shows that malnutrition is worse than in the resettlement colony. It is important to note that the people suffering were mainly children and women. Malnutrition in children was found to be 40-54 percent in a 1976 study (Singh and de Souza).

Case studies of individual women in the slum indicated that 80 percent perceived their family's diet to be inadequate and many of them admitted that they could barely manage two square meals a day. This is comparable with 75 percent of the women in the resettlement colony that

understood their diet to be inadequate.

### **Expenditure related to diet**

Dietary analysis based on monthly food purchases and daily diet show that an average slum dweller spends 95 percent of his monthly household income on food and yet 73 percent have a deficiency of protein in the diet and 95 percent suffer calorie deficiency. Wheat, rice, dal and occasionally other cheap vegetables form the staple food.

### **Household Income**

The Household income in the slum was low at an average of Rs 3,441 as compared to the Delhi average which is Rs 9,707 (VHAI). Also the resettlement colony was less than the Delhi average at about Rs 6,405.

From the occupational data of the slum settlement we can see that a large proportion works in the informal sector. Some of the salient features are

- 55 percent in the slum work in the informal sector compared to 8 percent in the resettlement colony
- a high percentage of women work in the informal sector
- about 20 percent of the slum inhabitants work in the lowest level jobs in the informal sector i.e. hawking and rickshaw pulling.



Clearly there is a higher ecostress on workers in the informal sector. Their labour is unregularized, and they are vulnerable to exploitation.

**Income Profile**

Table Percent Distribution of Household by Monthly Income in Pushta and Nehru Vihar

Monthly Income Rs	Percent Distribution	
	Pushta	Nehru Vihar
Upto 750	19.31	1.33
750-1500	57.26	4.66
1500-2500	20.68	43.34
2500 and above	2.75	50.67
Total	100.00	100.00

**Occupational Profile**

Table Occupational Breakdown of the Labour Force, Pushta (slum) and Nehru Vihar (resettlement colony)

Occupation	Percent distribution	
	Pushta Slum	Nehru Vihar Resettlement Colony
1. Factory worker	36.11	2.60
2. Industry/Craft	9.92	7.84
3. Service	12.76	58.50
4. Business	21.37	25.80
5. Hawking/ Rickshaw Pulling	19.84	5.26

**2. Health and Habitat**

Identifying ecostresses enables us to see the interactions between health standing and habitat

**Mortality Rates**

The first indicator of the study, namely mortality, suggests that health standards in the two settlements are inferior to the standards for the nation as a whole, and are worse than for Delhi. Crude death rates and infant mortality rates are higher than the

national and Delhi averages. On the basis of the observed mortality rates, the success of this resettlement colony in providing an improved standard of health to its inhabitants can be questioned.

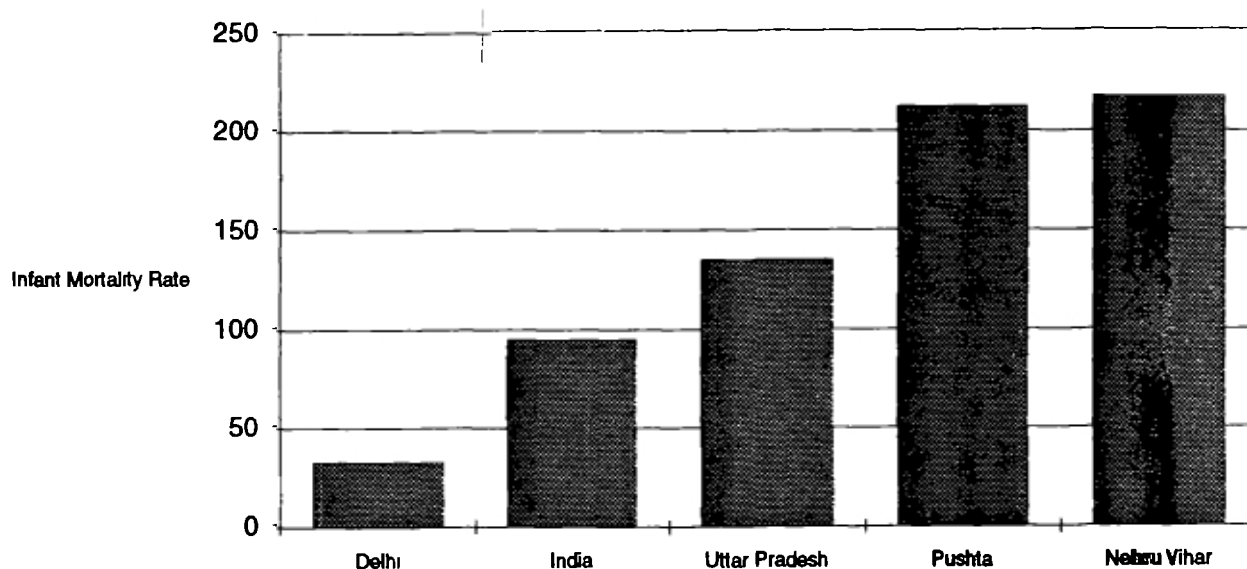
Infant mortality is important for showing the ecostresses in a habitat. If the woman is suffering from acute ecostresses before and after childbirth, there is high risk to the child. Maternal and child care programs recognize this, but there is an emphasis on nutritional intake, and not on the

holistic view of women's ecohealth

In a study carried out in Delhi, it was found that a high proportion of women (82.3%) pregnant or lactating

mothers, showed signs of medium to acute malnutrition (Rao 1992). As a result there was low birth weight and pre-natal mortality was found to be as high as 45 per 1,000 live births

Comparison of Infant Mortality Rates



**BOX**

**Higher Morbidity Prevalence in Urban slums**

The extremely poor health standard in Pushta J.J. Cluster can be juxtaposed with the temporal changes in the standards of the country and of Uttar Pradesh. The Crude Death Rate and Crude Birth Rate (C.D.R.) of India in the year 1911 was 49.2 and 42.6 respectively, which reduced to 39.9 and 27.4 in 1951. Comparing these figures with the current figures for Pushta one can see that in terms of the mortality rate, the J.J. Cluster is in a worse state than in the beginning of the century and its fertility rate is close to that at the time of the Independence. The I.M.R., C.D.R. and C.B.R. for neighbouring Uttar Pradesh, where the health standards have been lower than the national average, were 154, 45.5 and 21.6 in the year 1970. When these figures are compared with the ones for Pushta, all the three indicators clearly show that the J.J. Cluster's health standard today is inferior to that State's more than two decades ago and that too by a wide margin.

### Changing Pattern of Morbidity — Identifying Ecostresses

The changing pattern of morbidity is obtained owing to changing habitat. Population increase, industrialisation, lack of functioning services are ways of explaining those morbidity changes. In contrast, the resettlement colony which is less affected by these shifts shows a lower Morbidity Prevalence Rate (MPR) in comparison to the slum settlement. It is roughly a 1.4 ratio difference.

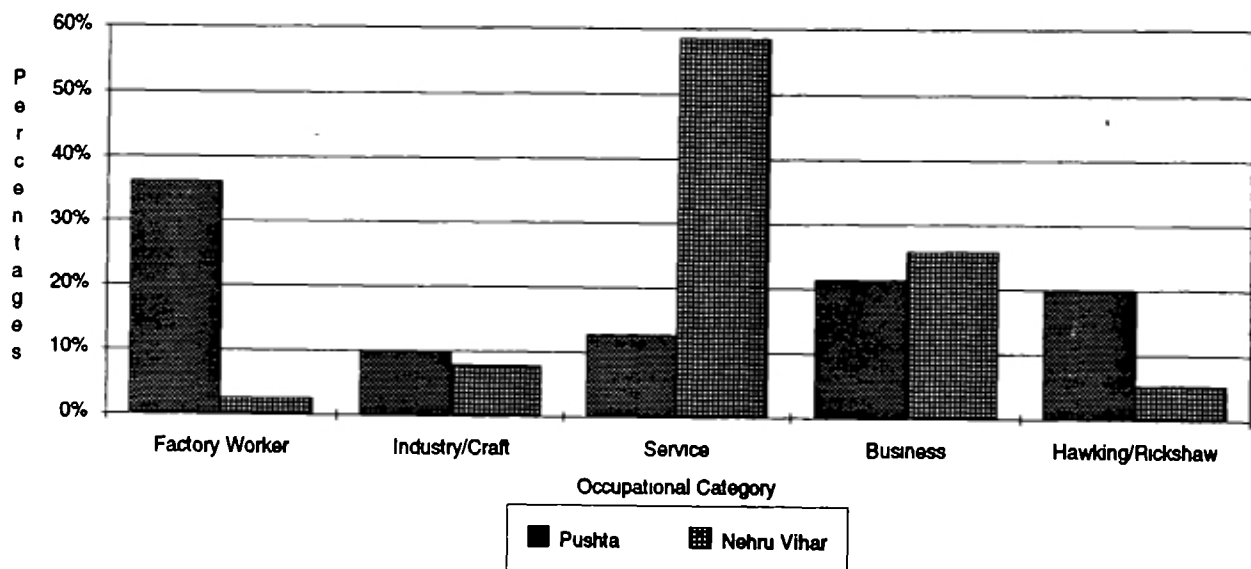
It was also noteworthy in the study that the prevalence of all diseases except for high or low blood pressure is higher in urban slums than in rural areas. On the basis of this observation, it can be concluded that gastro-intestinal and respiratory diseases are more prevalent among the inhabitants of urban slums than the rural population.

Among the diseases considered by this study, diarrhoea is far more prevalent in the urban slums than rural areas. Prevalence of diarrhoea and gastroenteritis can be easily related to the inadequacy of drainage and the inavailability of clean drinking water in the slums. The presence of pathogens and coliform in drinking water in urban slum is a major cause of the prevalence of diseases.

### High-level of respiratory disorders

Health standards help us to measure the degree of ecostress coming from prevalent in a habitat. In Delhi, studies have confirmed that cough, asthma, bronchitis —all respiratory disorders, top the list followed by blood pressure and tuberculosis. The prevalence of respiratory diseases can be attributed to extreme congestion, inadequate diet, extensive use

Distribution of workers by occupation



of tobacco, and lack of adequate ventilation in the dwellings. Out of these, a few causes of respiratory diseases, congestion and lack of good diet are significant contributory factors

#### **High incidence of long-term chronic diseases**

Many of the health problems are chronic and clearly continue over long periods of time. Among the chronically ill surveyed in this study, almost 25 percent acquired the diseases more than six years ago and 65 percent of them at least a year prior to the study

#### **Pollution related disorders**

According to the responses about 75 percent of the population experienced one or more affects of pollution. 45 percent of the population uses water from shallow hand-pumps for drinking purposes. There are open drains and pools of polluted water in the slum. A significant proportion of people, mainly children use open spaces for relieving themselves and garbage is dumped in the open water bodies from which leaching occurs. All these factors can be clearly attributed to the prevalence of gastrointestinal disorders and water-borne diseases.

#### **Population, housing and health**

The extremely high population density in Pushta is almost beyond comprehension. Even if the other deleterious features of the settlement are

ignored, such density alone is likely to have serious adverse impacts on peoples' health, and is a major cause for ecostress

Considering the average household size on the one hand and the dwelling size on the other, the average living space per person within a dwelling unit varies between 13 sq. ft and 19 sq ft. This space is not even adequate for the population to sleep in, not to mention other household uses such as employment generating activities. The extreme density in this settlement is a result of the population explosion experienced by metropolitan areas of this country.

