AN EXTENSIVE STUDY OF THE URBAN POVERTY SITUATION AND ITS ENVIRONMENTAL IMPLICATIONS IN THE SQUATTER SETTLEMENTS OF KATHMANDU AND DHARAN

By

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Certification

This is to certify that the thesis entitled " An Extensive Study of the Urban Poverty Situation and its Environmental Implications in the Squatter Settlements of Kathmandu and Dharan" submitted by Ms. Sumedha Shakya towards partial fulfilment of Degree of Master of Science in Environmental Management is based on the original research and study under the guidance of Mr. Tej Kumar Karki. The thesis in part or full is the property of **School of Environmental Management and Sustainable Development (SchEMS)** and thereof, should not be used for the purpose of awarding any academic degree in any other institution.

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Abstract

With the rapid pace of urbanization, the face of the cities of Nepal is changing. Its consequences are not only uncontrolled population rise and unplanned settlement growth, but also the increase in the level of urban poor population and the squatter settlements. Today 14% of the country's 22.4 million people live in urban areas with urban poor population of 23%. The squatter settlements, which was only 17 in number in Kathmandu Valley in 1985 with the population of about 2130, has boost up to 64 with an estimated inhabitants' population of 14500 in 2003.

Even in such a situation, all the poverty reduction programmes have been focused in rural poor society. Considering this fact, this research was conducted with a general objective of studying the real urban poverty situation and the interaction between poverty and environment in the selected squatter settlements of Kathmandu and Dharan. Some of the other objectives were to identify the legislative barriers in upgrading socio-economic, physical and environmental conditions of poor, and to assess the role of different institutions in enhancing the quality of life of squatter settlements.

To undertake this research, three squatter settlements of Kathmandu (Jagritinagar, Shantinagar and Pathivara) and one squatter settlement of Dharan (Amar Basti) were selected, mainly based on the poor living environmental condition of the settlements. More than 2/3rd of the households were surveyed in Jagritinagar, Shantinagar and Amar Basti, whereas 2/5th of the households (44 %) were surveyed in Pathivara. The total sample households were 218. For data collection, tools such as scheduled questionnaire, key informant interview, observation etc. were applied. During the questionnaire survey, squatters were asked questions covering four broad aspects: Socio-economic, physical environment, surrounding environment and squatters' perception.

From this research, more than half of the households in Jagritinagar, Shantinagar and Amar Basti were found living below poverty line, considering Rs.9000 per capita annual income as the poverty line as defined by Lalitpur Sub-Metropolitan City in baseline survey of Lalitpur, 1999. Lack of education, unemployment, inability to earn money due to lack of skill and opportunity, and ignorance were found as the main causes of the poverty of squatters.

Situated in the flood plain area along the side of polluted river, the living environmental condition of the squatters in all four studied settlements was found bad. However, the situation was somewhat improved in case of internal households of Pathivara and Amar Basti, age of the settlement being one of the reasons for this. The two-way linkage between urban poverty and environment was clearly established through the comprehensive study of the four squatter settlements. On one hand, non-affordability to construct permanent toilet, sewerage, drainage and consumption of timber based cooking fuels were found to pollute water bodies and atmosphere and on the other hand, the vulnerability to the effects of natural hazards like rain, flood, thunderstorm etc. was found quite high due to poor shelter condition. Similarly, poor environmental condition, sanitation status and unsafe water were found as the causal factors of incidence of diarrhoea in 22 % to 68 % of the households in four squatter settlements. The disease occurrence rate was found quite often to frequent in more than 40 % of the households in the three settlements of Kathmandu and 24 % in the settlement of Dharan.

The concrete legislations solely made for squatters were found lacking. The coordination among central government, local government, NGOs and CBOs regarding management and upgradation of squatter settlement was found unsatisfactory. Clear-cut differentiation of the responsibilities within the government institutions was found lacking, the main reason being the absence of clear-cut legal provisions. However, the relationship between local government (KMC), NGOs (like Lumanti) and CBOs (like SPOSH) was found improving in Kathmandu and Dharan.

To upgrade the quality of life of squatters and to improve their physical and environmental condition, the multi-sectoral approach should be taken. The cumulative wisdom and cumulative effort of people at different levels should be employed. Government should provide the squatter communities with basic physical facilities in adequate amount without any disparity. Government and NGOs should work in partnership with the community. The help provided shouldn't be free of cost, but should levy minimum cost; otherwise it will be exploitative in nature. NGOs should help the poor to manage the riverbank by assisting them financially and technically in constructing the gabion wall. The squatters who are living in totally environmentally degraded and unsafe place should be translocated to some other safer place.

Environment is directly linked with poverty. Unless the poverty situation of the squatters is not improved, their living environmental condition and the surrounding environment will never improve significantly. To get victory over the poverty, first victory should be achieved over the causes of poverty. Government and NGOs/CBOs should focus their programmes extensively on education, skill development, employment generation to reduce poverty situation of the poor squatters. The policy to be developed in near future for squatter should not only focus on security of tenure, but they should also focus extensively on adequate housing, infrastructure facilities, skill development activities, health, free education etc. Most important of all, the squatters should unite and be ready to bring a change. They should pay interest and show active participation in all developmental activities. Without their interest, need and active participation, the help provided to them will be like putting water onto the sand.

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After working for a year and half in this research, I have finally come forward with this thesis in my hand. I had started this work with much enthusiasm putting a hope that I might be able to bring forward the real picture of urban poor residing in squatter settlements in front of the readers. For the successful completion of my thesis, I would like to give the credit to all those people who guided, supported and helped me throughout the work.

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Sumedha Shakya
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List of Abbreviation

CBO:	Community Based Organization
CEDAW:	Convention on the Elimination of All Forms of Discrimination against Women
CERD:	Convention on the Elimination of All forms of Racial Discrimination
CRC:	Convention on the Rights of the Child
DACAW:	Decentralized Action for Children and Women
DUD:	Department of Urban Development
ENPHO:	Environment and Public Health Organization
ENT:	Eye, Nose and Throat
EPA:	Environment Protection Act
HHs:	Households
HMGN:	His Majesty's Government of Nepal
ICESCR:	International Covenant on Economic, Social and Cultural Rights
IUCN:	International Union for Conservation of Nature and Natural Resources
KMC:	Kathmandu Metropolitan City
LSGA:	Local Self-Governance Act
MoLD:	Ministry of Local Development
MOPE:	Ministry of Population and Environment
NGO:	Non governmental Organization
NPC:	National Planning Commission
NPCS:	National Planning Commission Secretariat
NUWS:	Nepal Women's Unity Society
PIL:	Public Interest Litigation
SODIS:	Solar Distilled
SPOSH:	Society for Preservation of Shelters and Habitation in Nepal
SPSC:	Squatters' Problem Solving Commission
SSNS:	Sundar Samaj Nirman Samuha
UCEP:	Underprivileged Children Educational Programmes
UDLE:	Urban Development through Local Efforts
UK:	United Kingdom
UNCHS:	United Nations Conference on Human Settlements
UNDP:	United Nations Development Programme
UNHR:	Universal Declaration on Human Rights
UNICEF:	United Nations International Children Education Fund
VDC:	Village Development Committee
WB	World Bank

Chapter I

INTRODUCTION

1.1 Background

Growth of large cities in the developing world is accompanied by an upsurge in urban poverty. Urban areas accommodate 1/4th to 1/3rd of the world's population under "absolute poverty" which is estimated to be about 600 to 800 million people (14%) of the world population (Turkstra; UNCHS, 2001). The situation is much worse in developing countries where more than half of the population lives in cities below the poverty line. According to World Bank's definition, the per capita income below the US $1 per day has been defined as the condition for absolute poverty. Absolute poverty is defined as a degree below which the minimal requirements for survival are not being met" (Sekki et al., 2002).

With the drastic developments as consequences of both rapid population growth and increased migration to urban areas, poverty is becoming an increasing urban problem (Bryld, 2002). Better access to paying jobs, more varied diets, facilities, better education and better health care have made cities a 'destination of choice.' But when the rural migrant people discover that the housing, jobs, incomes and amenities that had 'pulled' them to the city are not available or are inaccessible and when the authorities are not willing to help them find the 'dream' they aspired for, they have no choice other than to stay in squatters and slums tolerating the poor living environmental condition. In India, 40 to 60% of the urban population dwells in slums with 27% of them without access to safe drinking water and 70% with no basic sanitation.

In the context of Nepal, 14 % of country's 22.4 mill people live in urban areas with urban poor population of 23 %. Ninth Five-Year Plan of HMGN delineates 23 % of the urban population to be living under the poverty line, among which 13.2 % is identified as the poor and 9.8 %, as the ultra-poor (NPC, 1998). With the rapid urbanization, population growth and the increased rural-urban migration, urban poverty is becoming the increasing problem in Nepal too. The pressure has further been aggravated by the Maoist Insurgency since the beginning of the People's war in 1996, which has forced the poor rural people to move to the cities and live the life under poverty situation (Lumanti, 2002). When people with low educational status migrate to the cities, they are forced to work with low income jobs which leave them no choice, other than to stay in squatters or in dwellings in low cost marginal lands with very poor living environment, under absolute poverty situation.

1.2 Statement of the Problem

With the rapid pace of urbanization, the face of the cities of Nepal is changing. Its consequences are not only uncontrolled population rise and unplanned settlement growth, but also the increase in the level of urban poor population and the squatter settlements. The squatter settlements, which was only 17 in number in Kathmandu Valley in 1985 with the population of about 2130, has boost up to 64 with an estimated inhabitants' population of 14500 in 2003 (KMC, 2001; Thapa, 1994; Lumanti, 2003). About 2.9 % of the total population of Kathmandu lives in informal squatter settlements (KMC/WB, 2001).[1]

[1] Lumanti claims 7 % of the total population of Kathmandu valley to be living in informal squatter settlements (Lumanti, 2003).

The living environment of the poor ranks the most life threatening and unhealthy living environment that exists on earth (UNCHS, 1994). Their dwellings are unsafe and lack the basic infrastructures and services such as water supply and sanitation, solid waste management, energy and transportation facilities etc due to insufficient quantities and unaffordable prices (Turkstra; UDLE, 1992). The residents of these settlements have no security of tenure and are, therefore, unwilling to improve their dwellings and the area surrounding them. These dwellings reside in environmentally unsafe locations such as flood plain area, solid waste disposal site, unstable steep slopes etc. Most dwellings are substandard, crowded, damp, inadequately lit and poor ventilated.

In a study conducted by Koirala, 2001 the squatters of Banshighat settlement in Kathmandu were found living in flood plain area with poor living environmental condition. Only 25 % of the households possessed toilet, all of temporary nature and of the rest, 83 % were defecating at river bank. All the households were disposing their solid waste in the river. Majority (44 %) of the houses were found to be temporary in nature, substandard, damp. The study conducted by Pradhan in another squatter settlement of Kathmandu, Dhomakhel in 2003 also gives a picture of poor living environmental condition of the settlement where about 74 % of the houses were found in temporary condition with majority of the people without access to private toilet, water supply, solid waste disposal facility etc.

The urban poor are supposed to be the most sufferer group of urban society and major victims of all types of environmental pollution and epidemics due to their stay in pathogen prone neighbourhood, cramped living condition in shacks and limited access to basic civic services like safe and adequate water supply, sewerage and drainage, sanitary toilets, solid waste disposal facilities (Hardoy et.al, 1997). For much of the poor urban population, environmental hazards are among the main causes of ill-health, injury and pre-mature death (Satterthwaite, 2003). In a survey conducted by Lalitpur Sub-Metropolitan City Office in 1999, the urban poor of Lalitpur were found with more health problems. Diahorrea stood out as the major health problem. 30.5 % of the city dwellers were found affected with this water borne disease, followed by ENT problems in 39.4 % of those people. Other health problems included liver, heart and respiratory diseases.

1.3 Objectives

The general objective of this research was to study the urban poverty situation and the interaction between urban poverty and environment in the squatter settlements of Kathmandu and Dharan.

Specific Objectives:

1. To identify the percentage of people living under absolute poverty in selected squatter communities, and explore the causes behind their poverty and their stay in squatter settlements.
2. To study the living environmental condition of the squatter communities.
3. To find the extent to which the poor in squatter communities are vulnerable to the environmental hazards, and to find different ways by which their poverty has contributed to the environmental degradation.
4. To identify the legislative barriers in improving the physical, social, economic and environmental status of the squatter communities.

5. To assess the role of different institutions in enhancing the quality of life of squatter settlements.

1.4 Rationale of the Study

Urban poverty and the urban environment aren't considered as much significant problems at present, but they will be after few years when the urban population will share more portion of the country's population. Today, the urban population in Nepal is growing at a rate of 6.5%. With this rate, the urban population is estimated to boost up to 30 % by 2035 from the present population percentage of 14%. This will surely bring the urban poverty and the urban environmental issues at the top of the problem list later on. At that time there will be an undoubted increase in the population of urban poor living in squatter settlements and the associated environmental problems will be comparable to that of our neighboring country, India where about fifty per cent of the urban population is living under poverty in unhygienic and poor living environment of squatters and slums, and where the unmanageable growth of these squatter settlements has become main headache of the government. The India's present problem can be our problem few years back if the government, policy makers, planners, developers and each individual of the society don't focus on this problem right from the beginning.

Keeping this view in mind, this research has been conducted with an aim to collect some fresh data from the field on poverty situation, living environmental condition and the environmental implications of the poverty in the squatter settlements of urban areas of Nepal. This study is expected to be quite helpful in sensitizing the policy makers, urban planners and the developers for taking a right action against all these urban poverty related problems right in time.

Urban poverty is a new topic in the field of academic research. Till to date, majority of the researchers have focused their research on rural poverty. Only few people have conducted their research in squatters and among them too, the extensive study of the squatters has not been done since 1994. Even those limited number of persons who have focused their research on the slums and squatters of Nepal have left to study the environmental implications of the poverty situation. So, through this research the researcher has tried to bridge the gap by collecting information on all the parameters related to poverty and environment of urban section, particularly in squatter settlements. Moreover, the researcher has also put an effort for assessing the institutional performance and the legislative barriers in brief in this research.

1.5 Scope and Delimitation

This study was focused on the situation of poverty, its environmental consequences and the living environmental condition of the selected squatter settlements of Kathmandu and Dharan. The assessment of the institutional performance and the barriers in the legislations and policies were also the focused subjects of the research. Since the urban poor communities cover a vast area, the researcher focused her study only among the people dwelling in squatter settlements due to time constraint.

Considering the limitation of time and money, the study was conducted only among four selected squatter settlements with total sample size of 218. 191 households were surveyed in the three settlements of Kathmandu and 27 households in one squatter settlement of Dharan.

The major parameters of the study were:
Income, expenditure and saving, housing condition, vulnerability of shelter condition to natural hazards, water supply, sanitation, drainage, solid waste management, health and education facilities, awareness level, perception, institutional role and legal aspect.

Simple arithmetic tools (sum, percentage) were only used to analyze data in Excel computer program. The Chart function in excel was applied extensively for data presentation.

Chapter II

LITERATURE REVIEW

2.1 Urban Poverty, Squatter Settlement Growth and Environment in the World Scenario

2.1.1 Urbanization and Urban Poverty

Cities in both developing and developed countries have emerged as the major form of human settlement over the last few decades. In 1800, only 50 million people lived in towns and cities worldwide. By 1975 there were 1.5 billion and by the year 2000, the urban population reached about three billion - more than the entire population on Earth in 1960. In 1990, 43% (2.3 billion) of the world's population lived in urban areas, which is estimated to occupy 60% of the world's population or 5.2 billion people by 2025 (Karki, 1999). Cities have, in effect become a barometer of humankind's "progress" into the 21st century, whether this is an upward trend or downward. Concentration of economic, social, political and administrative organs of a nation or region in cities has made it a magnet for rich as well as poor households (Srinivas, 2003).

The growth of large cities in the developing countries is accompanied by the upsurge in urban poverty. With the drastic developments as consequences of both rapid population growth and increased migration to urban areas, poverty is becoming an increasing urban problem (Bryld, 2002). Better access to paying jobs, more varied diets, better education and better health care have made cities a 'destination of choice.' But when the rural migrant people discover that the housing, jobs, incomes and amenities that had 'pulled' them to the city are not available or are inaccessible and when the authorities are not willing to help them find the 'dream' they aspired for, they have no choice other than to stay in squatters and slums tolerating the poor living environmental problems. In cities of most developing countries, 30 to 75 percent of the population work and live in squatter settlements making a living with the few informal resources that is accessible to them (Srinivas, 2003).

In a globalize economy, with its widening income gaps and escalating land prices, land markets and formal land development processes tend to serve the middle and upper income strata, leaving the poor to obtain land informally, often through illegal occupancy. Few developing countries have succeeded in establishing land markets capable of delivering affordable land – pushing the poor to settle informally on vacant and sometimes dangerous lands at the urban periphery (UNCHS, 2001).

While aggregate figures might suggest economic and social progress and development, it hides the essential dichotomy and disparities between 'rich' and 'poor' that exists in most cities. This disparity or the distribution problem is also one of the important reasons of the increasing poverty level in urban areas. It has been estimated that the richest fifth of the population in developing countries control more than 80 percent of the resources and economic activity in terms of GNP, world trade, commercial lending, domestic savings and domestic investment. On the other hand, the lowest fifth of the population control less than 1.4% of the resources and economic activity (Srinivas. 2003).

2.1.2 Concept and measurement of poverty

Poverty is defined by the Social Security Administration (USA) as the minimum income an individual must have to survive. The poverty line concept is based on the measurable average flows of income or consumption. The poverty line of US $ 1 per day is usually considered the international line for measuring and comparing the incidence of poverty in low and middle-income countries. This poverty line is based on the studies conducted in 1980s in ten low-income countries, including Bangladesh, India, Tanzania and Kenya. The price of a minimum basket of necessities was around US $ 1 per day per person at 1985 purchasing power. Using this measure, 1.2 billion persons (around one quarter of the world's population) are estimated to live below the poverty line (Alberto et al., 2002).

Poverty is also defined in terms of income sufficient to enable a household to purchase a nutritionally adequate diet and other necessities. Based on detailed calculations of the calories and protein needs, the cost of a nutritionally adequate basket of food is calculated. The cost of minimal food requirements, the indigence line, is multiplied with a factor to ensure that other needs can be paid as well (Turkstra). Accordingly, three levels of poverty have been defined in Bangladesh. The poverty line is commonly set at 2112 kcal per day per person. Those who consume between 1801 and 2112 kcal per day per person are classed as the moderately poor and those at or below the lower poverty line of 1800 kcal are demarcated as absolute or hard-core poor. Further more, the population with the intake of 1600 kcal or less is defined as extremely poor in Bangladesh (Rashid, 2000).

In Asia more than half of the urban households are living in a state of poverty and it is estimated that about 600 to 800 million people (14%) of the world population are living below the poverty line which ranges from 1/4 to 1/3 of total urban households of the world (Turkstra; Bryld, 2002; UNCHS, 2001; Amis, 1995). In India, the proportion of the country's people living below the poverty line estimated on the basis of consumer expenditure distribution, has been steadily declining to its 1990 level of approximately 26 percent, over 60 million of whom live in urban areas. In the four largest cities of Delhi, Bombay, Calcutta and Madras, over half of the population is estimated to be below the poverty line (Srinivas, 2003). More than 6 million Colombian (18.8% of the population) have incomes below a commonly accepted subsistence level which is necessary to buy a nutritionally adequate basket of food (UNCHS, 2001). In Indonesia and Mexico, the bottom 20% on the urban income scale constitutes the urban poor (UNCHS, 1994).

The Human Poverty Index of the United Nations (UNDP, 1997) defines poverty from different angles, based on a combination of longevity, literacy and lack of access to public and private resources. Poverty means also social marginalization, the denial of choices and opportunities for a tolerable life (UNDP, 1997). Shiffman (1995) describes five aspects of poverty as fundamental human needs which are as follows-

1. Subsistence, material well-being such as enough food, clothing and decent housing.
2. Protection, access to infrastructure, health services and education, protection against crime and violence.
3. Affection, protection from oppression and exploitation of people.
4. Understanding, denial of access to education, or the ignorance of people.
5. Participation, marginalization, discrimination and lack of self determination.

2.1.3 Growth of Squatter Settlements

A squatter settlement can be defined as a residential area which has developed without legal claims to the land and/or permission from the concerned authorities to build; as a result of their illegal or semi-legal status, infrastructure and services are usually inadequate. It is considered as a residential area in an urban locality inhabited by the very poor who have no access to tenured land of their own, and hence "squat" on vacant land, either private or public.

Rapid growth of urban areas in most developing countries in the last few decades has led to shortfall in many sectors, primarily housing. The problem has been two-fold: on one hand, the majority of the people moving to the urban areas have lacked the necessary asset and financial holdings in order to acquire a "decent" house. On the other hand, the designated government agencies and bodies have not provided sufficient housing units which are affordable for the poor majority in urban areas. The proliferation of slums and squatter settlements has been a result of this scenario (Srinivas, 2003).

For the millions of poor in developing areas of the world, urban areas have always been a means for improving their quality of living and environment, besides getting better jobs and incomes. This, in contrast to deteriorating conditions in the rural areas has generated a considerable flow of migrants to cities, particularly in the last three decades. Priorities of urban migrants change over time, depending on various conditions that they find themselves. But one of the first dilemmas that they face and which persist for a long period is the question of an adequate house. With little resources, financial or otherwise, skills or access to them, the drastic option of illegally occupying a vacant piece of land to build a rudimentary shelter is the only one available to them.

It is difficult to estimate how many among the 1.6 billion urban dwellers in developing countries live in squatter settlements with little or no provision of water, sanitation and other services. It is estimated that nearly 20% of the world population lack adequate shelter and are living in unacceptable conditions of poverty in illegal settlements. (UNCHS, 1996)

2.1.4 Case studies of some of the squatter settlements of South East Asia

Greater Mumbai, India. It is the largest city of India which has grown by four-fold in last four decades and presently stands as the fifth largest urban agglomeration in the world with an estimated population of 15 million in 1995. With the rapid urbanization, however, these cities are also inviting many social and environmental problems due to increasing burden of slum and squatters, deficit and over-straining of existing infrastructures and services, and increasing pollution. In Mumbai, particularly, the ratio and number of urban poor are ever increasing as their share to total city population was merely 12% in 1961, but 51% in 1991. The major living sites of urban poor in Mumbai are slums, squatters, pavements, besides railway tracks, under bridges, marchlands, banks of city drains etc. They are supposed to be the most sufferer of the urban society and major victims of environmental pollution and other epidemics due to stay and major activities in pathogen prone neighbourhood, cramped living condition in shacks and limited access to basic civic services like safe and adequate water supply, sewerage, and drainage, sanitary toilets, solid waste disposal facilities etc. (Karn and Harada)

Colombo, Sri Lanka. Estimates suggest that 25000 households among 614000 (1980) live in the shanty towns (most of which are squatters with no legal tenure) in Colombo city, and

another 25000 in shanties in the wider urban areas. In total, between 50% and 60% of the city's population live in slums and shanties (McAuslan, 1985).

Karachi, Pakistan. Two distinct types of illegal housing developments are evident in the city area, both of which house several hundred thousand people. The first are illegal squats - the illegal occupation of land. A hundred and twenty or more illegal squats exist today, many of which are located on the banks of the water courses or on the other land without much commercial potential. The second type of illegal housing is the illegal subdivisions of government land by private persons. Areas like Baldia, orange within Karachi house several hundreds of thousands of people in this manner (McAuslan, 1985).

Box 2.1: The terms 'squatter settlement' and 'slum'

A common confusion regarding squatter settlements is its relation to the term "slum". There is no general agreement on the definition of the terms 'slum' and 'squatter settlement'. Slum is a catch-all word defining inferior housing and surroundings (UNCHS, 1994). Encyclopedia Britannica defines a slum as "... residential areas that are physically and socially deteriorated and in which satisfactory family life is impossible. Bad housing is a major index of slum conditions. By bad housing is meant dwellings that have inadequate light, air, toilet and bathing facilities; that are in bad repair, dump and improperly heated; that do not afford opportunity for family privacy; that are subject to fire hazard and that overcrowd the land, leaving no space for recreational use.....". *While a slum settlement refers to the condition of a settlement, squatter settlement would refer to the legal position of the settlement.* A squatter settlement indicates the occupation of land without having negotiated its occupancy or paying for it, and the illegal occupation of the marginal and developmental land with a low market value (Turkstra). It is often regarded as temporary in nature.

Some of the local/colloquial names for squatter settlements (often also used for slum settlements) are: (Srinivas, 2003)

Ranchos = Venezuela
Callampas, Campamentos = Chile
Favelas = Brazil
Barriadas = Peru
Villas Misarias = Argentina
Colonias Letarias = Mexico
Barong-Barong = Philippines
Kevettits = Burma
Gecekondu = Turkey
Bastee, Juggi-johmpri = India
Sukumbashi = Nepal

2.1.5 Living Environmental condition of the Squatters

The living environmental condition of the poor urban communities in the cities rank among the most life-threatening and unhealthy living environments that exist (UNCHS, 1994). Their dwellings are unsafe and lack the basic infrastructures and services such as water supply and sanitation, solid waste management, energy and transportation facilities due to insufficient

quantities and unaffordable prices (Turkstra; UDLE, 1992). The residents of these settlements have no security of tenure and are therefore unwilling to improve their dwellings and the area surrounding them.

Most of the squatter settlements are established in the very inappropriate locations such as flood plains or alongside rivers having all time risk of the flood, in dangerous and polluted areas as beside the factory, solid waste disposal sites, on steep and unstable slopes liable to landslides and mudslides etc. There is a great scarcity of the basic services. The sanitary facilities are inadequate. The lack of individual toilet and clean water supplies often results in the consequent health hazards. As stated in UNCHS Habitat II (1996), the lack of adequate basic services, a key component of shelter, exacts a heavy toll on human health, productivity and the quality of life, particularly for people living in poverty.

Unimproved squatter areas are inconvenient and hazardous environments to live in. The dwellings in squatter settlements lack the adequate drainage (both surface drainage and sewerage) which causes flooding, stagnant pool formation in rainy season which, in turn leads to water contamination and spread of water-borne diseases. There is a problem further of proper solid waste management. Since municipal waste collection authorities take no responsibility for the collection and disposal of solid waste from these areas, they are dumped besides the house, alongside roads, into rivers and drainage channels. The presence in the human environment of pathogens is caused by the lack of sewerage systems and services to collect solid waste and this contributes to poor environmental health and higher chances for related diseases living in or nearby such areas (Turkstra). Because the dwellings are built in unplanned and dense manner in squatter settlements, they lack the access ways even for the emergency vehicles which get dusty in dry weather, and muddy and slippery in wet season. Furthermore, these settlements lack the social services tremendously. There is no open space, proper health and education facilities (UDLE, 1992).

The majority of the residents in squatter settlements have very low incomes that force them to live in miserable conditions. The quality of life in these settlements is very poor. Most dwellings are substandard, crowded, inadequately lit and ventilated. The lack of social and physical services makes it even more difficult for the residents to improve their environment. These poor are also supposed to be the most sufferer group of urban society and major victims of all types of environmental pollution and other epidemics due to their stay and major activity in pathogen prone neighbourhood, cramped living condition in shacks and limited access to basic services (Hardoy et.al, 1997).

2.1.6 Poverty and the Environmental linkage

The nexus of poverty and wide spread areas of environmental degradation indicates the probability of causal connection between them (Rashid, 2000). Many environmental problems stem from poverty – often contributing to a downward spiral in which poverty exacerbates environmental degradation and environmental degradation exacerbates poverty (UNDP, 2001). Though studies on the link between the urban poverty and the urban environmental degradation are lacking, UNDP's study on the rural community suggests the close link between the poverty and the environmental degradation which has been examined through high infant mortality, high fertility, high population growth and extensive deforestation for firewood and new farmland as the consequences of poverty. On the other hand, worsening environmental conditions – including depletion of natural resources and the degradation of ecosystems and their services – hit poor people the most. The poor people, forced to overuse environmental resources for their survival, are further impoverished by the degradation of

these resources. Unlike in the North where the pressing environmental problems are ozone depletion and global warming, the South's worst environmental problems are the lack of sanitation, clean water, solid waste management problem which are indeed the consequences of the low economic status. In the developing countries, poverty, inadequate food, ignorance and disease produce greater environmental consequences (Bijlani, 1977). According to Bijlani (1977), between 75 to 90 per cent of the people in developing countries continue to use unsafe drinking water and the cities are often used as waste baskets in which the amount of refuse grows all the time that attracts birds, flies, mosquitoes, rodents, pigs, passing on hazardous germs of illness to man. Housing, clean water supplies, sewerage systems, are closely related with health, and subsequently with poverty; ill health has been the trigger which has pushed the people into destitution (Turkstra). High population densities and pollution levels are distinctive of urban poverty. Poor people tend to suffer the most from air and water pollution. They spend more of their household incomes on energy, yet the services they receive are often of low quality – such as biomass fuels burned in insufficient, polluting stoves, or kerosene lamps that cost more per unit of illumination than lamps powered by an electricity grid. Further more, these people are also most vulnerable to environmental shocks and stresses, including floods, prolonged droughts (UNDP, 2001).

2.2 Suggested Recommendations for Combating Urban Poverty and Improving the Living Environment of the Growing Squatter Settlements

Different recommendations have been suggested by a large number of authors on reducing the urban poverty, squatter settlements and improving the living environmental condition of the poor people.

Regarding poverty reduction, UNCHS (2001) states that relative equality in assets and relative stability of the economic growth path has significant effects on poverty reduction of the urban areas. In this regard a fair and predictable legal system and the ability to dampen short term shocks with targeted assistance programmes will have positive long-term consequences. Strengthening institutions, norms and values, and building the social capital generated by reciprocity is also important in reducing poverty. Similar thought has been reflected in the survey report prepared by Lalitpur Sub-Metropolitan City Office (1999) which emphasizes on the need of simultaneous effort on reducing poverty and the inequality without which the poverty reduction programmes will not attain success. According to World Bank (1996), the policy programme options for urban reduction recognizes that actions should be taken on the macro-economic level (central government), micro-level (community groups) and the meso-level (municipality) for the efficient delivery of services and appropriate urban planning. Balancing the developmental efforts in the country through decentralization, thereby managing the flow of rural people to the urban land, is the best measure to curve the urban poverty in Nepal (Bryld, 2002).

Regarding the adequate and the proper shelter problem in the urban areas (which brings forth the high growth of squatter settlements), many authors has the similar voice. UNCHS (1994) states:

"Shelter policies cannot solve the issue of mass poverty in urban areas in the developing countries. It can, however, have an important positive impact if rightly conceived and implemented together with the poor themselves".

Poor people are the best people to find solutions to their housing problems (Joshi et al., 2002). So their participation is required in every phase of planning in squatter upgrading

programmes. According to McAuslan (1985), site-and-service and squatter upgrading programmes are preferable to massive public housing scheme and the squatter upgrading programme should emphasis on:

- 'bottom up' or community based administration;
- discovering what facilities the communities want, in what order of priority, and where;
- allocating some funds for spending directly by the community. The possible waste or misallocation of funds will be a lot less than that involved in public housing schemes, which never pay their way.
- helping to build up community based institutions for essential self management roles.

'Sites-and-services' is another scheme for developing proper shelter for poor which has been practiced in many countries like South America, Africa. There are two distinct processes involved in the formation of a settlement. One is the organic and induced processes. The organic process refers to the forces and pressures which are initiated from within the settlement and squatters. They evolve naturally, without any outside intervention and using internal resources of the family or settlement for development, such as labour, locally available materials etc. The induced process refers to the "inducement" set up by agencies and organizations which are external to the settlement. Operating with objectives and goals on a larger, city-wide scale, they initiate programmes and projects for the overall development of the settlement. Both these put together act on the growth of a squatter settlement, through a series of consolidative stages of development. These stages are conclusive in their outcome, in the sense that they represent a continuum with one stage or process overlapping and even running parallel to each other (Srinivas, 2003).

Squatter upgrading programmes or Sites-and services programmes that only improve housing are not enough; they must also work at eliminating poverty (UDLE, 1992). And they must also improve the living environmental condition of the poor, providing adequate and affordable basic infrastructures and services. To safeguard the health, safety, welfare and improved living environment of all people and to provide adequate and affordable basic infrastructures and services, UNCHS (1996) has recommended the government at the appropriate levels, including local authorities, to take the actions regarding adequate supply of safe drinking water, adequate sanitation and environmentally sound waste management, provision of social services for the underserved groups, well planning to reduce the negative impact on forest and other biological resources, planning for the sustainable human settlement etc.

2.3 Conceptual Framework

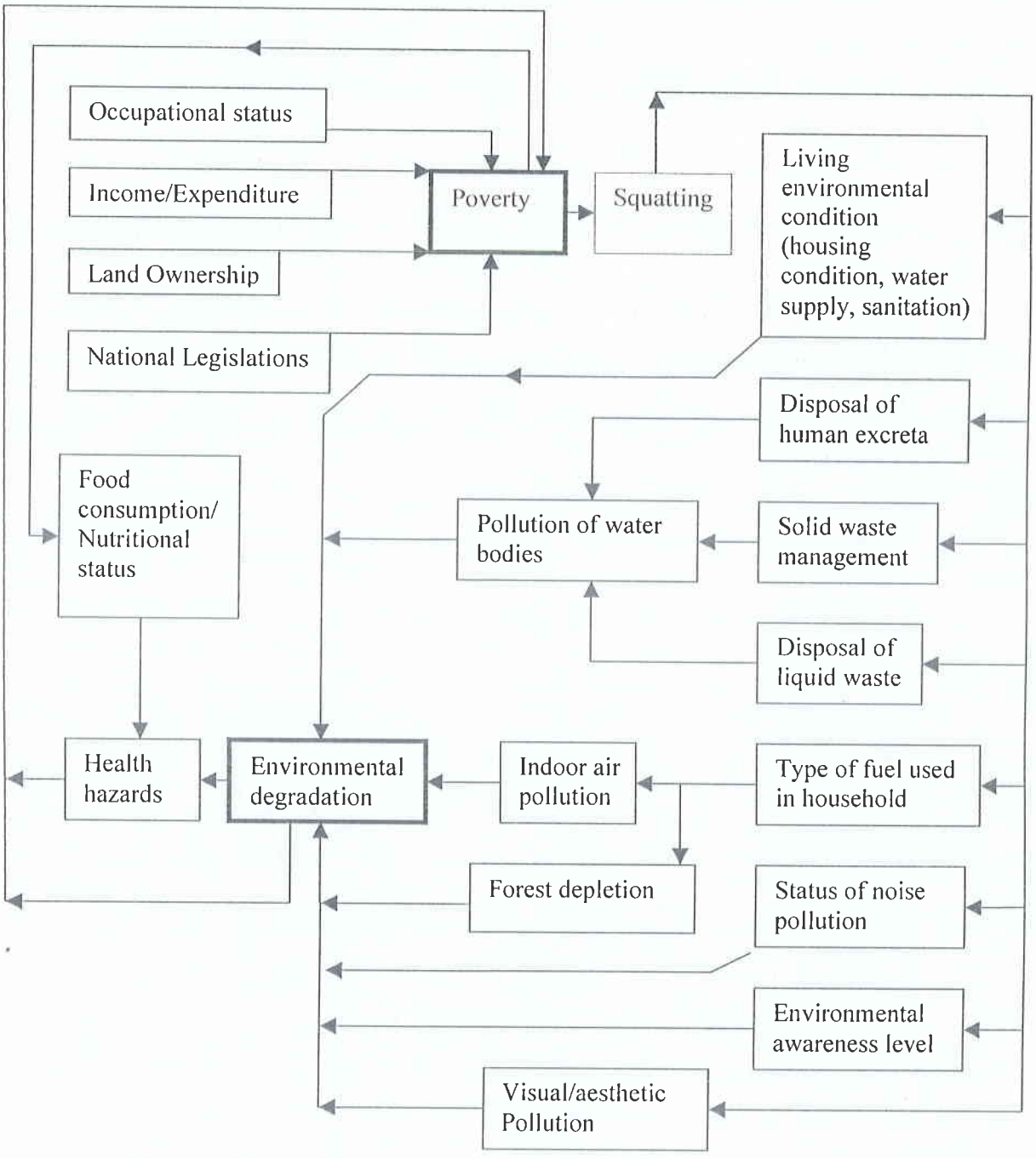


Fig 2.1: Conceptual Framework of the Research

2.5 Operational definition of terms

1. Absolute poverty –"a degree below which the minimal requirements for survival are not being met" (Sekki et al., 2002).

2. Environment – "all external conditions and factors, living and non-living (chemical and energy), that affect an organism or other specified system during its lifetime" (Miller, 1994).

3. Environmental degradation – "depletion or destruction of a potentially renewable resource such as soil, grassland, forest, or wildlife by using it at a faster rate than it is naturally replenished" (Miller, 1994).

4. Household – "A family or a family and the other persons not related to family members by blood living together and sharing one kitchen with the family. Others may include servants, friends, guests etc" (Thapa, 2004).

5. Poverty –"a multidimensional phenomenon, encompassing elements of human dignity in terms of income level (or income proxies, such as expenditure, calorie intake) and some crucial non-income characteristics such as access to resources, food security, human resources capabilities, initiative horizon, crisis coping capabilities, and income erosion vulnerabilities" (Rashid, 2000).

6. Slum – "residential areas that are physically and socially deteriorated and in which satisfactory family life is impossible" (Encyclopedia Britannica).

7. Squatters – "person who inhabits in unoccupied premises without permission" (Lumanti, 2002).

8. Squatter settlement – "indicates the occupation of land without having negotiated its occupancy or paying for it, and the illegal occupation of the marginal and developmental land with a low market value (Turkstra).

9. Squatting – "a typical urban phenomenon whereby the poor working class creates a form of temporary housing on the unauthorized land or building" (MOPE/IUCN, 1999).

Chapter III

URBAN POVERTY AND SQUATTER SETTLEMENT GROWTH IN NEPAL

3.1 Urbanization in Nepal

Nepal remains largely a rural kingdom; however, this is set to change due to the rate of urban growth which is said to be the highest among the South East Asian countries (Lumanti, 2002). Today, 14.2% of the total population of the nation lives in urban areas (CBS, 2001b). However, the urban population is expanding at an average annual rate of 6.65% as against the average national growth rate of 2.24% (CBS, 2001a). In 1981, there were only 23 municipalities which accommodated 6% of the total national population. Within a span of ten years thirteen additional municipalities were formed to reach total number of 36. In 1997, 22 additional municipalities were established further to reach a total number of 58 municipalities with 14% of the total population of the country (Karki, 1999). If this trend continues, half of the population of Nepal is estimated to be living in urban areas by the year 2035 with urban poor population of about 30% as in the rest of Asia, reaching the poor population of 15 million (Bryld, 2002). These projections are made with the uncertainty of the future development of the country, but the tendency is clear: urbanization is increasing rapidly, and so is the number of urban poor.

