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**URBAN POVERTY AND
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ENVIRONMENT:
AN EXPLORATION**

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Abstract

Issues relating to urban poverty are attaining primacy in social science research today due to the increasing expansion of cities and towns. This has been caused by migration from rural areas but, of late, much more by the aspiring urban communities/individuals that move from one urban area to another, leading to rapid expansion of existing urban areas.

The challenge before planners, administrators and the urban community is, therefore, to make the urban areas environmentally pleasant to live in by ridding them of natural resource degradation and related threats. Urban ecology takes a holistic approach to understand these threats and the methods to conserve human aspects or human-related ecosystem in urban areas. It views the cities as part of living ecosystems, providing valuable resources and services that promote wealth, health and quality of life. The goal is to integrate social and ecological sciences for a better understanding of human actions and their impact on life-supporting ecosystems in and outside city boundaries.

Introduction

With more than half the world's population living in urban areas (towns and cities) and with no hope of the trend declining in the coming years, the issue of urban poverty is attaining primacy in being addressed through social science research. Till recently, it was believed that distress migration of the poor from rural areas was the primary cause for this spurt in the population of urban areas. It is also caused by the multitude of new economic, educational and other opportunities that urban areas offer aspiring immigrants (from even middle and lower echelons of social

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hierarchy). A third factor to be noted here is that migration is not only characterised by the moving of the poor and the not so poor from rural to urban areas, but also from one urban area to another.

It is believed that between the 1950s and the beginning of the present century, a number of cities in the world saw a rapid rise in their population caused by a combination of the above processes. Global urban population has risen from 1 billion to 3 billion and the number of cities with more than 1 million inhabitants has also risen from 80 to 3,000 (Sastry, 2008). What is interesting is that while rural areas continue to dominate countries in terms of their numbers, urban areas are growing faster in terms of population.

Secondly, nearly 80 per cent of the world's mega cities are located in developing countries like India. Their urban population is expected to double by the year 2020. Asia, in particular, is at the forefront of such rapid urbanisation, with more than 50 per cent of the global urban population living in its countries (ibid). The challenge, therefore, is to make the urban areas pleasant and healthy to live in, and, at the same time, save the poor from the negative impact of such rapid urbanisation. The fundamental issues in this context, besides those relating to the provision of basic amenities and infrastructure, are (a) getting rid of the critical problems of water and air pollution, (b) preventing land meant for agriculture from being converted into urban areas, and (c) preventing increased degradation of natural resources and imbalances in the ecosystem.

The recent stress on urban areas to provide basic amenities to their increasing populations is an important issue in the context of urban governance. The situation compels the latter to overlook the fact that people live in unplanned regions with scarce and polluted water, poor sanitation, etc., besides being exposed to landslides, flooding and other such hazards – all due to inevitability and resource constraints. It has also compelled much attention to be paid by both governmental as well as non-governmental organisations (NGOs) in terms of working towards

identifying the causes and consequences of the 'man-made' hazards among them. It is strongly believed that the increase in the number of the poor in urban areas has also resulted in a shift of poverty from rural to urban areas.

As a result, the number and scale of programs to improve the condition of the poor in urban areas, particularly in slums and squatter settlements, have also increased. These include the number of investments in housing, sanitation and transportation, support to small-scale businesses, investments in economic growth, etc. Despite best efforts, external funding and concerted action, these measures are criticised as being too limited or even counter-productive. Nevertheless, the issue of urban poverty and its relationship with sustainable development is thus on the agenda of every organisation associated with the urban poor.

What does the ecosystem of urban areas comprise?

Although, according to one estimate, urban areas account for only about two per cent of the earth's land surface, it is the life in the city that causes regional and global ecosystem changes. For example, cities are estimated to be producing 78 per cent of the greenhouse gases of the world. The estimate shows that a city may need ecosystems up to 1,000 times the city area, both as a resource input and for assimilating waste products. This makes the ecosystems, both inside and outside the city boundaries, critical for the health, economy and quality of life of the people who live in them. Ecosystem services are required to maintain oxygen levels; mitigate local pollution and noise; provide shade, relaxation, privacy, social meeting places, recreational and outdoor activities, etc., besides for maintaining and creating a biological network. They are provided by not only the forests, agriculture and nature reserves, but also by the parks, cemeteries, golf courses and other urban green spaces that often play an important role in balancing the environment (Raju K V, S Puttaswamaiah, Madhushree Sekher and Rachael Lunley, 2007). They are outlets acting as the important dispersal corridors for mobile species

and establishing a link between inner flora and the life-supporting ecosystem outside the urban areas.

With several social and economic 'drivers' believed to be behind the process of rapid urbanisation and the impact it makes on the natural environment, city life has tended to transform social networks and value systems both inside and outside cities. Rural livelihood practices and habits are threatened or lost. People are alienated from nature as well as from the responsibility for environmental change. Thus, as perceived by social ecology, there is a need to strengthen the perception that human beings and nature are mutually interdependent entities.

Set against the above background, this paper has the following objectives:

- (1) To understand the issue of urban poverty in its links with urban ecology
- (2) To look into the impact of environmental degradation on the livelihoods of the poor, and
- (3) To raise some issues for future research and policy

The paper is not based on any empirical study by the author but relies on certain assumptions drawn from a review of literature in the context.