#### **Population density in urban slums**

Given the average living space per person within a unit varies between 13 sq ft and 19 sq ft. When it is realized that a human body of average size, lying prostrate, takes up about 14 sq ft of space, it becomes clear that the built space available in Pushta is not even adequate for the population to sleep even if the population were to touch each other's heads and toes. This limited space again is used not for sleeping or household activities alone but for many other income-generating activities such as wire-extraction, agarbattu-making, steel-plate manufacturing, tailoring and embroidery and so on. Many dwellings also house milch animals and poultry to make the situation worse

#### **Lack of understanding of pollution related disease**

Although three-fourths of the population seemed to be affected by pol-

lution related diseases, only a meagre 28 percent of them could relate the causes of the symptoms to elements in their environment i.e. such as accumulated garbage, vehicular and industrial gaseous pollutants and generally unhygienic surroundings. It was noted that the persons who related the symptoms with environmental hazards were educated people or those informed by doctors

### **Ecostreams within the Resettlement Colony**

As described in the earlier section on government policies, one of the most successful urban development programs has been the development of resettlement colonies. Although it is less financially viable to develop subsidized housing, let us analyse some of the findings of our study of one of the resettlement colony, that is, Nehru Vihar, in Delhi

Nehru Vihar is a planned settlement, and is nine years old. It provides reasonably good housing and has functioning services. There is no *jhuggi jhompru* cluster in this resettlement colony.

However, as to being an environment which offers a higher ecohealth or lower level of ecostress, this is not necessarily true. The fact is that it is surrounded by polluted water bodies of significant size on three sides which makes the whole concept of resettlement colonies questionable. All resettlement colonies are located on low-lying areas and close to

sources of pollution. Providing a settlement for relocating families in a setting worse than or similar to a squatter colony may not make much economic sense let alone with regard to health and other social costs.

In addition to the location, the problems of substandard maintenance of basic services, means that the urban decay of the resettlement colony is going to impact on the people. There was an expressed dissatisfaction with the maintenance of public latrines, poor garbage collection and improperly maintained playgrounds, and it appears that the providers of the resettlement colony consider the provision of services as a one-time action.

There was indeed a marked absence of any kind of community regulation and control. This was unfortunate particularly since many of the inhabitants came from a similar refugee background

### **Conclusion**

In this Section 4, we have analysed an urban slum settlement in Delhi in order to understand the impact of the slum on urban decline. In the next section we look at the stresses of a slum on Delhi.



## STRESSES IN A SLUM OF DELHI

*It has also become patently clear that poor communities can reduce individual ecostresses. Urban planning measures need to be executed in such a way as to dovetail the reduction in individual ecostress with reducing urban ecostresses.* For example, providing income generating schemes and other benefits to ragpickers and waste collectors may ensure a better disposal system and a cleaner environment.

It must also be that all settlements take some local and community responsibility for maintaining the urban ecosystem. Otherwise the burden of the costs is going to fall on the middle and upper class income groups to maintain the urban environment. Because middle income groups will resist this, there could be a resultant increase in urban decline

This is of particular concern as the government passes on some of the service sector to private interests. Without subsidies, the public will be obliged to live in a fast deteriorating environment, or will have to pay higher and higher costs to buffer themselves against environmental degradation in their neighbourhoods.

### Delhi

From the study, there are a few significant findings

- 1 It was evident in the slum study, that people in Pushta did not give much credence to environment, or environmental care except in so far as gaining land tenure and basic services, open spaces and so forth. Therefore the notion of environmental care to the slum inhabitants is largely in terms of that environment which gives minimum health standing
- 2 It was made evident that little expenditure was going to come even from the inhabitants of a resettlement colony for any environmental care even when there is a larger disposable income. Environmental care does not figure as a priority. This is not surprising judging from the paradoxical fact that people keep their houses clean but their neighbourhoods are frequently unclean
- 3 There seems to be few community arrangements for mobilizing communities towards environmental care. The group in Jerimen in Bombay had, in contrast successfully mobilized the community to respond to environmental care, but this is still in the gambit of pressuring the government for basic services to alleviate unsanitary conditions and curtail pollution
- 4 Another fallacy was discovered concerning state sponsored programmes. Even when there is a higher expenditure by the state for basic services, child mortality rates are not necessarily lower. In other words, it was found that in the case of the resettlement colony, there was an infant mortality rate that was comparable to that of the slum settlement. This assists us in reviewing the conventional wisdom that provision of basic services lowers child mortality

The ecostresses in a slum settlement need to be identified with reference to the larger urban ecosystem, and the processes of its decline. This enables us to take a more holistic approach in planning at the one level, and design popular education programmes at the other.

Political decision-makers, policy-makers and programme implementors may be able to impact on the urban-wide environment by working to reduce ecostresses. This could benefit all inhabitants and particularly those in a slum settlement.

There are, in fact, limited tools available to us in analysing the ecostresses on the urban ecosystem, and concomitantly, the people's interactions with the urban ecosystem. Some effort has been made by agencies working on population control; some are looking at pollution control measures that are relevant to the ecostresses on the urban ecosystem.

### **Population Growth and Ecostresses**

The plight of the urban poor in Delhi needs special attention for, being the capital of the nation it enjoys a prerogative not provided to the other metropolitan cities. Among the four largest metropolitan cities in the country, Delhi shows the fastest growth rate of population, which certainly has an impact on the growth of slums and the plight of the poor. The enormous growth of the city can be comprehended by the fact that its decen-

nial growth rate of population has always been more than 50 percent since the 1951 census. In other words, every decade has added more than half of the city's existing population at the beginning of the decade. To accommodate the growing population, the city has also spread out significantly, from 42.75 sq km at the beginning of the century to 446.21 sq km in 1971 to the current 1,483 sq km.

In spite of the immense growth of the city, there has not been any improvement in terms of housing and services, especially for the poor. Due to rapid increases in population, density of population is increasing at a rapid rate. Yet, the current population density of this city is far less than the three large metropolises of its class in the country, Calcutta (23,669 per sq km), Madras (21,811 per sq km), and Bombay (16,434 per sq km) (source: VHA1 compilation). In spite of the apparently low density in Delhi, there is acute shortage of space for the economically weak, which suggests the possibility of flaws in the urban land policy of the city.

The rapid growth of population in the city has created acute shortage of dwellings and services. The **Delhi Master Plan (Perspective 2001)**, 1990, estimates the total housing shortage in the city as 0.3 millions. The shortage is shown to be 0.44 million by another source (A.K. Jain, 1990: 167). However, these estimates do not include the numerous families living in dwellings located in the

informal housing sector. It was estimated that out of the city's total housing stock of 1.16 million in the 1980s, 0.26 million were located in the old city, where most areas are declared slums. In addition to this, the urbanized villages provided shelter to 0.11 million families, and squatter and unorganised colonies to 0.29 million families. In terms of population, it has been noted that currently 1.5 million live in squatter settlements, 1.5 million in unauthorized colonies, 2.0 million in Katras and slums and yet another 1.5 million in Resettlement Colonies (VHAI, 1993: 16-17), which implies that around 70 percent of the city's population of 9.37 million live in substandard environments. Leaving aside the resettlement colonies, which are considered to be part of the formal sector, about 53 percent of the population live in slums or slum-like environments. As such, the proportion of population living in environments unfit for a healthy habitation in Delhi is significantly higher than the estimated proportion of

slum-dwellers in metropolitan cities provided by the Task Force in 1985 (33-38 percent). It has been stated in published literature that 57 percent of Delhi's housing stock is located in non-formal settlements (A.K. Jain, 1990: 168), substantiating the fact that more than half of the city's population live in environments not suitable for human habitation. Since most of the resettlement colonies do not provide an environment significantly better than the slums, despite their status as part of the formal housing sector, some sources have added the population living in these settlements to put the proportion of population living in sub-standard areas at 75 percent (A.R. Basu, 1988: 103). The historical growth of population living in sub-standard areas is not available, although such figures are available for squatter settlements.

The initial efforts of any significance aimed at improving the prevailing conditions in the slums was the **Slum Areas (Improvement and Clear-**

**Table 5.1 Growth of Population in Delhi**

Year	Population per sq km	Population	Density Decennial Growth Rate ending in Specified Year
1951	1,744,072	1,165	90.00
1961	2,658,612	1,792	52.44
1971	4,065,698	2,738	52.93
1981	6,220,406	4,194	53.00
1991	9,370,475	6,319	50.64



ance), Act, 1956 The Delhi Development Authority was set up in 1957, which became the main instrument for planned development in the entire region. In 1961 the first master plan of Delhi was prepared. It is mainly through this document that the Delhi Development Authority has been implementing its plans. Since the beginning of planning efforts in Delhi, approaches have mainly been in terms of urban design or form, which is a reflection of over-emphasis on physical planning. One of the major thrusts of planning in Delhi has been acquisition of vacant land within the city limits. One of the objectives of this acquisition was to allot the acquired land for social causes. About 72,000 acres (29,138 ha) of land was earmarked for acquisition by the Master Plan before 1981 (A.R. Basu, 1988: 69).

The attempts to improve conditions in the poor areas of the city so far can be classified as environmental improvement works, Katcha improvements, improvement of urbanised villages, redevelopment of existing areas, construction of tenements and rehabilitation of slums, and finally the **Jhuggi Jhompri Removal Scheme** and the subsequent resettlement colonies (mimeograph, School of Planning and Architecture, New Delhi).

The major policy measures adopted to tackle the squatter problems in Delhi are the (i) urban renewal and redevelopment programmes under the **Master Plan** (1962), (ii) programmes under the **Environmental Improve-**

**ment Scheme** (1972), and (iii) programmes under the **Jhuggi Jhompri Removal Scheme** (1960). Neither the efforts under the **Master Plan** nor those under **Environmental Improvement Scheme** have been extensive in so far as benefits to the urban poor are concerned. In comparison, programmes under the **Jhuggi Jhompri Removal Scheme** have been the most extensive and their results the most evident. These programmes dealt explicitly with the problem of squatter settlements, as these have been considered as major causes of concern by the policy makers.

### **Slum Expansion**

It is estimated that about 1.5 million out of Delhi's total population of 9.37 million, or 16 percent of the city's population, live in squatter settlements, or *jhuggi jhompri* clusters. Such settlements have existed in the city for decades and even at the time of independence there were a few thousand squatter families. It is estimated that there were about 534 *jhuggi jhompri* clusters in the city in 1981-83 (A.R. Basu, 1988: 130). However, another estimate of *jhuggi jhompri* clusters, which apparently includes the small clusters comprising only a few families, puts the number at 7,000 (A.K. Jain, 1990: 167). The number of squatter families in the city has fluctuated over the years, mainly as a result of the programmes under the **Jhuggi Jhompri Removal Scheme**, which resulted in relocation of squatter fami-

lies in resettlement colonies. **Table 5.2** summarizes the growth of squatter families in the city in the last few decades.

It is apparent from the table that squatter families grew almost five-fold in the two decades, between 1951 and 1971, before massive resettlement of families started in the 1970s. Relocation or resettlement of squatter families reached an unprecedented scale during the National Emergency in the mid-1970s which reduced the number of squatter families to only 20,000. However, such massive efforts could not prevent or slow down the growth of squatters as their number again increased almost five-fold in the subsequent four years. Between 1980 and 1990, the number of squatter families more than doubled to reach 230,000. Assuming the growth of squatter families between 1980 and 1990 continued at the same rate, the current number of squatter families in the city can be estimated as 296,442. The unabated growth of squatter settlements in Delhi can be attributed to massive migration from other areas, lack of affordable housing, and also to some extent, to the return of thousands of relocated families from resettlement colonies.

The squatter settlements are located in polluted areas and these further add to the deterioration of the environment. Being located in low-lying areas, squatters are periodically affected by flooding from clogged

<sup>1</sup> This section was taken from an article prepared by Angana Gupta (1993)

drains and other water bodies. Most of these settlements are located in areas adjacent to or close by major roads and railway lines, because of which they have severe problems of noise and air pollution. As the dwellings are made mainly of thatch, wood and plastic, they are prone to fire hazards. In addition to these general hazards in the squatter settlements, many of them are also located in areas polluted by industrial effluent.