3.2 Present urban poverty situation

With the rapid urbanization, population growth and the increased rural-urban migration, poverty is becoming the increasing problem in urban areas of Nepal. The pressure has further been aggravated by the Maoist Insurgency since the beginning of the People's war in 1996, which has forced the poor rural people to move to the cities and live the life under poverty situation (Lumanti, 2002).

According to Joshi (1991), more than 28 % of the urban households were below the absolute poverty line. However, the Ninth Five-Year Plan of HMGN delineates 23 % of the urban population to be living under the poverty line, among which 13.2 % is identified as the poor and 9.8 %, as the ultra-poor (NPC, 1998) (See table 3.1 below). The same study has found the rural poverty percent to be 44 % and the percentage of total poor population to be 42 %. In Nepal, while estimating the size of people living below the poverty line, per capita consumption level has been treated as the criterion; more precisely, the calorie intake received from food has been used as the yardstick to measure poverty. The Nepal Living Standard Survey has determined a per capita annual income of Rs. 4,404 to obtain the minimum requirement of 2124 calorie per capita per day for which the per capita annual expense to purchase that calorie equivalent of food is worked out to be Rs. 2637 in general Nepali context (NPCS,1996; NPC, 1998). The same survey revealed the per capita consumption expenditure per annum in the country to be Rs. 6178. On this basis, it is evident that a family of 6 persons requires at least 2,202 per month or Rs. 367 per person per month (Rs. 12 per day) to be non-considered as a poor (PADCO, 2002).

Table 3.1: Population under the poverty line in Nepal

Region-wise Description	Population below the poverty line (in percent)		
	Total	Poor	Ultra-poor
Urban area	23	13.2	9.8
Rural area	44	26.4	17.6

National Average	42	24.9	17.1

Source: NPC, 1998

3.3 The Rise of Squatter Settlements

Squatting is a typical urban phenomenon whereby the poor working class creates a form of temporary housing on the unauthorized land or building (MOPE/IUCN, 1999). Due to unaffordable income to buy or rent house, squatters choose the most neglected land to build their shelter, such as riverbanks, public land, and open space. Many times, a strong political backing is provided to start up squatter settlements and ensure their continual existence (KMC/WB, 2001).

3.3.1 Rise of Squatter Settlements in Kathmandu

The squatter settlements in Kathmandu Valley first appeared in the 1950s when the rural migrants began moving into the city, mainly in search of employment (Lumanti, 2002). Kumarigal is the oldest squatter settlement established 45 years back (MOPE/IUCN, 1999). In 1985, there were 17 squatter settlements in Kathmandu Valley with a population of about 3000. The number of squatter settlements rose to 33 in 1994 with the estimated population of 15,000. The average annual growth rate of the squatters in the valley was 75 % at that time (Thapa, 1994). In contrary to Thapa's estimate on the annual growth rate of squatters in the Kathmandu Valley as 75 %, the present annual growth rate of the squatters has been determined to be 12 to 13 %, which is still alarming figure in itself (KMC/WB, 2001). At present there are 64 squatter settlements with an estimated inhabitants' population of 14500 (Lumanti, 2003) (See Table 3.2 and Fig. 3.1 below). However, the estimated number of the squatters in the valley including those living in public buildings and land was already 19,770 in 2001 (KMC/WB, 2001). In ten years the number of squatters has almost tripled, but it represents only 2.9 % of the total urban population of Kathmandu.

Table 3.2: Growth of Squatter Settlements in Kathmandu from 1985 to 2000

Year	Number of Settlements	Number of households	Squatter Population
1985	17	NA	2134
1988	24	348	3665
1990	19	859	4295
1992	33	1271	6355
1996	47	1783	8927
1998	49	2021	10323
2000	61	2031	11862
2003 *	64	NA	14500

Sources: KMC/WB, 2001; Lumanti, 2002; Lumanti, 2003 (*)

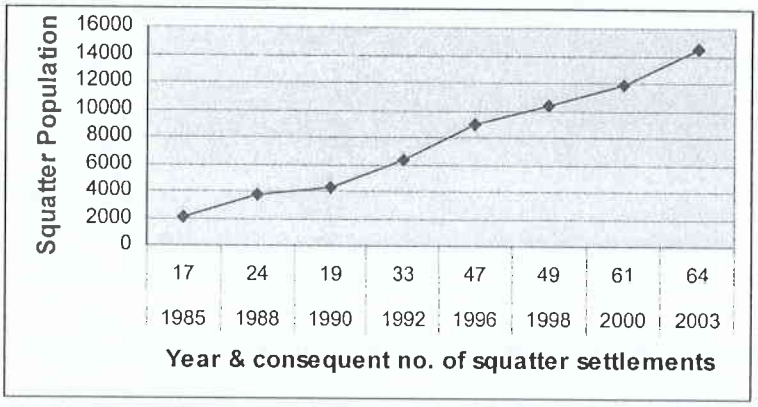


Fig 3.1: Growth of Squatters and Squatter Settlements from 1985 to 2003

3.3.1.1 Living Environmental Condition of the Squatter Settlements in Kathmandu

The housing condition of majority of the squatter settlements is very poor. More than 80 % of the houses in the squatter settlements are owned by dwellers and only 12 % are rented out. The building structures are normally temporary made of bamboos and mud walls, plastic and thatch roofs in newly emerged settlements. In terms of services, all households have access to some form of water supply whether they are sources from Water Supply Corporation, community stand posts, bore or tube wells or community storage tanks. However, the quality of water of drinking purpose is questionable. The level of water services available to the households is related to the age of the settlements. The level of services in the older houses is comparatively higher. Less than 25 % of them have safe sanitation provisions, except for few where voluntary groups or NGOs have launched awareness programmes. More than 75 % of the squatter households rely on poor community toilets, poorly built pit latrines or open defecation (KMC/WB, 2001). Survey of the settlements by Trondheim students in 1988 revealed that 54% of the squatter settlements were located in urban areas and 46% of the settlements on riverbanks. Sixty-six percent of the housing units had permanent to semi-permanent structures. Fifty-two percent of the settlements were without tap water, 63% of the housing units did not have electricity and 66% were without toilets. On average, 90 people shared a single latrine. Similarly, 60% of the squatter households disposed off garbage near rivers. They were equally susceptible to high risk of water borne diseases. (Cited from MOPE/IUCN, 1999).

3.3.2 Rise of Squatter Settlements in Dharan

Dharan Municipality is one of the fastest growing towns of Nepal. Situated in Sunsari district in eastern development region of Nepal, it was declared municipality in 2017 B.S. For a long time Dharan has been a place of attraction for many people as it is a foothill town and the weather and the environment are good enough. The pace of urban growth has fostered again after the establishment of B.P. Koirala Institute of Health Sciences in Dharan which had once stopped after the construction of Dharan-Dhankuta road. Expansion of infrastructures, services and flourishing business has dragged the people towards Dharan. Today Dharan municipality inhabits 20,428 households with the total population of 95,332 (CBS, 2001b). With the pace of urbanization in Dharan, the population of the people living in squatter settlements is also in rising trend.

The squatters have been occupying the land of Dharan for a long time. Even before the establishment of B.P Koirala Institute of Health Sciences, there were few hundreds of squatter

families living informally in Dharan, but it was not considered as a big problem to be tackled with. The establishment of the health institute in 1997 brought a considerable increase in squatter households. The growth rate of the squatter families before 1997 was 50 to 100 families every year which rose to the rate of 300 to 400 families per year after 1997 (Agrawal, 2002). From the interview with the squatter leaders and the staff of DACAW, it is found that there are about 20 squatter settlements in Dharan municipality (See Annex B). Most of the settlements reside in the flood plain areas of Khhare Khola and Sardu river and some in the sloppy hills and forest areas. The squatters are found to have migrated from the hills for employment and for getting rid of the hardships. The squatters inhabiting the river banks live by crushing stones and/or working in informal sectors; whereas those inhabiting near the forest areas live by cutting trees and selling woods in the market (Agrawal, 2002).

3.3.3 Squatter settlements of other parts of Nepal

Till to date, almost all the studies on the squatter settlements have been focused in Kathmandu Valley. This has, therefore, limited the possibility of knowing about the condition of poverty and the growth rate of squatter settlements in other urban parts of the country.

However, the study conducted by Dhungana in 1992 on the basic services in Pokhara municipality has highlighted the growing trend of the squatter settlements in Pokhara as well, which is supposed to be a result of increasing commercialism accompanied by high cost of living. The increase in squatter settlements was found in open and public spaces, most commonly in Rato Pahiro, Gharikulo and Naya Bazaar.

Chapter IV

MATERIALS AND METHODS

4.1 Study Area

For the study of urban poverty situation and its environmental implications, the squatter settlements of the two large urban areas of Nepal - Kathmandu and Dharan - were selected considering the rapid pace of urbanization and urban poverty in these cities. Kathmandu, the capital city of Nepal, lies in the Central Development Region in Bagmati Zone and Dharan lies in Eastern Development Region in Koshi Zone, Sunsari District. With the fast pace of urbanization, both these cities are facing rapid growth of population and growth of squatter settlements as well. Of the total population of 671846, about 14500 people cover the population of squatters alone (CBS, 2001b; Lumanti, 2003). Likewise, the population of Dharan municipality has been established at 95332 with the total household number of 20428 (CBS, 2001b). The exact figure of the squatters has not been determined for Dharan yet.

Three squatter settlements were selected from Kathmandu and one squatter settlement from Dharan for the study. The main selection criterion was the poor living environmental condition of the settlements. Following are the names of the study areas (See Maps 1 and 2):

From Kathmandu:

a) Jagritinagar Squatter Settlement, Sinamangal
b) Shantinagar Squatter Settlement, Shantinagar
c) Pathivara Squatter Settlement, Kapan-Chabahil

From Dharan:

a) Amar Basti, Amarhat (Zero-Point).

Jagritinagar and Shantinagar squatter settlements are situated in Sinamangal and Shantinagar respectively in Kathmandu. These two settlements are separated only by a bridge and they are very near from Baneshwor and Tribhuwan International Airport. Pathivara is the biggest squatter settlement among the sixty-four squatter settlements of Kathmandu which consists of 174 households. It is situated in Kapan VDC, and is at close proximity to Chabahil. All the three squatter settlements reside in the flood plain area, along riverside.

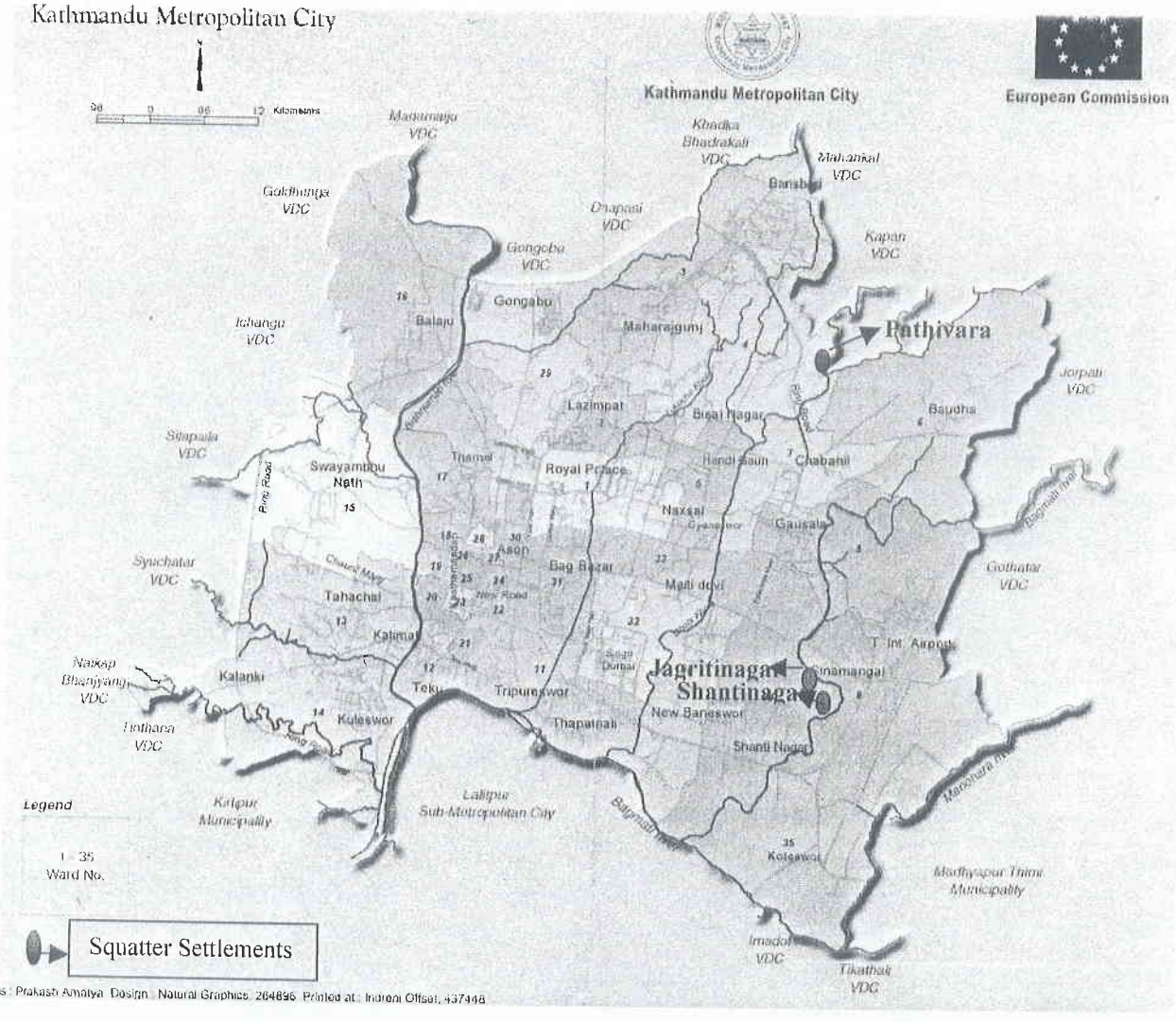
As for Dharan municipality, only one squatter settlement was visited due to time constraint. Amar Basti, situated at Zero Point in Dharan was selected for the study as being the newly established settlement of Dharan.

4.2 Sample unit and the variables of study

The study was conducted on the following selected variables:

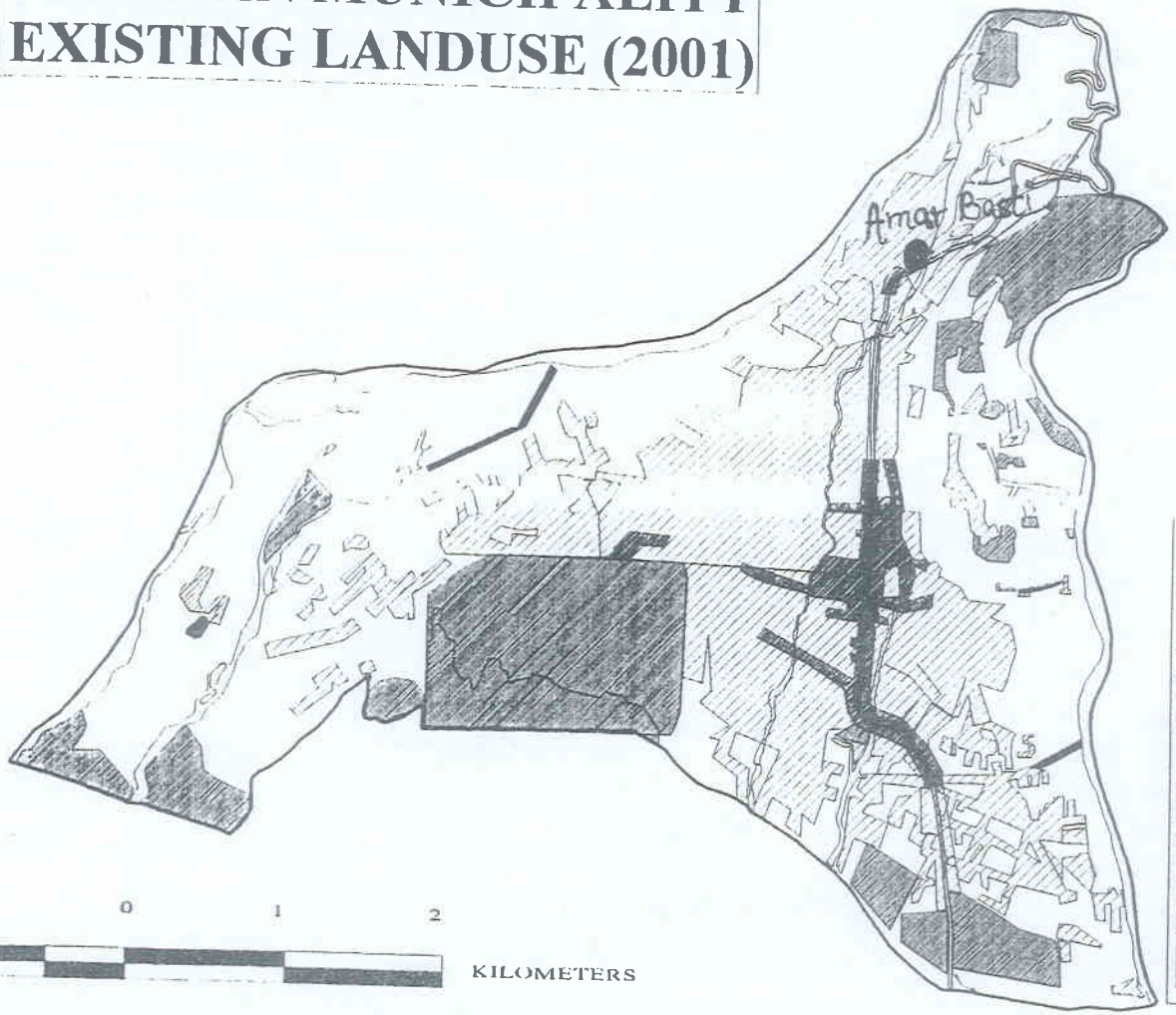
Demographic feature-

- Population by sex
- Migration
- Ethnicity and Religion
- Educational Status



Map 1: Three Studied Squatter Settlements of Kathmandu

DHARAN MUNICIPALITY
EXISTING LANDUSE (2001)



N

LEGENDS

- MUNICIPAL BOUNDARY
- HIGHWAY
- CITY ROADS
- RIVER
- BUILT-UP AREA
- COMMERCIAL AREA
- FOREST
- INSTITUTIONAL AREA
- INDUSTRIAL AREA
- SLUM AREA

1 0 1 2

KILOMETERS

SOURCE: TOPOMAP AND AERIAL PHOTO, 1995, FIELD SURVEY, 2001

Economic condition-

- Occupational status
- Income and Expenditure
- Land ownership
- Food consumption

Living environmental condition-

- Housing condition (damp, ventilation, room number and size, population density etc.)
- Water supply (piped or public or ground water; per capita water consumption; water quality)
- Sanitation (latrines, drainage, solid waste management, sewerage etc.)

Environmental Issues-

- Disposal of human excreta
- Solid waste management
- Disposal of liquid waste
- Pollution of river
- Type of fuel used in household works
- Indoor and Outdoor pollution
- Depletion of natural resources
- Environmental status of immediate neighbourhood
- Environmental awareness level

Health Status-

- Types of diseases and disease occurrence rate in each household in last one year

Institutional Performance

- Roles of CBOs, NGOs, local government and central government in upgrading the condition of urban poor.

Legislative Barriers

- Review of national and international legislations dealing with urban poverty and their environment.

In this research the sampling was done entirely in household level. The respondents were mostly male or female head of the household. But when the head of the family was unavailable, the children above the age 12 (those who could understand the questions and reply) were interviewed.

4.3 Sampling and Sample size

For the better quality data generation, it was at first planned to conduct study in 100 % of the households in each squatter settlement. But because of the absence of respondents in some households during survey, the study had to be confined to 74 % of the households in Jagritinagar, 78 % in Shantinagar and 82 % in Amarbasti. Since the settlement was too large in Pathivara and the time was limited, only 44 % of the total 174 households were surveyed in Pathivara using random sampling method. Thus, the total household surveyed for the research was adjusted at 218 (See table 4.1 below).

Table 4.1: Details on Study Area and Sample Size

S.N.	Squatter Settlements	Settlement (Estimated)		Sample Size		Percentage of Sample
		Household	Population	Household	Population	
1	Jagritinagar	108	443	75	306	69%
2	Shantinagar	50	235	39	184	78%
3	Pathivara	174	748	77	343	44%
4	Amar Basti	33	158	27	129	82%
	TOTAL	**365**	**1584**	**218**	**962**	**68% (Avg.)**

4.4 Data Collection

Both primary and secondary data were collected. The relevant secondary data were obtained from different related governmental, local and private organizations such as, Lumanti, SPOSH, Kathmandu Municipality etc. For the collection of the primary data, different tools mentioned below were employed.

a) Observation
b) Interview
c) Questionnaire Survey
d) Laboratory Test

Observation method

This method was employed during the field visit to obtain the information on the poverty level, living environmental situation, sanitation status, squatters' behaviour, attitude and practices regarding cleanliness and environmental protection. The direct observation of the housing condition, for instance, was helpful in judging the level of poverty and sanitation status. This method was also used to cross check and ensure validity and reliability of the information gathered from the respondents through questionnaire and interviews.

Interview method

For the collection of the data from concerned authorities, local agencies, wards, governmental and non-governmental organizations etc, this method was followed. Number of personal interviews was conducted with the concerned authorities. Interview with the key informants of the squatter settlement was also performed to gather information relevant to the research objective. Checklists were used for interviews.

Questionnaire Survey

This was the main tool for data collection in this research. For this, a schedule of questions covering all the aspects of the study was prepared in advance to the field visit, with the consultation and guidance from the advisor. A common scheduled questionnaire was prepared for all the sample households of the selected squatter settlements which could provide full information on the various parameters identified for the research. 220 photocopies of the questionnaire were prepared before the field visits. Each of them were filled by the researcher and her assistant surveyors during survey according to the response obtained from the respondents regarding each question designed in the scheduled questionnaire.

Laboratory Test

Few lab experiments were also conducted to check the quality of water procured from different sources. From each of the three squatter settlements in Kathmandu, 2-2 samples of water were taken for lab test among which one was procured directly from the source and the other was stored water present at home. The lab test of the water was supposed to check fecal contamination and the count of fecal coliforms in the water. These parameters were selected to check the sanitation status and the possible health hazards from water to the squatters.

4.5 Data Processing

Excel was used for data processing. All the collected data were entered into the computer program and processed using excel to obtain an output.

4.6 Data Analysis and Interpretation

Simple statistics tools like 'sum', 'average', 'percentage' were used in excel to analyze the data. The data were tabulated and were represented in figures, wherever necessary. Cross tabulation were also done for some parameters like income and household size, source of water and time required for procuring water. The data were analyzed based on the tabulated information and figures and finally, it was produced in form of a report.

Table 4.2: Research Strategy

OBJECTIVES/ ISSUES	INFORMATION NEEDED	PRIMARY INFORMATION	SECONDARY INFORMATION	TOOLS/ METHODS
1. To identify the people under absolute poverty in squatter communities, and to explore the causes behind their poverty and their stay in squatter settlements.	Standard poverty measurement tool, income, expenditure. Factors that are responsible for their poverty and their stay in squatter settlement.	Squatters, Field workers of Lumanti	Nepal Living Environmental Survey Report, 1996; Ninth Five Year Plan; Bulletins of City Care and Hamro Bhanai	Field visit, Observation, Scheduled questionnaire, Interviews with key persons and the Lumanti staffs.
2. To study their living environmental condition	Toilet facility, water supply, sewerage, surface drainage, solid waste management, housing condition (ventilation, furnishing, crowd, muddy etc), electricity, health, education, environmental awareness level.	Squatters	Different bulletins of City Care and Hamro Bhanai, UNCHS Report, Environment and Management (different editions).	Field visit, Observation, Questionnaire, Group discussion.
3. To find the extent to which the poor in squatter communities are vulnerable to the environmental hazards, and to find different ways by which their poverty has contributed to the environmental degradation.	Condition of basic infrastructures and their daily activities; river water pollution, water quality and quantity, indoor and outdoor air pollution, noise pollution, solid waste management, health hazards (incidence of water borne & air borne diseases), natural resources degradation (forest), vulnerability of shelter condition to natural hazards	Squatters, Field workers of Lumanti.	Environment &Management (different editions), UNDP's report, UNCHS bulletin, Websites Journals Books Thesis paper	Field visit, Scheduled questionnaire, Observation, Interviews.
4. To identify the legislative and policy barriers in enhancing the physical, social, economic and environmental status of the squatter communities	Provisions in related national legislations (Land Reform Act, Environment Protection Act, Local Self Governance Act, Housing Policy etc) and International legal provisions	Head of the squatter settlements, Society for Preservation of Shelters and Habitation in Nepal (SPOSH), Lumanti.	Constitution, Land Reform Act, Town Development Act, Environment Protection Act, Local Self Governance Act, National Shelter Policy, International conventions.	Literature Review, Interviews
5. To assess the role of different institutions in enhancing the quality of life of squatter settlements.	Existing works and Performance of CBOs (SPOSH, NWUS), NGOs (Lumanti etc.), Local government (KMC, Dharan Municipality) and Central Government.	Squatter, SPOSH, KMC Ofice, Ward Office, Department of Housing and Physical Development, Ministry of Land Reform, Lumanti,	City Diagnostic Report, Different bulletins of City Care and Hamro Bhanai, Newspaper, Journals.	Checklist interview with authorities, Interview with key persons of squatter communities, Literature Review

Chapter V

ANALYSIS OF THE LEGISLATIONS RELATING TO URBAN POOR/ SQUATTERS AND THEIR ENVIRONMENT

The laws and policies relating to physical, social, economic and environmental status of the urban poor/ squatters can be discussed in two broad levels - National and International. In context of Nepal, no policy or act is indicative to these issues of urban poor and tremendous need of such concrete laws has been felt. In International arena, Nepal has already ratified four International conventions that advocates on the right of the urban poor to adequate housing and safe environment.

In the following two sections, the international and national laws and policies on urban poor are reviewed and the legislative barriers for the improvement of the physical, social, economic and environmental status of the squatter communities are assessed.

5.1 National Legal Framework

Till to date, no concrete law or policy has been developed to address different socio-economic, physical and environmental concerns of the urban poor. The domestic laws have not yet recognized the poor people's right to adequate housing; their rights to health, security, clean environment and livelihood.

Even with this backdrop, some of the important laws and policies have been reviewed in context of housing, security of tenure, and right to clean environment.

5.1.1 Review and Assessment of Legal Provisions

"All citizens of Nepal are equal before the law and they have equal right to use and enjoy the public places and goods, irrespective of their caste, religion, sex, tribe, race or ideological conviction". Article 11 of the *Constitution of the Kingdom of Nepal* has established this right to equality and moreover, the sub-article 3 of article 11 has even provided special provision for the protection and advancement of the economically, socially and educationally backward people. The Art 11(3) of the constitution states:

> *The state shall not discriminate citizen among citizens on ground of religion, race, sex, caste, tribe or ideological conviction or any of these: provided that special provision may be made by law for the protection and advancement of the interest of women, children, the aged or those who are physically or mentally incapacitated or those who belong to a class which is economically, socially or educationally backward (HMG, 1992).*

However, the right of the poor to equally enjoy the urban infrastructures and services has been violated. The local government, municipality for instance, has treated the squatters as the third grade citizens by establishing inaccessibility for these poor to basic urban amenities like water supply, electricity, public toilet etc. Section 96 of *Local Self Governance Act (LSGA), 1999* has clearly mentioned the functions, duties and power of municipality and accordingly, *"to arrange for or cause to be arranged for public toilets, sanitation and public health programs, electricity, health posts, scholarship schemes for the children of oppressed and backward community in municipality area are some of the responsibilities of municipality" (HMG, 2000).* The municipality's act of committing discrimination on the basis of legality to land is

unlawful. All people – whether formal or informal settlers – possess the right to adequate housing, and it has been guaranteed by all the four major international conventions ratified and adopted by Nepal (discussed below in part 5.2). Section 96 g(3) of LSGA, 1999 has further guided municipality to maintain inventory of population, houses, and land within the municipality area, and section 93(a) has directed the ward to assist municipality in keeping inventory. Against the prescribed duties, municipality and ward have not been able to keep the inventory of all squatter settlements. There are some squatter settlements like Jagritinagar and Shantinagar whose names have not even been registered in ward office despite having such provision in LSGA.

Town can't be developed fully unless and until the poor section of the society are brought into the mainstream of development and their interests are also taken care of. *Town Development Act, 1988* was endorsed in the context of increasing population and urbanization, to make necessary provisions for providing basic services and facilities to the people of the town by rebuilding, expanding and developing the already existing towns or building new ones, and to maintain health, comfort and economic interests of the public (HMG, 1997). This act has provisions like town planning according to land use, physical development of the land use area, environmental conservation of town etc. But the act has missed to address the up-gradation of the physical structure and environment of the squatter settlement. Can any town with thousands of people living in squatter settlement in unplanned and dreadful situation be ever called a planned town? The act is also mum about the compensatory measure which should be provided to the poor/squatter when the town development activities are conducted in the cost of eviction of those people from their existing shelters.

All citizens have a right to live in a clean and healthy environment. The Supreme Court decision in PIL of *Surya Prasad Dhungel vs. Godawari Marble P. Ltd.* has described the right to personal liberty (Art. 12 (1) of the Constitution of the Kingdom of Nepal, 1992) as the right to clean and healthy environment. On this basis, it can be said without any ambiguity that the poor also possess equal right to live in healthy environment. But in reality, poor are found to be more vulnerable to all kinds of environmental hazards. The pollution of the city is affecting poor, particularly squatters the most. In this regard, a provision in *Environment Protection Act (EPA), 1997* is appropriate for the review. Section 17 (1) of EPA, 1997 states:

> *In case, in consequence of the creation or disposal of pollution, sound, heat or wastes by anybody contrary to this Act or Rules, any person or organization happens to suffer any loss or damage, the person or organization affected from such actions may, if he desires to, have compensation recovered from the person or institution or proponent doing such act, make an application to the prescribed authority setting out the details thereof (MOPE, 2001: 9).*

This provision has set some possibilities for the vulnerable poor to receive compensation against environmental hazards. But how far this provision has provided environmental justice to these vulnerable people is another aspect of the story.

5.1.2 Review and Assessment of National Policies

National Shelter Policy, 1996 was the first effort of its kind in Nepal to address shelter concerns. With the aim of providing shelter for people of all income groups, this policy was designed to help identify the right course of action in relation to housing programmes in short term (until 2000), mid term (until 2006) and long term basis (Lumanti, 2002). Despite realizing that the fulfillment of the shelter needs has become a complicated problem

especially for families with limited and low income, and despite recognizing the inequality in distribution of facilities and the essential need for a policy to provide shelter to the underprivileged, the shelter policy does not specifically refer to squatters. The policy has defined underprivileged as:

> *The underprivileged class includes the resourceless, landless and helpless individuals or families such as agriculture workers, bonded labours, ploughmen, disabled, dependent people, delinquent, sick people, women, lepers, certain professional group of people and aged people.*

However, the nature of the policy is indicative to squatters and many of the recommendations and action plans can be dealt to accommodate and address squatters' issues such as, upgrading unplanned settlement, upgrading infrastructures in urban areas, promoting shelter finance, formulating regulations for land use and improving land information system.

The review of policies related to squatters will be incomplete without the review of the policies of Squatters' Problem Solving Commission (SPSC). Though this commission is no more in existence and an ad hoc body called Squatter Problem Solving Committee has been placed in its place, the aim of both the bodies is similar which is "to solve the problems of landless squatters by distributing or selling land in low cost and incapacitating the squatters". The *Code of Conduct on the rights and duties of SPSC, 2056 (amended) and the Working procedure of the SPSC, 2057* have set following provisions for dealing with the squatters' issues:

- Distribute freely or sell land in affordable cost to squatters. The land under the distribution shouldn't cover public land, forest land, land with road and any land inside Kathmandu valley.
- Keep the inventory of both the squatters who have and haven't received the land.
- If more than 5 Bigha of land is to be distributed or sold among many squatters in same place, consideration will be given to the development of the physical infrastructures and services like road, toilet, and school in the area.
- Conduct skill development programmes for squatters with the coordination of other bodies of HMG to improve their livelihood, increase income and reduce poverty.
- Provide compensation (land or money) to the evicted squatters if in case the commission had promised them to give compensation previously.

Despite having the important provisions like land distribution/sell, skill development activities etc, policies of SPSC are still incomplete. They have not mentioned anything about upgrading the physical situation of squatter settlement, security of tenure in its existing place and the proactive measures in protecting the squatters against forceful eviction, which are also the major problems faced by the squatters. From the experience of the past, it has been found that the genuine squatters have not been able to benefit from the provision of land distribution because in most of the cases the false squatters have received the government distributed land due to the political interference.

The *Tenth Five Year Plan (2002-2007)* has also developed some plans on the improvement of the environment of the squatter settlements. Under the chapter 'Shelter, Building and Town Development', a clear goal has been mentioned for the environmental management of any five squatter settlements within the time period of tenth plan (NPC, 2059). But no clarification has been provided regarding where, when and how the government is going to enact to reach

this goal. Furthermore, the tenth plan has ensured to start a project on developing plans and policies for the management of squatter settlements of Kathmandu with the coordination of all concerned authorities. Again, it is very unclear whom these concerned authorities are, and how and when this project is going to start.

City Diagnostic Report for the City Development Strategy, developed by KMC in January 2001, is apparently the first government report to formulate strategies mentioning the problems of squatters and slums. For the first time, the members of the squatter and slum communities were involved in developing the strategy for improvements in their living conditions, and for providing security of tenure. Following are the strategies developed to address the squatter issues (KMC/WB, 2001):

- making inventory of existing slums and squatter settlements with population;
- provision of minimum basic physical services like water supply, electricity, toilets and safe waste disposal;
- classification of squatter settlements based on location, extent of development and safety;
- provision of tenure security;
- identification of settlements that need relocation based on development pressures and environmental hazards;
- low cost alternatives affordable to squatters such as standard communal facilities (shared toilets, community taps and wash areas);
- prepare alternative plans such as land sharing in commercially viable sites.

This strategy seems quite attractive; but it will be worthless if actors involved in its implementation (KMC, NGOs, CBOs, social workers, squatters) don't act accordingly. For now it can only be hoped that the strategy will be implemented with all efforts and it will open up a new way for further developing concrete laws and policies on squatters, and urban poor as a whole.

5.2 Review and Assessment of the International Legal Obligations

Adequate standard of living is a fundamental human right of every person. For achieving this, the first component to be considered is the right to adequate housing. The right to adequate housing is closely and intrinsically linked to other rights guaranteed by the human rights instruments such as right to public good and services, right to health, safe environment, security etc. The right to housing has been inscribed in a number of international covenants and treaties. Article 25 (1) of the *United Nations Declaration on Human Rights (UNHR)* was the first to mention this right as a basic human right. It states:

> *Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control (HMGN, 1978).*

Nepal is a party to the following four international conventions. These conventions also advocate on the rights of every person to adequate housing, safe environment, health, physical safety etc. These obligatory international legal instruments include:

1. *The International Covenant on Economic, Social and Cultural Rights (ICESCR)* - This Convention was adopted in UN Conference in 3 January 1976 and Nepal ratified it in 1991.

2. *The Convention on the Elimination of All forms of Racial Discrimination (CERD)* – Adopted by the UN conference in 4 January 1969, this convention was ratified by Nepal in 1994.
3. *The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW)* –
   UN Conference adopted it in 3 September 1979 and Nepal ratified it in 1991.
4. *The Convention on the Rights of the Child (CRC)* –
   This Convention was adopted in UN Conference in 1989 and Nepal ratified it in 1991.

The UN Committee on Economic, Social, and Cultural Rights adopted a General Comment No. 4, entitled "The right to adequate housing" on 12 December 1991, which provided the most authoritative legal interpretation of housing rights yet under international law. It set out the minimum core obligations of the right contained in Article 11 (1) of the ICESCR, which are as follows[2]:

1. Legal security of Tenure – There should be protection against forced eviction and harassment.

2. Availability of services, materials and infrastructure – There must be made available facilities essential to health, security, comfort and nutrition. These facilities include, but are not limited to, safe drinking water, sanitation, and washing facilities and energy for cooking, heating and lighting.

3. Affordability – Expenditures for housing should be commensurate with income levels, as basic needs should not be compromised.

4. Habitability – Adequate housing must provide needed space to live in dignity and peace. It must also provide protection from natural elements, structural hazards and disease vectors that are threats to health and well-being.

5. Accessibility – All should have access to adequate housing. There is a discernable obligation on the government to ensure that everyone has access to a secure place to live in peace and dignity.
6. Location – Adequate housing must allow for access to employment options, healthcare, schools and other social services. There must not be excessive financial and temporal demands on the household in respect to transportation.

7. Cultural Adequacy – The housing configuration must not compromise cultural expression.

Besides these seven elements, the international conventions and treaties have also recognized the following entitlements in favor of the right of the people to safe environment, access to natural resources, land, finance, safety etc. They are as follows[3].

1. Safe Environment – An adequate place to live must be free from harm or threat of harm from natural or man-made disaster, and environmental pollutants, disease vectors and other avoidable hazards. The environment must provide access to natural

[2] The provisions of the articles of ICESCR were cited in Habitat International Coalition, 2002.
[3] Different entitlements on the right to adequate housing, safe environment, and access to natural resources etc. covered by the international conventions were quoted in Habitat International Coalition, 2002.

resources and reasonable recreational opportunities in nearby areas, similarly free of such menacing conditions. (ICESCR 1 & 12)

2. Access to natural resources – Every community must have access to natural resources necessary for its survival and livelihood, including inter alias, fuel, fodder, water and building materials. Access to natural resources must be sufficient to meet community needs and the state must effectively regulate the distribution and the efficient delivery of same. (ICESCR 1(2), 12)

3. Land – Land is a resource integral to survival, livelihood and adequate housing. The state must ensure reasonable access to land; in particular, the state must ensure equitable distribution with emphasis on the provision of necessary resources for poor households and other marginalized and vulnerable groups. Government must implement land reforms, where necessary, to ensure fair distribution of public good. (UDHR 1; ICESCR 2; CERD 1; Habitat II Agenda)

4. Capacity and capacity building – Individuals and communities should have access to means to enable them to improve their living standards and fully realize their economic, cultural and social rights and development potential. The state, for its part, should endeavor to promote and provide for catalysts and mechanisms for the same. (ICESCR 2 and 13)

5. Freedom from dispossession – Each individual and community has a right to a place to live without threat of dispossession from land, all forms of their property, their homes and resources, as well as all individual and collective holdings required to sustain livelihood. The state must safeguard this right to freedom from dispossession, protect vulnerable groups and compensate, resettle or provide for restitution where dispossession takes place. (UDHR 13, 17, 23, 25; ICESCR 2).