Links between urban poverty and urban ecology

In India, urban poverty is pervasive, constituting a challenge to anybody concerned with the development of urban areas. Its rising incidence could be squarely linked to the tremendous expansion of urban areas in the recent past. As noted earlier, this growth is caused by migration from both rural to urban areas, as well as from one urban area within a city/town, to another. There is an increasing failure of rural areas to provide for the livelihoods of its vulnerable population, due to a significant decline in agricultural production. Irregular monsoons, lack of non-farm economic opportunities, landlessness, social discrimination based on caste, and

political tensions are identified as the chief reasons for driving people out of their livelihoods in rural areas and leading them towards cities and towns (Murukadas, 1998 and Desai, 1970). They are also losing their population, which is lured by the attraction of urban life and its socio-economic advantages.

Other reasons, like migration for social mobility or marriage prospects, education and a better quality of life, have also been important. Leaving one's village to work in a city is caused by the desire to earn much more than what agriculture and allied occupations provide (Desai and Pillai, 1970). All these are, however, besides the disaster-related reasons such as drought and famine, high cost of agricultural production, etc. A majority of immigrants have even given up their traditional occupations after coming to live in cities (Thakur and Dhadave, 1987). There is usually a huge segment of the poor hailing from ex-untouchable communities living below the poverty line and engaged in service sector and wage work. Wage work among poor and destitute women indicates the growing proportion of feminisation of poverty in urban areas.

While a natural concomitant of the proliferation of urban areas is the growing menace of urban poverty in them, at the same time, poverty in urban areas is a result of many other factors besides migration of the poor from rural areas. But a greater threat is that it is also leading to a wide range of social and environmental problems. The greatest fall out of these has been the speedy rise in the number and extent of urban squatter settlements.

Nature of urban poverty

While trying to understand the dimensions of urban poverty from an ecological perspective, we need to first understand the nature and dimensions of poverty itself. Addressed as the dehumanising aspect of deprivation, poverty is multi-dimensional and manifests itself in various forms. It is deprivation of an acute economic form, making access to food, shelter, health and education difficult for the poor. It is also

manifested as marginalisation in its political sense and as discrimination and rootlessness in its socio-cultural sense. Besides this, another equally negative form of poverty is vulnerability (UN 1993).

Thus poverty, whether urban or rural, is conceptualised as entangled in a web of deprivations and traps from where the poor find it difficult to escape. The meaning and extent of poverty is understood in latest thinking as encompassing marginalisation in only economic terms and as including exclusion from decision-making processes, being rootless and being vulnerable to various forms of disasters, hazards and threats. In the context of environment or ecology, being poor in an urban area means displacement from safe residence, occupations and societal spaces.

The distinction made between 'absolute' and 'relative' poverty notionally applies to urban areas much more deeply. The former is the inability of sections of the population to secure the minimum basic needs for survival. Their lives are sunk to very low standards that are 'beneath any concept of human dignity'. Relative poverty affects those populations that find it difficult to secure their minimum needs. It also renders them unable to participate in mainstream societal processes. This alienates and marginalises the poor from all forms of development despite constituting the majority in demographic terms. Thus, the quantitative indicators of poverty such as per capita income and consumption, per capita food consumption and food ratio, caloric intake, health status, etc., stem from the above definitions of poverty. These are not specific to any area and conceptualise poverty in ways similar in both rural and urban areas. Thus, one needs to be clear as to the 'urban' nature of poverty.

Karnataka is characterised by rapid urbanisation ranking 6th in India and containing 5.4 per cent of the total towns in India (Sastry, 2008). Its share of urban population is estimated to be 6.3 per cent, which is expected to reach 39.3 per cent by 2016 (ibid). In general, these urban areas are large and congested and lack in open spaces and natural resources (like water, land, common property, etc.), except at

their peripheries. Thus, most of its population is deprived of environmental or eco-space benefits.

Since the state's population is dense and heterogeneous, the urban areas present a further complicated picture, with diverse populations having migrated from far and wide and at different points of time in the history of that city or town. Often, this social and cultural diversity deprives them of traditional collective action/social capital reserve. Social capital associated with its other economic and political forms is also absent in the urban areas among the communities that comprise it. The poor are vulnerable and assetless, which is enough to drive them to accept whatever occupation comes their way.

The greatest weakness of the urban poor is their economic poverty, which is relative in its composition. High price for every product and service makes them expensive. Environmental goods and services are particularly important to note. From a sociological standpoint, interactions and interpersonal relationships that generally mark the beginning of a sustainable life are also threatened with becoming contractual. The neighbourhood as a concept in building this relationship is often guarded by formal legal and jurisdictional rules.

Such being the nature of urban settlements, urban poverty is characterised by:

- (1) Inadequate income leading to inadequate consumption of necessities like food, and lack of access to a safe and adequate supply of drinking water, water for domestic activities and other consumables.
- (2) Debt causing high repayments that affects the availability of income to fulfill necessities.
- (3) Inadequate, unstable or risky asset base (material and non-material). This includes access to education, information and awareness and shelter or housing (with drainage and sanitation facilities; poor private infrastructure in housing and residential

area that are overcrowded, lacking in ventilation, roads and other such infrastructure.