**Table 5.2 Growth of Squatter Families in Delhi**

Year	Number of Families
1951	12,749
1956	22,415
1961	42,815
1966	42,668
1971	62,594
1976-77	20,000
1980	98,709
1981-83	113,386
1987	200,000
1990	230,000

Source **Delhi Vikas Varta**, Vol 2, April-June 1991, D D A

### **Urban Malaria<sup>1</sup>**

Urban malaria is an important consideration in the ecosystems health concept, as this weakening disease is known to affect a large number of people. Although the slum environments in the large cities may be primarily responsible for the breeding of mosquitoes, the disease affects all urban population because of the ability of germ-carrying mosquitoes to fly a fair distance from their breeding-grounds. Urban malaria is one of the classic examples of the impact of slums environments on the general

urban population. We emphasize below the situation in Vasant Kunj New Delhi as an example.

The residents of Vasant Kunj in Delhi continue to be victims of malaria despite large scale eradication and treatment programmes. The problem has assumed threatening proportions with tests at the All India Institute of Medical Sciences (AIIMS) confirming 38 out of 57 blood smear slides analysed being positive (Indian Express 21-10-92). Several of these tested positive for P falciparum virus which causes the fatal malignant malaria. The residents complain that the government authorities, specially the Municipal Corporation of Delhi have failed in dealing with this grave problem. There is lack of inclination and motivation on their part to provide the residents with immediate as well as long term preventive programmes. Most of the residents have reiterated that they contracted malaria only after coming to the Vasant Kunj area. The Secretary of the Vasant Kunj Residents Welfare Association mentions that despite the growing number of residents suffering from malaria and a number of letters/reminders having been sent to different authorities, the complaints have not been taken care of. Similarly, a request made by the Federation of Residents Welfare Associations of Vasant Kunj to the authorities for application of Deltamethrin (a high power insecticide) was also rejected.

A major cause of malaria in the area can be attributed to the proximity of the residential flats to the Masoodpur

Dairy Farm which houses over 60,000 cattle. The area is full of puddles making it the potential breeding ground for mosquitoes. The waste accumulated from the dairy is dumped behind Sector C of the Vasant Kunj area. The filth is indiscriminately dumped into the principal open drain of the colony running along Mahipalpur Road. This has also led to sewerage blocks in some locations. Although MCD surveys attribute the causes of malaria to the "germ carrying" outstation construction labour, the existing evidences point the other way. Inadequate spraying of larvicide in the open drains and puddles is another cause of malaria in this area. All these factors compounded with government inaction has worsened the situation. Spraying of insecticides has not been uniform, as some locations had concentrations above optimal while at other locations it was inadequate. The Municipal Corporation of Delhi (MCD) identified the overhead water tanks and water coolers in the households as the major mosquito breeding locations. The residents disagreed with the M.C.D.'s claims by saying that most of the water tanks were modern sealed tanks providing no scope for mosquito breeding. The National Malaria Eradication Programme (N.M.E.P.) officials blame the faulty engineering services provided by the authorities for such problems.

According to an MCD health officer, 2,169 people in Vasant Kunj have undergone the Mass Radical Treatment (M.R.T) programme launched on Oct

11th 1992. M.R.T. recommends administration of 600 mg of Chloroquine and 45 mg Primaquine drugs. The official claimed that his team met with stiff resistance from the local doctors and the programme was aborted midway. The local doctors refuted the charges of the official and said that the administration of such high power drugs without conducting proper tests has its own harmful effects. Many domestic helps and children were forced to swallow the tablets without any explanations or any diagnostic tests. Before administration of Primaquine, it is imperative to conduct a Glucose 6-Phosphate Dehydrogenase Deficiency (G6PD) test, as it is known to have adverse side-effects. According to medical practitioners, these drugs are not preventive drugs and administering them in advance does not help in prevention of malaria. Even Chloroquine has to be given with much precautions, as it may lead to resistant strains.

The morbidity and mortality profile of Vasant Kunj malaria cases is very disturbing. Aside from the large number of reported morbidity cases, a few people are known to have died in the area from this disease.

### **Government Interventions<sup>2</sup>**

One of the best way to reduce ecostress is through planned development that considers health and environment costs in advance

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<sup>2</sup> This section was taken from a monograph prepared by Deva (1993)

### **Government Interventions relating to Squatter Settlements in Delhi**

The Delhi Development Authority has a Land Protection Branch for detecting any emergence of *jbuggi jhompri* clusters so that they can be removed at the earliest opportunity. Between 1977 and 1982, more than 25,000 *jbuggis* were identified and removed under this provision (A K. Basu, 1988: 144). However, the fact that more than 100,000 *jbuggis* were added to the city's stock during this period makes the success of the provision questionable. A limitation of this scheme is its scope of coverage, as it relates only to *jbuggis* located on government land.

Aside from the preventive measures through the DDA's Land Protection Branch, there have been several other curative measures under various government schemes. Such curative measures have been undertaken under the **Delhi Master Plan**, the **Environmental Improvement Scheme**, **Sites and Services Scheme** and the **Jhuggi Jhompri Removal Scheme**. The **Delhi Master Plan** does not solely address slum dwellers or squatters, but makes some provision which might positively impact the urban poor. Among the important and relevant suggestions made in this plan are the reservation of 25 percent of houses built on government land for rehabilitation of slum dwellers, relaxation of building bylaws to allow construction of low cost houses and provision of subsidies to selected families for relocation. In

addition to these measures, the Plan recognizes the need to check growth of squatters in the city.

The **Environmental Improvement Scheme** took recognition of the fact that mobilisation of resources for rehousing large number of squatters was difficult, which necessitated that efforts be made to improve the environmental quality of the squatter settlements themselves. The programmes under this Scheme mainly consisted of providing drinking water taps, sewers, drains, community latrines and accessibility. The scheme also emphasized acquisition of land in surrounding areas or alternative sites for rehousing and provision of amenities.

The **Sites and Services Scheme** was also introduced in Delhi for rehabilitating squatters. Under this Scheme, a site would be developed with the provision of on-site water supply, drainage, sewer system, etc., so that the weaker sections could procure the basic amenities and shelter in a better environment. Provisions under the Scheme were to be made at cost price since the beneficiaries were the poorest in society. However, the Scheme was abandoned some time after inception, providing an example of another failure in improving the quality of life of the urban poor.

The **Jhuggi Jhompri Removal Scheme**, 1960, is the most prominent of all government efforts aimed at improving the quality of life of the urban poor. Although several modifi-

cations have been made in the Scheme over the years, its primary objective, to provide better housing and infrastructure to the *jhuggi jhompri* dwellers by relocating them in alternative locations, has endured. It is within the scope of this Scheme that the concept of resettlement colonies in the city evolved.

Some of the policy measures envisaged under the original Scheme were (i) allocation to each squatter family a 80 sq yd plot containing a latrine, tap water and plinth, (ii) 50 percent subsidization to families with very low income and (iii) provision of roads, sewerage, electricity, etc. to the new settlement.

Programmes under the Scheme suffered setbacks right from the beginning and it was soon recognised that many of the resettled families did not have the ability to pay even the meagre monthly instalments. Moreover, it was immediately realized that properties in the resettlement colonies were being sold by the original allottees to others. Another difficulty in the implementation of the Scheme was encountered in distinguishing the eligible squatter from the ineligible ones. Because of this difficulty it was decided in the mid-1960s to allot plots to both eligible and ineligible squatters, making the plot size smaller for the ineligible families. Many other flaws of the Scheme, such as slow progress of clearance and rehabilitation, squatting by families on unallotted plots, huge amounts of unpaid license fees, etc., were noticed.

Due to the blemishes in implementation of the Scheme, it was decided in 1968 that squatters on unallotted plots should be removed and plot size should be reduced to 25 sq yds from the previous 80 sq yds for all families.

The original Scheme stipulated the following standards of basic services for resettlement colonies:

- one latrine for 20 families
- one water hydrant for 40 families or one hand pump for 20 families
- one bathing enclosure for 6 families.

In addition to the above, the resettlement colonies would also have surface drains, approach roads, street lighting, schools, and medical and community facilities

As a result of the government policies to relocate squatter families, resettlement colonies started emerging in Delhi in the early 1960s. Between 1962 and 1975, as many as 18 resettlement colonies were developed. During the National Emergency (1975-77), 16 additional colonies were developed in the city. Most of the resettlement colonies are located in the fringe areas, the recent ones being more so than the older ones. Their location in areas far away from the city's primary employment centres has attracted a lot of criticism.

The most notable failures of the

policy to resettle squatter families under the Scheme are:

- the resettlement colonies create a never-ending stream of squatter households by inducing more and more people to squat in anticipation of being relocated in a resettlement colony;
- the change in ownership of plots and dwellings in the resettlement colonies from original allottees to non-allottees is so significant that currently only about quarter of the dwellings house squatter families;
- the location of any resettlement colony is invariably in an environmentally hazardous location, whether close to polluting industries or in low-lying areas
- the basic services in the resettlement colonies are almost invariably inadequate and their maintenance is always lacking,
- the lack of provision and maintenance of basic services in the resettlement colonies has created environments similar to the squatter settlements, which has added to the intrusion of squatter families to the resettlement colonies; and
- it is doubtful whether these colonies have been able to

provide a better social environment to their inhabitants as compared to that in squatter settlements

With due consideration of the drawbacks of resettlement colonies, the result of the most popular government policy in the most privileged city in this country, the failure of government policies can be appreciated. The failure of such policies in other less privileged cities

can be anticipated to be even more distinct.

### **Conclusion**

In Chapter 4 we examined the ecohealth of a slum settlement, and in chapter 5, we attempted to see the impact of urban decline on the Delhi populace. Increasingly we have to understand ecohealth in its micro and macro contexts if we are to stem the decline in urban planning.



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## ALTERING ECOHEALTH THROUGH EDUCATION AND AWARENESS : A CASE STUDY OF JAGRUTI KENDRA

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In this section we explore how to develop education and awareness of local people on ecohealth. These findings are carefully extrapolated from a social research study taken up in Jermeni, Bombay by a local development organisation-JAGRUTI KENDRA. The methodology used in this study was action-research and by exploring various new avenues for education and awareness generation, it illustrates how ecohealth can be altered through education and awareness.

### Shifting from Environment to Ecohealth

Before giving the details of the ecohealth research, let us examine some of the work of Jagruti Kendra. Beginning its urban environmental activities in 1989, Jagruti Kendra explored the problems through awareness generation and education in ways that are unique to other NGOs working on housing rights in Bombay.

The staff at Jagruti Kendra in their interactions with the community have observed that the community need to curb alienation of its various linguistic, ethnic and religious groups. One

way of doing this was creating community arrangements which would regulate pollution and sanitation in the settlement, giving the community a greater pride in their neighbourhood. Pollution emanating from the airport, factories and poor disposal systems was a major set-back for building community spirit.

The environment awareness and education work that Jagruti conducted over the last five years was directed through:

- \* mahila mandals (women committees)
- \* peoples organisations
- \* workers groups (domestic and construction workers)
- \* health workers
- \* youth groups

Each group was activated to take up *morchas* (protests) against slum landlords on housing rights, and against the government on the implementation of basic services. This was mainly done by women's committees and a larger peoples' organisation.

It was noted that people who are



working on some community programmes felt positively about their settlement. About 72 per cent of the population feels the need for awareness generation and 63 percent are ready for personal involvement in an active urban environment programme through morchas, protests and so forth.