6. Resettlement – Any resettlement arrangement, whether the result of development projects, natural disaster, armed conflict, or other cause must be fair and adequate to meet individual and collective needs. It must provide sufficient access to the sources of livelihood, productive land, infrastructure, social services and civic amenities, along with fair and adequate restitution and/or compensation for losses. (CERD 1)

7. Finance – Communities must have access to financial resources including, inter alias, wages, loans, grants, cooperative schemes and subsidies in order to secure an adequate place to live. (ICESCR 12; CEDAW 13)

8. Participation – The individuals and communities must be participated in all levels of decision-making process; they must be consulted and they must be able to express and share their views contributing substantively to such processes. (CERD 1)

9. Physical security – Every man, woman, youth and child has a right to live in a secure place and to be protected from threats or acts that compromise their mental and/or physical well-being or integrity. The state should address the security needs of the individual and community. (UDHR 12; CERD 5(e))

These provisions of different international conventions establish the right of a person to standard living. Every person in this earth is entitled with the rights to adequate housing, safe environment, basic infrastructures, physical security, and health. Despite adopting all the above conventions, Nepal government has failed to address these rights-based issues in domestic laws fully; their implementation status is even poorer. The fundamental right of every human being to possess adequate housing, enjoy basic facilities and live in a safe and healthy environment has been violated in all possible ways. Poor people are compelled to live in environmentally hazardous and unsafe place with minimum or no supply of basic physical services and infrastructures; and yet government, the so-called facilitator, is merely playing a role of an observer.

Chapter VI

INSTITUTIONAL ROLE IN UPGRADING SQUATTER SETTLEMENTS

There are different institutions directly or indirectly involved in upgrading the socio-economic and living environmental condition of the squatter settlements. From community level to the government level, the institutions have their own roles in fulfilling this task. The different institutional roles are discussed below, emphasizing on their strengths and weaknesses based on the interview with key informants, officials of concerned organizations and partly through literatures.

6.1 Community Based Organizations (CBOs)

Two CBOs are found to be actively working for the welfare and protection of the rights of the squatters. They are:

a. *Nepal Basobas Basti Samrakshan Samaj* / Society for the Preservation of Shelters and Habitation in Nepal (SPOSH)
b. *Nepal Mahila Ekta Samaj* / The Nepal Women's Unity Society (NWUS)

a. Society for the Preservation of Shelters and Habitation in Nepal (SPOSH)

SPOSH is an organization founded by squatters to address the common problems faced by squatters of whole Nepal. Initially grew out of an ad hoc committee, the national federation was officially registered in early 2000. Till to date, it has created network in 22 districts of Nepal. Established as an umbrella organization, its branches have already been established in nine districts.

The main objectives of SPOSH are:

- to bring all the squatters of Nepal under one umbrella,
- To lobby the concerned government authority for adequate shelter and security of tenure (land ownership card).
- To create a common voice against forceful eviction and to motivate the government for relocation in proper place with land ownership card, in case if they are to be evicted.

The activities/plans of the society include:

- Collecting information about informal communities and lobbying concerned authorities to provide appropriate shelter, security of tenure and access to basic facilities;
- Distribute the Family Identity Card to squatter households with the approval from the concerned government authority.
- Conducting exposure visits and interaction programmes between communities,
- Improving the environment through community cleaning projects and reforestation;
- Raising awareness about issues of education, health, and human rights;
- Developing income generation activities and occupational skills training programmes;
- Assisting and supporting people affected by natural disasters.

What ever may be the objectives of SPOSH, the main plus point of this organization as I see is that it has established a sense of belonging and security to the squatter communities. Previously, there was no relationship among the squatters of different squatter communities; one was unknown to the other squatter. But now they are together and they are fighting for

their common interests. Previously, there was no one to raise voice against government's act of forceful eviction, but now SPOSH is there to raise voice against such action and give him or her protection. Because of the birth of SPOSH, now the government is at least in a position to hear the voice of squatters. The initiation of the Family identity card system for the squatters is one of the remarkable works of SPOSH which has opened an access for squatters to basic amenities, citizenship card, and voter's card. According to the squatters, Family Identity Card is like a *Lalpurja* (Land Ownership Card) for them. Once they receive the card containing the signature of Home Minister and the Mayor, their stay in the existing place will become almost permanent; their eviction will be possible only by giving compensation.

b. The Nepal Women's Unity Society (NWUS)

NWUS is a first federation of women in Nepal to represent the informal settlers. Officially registered in 2000, this national federation works especially for the welfare and protection of the rights of women squatters. The other aims of NWUS are to collect information on the situation in squatter settlements and inform concerned authorities; raise voice for security of tenure; improve the environment around squatter settlements; conduct awareness programmes about human development issues and to address and eliminate community problems.

One of the major activities of NWUS is operation of *Women's saving and credit groups* in different squatter communities with the guidance from Lumanti. Initiated by Lumanti as micro finance programme, it is now followed by NWUS. The main aim of this programme is to empower the urban poor communities, focusing on women's groups, by improving their economic situation and promoting self-reliance. These saving and credit groups collect monthly savings from each women member of the group and manage the funds. They grant small loans of Rs.500 to Rs.40000 to individual members without taking a collateral. Loans are provided mainly for income generating activities, education, housing, debt clearance and medical treatment. By 2003, this programme had expanded to 122 groups, with 2039 members from 53 communities. For sustainability, some of the saving groups combined their resources to form three cooperatives around Kathmandu in 2002, based in Balaju, Baoudha and Baneshwor. These cooperatives have acquired great success in building savings and maintaining loan payments.

During the field visits of four squatter communities, this organization was found operational in three of the communities – Pathivara and Jagritinagar of Kathmandu and Amar Basti of Dharan. The women's saving and credit programme had started in Pathivara for a long time and many people were found benefited from this programme. This programme was found to support the squatters in improving the housing condition, construct brick houses, educate children and start micro enterprises to some extent. But yet, significant number of houses was also found who had either never joined or withdrawn from the saving and credit group after some time. According to them, difficulty in saving even Rs. 100 per month was a reason behind their withdrawal. In Amar Basti, women's saving and credit group had recently been formed, but with only a dozen of women members participating in it. According to one of the members, it is difficult to motivate women towards this programme. One of the non-member squatters showed non-interest towards this saving group as saving Rs. 30 a month is also not always possible for her. However in Jagritinagar, some of the active women were found quite enthusiastic in conducting this programme in their community with the guidance from Lumanti.

6.2 Non-Governmental Organizations (NGOs)

There are many NGOs working for the sake of the poor. But when talking about the squatters, there are only few organizations which are solely dedicated to help the poor people living in squatter settlements. Lumanti comes at the top of the name list. Other organizations include EDHOC, DACAW, Samyak Sikchya, Upca etc.

Lumanti Support Group for Shelter is a non-governmental organization dedicated to the alleviation of urban poverty in Nepal through the improvement of shelter conditions. The main objectives of Lumanti are:

- To organize and strengthen communities and community based organizations to enhance their self-reliance, build solidarity and exercise their basic rights.
- To increase access to improved basic facilities including health, water, sanitation and a clean environment in slums and informal settlements.
- To increase the opportunities and access for people living in slums and informal settlements for improvement in their economic conditions.

The activities of Lumanti are focused in Kathmandu, Lalitpur and Thimi, but plans are being made to expand its activities to Dharan and other urban areas of Nepal. Lumanti has wide range of activities including shelter programmes, micro-finance, education and children's programmes, advocacy and operation of Urban Resource Centre.

Lumanti is working to create solidarity among urban poor creating network with CBOs (like SPOSH and NWUS) and other NGOs. It advocates for the policy formulation and its implementation for shelter security. It has been supporting SPOSH and NWUS financially and morally since 2000.

Due to these works Lumanti has gained a great popularity among most of the squatter communities. However, during my survey some people were also found who were unsatisfied with Lumanti's performance. The only comment was "Lumanti promises to help, but delays in fulfilling the promise due to unusual lengthy internal procedures." It's an opportunity for Lumanti to perform even better in the days to come.

The other NGOs like Samyak Shikcha and DACAW are serving the poor communities of Dharan. Samyak Shikcha has already constructed 81 ring-toilets in different squatter communities of Dharan. DACAW, a project run by Dharan municipality in collaboration with UNICEF, is also active in Dharan which has done remarkable works in squatter communities of Dharan like regular health check-up for women and children; adult literacy class, formation of community mobilizers (CM) among the women of squatter community to encourage women and their children for regular health check-up and maintain good health and environment. *Sundar Samaj Nirman Samuha (SSNS)* is also actively working in the poor squatter communities in Dharan which teaches the community to maintain cleanliness at home and surroundings; it encourages the households to manage the solid waste through burning. The local children groups have been formed in different squatter communities of Dharan under SSNS which mobilize the community people to collect waste from the household and surroundings in the week ends and burn it at once, thereby maintaining the cleanliness in the settlement.

6.3 Local Government

After the introduction of decentralization policy in Nepal, municipalities, wards and village development committees (VDCs) have been established as the local governments which bear a responsibility for implementation of all plans and policies at first place. Some of the functions and duties of municipalities, as stated in Local Self Governance Act, 1999 are given below:

- To maintain inventory of population and houses and land within the municipality area.
- To arrange for or cause to be arranged for public toilets in various places in the municipality area.
- To generate or distribute or cause to be generated or distributed electricity in the municipality area.
- To operate or cause to do so health posts and conduct public health programmes.
- To make arrangements for scholarship schemes for oppressed and backward group.
- To launch programmes to protect river pollution
- To carry out preventive and relief works to lessen the loss of life and property caused from natural calamity.

Even with these attractive provisions in law, the performance of KMC couldn't be found satisfactory during my research. I found majority of the squatter settlements without access to government public infrastructures, such as, public tap, solid waste collection facility. Legal connection of electricity was also not available. Two out of four squatter settlements (Jagritinagar and Shantinagar) were not even registered in the ward office despite of several requests made by squatters in the ward office.

In the interview with the KMC officials, the officials clearly rejected that giving electricity and public stand post is not their responsibility; while LSGA, 1999 clearly states that the responsibility of KMC is also to ask other concerned authority to distribute these amenities to the needy people. The roles and responsibilities of KMC regarding the squatter settlements seem to be unclear to the local government officials.

Currently, KMC is busy preparing directives for Urban Community Support Fund. This fund was made for Kathmandu, in collaboration with Slum Dwellers' International. KMC has already donated one lakh dollar for this fund. This fund is supposed to be mobilized for the housing, health, sanitation, women, children related issues on the basis of pay-back system. Let's hope that KMC will do something remarkable for the poor people of Kathmandu through this fund.

6.4 Central Government

The main responsibility of the Central government is policy formulation. "We develop policies and work as facilitators. We support local government (like KMC) by giving guidance, sending skilled manpower and financial support in the time of need", was the comment of one of the central government officials. The role of the Ministries (Ministry of Urban Planning and Physical Development) and Departments is to formulate policies addressing the different urban problems of the country. According to him, the ministry or department can't deal with all the problems of the country alone; it will not only be costly but also, ineffective in dealing with the real problem since the real situation or the problems of the people can't be understood fully by sitting at the top. So, this is a responsibility of the local government that stays at the ground level, to enact the policies and programmes so as to help in upgrading the quality of life of the squatters.

The Ministry of Land Reform is a central government which looks after the land reform activities by formulating policies on it. Squatter's Problem Solving Commission (SPSC) is a body which works under this ministry. Currently, the commission is in dissolved form and an ad hoc body (Squatter Problem Solving Committee) for resolving the problems of squatters is in operation. This ad hoc committee reviews the work of the previous commission and makes corrections over the past actions. The major responsibility of the committee is to distribute or sell land among the needy squatters and empower them through trainings, skill development programmes etc. But the committee's board lacks the participation of squatter people; only the bureaucrats are handling the position. The real squatters have not benefited from both these bodies; In reality the false-squatters and politicians have benefited more from the government distributed lands in many cases.

Chapter VII

ANALYSIS OF THE STATUS OF STUDIED FOUR SQUATTER SETTLEMENTS

For the extensive study of urban poverty situation and its environmental implications, three squatter settlements of Kathmandu (Jagritinagar, Shantinagar and Pathivara) and one squatter settlement of Dharan (i.e. Amar Basti) were selected, mainly based on the poor living environmental condition of the settlements. More than 2/3rd of the households were surveyed in each settlement with total of 218 households. For data collection, the tools such as questionnaire, key informant interview and observation were applied. During the questionnaire survey, the squatters were asked questions covering four broad aspects: Socio-economic, physical environment, surrounding environment and squatters' perception.

This chapter presents the detail picture of the four squatter settlements of Kathmandu and Dharan. All the quantitative and qualitative data obtained from the field have been analyzed in this chapter with the extensive use of tables and figures.

7.A Squatter Settlements of Kathmandu

7.1 Jagritinagar Squatter Settlement

7.1.1 Location

This settlement is one of the many squatter settlements of Kathmandu which resides along the bank of river Bagmati at the flood plain area (See Plate 7.1). Said to be established in 2056 B.S. (2000 A.D.) with about 96 dwelling units at first, it now dwells 108 households. It is situated at Airport-Sinamangal area in Ward No. 34 at a walking distance of 5 minutes from the Air Cargo Complex. It is also at close proximity to New and Old Baneshwor. Though it is situated extremely near the city core area, it is unseen from outside and the living environmental condition of this settlement is dreadful.

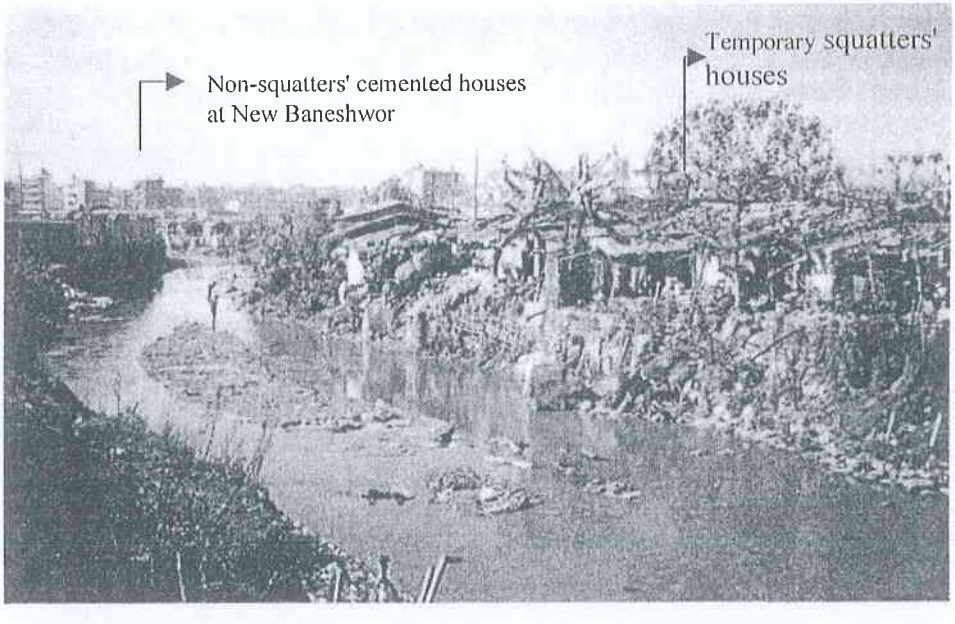


Plate 7.1: Squatters' temporary houses situated along polluted Bagmati river in Jagritinagar

7.1.2 Socio-Economic Conditions

a) Demography

Population Profile

The questionnaire survey was conducted in 75 households (74%) out of 108 households. The total population of the sample households was 306 which comprised of 158 males and 148 females. Male population was found to be 4% more than female population. Amongst them, 49% of the total population was children up to the age of nineteen. Of 75 households, only 7% of the households were female headed and the rest 91% of the households were male headed. The average household size was found at 4.1 with minimum household size of 1 and maximum household size of 10 (See table 7.1).

Table 7.1: Population Profile of Jagritinagar Squatter Settlement

Components	Total	Percentage
Total households under study	75	100
Male Headed household	68	91
Female Headed household	7	9
Average Household Size	4.1	
Total population of studied HHs (75 HHs)	306	100
Male population	158	52
Female population	148	48
Children (up to 19 Yrs.)	151	49

Ethnicity and Religion

Of 75 households, majority of the people (70%) belonged to the backward ethnic group[4]. The households belonging to Newar and Chetri were equal in number (11%); while 8% of the households were Bhramans (See Fig. 7.1). Out of these 75 households, 71% were Hindus, 11% were Buddhists, 1%, Kirati and the rest 15% were Christians, most of whom had converted into Christianity recently.

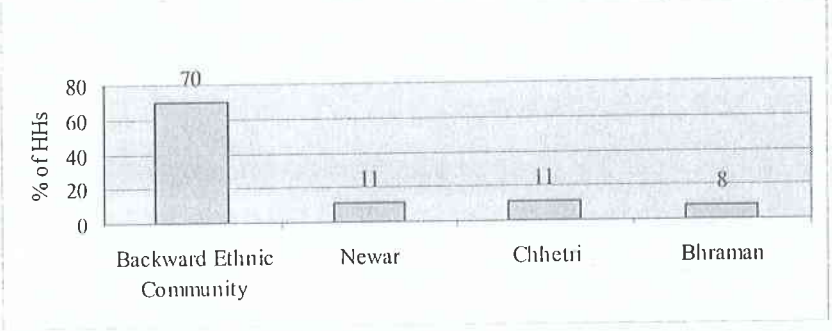


Fig. 7.1 Distribution of households according to Ethnicity in Jagritinagar

[4] Of the 70% of backward ethnic group, 59% of the people were Janajatis (native ethnic group of Nepal) with different castes like Tamang, Magar, Rai, Limbu etc. and 11% were Dalits (Low caste people).

Migration

All the people in Jagritinagar were found to have migrated from different parts of Nepal. Of the 68 responding households, 51 % of the households had come from Eastern development region (mostly from Jhapa and Morang), and 43% from hilly areas of Central development region (from Sindhupalchowk, Ramechap, Jiri etc). Only 4.5 % and 1.5 % of the households were the migrants of Western and Mid-Western development regions respectively (See Fig. 7.2). When asked about the reason behind their migration, majority of the respondents (79 %) pointed unemployment as the reason for their migration. The rest had their own reasons like land lost by flood or taken by landlords (7 %), search of luxurious life (1 %), relatives (4 %), maoist problem (1 %), marriage (1 %), education (1 %) and others (4 %). Of the 74 responding households, 45 % of the households responded that they still possess ancestral land and house in their place of origin, no matter how little or valueless it is.

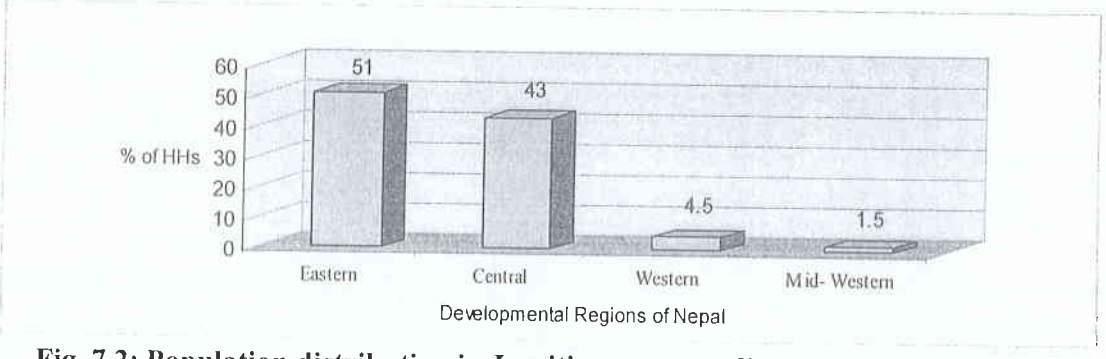


Fig. 7.2: Population distribution in Jagritinagar according to place of migration

Upon asking the reason for squatting in the environmentally degraded and discarded government land, the majority of the respondents (60 %) said the unaffordable rent as their reason for squatting. 21 % of them had occupied the public land to save rent money; while others had occupied land for reasons such as lack of money to buy land (7 %), to obtain free/cheaper land (4 %), divorce with husband (3 %), easy access to job (1 %) and others (See table 7.2).

Table 7.2: Reasons behind staying in squatter settlements as told by respondents

Reasons for staying in Squatter Settlement	No. of HHs	% of HHs
Unaffordable rent	44	60
To save rent money	15	21
Lack of money to buy land	5	7
For obtaining free/cheaper land for living	3	4
Divorce with husband & unaffordable rent	2	3
Eviction from factory quarter	2	3
Easy access to job	1	1
Relatives' home	1	1
Total no. of respondents' HHs	73	100

b) Economic Condition

Occupational Status

Out of 306 people from 75 responding households of Jagritinagar, 105 people were employed. Only 30% of those employed population were females.

Table 7.3: Occupational Status in Jagritinagar

Job Type	No. of Persons	% of Persons
Regular Job	**29**	**28**
Government	6	6
Private	17	16
Business	6	6
Irregular Job	**76**	**72**
Contractor	3	3
Labour	71	67
Abroad Labour	2	2
Total	**105**	**100**

Large section of the employed population had irregular and temporary jobs. Of 105 employed people, 72% possessed irregular jobs with 67% of the people were working as local labours. There were 29 people (28%) who had obtained regular jobs. Among them, 6% had a government job, 16% private job and 6% had their own small business. 2% of the employed population was found working in India and Malaysia (See table 7.3).

Income

Out of 74 responding households, 36% of the households had the monthly income in the range Rs.2000- Rs.2999 and 32% of the households had the earnings between Rs.3000-Rs.4999. 3 % of the households belonged to such a group which hardly had a monthly income of Rs.1000 and some 11 % of the households were also there to have monthly earnings in the range Rs.5000 – Rs.10000. Thus, the monthly earning of most of the households (57%) was found below Rs.3000 (See Table 7.4).

Table 7.4: Level of Household Income and Household Size in Jagritinagar

Monthly Income	Household		Person		Household Size
	No.	%	No.	%	
below Rs.1000	2	3	12	4	6
Rs.1000 - Rs.1999	13	18	50	17	3.8
Rs.2000 - Rs.2999	27	36	94	32	3.5
Rs.3000 - Rs.4999	24	32	108	34	4.3
Rs.5000 - Rs.10000	8	11	40	13	5
Total	**74**	**100**	**298**	**100**	

Monthly Expenditure and Saving

Among 75 respondents, 28 (37 %) reported the monthly expenditure of their households on food items to be around 60-80 % of their monthly income, whereas 17 respondents indicated 50-59 % as their monthly expenditure on food. Of them, 74 % of the respondents possessed no monthly saving. Their income was equal to their expenditures on food, transportation, children's education and other basic items. 18% of the responding households, however, possessed the monthly saving between Rs.500 and Rs.1000 and 7 % had monthly saving over Rs.1000.

Poverty Analysis

Considering per capita annual income of Rs.9000 as the poverty line as proposed by LSMC in 1999, more than half of the households (57%) of Jagritinagar were found to be living under absolute poverty, while 36% of the households were found to be lower medium class families (See table 7.5 and Annex 2.1 for calculation).

Table 7.5: Economic status of the households of Jagritinagar

Economic Status	Earnings Per Capita Per Annum (Rs.)	% of HHs
Absolute Poor	< 9,000	57
Lower Medium	9,000-20,000	36
Upper Medium	20,000-50,000	7

Note: The economic status of households according to the income per capita per annum (Rs.) was proposed by Lalitpur Sub-Metropolitan City Office (LSMC), 1999 in a Base Line Survey of Lalitpur.

Squatters' Perception on Poverty

Most of the people in this squatter settlement were found to consider themselves as poor. Of 48 respondents, 43 respondents expressed themselves as poor. "Why would we have lived in this flood plain area as squatters if we were not poor?" some respondents put forward this question. However, 10 % of the respondents argued saying they couldn't be poor until their hands and feet are fit to work.

Number of causes of poverty was pointed out by the respondents, which is given in table 7.6 below. Majority of the people (36 %) felt lack of education as the main cause of poverty. 15 % of the respondents expressed unemployment or lack of proper employment as the cause of poverty, while the next 15 % of respondents pointed their inability to earn money as the cause.

Table 7.6: Reasons of Poverty as Perceived by the Squatters of Jagritinagar

Causes of poverty	Respondents No.	%
Lack of education	24	36
Inability to earn money	10	15
Unemployment	10	15
Having no ancestral land and property	4	6
Innocence	3	5
Powerlessness	3	5
Lack of fortune	2	3
Too many children	2	3
Low salary, but huge work	2	3
Lack of will power	1	1.5
Lack of skill	1	1.5
Others	4	6
Total Respondents	**66**	**100**

c) Educational Status

The majority of the people in Jagritinagar were found literates. Of 306 people, 194 people (63%) recognized the letters. Among 151 children up to the age of 19, 82 children (54%) from 43 households had schooling. The school drop out youths was counted at 22 i.e. 15% (See Fig. 7.3). The reason behind leaving the school was said as non-affordability (71%) and lack of interest in studies (29%). 32% of the children had no schooling due to the small age in most of the cases. Over 96% of the respondents were found to have positive attitude towards education who strongly believed non-education as one of the causal factors of poverty.

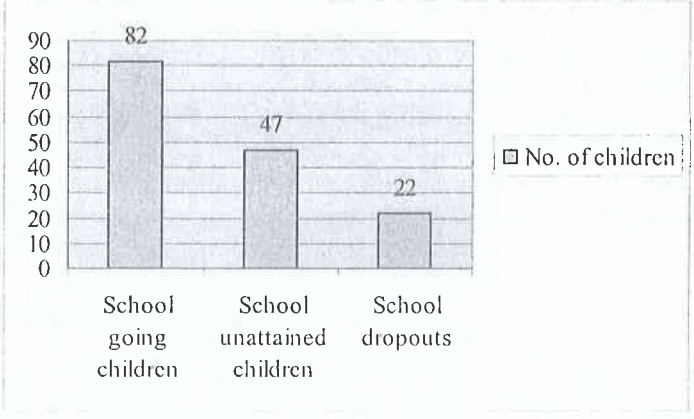


Fig. 7.3: Educational status of children in Jagritinagar

7.1.3 Physical Environment

a) Housing Condition and the Constructed Materials

84 % of the total 75 houses were temporary in structure, which were constructed out of scrap materials like polythene, cardboard, wood, bamboo, tin etc. The rest 16 % houses were of moderate type, made from cemented brick and corrugated sheet.

Of 75 houses, majority of the houses (52 %) had the roof constructed from tin sheet; whereas roofs of 18% of the houses were made from polythene sheet. 29 % of the housing units were even constructed from mixed scrap materials like polythene sheet, cardboard, tin sheet and bamboo.

The wall materials in 80 % of the housing units were found to be temporary in nature. Polythene sheet (25 %), tin sheet (17 %), bamboo (11 %), mixed scrap materials (20 %), wood (7 %) and cardboard (4 %) made up the wall in those 80 % of houses. Only 20 % of the total housing units were constructed from cemented brick and cemented blocks (See Table 7.7).

Table 7.7: Construction Materials used in Respondents' Houses in Jagritinagar

Category	No. of HH	% of HH
Roof Material		
Tin sheet	39	52
Polythene sheet	13	18
Mixed scrap materials	22	29
Bamboo	1	1
Total HH	**75**	**100**

Wall Material		
Brick/Cement/Cemented Block	15	20
Polythene sheet	19	25
Tin sheet	10	13
Wood	5	7
Bamboo/mud	8	11
Cardboard	3	4
Mixed Scrap materials	15	20
Total HH	**75**	**100**

All the houses were one storey, most of which contained a single non-ventilated room with more than three people living in a same room. 71 % of the houses possessed only one room, while 28 % of the houses possed two rooms and only 1 % with three rooms. There was not even a single house with more than three rooms to share among the family members. 76 % of the houses had no windows for ventilation though two doors were present at front and backside to give passage to air and light. 74 % of the houses were found to have minimum three people sharing a single bedroom which provided a picture of overcrowdedness ((See Table 7.8). The researcher had also checked the furnishing and cleanliness level of the households by her own judgment. Of 51 households, 25 households (49 %) had poor furnishing. Except beds, they had no furniture. On the same basis, 39 % of the households were found to have moderate furnishing and 12 %, well furnishing. Based on observation, the cleanliness level in 51 % of the 49 responding households were found poor and filthy, with 22 % of the households in clean condition and 27 %, in moderate condition.

Table 7.8: Housing Condition of the Respondents' Houses (75 HHs as Sample size)

Category	No. of HHs	% of HHs
No. of rooms in a house		
1 room	53	71
2 rooms	21	28
3 rooms	1	1
4 rooms and above	0	0
No. of windows in a house		
No window	57	76
1 window	13	18
2 windows	4	5
4 window	1	1
No. of people per bedroom		
Up to 2	20	26
3 to 5	48	64
Above 5	7	10

b) Infrastructures, Services and Sanitation Condition

Defecation practices

Of 75 households, 63 % possessed toilet and the remaining 28 households (37 %) used the neighbour's toilet to defecate (See Fig. 7.4). None of the households was found defecating along riverside in open. All the toilets were of temporary type – those made up of plastic sheet

and cardboard in five sides with a small pit at the land having an outlet pipe to discharge toilet waste to river Bagmati. On asking about the reason behind not constructing the permanent-sanitary toilet, 71 % of the respondents pointed non-affordability as the cause, while 29 % indicated eviction threat and instability as the reasons.

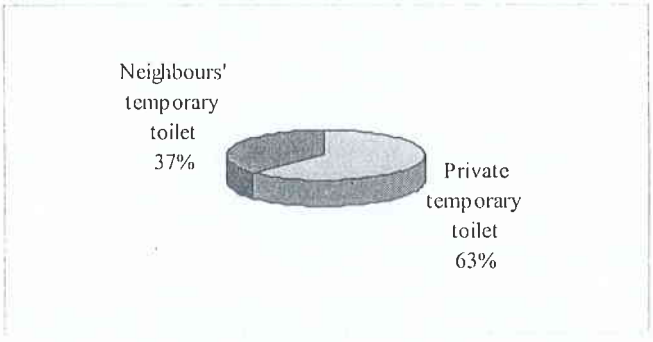


Fig. 7.4: Place of defecation in Jagritinagar

Solid Waste Management

Jagritinagar is situated just along the bank of river Bagmati. When the backside door of the house is opened, the river is flowing down there. So, the people in Jagritinagar were found to practice the easiest way of managing waste i.e. by disposing solid waste into the river. Of the 74 responding households, 89 % of the households were found to dispose their waste in the river; while others were found to practice burning, burring and roadside dumping (See Table 7.9).

Table 7.9: Disposal of Solid Waste in Jagritinagar

Category	No. of HHs	% of HHs
Disposed along riverside	66	89
Collected and burnt	5	7
Buried	2	3
Roadside	1	1
Total no. of HHs	74	100

Disposal of Domestic Wastewater

Among 75 responding households, 98 % of the households were disposing the domestic wastewater (i.e. kitchen water, wastewater from bathing and washing) into the river directly; while the rest 2% of the households were only reutilizing the wastewater in vegetable garden and as pig food (See Fig. 7.5).

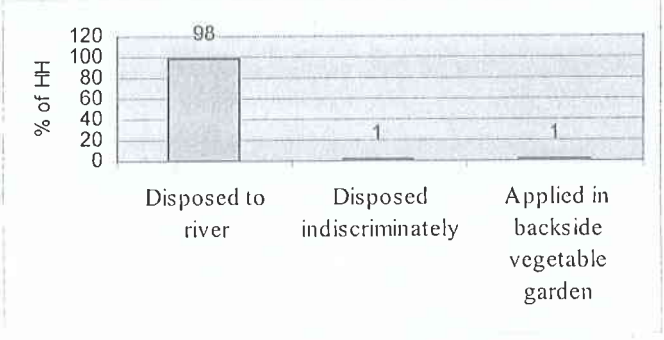


Fig. 7.5: Disposal of domestic wastewater in Jagritinagar

Water Supply

The problem of water supply was found immense in Jagritinagar. There was not even a single tap inside the community for removing thirst of the residents. The single community hand pump brought by the community's effort had so dirty and smelly water that it could only be used for washing and bathing purposes. For drinking and cooking, people relied on multiple sources of water present outside the squatter settlement. Of 75 households, 33 % of the households were found to procure water from public tank, 32 % from non-squatters' tap, 19 % from public spring, 8 % from non-squatters' hand pump and 5 % from multiple sources (See Table 7.10 below). Though the walking distance of these water sources was maximum 20 minutes from the settlement, women and children were found to spend 1- 1.5 hours a day and sometimes even 2-3 hours for fetching water from the water source due to queue. They were also scolded by the people from other community for fetching water from their area.

Daily Availability of Water –

Though procuring water was a big problem for the squatters, 44 % of the total 70 respondents reported the sufficiency of water; 21 % of them said water is just sufficient and 34 % reported the insufficiency of water. Of the 74 households, 36 % of households were receiving only one gagree (12 liters) of water in a day for drinking and cooking; while 31 % of the households were receiving 2 gagrees (24 liters); 20 % of households, 3 gagrees (36 liters); and 12 % of households were receiving 4 or more gagrees of water in a day. With these figures on daily water availability, the per capita water availability in a day for this settlement is calculated at 6.1 liters/capita/day, considering 4.1 as the average household size.

Table 7.10: Time taken in fetching water from different water sources in Jagritinagar

Sources of drinking water	Time taken in procuring water from the source	No. of HHs	% of HHs
Within Squatter settlement			
Private Hand pump	-	1	1
Outside Squatter settlement			
Neighbour's tap	5-10 min	24	32
Neighbour's tube-well	5-10 min	6	8
Public tank	1 Hr	25	33
Public spring	1-1.5 Hr	14	19
Dependence on multiple water sources	I Hr	5	7
Total HHs		**75**	**100**

Bacteriological Water Quality Test –

This test was conducted to find the fecal contamination in water by counting the number of fecal coliform bacteria per 100 ml of water. From the lab test, the public tank water was found contaminated with fecal materials. 56Col/ 100ml of water were detected from the lab; While the spring water was found to have 0c/100ml of water. The stored water sample taken from one of the houses of Jagritinagar also showed zero count of fecal coliforms (0c/100ml) indicating the good sanitary condition of the house. However, the fecal contamination in tank water that was consumed by large number of households of Jagritinagar (33 %) shows high risk of water borne diseases like diahorrea among the squatters.

Sewerage and Drainage

None of the houses in the settlement had received the facilities of sewer and drainage; however, the city sewer lines had passed beneath the ground of some houses with its outlet exposed to Bagmati river.

The surface drainage facility was absent. Since the row of houses were situated down the narrow sandy road, 85 % of the total 62 respondents told inconvenience in walking during rainy season due to storm water flooding and 5 % of the respondents told the problem of water pool formation. 15 % of them had no problem.

Energy Use

Cooking Fuel

Most of the households in Jagritinagar were found to use multiple sources of fuel for cooking. Of 59 responding households, 44 % were using kerosene oil, saw dust stove and firewood side by side. 36 % of the households were found to use kerosene oil and 17 % purely relied on saw dust stove. Only 3 % of the households were able to afford liquid gas in their kitchen. 49 respondents told different effects of smoke emitted from cooking fuel, such as choking (17 %), eye irritation (34 %), black cough (19 %), headache (3 %), suffocation (3 %), dirty cloth (21 %) and indoor pollution (3 %).

Table 7.11: Cooking fuel used in respondents' household in Jagritinagar

Cooking Fuel	No. of HH	% of HH
Saw dust stove (Bhusechulo)	10	17
Kerosene	21	36
Liquid Gas	2	3
Firewood/bhusechulo/kerosene	26	44
Total no. of HHs.	**59**	**100**

Table 7.12: Different smoke problems of cooking fuel

Effects of smoke	Respondents No.	%
Choking	11	17
Eye irritation	16	34
Black cough	9	19
Headache	1	3
Suffocation	1	3
Dirty cloth	10	21
Indoor pollution	1	3
Total no. of respondents	**49**	**100**

Electricity

74 % of the households among 74 responding households had managed to receive electricity from neighbours at the cost of Rs.100 to Rs.200. The electricity cost would have reduced if they were able to receive government electricity. 12 households, however, had sub-meters to pay the bill. Due to non-affordability, 26 % of the households were compelled to stay in twilight of candle (Tuki) which had indirectly affected the studies of children, health and their work.

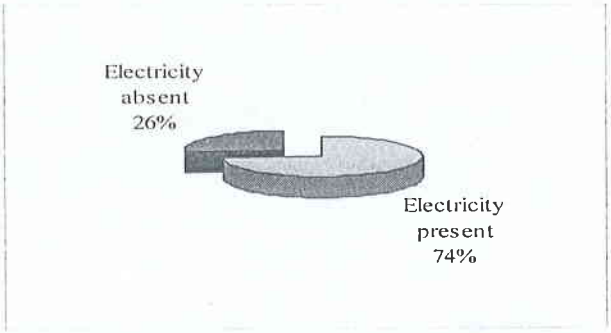


Fig. 7.6: Percentage of households with electricity in Jagritinagar

7.1.4 Effects of Surrounding Environment

Effects of City Sewerage and Polluted Bagmati River

The city sewer lines had passed beneath the ground of some squatters' houses with its outlet exposed to Bagmati river. On the other hand, the polluted bagmati river was flowing by the side of the squatter houses, emitting foul smell day and night. Among 73 respondents, 84 % pointed bad odour as the major problem of the city sewerage discharged into the river and the rest 15 % reported themselves to have habituated to such polluted environment. Two people even reported the clinging of dead carcass of animals along the riverside, which sometimes emit an intolerable odour.

Shelter Vulnerability to the Natural Factors

Rain, flood, wind and thunderstorm were the major natural factors affecting the lives of poor in squatter settlement. In Jagritinagar, following situation prevailed.

Rain

Of 74 households, 69 households (93%) had different problems associated with rain due to poor shelter condition. Of those 69 households, the majority of the households (44 %) possessed roof-leakage problem. Despite changing the roof material twice a year, the temporary roof materials provided an entry passage to rain water in the house. Storm water flooding and wall wetting were the other effects of rain as reported by 29 % and 27 % of the respondents respectively.