- (4) Inadequate supply or non-existence of public infrastructure like provision of piped water supply, drainage, roads, footpaths, etc, leading to risks of health and safety (of children, old, sick, expectant mothers and other such categories of the weak and socially and physically handicapped).
- (5) Inadequate provision of basic services that include, for example, schools, day-care centres, vocational training institutions, health care centres, transport and communication, etc.
- (6) Absence of or inadequate safety nets to provide support in livelihood maintenance, food security during times of crises, sickness insurance, provision for medical care, etc.
- (7) Absence of protection from disasters and hazards in the fields of environmental safety, pollution, ethnic conflicts, violence, discrimination and exploitation, and
- (8) Protection from being voiceless and powerless within the political systems and bureaucracy, leading to empowerment and entitlement; the capacity to organise and the ability to fight injustice and demand accountability from all those making interventions in the poor's lives.

The above characteristics broadly mark the indices of looking at poverty issues in urban areas. With variations in the size of the cities and towns, the intensity of the brunt of poverty experienced by the poor may also vary. In fact, it is expected that the acuteness of poverty would be higher in metropolitan areas, like Bangalore city, than in smaller cities and towns.

Impact of ecology on urban poverty

The following issues deserve discussion in this paper in the context of the urban poor's adjustment and compromise to the changing face of life

in urban areas. They have obvious relevance to urban ecology and in evolving policy to reduce poverty through conservation of natural resources and their management.

1. Impact of structural adjustment policies

The last 15-16 years have witnessed enormous changes in Karnataka's development scenario, caused not only by continued industrialisation and consequent urbanisation, but due to certain new development processes. The introduction of structural adjustment policies, in the wake of globalisation and liberalisation, has led to significant changes in the demographic, spatial and economic profiles of the cities here. While the new waves of advancement have brought considerable positive changes by boosting urban economy, they have no doubt created ripples in the rural job market. There have been several negative consequences of these measures. The establishment of the Information Technology and Bio-technology (IT & BT) industries in a few urban centres like Bangalore, Mysore, etc., has led to commoditisation of goods and services with increased price levels. Even in smaller towns and cities, there is a high density of settlements due to the employment opportunities in the service and manufacturing sectors, besides construction, petty trade and marketing. The urban poor, who were living under tolerable conditions with some access to minimum basic services, have been reduced to further vulnerability and deprivation due to this new development.

The second issue is employment. IT and BT on the one hand, and many other associated economic sectors on the other, have undoubtedly led to a steep increase in several employment opportunities for the middle classes (in particular). The supply has exceeded the demand since many job aspirants are now heading towards urban areas, thereby leaving rural and semi-urban pockets for good. This is occurring both from within the state and from many other neighbouring parts as well. As a result, many families are destabilised in their structure, poverty increased at times or gave way to new forms; led to retrenchment of

many workers earlier enrolled in organisations that were not even directly connected to the mainstream IT sector but with associated activities (perhaps health, education, trade and services).

Thus, poverty has become both a complex and dynamic phenomenon in the urban areas. There is the floating population that uses up the urban areas' or cities' reserve of infrastructure, basic amenities, etc., thereby pushing the poor from the other section (residents) to compete for accessing these resources. With opportunity costs of such labour being met easily with hikes in wages or salaries, the native population is trying hard to cope with the exodus from the urban periphery. This tendency is clearly seen in the construction sector (like road-making, buildings, housing complexes, industrial and other structures both in the private and public domains).

Heterogeneity

Urban poverty has never been homogenous but in recent years its heterogeneity has immensely increased. While caste, religion and class-based differences were always conspicuous in the day-to-day activities of the lives of the poor in cities, today they have become extremely complicated due to the shifting importance of these factors. If the kin and caste/religious group-based networks collapse or become weak in influencing the emerging job and livelihood market in urban areas, it will result in further alienation of the poor.

Recognising this, the World Bank has categorised the urban poor into three sections, viz., the new poor, the borderline poor and the chronic poor (World Bank, 1988). The new poor comprise those who are incapable of competing with modern workers and those who face retrenchment from public and private enterprises. There are many households in this new poor category since a number of public sector undertakings (PSUs) in the state have been declared 'sick' and have been discontinued from operating for quite some time now. Some of this is due to the direct effect of the structural adjustment policies and the rise of various alternative forms of employment.

The borderline poor are those who have been considered homogenous as they tend to live in similar socio-economic and geo-conditions like slums, middle and lower class localities, etc. They are largely unskilled or have lost their skills to modern forces in the urban industry and manufacturing sectors. Their incomes are not low but are vulnerable to market conditions and fluctuations. They would have been living relatively better (at least marginally above the poverty line), but are being pushed to below poverty line (BPL) status by the vagaries of industrialisation and market forces.

The chronic poor are those who were poor (BPL) even before 1991, but have been pushed to lower levels due to their inability to cope with the forces of trade, market, institutions and policy.

At which level does poverty impact urban ecology?

The question that has to be addressed now (in the context of environment) is whose poverty matters to the issue of environmental conservation and urban ecosystems, and why? In many respects, the chronic poor seem to deserve attention from research and policy perspectives. This can be substantiated as follows:

The chronically poor are those sections of urban society that are exposed to the hazards of climatic vagaries and imbalances because they are shelterless or homeless. Even when they have a 'house' (a makeshift one 'built' using zinc sheet, cocoanut pods, or plastic fertiliser bags), it is devoid of sanitation and drinking water facilities. Rain, thunder, floods, drain-water overflows, and hot and cold weather affect them intensely. Women and children face greater hazards as they are expected to stay indoors. Women have their gender-specific roles in the private domain that make it harder for them to access drinking water and to protect infants and younger children from climate-related vagaries.