Peoples reactions to environmental pollution is evident. About half the families have taken up some sort of action. Two thirds of the population have taken out morchas and about a quarter of all inhabitants have organised meetings and discussions as a way to draw attention to the problems to relevant government authorities.

Jagruti Kendra was disposed to take up an ecohealth programme. They began with an action research work in 1991 and are continuing to pursue a whole range of education and training programmes. One of the most impressive aspects of their ecohealth education has been the attention they have drawn on pollution and chemical and other environmental hazards.

Jagruti Kendra pursued its education and awareness programmes in such a way that it forged the links between the slum's impact on the urban ecosystem, and likewise the city's impact on the slum settlement. In this way, it conveyed that ecohealth was a holistic rather than a sectoral. These are basic elements in the ecosystems health approach described above (See chapter 2)

The ecohealth research identified various ecostresses in Jerimeri -- the particular slum settlement, and also kept in view the required interventions that could be introduced to reduce these stresses.

### **Impact of the Urban Ecosystem on the Slum Settlement**

We will now turn to the findings of an action research programme carried out by Jagruti Kendra in 1991.

Bombay is the second largest metropolitan city in India and the financial and business capital of the country. However, its *streets are not quite paved with gold*. Over half the population lives in slums, in crowded semi-permanent structures without adequate access to running water or sanitation facilities. In spite of these conditions, the migration into the city and its surrounding areas continues unabated, suggesting that employment is available, especially in the informal sector which thrives alongside the formal and service sector.

Although Bombay's population continues to grow, the 1991 Census has revealed some interesting insights about the city. The estimated population of Greater Bombay has been placed at 9.91 million, more than one million less than the projection made on the basis of past growth. This means that there has been a gradual decline in the population as compared to projections made on the basis of past growth. This means that there has been a gradual decline in the

population growth rate in 1981-91 as compared to the previous decade.

### **Water Supply and Ecohealth**

The Corporation spends about Rs. 30 crores a year on power for pumping water into the city.\* About 67 per cent of the water is used for domestic purposes and the rest for industries and commercial activities. Though in theory the per capita water supply to the city is 240 litres per day (lpd) the pattern of distribution is highly uneven. This accounts for some fortunate areas receiving water round the clock while most of the city gets running water only for few hours a day. The majority of the slum dwellers have to collect their water from public taps at fixed times. For those residing on the pavement, fire hydrants serve as a regular water source.

Bombay's sewerage system dates back to 1880 and it is totally inadequate. While 99 per cent of the island city has sewers, only 28 per cent of the suburbs and 15 per cent of the extended suburbs have similar facilities. The corporation only handles around 89 per cent of the total solid waste of 4,460 million tonnes of solid waste generated in a year (1988 figures).

Inadequate water supply and sanitation has taken its toll on the health of the population of Bombay. Typhoid, hepatitis and diarrhoea are common, especially during the monsoon when the water supply is likely to be contaminated. Another major killer, accounting for 16.3 per

cent of deaths in the city, is respiratory disease. Experts suggest that the poor ambient air quality and the high level of pollutants in the air have contributed to the rise in respiratory ailments.

### **Housing and Ecohealth**

The sight of people living in dilapidated slums, and even on the pavements, is an eloquent statement on the acute housing problem in Bombay. More than half the population in Bombay live in slums. An average of various estimates of the annual housing stock need of Bombay is placed at 114,000 units for a population of 9.85 million (figure projected in 1984 for 2001 already been exceeded). The stock generated each year by public private and cooperative agencies, is a mere 17,000 units.

There are number of reasons for the shortfall in housing including laws which discourage investment in housing such as the Urban Land (Ceiling and Regulation) and the Rent Control Acts.

### **Industrialisation and Ecohealth**

In Greater Bombay, the concentration of hazardous chemical units was found to be greatest in the eastern (central) suburbs, mainly in Municipal Wards L, M, N, S and T. Jerimeri (the area chosen for this study), is located in the L Ward. Out of the 32 most polluted industries, 16 are in the Bhandup-Mulund area, nine

in the Kurla-Ghatkopar-Vikhroli area and seven in Chembur.\*

### **Transportation and Ecohealth**

The public transport system in Bombay is over saturated. Trains designed to carry 800 passengers each usually carry more than four times that number during the rush hours.

In ten years, the total number of motor vehicles has doubled. The vehicle population in the city now is estimated at 6.28 lakhs. While the average car occupancy in Bombay has been estimated at 1.8 persons, the average BEST bus carries up to 100 passengers in the peak hours. Vehicular pollution constitutes 52% of the total pollution. It is because of the monoxious gases that respiratory disorders are so high. (See Kamat).



### **POLLUTION TRENDS IN BOMBAY IN A NUTSHELL**

#### **Noise Pollution**

Despite the prevalence of laws, loud-speakers cause more noise than aircraft in Bombay. In most parts of the city noise levels range from 57 to 91 decibels, the World Health Organisation limit is 55 decibels.

#### **Air Pollution**

A study was undertaken over the last 15 years to evaluate the effect of pollution on Bombay's citizens. In the city, pollutants let out into air daily are about 2971 tonnes of which 52 percent come from automobiles, two percent from the use of domestic fuels and the rest from industries.

#### **Water Pollution**

Most of Bombay's domestic sewage continues to be discharged into the Arabian Sea without being treated. An estimated 1,800 million litres of effluent (both domestic and industrial) are discharged into the Arabian Sea and the Thane Creek. Furthermore, with the Pollution Control Board failing to monitor industrial effluent, these too are discharged into the sea either untreated or just partially treated. It is not surprising, therefore, that the sea off Bombay has become completely unfit for any recreational use.

### **URBAN ECOSTRESS - A VIEW FROM JERIMERI**

In the section that follows we look at ecostress in terms of its manifestation in the community, in terms of productivity and habitat, as we did in the Delhi study presentation in Chapter 4. We examine individual

ecostress through loss of productivity and the occurrence of chronic disease.

The Jerimeri settlement has a population of about 5 to 6 lakh and is situated:

- \* along the Andheri-Kurla Road within the boundaries of Sahar airport
- \* in an area in which chawls are unauthorised (illegal) in land that 30 years was forests and agricultural area
- \* vast area in Jerimeri is covered with stables and buffalo sheds

Being part of the vast sea of unauthorised dwellers in the city, having occupied land belonging to the authorities, and unprotected by legislation, the boundaries are open and most vulnerable to external threats of eviction and harassment. This situation is aggravated in the present context following a Bombay High Court decision to evict dwellers from land needed for development purposes as well as the eviction of tenants on central government premises under the Public Premises Act.\*

The major pollutants in the slum settlement are

- the airport
- the Andheri-Kurla Road (along which the chawls are situated)
- the surrounding (authorised and unauthorised) small-scale and large scale industries

- quarries
- poorly maintained water and sewage systems
- open drains
- inadequate toilet and sanitation
- an open nulla (Mithi river) which wrecks havoc because of the prevalence of untreated industrial effluents.

#### TABLE ON ECOSTRESS

The five leading environmental hazards encountered in and around Jerimeri in order of magnitude were.

Lack of trees	70.8%
Garbage dumps	49%
Vehicular noise pollution	48.5%
Burning of scrap, tar rubber, etc	27%
Vehicular air pollution	23.7%

The other, less acute, problems experienced were:

Industrial noise pollution	15.9%
Open drains	15.7%
Quarries	15%
Industrial gaseous waste	13.1%
Chemical dust	11.9%
Smog mist	11.5%
Industrial solid waste	11%
Industrial liquid waste	10.4%
Chemical dust	10%

### 1. LOSS OF PRODUCTIVITY AND CHRONIC DISEASES

Loss of productivity and the preva-

lence of chronic diseases allows us to see the range of ecostress impinging on the individuals.

Most slums come up near upper class colonies since many of their inhabitants survive on the services they render to the upper classes, as dhobis, vendors, sweepers, domestic servants etc. They would not be able to render these services (and survive) if they were to be shifted away from the colonies, since they cannot afford the transport costs and the time required to travel. Moreover, slum women often like to work close to their houses and go home every now and then to look after their children. In the case of Jermeri, the slums spring up due to close proximity to work place, generally industries.

The slum dwellers have normally been looked upon as a problem both by the urban planners and by upper middle class citizens, with the result that slum clearance is resorted to as an effort to keep the city clean. The challenge, however, requires an altogether new approach towards slums and slum dwellers, starting with a radical change in attitudes.

Looking upon slums and pavement dwellers as a burden serves as a drag on any slum improvement programme. But deeper thinking would make it clear that they are more an asset than a liability.

Planners are also beginning to realise that squatters are economically valuable citizens who add to the gross

national product by constructing their own shelter, no matter how makeshift, which saves the government a considerable amount of money; that squatters are upwardly mobile citizens in search of economic opportunity and have demonstrated high levels of enterprise, tenacity and ability to suffer acute hardships, that the informal sector in which a majority of slum dwellers are economically active contributes significantly to the city's overall economic growth, and that they should be helped and not hindered. (CSE 1985:145).

It is the slum dwellers who provide essential services such as domestic service, rickshaw driving, hand-cart pulling, vegetable and fruit vending, plumbing, construction and other unskilled labour to the rich. They are the ones who build infrastructures such as dams, canals, factories, buildings etc. which benefit the rich, and yet it is this same powerful group which considers the slum dwellers as unwanted elements of society.

Secondly, slums need to be viewed as an issue involving "people" and not merely "places". They have more to do with life than physical and environmental conditions. "The slum is not simply a housing problem but a complex socio-economic, cultural and political one" (Shah 1983. 91-92)

Most of the population residing in the area are mill-workers. There are welders, turners, fitters, grinders, electricians and mechanics. A few of them are traders/businessmen

Several of them are also engaged in services like auto rickshaw/taxi drivers, peons, clerks or hotel workers. There are also a few pockets where rag-pickers reside leading a hand-to-mouth existence.

The average income earned by the male bread-winner ranges from Rs. 1,500 to Rs 2,000 Families engaged in business may earn as much as Rs. 5,000 while rag-pickers or naka workers (unemployed persons who wait at street corners seeking daily wage work) may earn even as low as Rs 500/- per month The women work in mills, factories or as domestic workers and rag-pickers on wages lower than men

The majority of families are nuclear or extended, comprising of an average of 5 to 6 members, the number of children are as low as two or as high as nine This means the per capita income per month ranges from Rs 250 to Rs 800.

### Occupational Profile

Approximately 68.8% of the studied population were dependants comprising of infants below four years, student population, the unemployed, housewives and the retired

A majority comprising of 53.3% were of single status and 45.6% were married Only 9% fell into the widowed category

Occupational Profile			
Value Label	Frequency	Percent	Valid Percent
Below School			
Going Age	371	8.3	8.3
Housewife	1020	22.7	22.7
Permanently Emp	535	11.9	11.9
Temporarily Emp	607	13.5	13.5
Badli Worker	12	3	3
Contract Worker	13	3	3
Self Employed	230	5.1	5.1
Studying	1435	32.0	32.0
Unemployed	193	4.3	4.3
Retired	68	1.5	1.5
	1	9	Missing
	4485	100.0	100.0
Valid cases	4484	Missing cases	1

A major chunk of the studied population amounting to 22% were housewives Only 11.9% of the sample were permanently employed This figure is quite low considering the fact that this area is an industrial zone However, this would also reflect on the system that prevails especially in the small scale sector that does not fall within the purview of labour legislations It is these units that form a major chunk of the industries here These units also easily get away by flouting environmental regulations An interesting fact, though not surprising considering the industrial zone, was that only 4.3% of the studied sample were found to be unemployed

### Disease Profile (1989 - 91)

A study of chronic health disorders

for three consecutive years was done to note the trend in illnesses over a three year period

A summary of the three years show that chronic cough, asthma, bronchitis top the list closely followed by high blood pressure and tuberculosis. During data collection, it was noted that only diseases which manifested themselves through noticeable symptoms, were considered as health problems. Subtle experiences like burning of eyes, foul smells, chronic headaches, chronic colds, repeated abortions/miscarriages etc were taken for granted.