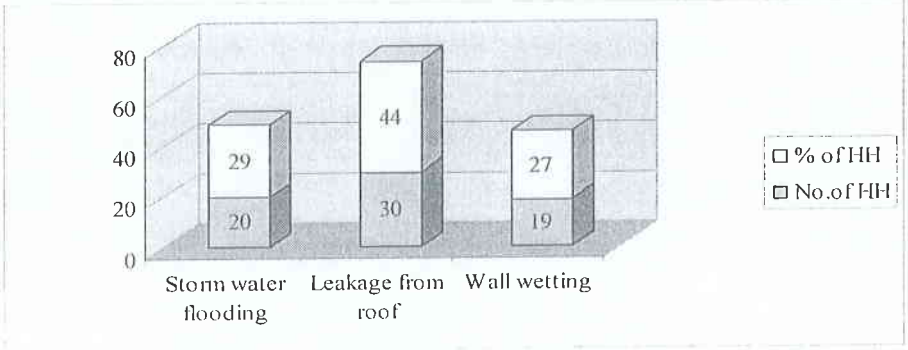


Fig. 7.7: Effects of rain water in Jagritinagar

Flood

Flood is a major problem in Jagritinagar in rainy season. Among 72 responding households, 73 % of the households told they have threat of flood. Though no significant damages had occurred in these houses in previous years, they were living with fear of flood because in time of heavy rainfall in rainy season the water level in Bagmati river would rise up to the mouth and no guarantee could be taken about this river. Moreover, 24 out of 72 households (33 %) had already suffered the destructive effects of flood two years back. Flood entered inside their house, swept away dishes and 1/3rd of the land, and destroyed toilet, sack-fence, pig box etc. 4 % of the responding households were even compelled to shift their place with all their belongings due to flood. But according to 10 % of the respondents, the effect of flood had reduced significantly in two years due to protection of the edge of land by sack-fence which was the personal effort of all households.

Table 7.13: Effects of Flood in Jagritinagar

Effects of flood	**No. of HHs**	**% of HHs**
Threatening	38	53
Entered/swept away/destroyed toilet, sack-fence, pig box, etc.	24	33
Compelled to shift place	3	4
Mild effect at present	7	10
Total no. of respondents' HHs	**72**	**100**

Wind and Thunderstorm

The squatters were found to face the problems of wind and thunderstorm from April to May because of the use of temporary construction materials in their houses. Among the 54 responding households, 87% of the households expressed their fear over the effects of wind and thunderstorm; while 13 % of the households were not threatened from its effect. In 20 households (37 %), the roof materials (plastic, tin sheet) had blown away in previous years and in one house, the displaced corrugated sheet had nearly injured the family member.

7.1.5 Health

The majority of the households reported certain health problems among the family members. 18 out of 72 responding households (25 %) reported that they are frequently suffering from diseases; while in 24 % of the households the disease occurrence rate was quite often (one or twice a month). The diseases occured only sometimes in 39 % of households.

Diahorrrea and disease-symptoms like fever, cold, cough, and headache were most prevalent in these households. Of 72 responding households, different symptoms of diseases like fever (56 %), cold (54 %), headache (21 %), stomachache (11 %), vomiting (7 %) had occurred in their family in that year. Among 72 households, about half of the households was found to suffer from water borne diseases like diahorrea (43 %) and typhoid (6 %) which indicated the poor quality of water which they were consuming and their unhygienic practices at home. Gastric, skin diseases, eye irritation, asthma, pains in hands and legs, heart disease were also found in some of the households, the most probable causal factors of which could be polluted environment, unsafe water, unbalanced food, cold etc.

Most of the households seemed to have faith in allopathic medicines. Of 75 respondents, 44 % of the respondents were found to take health service from nearby medical shops; 28 % from hospital; 20 % from both medical and hospital; and 8 % were getting treatment from traditional healer and prayer.

Table 7.14: Symptoms and Diseases prevalent in the households of Jagritinagar in the last one year due to poor water, sanitation, polluted environment and cold.

Diseases/ Symptoms	No. of HHs	Total no. of HHs	% of HHs
Fever	40	72	56
Diahorrea	31	72	43
Cold & Cough	39	72	54
Headache	15	72	21
Stomach ache	8	72	11
Skin diseases	2	72	3
Typhoid	4	72	6
Vomiting	5	72	7
Gastric	4	72	6
Pain in hands and legs	3	72	4
Eye irritation	2	72	3
Asthma	1	72	1

NOTE: Multiple diseases and symptoms were reported in most of the households. So, the percentage of each disease has been calculated individually with respect to 72 households.

7.1.6 Opinion Survey

An opinion survey was conducted to test the awareness level of the people regarding clean environment and health; their perception towards poverty and its causes; their personal opinion about the involvement of different institutions; their expectations from the government; and finally their relationship with the surrounding non-squatters and among themselves. Following are the findings of the survey.

Perception of People about Health and Sanitation

All the respondents were found aware about the clean environment. Of 72 responding households, 62 households (86 %) pointed their surrounding environment to be dirty; 11 % judged their place to be clean, while 3 % found their environment in moderate condition. Similarly, 89 % of the 56 respondents told that the place is unsafe to live. Eviction threat, flood problem, polluted environment and uncertain police raids in search of maoists and thieves had made this place unsafe to live for those respondents. On asking 59 respondents regarding the causes of health hazards, majority of the people indicated the polluted surrounding environment as the main cause of their poor health. The second reason as they pointed was unsafe water. Some of the respondents even indicated cold, unhygienic food, old age and poverty as their causes of poor health.

Attitude towards River Pollution

An opinion survey was conducted among squatters to know their views about their involvement in river pollution activity. Of 71 respondents only 5% of the respondents accepted their involvement in river pollution; while 39 % tactfully pointed both squatters and non-squatters as the contributors to river pollution. 56 % of the respondents, however,

accused non-squatters as the major river polluters. "The city sewerage and industrial effluents have been discharged in upstream of river; but non-squatters blame us as river polluters because we live along the river bank and we get an exposure", was their comment.

Social Environment

The social environment within the squatter community was found good. Except small fights and misunderstandings which are obvious in any community, these people were found to unite and work together for their welfare in common matters of development. Through the branch office of SPOSH (Society for Preservation of Shelters and Habitations in Nepal) in their settlement, the squatters were working together to receive Squatter Identity Card with the approval from ministry and municipality. Of 74 respondents, 78 % responded positively to their relationship with one another; while 18 % of the respondents told their relationship as moderate. Only 4 % of the people had bad relationship with other squatters.

The mixed comments about their relationship with the surrounding people were received during survey. There were 28 % of the total 75 respondents talking in favor of healthy relationship with non-squatters; whereas 13 % talked about moderate relationship. 20 % of the respondents had no relationship with the surrounding people, while majority (39 %) commented on their bitter relationship. "Most of the non-squatters (not all) call us thieves, river polluters, sand extractors and dominate us. They fight with us for water", was their normal reply.

Table 7.15: Social Environment of Jagritinagar Squatter Settlement

Relationship with Non-squatters	Respondents No.	%
Good	21	28
Bad	29	39
Moderate	10	13
No Relationship	15	20
Total	75	100

Relationship among Squatters	Respondents No.	%
Good	58	78
Bad	3	4
Moderate	13	18
Total	74	100

Perception towards the activities of different institutions working in their community

From the interview with various people of this community, it was understood that there are number of institutions which are delivering their service regularly or periodically. They are:

- Society for Preservation of Shelters and Habitations in Nepal (SPOSH)
- Women's Saving and Credit Group (instructed by Lumanti)
- UCEP Nepal (Free skill development trainings for three selected ladies for six month)
- American help (It provides scholarship, tiffin, copies and books to children)
- Health check up and medicine distribution by Korean organization once a year
- Onsite polio vaccination programme

Even with the involvement of all these institutions, most of the people (74%) were found unaware about their involvement. Of 72 respondents, only 36 % expressed their familiarity with the activities of institutions working in their community. Rest 74 % had no idea about these institutions, probably because they were too busy to solve hand to mouth problem that they had little attention in institutions' service delivering activities.

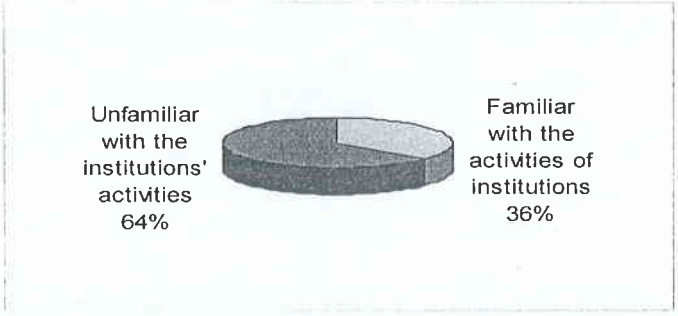


Fig. 7.8: Percentage of people familiar with the activities of institutions working in Jagritinagar

7.1.7 Problems and Priorities

The people in Jagritinagar are living in such a polluted and unhealthy environment that majority of the respondents (79 %) expected government to shift them in proper, healthier place. Their were only 11 respondents among 52 (21 %) whose expectation was proper management of the existing place. The other expectations/problems of the respondents in priority order were tap, employment, free education, stability, electricity, toilet, awareness programme, clean environment, skill development trainings, segregation of genuine squatters, land/housing installment programme, health services and equal distribution of resources among rich and poor.

Table 7.16: Expectations of Squatters of Jagritinagar in Priority Order

Problems/ Expectations	Priority Order
Tap/water tank	1
Employment	2
Free education	3
Stability	4
Electricity	5
Shelter	6
Sanitary toilet	7
Awareness programmes	8
Clean environment	9
Skill development training	10
Segregation of genuine squatters from fake squatters by government	11
Land/housing installment programme	12
Health service	13
Equal distribution of resources among rich and poor	14

7.2 SHANTINAGAR SQUATTER SETTLEMENT

7.2.1 Location

This settlement resides along the bank of river Bagmati at the flood plain area. It is situated at Shantinagar in Ward No. 34 at a walking distance of 5 minutes from the Air Cargo Complex. Only a bridge separates it from Jagritinagar squatter settlement. Said to be established in 2056 B.S. (2000 A.D.) with 54 dwelling units, it now dwells around 50 households. It is also at close proximity to New and Old Baneshwor. Though it is situated extremely near the city core areas, it is unseen from outside and the living environmental condition in this settlement is extremely dreadful.

Plate 7.2: Poor living environmental condition of Shantinagar squatter settlement

7.2.2 Socio-Economic Conditions

a) Demography

Population Profile

Among 50 households in Shantinagar, 39 households were surveyed which comprised of the population of 184 people. Of 184 people, more than half of the population (57%) was males, while females held the population of about 43%. More than 50 % of the people in Shantinagar were found to be children under the age of nineteen. Of 39 households, 87% of the households were male headed and the rest were female-headed households. The average household size was found at 4.7.The household size ranged from one to eight in number.

Table 7.17: Population Profile of Shantinagar Squatter Settlement

Components	Total	Percentage
Total households under study	39	100
Male Headed	34	87
Female Headed	5	13
Average Household Size	4.7	
Total Population under study (39 HHs)	184	100
Male	104	57
Female	80	43
Children (Up to 19 Yrs.)	99	54

Ethnicity and Religion

The people of Shantinagar belonged to different ethnic groups like Janajati, Dalit, Bhraman, Chetri and Newar. However, of the 39 households, majority of the people (62%) were backward ethnic communities.[5] Of the rest population, 15% to Bhramans, 15% to Newars and remaining 8% to Chetris. These people possessed different religions like Hindu (67%), Christian (18%) and Buddhist (15%). Most of the Christians were found to have converted their religion from Hinduism due to reasons like miraculous healing power in Christianity even for non-cured diseases.

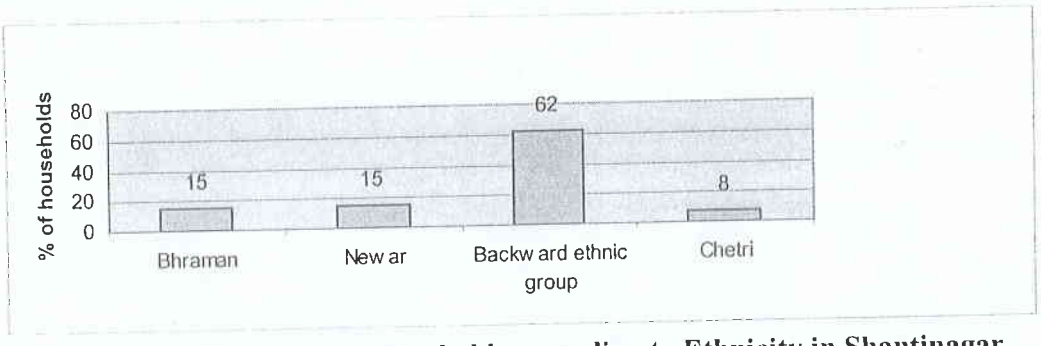


Fig. 7.9: Distribution of Households according to Ethnicity in Shantinagar

Migration

The whole population of Shantinagar was the migrants from different parts of Nepal. About half of the population (49%) had come here from Central Development Regions like Sindhupalchowk, Ramechap and Sindhuli; while 38% of these people were migrated from Eastern Development Region. Among them, majority of the people belonged originally to Morang district. Around 10% and 3% of the population had originally come from Western and Mid-Western Development Regions respectively.

Most of the people (64%) had migrated to Kathmandu for employment; wheras, the rest had migrated for reasons like search for luxurious life (13%), land lost by flood (10%), marriage (3%), travel (3%) and others (7%). 51% of the respondents still possessed their ancestral land in their home village.

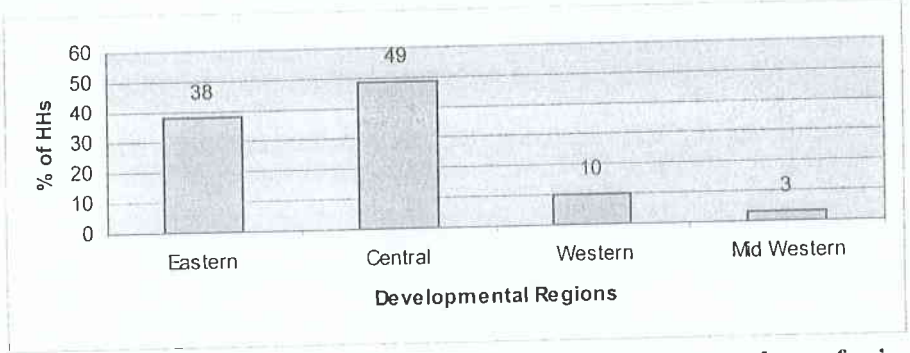


Fig. 7.10: Population distribution in Shantinagar according to place of migration

[5] Of the total population, 44 % were Janajatis belonging to different castes like Limbu, Tamang, Magar etc and 18 % belonged to Dalits.

The squatters were also asked about the reasons behind squatting in that environmentally degraded and discarded government land. The majority of the respondents (44%) said the unaffordable rent as their main reason for squatting. 37 % of them had occupied the public land to save rent money for children's education while others had squatted for reasons such as obtaining free/cheaper land to dwell (5%), bitter behaviour of the house owner (5%), to obtain homely environment (3%) and others.

Table 7.18: Reasons behind staying in Shantinagar squatter settlements as told by respondents

Reasons for staying in Squatter Settlement	No. of HHs	% of HHs
Unaffordable rent	17	44
Unaffordable rent & bitter behavior of house owner	2	5
To save rent money for family and children's education	15	37
For obtaining free/cheaper land for living	2	5
Relatives' home	1	3
To achieve homely environment	1	3
No place elsewhere to go	1	3
Total no. of respondents' HHs	39	100

b) Economic Condition

Occupational Status

Of the total studied population of 184 people, 72 people were found to be employed. Among the employed population, more than half (56%) were males and the rest 44% were females. Only 31% of these employed population had regular jobs such as business, government jobs and private jobs. The rest 69% of the employed population had irregular jobs. Majority of these people (65%) possessed labour work. They were basically found to work in construction sites, sand mining from river basin etc. Even the children were found to work in sand mining in the holidays. Of the whole employed population, only 19% had the permanent jobs, while the rest 81% possessed temporary jobs. Out of 39 households, 3 households (8%) were found to practice pig farming at their house.

Table 19: Occupational status of squatters in Shantinagar

Job Type	No. of Persons	% of Persons
Regular Job	22	**31**
Government	3	4
Private	5	8
Business	14	19
Irregular Job	**50**	**69**
Contractor	1	1
Labour	47	65
Abroad Labour	0	0
Wool making at home	2	3
Total	72	**100**

Income

Of the 36 responding households, majority of the households (44%) had monthly income in the range of Rs.3000- Rs.4999. 17% of these households possessed the monthly income in the range Rs.1000 – Rs.1999, while 14% possessed the income between Rs.5000 – Rs.10000. Thus, majority of the households (86%) had the monthly income below Rs.5000. The household size was found to increase with the increase in the monthly household income, but with some few exceptions. For instance, the households having the monthly income of Rs.3000 – Rs.4999 held the maximum household size at 5.1, while the monthly income between Rs.1000 – Rs.1999 held the minimum household size at 3.8.

Table 7.20: Level of Household Income and Household Size in Shantinagar

Monthly Income	Household		Person		Household Size
	No.	%	No.	%	
below Rs.1000	0	0	0	0	0
Rs.1000 - Rs.1999	6	17	23	14	3.8
Rs.2000 - Rs.2999	9	25	42	25	4.7
Rs.3000 – Rs.4999	16	44	82	47	5.1
Rs.5000 - Rs.10000	5	14	23	14	4.6
Total	**36**	**100**	**170**	**100**	

Poverty Analysis

More than half of the households of Shantinagar were found living in absolute poverty situation. Considering Rs. 9000 per capita annual income as the poverty line as proposed by Lalitpur Sub-Metropolitan City Office (LSMC) in 1999, 60 % of the total households of Shantinagar were calculated as the people below poverty line. Similarly, 30 % of the households were found lower medium class families and 4 % as the upper medium class families (See table 8.21 and Annex 2.1 for knowing the process of calculation of economic status).

Table 8.21: Economic status of the people in Shantinagar squatter settlement

Economic Status	Earnings Per Capita Per Annum (Rs.)	% of HHs Shantinagar
Poor	< 9,000	60
Lower Medium	9,000-20,000	30
Upper Medium	20,000-50,000	4

Note: The economic status of households according to the income per capita per annum (Rs.) was proposed by Lalitpur Sub-Metropolitan City Office (LSMC), 1999 in a Base Line Survey of Lalitpur.

Monthly Expenditure and Saving

Of the 32 respondents, almost all the respondents (96%) told that they spent more than 50% of their monthly income on food items. The rest 4% were unknown about their expenditure on food and other stuffs.

Among the 37 responding households, more than half of the households (56%) had no monthly savings. 14% of them responded positively saying they possessed monthly saving amount in the range Rs.500- Rs.1000. There were even four households (11%) which had

saved more than Rs.1000 a month. 3% of the households, however, possessed the monthly saving below Rs.100.

Food Consumption

More than 50% of the respondents consumed food two times a day with tea. About 89% of the respondents said they consumed complete food (rice, dal, vegetable). Of the 34 respondents, 50% told that their family consumes meat with rice weekly. 21%of the respondents told that they eat meat often (2-3 times/wk) and 9% told they eat meat daily. The rest of the respondents were the ones who consumed meat sometimes only. It was quite surprising that even with little income the people were managing to consume meat regularly.

Perception on Poverty

Of the 19 respondents, 90% of the respondents expressed themselves as poor, while 5% of them were not considering them as poor since they were still able to work and take care of their family. 5% of the respondents, however, had a mixed opinion about their poverty situation.

The respondents expressed different reasons of their poverty. Of 39 respondents, 22% of the respondents pointed lack of education as the main cause of their poverty, while 14% of them indicated unemployment as the major cause. Rest of the respondents identified different reasons behind their poverty such as unable to earn money (15%), lack of fortune (7%), having no ancestral land and property (7%), lack of skill (5%) and others.

Table 7.22: Reasons of Poverty as Perceived by the Squatters in Shantinagar

Causes of poverty	Respondents No.	%
Lack of education	9	23
Unemployment	6	15
Unable to earn money	6	15
Having no ancestral land and property	3	7
No fortune	3	7
Drunkenness habit of husband	3	7
Ignorance	2	5
Lack of skill	2	5
Laziness	1	3
Others (old age, big family etc.)	4	12
Total no. of respondents	**39**	**100**

c) Educational Status

In the 39 households surveyed, most of the people were literates. Of 184 people belonging to these 39 households, 121 people (66%) could at least identify the letters, while 63 people (34%) were illiterates. Among the children under the age of nineteen years, only 65% of the children had attended school. 14% of them had dropped out form schools due to non-affordability, work load and lack of interest in studies. 21% of the children hadn't attended the school due to small age. Of the 39 households, 30 households had school going children. The children from 57% of these households were found to join the public schools; whereas, the

children from 40% of the households were found to join private schools. There were only few households (3%) which had the children attending both public and private schools from the same house.

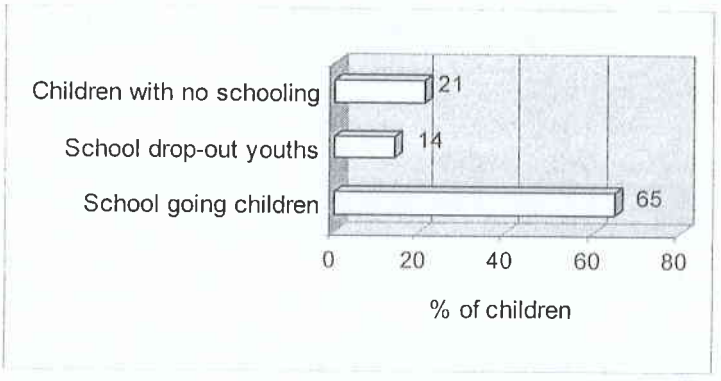


Fig. 7.11: Educational status of children in Shantinagar

7.2.3 Physical Environment

a) Housing Condition and the Constructed Materials

All the houses were temporarily constructed. About half of the houses (43%) had roof made from mixed scrap materials; 36% were made from polythene sheets. Only 21% of the dwelling units had tin-sheet as roof material.

None of the dwelling units had permanent cemented brick wall. Of the 39 dwelling units, 41% of them were constructed from polythene sheets and 41% from mixed scrap material. While the wall of 3% and 12% of the dwelling units were made from wood and tin sheet respectively.

Table 7.23: Construction Materials used in Respondents' Houses in Shantinagar

Category	No. of HH	% of HH
Roof Material		
Tin sheet	8	21
Polythene sheet	14	36
Mixed scrap materials	17	43
Bamboo	0	0
Total HH	**39**	**100**
Wall Material		
Brick/Cement/Cemented Block	0	0
Polythene sheet	16	41
Tin sheet	5	12
Wood	1	3
Bamboo/mud	0	0
Cardboard	1	3
Mixed Scrap materials	16	41
Total HH	**39**	**100**

Majority of the houses had maximum two rooms. About 62 % of the houses possessed one room and 36%, two rooms. Among the 39 houses, only one house was found to have four rooms. The plinth area of most of these houses was 64 sq. ft (i.e. 8ft x 8ft). All the houses

were attached to one another in linear form and therefore, the narrow passage in between the rows of houses was the only open space for the squatters.

Table 7.24: Housing Condition of the Respondents' Houses in Shantinagar

Category	No. of HHs.	% of HHs.
No. of rooms in a house		
1 room	24	62
2 rooms	14	36
3 rooms	0	0
4 rooms and above	1	2
Total no. of respondents' HH	**39**	**100**
No. of windows in a house		
No window	36	92
1 window	3	8
2 windows and above	0	0
Total no. of respondents' HH	**39**	**100**
No. of people per bedroom		
Up to 2	7	18
3 to 5	26	69
Above 5	5	13
Total no. of respondents' HH	**38**	**100**

More than 90% of the houses had no ventilation to give passage to the fresh air and light. The houses were, therefore, poorly lit and poorly ventilated. The rooms were also found overcrowded. In most of the houses (82%), more than three people were found to be living in a single room. The people per bedroom ratio were 3 to 5 in 69% of the houses.

b) Infrastructures, Services, and Sanitation Condition

Defecation practices

Of the 39 households, only 46% of the households had private toilet. About 51% of the households were found to use neighbours' toilet, while 3% of the households were found to defecate along the riverside. The households which possessed private toilets were all temporarily constructed at the back of the households, along the riverside. The toilet waste was directly discharged into the Bagmati river through a temporary pipe system. Those who hadn't constructed private toilet had their own reasons like lack of space, non-affordability, eviction threat, and instability due to flood.

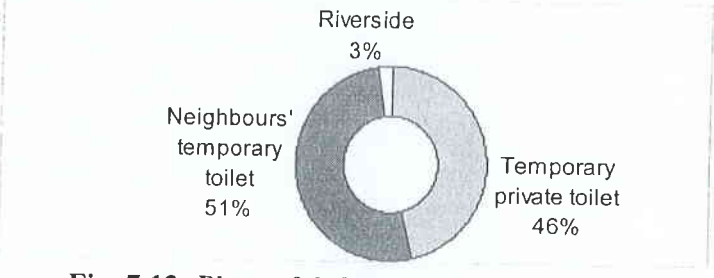


Fig. 7.12: Place of defecation in Shantinagar

Solid Waste Management

Majority of the households (85%) were found to dispose their household solid waste in the river. Since Bagmati river was flowing by the side of their houses, it was easier for them to throw the waste into the river. About 8% of the households were found to dispose the household waste along the roadside near the bridge. This was the place where ward office used to throw the ward waste few months back. Rest of the households had practiced burning and burying for solid waste management.

Table 7.25: Disposal of Solid Waste in Shantinagar

Category	No. of HHs	% of HHs
Disposed in river	33	85
Collected and burnt	2	5
Buried	1	2
Roadside	3	8
Total	**39**	**100**

Disposal of Domestic Wastewater

Of 39 households, 92% of the households were found to dispose their domestic wastewater directly into the river. Only 5%of the responding households were found to reutilize the domestic wastewater in their backside vegetable garden. About 3% of the households were also found to feed the wastewater to the pig.

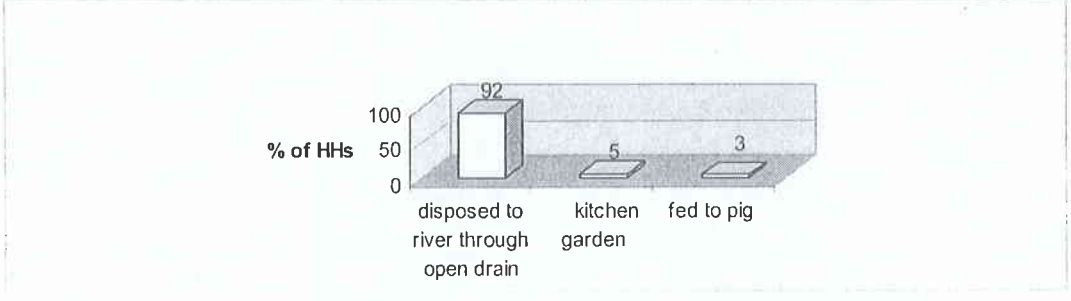


Fig. 7.13: Disposal of domestic wastewater in Shantinagar

Water Supply

Drinking water supply was found to be one of the biggest problems in Shantinagar. There was not even a single stand post in this community and people had to rely on different sources of water for drinking water. For bathing and washing, they had a community hand pump made from their own money. The water was, however, not fit for drinking.

For drinking water, the squatters were found to go to different water sources. Of the 38 responding households, majority of the households (62%) were found to procure water from public tank, while others were dependent on non-squatters' hand pump and tap, public spring and other sources. Though the walking distance of these water sources was maximum 20 minutes from the settlement, women and children were found to spend 1- 1.5 hours a day for fetching water from the water sources due to queue.

Table 7.26: Time taken in fetching water from different water sources in Shantinagar

Sources of drinking water	Time taken in procuring water from the source	No. of HHs	% of HHs
Within Squatter settlement			
Private hand pump	-	1	3
Neighbor's hand pump	2 min	1	3
Outside Squatter settlement			
Neighbour's tap	5-10 min	1	3
Neighbour's tube-well	5-10 min	5	13
Public tank	1 Hr	24	62
Public spring	1-1.5 Hr	1	3
Dependence on multiple water sources	Not fixed	5	13
Total HHs		38	100

Daily Availability of Drinking Water –

Of the 37 responding households, majority of the households (72%) had daily availability of drinking water up to 2 gagrees (app. 24litres). Among them, 35% of the households were found to receive 1 gagree (app. 12 litres) of drinking water per day, while 32% were found to acquire 2-gagrees/ day of drinking water from different water sources. 28% of the households were also found to get 3 or more gagrees of water daily. About 5% of the households were even found to consume 1 gagree of drinking water for two days. With these amounts of daily water availability, the per capita water consumption per day for drinking and cooking purpose is calculated to be 5.03 litre/capita/day, considering 4.7 as the average family size for Shantinagar squatter community. (See Appendix for process of calculation)

Laboratory Analysis of Water –

The bacteriological test of the source water and the stored water samples were conducted to check both the quality of water and the sanitation status in Shantinagar. The public tank water, which was consumed by majority of the people in Shantinagar was found to be contaminated with faecal materials. 260 Faecal Coliforms/100ml of water was observed from the test indicating that the water is unfit to drink without some prior disinfection treatment. The public spring water, however, had no contamination. The stored water sample procured from one of the households of Shantinagar was also found to have faecal contamination. From the test 20 Faecal coliforms were observed in 100ml of the stored water sample indicating that the sanitation condition of the household is not good.

Sewerage and Drainage

This squatter settlement lacks the sewerage and drainage facilities. However, the city sewer lines pass beneath the ground of most of the households, discharging sewerage into Bagmati river. Beacause of the direct discharge of city sewerage into the river, the squatters were found affected greatly by its odour. Similarly, the overflow of sewerage onto the road had also bothered them when the city sewer lines had broken.

Of the 27 respondents, 96% of the respondents were suffering due to lack of surface drainage facility in Shantinagar. All of them complained about the muddy road which would create problem in walking in rainy season. About 42% of the respondents even complained about the water logging problem on the narrow path.

Energy Use

Cooking Fuel

Most of the households in Shantinagar were found to use multiple sources of fuel for cooking. Of the 39 households, 26% of the households were found to use firewood and 30%, sawdust bought from the furniture shop. 21% of the households were also found to rely on kerosene for cooking. Moreover, 23% of them were usng all the three cooking fuels. None of the households possessed gas stove at their house. Some of the people were found to receive the firewood from bushes, and construction sites too. Of the 37 respondents, only 28 respondents (76%) complained about the smoke problem that was emitted from the fuel-wood and sawdust. The 28 affected respondents pointed different problems of smoke such as choking (18%), eye irritation (43%), black cough (15%), headache (4%), suffocation (4%), dirty cloth (9%) and pollution inside the house (7%).

Table 7.27: Cooking fuel used in respondents' household in Shantinagar

Cooking Fuel	No. of HH	% of HH
Firewood	10	26
Saw dust stove (Bhusechulo)	12	30
Kerosene	8	21
Gas	0	0
Firewood/bhusechulo/kerosene	9	23
Total no. of HHs.	39	100

Table 7.28: Different smoke problems of cooking fuel

Effects of smoke	Respondents No.	%
Choking	5	18
Eye irritation	12	43
Black Cough	4	15
Headache	1	4
Suffocation	1	4
Dirty cloth	3	9
Pollute the environment of house	2	7
Total no. of respondents	28	100

Electricity

Of the 39 households, less than half of the households (46%) had received electricity. Since the government hadn't supplied this settlement with the electricity lines, the individual household had bought electricity from the surrounding neighbours' house at the cost of Rs.100 – Rs.200. More than half of the households (56%) were unable to receive the electricity line even from their neighbours due to non-affordability. They were compelled to stay in twilight of candle (Tuki) which had indirectly affected the studies of children, health and their work.

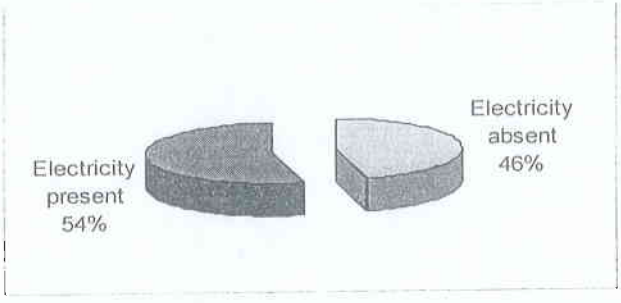


Fig. 7.14: Percentage of households with electricity in Shantinagar

7. 2.4 Effects of Surrounding Environment

Effects of city sewerage and polluted Bagmati river

Of the 37 respondents, 41% of the people were affected from the bad odour of the city-sewerage discharged into Bagmati river; while 43% of them responded that they had been habituated to that odour and it's not bothering them any more. The rest of the respondents indicated flies and mosquito problem and overflow of sewerage on the road from the broken sewer pipes as the effects of city sewerage that was discharged directly into Bagmati river nearby their settlement. Some of the respondents even complained about the intolerable odour of the carcass that was sometimes brought by Bagmati and got caught up along the riverside.

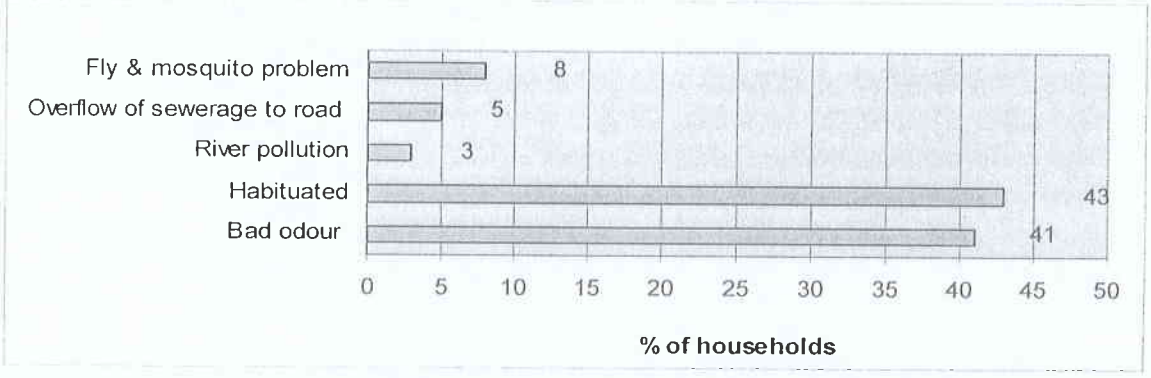


Fig. 7.15: Effects of city sewerage discharged into Bagmati river

Shelter Vulnerability to Natural Factors

The effects of natural factors like rain, flood, wind and thunderstorm were also found in Shantinagar squatter settlement. Since all the dwelling units were temporary in structure and they were located in flood plain area, the people were vulnerable to all kinds of natural factors. The details of the effects are presented below:

Rain

During rainy season, most of the households in Shantinagar were found to face the problems of roof water leakage, wall wetting and storm water flooding. Of the 39 households, 87% of the households were found to have these problems. Majority of these households (58%) had the problem of water leakage from the temporary roof. 26% of the households were found to have wall wetting problem in the rainy season; while in 16% of the households entry of rain water through storm water flooding was the problem.

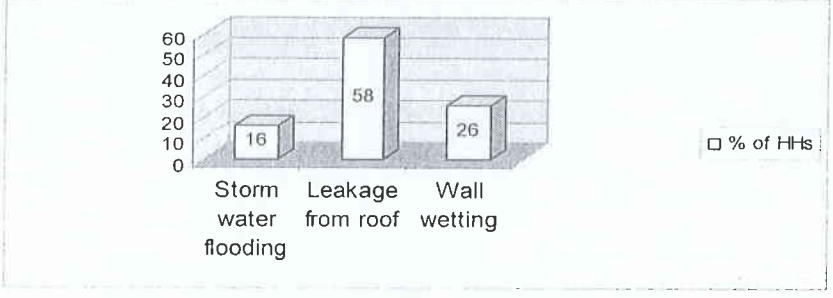


Fig. 7.16: Effects of rain water in Shantinagar

Flood

According to the respondents, flood is a major problem in Shantinagar during rainy season, especially from July to September. Of the 38 responding households, majority of the households showed concern over the effect of flood by telling that it's threatening in heavy rainfall time. 29% of the households even had the past experience when their houses were caught with the flood; The flood had entered inside the house, swept away dishes and clothes, and destroyed private toilets, sack-fence, pig box a year back. 15% of the households were even compelled to shift their place with all their belongings which was quite costly too. Because Shantinagar was situated upstream to the bridge where gabion wall had been fenced partly, some of the respondents told that the effect of flood was greater in Shantinagar than in Jagritinagar squatter settlement.

Table 7.29: Effects of Flood in Shantinagar

Effects of flood	**No. of HHs**	**% of HHs**
Threatening	20	54
Entered/swept away/destroyed toilet, sack-fence, pig box, etc.	11	29
Compelled to shift place	6	15
Mild effect as present	1	2
Total no. of respondents' HHs	**38**	**100**

Thunderstorm

The squatters suffer from thunderstorm and the wind mainly in May and June according to the respondents. Out of 33 responding households, majority of the people (67%) expressed their threat over the effect of thunderstorm; while the rest 33% of the respondents said the wind effect was not so threatening as the houses were joined with one another in linear shape. Of the 33 responding households, the temporary roof material was found to be removed in previous year by wind in 15% of the households.

7.2.5 Health

Diarrhoea, fever, cold, cough and headache were most prevalent diseases (or symptoms) among the responding households. Of the 34 households, majority of the households (68%) had the record of some family members being suffered from diahorrea in the last one year. Fever was reported in 65% of the households, while cold and cough was the existing health problem at the time of research in about 53% of the households. Stomachache, vomiting, eye irritation, meningitis, asthma were some of the diseases or disease symptoms found in some of the households. Out of 39 responding households, the disease occurrence rate in 38% of the households was reported to be frequent; it was often (1-2times a month) in 10% of the households and only sometimes in 13% of the households. 5% of the households reported that the disease occurrence rate is higher in summer season. However, 13% of the households didn't report any health hazard in their family. Of 28 respondents, most of the respondents (68%) indicated polluted environment as the cause of their diseases; while others pointed unsafe water (11%), cold (6%) and other factors (6%) as the causal factors of all these diseases. Since majority of the people of this settlement were labours, some of the respondents also reported occupational health hazards such as accident at the work place, cuts. Among the 38 responding households, almost all the households were found to take health service from hospitals and medical shops.

Table 7.30: Symptoms and Diseases prevalent in the households of Shantinagar in the last one year due to poor water, sanitation, polluted environment and cold.

Diseases/ Symptoms	No. of HHs	Total no. of HHs	% of HHs
Fever	22	34	65
Diahorrea	23	34	68
Cold & Cough	18	34	53
Headache	11	34	32
Stomach ache	3	34	9
Skin diseases	2	34	6
Pneumonia	2	34	6
Vomiting	2	34	6
Typhoid	1	34	3
Meningitis	1	34	3
Eye irritation	1	34	3
Asthma	1	34	3

NOTE: Multiple diseases or symptoms were reported in most of the households of Shantinagar. So, the percentage of each disease has been calculated individually with respect to 34 households.