Secondly, the chronically poor in the urban areas of the state and elsewhere are handicapped in their economic needs. Being unskilled, dependent, discriminated against, exploited, alienated, marginalised and

underpaid, they are vulnerable to poverty traps that keep pushing them back to chronic poverty levels even when they make sporadic efforts to make a slightly better living.

The category is also handicapped in terms of its entitlements and empowerment. Health and education are two major casualties. Mortality, greater morbidity, illiteracy and consequent exploitation at the hands of many are their major problems. They live in 'diverse economic and political situations, facing different livelihood opportunities and different physical conditions' (Mitlin, 2003). They are pushed to that situation by virtue of their migration from rural areas. Notably, they would have deserted their original habitats due to extreme poverty. It is here that degradation of natural resources in the rural and tribal areas, which causes such migration of the poor to urban areas, deserves attention in our discussion. The shift itself is not voluntary but out of distress. This causes great stress on the individual and her/his household, as well as the community, to adapt to the changed conditions in the city.

Chronic poverty compels households or individuals to stay in the same condition, which is its 'defined character' (Hulme, Moore and Shepherd, 2001). They are forced to face different livelihood opportunities and physical conditions. If poverty changes in terms of its phases or intensity in the case of a household, then it is not chronic. But a number of households in urban areas of the state are reportedly poor for more than five years, and that makes them chronically poor.

Critical issues for further research

Karnataka is known for its progressive outlook and concerted efforts towards poverty reduction with an emphasis on bringing about equality with justice. It is also one state where a number of poverty alleviation and developmental policies have been undertaken by successive governments, both after independence, as the first stage, and after the 1970s, under the regime of the late Sri D Devraj Urs as the second, and

later in the 1990s by the Janatha and coalition governments. The state is also known for its rapid expansion of urban areas, serious devolution efforts at not only rural decentralisation but also the reforms in the urban sector and the introduction of urban local bodies (ULBs) as part of decentralised governance.

The problems inherent in agro-climatic regions that exhibit varying ecological characteristics are responsible for pushing people out of villages towards urban areas in search of livelihoods (K V Raju 2002; Ninan 2002; Nadkarni 2002). Urbanisation started during colonial times with the British locating some of their administrative offices in 'Pura' and 'Nagara' (town and city), which were district headquarters. These prospered under the princely regime when the sons of rich landlords from villages migrated to cities like Bangalore, Mysore, Dharwar and Belgaum for higher education. Those from the coastal districts and the district of Kodagu and few other Malnad districts migrated to Madras (now Chennai) in Madras Presidency, while those from the north did so towards Mumbai (Bombay Presidency). Most of the cities were centres of trade and commerce like Davanagere, Hubli and Tumkur, to name a few. Expansion of trade and commerce, setting up of industries, educational institutions and other commercial developments have led to the substantial growth of many cities. The advancement in scientific and technological sectors has furthered this, culminating in the IT 'revolution' that the state is attributed with today. Streams of migrations to cities and towns have assumed high proportions since the 1960s to reach a maximum level in the 1990s. The expansion was not only due to such migration, but was also caused by the already settled population moving to the periphery for want of better housing or due to the location of economic and educational facilities there.

Thus, the rate of urbanisation is high and the density of population in some cities is no less. Urban population growth often threatens to exceed state population growth, a recent phenomenon. Thus, urban poverty is seemingly more threatening than its rural counterpart

since the former includes rural poor who have migrated to cities. There are several research gaps in this context. Let us review them one by one:

a) Population explosion

It is argued in the case of other developing economies (but far too poor as compared to India and Karnataka) that the increase in the number of poor is more the result of population growth among immigrants in urban areas, rather than that of increased migration. Advancements in the medical or health sector such as the increase in antenatal and post-natal care clinics, better access to food due to availability of wage labour in cities, the possibility of only the adult age group (in the productive and reproductive age groups) migrating to urban areas for work are some of them. There are no studies to prove this in the case of Karnataka.

b) Impact on health

Certain threats are foreseen in the above scenario. One is the possible increase in morbidity due to the spread of HIV/AIDS in urban rather than in rural areas. The second is the very poor environmental conditions prevailing in urban areas due to their speedy expansion; the poor find it hard to live in good health. The incidence of deaths caused by diseases breaking out due to bad environmental conditions, pollution, contamination of drinking water, absence of hygiene, etc., have also led to life threatening consequences.

c) Industrial pollution

In most urban areas, there are a number of manufacturing and processing units under the globalised regime. The fact that they are employing semi-skilled workers and with a gender bias (women workers are preferred) has led to migration as well as commuting from nearby smaller towns and villages. The textile mills in Davanagere, Gadag, Mysore and the garment factories in the capital are only a few examples. There are places like Bellary that witnessed a heavy increase in industries, mining and manufacturing in the last two decades. Likewise, we have several district and taluk headquarters that are similarly transformed with the support of

locally available raw materials or investments from capitalists from other parts of the state (Tumkur, Harihar, Mangalore, etc.). These have many negative implications on the state of the environment. Air and water pollution, degradation of ecosystems, encroachments and entitlements are common problems in this context. Activists, environmentalists, locals and NGOs have staged protests against them. For example, the controversies surrounding the Datta Peetha, Harihar Polyfibres, the Kaiga Plant, etc., are historically known.

d) Growth of informal production centres

A major threat to the environment is the growth of informal and formal production, processing and distribution sectors located in the cities and towns, mostly in the fringe areas. The growth of urban areas by virtue of industrial, technological and production systems has encouraged the rural youth to migrate, seeking employment in them. The opportunities in factories and other such outlets, offices, etc., gives them quick money and acts as an indicator of social mobility. Many rural youth have enrolled themselves as taxi and cab drivers for IT companies and others have undertaken self-employment by taking up petty trade and operating hotels, small eateries, repair shops, servicing, catering, etc.