Only those having knowledge of ecohealth were able to pinpoint minute problems faced by them day-to-day. For many persons the question of survival is much more crucial than thinking of the consequences of being employed in mills, cement factories, quarries, or residing in polluted zones. So, if the effects of the polluted environment have not been strongly highlighted through this study, it is mainly due to a lack of awareness for which a great deal of effort will have to be spared to create strong public awareness through rallies, exhibitions, workshops, use of mass media etc.

In the charts below, we note the perceived cause of illness are, to a large extent, environment based, that the period of illness shows the prevalence of chronic kind of diseases.

CAUSE OF ILLNESS			
Value Label	Frequency	Percent	Valid Percent
Do Not Know	97	2.2	75.2
Allergy	2	0	1.6
Smoking & Drinking	1	0	.8
Blood Pre/Tension	3	1	2.3
Polluted Air	5	1	3.9
Communicable Disease	6	1	4.7
Mosquitos			
Garbage	1	0	.8
Liquor Consumption	2	0	1.6
Mill Work Conditions	1	0	.8
Mosquitoes	1	0	.8
Unclean Environment	9	2	7.0
Accident	1	0	.8
	4356	97.1	Missing
Total	4485	100.0	100.0
Valid cases	129	Missing cases : 4356	

Of the entire sampled population 75% were unable to respond to the query "cause of illness" strengthening the fact that mass public awareness regarding the environment should be essentially created.

Only 7% were able to link health problems to the unclean environment and 3.9% said it was due to polluted air.

40% of the illnesses of patients had continued between 1-5 years and 13% were ill for a period between 6

months to one year

## 2. HEALTH AND HABITAT

By identifying ecostress, we are able to see the linkages between habitat and ecohealth. This in turn tells us a lot about the ecostress that affects the whole slum population.

### Land Insecurity

Since the Bombay High Court orders of 7th March and 7th April 1990 the community faces a perennial dilemma[4]. On the one hand, the court order has removed the grant of stay on evictions for development purposes and does not favour residents who have built dwellings in slums after 1st January 1985. On the other hand, there exists a sense of lethargy among the people, developed over many years of empty threats. Hence the organisations working for slum upliftment have to use direct influence to energize and motivate the people to take some action on the issue. The elite of the city expect the slum dwellers to lead normal lives and blame them for their personal behaviours when they are forced to live in an environment of deprivation with lack of basic amenities like adequate water supply, electricity, housing, sanitation, drainage and toilets etc. This environment is further aggravated by the pollution of industries, vehicles (owned by the elite) accumulation of garbage and stagnant water. In such an environment how is the slum dweller expected to live a nor-

mal happy life?

### Lack of Basic Services

Since the area has developed in an ad hoc manner, with the land ownership pattern varying from place to place, the provision of basic amenities is also ad-hoc. In most cases, residents have bought rooms in chawls without the necessary amenities of water, electricity, toilets and drainage. In Jerimeri West, most of the houses are *kutchra*. But now over the years families who have settled over a longer period have used their meagre earnings to build brick walls replacing tin sheets and cementing the mud flooring. Narrow open drains built along side the houses are the only signs of drainage collecting the waste water from the houses and moving towards gutters provided by the Bombay Municipal Corporation. At times when no gutters exist in the vicinity, water accumulates/overflows onto the land, stagnates and breeds mosquitoes. Sometimes these sewer and water pipes get deeply buried under the debris of construction. In the monsoon the nullahs overflow and due to water logging in many places, water enters the homes through drains.

Every available inch of space is being exploited so thoroughly that there remains no space for disposal of garbage. In some places, the Bombay Municipal Corporation has provided a temporary shed near the toilets or bins on open grounds. If the garbage is not removed regularly



(as is the case most of the time) it becomes a pollution hazard for the residents, giving off a foul smell, breeding mosquitoes, blocking the path to the toilet especially during monsoons and forcing children or even adults to use open spaces

While there is a tremendous increase in the population of the ratio of toilets to number of persons has not changed. In chawls on private land, the ratio is usually one toilet for ten persons; however on airport, BMC or housing board property, the ratio may be one toilet for 100 people or more.

In places where chawl committees exist the landlord is reasonably concerned about the toilets and there are maintained on a regular basis. In other places the toilets are in a ramshackle state, water and electricity are not available and some do not even possess doors, for women in particular, the use of toilets is most stressful. It is also a most common sight for children to be seen sitting near garbage dumps or along side the road for purposes of defecation. Gastrointestinal problems are thus perennial.

### **Pollution Related Disorders**

The area is surrounded by large and small industries and quarries. Within the settlement, there is a preponderance of large and small industries, with the consequence of high levels of smoke, gas, chemicals, dyes and waste-related pollution.

One of the biggest problems is the closeness of the houses to the polluting industries. For example in Jerimeri, 22 percent of the families live in close proximity to industries, and 41 percent in the immediate vicinity.

The proximity to industries puts the population in close association with chemical and other industrial wastes. Their many complaints include for instances those about garbage, chemicals and dyes in the gutters and nullas. Other pollutants such as oil wastes, paints and metallic substances are also been identified.

About three quarters of the population have experienced pollution related disorders. The ecostresses associated with this proximate living to industrial pollution are as follows:

- loss of hair was identified by 23% of the respondents
- burning sensation of the eyes by 22 percent
- chronic cough/sore throat by 16 percent
- premature grey hair by 13 percent
- dust allergy by 10 percent
- respiratory disorders by 8 percent
- skin diseases by 5 percent

Other problems were also enumerated such as chronic headaches, chronic diarrhoea and repeated miscarriages. In addition there seems to be very little public health care facilities in this area. According to the study, only 15 percent visited government clin-

ics, and up to 10 percent visited no health care facilities at all. The balance of the population used private services. Although it was not determined by the survey, discussions with the local organisation led us to conclude that there is little response on the part of the health care facilities to deal with the respiratory, skin, eye and other problems associated with pollution.

### **High-level of Respiratory Disorders**

As far as could be ascertained, no air pollution studies have been taken up in this area. This is surprising because of the high level of air pollution emanating from the airport which is literally next to the settlement, and the numerous large scale and small scale factories. Added to this is a high level of traffic pollution. Nearby, there is continuous quarry mining which adds small particulate matter to the atmosphere.

However in other areas of Bombay, (we have conclusive studies taken up by KEM hospital in various polluted areas), the increase in respiratory disorders is changing the morbidity pattern and is a leading cause of child mortality.

### **High Incidence of Long-term Chronic Diseases**

In the study, it was concluded that chronic diseases indicated that there was a high degree of pollution. Among the chronic diseases in a

three-year period (1989-1991), cough, asthma, bronchitis and tuberculosis were predominant. This was a finding similar to the Delhi study.

Among the chronically ill, almost 54 percent acquired the disease more than six years ago and about 65 percent acquired them at least a year before the study.

### **Population, Housing and Health**

As many as 90 percent of the dwelling units are *pucca* which indicates the settled nature of the population. This was verified by the land ownership pattern in which over 50 percent of the population own their own house. The spacing between houses is very limited as the plot size is roughly between 11 and 14 square yards. Ventilation was found to be lacking in the dwelling units.

### **Drinking Water Sources, Garbage and Human Waste Disposal**

There is a high degree of pollution in the settlement itself in terms of.

- polluted open drains, gutters and nallas;
- garbage accumulation in open fields, roads and properties owned by institutions,
- lack of community and private toilets which means that 'there is approximately one seat for ten persons,

### Flooding in the Low Lying Areas

It was recorded that 53 percent of the households reside close to a *nulla* or gutter out of which 85 percent are badly affected by its overflow resulting in flooding. Every monsoon families are compelled to abandon their homes when overflowing water from gutters and *nullas* carry filth and garbage inside their homes damaging their health and property. For those unaffected by the inundation, they have to cope with foul smell, water seepage, mosquitoes, and germs.

### 3. ELEMENTS OF EDUCATION PROGRAM

In order to corroborate this information doctors practising in the area were met to note the health trends. According to Dr Soares of Holy Spirit

Hospital who visits the health centre (Jermeri West) twice a week, since last three years, the major health problem faced is tuberculosis followed by gastroenteritis, respiratory illness, skin diseases and malaria. These illnesses in order of priority are directly related to the pollution in the environment. Apart from these there are also other illnesses of greater magnitude like diseases occurring out of the problems of malnutrition.

### Women and Ecohealth

A vital intervention of the voluntary sector is to obtain for women their rightful place in the conduct of everyday affairs. If the centralised form of planning has left the poorest of the poor out in the cold, the women have taken the brunt of the struggle for survival. Even as the poor have

### PERIOD OF ILLNESS

Value Label	Frequency	Percent	Valid
			Percent
Less than 1 month	14	3	10.9
1 - 6 months	14	3	10.9
6 months - 1 year	17	4	13.2
1 - 5 years	52	12	40.3
6 - 10 years	25	6	19.4
11 - 15 years	3	1	2.3
16 - 20 years	3	1	2.3
not applicable	1	0	8
NOT APPLICABLE	4356	97.1	Missing
Total	4485	100.0	100.0
Valid cases 129		Missing cases 4356	

been enabled to assert themselves, many NGOs at some stage, have felt concerned for women and have initiated, both income generating and conscientisation programmes for them exclusively.; Some groups have gone a step further and have been able to provide for women in their plan of action This is because of the fact that women become the chief victims in almost all issues and can be motivated for a long term action plan.

### **Coping Mechanisms**

To deal with the ecostresses from the settlement, the people have some of the following mechanisms:

- \* The men take to alcohol/gambling.
- \* A few youth experiment with drugs
- \* There is strength derived from belonging to political parties and identifying with or depending on local "dadas" (mafia) in the area
- \* There are physical and mental health problems.
- \* The worst affected are women and children who become targets of assault and abuse by drunken husbands or sons.
- \* Families disintegrate especially when the men seek extra marital affairs, or when women are forced to seek employment outside their homes leaving infants in the care of older siblings
- \* Drunken fathers sexually

abuse their adolescent daughters.

- \* Eve teasing is also a common sight at street corners which are frequented by unemployed youth.

Formal and informal leadership emerges in the chawls and in some instances such leadership become very exploitative. In most cases people end up paying for services which are their basic rights. For instance, paying the municipal sweepers for cleaning the gutters and latrines, paying the plumbers who generally install sub-standard water connections which have to be cleaned every three months, pay shop keepers in "black", for hoarding owing to the lack of available goods as rations are poor in quality and quantity, at highest possible cost, paying doctors for their ill-health due to environmental pollution, dealing with the municipal health services which are both inadequate or inaccessible. Behavioural problems among children too are very common and family stresses and breakdowns are on the increase

In dealing with these ecostresses, the community has created its own arrangements. They have formed groups on the basis of the local chawl committees. Thus a group of families residing close to each other/ having a common owner with a formal or informal leader consider themselves as a local body Some chawls are small in size while others are fairly large Some chawls have closed boundaries while oth-

ers are open to interaction and relate easily with organizations working in the area.

The pattern of leadership is critical to the extent of permeability and vulnerability to internal and external inputs and adaptations such as ecohealth education. Certain areas are kept on their toes by leaders using physical force. In several areas, the chawl owners themselves keep external interventions at bay. They use threats of eviction and legal action on their own tenants who are interested in improving their living conditions. Chawl committees, constituted of the male heads of the families, are at times the cause of the impermeability into the groups. The males prefer to work on their own for the welfare of the chawl. They do not like to be questioned, or their position threatened especially by women. The women are thus relegated to the back seat making them feel inferior, incompetent and incapable of acting on issues.