7. 2.6 Opinion Survey

To gather the views of the squatters regarding different issues, an opinion survey was also conducted. The opinion survey was basically focused on the awareness level of the people regarding clean environment and health; opinion about the involvement of different institutions; expectations from the government; and social environment of Shantinagar squatter community. Following are the findings of the survey.

Perception of People about Health and Sanitation

All the respondents from the 39 households were aware that their place and the surrounding should be clean and healthy. Of those respondents, 92% of the respondents identified their surrounding environment as dirty and polluted environment, whereas, 8% of the respondents indicated the environment to be clean. Of the 34 respondents, majority of the people (71%) pointed their place to be unsafe to live, while 26% found it safe and 3% found it moderate.

Attitude towards River Pollution

About half of the respondents pointed non-squatters of the whole city as the main river polluters, while around fifty percentage of the respondents pointed both squatters and non-squatters as the river polluters. Of the 37 respondents, 51% of the respondents expressed the former view, while 46% of the respondents expressed the latter view about Bagmati river pollution. Only 3% of the respondents pointed themselves as the contributor to river pollution.

Social Environment

The social environment of Shantinagar squatter community was not found so satisfactory. Due to lack of unity and the feeling of trust, this squatter settlement was not able to develop though it was established few months earlier than Jagritinagar which was situated on the other side of the Sinamangal bridge. According to the respondents, the majority of the people in this settlement are uneducated and poor. They don't know about where and whom to talk to bring basic facilities like water, electricity etc. Because the people are poor, they can't take out the

money when a group of people from their settlement or other squatter settlements come to ask for money for some developmental activities. Since number of people had misused their money in the name of developmental activities in the past, the people in this squatter settlement were found to have lost trust even upon their own community people. The respondents brought forward these facts as the reason behind their backwardness.

Even in this situation, 60% of the respondents identified their relationship within the squatter settlement as healthy relationship. 32% of the total 38 respondents indicated their relationship to be moderate, while 8% of the respondents said their relationship is not so good. On the other hand, mixed opinion was obtained regarding their relationship with the surrounding non-squatters. Of the 37 Respondents, 32% of the respondents had good relationship; 38% had bad relationship; 11% had moderate relationship; while, 19% of the respondents possessed no relationship with the surrounding non-squatters.

Table 7.31: Social Environment of Shantinagar Squatter Settlement

Relationship with Non-squatters	Respondents No.	%
Good	12	32
Bad	14	38
Moderate	4	11
No Relationship	7	19
Total	**37**	**100**

Relationship among Squatters	Respondents No.	%
Good	23	60
Bad	3	8
Moderate	12	32
Total	**38**	**100**

Perception towards the activities of different institutions working in their community

Of 39 respondents, only 41% of the respondents were found aware about the activities of the different institutions working in their community. The rest 59% of the people were unaware about the institutions' works. In comparison to other squatter settlements like Jagritinagar and Pathivara, the institutional involvement in this squatter settlement was found to be relatively less. According to the respondents, Korean Church comes once a year for free health check up and medicine distribution; they also spray the mosquito repellents in the surrounding area and support the real needy people. The people of Shantinagar expressed their non-satisfaction about the institutional work. Except the work of Korean church, none of the respondents were satisfied with the performance of other institutions. "People only give lecture; show hope and do nothing for us", was their common voice.

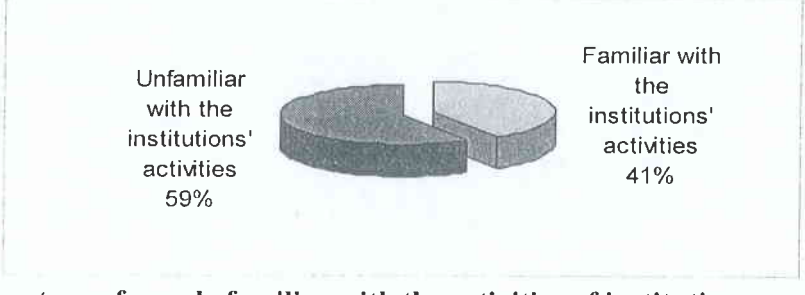


Fig. 7.17:Percentage of people familiar with the activities of institutions working in Shantinagar

7.2.7 Problems and Priorities

The people of Shantinagar squatter settlement were living in the temporary houses, fighting with the poverty, scarcity of clean water, electricity, polluted environment, flood problem, eviction threat and number of other problems. But still 50% of the 32 respondents expected the government to allow them to live in their existing place. In other words, stability was their major concern. 19% of those respondents, however, expected the government to shift them to some other safer and healthier place. The other expectations of the respondents are presented below in the priority order:

Table 7.32: Expectations of Squatters of Shantinagar in Priority Order

Expectations / Problems	Priority Order
Proper management of this place	1
Tap/water tank	2
Electricity	3
Health service	4
Free education	5
Place to live with dignity	6
Segregation of real squatters from fake ones	7
Clean environment	8
Gabbion wall	9
Public toilet	10
No eviction without pre-information	11
Proper utilization of donation for poor's shake	12

7.3 PATHIVARA SQUATTER SETTLEMENT

7.3.1 Location

Pathivara is situated at Kapan VDC at 15 minutes walking distance from Gopi Krishna, Chabahil. Situated at the bank of Dhobikhola and Khahare, this squatter settlement inhabits 174 households at present. Previously, there were 184 houses in this settlement. It is said to have been established in the year 2051. Being relatively older settlement, majority of the houses are moderate in construction. The density of the houses in this settlement is so dense that any one will be surprised to hear about the total household number accommodated in such a small area. Over the past ten years of stay, the quality of life of the people seems to have changed a lot. People are gradually upgrading in terms of economic condition. Yet, the environment is the same. The polluted river is still passing through the settlement, affecting the health of the people.

Plate 7.3: Pathvara squatter settlement located along the side of polluted Dhobikhola

7.3.1 Socio-Economic Conditions

a) Demography

Population Profile

The questionnaire survey was conducted in 77 households (44%) out of 174 households. The total population of the sample households was 343 which comprised of 178 males and 165 females. Male population was found to be 4 % more than female population. Amongst them, 48% of the total population was children up to the age of nineteen. The average household size was found at 4.3 with minimum household size of 2 and maximum household size of 9.

Table 7.33: Population Profile of Pathivara Squatter Settlement

Components	Total	Percentage
Total households under study	**77**	**100**
Male Headed H/H	73	95
Female Headed H/H	4	5
Average Household Size	**4.3**	
Total population of the studied households (77 HHs)	**343**	**100**
Male	178	52
Female	165	48
Children (Up to 19 Yrs.)	**166**	**48**

Ethnicity and Religion

The people belonging to various ethnic groups and religions inhabit in this settlement. Of 77 households, majority of the people (75 %) belonged to backward ethnic communities like Tamang, Magar, Rai, Limbu and dalits. The households belonging to Brhamans, Newar, Chetri were 11 %, 8 % and 6 % respectively. Out of these 77 households, 62 % were Hindus, 22 % were Buddhists, 1%, Kirati and the rest 14 % were Christians, most of whom had converted into Christianity recently.

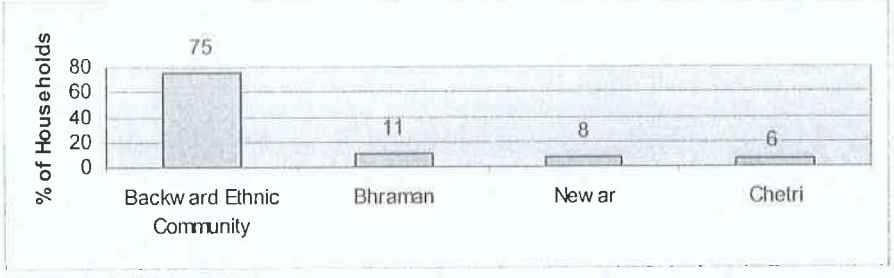


Fig. 7.18: Distribution of Households according to Ethnicity in Pathivara

Migration

Majority of the people in Pathivara were found to have migrated from eastern and central hilly areas of Nepal. Of 74 responding households, 54 % of the households had come from Eastern development region (mostly from Morang, Sunsari, Solukhumbu), and 34 % had migrated from hilly areas of Central development region (from Sindhupalchowk, Nuwakot, Sinduli etc.). Only 12 % of the households were the migrants from Western development region. It was so surprising to find that none of these households belonged originally to mid and far western regions. When asked about the reason behind their migration, majority of the respondents (67 %) pointed unemployment as the reason for their migration. The rest had their own reasons like land lost by flood or taken by landlords (7 %), search of luxurious life (7 %), relatives (3 %), travel (4 %), marriage (3 %), education (3 %), family separation (1 %) and sustain life (1 %). Of the 74 responding households, 47% of the households responded that they still possess ancestral land and house in their place of origin.

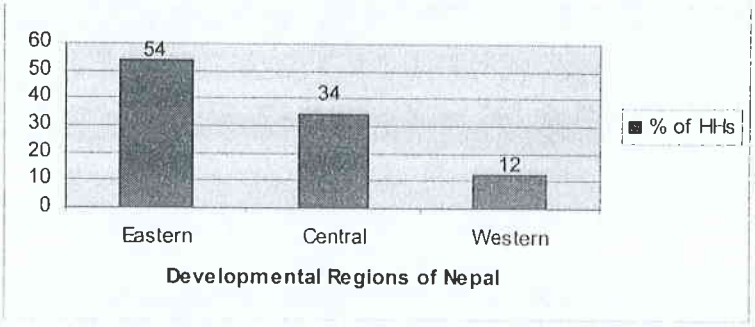


Fig. 7.19: Population distribution in Pathivara according to place of migration

Upon asking the reason for squatting in the environmentally degraded and discarded government land, the majority of the respondents (60 %) said the unaffordable rent as their reason for squatting. 19 % of them had occupied the public land to save rent money while others had occupied land for reasons like to obtain free/cheaper land (10 %), easy access to job (3 %), presence of relatives' home inside squatter settlement (3 %), eviction from factory's quarter (1 %), to achieve homely environment (1 %) and no other place to go (3 %).

Table 7.34: Reasons behind staying in Pathivara squatter settlement as told by respondents

Reasons for squatting in Pathivara	No. of HHs	% of HHs
Unaffordable rent	44	60
To save rent money	14	19
For obtaining free/cheaper land for living	7	10
Easy access to job	2	3
Relatives' home	2	3
Eviction from factory quarter	1	1
To achieve homely environment	1	1
No place elsewhere to go	2	3
Total no. of respondents' HHs	73	100

b) Economic Condition

Occupational Status

In Pathivara, 135 people (39 % of total population) from the responding households had employment, among whom 66 % were males and 34 % were females Out of the total male population of 178 , 37 % were working and among females who possessed the population of 165, the employment percentage was rather lower. Only 21 % of the female population was found to have some job.

The employed population with the regular job was found comparable to that of irregular job holders. Of 135 people, 55% possessed irregular jobs with 33% of the people working as labours. There were 61 people (45%) who had obtained regular jobs. Among them, only 2% had a government job; 33% had private job and 10% had their own small business. 7% of the employed population from ten households was found working in Saudi Arab, Qatar and Malaysia as labours.

Table 7.35: Occupational Status of squatters in Pathivara

Job Type	No. of Persons	% of Persons
Regular Job	**61**	**45**
Government	3	2
Private	45	33
Business	13	10
Irregular Job	**74**	**55**
Contractor	4	3
Labour	45	33
Abroad Labour	10	8
Wool making at home	15	11
Total	**135**	**100**

Income

Out of 65 responding households, 23 households (35%) had the monthly income in the range Rs.3000- Rs.4999 and 20 households (30 %) had the earnings between Rs.2000-Rs.2999. 2 % of the households belonged to such a group which hardly had a monthly income of Rs.1000 and 25 % of the households were also there to have monthly earnings in the range Rs.5000 – Rs.10000. Thus, the monthly earning of most of the households (60 %) was found above Rs.3000.

Against the general hypothesis that income is negatively correlated with household size, the increasing trend of income was found in Pathivara with the rise in family size. The average household size of the household with income below Rs.1000 was found at 3.0, while households with the monthly income in the range Rs.5000-Rs.10000 had average household size of 4.9.

Table 7.36: Level of Household Income and Household Size in Pathivara

Monthly Income	Household		Person		Household Size
	No.	%	No.	%	
below Rs. 1000	1	2	3	1	3.0
Rs. 1000 - Rs.1999	5	8	18	6	3.6
Rs. 2000 - Rs.2999	20	30	90	31	4.5
Rs.3000 - Rs. 4999	23	35	104	35	4.5
Rs. 5000 - Rs. 10000	16	25	78	27	4.9
Total	**65**	**100**	**293**	**100**	

Monthly Expenditure and Saving

Among 77 respondents, 36 (47 %) reported the monthly expenditure of their households on food items to be around 60-80 % of their monthly income, whereas 22 % respondents indicated 50-59 % as their monthly expenditure on food. 31 % of the interviewed people had no calculation of their expenditures.

Most of the respondents said they have no monthly saving at all. Out of 62 respondents, 48 respondents (77 %) reported in this manner. Their income is equal to their expenditures on food, transportation, children's education and other basic items. 10 % of the responding

households, however, possessed the monthly saving between Rs.500 and Rs.1000 and 11 % had monthly saving over Rs.1000. One of the households reported their monthly saving at less than Rs.100. It was a matter of surprise to the researcher that even with the less income and savings, most of the households (57 %) were affording to consume meat weekly with additional 19 % households consuming meat 2-3 times a week.

Poverty Analysis

The absolute poor population was relatively lower in Pathivara (41%) than in other squatter settlements. Being older in age, most of the squatters were found to have established in better jobs with better income due to the contacts established so far in the ten years of stay in same squatter settlement. About half of the households of this settlement were found with lower medium class status (See table 7.37 and Annex 2.1 for calculation process).

Table 7.37: Economic status of the squatters in Pathivara

Economic Status	Earnings Per Capita Per Annum (Rs.)	% of Households Pathivara
Poor	< 9,000	41
Lower Medium	9,000-20,000	46
Upper Medium	20,000-50,000	13

Note: The economic status of households according to the income per capita per annum (Rs.) was proposed by Lalitpur Sub-Metropolitan City Office (LSMC), 1999 in a Base Line Survey of Lalitpur.

Perception on Poverty

Of the 50 respondents, majority of the people (80%) called themselves poor, while the rest 20% considered their position to be above poor's rank. Among the 57 respondents, 42% of thye respondents were found to believe that lack of education is the major cause of their poverty. The other people expressed different reasons of their poverty situation like unemployment (14%), unability to earn money (10%), unability to work hard (6%) etc.

Table 7.38: Reasons of poverty as perceived by the squatters of Pathivara

Causes of poverty	Respondents No.	%
Lack of education	24	42
Unemployment / Lack of good work	8	14
Unable to earn money	5	10
Having no land and property/Poor ancestors	4	9
Unable to work hard	3	6
Improper utilization of money in things like alcohol	2	3
Innocence and foolishness	2	3
Lack of fortune	2	3
Lack of skill	2	3
Low salary, but huge work	2	3
Bad health	1	1
Lack of opportunity	1	1
Lack of saving	1	1
Old age	1	1
Unequal distribution of natural resources	1	1
Total No. of Respondents	57	100

c) Educational Status

The majority of the people in this community are literates. Of 343 people, 258 people (75 %) knew to read and write. On the other hand, among 166 children up to the age of 19, 79 % of the children from 65 households had schooling. The school drop out youths was counted at 17 (10 %). The reasons behind leaving the school were said as non-affordability, lack of interest in studies, to work and sickness. 11 % of the children had no schooling; in most of the cases due to the small age. All the respondents were found to have positive attitude towards education who strongly believed non-education as one of the causal factors of poverty.

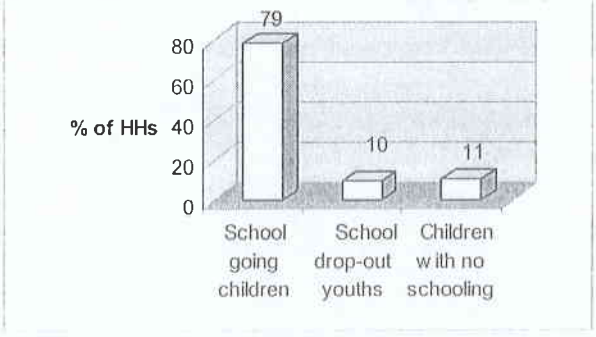


Fig. 7.20: Educational status of children in Pathivara

7.3.3 Physical Environment

a) Housing Condition and the Construction Materials

72 % of the total 77 houses were of moderate (Semi-paccki) type, made from cemented brick and corrugated sheet (tin sheet). The rest 28 % were temporary (Kacchi) in structure, which were constructed out of scrap materials like polythene, cardboard, wood, bamboo, tin etc.

Of 77 dwelling units, majority of the units (75 %) had the roof constructed from tin sheet; whereas polythene sheet was covered as the roof material in only 3 % of the houses. 21 % of the dwellings even had their roof constructed with mixture of scrap materials like polythene sheet, cardboard, tin sheet and bamboo. One of the houses had a mud tiled roof.

The wall materials in 72 % of the housing units were permanent in nature, constructed from cemented brick. Tin sheet (3 %), bamboo (19 %), mixed scrap materials (4 %), mud (1 %) and cardboard (1 %) made up the 28 % of houses.

Table 7.39: Construction Materials used in Respondents' Houses in Pathivara

Category	No. of HH	% of HH
Roof Material		
Tin sheet	58	75
Polythene sheet	2	3
Mixed scrap materials	16	21
Mud tiled	1	1
Total HH	**77**	**100**
Wall Material		
Brick/Cement/Mud/Cemented Block	55	72
Tin sheet	2	3

Mud	1	1
Bamboo and mud	15	19
Cardboard	1	1
Mixed Scrap materials	3	4
Total HH	**77**	**100**

All the dwelling units were one storey, most of which contained a single non-ventilated room with mostly 3 to 5 people living in a same room. Of 76 dwelling units, 22 % possessed only one room, followed by 51 % with two rooms and 24 % with three rooms. Only 3 % of the dwelling units had four or more rooms to share among the family members. Similarly, majority of the people had one to three windows for ventilation with 15 % of the houses having no window at all. 67 % of the houses were found to have minimum three people sharing a single bedroom among which 14 % of the houses had five to more people sleeping in a single room. The researcher had also checked the furnishing and cleanliness level of the households by her own judgment. Of 58 households, 22 households (38 %) had poor furnishing. Except beds, they had no furniture. On the same basis, 48 % of the households were found moderately furnished and 14 %, well furnished. Based on observation, the cleanliness level in 43 % of the 58 responding households were found poor and filthy, with 31 % of the households in clean condition and 26 %, in moderate condition.

Table 7.40: Housing Condition of the Respondents' Houses in Pathivara

Category	No. of HHs	% of HHs
No. of rooms in a house		
1 room	17	22
2 rooms	39	51
3 rooms	18	24
4 rooms and above	2	3
Total no. of respondents' HH	**76**	100
No. of windows in a house		
No window	11	15
1 window	22	29
2 windows	25	33
3 windows and above	18	23
Total no. of respondents' HH	**76**	100
No. of people per bedroom		
Up to 2	25	33
3 to 5	48	62
Above 5	4	5
Total no. of respondents' HH	**77**	100

b) Infrastructures and Services, and Sanitation Condition

Defecation practices

Of 77 households, 30 households (39 %) possessed private toilet and of the rest households, 46 households (60%) used the community toilet to defecate and one household (2 %) used neighbour's toilet. None of the households was found defecating along riverside in open. Among the 30 private toilets, 83 % of them were moderate type which were constructed from cemented brick and tin roof with a direct pipe line to discharge waste into the river. 10 % (3 toilets) of the private toilets were temporary, while 7 % (2 toilets) were permanent toilet with septic tank facility. Despite having toilet in many houses, majority of them were not sanitary

toilets. When the households without toilet were asked about the reason for not constructing toilet, their answers were lack of space (38 %), odour problem (10 %), non-affordability (45 %) and presence of community toilet (7 %).

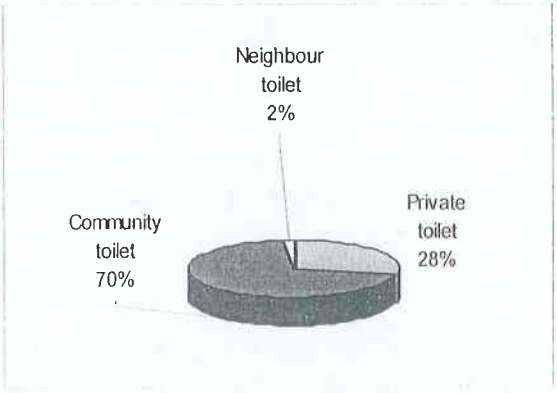


Fig. 7.21: Place of defecation in Pathivara

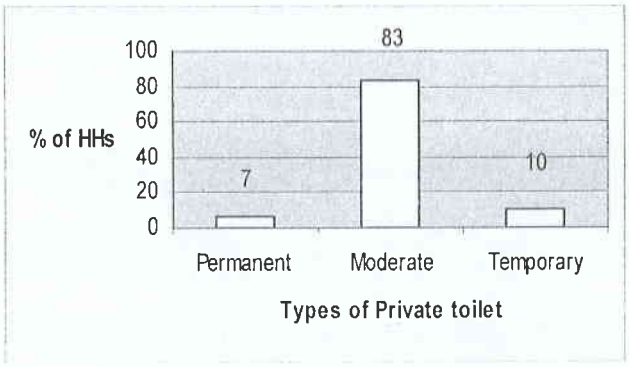


Fig. 7.22: Types of toilet in Pathivara

Solid Waste Management

Pathivara is situated just along the bank of Dhobikhola and Khahare. So, of the 75 responding households, 39 % of the households were found to dispose their waste in the river. Since municipal solid waste collection facility was also available in this place (basically for the surrounding people), 47 % of the households were disposing the solid waste along the roadside to be collected by municipality. Whereas, 10 % of the households were found to collect and burn the waste and 1 % (1 household) was found to manage solid wastes by recycling and reusing at household level.

Table 7.41 Disposal of Solid Waste in Pathivara

Category	No. of HHs	% of HHs
Disposed along riverside	29	39
Collected and burnt	10	13
Recycling	1	1
Roadside	35	47
Total	75	100

Disposal of Domestic Wastewater

Among 76 responding households, 67 % of the households were disposing the domestic wastewater (i.e. kitchen water, wastewater from bathing and washing) into the river through open drain and 34 % through closed drain; while 8 % was disposing it indiscriminately and the rest 1 % was utilizing the wastewater by putting in backside vegetable garden.

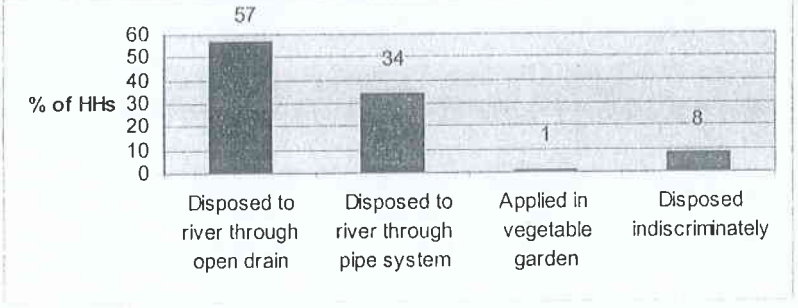


Fig. 7.23: Disposal of domestic wastewater in Pathivara

Water Supply

The problem of water supply was found immense in Pathivara. There was not even a single tap inside the community for removing thirst of 174 households. The two community hand pumps that were put by the community and Lumanti's joint effort had so dirty and smelly water that it could only be used for washing and bathing purposes. For drinking and cooking, people relied on multiple sources of water, like stone taps, spring, non-squatters' tap and neighbour's hand pump. Of 76 households, 34 % of the households were found to procure water from stone taps and spring, 21 % from non-squatters' tap, 28 % from neighbours' hand pump inside the community. Despite of low quality, 9 % of the households were found to drink community handpump water; while 8 % had their own handpump. Though the walking distance of these water sources was maximum 20 minutes from the settlement, women and children were found to spend up to 1 hour a day for fetching water from the water sources due to queue. Not only the squatter people of this community, but also the people from other settlements were using the same sources of water, resulting into scarcity of water and fight for water.

Majority of the people were found to consume Sodis water (Solar distilled water) as this technique is inexpensive and easier. These people were found to have learnt this technique of water purification from the NGOs such as Lumanti.

Table 7.42: Time taken in fetching water from different water sources in Pathivara

Sources of drinking water	Time taken in procuring water from the source	No. of HHs	% of HHs
Within Squatter settlement			
Private Hand pump	-	6	8
Community tube well	< 5min	7	9
Neighbour's hand pump	< 5min	21	28
Outside Squatter settlement			
Neighbour's tap	15-20 min	16	21
Stone tap/Spring	> 30 min to 1 Hr	26	34
Total HHs		76	100

Daily Availability of Water –

Though procuring water was a big problem for the squatters, 76 % of the total 72 respondents reported the sufficiency of water; 7 % said water is just sufficient and 10 % reported the insufficiency of water. Of the 69 households, 29 % of households were receiving only one gagree (12 litres) of water in a day for drinking and cooking; while 42 % of the households were receiving 2 gagrees (24 litre); 17 % of households, 3 gagrees (36 litre); and 3 % of households were receiving 4 or more gagrees of water in a day. For 9 % of the people, the availability of water was as minimum as 1 gagree for every 2 days (6 litres/day).With these figures on daily water availability, the per capita water availability in a day for this settlement is calculated at 5.1 litres/capita/day, considering 4.3 as the average household size.

Laboratory Analysis of Water -

The laboratory test of the water procured directly from the source showed zero faecal contamination, while the stored water obtained from one of the houses in Pathivara showed 56

faecal coliforms in 100ml of water. This signifies the poor sanitation condition at the household level in Pathivara. According to WHO Guideline value, the contamination of water to this extent makes the water very risky for consumption.

Sewerage

Along with the city sewerage, the sewerage of the squatter households was also discharged directly into Dhobikhola. The dying industry and the slaughterhouse situated in the upstream of the river were also found to discharge the effluents directly into the river causing river pollution. The squatters with their dwelling units just along the riverside were found most affected from the foul smell imparted due to river pollution, especially during daytime. Of the 75 respondents, 45% of them told they are being affected due to the smell.

Drainage

Lack of surface water drainage was a big problem in Pathivara. The paths between the rows of houses were so narrow that water logging and muddy pathways created problem in rainy season. Of 72 respondents, 93% were found to have such problems in rainy season.

Energy Use

Cooking Fuel

Kerosene was the main cooking fuel in about half of the households (43%) in Pathivara. 31% of the households were found to use almost all cooking fuels i.e kerosene, firewood and sawdust. Significant number of households (13%) was also found to utilize liquid gas for cooking purpose which is efficient, pollutionless, but bit expensive.

The respondents identified different health related problems and other effects of smoke emmited from firewood, sawdust and kerosene. Choking, eye irritation, black cough, indoor pollution were the significant effects in them.

Table 7.43: Cooking fuel used in respondents' HH in Pathivara

Cooking Fuel	No. of HH	% of HH
Firewood	5	6
Saw dust stove (Bhusechulo)	5	6
Kerosene	33	43
Liquid Gas	10	13
Electricity	1	1
Firewood/saw dust/kerosene	23	31
Total no. of HHs.	77	100

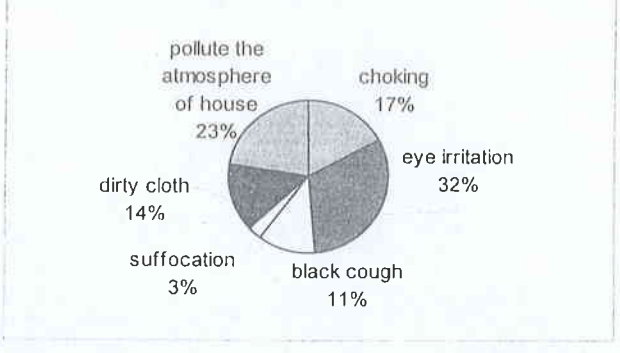


Fig. 7.24: Effects of smoke produced from cooking fuel

Electricity

Electricity facility was available in all the households of Pathivara. The community people had put their hard effort in bringing the electricity. With the recommendation obtained from a politician, they had finally received the government electricity service.

7.3.4 Effects of Surrounding Environment

Effects of polluted Dhobikhola

Since the city-sewerage, industrial effluents, wastes of slaughterhouses, and the domestic wastes and wastewaters of Pathivara squatter settlement were directly being discharged to Dhobikhola stream, the stream was quite polluted. The pollution was more added by the solid waste which was thrown into the stream by the city dwellers including the squatters of Pathivara. On one hand, this had resulted in visual pollution and on the other hand, foul smell emitted from the stream water had polluted atmosphere. Of the total 174 households of this settlement, the 23 households residing along the bank of the stream were found more affected by the odour.

Shelter Vulnerability to Natural Factors

Rain

The rain water was found to enter inside majority of the houses (79%). Yet, 21% of the houses were well constructed and therefore, entry of rainwater inside the house was checked. Of the 79% of the houses, however, wall wetting and roof leakage were the main problems related to rainwater.

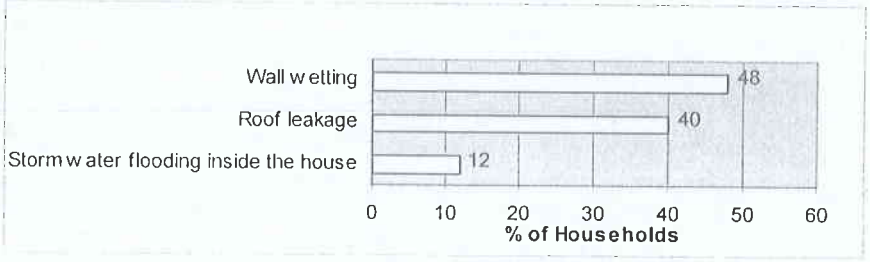


Fig. 7.25: Effects of rain water in Pathivara

Thunderstorm

Out of 76 households, the respondents from 42% of the households told the threning effect of thunderstorm and wind. 24% of the houses were found to have the roof removed in previous years during stormy and windy days.

Flood

The flood effect was not so significant in Pathivara. Only 6% of the households had the past record of flooding inside their houses. Except twenty three houses, rest of the squatter houses were away from the river bank and therefore, the flood effect was not a problem. According to some respondents, the increasing depth of the river due to river soil extraction has also lowered the flood effect. Yet, in rainy season crossing the river through the bridge creates a problem.

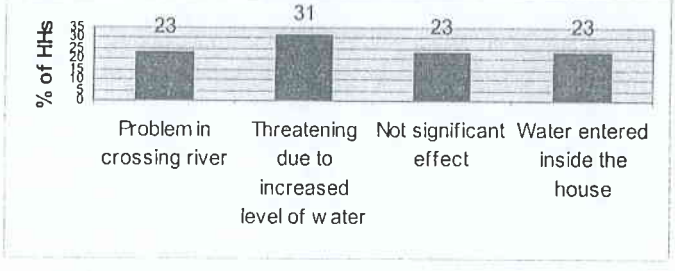


Fig. 7.26: Effects of Flood in Pathivara

7.3.5 Health

Cold and cough, fever, diahorrea, headache and typhoid were found common among the people of Pathivara. Of the 73 responding households, 32% of the housdeholds reported diahorrea cases in their family members in the last one year, while 18% of the total households had the cases of typhoid. Of the 73 responding households, the respondents from 40% of the households said their family members (especially children) suffer from diseases frequently or often. However, 54% of the households were found to suffer sometimes only. Majority of the respondents (56%) claimed polluted environment as the main cause of their health problem, while 24% of them pointed unsafe water as the cause. Others told the reasons such as cold (4%) and food (4%); rest 11% didn't possess idea of their poor health.

89% of the households were found to rely on medical shop and /or hospital for medical check-ups; while 7% were found to go to traditional healers along with hospitals and the rest 2% to the clinics.

Table 7.44: Symptoms and Diseases prevalent in the households of Pathivara in the last one year due to poor water, sanitation, polluted environment and cold.

Diseases/ Symptoms	No. of HHs	Total no. of HHs	% of HHs
Cold and cough	42	73	58
Fever	35	73	48
Diahorrea	23	73	32
Headache	15	73	21
Typhoid	13	73	18
Pneumonia	6	73	8.2
Stomach ache	6	73	8.2
Heart disease	4	73	5.5
Skin disease	2	73	2.7
Asthma	2	73	2.7
Throat problem	3	73	4.1
Body pain	3	73	4.1
Jaundice	1	73	1.4

NOTE: Multiple diseases or symptoms were reported in most of the households. So, the percentage of each disease has been calculated individually with respect to 73 households.

7.3.6 Opinion Survey

Perception of People about Clean Environment

Of the 76 respondents, majority of the people (79%) labeled their surrounding environment to be dirty. 2% of the respondents found the area to be moderately clean, while 18% labeled it to be clean. All the respondents were found to understand the importance of cleanliness.

Attitude towards River Pollution

About half of the respondents (49%) expressed their views that both squatters and non-squatters are equally responsible in polluting Dhobikhola. Of the 68 respondents, only 13% of the respondents accepted themselves as the sole contributor to river pollution. The rest 38% of the respondents claimed the non-squatters as the main responsible people who have discharged their domestic wastewater and industrial effluents into the river in large amount.

Social Environment

Though being the largest and most densely populated squatter settlement of Kathmandu, the people of Pathivara were found to live in harmony. This was one of the main reasons behind the fast pace of development of this community. The squatters were found to unite and work together in the common matters of interest. Community meetings were also found to be conducted time to time to discuss the internal matters. Significant number of educated and clever people was also found to reside in this settlement. They have also formed a Pathivara Tole Sudhar Samiti through which they have created a network with number of other organizations. The squatters of Pathivara were found to receive different kinds of services and facilities through this networking. Majority of the people were found to participate in the community's internal activities like collection of money in household level to construct community's school building, bringing government electricity etc. Thus, during the survey majority of the respondents (81%) claimed their internal relationship with the neighbouring squatters is good. Considering the small fights occurred occasionally among the drunkards, 16% of the respondents however commented their relationship to be in intermediate position.

Mixed type of relationship was found prevalent between the squatters of Pathivara and the surrounding non-squatters. About half of the respondents (51%) possessed good relationship with the neighbouring non-squatters while 10% had moderate relationship and 27%, no relationship at all with the non-squatters. According to these respondents, the non-squatters used to scold them previously for occupying the land, polluting the river and for dwelling the thieves, but now they don't scold them directly.

Table 7.45: Social Environment of Pathivara Squatter Settlement

Relationship with Non-squatters	Respondents No.	%
Good	37	51
Bad	9	12
Moderate	7	10
No Relationship	20	27
Total	**73**	**100**

Relationship among Squatters	Respondents No.	%
Good	60	81
Bad	2	3
Moderate	12	16
Total	**74**	**100**

Perception towards the activities of different institutions working in their community

Many institutions and people were found working in this community, delivering service to the people. Following were the institutions working in the community as suggested by the squatters.

- Lumanti (This NGO has accomplished number of works in Pathivara such as financial help in the construction of the community's school building, two tube-wells, five community toilets, initiation of Women's saving and credit groups. But Lumanti has retreated from Pathivara for some time.)
- Women's Saving and Credit Group (initially instructed by Lumanti and now operated under the cooperative)
- EDHOC (health check-ups, promotion of SODIS water. Even after the termination of this project, squatters are receiving free medicines from the EDHOC's office.)
- Study classes in the community's school run by foreigners.
- Occasional health check-ups by the medical students of Kathmandu Medical College, Nepal Medical College, Bir Hospital etc.

- UCEP Nepal (Free skill development trainings for three selected ladies of the community for six month)

Among 76 respondents, 44 respondents (58%) were aware about the activities of the different organizations working in their community, while 42% of the respondents did not possess idea about the organizations' activities. Of the 44 aware respondents, majority of them (62%) were found to be satisfied with the performance of the organizations, whereas, 36% were unsatisfied and the rest 2% were moderately satisfied.

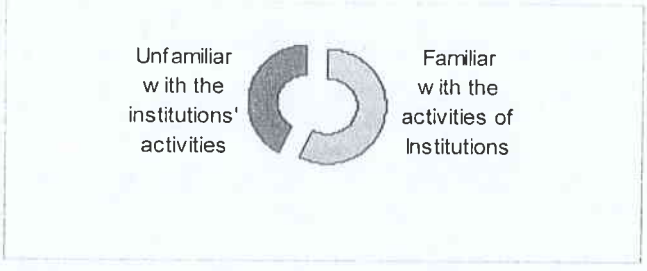


Fig. 7.27: Percentage of people familiar with the activities of institutions working in Pathivara

7.3.7 Problems and Priorities

Unavailability of the piped water was the main problem in Pathivara. There was not even a single tap water in the community and the tube-well water was not fit for drinking. So, tap water was the first expectation of most of the respondents in Pathivara. Their second expectation from the government was the permission to stay in Pathivara permanently. The other expectations of the people were proper management of the place, land ownership card, control of Dhobikhola pollution, regular job, adequate sanitary toilet etc.

Table 7.46: Expectations of Squatters of Pathivara in Priority Order

Problems/ Expectations	Priority
Tap water	1
Stability/ Permanent stay	2
Proper mangement of this place	3
Land ownership card	4
Clean environment through control of pollution in Dhobi Khola	5
Employment /Regular job	6
Public Sanitary toilet in adequate number	7
Shift in a proper, healthy place with less population density of squatters	8
Find out genuine squatters by government	9
Free education upto secondary level	10
Health service	11
Sewerage facility	12
Skill development training	13
No forceful eviction	14
Land for squatters	15

7.B SQUATTER SETTLEMENT OF DHARAN

7.4 AMAR BASTI

7.4.1 Location

Amar Basti is a new squatter settlement of Dharan which is situated in Zero Point, Amar Hat. At the year of its establishment (2056 B.S.), the people of this settlement had to face number of eviction cases, but now the environment is peaceful. There are about 33 households in this community which are mostly the migrants from hilly areas of eastern developmental region. Though situated only at a vehicular distance of 5 minutes from the city center, the population in its surrounding is still thin.

Plate 7.4: A row of bamboo houses of squatters in Amar Basti along the bank of Khahare, the seasonal stream.

7.4.2 Socio-Economic Conditions

a) Demography

Population Profile

Among 33 households in Amar Basti, 27 households were surveyed which comprised of the population of 129 people. Of 129 people, more than half of the population (51%) was females, while males held the population of 49%. Half of the population in Amar Basti was found to be children up to the age of nineteen. Of the total surveyed households, 85% of the households were male headed and the rests were female-headed household. The average household size was found at 4.8.The households' size ranged from two to nine in number. That means, the households in Amar Basti contained minimum two people to maximum nine people.