Such expansion of the urban economic sphere has its impact on the environment. Basically, it adds to the floating population in metropolitan regions like Bangalore, where transportation pays dearly in terms of increasing air pollution. Besides this vehicular traffic, roadside hotels, servicing stations for vehicles, shops, etc., add to this pollution. Daily supplies of milk, vegetables, fruits, flowers and meat have taken their toll on the environment, degrading it further. The conversion of slums into residential extensions in the course of time has resulted in congested lanes and by-lanes, where houses are huddled together, basic services are poor and domestic and commercial waste rots.

As far as the urban informal system is concerned, Karnataka's towns and cities have all the four types of dimensions defined by the

International Labour Organisation into self-employed, those employed in small firms, workers in unregistered firms or companies, and those operating family businesses without a specific wage. Most of the urban small-scale unorganised sector activities are covered. These include rolling country cigarettes (beedis), incense sticks, food products, processing units, weaving, smithy, embroidery, printing press, auto repair, etc. It is estimated that nearly 70 per cent of employment in urban areas is informal.

e) Collapse of rural agricultural production

Another significant fall out of the development in the last two decades, especially, is the increase in rural poverty that is transferred, more or less, to urban areas. Environmental degradation is argued to have caused the collapse of rural small-scale cottage industries since raw material availability is now affected. This is true of many rural arts and crafts. With forests being affected by extreme climatic conditions – drought or floods - forest produce is not consistently available. Thus, many tribal settlements move to nearby urban areas where they fail to survive, being ignorant of any skills. They have ended up as unskilled wage workers like porters in bus and railway stations and construction labourers, or have tried out their traditional skills for alms as snake-charmers, rope walkers, acrobats, astrologers, mendicants selling herbal medicines, petty traders, etc. Women have turned to broom-making and selling; selling household articles of wood and bamboo, artificial hair buns, and so on. In order to get their daily items of trade, they also resort to using the urban ecosystems (for raw materials or to dispose off waste), leading to their gradual degradation.

f) Impact on housing and supply of fuel wood, fodder and water

Generally, it is the residential areas that such vagabond, semi-nomadic populations inhabit that cause greater environmental hazards. Most of them have no definite habitation but use open spaces to put up temporary shelters. For example, the nearby bushes and other open spaces are used to defecate, to seek fuel wood, and fodder for their domestic animals. Thus, the outskirts of the urban areas are fast depleting.

Thus, it is the migrant poor's (who live in squatter settlements or in tents put up in open spaces) need for fuel wood that clears much of the environment in urban areas. Smoke that is let out from houses, drain water, leaking water pipes and waste generated by a number of trades and productions like sugarcane juice making have multiple environmental effects. If only their rural livelihoods were not affected, many of them would have remained in their original professions and homes. Losing access to common property resources, like woods, forests, rivers and streams, from where they used to draw their nutritional requirement of food, fuel and fodder during difficult times, has exposed them to a monetised and commercial economy. They are forced to sustain themselves upon only wage incomes with no access to food, fresh water, fuel and other environmental goods and services. Thus, the urban poor have only turned out to be highly vulnerable.

g) Inadequate income levels and lack of safety nets

The World Bank has defined poverty as that condition in which an individual's daily income is less than US \$ 1.00. It could be argued that given the economic activities in a fast-growing urban area, it may be possible for a household to earn that much per day. But the urban poor face many other handicaps and experience different forms of deprivations that are non-economic in nature. The poor living in slums are often affected by environmental hazards like floods, mudslides, etc. Socially excluded populations like the scheduled castes and the scheduled tribes, and minority populations like Muslims, who are resourceless and more-poor, often become victims of impacts of environmental degradation and face greater degree of hardships, due to the decline in environmental protection. Lack of socio-political rights constrains their ability to cope with distress situations. Many households are headed by females, making their situation more vulnerable. As per the gendered division of work in the household, women are continuously responsible for its daily nutrition, fodder, fuel wood and drinking water. The urban natural resources level

has reached alarmingly inadequate proportions due to urbanisation. The very fact that people have to pay for the natural resources has put the poor off. Assetlessness leads to sudden economic shocks, long-term illnesses and injury (Moser, 1998). Since women must not only take care of household work and earn part of the (and sometimes the entire) household income, it leaves them with no alternative but to discontinue their children's schooling, or not enroll them in schools. Child labour is thus a natural concomitant of the conditions in which the urban poor are placed.

One of the worst affected among the urban poor are construction workers who are habitual migrants from one urban area to another, as well as from one residential or business area to another, within an urban area. More than 50 per cent of construction workers are women who receive lower wages but end up doing more work than their male counterparts. But much of this is invisible. They also have to carry on their household and child-bearing and-rearing duties. Trekking long distances to the work site is another gender issue in the same context.