### **Changing Consumption Patterns and Ecohealth**

Our present life style is undergoing a drastic change. Consumerism and influence of the media and advertisements force us to adopt a life style that is totally alien to our culture. For example the type of clothes we wear from the tie around the neck to the socks and shoes on our feet are unsuitable for our climatic conditions as well as our cultural environment. So, even if our movements are stifled, we

do not worry as we think these clothes bear a stamp of respect.

In fact the more wealth a person acquires the more Western the person strives to become by eating, drinking, talking and behaving like a Westerner. This is very much due to the media which promotes consumerism. Each time it is the advertisers creative streak that individualises personal characteristics and capitalises on it. Hence we will have to consciously adopt ways of living which will enhance rather than jeopardise the ecological balance, and we will have to rethink our concepts of "development" and "progress". We must strive to promote "person centric development".

### **People-centred development**

One effort in this direction is to strengthen peoples ecohealth. By this we mean that kind of development which ought to possess three basic elements

- \* People should be entitled to physical necessities such as food, drinking water supply, shelter, education and health.
- \* they should possess and cherish human relationships which bind humanity, thereby preventing alienation;
- \* they should be able to live in an ecologically conducive atmosphere

Such a development goal, perceived in today's context entails reordering of priorities, identifying new agents of change and of re-aligning political equations. Such a scheme would moderate production and service related activities, change the means of achieving targets as well as the method of distribution. The system would aim at reaching a sustainable equilibrium or an ecohealth rather than one which is critically linked to accelerated growth or dependent on centralised authority, and/or a system that gives rise to dualism.

A development philosophy that strives to raise moral values and focuses on person centred development, embodying aspects of justice, equity, peace and steers away from a monolithic drive to achieve techno-economic heights, can appropriately be termed "social development" as opposed to narrow economic development, is an approach which operationalises a holistic world view, integrating different facets of society, sectors of any economy, sections of the people, regions of a land, sensitivities of a culture and constraints of technology/ecology. In other words social development is meeting basic needs, extending opportunities, developing different human faculties and providing a just social order within an ecologically acceptable framework.

### **Action Programs**

From the above mentioned findings regarding the ecohealth situation, the proposed action in the slum settle-

ment is to form a *basti*-level cadre of health workers. The main aim in developing this group would be geared towards working on preventive and social means of tackling ecohealth. Most of the time the focus of all health programmes, is curative rather than preventive. The effects of a degraded ecosystems can be controlled if people are aware of the correlation between this degradation and their lives. This awareness should be followed by reflection and action.

Very often it is the cultural and social practices of people belonging to different communities that contribute to their poor health status. At times superstitions, beliefs, rituals, practices and stigma attached to various diseases make it difficult to identify and arrest illnesses at an early stage. Hence it is very essential that health education should be given prime importance with the focus being on prevention. This should include industrial hazards.

Ecology and awareness regarding the environment go hand in hand with the issue of health. The responsibility that rests with each of us to preserve and care for the environment so as to leave it as a legacy for future generations should be made known to the general public.

The fact that the earth's resources are limited and should not be wasted or exploited to the fullest, that there will be none left for the generations to come should be taken up as issues.

for discussion among *mahila*, youth and children groups. Simple inputs on renewable and non-renewable resources, bio-degradable and non-bio-degradable materials can be explained through simplified scientific experiments and used to create awareness on environment related issues. These kind of inputs can be used to Mahila Mandals, literacy groups, youth mandals where education or being literate is not the key issue.

In our day to day lives there are so many instances where each of us can prevent the environment from being degraded or even utilize resources sparingly so as to save them for future generations. However, due to lack of knowledge we ourselves contribute a great deal to this problem directly or indirectly by being passive observers.

We are listing below a few tips that can be put to use at the *basti* level.



### **What Can We Do : About Water and Air Pollution:**

- \*\* Identify and write letters of protest to those industries or commercial establishments that indulge in irresponsible waste disposal.
- \*\* Complain to the state or central pollution control boards through signature campaigns.
- \*\* If the problem is serious, conduct a survey to estimate the magnitude of pollutants being released in your locality.
- \*\* Set up a cell in your area or school to monitor pollution levels and to take appropriate actions to curb such pollution.
- \*\* Write articles in the local or national newspapers about the incidence of pollution in your area.
- \*\* Organise programmes in your area using slides, exhibitions, street play etc to inform people about the harmful effects of pollutants, about their own role in causing pollution and their responsibility in curbing it.

### **What Can We Do : About Noise Pollution**

- \*\* Talk to or write to residents in your neighbourhood who play their radios, tape recorders or television sets very loudly causing nuisance to the neighbourhood
- \*\* Organise a delegation of representatives to approach the erring party to work out solutions amicably
- \*\* Organise programmes in schools or the neighbourhood to inform people about the harmful physical and psychological effects of noise and urge them to take a stand against producing avoidable noise
- \*\* Just before or during the Ganpathi or Diwali seasons (or other noisy festivals) encourage people to refrain from bursting noisy firecrackers or from using loudspeakers
- \*\* Talk to people belonging to your religion against the use of loudspeakers during festivals or prayer time. Encourage them to avoid using such devices



### **What Can We Do: About Deforestation in Urban areas.**

- \*\* Grow as many plants, shrubs or trees as you can.
- \*\* Take care of tree saplings that you plant. Do not let them die for want of water, sunlight or protection.
- \*\* Organise a cell in your area to protect existing trees
- \*\* If you come to know of an attempt at tree-felling go with your group to the site and talk to the people concerned about saving the tree(s).
- \*\* Lodge a complaint with the police about tree felling in your area
- \*\* Around festival times such as Holi or Dussera withhold your support to any kind of celebration which involves the burning of trees. If possible actively oppose the destruction of trees for festival purposes.
- \*\* Plants and trees give us precious oxygen and use up carbon dioxide. Keep potted plants if possible in your house or balcony.
- \*\* Paper ultimately comes from wood, Do not waste paper. Write on both sides. Use recycled paper. Re-use envelopes with eco-friendly labels.



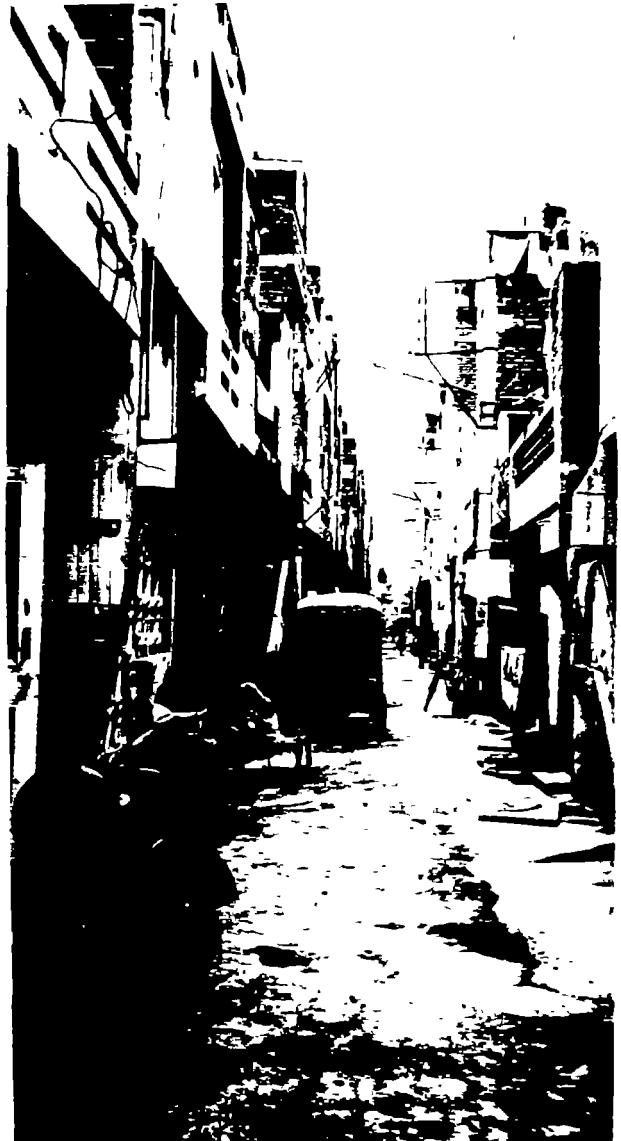
**Some Tips to Help conserve Earth's Resources and To live a Lifestyle That Will Promote Social Justice.**

- \*\* Avoid being manipulated by advertisements into buying stuff that you do not actually need or want.
- \*\* Decide what you need to buy, draw us a budget and stick to it
- \*\* Encourage the renovation, repair and re-use or recycling of materials and products as may be appropriate
- \*\* To save water avoid washing things, or having a bath in running water
- \*\* Turn off lights, fans, etc when not require d
- \*\* Dispose ofleft over soap scraps.
- \*\* Cook so as to minimise energy consumption Turn off gas/stove before cooking is complete

**Conclusion**

In this chapter 6, we have shown how an NGO takes some understanding of ecohealth through action research and makes that the basis of community education

In the next and concluding chapter we look at the Role of NGOs in the Promotion of Ecohealth.



## THE ROLE OF NGOs IN ECOSYSTEMS HEALTH APPROACH

Voluntary organisations are beginning to take major steps towards formulating more holistic alternative strategies for development. The intricate relationships between health and environment are gradually being accorded due priority, both by NGOs and the community at large. This chapter examines the role of NGOs in urban environment and development. It then presents the recommendations of an association of NGOs and how they plan to develop their urban ecohealth program. This may guide us in some of our own programmes.

The NGO sector being inherently diffuse, this section addresses some subject areas. This chapter reflects concerns and activities of some of the NGOs in regards to the urban poor. It is encouraging to note that with the passage of time, more and more NGOs who initially confined themselves to one or the other area of concern, are gradually veering away from strictly defined paths and introducing intersectoral elements into their programmes, thus opening up to areas which did not fall within their original mandates. For instance, the **Family Planning Association of India** (FPAI) which, as the name suggests, was largely confined to activities related to family welfare and propagation of various contraceptive

techniques, is now introducing environmental concerns in its projects. Similarly, the **Centre for Environment Education** (CEE), and the **Self-Employed Women's Association** (SEWA), are also broadening their spheres of activity as both are beginning to address health concerns within their target populations while their focal points remain within the purview of their original mandate, namely, the organisation of women in the unorganised sector.



### **The Role of Shramik Bharati, Kanpur**

A non-governmental organisation which has contributed substantially to the urban environment perspective is Shramik Bharati of Kanpur. Although since its inception in 1987, the organisation has contributed mainly towards savings and credit cooperatives in urban slums, its activities are now far more diverse. The primary interest of this organisation revolves around savings and credit facilities through formation of cooperative societies among the slum inhabitants. Under this programme, small groups of around 20 members are formed among the slum population through which savings are generated and credit facilities advanced. The emphasis of its main programme being economic, Shramik Bharati has been highly successful in attracting members from the slum communities. The savings and credit facilities forwarded by the organisation have been useful, on the other hand, in bringing banking services to people's doorsteps, and on the other, in freeing the poor urban populations from the clutches of money-lenders.

In addition to its primary interest on savings and credit facilities, Shramik Bharati has been highly successful in carrying out activities relating to other important issues in urban slums. Among such activities, the organisation has contributed to education and health. Through its programmes on education, the organisation has focussed on improving the virtually defunct government primary schools in urban areas. It was found that with the increasing popularity of private schools in Kanpur city, many of the government-funded primary schools were virtually defunct with only a few students enrolled. With efforts from Shramik Bharati, improvements have been made in the infrastructure of various schools which has enhanced the popularity of these schools to a great extent. Some of the primary schools where enrolment of students went down to 20 or so are now teaching more than 200 students. This programme has been mainly useful to the weaker sections of the urban population as they were the ones to suffer the most from deterioration of the primary school system.