Table 7.47: Population Profile of Amar Basti Squatter Settlement

Components	Total	Percentage
Total households under study	27	
Male Headed	23	85
Female Headed	4	15
Total population under study (27 HHs)	129	100

Male	63	49
Female	66	51
Children (Up to 19 Yrs.)	**64**	**50**
Average Household Size	**4.8**	

Ethnicity and Religion

The people of Amar Basti belonged to different ethnic groups like Janajati, Dalit, Chetri and Sanyashi. However, Bhramans and Newars could not be found in the surveyed households. Of the 27 households, majority of the people (85 %) were backward ethnic groups.[6] Of the rest population, 11% belonged to Chetri and 4% to Sanyashi. These people possessed different religions like Hindu (44%), Buddhist (33%). Kiratis and Christians were found in equal proportion (11-11%).

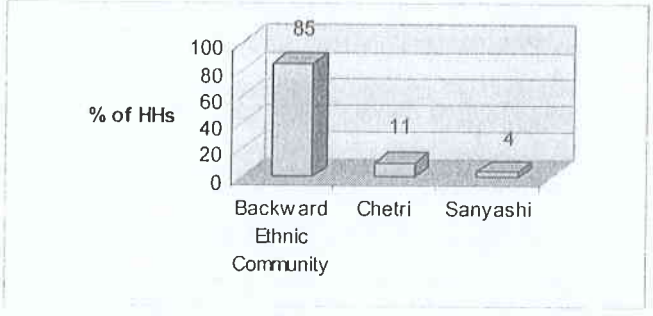


Fig. 7.28: Distribution of Households according to Ethnicity in Amar Basti

Migration

Out of 27 households, 25 households were the migrants from different parts of Nepal. Majority of the people (92%) had come to Dharan from the hilly and remote areas of Eastern Developmental Region. These people had migrated from different areas like Bhojpur, Khotang, Sankhuwasabha, Solukhumbu, Okhaldhunga, Taplejung and Sunsari too. Of the rest population, 4% had originally come from Western Development Region (Rupandehi), and 4% had migrated from India (Gorakhpur).

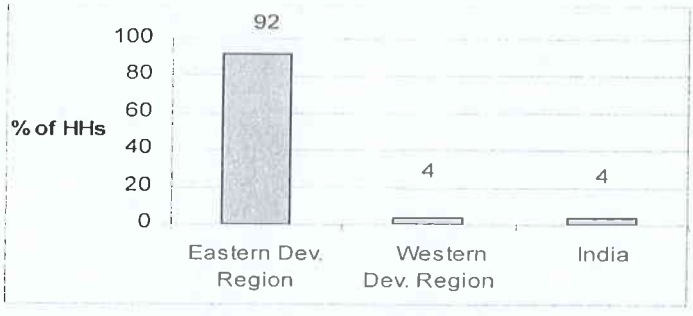


Fig. 7.29: Population distribution in Amar Basti according to place of migration

Most of the people (63%) had migrated to Dharan for employment; whereas, the rest had migrated for reasons such as marriage (15%), education (4%), relative (7%), others (11%). Only 23% of the respondents still possessed their ancestral land in their home village.

[6] 78 % of the population were Janajatis belonging to different castes like Rai, Sherpa, Tamang, Magar, Gurung etc., while, 7 % were Dalits.

The squatters were also asked about the reasons behind squatting in that flood plain area. The majority of the respondents (58%) said the unaffordable rent as their main reason for squatting; 19 % of them had occupied the public land to save rent money for children's education while others had squatted for reasons such as bitter behaviour of the house owner (11%), no where to go (8%) and to obtain homely environment (4%).

Table 7.48: Reasons behind staying in Amar basti as told by respondents

Reasons for staying in Squatter Settlement	No. of HHs	% of HHs
Unaffordable rent	16	58
Unaffordable rent & bitter behavior of house owner	3	11
To save rent money	5	19
To achieve homely environment	1	4
No place elsewhere to go	2	8
Total no. of respondents' HHs	**27**	**100**

b) Economic Condition

Occupational Status

Of the total population of 129 people from 27 households, only 38 people (i.e. 29.5%) were found employed. Among the employed population, more than half (68%) were males and the rest 32% were females. Most of the women in this settlement were the house wives. Of the whole employed population, only 16% had the permanent jobs, while the rest 84% possessed temporary jobs. Only 27% of these people had regular jobs in private and government firms, or had business of their own. The rest 73% of the employed population had irregular jobs. Majority of these people were labours. 42% of them were the local labours, working as Kuli, building constructor, stone crusher, firewood seller in Dharan and near by areas; while, 28% of these people were the outside labours, some working in Kathmandu and others in abroad countries like Dubai, Saudi Arab, Bahrain, Malaysia and India.

Table 7.49: Occupational Status of squatters of Amar Basti

Job Type	No. of Persons	% of Persons
Regular Job	**10**	27
Government	3	8
Private	5	13
Business	1	3
Pig farming	1	3
Irregular Job	28	73
Contractor	1	3
Local Labour	16	42
Abroad Labour	11	28
Total	**38**	**100**

Of the 11 such outside labours, eight of them were found working in abroad and the rest people in Kathmandu. Most of the households in this settlement were also found to rely on Gorkha Army pension. For five of the 27 households, this was found to be one of the income sources. Out of 27 households, 3 households (11%) were also found to practice pig farming at their houses but only one household was found to undertake pig-farming as a business.

Income

Of the 27 responding households, majority of the households (41%) had monthly income in the range Rs.3000- Rs.4999. 7% of these households possessed the monthly income below Rs.1000, while 4% possessed the income between Rs.5000 – Rs.10000. Thus, majority of the households (96%) had the monthly income below Rs.5000. The household size was found to increase with the increase in the monthly household income. For instance, the households having the monthly income of Rs.5000 – Rs.10000 held the maximum household size of 6, while the monthly income below Rs.1000 held the minimum household size of 2.5.

Table 7.50: Level of Household Income and Household Size in Amar Basti

Monthly Income	Household		Person		Household Size
	No.	%	No.	%	
below Rs.1000	2	7	5	3	2.5
Rs.1000 - Rs.1999	6	22	28	22	4.7
Rs.2000 - Rs.2999	7	26	32	25	4.6
Rs.3000 – Rs.4999	11	41	58	45	5.3
Rs.5000 - Rs.10000	1	4	6	5	6
Total	27	100	129	100	

Poverty Analysis

Considering Rs.9000 per capita annual income as the poverty line value as proposed by Lalitpur Sub-Metropolitan City Office (LSMC) in 1999, majority of the families of Amar basti were found living under absolute poverty. Of the 27 surveyed households, 66 % of the households were found absolute poor, while 30 % of them belonged to lower medium class households. However, 4 % of them were also found with upper medium class status (See table 7.51 and Annex 2.1 for calculation process).

Table 7.51: Economic status of the people in Amar Basti

Economic Status	Earnings Per Capita Per Annum (Rs.)	% of Households Amar Basti
Poor	< 9,000	66
Lower Medium	9,000-20,000	30
Upper Medium	20,000-50,000	4

Note: The economic status of households according to the income per capita per annum (Rs.) was proposed by Lalitpur Sub-Metropolitan City Office (LSMC), 1999 in a Base Line Survey of Lalitpur.

Monthly Expenditure and Saving

Of the 27 responding households, about 75% of the respondents told that they spend more than 50% of their monthly income on food items. The rest 25% were unknown about their expenditure on food and other stuffs.

More than half of the responding households (77%) had no monthly savings. However, 19% of them responded positively saying they possessed monthly saving amount in the range Rs.500- Rs.1000 and 4% of them possessed the monthly saving below Rs.100.

Food Consumption

All the respondents said they consumed food two times a day with tea/ nasta. About 93% of the respondents consumed complete food (rice, dal, vegetable). Majority of the people were found to eat meat frequently and regularly. Of the 27 respondents, 37% of the respondents told their family often (2-3 times a week) ate meat. Similarly, 30% of the respondents told that they ate meat once a week; 4% told they eat meat daily; while, 7% consumed it monthly. The rest of the respondents (19%) were the ones who consumed meat sometimes only. In Dharan, the cost of meat was found to be quite cheaper than in Kathmandu and for the squatters, the cost for buying meat (especially pork meat) was equivalent to that for buying vegetables and dal.

Perception on Poverty

Of the 22 respondents, 73% of the respondents expressed themselves as poor, while 27% of them were not in a position to consider themselves as poor. The former people found themselves as poor because of lack of money and inability to buy desired things and desired time. But the latter people didn't thought themselves as poor because they were still able to work and take care of their family by themselves. Upon asking the difference between the rich and the poor, one of the respondents answered very sweetly showing the difference, *"The rich people have and they eat. We poor people eat when we have."*

The respondents expressed different reasons behind their poverty. Of the 20 respondents, 36% of the respondents pointed lack of education as the main cause of their poverty, while 20% of them indicated foolishness and their innocence as the cause of poverty. Some people (14%) identified unemployment and lack of good job as the cause; while others pointed lack of will power, fortune, ancestral property, skill and opportunity as the reasons behind the poverty.

Table 7.52: Causes of Poverty as Perceived by the Squatters in Amar Basti

Causes of poverty	Respondents No.	%
Lack of Education	9	36
Ignorance & Foolishness	4	20
Unemployment/no good job	3	14
Lack of will power	1	6
Lack of skill	1	6
Lack of opportunity	1	6
Poor ancestors/Lack of ancestral property	1	6
Lack of fortune	1	6
	20	100

c) Educational Status

Most of the people were found literates in Amar Basti. Of 129 people belonging to 27 households, 95 people (74%) could at least identify the letters, while 34 people (26%) were illiterates. Among the 64 children up to the age of nineteen years, 48 children (75%) had attended school. Nine children (14%) had dropped out from schools due to lack of interest in studies, non-affordability, and work load. Only seven children (11%) hadn't attended the school, mainly due to under age. Of the 27 households, 20 households had school going children. Majority of these households (70%) had sent their children in government school.

The children from 10% of these households were found to join private schools and children from other10% of the households were found to join Christian and Lama schools. Rest of the households was found to send their children in both public and private schools from the same house.

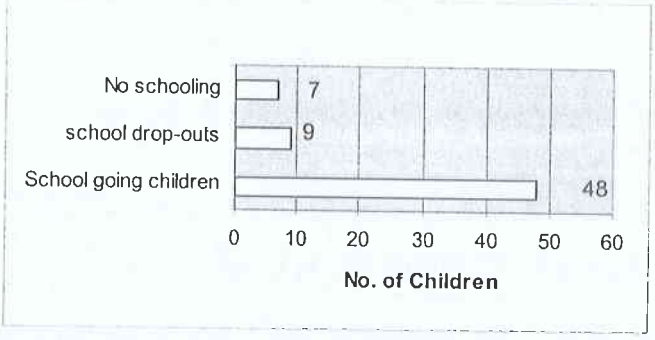


Fig. 7.30: Educational status of children in Amar Basti

7.4.3 Physical Environment

a) Housing Condition and the Constructed Materials

All the dwelling units were temporary in nature. Most of the houses were made up of bamboo wall and tin-sheet roof. More than half of the houses (63%) had roof made tin-sheet; while 19% of the houses were made from bamboo roof and 11%, from polythene sheets.

None of the dwelling units had permanent cemented brick wall. Of the 27 dwelling units, the wall of 52% of the dwelling units was constructed from bamboo; whereas, the wall of 41% of the dwelling units was made from both bamboo and mud.

Table 7.53: Construction Materials used in Respondents' Houses in Amar Basti

Category	No. of HH	% of HH
Roof Material		
Tin sheet	17	63
Polythene sheet	3	11
Bamboo	5	19
Mixed scrap materials	2	7
Total HH	**27**	**100**
Wall Material		
Brick/Cement/Cemented Block	0	0
Bamboo	14	52
Bamboo and mud	11	41
Bamboo and Tin sheet	2	7
Total HH	**27**	**100**

With the temporary partition made from bamboo, the houses possessed one to many rooms. Majority of the houses (89%) had up to three rooms. Of this, 33% of the houses had two rooms, 30% had three rooms; while 26% of the houses possessed only one room. Ii% of the houses, however, had four or more rooms too. All the houses were attached to one another in linear form and therefore, the narrow passage in between the rows of houses was the only open space for the squatters. About 74% of the houses had no ventilation to give passage to

the fresh air and light. In 41% of the houses, more than three people were found to be living in a single room. Of this, the people per bedroom ratio was 3 to 5 in 37% of the houses.

Majority of the houses in Amar Basti were found to have kitchen garden at the front and back side of the houses. Some of the houses had beautiful garden, fenced with bamboo in tidy manner. The researcher had checked the level of cleanliness and furnishing in each household by her own judgment. Accordingly, 50% of the households were found clean and 25%, moderate. The rest 25% of the households were filthy. Of the 27 surveyed household, more than half of the households (52%) were found to have poor furnishing, while 48% of the households had moderate furnishing (having few tables, chairs, television).

Table 7.54: Housing Condition of the Respondents' Houses in Amar Basti

Category	No. of HHs.	% of HHs.
No. of rooms in a house		
1 room	7	26
2 rooms	9	33
3 rooms	8	30
4 rooms and above	3	11
Total no. of respondents' HH	27	100
No. of windows in a house		
No window	20	74
1 window	2	7
2 windows and above	5	19
Total no. of respondents' HH	27	100
No. of people per bedroom		
Up to 2	16	59
3 to 5	10	37
Above 5	1	4
Total no. of respondents' HH	27	100

b) Infrastructures, Services, and Sanitation Condition

Defecation practices

Of the 27 households, only 6 households (22%) had private toilets, among which 4 households possessed permanent ring-toilets and 2 possessed the temporary pit-latrines. Almost half of the households (44%) were found to defecate along the riverside (or in the river basin which remained dry almost the year round except in the heavy rainfall time). The next 22% of the households were found to defecate in the surrounding bushy areas; while the rest 10% were using neighbours' toilet or the school's toilet for defecation.

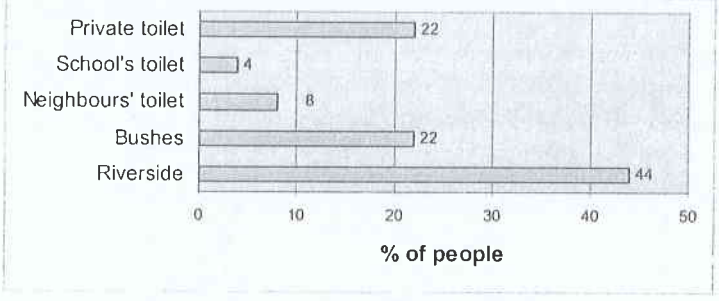


Fig. 7.31: Place of defecation in Amar Basti

Solid Waste Management

Majority of the households (70%) were found to manage their household waste by themselves through burning. Since *Sundar Samaj Nirman Samuha* was actively working in this community, the community children were mobilized every week to collect the surrounding waste and burn it. The 70% of the households were also found to get involved in this solid waste management task. The rest of the households were, however, found to dispose the waste along riverside (4%), throw indiscriminately (11%). About 15% of the households were also found to manage waste by burying waste in the pit.

Table 7.55: Disposal of Solid Waste in Amar Basti

Category	No. of HHs	% of HHs
Disposed along riverside	1	4
Collected and burnt	19	70
Buried	4	15
Thrown indiscriminately	3	11
Total	27	100

Disposal of Domestic Wastewater

Of 26 responding households, almost half of the households (46%) were found to reutilize the domestic wastewater in kitchen garden. About 12% of the households reused the water by feeding it to pig. Of the rest, 19% of the households were found to dispose the wastewater into the river; while 23% were found to throw it indiscriminately.

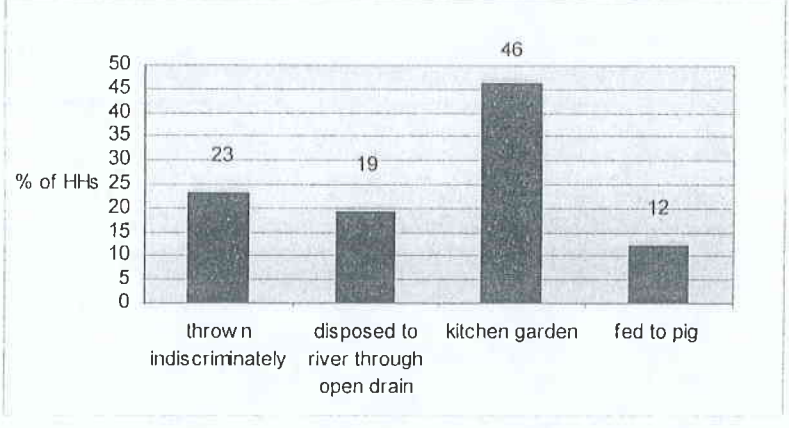


Fig. 7.32: Disposal of domestic wastewater in Amar Basti

Water Supply

A single community tap was present in Amar Basti which was brought from the money collected from 23 households. The quality of this tap water was good. Of the 27 surveyed households, 70% of the households relied on the same tap water for all the domestic activities. Of the rest households, who hadn't contributed their money, time and effort in bringing the community tap, were found to rely on the public tap of the surrounding village (26%) or the neighbour's tap (4%). The walking distance of all these water sources were not more than five minutes, but yet it took long time to fetch water due to queue. Since water was distributed only two times a day in the morning and evening for 2-2 hours and since 23 households relied on the single community tap, the water was not available in sufficient amount. Therefore, 67% of the respondents complained about the insufficiency of water during survey; while

11% of the respondents said water is just sufficient. Due to insufficiency of water, most of the people were found to go to Sardu River every week for bathing and washing though it took them about half an hour to reach the river.

Table 7.56: Time taken in fetching water from different water sources in Amar Basti

Sources of drinking water	Time taken to reach the water source	No. of HHs	% of HHs
Within Squatter settlement			
Community Tap	2 min	19	70
Outside Squatter settlement			
Neighbour's tap	5 min	1	4
Public Tap	5 min	7	26
Total HHs		**27**	**100**

Daily Availability of Water –

Of the 27 responding households, majority of the households (70%) were receiving 4 or more gagrees (app. 48 Litre or more) of water in a day; while 15% of the households were receiving about 3 gagrees (app.36 Litres) of water daily. Of the rest, 11% and 4% of the households were only getting 2 gagrees (app. 24 Litres) and 1 gagree (app.12 Litres) water everyday which was quite insufficient for them. All the domestic activities (cooking, washing, cleaning, bathing) had to be conducted with this much of water and therefore, the water was not sufficient for many households.

Taking these values of daily water availability as the basis, the per capita water consumption per day for Amar Basti has been computed as 9.09 Litre/Capita/Day, considering 4.8 as the average family size. (See Annex 2.2 for knowing calculation process)

Sewerage and Drainage

Neither sewerage nor drainage was found to pass through this area. Therefore, the problem of bad odour of sewage was not in existence. Since soil of this area was sandy in nature, muddy road and water logging problems were not the problems for Amar Basti's people.

Energy Use

Cooking Fuel

Most of the households in Amar Basti were found to use firewood for cooking. Of the 27 households, 63% of the households were found to use firewood only; whereas 33% of the households were found using kerosene and firewood simultaneously. Only 4% had gas stove at their home for cooking.

Majority of the households (96%) were found to rely on the surrounding forests for firewood, rather than the market. Sanghuri Dada, Ciuribash, Lampate, Khardu ban were some of the forest areas from where the households collected the firewood. Though it took around three hours to reach the forest in search of firewood, people relied on the firewood rather than other cooking fuels because they could get this fuel in free and it's reliable and efficient too. When they were asked about the restrictions in entering and collecting wood from forest, majority of

the respondents told they were not restricted to collect the dry branches and they were allowed to enter inside the forest all the time.

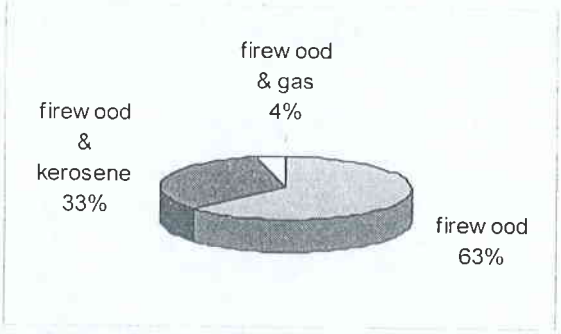


Fig. 7.33: Types of cooking fuel used in the respondents households in Amar Basti

Table 7.57: Different problems of firewood in Amar Basti

Effects of smoke	Respondents No.	%
Health Hazard	11	64
Dirty cloth	3	16
Pollute the environment of house	2	12
Slow Cooking	1	4
Problem of collection	1	4
Total no. of respondents	**18**	**100**

Of the 26 respondents, only 18 respondents (69%) accepted that they are having certain problems by using firewood. Of these 18 respondents, 64% complained about the health problems (choking, eye irritation, black cough) associated with the firewood smoke. The others pointed dirty cloth, environmental pollution at home, slow cooking, problem of collection as the problems associated with the use of firewood.

Electricity

Absence of electricity was one of the big problems in Amar Basti. Though being a kilometer away from the city core, electricity had not reached this settlement. Of the 26 responding households, less than half of the households (23%) had received electricity, but the electric line was drawn from the neighbourhood in exchange of monthly fee. The households were paying Rs. 150-200/ month or in some cases, according to the meter reading. Majority of the households (77%) were unable to receive the electricity even from their neighbours due to non-affordability. People were found to face different problems in absence of electricity, such as compelled to finish the work before dusk, hamper in children's study, chances of tripling down and getting injured, eye irritation and respiratory problems from the candle (tuki)'s hazardous smoke and problem in poultry farming.

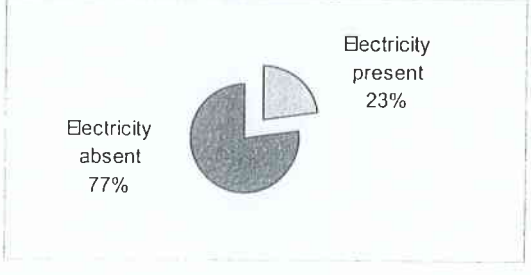


Fig. 7.34: Percentage of households with electricity in Amar Basti

7.4.5 Effects of Surrounding Environment

Shelter vulnerability to Natural Factors

The effects of natural factors like rain, flood, wind and thunderstorm were also found in Amar Basti squatter settlement. Since all the dwelling units were temporary in structure and they were located in flood plain area, the people were vulnerable to all kinds of natural factors. The details of the effects are presented below:

Rain

During rainy season, most of the households in Amar Basti were found to face the problems of roof water leakage, wall wetting and storm water flooding. About 75% of the households were found to have these problems. Of these households, 50% had the problem of roof-water leakage; 38% of the households were found to have wall-wetting problem in the rainy season; while in 12% of the households entry of rain water inside the house through storm water flooding was the problem.

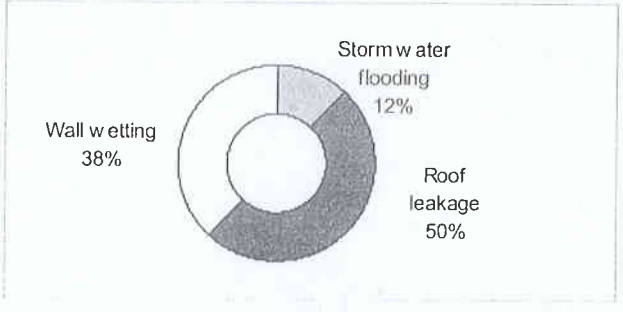


Fig. 7.35: Effects of rain water in Amar Basti

Flood

Flood was a problem in this area five years back. But due to construction of 1-3 layers of gabion wall at different parts along the riverside where the settlement lined up, the effect of flood had reduced significantly. Of the 24 responding households, 13% of the households gave such comment. Though the destructive effect was not significant, 79% of the respondents said that a big stream of water flows at once in the time of heavy rainfall and it's quite threatening and breathe taking. Every body comes out from the house and guards the house. Last year, all the squatter houses on the other side of the river were flooded and destroyed due to absence of gabion wall along that riverside. The river (Khahare) was seasonal river and water flew only in the time of heavy rainfall from June to October. The gabion wall was constructed by the community people themselves, partly with the support from government agency which had donated them the nets for gabion wall construction.

Table 7.58: Effects of Flood in Amar Basti

Effects of flood	**No. of HHs**	**% of HHs**
Daily work hampered	1	4
Threatening	19	79
Mild effect at present due to gabion wall construction	3	13
Swept away pig box 3 years back	1	4
Total No. of Respondents' HHs	24	**100**

7.4.5 Health

Number of diseases was reported from the same house during survey. Cold and cough, fever, diahorrea and headache were most common diseases (or symptoms) among the responding households. Since the household survey was conducted in the winter month of January, about half of the respondents (48%) reported their family members being suffered from cold and cough. 33% of the respondents reported fever cases at their family. Only 22% of the households were reported to have the diahorrea cases in the last one year. Stomachache, eye irritation, typhoid, tuberculosis, diabetes were the rare cases among the people of the surveyed households.

Out of 25 responding households, the disease occurrence rate was only sometimes in 76% of the households; while in the rest households the people suffered from diseases frequently in about 12% of the households and often (2-3 times/month) in the other 12% of the households. Of the 19 respondents, 26% of the respondents indicated polluted environment as the cause of their diseases; whereas others pointed unsafe water (9%), cold (17%), unhygienic food (13%) and other factors (20%) as the causal factors of all these diseases. Some of the respondents even reported small accidents in the forest during firewood collection time. Among the 25 responding households, almost 84% of the households were found to take health service from medical shops and hospitals. The rest relied on free clinic (8%), traditional healer (4%) and prayer (4%).

Table 7.59: Symptoms and Diseases prevalent in the households of Amar Basti in the last one year due to poor water, sanitation, polluted environment and cold.

Disease/ Symptom	No. of HHs	Total no. of HHs	% of HHs
Cold and Cough	13	27	48
Fever	9	27	33
Diahorrea	6	27	22
Headache	4	27	15
Eye irritation	2	27	7
Stomach-ache	1	27	4
Typhoid	1	27	4
Dizziness	1	27	4
Skin disease	1	27	4
Body Pain	1	27	4
Gastric	1	27	4
Diabetes	1	27	4
Throat problem	1	27	4
Tuberculosis	1	27	4
Blood pressure	1	27	4

NOTE: Multiple diseases or symptoms were reported in most of the households of Amar Basti. So, the percentage of each disease has been calculated individually with respect to 27 households.

7.4.6 Opinion Survey

To gather the views of the squatters on different issues, an opinion survey was also conducted. The opinion survey was basically focused on the awareness level of the people regarding clean environment and health, their perception towards poverty and its causes, opinion about

the involvement of different institutions, expectations from the government, and social environment of Amar Basti squatter community. Following are the findings of the survey.

Perception of People regarding Health and Sanitation

All the respondents from the 27 households were aware that their place and the surrounding should be clean and healthy. About half of the respondents (48%) identified their surrounding environment as clean; whereas, 39% of the respondents indicated the environment to be dirty. The rest 13% respondents pointed the environment in moderate condition.

Social Environment

The social environment of Amar Basti was found moderate. Unity was found as the main strength of this community. However, there were two groups inside this community – the lower 23 households that settled there in 2056 at once had a one united group and the upper 14 households that settled there in later period had a separate group. Because of unity, trust and good leadership, the lower settlement was found quite developed than the upper settlement. Community tap and gabion wall construction were the results of their group effort.

Of the 24 respondents, about half of the respondents (54%) identified their relationship within the squatter settlement as healthy relationship. 38% of them found their relationship to be moderate, while 8% of the respondents said their relationship is not so good with the upper group squatters. On the other hand, mixed opinion was obtained regarding their relationship with the surrounding non-squatters. Of the 24 respondents, almost half of the respondents (46%) possessed good relationship with the neighbour villagers. Since most of the squatters had stayed in these villagers house in rent before staying in squatter settlement, their relationship was still healthy. 25% of the respondents, however, had bad relationship with the non-squatters who often quarreled with them for water and land. Some of these people still claimed the land to be their personal land; while the squatters claimed it as government land.

Table 7.60: Social Environment of Amar Basti

Relationship with Non-squatters	Respondents No.	%
Good	11	46
Bad	6	25
Moderate	6	25
No Relationship	1	4
Total	24	100

Relationship among Squatters	Respondents No.	%
Good	13	54
Bad	2	8
Moderate	9	38
Total	24	100

Perception towards the activities of different institutions working in their community

Different organizations were found to be actively working in this community and most of the people were also found to aware about the activities of these institutions. Some of the institutions working in Amar Basti are listed below:

1. Society for Preservation of Shelters and Habitats in Nepal (SPOSH)
2. Nepal Women's Unity Society (NWUS)
3. DACAW
4. Sundar Samaj Nirman Samuha under DACAW
5. EDHOC

Of the 24 respondents, 71% of the people were aware about the activities of these institutions while 29% of the respondents were unable to tell even the names of the institutions working in their community. Of those who were conscious about the work of these institutions, majority of the people (75%) were satisfied with their work.

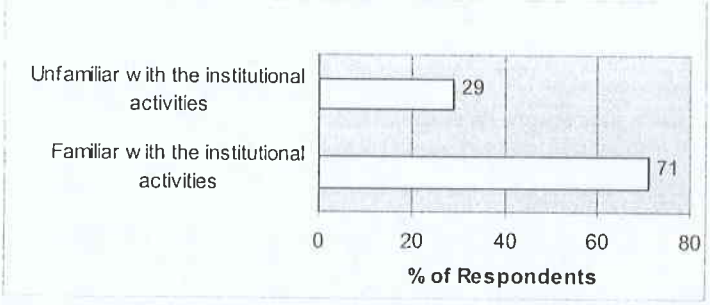


Fig. 7.36: Percentage of people familiar with the activities of institutions working in Amar Basti

7.4.7 Problems and Priorities

Lack of basic infrastructures like water supply, electricity, sanitary toilet was the main problem in Amar Basti. Due to the strong support from the organizations like SPOSH, eviction threat was not found to be the significant problem in Amar Basti. Therefore, the priorities of most of the people were tap, electricity, toilet, rather than stability. Other expectations of the people are presented in the table below:

Table 7.61: Expectations of Squatters of Amar Basti in Priority Order

Problems/ Expectations	Priority Order
Tap/water tank	1
Electricity	2
Toilet	3
Employment	4
Official identification if the land type (government land or private land)	5
Skill development training	6
Stability	7
Formal & Informal Education	8
Land ownership card	9
Health service	10
Equal distribution of resources between rich and poor	11
Awareness programmes	12
Pig eradication	13

Chapter VIII

RESULT

In this chapter, the poverty situation, environmental condition, and the perception of the squatters regarding poverty, environment and institutional performance are summarized for the four squatter settlements of Kathmandu, and Dharan. For detail information on each squatter settlement, please refer Chapter VII.

8.1 Location

All four squatter settlements were situated along the riverside in flood plain area. These settlements were located in close proximity to the city centers; yet they were unseen from outside. This had facilitated them by providing easy access to job and other urban facilities like transportation, hospitals and schools.

8.2 Socio-Economic Condition

8.2.1 Demography

Population Distribution

The population distribution in the four squatter settlements was found uneven. Amar Basti stood as the smallest settlement with total 33 households and 158 estimated squatter population and Pathivara, as the biggest squatter settlement with 174 households and 748 estimated squatter population.

Table 8.1: Details on Study Areas and Sample Sizes

S.N.	Squatter Settlements	Settlement (Estimated)		Sample Size		Percentage of Sample
		Household	Population	Household	Population	
1	Jagritinagar	108	443	75	306	69%
2	Shantinagar	50	235	39	184	78%
3	Pathivara	174	748	77	343	44%
4	Amar Basti	33	158	27	129	82%
	TOTAL	**365**	**1584**	**218**	**962**	**68%**

Of the households surveyed in four settlements, majority of the households were male headed. Jagritinagar possessed the lowest average household size of 4.1 and Amar Basti possessed the highest average household size of 4.8. All the four settlements were found to have household sizes below the national average household size and urban average household size which stand at 5.45 and 4.86 respectively. (CBS, 2001). The male population was found slightly more than the female population except in Amar Basti were female population headed the male population by 2%. Based on the age bar, the children and youths up to the age nineteen were found to dominate the population of all settlements. They covered about half the population of all settlements.

Table 8. 2: Population distribution in four squatter settlements

Category	Jagritinagar	Shantinagar	Pathivara	Amar Basti
Total no. of households under study	75	39	77	27
% of male headed HHs	91	87	95	85
% of female headed HHs	9	13	5	15
Average Household Size	4.1	4.7	4.3	4.8
Total population of studied HHs	306	184	343	129
% of male population	52	57	52	49
% of female population	48	43	48	51
% of children up to age 19	49	54	48	50

Ethnic Groups

Backward ethnic communities were found to dominate the four squatter communities the most.[7] Rest of the population belonged to Newars, Brahmans, Chetris. Amar Basti was the single squatter settlement to have Sanyashi in place of Bhramans and Newars.

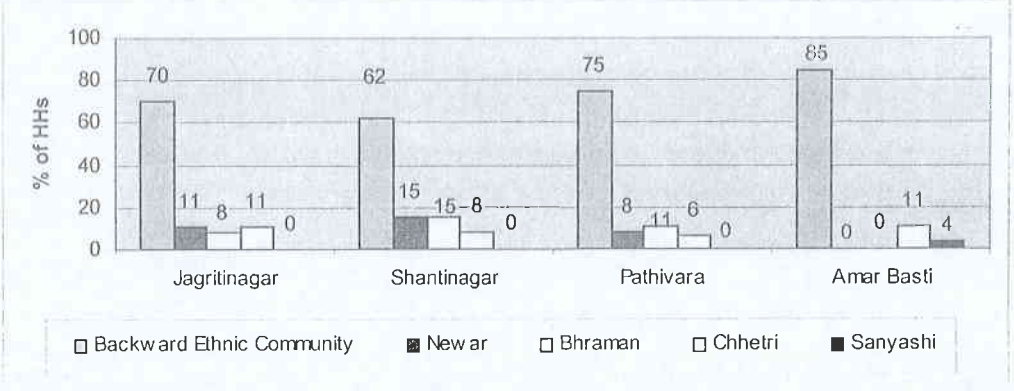


Fig. 8.1: Distribution of households in Four Squatter Settlements according to Ethnicity

The squatters belonged to different religions, with majority of them belonging to Hinduism. The second religion common among the squatters of four settlements was Buddhism. Significant number of Christians was also present in these squatter communities; Most of them had converted from Hinduism for reason such as miraculous healing power in Christianity. Kiratis held the lowest population in these communities.

Migration

Almost all the people of the four squatter settlements were found to have migrated from different parts of Nepal. Most of the squatters of three settlements of Kathmandu were found to have come from Eastern and Central development regions. Majority of the squatters of Amar Basti, Dharan were found to be the migrants of eastern development region. These people had mainly migrated from the hilly regions where the cultivation is low and the life is harsh. Employment was the main reason behind their migration. Some people had also migrated for reasons such as search of luxurious life, land lost by flood or taken by landlord, marriage, travel, education, family separation, maoist problem etc.

[7] More than half of the population in three communities were found to be Janajatis (native people of Nepal) belonging to different castes like Rai, Tamang, Magar, Lama and Sherpa. Dalits, the low caste people of Nepal, held the second position in all the communities.

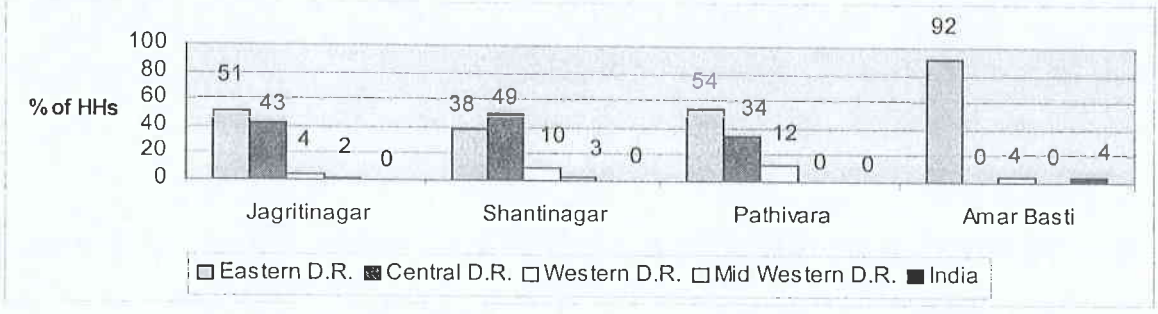


Fig. 8.2: Distribution of the households in four Squatter settlements according to Place of Migration

Except few people who had stayed previously in relatives' house or in quarter, most of the squatters were found to stay in rented rooms before squatting in the existing place. More than 50% of the households in each squatter settlement were found to squat in the government land in environmentally unsafe place due to unaffordable rent price. Buying land for making house was far from imagination for them. Some people were also found to squat to save rent money for family and children's education. Some had lived in this place due to bitter behaviour of the house owner, and some had sheltered for obtaining homely environment. A significant number of households had even squatted in this environmentally degraded place for obtaining free or cheaper land in urban centers of Kathmandu and Dharan where the land price is too high to be afforded by the poor section of the society. Since the illegal transaction of land and house took place even in the squatter settlements, some of the households in the three settlements of Kathmandu were found to live in this place for obtaining land and house in much cheaper price from Rs. 4000 to 15000 in Jagritinagar and Shantinagar and up to 1 lakh 30 thousand rupees in Pathivara.

Table 8.3: Reasons behind staying in squatter settlements as told by respondents of four settlements

Reasons for staying in Squatter Settlement	% of HHs			
	Jagritinagar	Shantinagar	Pathivara	Amar Basti
Unaffordable rent	60	44	60	58
Bitter behaviour of house owner	-	5	-	11
To save rent money for family & children's education	21	37	19	19
Lack of money to buy land	7	0	0	0
For obtaining free/cheaper land for living	4	5	10	0
Divorce with husband & unaffordable rent	3	0	0	0
Easy access to job	1	0	3	0
Relatives' home	1	3	3	0
Eviction from factory quarter	3	0	1	0
To achieve homely environment	0	3	1	4
No place elsewhere to go	0	3	3	8
Total % of respondents' HHs	**100**	**100**	**100**	**100**

8.2.2 Economic Status

Occupation

Except in Pathivara, very few people from the other three squatter settlements were found engaged in regular jobs in government or private organizations and micro-enterprises. Majority of the employed population of Jagritinagar, Shantinagar and Amar Basti possessed irregular jobs. The people possessing permanent jobs were even less in number (See table 8.4).