But women construction workers are hit hard since they are deprived of a proper residential space and have to wander from place to place irrespective of whether they are sick or have young children or infants. Their greatest problem is in fetching fuel wood and drinking water from faraway places in these new places of settlement. The worst handicap for the female urban construction worker is provision of sanitation (toilet) facilities. Insecurity and lack of hygiene affect them greatly. Another way in which they are drastically hit is in their inability to send their children to schools or even to anganawadi centres. Thus, poverty makes their lives miserable since they do not earn enough through construction labour to afford better living amenities like drinking water, housing, sanitation, health avenues and to educate their children. They earn a little higher than the very poor, and hence may often not be declared BPL, but the environmental conditions in which they live may be worse than even a slum. This needs much attention both in research and policy.

h) Defects in urban service delivery

Urban ecology and poverty have a deep relation with service delivery in these areas. The increasing number of small towns and the expansion of bigger cities into metropolises has virtually led to poor service delivery. Thus, natural resources are not managed at source. The situation has become worse in the last few years in many parts of the state due to the increasing use of natural resources for development purposes. These include sand-lifting, quarrying, encroachment of water bodies, parks and playgrounds and other common property resources.

Traditional institutions controlling the conservation and use of natural resources have collapsed, making way for new ones. Social capital is affected by economic constraints of the people in continuing it in the absence of institutions like the extended family, kinship, social networking, etc.

g) Urban local bodies

With the passing of the 74th amendment, urban areas have been brought under decentralised governance. Karnataka has successfully devolved power and funds to the ULBs formed in every town and city. The elected representatives to the city corporations and municipalities have been drawn from hitherto unrepresented communities like women, dalits and the minorities (like Muslims). While action plans to conserve the environment are prepared annually by them, the success of these institutions is not well documented. Research in the general system of decentralisation has shown that often, the local bodies have not been effective in preventing harmful acts against the environment. In many places, the elected representatives themselves have been found engaged in illegal use of natural resources through their kin, who work in building and road construction, sand-lifting, quarrying, etc. Patronage to political leaders, corruption, rent-seeking, etc., have been other issues in this regard. In several urban areas (as in Bangalore), there have been effective measures by the local bodies, to take care of ecologically relevant and urgent action, such as collection and disposal of solid waste and other

forms of garbage. However, many activities like waste collection and disposal, manual scavenging and cleaning of drains where underground sewage system are absent, etc., are continued, leading to many health hazards to the people engaged in them. There is also exploitation of such staff by their employers. Privatisation of these works has led to retrenchment of staff traditionally on these jobs in the city municipalities.

Decentralisation has taken the form of deconcentration by which governmental activities are decentralised. Studies are needed to reflect upon the role of decentralisation in conserving natural resources and addressing urban poverty.

Socially significant issues in conserving the environment in urban areas

There is need to reflect upon the above situation in different agro-climatic regions to address urban poverty from an ecological perspective. Traditionally, caste/ethnic status determined a person's access to natural resources like land, water, etc. Social values and norms are used to ethically bind people to nature and its resources. Individuals were bound by a code of conduct not to misuse these resources and to avoid competition to access it. Mutual exchange of labour to undertake repair and development works with a view to conserve the environment have also been a regular part of rural life. The question is whether collective action is forthcoming even now and that too in the context of urban areas.

Some of the government programmes towards income generation, provision of basic amenities to urban dwellers, etc., are discussed below:

The Urban Basic Services Project, the Swarnajayanthi Shahari Rojgar Yojana, the programmes of the Karnataka Slum Clearance Board, etc., are some of the several measures taken to provide infrastructure facilities to slum dwellers. Women self-help groups have been formed by the government and NGOs to organise them to fight for their rights and benefits. Housing schemes implemented by the Slum Development Board

have been striving to provide basic amenities like sanitation and drinking water in colonies of poor people as well.

On the one hand, the poor mostly living in slums that encounter hundreds of environmental problems are exposed to state-sponsored civic benefits through officials or service providers. On the other, they continue to depend on their own social network groups and individuals for support – financial and moral. Neighbourhoods in slums have thus proved helpful. Generally, they are also built around ethnic groups with mutual help; trust and accountability are strongly articulated and valued. It is this distinction or dualism that has to be removed in order to bring in better avenues for poverty reduction. This will automatically reduce the burden on the exploitation of the environment. Building the lives of the poor in a sustainable manner reduces many environmental risks to them as well as to the state. In this context, self-help group-based credit delivery systems are proving to be helpful. In the absence of any collateral, slum dwellers cannot approach formal banks for financial support. Thus, the urban poor have resorted to the traditional method of providing themselves with credit to invest in some activities to improve on their conditions. New and formal institutions often turn into those with rent-seeking or reaping activities. Housing markets in slums and other public spaces operate extensively under the protection of local political leaders. They also indulge in illegal sub-letting within the officially-defined categories of housing tenure. The government has given attention to the insecurity caused to the poor due to periodic demolitions by city improvement boards and authorities. Since 1972, this threat has been attended to by making provisions for slum upgrading and cleanliness programmes and campaigns that have aimed to provide the poor with secure tenure. Bangalore has a large number of such illegal settlements due to its rapid expansion in recent years. This is true of a few other urban centres like Tumkur, Mysore, Hubli, Davanagere, etc. Informal settlements by the poor that cause environmental damage have been treated with such reform policies. Peripheral slum areas develop very fast due to migration and

decentralisation of industrial and commercial organisations have now come up in different parts of the cities due to availability of transport.