Shramik Bharati has also been carrying out some programme's on women's issues, particularly on primary health care and sanitation. Programmes relating to women's issues are carried out through the women's credit societies formed by the organisation.

One of the areas where contributions of Shramik Bharati have been remarkable is slum sanitation. The organisation has set up a 55-seat community toilet in a Kanpur slum where a bio-gas plant has also been constructed which utilises the night soil from the toilet facility. The construction cost of the entire project was about 1 million rupees, of which a small percentage came from the 4,000 users of the slum community. The major contributors to the project were the Non-Conventional Energy Development Authority (NEDA) and the Kanpur Development Authority. Although the contributions of the slum community amounted to only Rs 65,000, this small contribution has greatly contributed to the success of the project due to the involvement of the community itself. The bio-gas plant produces a total of 50 cubic metres of gas per day, which is being utilised for pumping water to the slum community, lighting the project site comprising the bio-gas plant, toilets and washing/bathing facility, and supplying power to a wheat mill and 10 houses within the slum.

Shramik Bharati has plans to expand its activities, to include additional matters of concern in urban slums. Its immediate plans include programmes on family planning and income generation.

### **The Role of Ankur, Delhi**

Ankur is yet another organisation that has looked at urban environment issues. **Ankur** was registered as a separate organisation in 1983. Although registered in 1983, some of its programmes started as early as 1977-78 when it was functioning under the *Abner Non-formal Education and Adult Literacy Project*. With the primary objective of development of urban and rural populations through education and other types of development action, the organisation focusses on issues relating to awareness generation, status of women, health, adult education and so on.

Under its Socially Useful Productive Work Programme (SUPW), Ankur organises non-formal education programmes in slums and construction sites with the help of school children. Students in grades IX and above visit the communities and teach the school dropouts and non-school goers. In addition to general education, the school children are sometimes sent to the communities for popularizing health care and immunization programmes through discussions and communication with the slum dwellers.

In 1978, Ankur used to operate at 10 urban centres catering to only about 200 slum children in the Walled City area of Delhi. Today the organisation has a total of 50 centres in 20 geographical areas, which are serving more than 1,000 children and 300 women, mainly living in the slums of the city. The activities at these centres include literacy, skill development and training, sewing, production work and community programmes for women.

The Neighbourhood Environmental Awareness Programme (NEAP) is an important activity of Ankur which deals with a wide variety of environmental issues relating to housing and transportation, water pollution, solid waste disposal, and industrial pollution. The programme aims at sensitizing and motivating school children to engage in environmental action.

Thus although the primary emphasis of Ankur has been education and awareness generation on various issues among the urban slum communities, its action has been to deal with a wide range of development activities.

### **Role of NGOs in Disaster Response, Bhopal**

The role and functioning of NGOs in the face of calamities and subsequent rehabilitation efforts is aptly exemplified by the response generated in the wake of the world's largest industrial disaster in Bhopal following the methyl iso-cyanate gas leak from the Union Carbide premises in December, 1984. Apart from the broader ramifications of the Bhopal gas tragedy and the legal, ethical and

economic questions it raised, it also revealed how the poorest cross-sections of society are invariably the chosen ones when it comes to bearing the brunt of any catastrophe. For, it was the slum-dwelling population living by the Union Carbide factory and the inhabitants of the older and relatively poorer parts of Bhopal that comprised the bulk of the victims.

In the months that immediately followed this tragic event, a number

of voluntary organizations not only arrived in Bhopal from all over the country, but also mushroomed in Bhopal itself. While some amount of relief work was done, due to a variety of reasons these groups slowly started to retreat from Bhopal and began to wind up their activities for the gas victims. Internal tensions, hostility from the State Government, political pressures and more pressing commitments were some of the factors responsible for this waning enthusiasm. The sheer magnitude of the problem perhaps inhibited all the grassroot level activities, either individually or collectively, by voluntary groups. SEWA Bhopal is one of the very few surviving organisations which is still working directly in the community by participating in the government's economic rehabilitation programme. Although some efforts have been made towards providing additional sources of income to the afflicted families, the impact has been minimal.

A laudable, albeit task-specific effort is that of the **Bhopal Eye Hospital** which not only provides services, but through meticulous record-keeping and research also monitors the health status of the survivors. Having started its relief work just a few days after the gas leak, the organisation, with auspices from the Royal Commonwealth Society for the Blind, has been treating between 100 and 450 eye-patients a day. The quality of care and the nominal registration fee it affords have attracted many more patients than the number served

by all the government hospitals in Bhopal put together.

The only viable approach which has yielded widespread results to better the lot of the gas victims has been that of organizing the community, particularly women, so as to collectively lobby with the government for a fair compensation, interim relief and adequate rehabilitation. The sustained task of systematically opposing both actual and proposed governmental interventions which are perceived to be detrimental to the welfare of the survivors has been undertaken by the **Bhopal Gas Peedith Mahila Udyog Sangathan** (BGPMUS). A substantial membership strength of over 14,000 spirited women periodically stages protests as a tool to voice concerns and to keep the Bhopal issues alive.

Although the initial furore surrounding the location of hazardous industries died down, there still exists a network of NGOs and concerned individuals who appreciate being kept abreast of the latest developments vis-a-vis the gas victims. To this end, the **Bhopal Group for Information and Action** (BGIA) was started in 1986, functioning more or less like conscience keepers by publishing periodic research reports and newsletters which sought to expose both the plight of the survivors and the overall corrupted state of affairs. The first initiative was to launch a newsletter aimed at activist-oriented groups but this effort was given up so as to accommodate the felt need

for a periodical to provide information to the gas victims themselves. Unfortunately, however, this project too, collapsed after the publication of a few issues due to a lack of both funds and manpower.

Presently, the BGIA functions primarily as a support for the BGPMUS in its activities and through the local and national media attempts to highlight the issues revolving around the health status of the survivors, their rehabilitation and the settlement with Union Carbide. One of the active members of this group who is also a medical doctor, dispenses basic medicines at a nominal price to the BGPMUS members who come for the weekly meetings. Although the BGIA participates in other issues not specific to Bhopal (like the Narmada agitation), most of the time it finds itself focussing on issues pertaining to the immediate concerns of the gas victims. Dwelling on the need and strategies to safeguard against future industrial hazards is thus perforce relegated to the background both by the BGIA and the BGPMUS.

Meanwhile, the people in the gas-affected slums of Bhopal continue to suffer silently, dying slow deaths everyday with no tangible prospects of succour or recompense in sight. Their living conditions have not improved following the crores of rupees that the government claims to have pumped into various rehabilitation programmes. If anything, their situation has worsened

for now their debility does not permit them to do any strenuous labour and whatever meagre earnings they may have, are necessarily diverted towards treatment of their chronic ailments. Their ill-health is compounded by the squalor they are forced to survive in erratic and inadequate water supplies, absence of sanitation and insufficient dietary intake. To add insult to injury, the government has lately been on a slum demolition drive, dumping hundreds of gas-exposed families by the side of a deserted highway 14 kilometres outside Bhopal with no shelter, water supply or access to emergency medical services.

### **Role of NGOs in Employment and Income Generation**

The epitome of a voluntary organization combating occupational problems is perhaps the **Self-Employed Women's Association (SEWA)**. Not only does this organization focus on the destitute and most vulnerable sections of society, namely, women working in the unorganized sector, but it also exemplifies how a relatively narrow developmental concern has fanned out to encompass various aspects of this target group.

With a history of nearly 20 years, SEWA started out by registering itself as a trade union and rapidly expanded both in terms of its membership as well as the range of occupations represented. More importantly, and in keeping with

SEWA's vision of a new and just social order, it steadily established a variety of activities in the areas related to credit facility, community housing, health and child care.

The area of health in the urban setting is covered by SEWA both in isolation and in conjunction with environment. Health is viewed independently to the extent that services are provided to the SEWA members by way of propagation of rational and low-cost drug use through clinic facilities, health awareness and education programmes, training of community health workers, and other ancillary activities such as eye-care assistance and referral services for specific ailments.

Occupational health has always been a focal area of SEWA. With its sensitivity to the hazards of working women in the unorganized sector, SEWA has not only conducted extensive research on health problems resulting from specific occupations (e.g., agricultural labour, tobacco processing, agarbatti making, masala preparation, stone-quarry work and garment work) and lobbied for ameliorative interventions at the policy level, but has also introduced appropriate technological working aids amongst its members to reduce risks. For instance, rag-pickers who are especially vulnerable to exploitation and health problems due to the hazardous occupation, have been one of the groups SEWA has chosen to focus upon. Apart from

attempting to understand this occupational group better through research efforts and subsequent publicity, SEWA played a catalytic role in the formation of the **Sujata Cooperative** which develops contracts with mills and allows an equal share of the profits among the rag-picking women. Keeping in view the frustrations of the rag-pickers, SEWA has also attempted to provide training opportunities and ultimately diverted some of the women to other occupations of their own choice such as weaving, cleaning, file-production, etc. Other members of the Sujata Cooperative were provided with protective gloves and aprons and for those working on the roadsides, a pronged pole to prevent continual stooping was designed with the help of the National Institute of Occupational Health (NIOH).

To the extent that SEWA plays a leadership role in organizing women around the issues of water, sanitation and housing in urban slum areas and links these concerns to community health, it has shown concrete manifestations of ecosystem-health concerns outside the confines of occupational considerations. Further, it has manifested a steady concern towards the entire range of problems its members may face -- be it in the home or workplace -- in individual, family and community lives. SEWA is all too aware of the social injustices that these women are constantly subject to in their day-to-day living and tries to provide direct interventions to combat some of

them, by forming and networking with women's support groups and creating public opinion. SEWA addresses the concerns and needs of its members in areas as diverse as legal matters, communal violence, rehabilitation, and child labour.

Although SEWA has witnessed a fruitful evolution in formulating a holistic model of micro-development, there are areas which still need to be explored. To make its cooperatives truly self-reliant and to depart from the service-oriented approach in the fields which transcend occupation-related boundaries, will be a challenging task in the days to come.

### **Role of NGOs in Health and Family Welfare**

**Streehitakarini, Sanchetana, Chetna** and the **Family Planning Association of India (FPAI)** were some of the NGOs visited who concentrate their activities in the areas of health and family welfare. The latter two organizations, however, largely confine their programmes to the rural areas and are only now beginning to channelize some of their resources towards generating awareness in urban centres. For instance, the FPAI has lately been organizing and sponsoring workshops and other educational activities which link population issues with those related to environment and development. Although there is a growing awareness amongst all the groups with regard to the need to

make their programmes more holistic, the concrete manifestations of this realization is as yet limited. While health education materials are used by all these organizations, they do not encompass the immediate environmental concerns. Rather, such issues are tackled through discussions with members of the community.

Both Streehitakarini and Sanchetana offer services to the community (both run health clinics) and there is a certain similarity in the programmes they have undertaken. Within the ambit of health, both have chosen to pay special attention to the needs of women, especially in the fields of contraception and maternal and child care. Outside the purview of health, both have dabbled in imparting skills to community members in response to a felt need. However, where Streehitakarini seems to be striving to consolidate its health and family welfare activities by initiating programmes related to supplementary feeding, female education, prevention of juvenile delinquency and alcoholism, Sanchetana seems to be more keen on diversifying into areas ranging from youth mobilization to communal harmony. Also, Sanchetana seems to be much more inclined towards activism than is Streehitakarini.