Table 8.4: Percentage of people engaged in regular and irregular jobs in four settlements

Occupation Type	% of Employed Population			
	Jagritinagar	Shantinagar	Pathivara	Amar Basti
Irregular Job	72	69	55	73
Regular Job	28	31	45	27
Total no. of employed population	105	72	135	38

Majority of the employed population (over 60%) in Jagritinagar and Shantinagar were found to be local labours; while the percentage was below 45% in Pathivara and Amar Basti where the significant number of employed population were abroad labours in countries like Malaysia, Dubai, Baharain, Saudi Arab and India (See fig. 8.3). Many local labours of Amar Basti were found to be the stone crushers who collected the stones from the river basin, crushed them manually and sold them to the builders. Similarly, most of the local labours of squatter settlements of Kathmandu were found involved in sand mining activities from the river basin especially during rainy season. Even the children were found to get involved in these activities occasionally. Except in Shantinagar, the share of the female employees in the total employed population was found half the population of male employees.

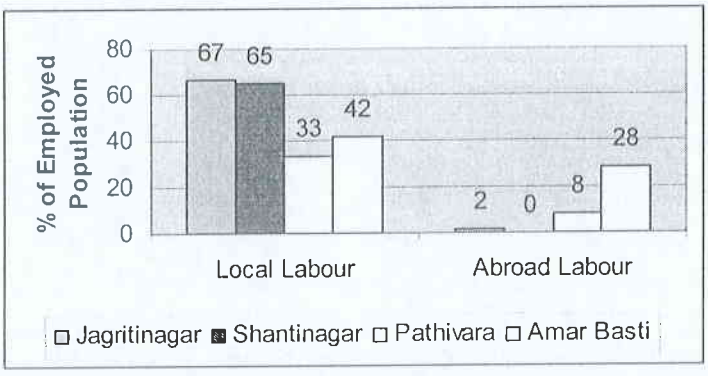


Fig. 8.3: Percentage of the employed population working as Local Labours and Abroad Labours in four squatter settlements

Income

The monthly income of the households in about half of the households of the four squatter settlements was found below Rs.3000. Only some households possessed monthly earnings over Rs.5000. Pathivara, the oldest squatter settlement of the four had comparatively more number of households with monthly income above Rs. 5000 (See table 8.5).

Table 8.5: Distribution of the households of four settlements according to monthly income

Monthly Income	Jagritinagar		Shantinagar		Pathivara		Amar Basti	
	No. Households	%	No. Households	%	No. Households	%	No. Households	%
below Rs.3000	42	57	15	42	26	40	15	55
Rs.3000 - Rs.4999	24	32	16	44	23	35	11	41
Rs.5000 - Rs.10000	8	11	5	14	16	25	1	4
Total HHs	74	100	36	100	65	100	27	100

Expenditure and Saving

Majority of the households were found to spend more than half of their monthly income on food. More than 70% of households in all the settlements had no monthly savings. Of the rest, most of the households were found to save Rs.500-Rs.1000 per month. However, their nutritional status was not found that bad. They were capable of consuming rice, dal and vegetable twice a day with tea; Most of the houses were found to eat meat weekly or twice a month.

Poverty Analysis

Majority of the households of the four squatter communities were either poor or lower medium class families. Using Rs.9000 as the poverty line as defined by LSMC, 1999, more than half of the households of Jagritinagar, Shantinagar and Amar Basti were found to be living below poverty line. The percentage of poor was relatively lower in Pathivara where the people had better jobs and income due to the contacts established so far in the ten years of stay in the same squatter settlement. Of the rest households, most of the households were lower medium class with per capita annual income between Rs.9000 and Rs.20,000 (See table 8.6).

Table 8.6: Economic status of the people in four squatter communities

Economic Status	Earnings Per Capita Per Annum (Rs.)	% of Household			
		Jagritinagar	Shantinagar	Pathivara	Amar Basti
Poor	< 9,000	57	60	41	66
Lower Medium	9,000-20,000	36	30	46	30
Upper Medium	20,000-50,000	7	4	13	4

Note: The economic status of households according to the income per capita per annum (Rs.) was proposed by Lalitpur Sub-Metropolitan City Office (LSMC), 1999 in a Base Line Survey of Lalitpur.

8.2.3 Educational Status

Over 60% of the people were found literates in each squatter settlement (See fig. 8.4). The literacy rate in these settlements was found more than the national literacy rate which stood at 59.62% in 2001 (CBS, 2001). But majority of the people lacked good educational background. However, in Jagritinagar and Pathivara some of the people were found to be highly qualified (Law Graduates) though it was a rare case.

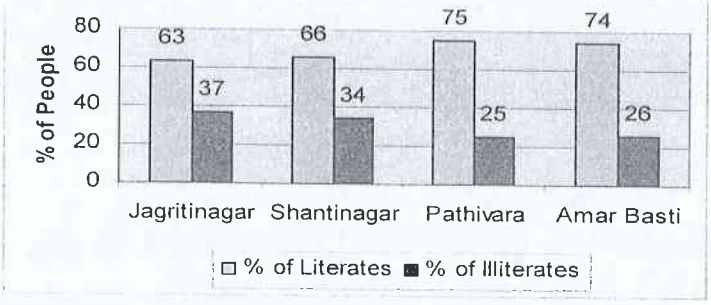


Fig 8.4: Population of the four squatter settlements by Literacy rate

More than half of the children up to age 19 were attending school in all settlements at the time of survey. The percentage of school going children was relatively higher in Pathivara and Amar Basti. Most of these children were found to join the government schools situated near the squatter settlements. However, significant number of children in Pathivara was also found to join the boarding school. In all the squatter settlements, some of the needy people were found to get some assistance from foreigners in educating their children in boarding schools (See table 8.7).

Some of the children and youths were also found to quit the school due to lack of interest in studies, failure in exam, non-affordability and workload too. Except few people, all the people of four squatter communities were found positive towards educating their children. It was good to find that all the people were aware about the importance of education. May be it was a positive effect of the educated modern society of Kathmandu and Dharan.

Table 8.7: Educational status of the children up to age 19

	Jagritinagar		Shantinagar		Pathivara		Amar Basti	
Educational Status	No.	% Children	No.	% Children	No.	% Children	No.	% Children
School going children	82	54	64	65	131	79	48	75
Children with no schooling	48	31	21	21	18	11	7	11
School drop-out children and youths	22	15	14	14	17	10	9	14
Total	152	100	99	100	166	100	64	100

8.3 Physical Environment

8.3.1 Housing Condition

Housing Type

All the housing units in Shantinagar and Amar Basti, and majority of the housing units in Jagritinagar were temporary (Kacchi) in construction. However being the old squatter settlement, Pathivara had more semi paccki (moderate) houses than temporary ones (See fig. 8.5). According to the respondents, the people of Pathivara used to have temporary housing units made from scraped materials like plastic, cartoon, tin sheet five years back, but now the structure of the same houses have changed due to the money saved so far which would otherwise have been paid for renting rooms if not squatted in the existing place.

The temporary houses in the four settlements were found made from locally and easily available materials. In Kathmandu, most of the temporary squatter houses were made from

polythene sheet, cartoon, corrugated sheet, wood pieces etc; while in Dharan (Amar Basti) the houses were constructed mostly from bamboo and mud which were easily available local resources in Dharan.

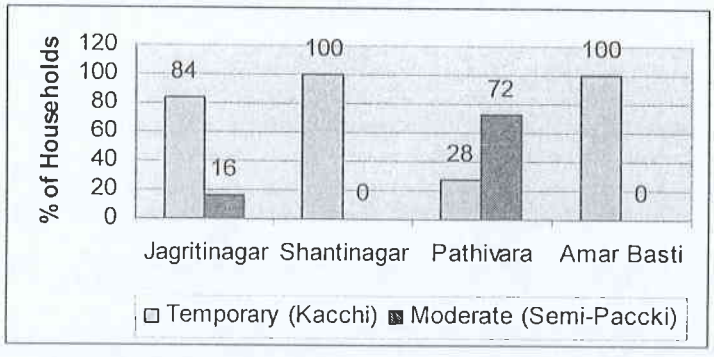


Fig. 8.5: Types of housing units in four settlements

Housing Condition

The housing condition was found most dreadful in Shantinagar where all the temporary houses were situated in linear fashion with parallel alignment, leaving very narrow path in between the rows; With the plinth area of 8ft x 8ft to 8ft x 16ft, majority of the houses had maximum two rooms with 3 to 9 people living in one room; Majority of the houses had no ventilation to give passage to the fresh air and the houses were poorly lit. The housing condition was slightly better in Jagritinagar, but in comparison to Pathivara and Amar Basti the housing condition was poorer. Most of the houses had 1 to 2 rooms with no ventilation, except the backside door which gave passage to the air (polluted air) blown from the polluted Bagmati river. On the other hand, over crowding and lack of open space were the main defects in Pathivara. Here, the riverside houses were found to have poorer housing conditions than the houses situated away from the river. The housing condition of most of the houses in Amar Basti was also not satisfactory, but still there was less crowd, the environment was relatively clean. Even with the deficiencies of many urban facilities, the place was livable.

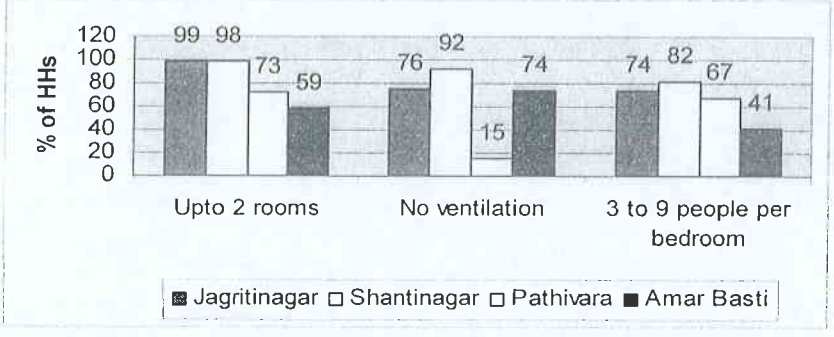


Fig. 8.6: Housing condition in four squatter settlements

8.3.2 Infrastructures, Services and Sanitation Status

Defecation Practice

Except few households, none of the households in any settlement possessed the sanitary toilet. Majority of the households in Jagritinagar possessed private toilet, but all of them were temporary in construction. About half of the households in Shantinagar possessed the same

kind of temporary private toilets and rest of the households used the neighbours' toilets. In doing so, 3-4 households were found to share a single toilet. In Pathivara, most of the households were found to use the community toilets; but five community toilets were not sufficient for the huge population which could neither afford to construct toilet, nor had space to construct private toilet at their homes. Further more, these toilets were all semi-paccki (moderate) in construction, discharging the toilet waste directly into the nearby river.

However, in Amar Basti majority of the people were found to defecate in the bushes and along riverside. Only some of the houses possessed the private toilet of which some were permanent ring-toilets and some, temporary pit latrines (See table 8.8 and fig. 8.7). In all the squatter settlements, the reasons behind non-constructing the sanitary permanent toilet were non-affordability or lack of space or instability due to flood or eviction threat.

Table 8.8: Defecation practice in four squatter settlements

	Jagritinagar		Shantinagar		Pathivara		Amar Basti	
Place of Defecation	No.	% Households	No.	% Households	No.	% Households	No.	% Households
Private Toilet	47	63	18	46	30	39	6	22
Neighbour's Toilet	28	37	20	51	1	1	3	12
Community Toilet	0	0	0	0	46	60	0	0
Along Riverside	0	0	1	3	0	0	12	44
Bushes	0	0	0	0	0	0	6	22
Total no. of Respondents' HH	75	100	39	100	77	100	27	100

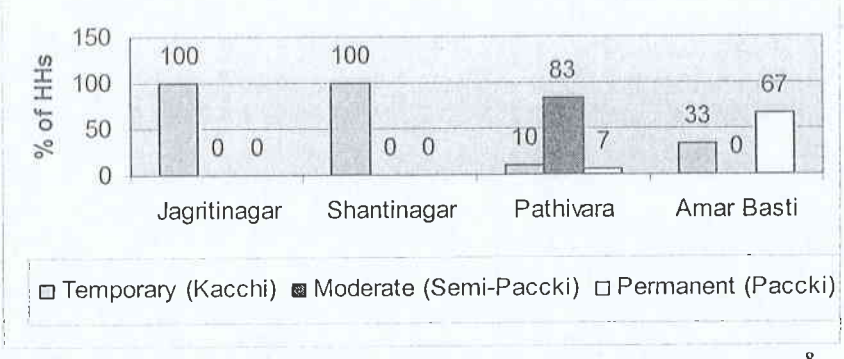


Fig. 8.7: Types of Private Toilet at four squatter settlements[8]

Disposal of Solid Waste

Majority of the households in Jagritinagar and Shantinagar were found to dispose the household solid waste in the river since it was the nearest and easiest place for disposing the waste. In Pathivara, the squatters were restricted to throw the solid waste along the riverside, in front of the squatter settlement. However, there was no restriction for them to dispose the waste along the riverside some distance farther away from the squatter settlement. Hence, some of the households were found to dispose their household waste into the river; while the others were found to throw the waste along the roadside to be collected later on by solid waste collectors of the ward.

[8] Here, temporary toilet means a toilet constructed from plastic sheet and cardboard in five sides with a small pit at the land, with or without a temporary outlet pipe. By Moderate (Semi-paccki) toilet the researcher means a toilet with brick walls and corrugated sheet's roof with the direct discharge of the toilet waste into the near-by river. Unlike moderate toilet, permanent (paccki) toilet has septic tank. It can also be termed as sanitary toilet.

Amar Basti was the only place where the solid waste management was found proper. Since the organizations like SSNS and DACAW were active in this place and a children group was also formed in the community for collecting and burning waste at week-ends, most of the households of this community were found to collect and burn the waste collectively. Very few households were found to throw the waste indiscriminately or along riverside in Amar Basti (See table 8.9).

Table 8.9: Disposal of solid waste in four squatter settlements

	Jagritinagar		Shantinagar		Pathivara		Amar Basti	
Category	No. Households	%	No. Households	%	No. Households	%	No. Households	%
Disposed along riverside	66	89	33	85	29	39	1	4
Collected and burnt	5	7	2	5	10	13	19	70
Buried	2	3	1	2	0	0	4	15
Roadside	1	1	3	8	35	47	0	0
Thrown indiscriminately	0	0	0	0	0	0	3	11
Recycle and reuse	0	0	0	0	1	1	0	0
Total	74	100	39	100	75	100	27	100

Disposal of Domestic Wastewater

Majority of the households of all the three squatter settlements of Kathmandu were found to discharge the domestic wastewater directly into the nearby river. In Pathivara, the households situated in core area were found to discharge the domestic wastewater through the closed pipe system, ultimately draining the water into Dhobikhola. In Amar Basti, however, more than half of the households were found to reutilize the wastewater in vegetable garden and as pig food (See fig. 8.8).

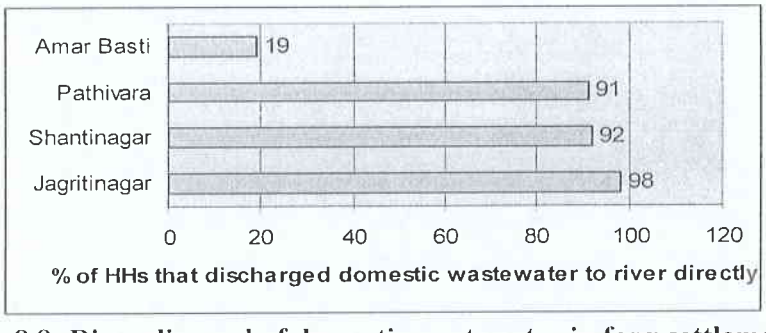


Fig. 8.8: River disposal of domestic wastewater in four settlements

Water Supply

Water supply was a big problem in all the squatter settlements. In the squatter settlements of Kathmandu, not only the quality and quantity of water, but also the time factor was associated with the problems of water. Though community hand-pumps were present in these settlements, the water was unfit for drinking and cooking and therefore, people had to rely on multiple water sources outside the community (See fig. 8.8). It would take them one or more hours to fetch water from the source everyday due to long queue and furthermore, the fight for water was a common phenomenon. If sufficient amount of good quality water were present in the community, the water procuring time of the women and children could have been utilized in other productive jobs.

In Amar Basti, the 23 households had brought the municipal water by their united effort and money. However, these 23 households relied on the single stand post for daily water requirement. Though quality of water was not the problem, inadequacy of water was a big problem among the squatters.

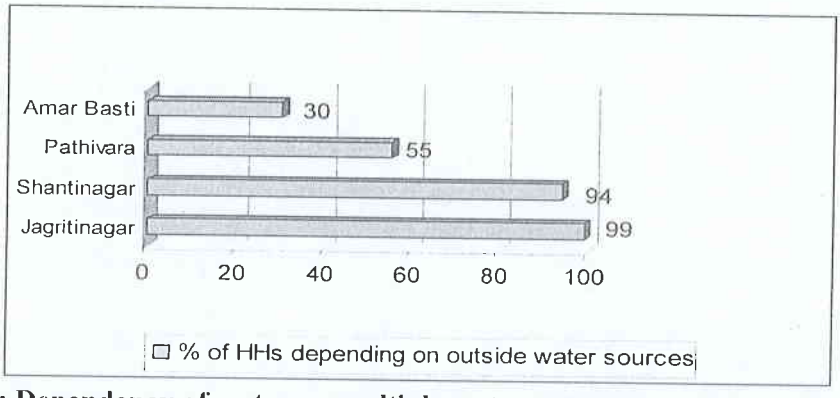


Fig. 8.9: Dependency of water on multiple water sources outside the community

Daily Availability of Water

Majority of the households in squatter settlements of Kathmandu obtained up to two gagrees (app. 24 Liters) of water in a day from outside water sources for drinking and cooking. For washing, cleaning and bathing, they utilized the community hand-pump water which was dirty and odorous. The daily water availability for the rest of the households was normally up to 4 gagrees (48 Litres) (See table 8.10). With this variation in the value of daily water availability per household, the daily per capita water consumption for drinking and cooking was computed at 6.1 L/Cap/Day for Jagritinagar, 5.03 L/Cap/Day for Shantinagar and 5.1 L/Cap/Day for Pathivara.

In Amar Basti, however, the daily availability of water from the community stand post was relatively higher for most of the households. However, the water was not sufficient to meet the water demand of people for all domestic activities. Most of the households were found to receive 4 gagrees (48 Liters) or more water a day (See table 8.10). With this figure, the daily per capita water consumption for all purposes in Amar Basti is calculated at 9.09 L/Cap/Day (See fig.8.10). It is quite below the daily per capita water consumption value calculated by ENPHO for low income urban families, which stands at 50 L/Cap/Day.

Table 8.10: Distribution of the households according to daily water availability in four settlements

	Jagritinagar		Shantinagar		Pathivara		Amar Basti**	
Daily Availability of water for drinking and cooking	**No.**	**% Households**	**No.**	**% Households**	**No.**	**% Households**	**No.**	**% Households**
1gagree/2day (app. 6 Litres)	0	0	2	5	6	9	0	0
1gagree (app. 12 Litres)	27	36	13	35	20	29	1	4
2gagree (app. 24 Litres)	23	32	12	32	29	42	3	11
3gagree (app. 36 Litres)	15	20	5	14	12	17	4	15
4gagree and above (app. 48 Litres)	9	12	5	14	2	3	19	70
Total	74	**100**	**37**	**100**	**69**	**100**	27	**100**

Note: The daily availability of water in Amar Basti (**) is given for all domestic water uses.

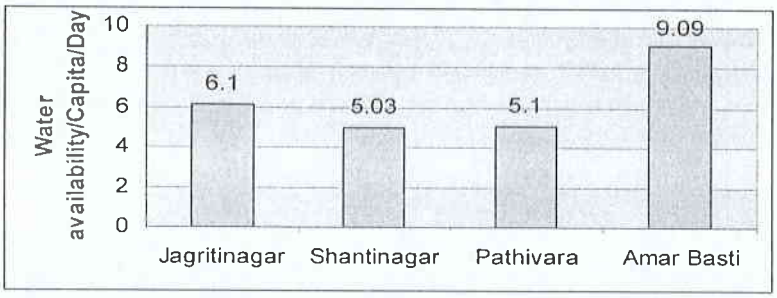


Fig. 8.10: Daily per capita water consumption for drinking and cooking in four settlements (Litre/Capita/Day)

Bacteriological Water Quality Test

The laboratory test of Faecal Coliforms was conducted for the three water samples procured directly from the water sources situated at Sinamangal and Chabahil (from where the squatters of Jagritinagar, Shantinagar and Pathivara were found to procure water) and for the stored-water samples taken from the households of three squatter settlements. In this test, the number of faecal coliform bacteria was counted to check the level of faecal contamination in water and to check whether or not water is fit for drinking.

From the laboratory test of six water samples it was found that the public tank water of Sinamangal was highly contaminated (260 Col/100ml water) with faecal materials, showing very high risk in consuming the water without disinfection treatment. However, from the survey it was found that this water was the one which was consumed greatly by most of the squatters of Shantinagar and Jagritinagar as being situated in the nearer distance (10 minutes). The spring water of Sinamangal which was consumed by less number of people of Jagritinagar and Shantinagar was, however, found to have no faecal contamination. The stored water sample taken from one of the households of Shantinagar also showed faecal contamination; the count of faecal coliforms was found at 20 Col/100ml of water (See table 8.12). Based on WHO guideline value, the water possessed high risk to drink without prior disinfection treatment (See table 8.11). The faecal contamination in the stored water also proved the poor sanitation condition of the squatter's dwelling.

The condition was again the same for Pathivara squatter settlement. Though the spring water procured directly from the source contained no faecal coliforms, the stored water sample taken from one of the households showed high number of faecal coliforms (56 Col/100ml water) (See table 8.12). Hence, the sanitary condition of the squatter households was not found satisfactory in Pathivara too.

Table 8.11: World Health Organization Guideline Values for Drinking Water

Faecal Coliform Count (Col/100ml)	Grade	Risk
0	A	No Risk
1-10	B	Low Risk
11-100	C	High Risk
101-1000	D	Very High Risk

Source: ENPHO (2001)

Table 8. 12: Bacteriological Water Quality Result

S.N.	Location	Water Source	Appearance	Faecal Coliform Count (Col/100ml)	Risk Grading
For Direct Source Water					
1	Jagritinagar/ Shantinagar**	Public Tank	Clear	260	D
2	Shantinagar/ Jagritinagar**	Spring	Clear	0	A
3	Pahtivara	Spring	Clear	0	A
For Stored Water					
1	Jagritinagar	Public Tank	Clear	0	A
2	Shantinagar	Spring	Clear	20	C
3	Pathivara	Tap Water	Clear	56	C

Note: ** means the households of both Jagritinagar and Shantinagar acquire water from same public tank and the spring.

Energy Use

Cooking Fuel

Most of the households in Jagritinagar and Shantinagar were found to use fuel wood, saw dust and kerosene. Though being smoky and hazardous to health, the households were using firewood a nd saw d ust due to the cheaper price. Almost all the households were found to acquire these fuels from the furniture shops where a sack of saw dust cost Rs.30 and a sack of firewood, Rs.50. Since the economic status of many households in Pathivara was a bit improved, there were significant number of households using kerosene and even liquid gas (See table 8.13).

In Amar Basti, however, majority of the households were found to depend fully on the forest resources for firewood. Even if they had to walk about three hours a day to reach the forest, they were receiving firewood freely for their kitchen, and this was the benefit of using firewood at home. Some of the households were even involved in firewood selling job. To some extent, this activity was contributing to forest destruction in Dharan.

Table 8.13: Different cooking fuels used in four squatter settlements

	Jagritinagar		Shantinagar		Pathivara		Amar Basti	
Cooking Fuel	**No.**	**% Households**	**No.**	**% Households**	**No.**	**% Households**	**No.**	**% Households**
Firewood	0	0	10	26	5	6	17	63
Saw dust stove (Bhusechulo)	10	17	12	30	5	6	0	0
Kerosene	21	36	8	21	33	43	0	0
Liquid Gas	2	3	0	0	10	13	1	4
Electricity	0	0	0	0	1	1	0	0
Firewood/saw dust/kerosene	26	44	9	23	23	31	9	33
Total no. of HHs.	**59**	**100**	**39**	**100**	77	**100**	27	100

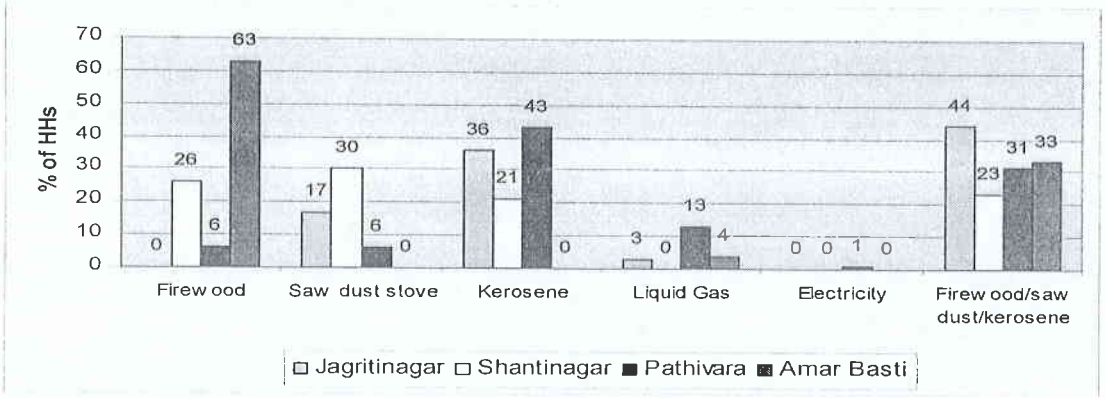


Fig. 8.11: Different cooking fuels used in four squatter settlements

8.4 Effects of Surrounding Environment

8.4.1 Effects of City Sewerage and Polluted River

Except in Amar Basti where the stream was dry and the city-sewerage was not discharged into it, the rivers (Bagmati and Dhobikhola) residing along the three squatter settlements of Kathmandu were so polluted. The pollution of the river was basically contributed by the city-sewerage and the industrial effluents discharged directly into the rivers. The effect of the directly discharged city-sewerage and the polluted river was immense. The emission of foul smell from the river water was causing atmospheric pollution in that locality and was also affecting the health of the squatters in some extent. Similarly, the polluted river water was the nurturing place for mosquitoes and flies in these settlements.

8.4.2 Shelter Vulnerability to the Natural Factors

The squatters were found vulnerable to all kinds of natural factors like rain, wind, flood etc. due to their poor shelter condition. It is explained in following passages.

Rainwater

Majority of the households in all the squatter settlements were found affected by the rainwater. Due to poor shelter condition, the roof and the wall materials of the houses were found to give passage to the rainwater inside the house. Roof water leakage and wall wetting were the common effects of rainwater. Some of the households were also found to suffer from storm water flooding inside the house in rainy season (See fig. 8.12).

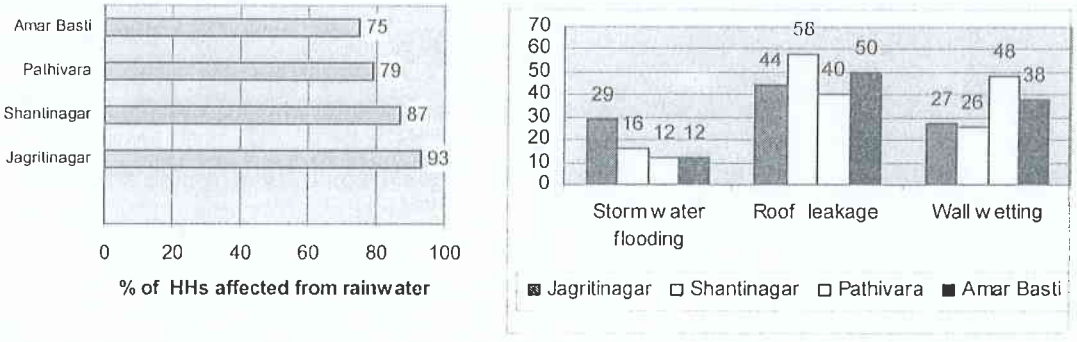


Fig. 8.12: Effects of rainwater prevalent in the households of four settlements

Flood

All the four squatter settlements were situated on the flood plain areas. Therefore, flood was a problem in these settlements in rainy season, mainly from July to September. For many respondents, flood is a threat during heavy rainfall days which takes away their sleep during rainy season. Flood had even entered into the house of many squatters sweeping away toilet, sack-fence, pig box etc in past years , compelling them to shift to some other place. The effects of flood were found more in Jagritinagar, Shantinagar and Amar Basti than in Pathivara (See table 8.14).

Table 8.14: Effects of flood in four squatter settlements

	Jagritinagar		Shantinagar		Pathivara**		Amar Basti	
Effects of flood	**No.**	**% Households**	**No.**	**% Households**	**No.**	**% Households**	**No.**	**% Households**
Threatening	38	53	20	54	7	9	19	79
Entered/ swept away toilet, sack-fence, pig box etc.	24	33	11	29	4	5	1	4
Compelled to shift place	3	4	6	15	1	1	0	0
Mild effect at present	7	10	1	2	60	78	3	13
Problem in crossing river & daily work hampered	0	0	0	0	5	7	1	4
Total no. of HHs	72	**100**	**38**	**100**	77	**100**	24	**100**

Thunderstorm

Due to the poor shelter condition, the squatters were also found vulnerable to the effects of wind and thunderstorm during March and April. The wind had even blown away the roof materials (plastic, tin sheet) of about 15 to 37 % of the households of the three squatter settlements of Kathmandu during these windy months in previous year (See fig. 8.13).

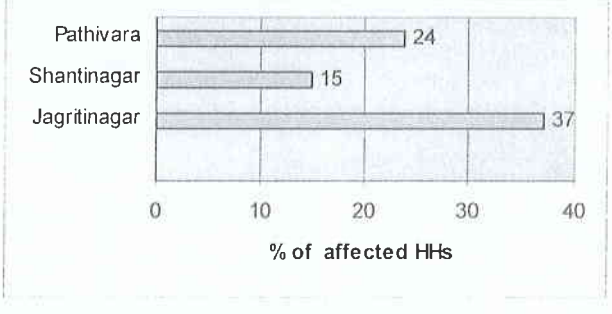


Fig. 8.13: Roof removed by thunderstorm in previous years

8.5 Health

Diarrhoea, fever, cold, cough and headache were most prevalent diseases (or symptoms) in the households of the four squatter settlements (See table 8.15). Large number of households reported the occurrence of diahorrea in their family members (especially children) in that year. The other water borne diseases reported were typhoid and jaundice; 18 % of the households of Pathivara were found to have suffered from typhoid in that year (See fig. 8.14). This is attributed by the consumption of poor-quality water and poor sanitation condition at home.

Table 8.15: Diseases and Symptoms prevalent in the households of four squatter settlements in the last one year

Diseases/Symptoms	% of households with some family members suffering from disease/symptoms in			
	Jagritinagar	Shantinagar	Pathivara	Amar Basti
Fever	56	65	48	33
Diahorrea	43	68	32	22
Cold & Cough	54	53	58	48
Headache	21	32	21	15
Stomach ache	11	9	8	4

NOTE: Multiple diseases or symptoms were reported in most of the households. So, the percentage of households suffering from each disease has been calculated individually with respect to total no. of households of that settlement.

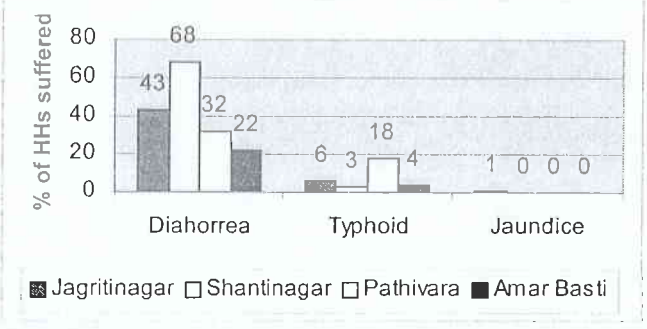


Fig. 8.14: Percentage of households suffering from water borne diseases

The disease occurrence rate was found more frequent or often in Jagritinagar and Shantinagar than in Pathivara and Amar Basti (See fig. 8.15). The squatters of all these settlements pointed unsafe water and polluted environment as the main causes for the occurrence of different diseases in their family. Almost all the people were found to go to hospital or medical shop for getting treatment.

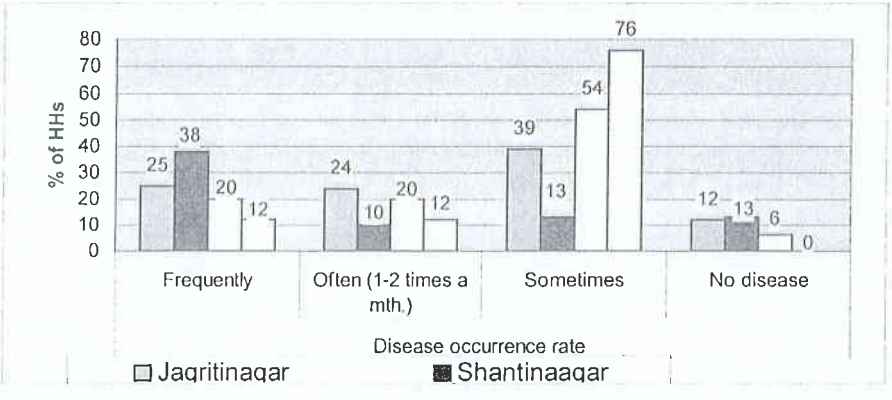


Fig. 8.15: Disease occurrence rate in the households of four squatter settlements

8.6 Opinion Survey

An opinion survey was conducted to test the awareness level of the people regarding clean environment and health; their perception towards poverty and its causes; their personal opinion about the involvement of different institutions; their expectations from the

government; and finally their relationship with the surrounding non-squatters and among themselves. Following are the findings of the survey.

Perception of People about Health and Sanitation

The squatters were aware that their place and the surrounding should be clean and healthy. Most of them even identified the polluted environment and the unsafe water as the major causes behind their poor health. Even with this level of awareness, the squatters of Kathmandu were also involved in polluting the environment of their surrounding. They were found to throw their solid waste intentionally into the nearby river. Most of the squatters of Kathmandu identified their surrounding environment as dirty and unsafe to live. However, the situation was somewhat different in Amar Bsti of Dharan where the squatters were found to participate in managing their community's solid waste weekly. Due to the dried-up river (seasonal river) and the near by forest resource, the environment was not that polluted their and thus, some of the squatters only identified the place to be polluted.

Attitude towards River Pollution

Among the squatters of three settlements of Kathmandu, about half of the respondents blamed both squatters and non-squatters as the contributors to the river pollution. Since both of them are throwing their sewerage and domestic wastes into the river, they are equally to be blamed for causing river pollution. But about half of the respondents accused non-squatters as the major river polluters. In their own words, "The city sewerage and industrial effluents have been discharged in upstream of river; but non-squatters blame us (living in downstream) as river polluters because we live along the river bank and we get an exposure".

Causes of Poverty

Most of the squatters identified lack of education, ignorance, unemployment (or lack of good job) and their inability to earn money due to their non-education, ignorance, lack of skill and lack of opportunity as the major causes behind their poverty. Some of them also identified their drunkenness habit, improper utilization of money, big family, poor health etc. as reasons for their poverty.

Table 8.16: Causes of poverty as perceived by the squatters of four settlements

Main Causes	Other Causes
Lack of education and Ignorance	Poor health
Unemployment / Lack of good work	Big family
Lack of skill	Low salary, but huge work
Unable to earn money (due to lack of education, skill, good employment etc)	Drunkenness habit
Having no land and property/Poor ancestors	Old age
Improper utilization of money in things like alcohol	Unequal distribution of resources among rich and poor
Unable to work hard/ Laziness	
Lack of fortune and will power	
Lack of opportunity	
Powerlessness	

Social Environment

The social environment inside the squatter communities was found moderately pleasant. Except small fights among the drunkard people, the relationship of squatters among

themselves was good. In Pathivara, Amar Basti and Jagritinagar, the people were found more united in matters of common interest. Therefore, the living environmental condition of the people was found better than in Shantinagar where the divided interest of the squatters was creating a barrier in upgrading their living condition.

The relationship of the squatters with the neighboring non-squatters was also found moderate. Except some non-squatters who blame squatters as river polluters and thieves, other non-squatters were found to behave properly with the squatters. According to most of the squatters, the relationship with the non-squatters was bad in previous days; they used to have fights too, but now the situation has changed. Non-squatter people were found to rely on squatters for their labour. The squatter women were found to assist non-squatters in domestic works (washing, cleaning etc.). The squatters were also found to depend on the neighouring non-squatter people for water and jobs.

Perception of squatters towards the activities of different institutions working in their community

Many institutions were found to support the squatter communities temporarily or in regular basis. For instance, Lumanti, EDHOC, DACAW, UCEP, Christian organizations, medical institutions etc. But yet, many people were not found to take much interest towards their activities. Except Pathivara and Amar Basti, less than half of the respondent population was found aware about the activities of the institutions working in their communities.

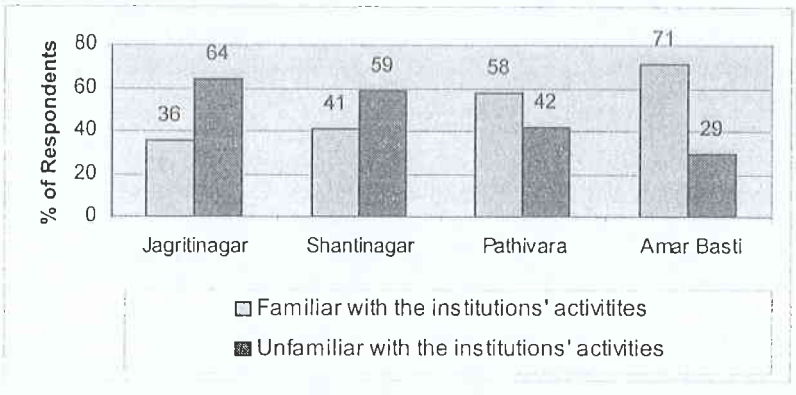


Fig. 8.16: Percentage of people familiar with the activities of institutions working in four squatter communities

8.7 Problems and Expectations

Since Jagritinagar and Shantinagar reside along the polluted Bagmati river which is equally susceptible to flood, most of the squatters of these settlements expected government to shift them to proper, healthier place. While for the squatters of Pathivara and Amar Basti, the environmental situation was not that bad and hence, they expected to stay there for long. For all the four settlements, scarcity of water was a major problem. Except in Amar Basti, none of the squatter settlements had received the tap water. Electricity was their other problem. Since government had not distributed electricity in Jagritinagar, Shantinagar and Amar Basti, many households were found to rely on twilight of lamp at night. Their other expectations/problems were good employment, free education, sanitary toilet, awareness programme, skill development trainings, segregation of genuine squatters, land/housing installment programme and health services.