Collective action as the emerging solution

One notable development in recent years is the ability of slum residents to act collectively. Years of dependence on the government that resulted in many problems for them and new-found organisational efforts undertaken by civil society organisations have resulted in local leadership by youth to address their problems. This ability has to be further developed to make communities come together to offer themselves certain services that municipal administration has failed to offer. Thus, community participation is taking an active role in service delivery. The poor are, in fact, equally or more concerned about environmental safety and protection. They can be coaxed to pay for the services offered. Studies have shown that in rural areas, development programmes in the realm of basic services like water and housing have made participation mandatory for the beneficiaries to contribute to the service to own and use it in a sustainable manner. Slum dwellers have indicated their preference to pay for services. Thus, community participation and ownership over services are emerging as alternatives to achieve sustainable environmental policies in urban areas. Further, it has shown good results when it is mooted by NGOs.

Women, in particular, are proving to be playing important organization roles in such community-based programmes. They are also mobilising critical financial support through their self-help groups. If given better awareness and support, they can prove to be critical in bringing about a sustainable environment movement in urban areas.

Municipal authorities are weak in collecting taxes and fees for the ecosystem services provided to people. This is a disadvantage in mobilising proper facilities and support to slum dwellers and the poor elsewhere. Informal settlements come up overnight on open spaces, proving the obvious inability of these officials. While agreeing that they have a special role in maintaining the natural resources of urban areas

and in ensuring hygiene, cleanliness and protection of the environment from degradation, most of the officials have not been able to mobilise support. However, under a decentralised system by which funds are evolved directly to people's representatives, their capacity to effectively implement the programmes and deliver basic services to the poor should materialise.

An environment-friendly urban poverty research agenda:

While the above discussion makes it clear that there is a need to attend to ecological problems in urban areas, it is also necessary to set out a research agenda to ensure their resolution. The situation is quite complex. There are macro-economic and sectoral issues to be attended to. At the same time, the informal strategies of the poor, to mitigate environmental hazards, need serious attention. Policy options have to emerge from a holistic perspective involving people, local governments, NGOs and others. There is a need for a multi-pronged attempt to improve the living conditions of the poor in terms of service delivery, infrastructural provisioning, slum improvement, microfinance, employment generation and overall socio-economic growth with sustainability. They enable reducing the severity of urban poverty and will have an effect upon ecological sustenance and protection. Both chronic poverty and its traps need to be addressed here. This is because while the poor are successfully taken out of poverty, it does not take much for them to slide back into it because of their vulnerability.

The following are some of the critical areas of such research from an environmentally sound poverty reduction policy for urban areas:

1. Estimating the magnitude of poverty in its various dimensions.
2. Assessing the differential impact it has on people within the household like children, women, the old and sick, etc.
3. Considering both the structural and functional determinants of 'coping strategies' of the urban poor, and lastly.

4. Evaluating the capacity and capability of the state and other institutional mechanisms to integrate poverty issues into natural resource management.

1. The magnitude of urban poverty and its links with natural resources

Studies are needed to estimate the annual or periodic increase in the magnitude of the poor in Karnataka on a regional basis. The socio-economic and political factors influencing such increases have to be studied using interdisciplinary methodologies. The proportion of rural-to-urban poverty has to be worked out by considering the rate of migration and environmental factors causing it. It is also necessary to see how much poverty is caused by which specific factor - assetlessness, lack of access to environmental goods and services, local power structures, problems in service delivery, design of reform policies, grassroots planning with people's participation in ULBs, etc. The identification of the poor is what is complex but important. Standards of living and measurement of poverty are far more complicated in the urban areas than in the rural. Sector-wise spending is also varied in the two areas, with consumables, transportation costs, rent and payment for natural resources such as water and land taking away much of the earnings of the poor in urban areas. Poverty is also transitory in many cases. One should test the hypothesis of NR exploitation by the urban poor on a sector-wise basis and by which category of poor – absolute, chronic or transitory.

2. Differential impacts of poverty

The next issue is to arrive at distinguishable categories of individuals and households. Child poverty, for example, is one such critical area. By extending the meaning and definition of environment to apply to social environment too, one has to arrive at estimates of the impact of environmental degradation on increasing poverty that affects vulnerable members of the household in terms of their age and sex. Deprivations of nutritive food, schooling, play, health check-up, etc., in childhood are argued to lead to deficiencies in coping with adult-age limitations to come

out of poverty. Studies on the health of individuals based on age and sex are needed to test morbidity and mortality levels as well as the situation in the household to provide basic needs. Female-headed households, large families, broken homes, etc., are cases in point. The impact of school reforms such as mid-day meals, participatory monitoring, measures to curb child labor and encourage child enrollment are also significant in arresting poverty in later life. Since population increase is often combined with poverty in urban areas, child preferences, life expectancy of girls, socialisation and nurturing practices need exploration.

3. Coping strategies of urban poor homes

Another important area of concern is to know how the poor cope with poverty levels, especially when they are expected to not to harm the environment around them for food, fuel wood, fodder, water and sanitation. Gender issues of urban poverty loom large here. Their workload under gender-based division of labour in the household as the private sphere, and unorganised workers in the public domain (or often as home-based workers in beedi-rolling, incense stick-making activities) place enormous burden upon them to provide the basic needs of the household such as drinking water and fuel wood without exploiting the natural environment. Lack of prospects from different informal sector activities forces some into sex trade in urban areas, which has much scope given its high migrant male population. With HIV/AIDS increasingly affecting them and the challenge of meeting household expenses (which is severe in the absence of men) as the sole earning members, women are victims of multiple types of vulnerability and urban poverty.