Contrasting approaches make for substantial differences in the attitudes adopted by NGOs when tackling the environmental factors which predispose the urban poor to eco-stress. Though all slum areas are



dependent on the municipal services for the provision of clean and adequate water supplies, sanitary facilities and proper housing, Streehitakarini seems to be more resigned to the apathy of the municipality and the pervasive squalor in the slums, than is Sanchetana. Because the people are entirely dependent on the government services for such amenities, Streehitakarini feels absolutely hamstrung. Wide-scale corruption, it says, makes it so much more difficult to get a hearing, let alone implementation of services. Political pressure may be one solution, but given all the pros and cons of political involvement, Streehitakarini has firmly decided on being an apolitical organisation. Further, it feels that because of the diverse political leanings in the community, mobilisation and effective organised effort is an impossibility. Through its long years of experience, Streehitakarini has come to realize that community participation in the urban slums is a myth. Caste, cultural and language differences create insurmountable barriers. Slum dwellers, it feels, are not sufficiently motivated to take control of the environment to improve their quality of life.

On the brighter side, however, and possibly as a consequence of Streehitakarini's informal health education programmes, it is generally felt that the overall awareness with regard to the health and environment linkages has increased amongst the

people. The areas now are much cleaner, most of the garbage is disposed of at fixed sites, the cleanliness within the household has improved tremendously and with the assurance of the government that any slum occupied before 1986 cannot be demolished, there is a greater sense of security amongst the people so that residents are even attempting to expand their living space so as to live in less crowded conditions. Lofts have been built in many houses which serve as bedrooms, and the more enterprising tenants have even built entire additional floors in their dwellings.

Sanchetana, on the other hand, does not see the futility of lobbying with the municipal corporation and has been persistently organizing its members to stage dharnas, gheraos and rallies despite the inherent frustrations of dealing with the local political bodies. Sanchetana has played a leadership role in organizing meetings involving other like-minded NGOs and representatives of the municipality on the issues of water and sanitation as relating to the poorest sections of society. It also attempted to form an inter-slum organization so that basic rights could be collectively lobbied for. Although this effort was a failure, Sanchetana is not daunted. Minor problems of water-logging during the monsoon can now be speedily remedied because of the rapport that has developed between the municipality and Sanchetana. However, major developmental projects have not yet

arrived in the slums where Sanchetana works.

Exploitation of women is a serious malady of the social environment that Sanchetana sees in its project areas. Through its community workers, it attempts to build solidarity amongst the local women so as to combat physical abuse. This has yielded marked results and the women have even been able to save victims from being burnt alive by their husbands. Further, there is a visible awareness amongst the women. Those who previously did not even dare to move outside their immediate surroundings and were most effectively suppressed by societal norms, are now opening their own bank-accounts and are beginning to clamour for property and inheritance rights.

### **Role of NGOs in Housing**

The absence of adequate shelter for the poorest cross-sections of urban society is a glaring problem in most cities. Several NGOs have initiated activities to address some of the urgent needs of these people. Activism is usually the main strategic thrust while the provision of certain key services usually follows either because of organization's perceptions of community needs, or, as a consequence of direct expression by the people they work amongst. While some voluntary groups find it more worthwhile to pursue long-term rehabilitative solutions, others find the immediate problems so compelling that they channelize most of their

resources into ameliorative work. Two NGOs, namely, **Youth for Unity and Voluntary Action (YUVA)** and **Society for the Promotion of Area Resources Centres (SPARC)**, amply demonstrate some of these ideological differences.

Started in 1986, YUVA used Jogeshwari, a slum area in Bombay, as its first project site and entered the arena of development work amongst the urban poor with youth as its main target group. The constant threat of eviction aids SPARC in its attempts to dangle the possibilities of resettlement in front of the pavement dwellers. For obvious reasons, SPARC concentrates its efforts on the women in the community. With a truly participatory philosophy guiding its every move, SPARC has not only organized these women to conduct their own census which serves the dual purposes of awakening them to their own realities and motivating them to take concrete steps in the direction of change, but has also encouraged them to design their own future homes. **Mahila Milan** and the **National Slum Dwellers Federation** are SPARC's partners for a variety of ventures. Mahila Milan, a women's organization, is solely responsible for the cooperative banking scheme that SPARC encourages its members to join so as to build substantial savings which would help finance future housing projects of each individual. The women who comprise Mahila Milan are pavement dwellers themselves and carry the entire onus of banking and administration of the

accounts.

The **Street-Children of Bombay** constitute another groups that SPARC focusses upon. Not only have these children been trained to administer simple emergency medicines within their communities, but they also form SPARC's investigative force. Well-versed in survey methodology and related techniques, they are equipped to carry out any participatory research exercise that SPARC wishes to undertake. For, research and consequent awareness of both the community and the public at large, takes up much of SPARC's time and resources. SPARC also conducts periodic exchanges between the urban poor in various countries to facilitate the sharing of experiences together with networking with other grassroot organizations both within India and abroad.

SPARC does not believe in activism in any of its dealings, mainly because of two reasons. first, it does not claim to know all the answers, and second, it feels that much more is accomplished by dialogue, advocacy and lobbying, than by hitting the streets en masse with sticks and banners.

SPARC's vision has far reaching implications for the environment, both of the city and the personal surroundings of community members. For, not only will relocation of these people to areas nearer their workplace put considerably less pressure on the already overburdened

city transportation system, but rehabilitation is also envisaged in a setting where adequate water and sanitation facilities will make for a cleaner place to live in. This will impact and improve the health status of the people as well, for most of the diseases they commonly suffer from are water-borne. Also, accidents, which are frequently reported by a vast segment of this population living near the railway tracks and roadsides, will be minimized. By virtue of the nature of the work that SPARC is attempting, it has few concrete, well-defined results to boast of.

Where a relatively traditional organization like Streehitakarini sees caste, class, occupational, language, and gender differences creating too many factions, YUVA feels that given some strategic planning, people will come to work together for a common cause regardless of external differences. With regard to certain issues, which may challenge the existing power structure within the community, YUVA has to tread more carefully, but by mobilizing either the majority or the exploited section, they have managed to yield results. For example, alcoholism, which they see as a common malady amongst slum-dwellers and a problem which leads to wife-beating and other forms of violence, has been effectively combated in some areas where the joint efforts of the women-folk led to the closure of the local gambling and drinking dens.

Perhaps, as YUVA evolves further, both ideologically and organizationally, it will see the need to focus less and less on the immediate and concentrate more on the long-term solutions which are even more basic, albeit elusive. It is here that SPARC, in contrast, takes up issues precisely where YUVA lets go. Firmly believing that grappling with the immediate would only make the impoverished more comfortable in their existence, SPARC does not believe in providing services. Instead, through informal but systematic ways, it tries to arouse a deep discontent amongst the people with whom it works, namely, the pavement dwellers, an even more impoverished lot than the slum population. So much so that it shows considerable vision in formulating a holistic approach to development. Indeed, the very fact that it has never dealt exclusively in any one specialized area, but has chosen to grapple with some of the basic problems of existence, speaks for its commitment to be sensitive to the real needs of its members. This is not to say that it is impassive to the depths or range of problems that may fall within each sector. When epidemics break out in the communities it works, for instance, the ward-officers, the pest-control department, the health department and other related personnel are mobilized to take action. YUVA provides them with statistics on morbidity and mortality to goad them into providing succour. Similarly, it is trying to persuade the ICDS to extend its services to the

hitherto neglected pavement dwellers.

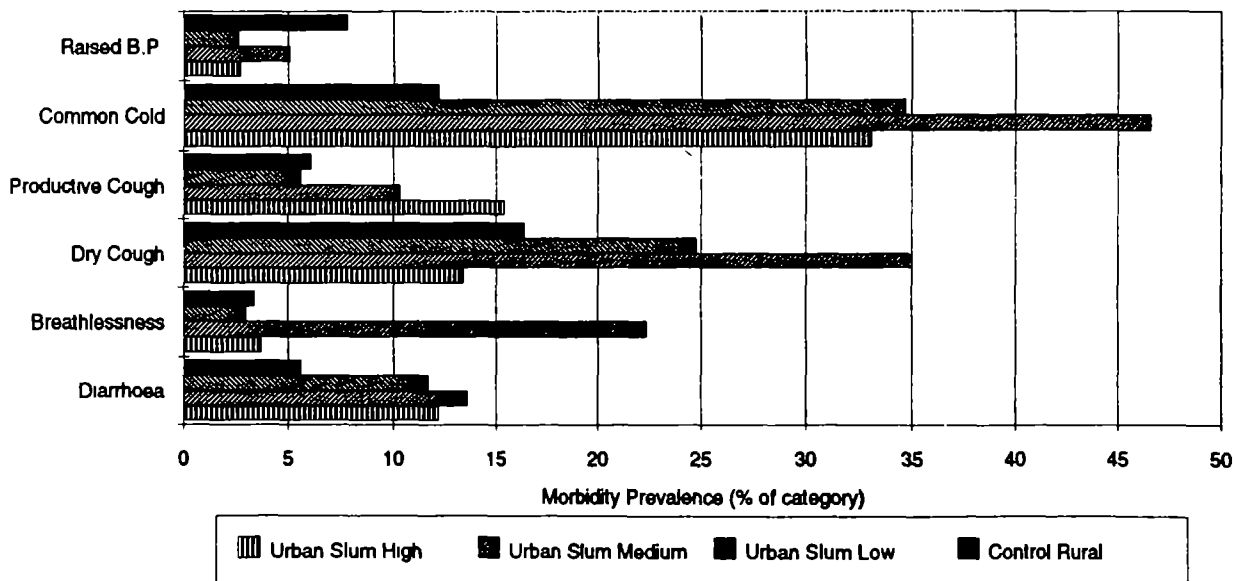
YUVA also lobbies considerably with political authorities. By actively networking with other like-minded groups, it has been able to exert that much more pressure on policy-makers. For example, by playing a leadership role in the Asian Coalition of Housing Rights, a network of individuals and organizations committed to building public opinion, documentation, litigation, and rehabilitation, on the issues of demolition and development displacement, YUVA has manifested its collective spirit which is constantly evolving to widen its scope. Also, its ultimate aim to move out of areas when it feels that it has successfully completed its mission of awakening the community to its rights after a gradual process of empowerment, points to a rare attitude which does not seek to create a dependency. YUVA has slowly expanded its sphere of activity to not only include other slum areas and pavement-dwellings, but also to encompass both women and children as beneficiaries as well as agents of change. Amongst pavement-dwellers, the main concern is the possibility of their eviction and YUVA has been fighting for their cause ever since its inception. However, while shelter is a central issue that needs to be addressed in YUVA's list of priorities, substantial weightage is also given to a variety of other areas such as literacy and non-formal education, maternal and child-care, drug addiction and alcoholism, water and sanitation

concerns, communalism, violence against women, provision of legal counsel and so on.

Much of YUVA's efforts are towards activating the municipality in giving the people their due, be it drinking water, toilet facilities, ration cards, or health services. Social activism is a normal strategy to gain its ends when the bureaucracy turns a deaf ear to pleas and demands. Morchas and dharmas are organised frequently and the YUVA has some concrete success stories to boast of. For example, recently a government maternity hospital near a slum area which was unused for six years was reopened as a result of persistent public demonstrations by the community members.



Source: Generated from Bombay Air Pollution-Health Study



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## CONCLUSION

We have learned in this publication that ecohealth is both a kind of measurement of peoples well-being as well as a development response. Within the urban ecosystem, urgent measures are required that take into account peoples productivity levels and the impact of poor habitat. Through analysis of Delhi and Bombay, we were able to see ecohealth is decreasing. Jagruti Kendra's programme like the section on NGOs gives us suggestions for community education and action.

Within a decade, ecohealth will become common-place. This is as a result of the rapid decline in our environment which can only be halted with an integrated development response.

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