Chapter IX

CONCLUSION

From this comprehensive study of the urban poverty situation and its environmental implications in the selected four squatter settlements of Kathmandu and Dharan, following inference can be drawn.

1. More than half of the households in the three squatter settlements (except Pathivara) were found to be living below poverty line, considering Rs.9000 per capita annual income as the poverty line as defined by Lalitpur Sub-Metropolitan City in baseline survey of Lalitpur, 1999. The absolute poor population was relatively lower in Pathivara (41%) where the people had better jobs and income due to the contacts established so far in ten years of stay in the same squatter settlement.

2. Majority of the respondents of four squatter settlements identified lack of education, unemployment, inability to earn money due to lack of skill and opportunity, and ignorance as the main causes of their poverty. Most of them had squatted in the illegal land due to unaffordable rent, to save rent money for family and children's education, to obtain free/cheaper land, to obtain homely environment, lack of money to buy land etc. Almost all the squatters of the four squatter communities were found to be the migrants of hilly areas of eastern and central development regions. Employment, luxurious life, education facility, marriage and travel were the main pulling factors of Kathmandu and Dharan which dragged them their.

3. Situated along the riverside in flood plain area, the living environmental condition of the squatters was found bad in all four studied settlements. However, the situation was somewhat improved in case of internal households of Pathivara and Amar Basti. Except in Pathivara, almost all the houses in the other three squatter settlements were temporary in construction made from polythene sheet, corrugated sheet, card board, bamboo and other scrap materials which could hardly provide protection from physical factors like rain, cold, heat and wind. Majority of the houses in all the communities had maximum two rooms with 3 to 9 people living in a single room. Most of them had no ventilation to give passage to fresh air and light. Lack of open space and overcrowding were the problems basically in Shantinagar and Pathivara. Instead of sanitary, temporary to moderate type of toilets were present which were discharging the toilet waste directly into the river, polluting the river body. 78 % of households of Amar Basti were even found to defecate in the bushes or along riverside.

   Except in Amar Basti where household solid waste was managed by community effort, majority of the households in other three squatter settlements were found to dispose the household solid waste into the river. They were found to discharge the domestic wastewater also into the river. Water was the scarcest natural resource in all squatter settlements. Since the community hand pump water was dirty and smelly, more than 90% of the households relied on multiple water sources outside their settlements which took them one or more hours to procure water from the water source. The daily water availability per capita was found much less than the daily per capita water requirement as calculated by ENPHO for low-income urban families. The bacteriological water quality test also showed high degree of faecal contamination in 50 % of the water samples procured from the source and kitchen-stored water. 260

Faecal Coliforms were even counted in 100ml of water, which was consumed by large population of Jagritinagar and Shantinagar showing high risk of water borne diseases like diahorrea and typhoid in squatters.

Most of the squatter households were found to rely on timber-based fuel (firewood and saw-dust) and/or kerosene for cooking purpose, tolerating the effects of smoke such as eye irritation, black cough, choking, suffocation, indoor air pollution. Absence of electricity was a problem in Amar Basti and Shantinagar. In other settlements, people had dragged electric line from the neighbourhood by paying monthly fee which was costlier than the normal government price. The houses were vulnerable to the effects of natural factors such as rain, flood, wind, cold etc due to temporary shelter condition. More than 75% of the houses in all settlements were found to have the problems of roof water leakage, wall wetting and storm water flooding inside the house in rainy season. They were facing the problem of flood in every rainy season flooded; in past years flood water had even entered the house, swept away and destroyed toilet, sack fence, pig box and had compelled the inhabitants to shift the place. The effect of wind was also quite threatening, it had blown away the roof from significant number of households of the three settlements of Kathmandu in past years. The foul smell emitted from the polluted river, and flies and mosquitoes nurtured in the water were the other environmental problems in squatter settlements of Kathmandu.

4. Lack of money, lack of space, instability due to flood and eviction threat (or lack of security of tenure) were found as the main reasons behind poor living environmental condition of the squatters. For instance, many households in Pathivara, Jagritinagar and Shantinagar had not constructed private permanent toilet firstly due to non-affordability; those who could afford to build a permanent toilet were also not in a position to build it due to flood problem, eviction threat and also lack of space for toilet.

5. The two-way linkage between urban poverty and environment was clearly established through the comprehensive study of the four squatter settlements. On one hand, poverty was found to affect the living and the surrounding environment of the squatter settlement and on the other hand, the surrounding environment was found to have implications over the poor people and their poverty. For instance, due to poor environmental condition, sanitation status and unsafe water, 22 % to 68 % of the households of four squatter settlements were found affected by diahorrea. Similarly disease occurrence rate was found quite often to frequent in more than 40 % of the households in the three settlements of Kathmandu and 24 % in the settlement of Dharan. As some of the squatters responded, their poor health is also one of the reasons behind their poverty. Thus, poor environment also leads to poverty. It is equally true in the reversed case as well. For instance, the non-affordability to construct a permanent sanitary toilet is compelling the squatters to either construct temporary toilet at the bank of the river with its direct discharge into the river, or to defecate in the open place. Both the cases lead to river pollution, and atmospheric pollution.

6. The concrete policy and law solely made for squatters were found lacking. Though some laws and policies like National Shelter Policy, 1996, Local Self Governance Act, 1999 and Tenth Plan, 2002-2007 were found to be indicative to the squatters, these

legislations were not found to address the problems of the poor squatters clearly and fully. Again, their implementation status is questionable.

7. The rights of the squatters to adequate housing, safe environment and health were found violated. Though Nepal has already ratified four important international conventions that advocate on the right of all people to standard living, the poor squatters were found devoid of such rights.

8. The coordination among Central government, Local government, NGOs and CBOs was found unsatisfactory. Clear-cut differentiation of the responsibilities within the government institutions regarding management and upgradation of urban poors (particularly squatters) was found lacking; Their responsibilities were found overlapped hence creating a state of confusion during implementation. However, the relationship between KMC and the NGOs (like Lumanti) and CBOs (like SPOSH) was found improving in Kathmandu and Dharan.

9. Some factors which were found responsible in upgrading the quality of life of people in squatter communities were found as:
    - Healthy intra and inter relationships, perfect unity and a feeling of trust among the squatters. (An experience of Shantinagar squatter settlement which was backward mainly due to this factor);
    - Awareness in squatters about their rights to adequate housing, safe environment, good health, education etc;
    - Commitment among the squatters to work together to change their lives and their living environmental conditions;
    - Number of educated people in the community. (More the educated people in the community, better will be the development activities in community.- An experience of Pathivara and Jagritinagar);
    - Good leadership in a squatter community (An experience of Jagritinagar, Amar Basti and Pathivara); and
    - Cooperation from the government and non-government organizations.

10. The age factor was also found involved in changing the face of the squatter settlement. The older the settlement, the better the environment and the housing situation because in older settlements, the community is organized in such a way that they can take care of community infrastructures and facilities themselves. Pathivara, for instance, was found in a better position than Jagritinagar, Shantinagar and Amar Basti , the age being one of the reasons.

11. The squatters of Kathmandu were found more vulnerable to environmental hazards than those of Dharan. This may be attributed to faster pace of urbanization (unplanned urbanization), more population density and higher development activities in Kathmandu than in Dharan.

Chapter X

RECOMMENDATION

Improving the living environmental condition and reducing the vulnerability of poor squatters from the impacts of surrounding environment

The living environmental condition and the vulnerability of the squatters to the degraded environment are connected with multiple factors. Therefore, multi-sectoral approach should be taken to improve the living environmental condition of the squatters bringing them out from the vulnerable situation.

1. The poor access to the basic physical facilities like water supply, sanitary toilet, sewerage, drainage, solid waste collection service and electricity was found as the main reason behind the poor living environmental condition of squatter communities. Therefore, government should provide the squatter communities with these basic physical facilities in adequate amount without any disparity. If these urban amenities can't be supplied per household, they should be supplied to the community in adequate number. The illegality of the settlement and the poverty of the people shouldn't restrict the concerned government authorities from distributing these basic facilities. They shouldn't forget, being human beings the squatters also possess right to adequate housing and being citizens of Nepal it is the duty of the government to look after all the citizens equally.

2. Almost all the squatters of four squatter settlements were found vulnerable to flood effect in rainy season since their stay was in the flood plain area. Therefore, the government or the NGOs should help the poor to manage the riverbank by assisting them financially and technically in constructing the gabion wall. The communitites' contribution of labour and some share of money should, however, be compulsorily present. Once their house is protected from the threat of flood, they will themselves upgrade their house, for instance by constructing private toilet because the survey finding shows that many of the households hadn't constructed toilet due to flood problem.

3. Squatters are those who are living by the side of the polluted river and they are the only people to suffer. Even if the city dwellers don't contribute in cleaning and maintaining the river, at least the squatters should put their effort in cleaning the river at their province once a week in order to stay away from the risks of disease vectors and diseases which flourish in polluted water.

4. The NGOs or other institutions working in the community should mobilize the community in maintaining cleanliness in the household and community levels through awareness raising programmes.

5. The squatters who are living in totally environmentally degraded and unsafe place should be translocated to some other safer place. The squatters of Shantinagar and Jagritinagar should be put in the top of the list. The survey findings show that most of the people of these settlements are also willing to shift to some other place if the government allocates some safer place for them.

6. Translocation of the squatter communities to Kirtipur is a new programme of Lumanti and KMC. But they should also be cautious about the success of this kind of programme. The guarantee of good living environmental condition, basic physical facilities and job security at a new place are some of the things which they should guarantee to the squatters. The new place should have adequate supply of water, proper drainage and sewerage facilities, community sanitary toilets (if not the private toilets) in adequate number. If they can't give the job guarantee, at least provision should be made to give special discount in daily public transportation for them.

7. The programmes like Site and service, Low cost housing scheme and Land banking should be introduced and implemented for upgrading the housing condition of the squatters, wherever possible.

8. Poor health of the squatters is a consequence of their poor living environmental condition. Once they acquire some health problems, their economic status further deteriorates as they can't work and earn money in such situation. So for their proper treatment, hospitals and clinics should give discount to those squatters who can't afford the treatment cost. Institutions working in social sector should organize regular health check-ups and free medical distribution programmes in squatter settlements. Plus, such institutions should organize health awareness and sanitation related programmes to make squatters aware about how they can maintain good health.

Reducing poverty

Environment is directly linked with poverty. Unless the poverty situation of the squatters is not improved, their living environmental condition and the surrounding environment will never improve significantly. Following are some of the measures to reduce the level of poverty in squatter communities:

1. To get victory over the poverty, first victory should be achieved over the causes of poverty. This survey finding shows lack of education, unemployment, inability to earn money due to lack of skill and lack of opportunities as the main causes of poverty. So, government, NGOs/CBOs should focus their programmes extensively on education, skill development, employment generation to reduce poverty situation of the poor squatters. Access of better education to squatter children will help bring inter-generational mobility among the squatters, thereby raising the economic condition of the squatters in long term.

2. Women's micro-saving and credit programmes were found successful only among the relatively poor, active and literate women's group in this survey. The flexibility should be brought in the amount of money collected monthly from each household. It should give special attention to those women who are poor, jobless, illiterate and dormant.

3. About 50% of the women were found jobless in most of the squatter settlements. If they are provided with some skill development trainings along with loan, they can start small home based enterprise which will help them to improve the living standard of the family.

4. Most of the squatters were found to possess the skill of painting and building construction. A separate CBO can be established which works as a bridge between the skilled squatters and the house owners, thereby raising jobs for these people.

Responsibilities of Squatters

1. During the survey, many squatters were found unaware about the institutions working in their own community. Therefore, the squatters should pay interest and show active participation in all developmental work. They should be ready for change. Without their interest, need and active participation, the help provided to them will be like putting water onto the sand.

2. They should be aware about their rights to adequate housing, safe environment, health, education. When they become aware, they themselves will make a way to improve their quality of living.

3. Some people, during the survey, complained about the community hand pump which takes long time to get repaired once it gets disordered due to unwillingness of the people to donate some money on its maintenance. So, squatters should also be responsible for the maintenance and management of the communal goods.

Roles and Responsibilities of Institutions

For a change to come, the cumulative wisdom and cumulative effort of people at different levels are must. The squatters can't upgrade the quality of their lives and change the face of their settlement without the help from the institutions. Here are some of the recommendations for the institutions working for squatters.

1. The government should not discriminate between squatters and non-squatters on the basis of their legality to land. By treating them as the citizen of Nepal, government should make provisions for providing these poor with equal access to basic infrastructures and services.

2. Without the security of tenure, the living environmental condition of the squatters will always remain poor because the eviction threat will not let them upgrade their living condition even if they can afford to do so. So, though the squatters can't be distributed with the free land holding card (*Lal Purja*) in the place like Kathmandu and Dharan where the land price is too high, they should at least be provided a sense of security to their belongings. For this, Family Identity Card system should be extensively distributed. Community land holding card may be distributed as well for fixed time period restricting the transaction of land.

3. Ward office should put an inventory of the squatter households and the inhabitant population as guided by the Local Self Governance Act, 1999.

4. If it is difficult for the municipality to deliver the basic urban services only with its current organizational structure, then it should develop network with other NGOs and INGOs to participate in delivering services to the poor segment of the society.

5. There should be a good coordination among local government, central government and NGOs. These bodies should strictly stick to the responsibilities and the duties as mentioned by the law.

6. The programmes of NGOs should ensure sustainability. Mere lecture programmes are worthless.

7. Budget and donations subjected in the name of poverty reduction should be utilized rightly for the sake of the poor.

8. Lumanti and SPOSH have delineated a time frame for supporting only those squatter communities which have been established within that time frame (eg. For Kathmandu, upto 2002; For Dharan, upto 2004). But this can't ensure zero growth of squatter settlements in the future. Government, Lumanti and SPOSH should be prepared to tackle with the future consequences right from now.

9. Government and NGOs should work in partnership with the community. The help provided shouldn't be free of cost. About 50% of the construction costs should be borne by the community themselves for establishing the sense of ownership to the facilities they receive. The help obtained in free will be more exploitative.

10. The institutions should always try to win the trust of the community people because if they expect community to cooperate with them, they have to maintain the trust by working constantly for the welfare of the poor.

11. SPOSH should work independently and it should limit its dependence on other organizations for financial support and it should try to stand on its own feet.

12. NGOs like Samyak Sikshya (currently working for the poor in Dharan) should be established in Kathmandu where the staffs work for the poor and needy people totally voluntarily (selfless motive) and run their activities through the collected donations from people.

Need of policy formulation

1. A clear-cut policy /act for squatters is lacking and it should be made by the government bodies with the participation of the squatters. The participation of squatters (target people) in policy formulation group will aid in addressing their real problems while formulating effective policies for them.

2. The policy to be developed in near future for squatter should not only focus on security of tenure, but they should also focus extensively on adequate housing, infrastructure facilities, skill development activities, health, free education etc.

3. Since illegal status of the squatter settlements is the main reason for government inactiveness in providing basic urban amenities in such settlement, there should be distinct legal provision setting conditions under which the government or the non-governmental organizations may provide assistance or urban facilities.

4. Since the type of problem of the poor/squatters vary from place to place, policies, plans and programmes should be formulated separately according to the existing situation of the place.

5. The government policies should be respectful to human rights and should safeguard the rights of poor to adequate housing, safe environment and healthy living. These policies should not only give right to the poor squatters, but they should also give duties to these people because giving rights without duties will be worthless.

RECOMMENDATIONS FOR FURTHER STUDY

Research is like a voyage which never stops unless one takes a break. It is also like diving into a sea to find pearls. Due to time constraint, I have also taken a break. From this research, I could only find some pearls from the sea and now it's others' turn to dive into the sea to find some more pearls. I would like to hand over the responsibility of further research to the upcoming researchers who would like to study in the sector of urban poverty, squatter communities and their environmental condition.

Following are some of the recommendations for further study:

1. The interested people may study the health impacts of urban poverty and degraded environment in the squatter communities in detail, thereby establishing interrelationship among poverty, environment and health. For them, it is recommended to conduct their study in summer season because occurrence of diseases is more common in summer and it will enable the researchers to generate better health data during that time.

2. My research couldn't find the correlation between urban poverty and environment using statistical tools (Correlation and ANNOVA), mainly due to homogeneous squatter community. New researchers who would like to conduct their research in this field are suggested to conduct their research in a mixed community of people belonging to all classes with some environmental problems.

3. During my research, I was compelled to use the 1999 poverty line value (i.e. Rs.9000/Capita/Year) due to lack of reliable poverty measurement tool. Similarly, the NPC defined national poverty line in Tenth Plan was also inappropriate in context of urban areas where the living standard of the people is higher than the rural areas. With these backdrops, I recommend the upcoming researchers to develop a reliable poverty measurement tool and find out the real percentage of urban poor living under absolute poverty in urban areas and the squatter settlements.

4. The linkage between poverty and environment is significantly different in urban and rural areas. The curious people may research to find the extent of this difference. Moreover, they can also suggest the ways by which poverty reduction can be achieved through environmental management.

5. New researchers may focus their study on the thorough analysis of the performances of different institutions working for upgrading the lives of urban poor. Through such research, they can produce good recommendations for reducing poverty in the country.

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ANNEX 1: Questionnaire for the Squatter Settlement

1. General

1.1 Name of the Basti/ locality: ..... 1.2 Ward: .....

1.3 Respondent's name and caste (preferably household head): .....

1.4 Ethnicity: ..... Religion: ..... Language: .....

1.5 Family Description:

S.N	Relationship	Sex	Age	Education	Occupation	Marital Status	Place of stay of separated children
1	Mother						
2	Father						
3	Child 1						
4	Child 2						
5	Child 3						
6							
7							

2. Poverty Analysis

2.1 *Income and Expenditure*-

a) No. of people working in a family: .....

b) Monthly income per household:

■ below Rs.1000 ■ Rs.1000-2000 ■ Rs.2000-3000 ■ Rs.3000-5000 ■ Rs.5000-10000 ■Rs.10000 above

Or, Daily income per household:

■ below Rs.30 ■ below Rs.50 ■ Rs.50-100 ■Rs.100-200 ■ Rs.200-300 ■ Rs.300-400 ■ above Rs.400

c) Monthly expenditure on food: ..... Or, Daily expenditure on food: .....

Or, % of expenditure: ■ below 50% of income ■ 50-80% ■ 80-100%

d) Monthly saving: .....

e) Do you earn and spend money in a single day without saving for tomorrow? ■ Yes ■ No

2.2 *Food consumption*-

a) What type of food do you eat in lunch? ■dal,bhat,tarkari,achar ■ bhat, tiwun ■ dal, baht, tarcari ■ roti ■ dhido ■ other (specify.....)

b) How many times do you eat in a day? .....

c) Do you consume fruit and meat? ■ Yes ■ No

d) If yes, how many times? ■ monthly ■ weekly ■ often ■ sometimes

2.3 *Occupation*-

a) What type of work do you have? ■ Temporary ■ Permanent

b) How far is the work place? ■ < 10minutes distance ■ < 30 min. ■ 1 Hr. ■ >1 Hr

c) How do you reach there? ■ on foot ■ bus ■ tempo

2.3 *Education*-

a) No. of literates in the family: .....
b) No. of school going children: .....
c) No. of school dropout youths: .....
d) Have you put all your students in school? ■ yes ■ No
i. If Yes, where? ■ boarding school ■ government school
ii. If No, why? Because ,
■ can't afford ■ children have to go to work ■ they have to look after the younger ones ■ other (.....)
iii. If some person offers scholarship for your children's studies, will you send them to school? ■ yes ■ No
e) Do you agree that lack of education is one of the reasons of your poverty? ■ yes ■ No

2.4 *Housing Status*-

//Following are the things to be noted down through observation.

i. Type of house: ■ Kacchi ■ moderate ■pukkci
ii. type of roof: ■ plastic sheet ■ thatched ■mud tiled ■ corrugated sheet ■ others (specify.....)
iii. No. of storey: ■ 1 ■ 2 ■3
iv. No. of rooms: .....
v. no. of windows for ventilation: .....
vi. type of furnishing: ■ well ■moderate ■poor
vi. Plinth area of house in sq. ft.: .....
vii. cleanliness: ■ poor ■ clean ■ other (.....)
viii. No. of people sharing a single bedroom: ..... //

a) Do you own this house? ■ yes ■ No
If No, are you staying in rent? ■ yes ■ No
b) Have you rented it out? ■ Fully rented out ■ Partially rented out
■Given free to relatives
b) Are you staying in illegal land? ■ yes ■ No
c) When did you build this house? .....
d) How did you receive this land?.....
d) Where is your place of origin? .....
e) Do you still have land and house there? ■ yes ■ No
f) Why did you come to Kathmandu/ Dharan?.....
g) And, what is the reason for staying in this squatter settlement?.....
.....
h) Did the Ward officials do something when you build this house?
■ did nothing ■ gave threats of eviction ■ came and destroyed the house ■others (.....)
i) Do they still threaten you about eviction? ■ yes ■ No

3. Environmental Analysis

3.1 *Disposal of human excreta*

a) Do you have private toilet? ■ yes ■no
b) **If no**, how do you dispose off excreta?

■ Community toilet ■ neighbor's toilet ■ Riverside ■open field ■roadside drains ■others (.....)
c) If yes, what type of toilet do you have? ■ Pit latrine ■ water sealed septic tank ■ connected to sewerage system
d) Where does the effluent of the toilet flow? ■ septic tank ■ soak pit ■ sewer ■ open to ground ■ river

3.2 *Disposal of solid waste*
a) How do you dispose off your solid waste?
■ collected and buried ■ burnt ■ along riverside ■ roadside to be collected by municipality ■composting

3.3 *Disposal of household liquid waste/ kitchen water*:
■ collected and disposed to roadside drain ■ thrown indiscriminately ■ disposed to river through open drain ■ other

3.4 *Water supply*
a) Where do you fetch water from?
■ Private tap ■public tap ■neighbor's tap ■ community hand pump ■ community well
b) How far do you have to go to receive water? (in minutes).....
c) How many gagrees/liters of water do you need in a day? .....
d) Is the water sufficient? ■ yes ■no
e) How's the quality of water? ■ good ■ bad ■ smelly ■ other (specify:.....)

3.5 *Sewerage and Drainage*
a) Does any sewer line or open drainage pass through this place which is causing you trouble? ■Yes ■No
b) Do you have a surface drainage facility?
c) If no, Does the road get muddy in the rainy season?

3.6 Fuel Use:
a) Type of fuel used for cooking: ■ firewood ■ kerosene ■ gas ■ electricity
b) Does kitchen smoke create problem for you?
If yes, what type of problem? ■ health hazrd (choking, eye irritation, other) ■ pollute the environment of house ■ suffocation ■ other(specify.....)
c) Do you have electricity at your house?
If yes, are you paying money to the electricity office?
If no, what problems do you face in its absence? ■ children can't read ■ we can't work properly ■ other (specify .....)

3.7 Noise pollution
a) Does the noise of the airplanes create problem?
b) If yes, what type of problem? .....

3.8 Natural hazards
a) Do you have problem of flood and water logging in the rainy season?
b) How often does it flood?.....
c) What was the effect of the flood in the past?.....

3.9 Awareness level

a) How do you rate the environment of your place and the immediate surrounding?

■ clean ■ dirty ■ very dirty ■ safe ■ unsafe

b) Are you aware about the importance of clean environment?

3.10 Health

a) How often do your family members fall sick? .....

b) What had happened to them? (type of disease) .....

c) What is the cause of their sickness? ■ unsafe water ■ polluted environment ■ accident in work place ■ polluted environment in work place ■ other (specify.....)

e) How many children below the age of 15 died in the past 5years? .....

f) Where do you get your health service from? ■ hospital ■ clinic ■medical shop ■ayurveda ■ traditional healer ■ health campaigns ■ other (specify.....)

4. Institutions' involvement

a) What is government and other organizations doing for your community?.....

b) Which organizations work in your community and in what way are they helping you?.....

c) Are you satisfied from their performance?

d) If no, why?.....

e) What is your expectations from them?.....

f) Have they ever asked for support to the government?

g) What was their response? Are they doing injustice to you poor?.....

5. Others

a) Do you consider yourself poor? In what way?.....

b) What do you think is the reason behind your poverty?.....

c) Are you willing to leave this place and move to some rented house once your economic status improves?

d) People say, you squatter people are the major cause of river pollution. Do you agree with this statement? ■ yes ■no

If no, why?.....

e) Is your relationship with the surrounding rich people good?

f) How do they behave with you?.....

g) What kind of relationship do you have with people of your own squatter settlement and other squatter settlements?.....

h) What kind of government policies do you think are required to reduce your poverty?

ANNEX 2: Calculation of the percentage of absolute poor population and per capita water consumption in squatter settlements

2.1: Calculation of percentage of households below poverty line in Jagritinagar Squatter Settlement

From Table 7.4, it is evident that:
2 HHs with household size 6 have monthly income below Rs. 1000.
i.e. Per capita annual income of those 2 HHs = Rs. (1000*12)/6 = Rs. 2000.

Similarly,
13 HHs with household size of 3.8 have monthly income between Rs. 1000 & Rs. 1999 (i.e. in average Rs. 1500).
i.e. Per capita annual income of those 13 HHs = Rs. (1500*12)/3.8 = Rs. 4736.84

Similarly,
27 HHs with household size of 3.5 have monthly income between Rs. 2000 & Rs. 2999 (i.e. in average Rs. 2500).
i.e. Per capita annual income of those 27 HHs = Rs. (2500*12)/3.5 = Rs. 8571.43

In the same way,
24 HHs with household size of 4.3 have monthly income between Rs. 3000 & Rs. 4999 (i.e. in average Rs. 4000).
i.e. Per capita annual income of those 24 HHs = Rs. (4000*12)/4.3 = Rs. 11162.79

Similarly,
8 HHs with household size of 5 have monthly income above Rs. 5000.
i.e. Minimum per capita annual income of those 8 HHs = Rs. (5000*12)/5 = Rs. 12000

Thus,
Total households with per capita annual income below Rs. 9000 = 2+13+27 = 42
i.e. % of households .....below Rs. 9000 = 42*100/74 = 57 %
Considering per capita annual income of Rs.9000 as the poverty line as proposed by LSMC in 1999,
i.e. % of households below the poverty line = 57 %

Similar process was used for calculating percentage of households below poverty line in other three squatter settlements.

2.2: Calculation of daily per capita water availability in Jagritinagar squatter settlement

From the survey it was found that,
Daily water availability of 36% of the households i.e. 27 households = 12 Liters
Or, Total water availability of 27 households = 27 x 12 Liters = 324 Liters

Similarly,
Daily water availability of 31% of the households i.e. 23 households = 24 Liters
Or, Total water availability of 23 households = 23 x 24 Liters = 552 Liters

Again,
Daily water availability of 20% of the households i.e. 15 households = 36 Liters
Or, Total water availability of 15 households = 15 x 36 Liters = 540 Liters

Further,
Minimum daily water availability of 12% of the households i.e. 9 households = 48 Liters
Or, Total minimum water availability of 9 households = 9 x 48 Liters = 432 Liters

Now, considering 74 households as the total responding households,
Total water availability of 74 households = 324 Liters + 552 Liters + 540 Liters + 432 Liters
= 1848 Liters
Average water availability of one household = 1848 Liters / 74 = 24.97 Liters

Considering 4.1 as the average household size in Jagritinagar squatter settlement, we get,
Daily per capita water availability in Jagritinagar = 24.97 Liters / 4.1 = 6.1 Liters/Capita/Day

"Similar process was used to calculate the daily per capita water availability in other squatter settlements."

ANNEX 3: Profile of the Squatter Communities of Kathmandu and Dharan

Table i: Profile of the Squatter Communities of Kathmandu Muniucipality				
S.N.	Squatter Settlements	Ward	No. of HHs	Population
1	Anamnagar	KMC, 32	16	75
2	Balaju	KMC, 16	118	591
3	Bansighat, Tripureswor	KMC, 11	99	441
4	Baune Dhara	KMC, 3	18	86
5	Bulbulae, Chabahil	KMC, 7	9	45
6	Chadani Tole	KMC, 9	44	205
7	Dhaukhel	KMC, 14	33	204
8	Dhikure, Chanki	KMC, 3	22	110
9	Dhumakhel	KMC, 15	44	212
10	Dhungen, Kapan	Kapan VDC	13	74
11	Gairi Gaun, Golfutar	KMC, 6	19	102
12	Gairi Gaun, Sinamangal	KMC, 9	25	110
13	Hyumat Tole	KMC, 12	41	279
14	Inaya Tole	KMC, 19	29	153
15	Jagritinagar, Sinamangal	KMC, 34	9	37
16	Jorpati	KMC, 1	5	26
17	Kalopul	KMC, 7	5	29
18	Khadi Pakha	KMC, 5	130	686
19	Kima Phant	KMC, 3	17	91
20	Kumari Tole	Khada Bhadrakali VDC 6	34	197
21	Kumarigal	KMC, 6	15	74
22	Kumaristhan	KMC, 16	74	390
23	Kuriya Gaun	KMC, 1	10	46
24	Mahankal	KMC, 6	18	76
25	Maiju Bahal	KMC, 7	25	127
26	Mitrapark	KMC, 7	12	48
27	Naya Colony, Dhumbarahi	KMC, 4	6	29
28	Palpakot, Jadibuti	KMC, 35	23	103
29	Pathivara	Kapan VDC 4	173	1115
30	Pipalbot, Hattigauda	Khada Bhadrakali VDC 6	6	27
31	Ramghat	KMC, 19	23	94
32	Ramhity	KMC, 6	126	630
33	Sangam Tole	KMC, 29	39	198
34	Shanti Binayak Nagar	KMC, 10	30	138
35	Shankhamul	KMC, 10	95	484
36	Sinamangal, Pragatitole	KMC, 9	24	120
37	Srijana Basti, Mandikatar	Mahankal VDC	79	391
38	Subigaon	KMC, 6	40	189
39	Tankeshwor	KMC, 13	17	99
40	Thapathali	KMC, 3	22	93
41	Tudaldevi, Chandol	KMC, 4	13	70
42	Ranibari, Samakhushi	KMC, 29	22	115
43	Budhatole, Godawari	LMC VDC 5	211	1055
44	Upper Dhumakhel	KMC, 15	45	225
	Rest House Squatters at Mahadevsthan, Purneshwor	KMC, 11	117	585
		TOTAL	**1995**	**10274**

Source: Lumanti, 2000

Table ii: Profile of some of the squatter communities of Dharan

S.N.	Squatter Settlements	Ward No.	No. of HHs	Population			Toilet			Children		
				Female	Male	Total	Paccki	Kacchi	Total	School Going	No Schooling	Total
1	Makalu Basti *	11	231	505	530	1035	7	169	176	163	23	186
2	Amar Basti**	13	33	79	72	151	4	1	5	NA	NA	NA
3	Amar Basti – Zero Point	13	43	84	92	176	3	7	10	52	2	54
4	Rai Tole	13	42	92	97	189	2	1	3	42	3	45
5	Khoria Basti	15	91	229	210	439	7	10	17	83	10	93
6	Surya Basti	15	33	122	112	234	3	11	14	56	2	58
7	Pragatishil Dipendra Basti	15	30	77	81	158	12	17	29	31	7	38
8	Gairi Tole	11	49	154	166	320	2	24	26	74	18	92
9	Reeting	11	53	117	126	243	14	10	24	47	7	54
10	Railway - Devithan Shanti Tole	17	80	207	208	415	32	12	44	112	17	129
TOTAL			**685**	**1666**	**1694**	**3360**	**86**	**262**	**348**	-	-	-

NOTE: These data were obtained from DACAW in raw form. DACAW is a project run jointly by UNICEF and Dharan municipality for urban poor and it has been working in the above squatter settlements for few years.

(* From the information received from one of the squatters of Makalu Basti, there are about 800 households in Makalu Basti: ** Amar Basti is situated in the upper stream of Khahare and the Dharan-Dhankuta highway separates it from the Amar Basti-Zero Point. For this research, the survey was carried out in the households of Amar Basti only.)

Table iii: List of the remaining squatter settlements of Dharan

S.N.	Squatter Settlement	Ward No.
11	Pragati Marg	16
12	Nirajan Basti	15
13	Gairi gau	13
14	Jana Andolan Basti	16
15	Shanti Tole	4
16	Saptarangi Tole	17
17	Fokland Tapu	17
18	Barun Tole	8
19	Phushre Tole (Old Settlement)	

Source: Key informant interview with Sangeeta Lama in Amar Basti

ANNEX 4: PLATES

JAGRITINAGAR

Plate 4.1: Toilet waste discharged directly into Bagmati river in Jagritinagar

Plate 4.2: Open dumping of solid waste along the riverbank by non-squatters
(It's not only squatters who throw solid waste into the river polluting the river!!)

Plate 4.3: Over crowded house with eight people living in two rooms in Jagritinagar. Yet they are happy for what they have!!

SHANTINAGAR

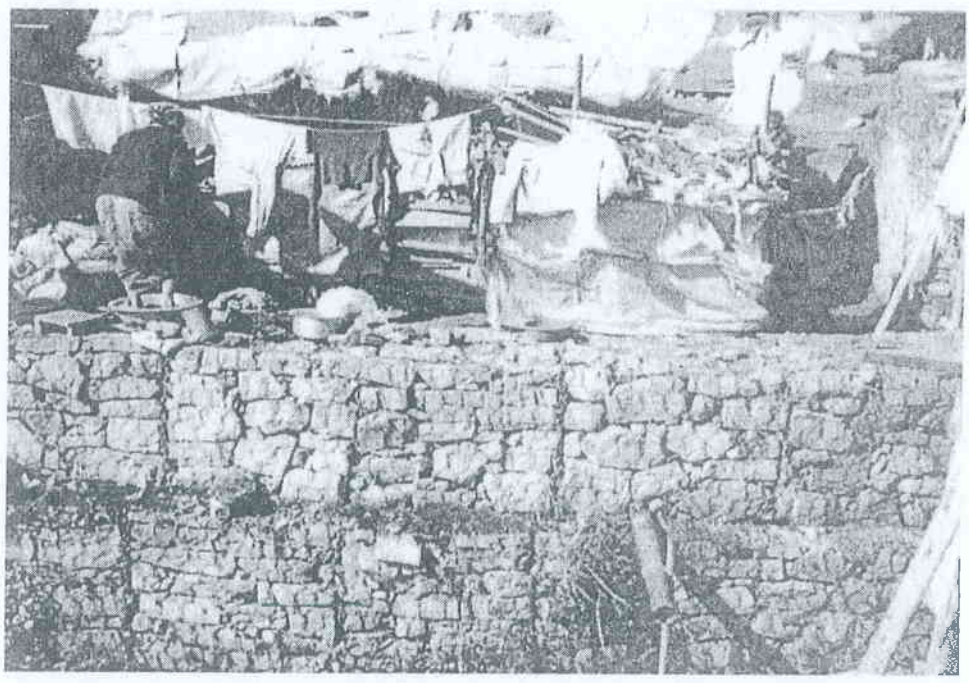

Plate 4.4: A temporary house of Shantinagar above the gabion wall

Plate 4.5: Two rows of temporary houses in Shantinagar.
(Can you imagine the situation in this narrow path in the rainy season?)

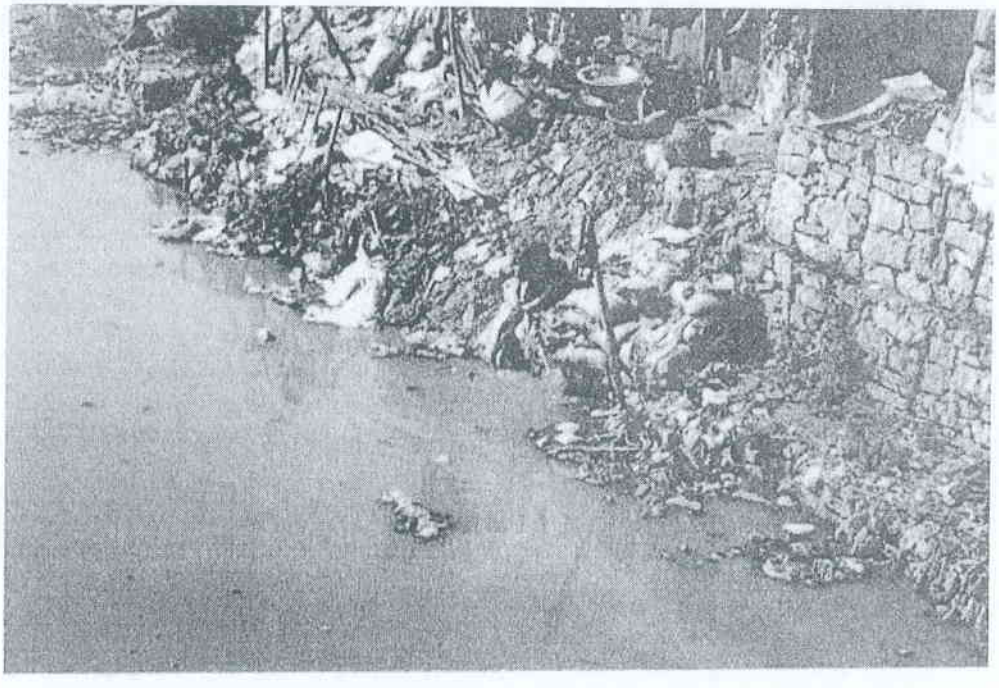

Plate 4.6: A woman in Shantinagar using even the polluted water of river Bagmati for washing a piece of cloth.

Plate 4.7: A single community handpump in Shantinagar the water of which is so dirty that it can hardly be used for washing and bathing purposes.

Plate 4.8: A squatter of Shantinagar who has started this small business along the riverside. With this business she is now able to feed her family and is satisfied from her work.

Plate 4.9: The children of Shantinagar who are happy to play in the narrow street. Most of them go to school!

PATHIVARA

Plate 4.10: A brick-made semi-paccki house in Pathivara. Previously, this lady had plastic made temporary house in this place. The lady in the picture is also an active member of women's saving and credit group in Pathivara.

Plate 4.11: An asthma patient making a cotton thread inside her small-unventilated room to make her living. (Imagine the health effects of the cotton particles in that asthma patient!)

Plate 4.12: A temporary house with a temporary pit latrine along the dry seasonal river (Khahare) in Amar Basti

Plate 4.13: The squatter of Amar Basti collecting bundles of firewood from the forest for sell

Plate 4.14: A squatter crushing stone by the side of seasonal stream, Khakare.

Plate 4.15: A government school in Amar Basti from where most of the squatter children is receiving education.