The situation has been addressed by NGOs much more seriously and effectively than by the government or ULBs. Through networking of such women and the poor, they have built confidence in the affected people, and have also educated them in protecting the environment for their own safety and livelihoods. They also shed light on the failure of municipal authorities to address these issues. Similarly, the urban elderly also face the threat of easily falling into the poverty net due to the failed

family support system, with nuclear families becoming popular even among immigrants from rural areas. In the absence of any safety net, the elderly - especially the women - contribute to environmental degradation by exploiting resources for petty trade, etc.

The structural factors associated with coping strategies arise from failed land reforms and other rural reform policies. To reduce urban poverty in the natural resource context, efforts should be taken to address rural poverty and dependence upon non-farm employment. Improvements in natural resources such as land, water and forests would mitigate rural and urban poverty. This is critically relevant in the context of globalisation and trade liberalisation policies that have affected the rural poor drastically but have not lessened their traditional attachments to land as a socio-cultural and economic asset.

4. Institutions for urban poverty reduction and natural resource management

As discussed earlier, besides the formal organisations of the government's line departments like anganawadi centres, adult literacy schools, recreation and health clubs, employment generation centres, etc., the most important organisations are those that have evolved out of people's struggles to come out of poverty. Women's self-help groups with their micro-finance agendas are playing significant roles in reducing household poverty. Women in lower class households have been able to manage the kitchen and sometimes their children's primary education from out of their savings. They have also been enrolling themselves in unorganised sector jobs that provide better wages, which have been integrated into the family's assets. For example, replacing a traditional firewood oven with a gas or kerosene stove, installing sanitary facilities at home rather than polluting a nearby stream, are some examples where women's work burden as well as environmental exploitation have been reduced.

Some of the cities' slums and other degraded areas tend to have active radical organisations formed on the basis of caste or ethnicity. Some are patronized by political parties. They have been doing

organisational and relief-work, especially during times of crises or disasters such as earthquakes, rainwater storms, accidents, building collapses, etc. Their work has to be linked with the government's service delivery mechanisms and institutions and also to the urban local governance bodies for arriving at an integrated approach to the issue.

Further, studies are needed to delineate the different employment potentials for various types of migrants depending on their skill levels, gender, education and vulnerability, based on caste and ethnicity. Since transportation as an industry causes air pollution, designing coping strategies for the poor to reach work is essential.

The issue of urban agriculture is gaining momentum in India too. Floriculture, cultivation of vegetables and fruits, sheep-rearing, poultry farms, fisheries, etc., are coming up fast on the outskirts of cities where villages have continued to transform their natural resources (land, water and forest) to cater to the needs of multi-national companies and local entrepreneurs. Often, the farmers have sold or leased out their land – as they are unable to cultivate it - and have spent the money on consumables. Road expansion and urbanisation processes have also deprived marginal farmers of much land. With micro-finance, infrastructure support and other such aid, the poor themselves could be made to participate in such minor production processes. Social networking is needed in this respect to prevent the interests of the poor from being overshadowed by those of middlemen and others.

A critical element here is the lack of proper and sufficient devolution by the government to ULBs. They should coordinate with the Slum Clearance Board and use other urban poverty alleviation measures, which should result in better infrastructural facilities and provision of services to all slums in peripheral urban areas occupied by the poor. Empowerment of ULBs is needed to respond effectively to natural resource conservation and their supply to all in an equitable manner. They are expected to have good knowledge of ecosystems and their functioning,

degradation levels and rejuvenation methods. Data sources based on GIS mapping, satellite imageries, etc., would be helpful in pointing to the unequal provision of amenities and services. These enable them to be far more transparent and accountable to the people. Technical and research assistance is needed since environmental assessment is on the basis of data accuracy and problem location. As Satterthwaite (2001) has argued, the support given to people's indigenous organisations and developing an accountable and effective city and municipal local government are the two important strategies in the way of obtaining eco-friendly urban development.

Conclusions

In conclusion, it can be said that achieving poverty reduction as visualized by the Millennium Development Goals, by 2015, depends upon obtaining first-hand information about the causes of poverty and the rising levels of its incidence in urban areas. Goals like gender equality, primary education to all children, reducing child mortality, etc., can be met only upon reduction in the extent of urban poverty. Conserving natural resources is going to impact the efforts towards improving the poor's access to better livelihoods.

Undertaking the design and implementation of urban environment projects depends upon an understanding of the links between poverty and the environment in urban areas. In this regard, the first step is to recognise the multiple deprivations that contribute towards urban poverty. These include not only inadequate income but also inadequate shelter, public infrastructure and limited or no safety nets. Poverty is also caused by the contravention of rights of low-income groups and their powerlessness within political systems and bureaucratic structures. Research is lacking in understanding the many issues that force people and communities in urban and metropolitan areas to be trapped in the web of poverty and degradation of livelihoods. The poverty eradication

or reduction agenda for the state has to emerge from identification of issues relating to measuring urban poverty and identifying parameters for various institutional agencies like the government, development agencies, ULBs and NGOs to address it. Cities in Karnataka, like Bangalore with its recent commercial, trade and technological development, are currently experiencing faster urbanization rates, as well as an equally distressing poverty increase – both of which deserve attention from an environmental perspective.

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