TRIBHUVAN UNIVERSITY

INSTITUTE OF ENGINEERING

PULCHOWK CAMPUS, LALITPUR

"POST OCCUPANCY EVALUATION OF SAIBHU BHAINSEPATI LAND POOLING PROJECTS"

BY

NIYANTA SHRESTHA

A THESIS REPORT

SUBMITTED TO THE DEPARTMENT OF ARCHITECTURE AND URBAN PLANNING

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE

DEGREE OF MASTER OF SCIENCE IN URBAN PLANNING

DEPARTMENT OF ARCHITECTURE AND URBAN PLANNING

LALITPUR, NEPAL.

OCTOBER, 2012

COPYRIGHT

APPROVAL

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
PULCHOWK CAMPUS
DEPARTMENT OF ARCHITECTURE AND URBAN PLANNING

The undersigned certify that they have read, and recommended to the Institute of Engineering for acceptance, a thesis entitled "**Post Occupancy Evaluation of Saibhu Bhainsepati Land Pooling Project**" submitted by **Mrs. Niyanta Shrestha** (067/MSU/211) in partial fulfillment of the academic requirement towards the completion of the **M.Sc. in Urban Planning**.

Supervisor
Dr. Sudha Shrestha
M.Sc. Urban Planning
Department of Architecture
and Urban Planning
IOE, Pulchowk Campus

External Examiner:
Prof. Dr. Pushkar Kumar Pradhan
Head of Department
Central Department of Geography
Tribhuvan University

Program Coordinator
Dr. Sudha Shrestha
M.Sc. Urban Planning
Department of Architecture
and Urban Planning
IOE, Pulchowk Campus

External Examiner
Prof.Bharat Sharma
Nepal Engineering College

Date: OCTOBER, 2012

ABSTRACT

Kathmandu Valley has been going under rapid urbanization and the pressure of urbanization is intense in Kathmandu valley in last few decades and it has been spilling over the surrounding areas. Thus land development schemes have been conducted to control it. Among these Land development, LP plays a very vital role to control the haphazard growth. But Monitoring and post evaluation has not yet formed as a part of any land pooling projects in Kathmandu Valley despite their successful implementation. So, not much is known about the occupancy rate, nature and pace of development and also to what extent the general objectives of land pooling has been realized is yet to be established.

In this thesis, an attempt has been made to access Saibhu land pooling project and some important aspect are being looked such as what is going on in the project after the implementation, what development need to be considered such as nature and pace of development, occupancy rate, infrastructure and services provided, their use and condition, land value before and after the project, characteristics of people living in and their perception on the LP project. This research gives a comprehensible picture of the development trend which will be helpful in adding a clear concept about the development pattern and also, how far Saibhu land pooling project implemented have been successful, in the realization of its broader objectives such as providing planned housing plots, sufficient open space and provision to accommodate more people in few land.

But no mechanism for monitoring, control and regulate the development exists. As a result slow development rate, rampant escalation of land value, etc is a common phenomenon. Thus, through identification of the issues, problem and its impact, policies and action for mitigation of urban problems will be proposed. It also includes suggestion and recommendation for incorporation in project implemented at present as well as for future and land pooling projects through this research thesis.

ACKNOWLEDGEMENT

I would like to begin by thanking the Institute of Engineering Pulchowk Campus for giving me the opportunity of pursuing my master degree in Urban Planning. I am sincerely grateful to ***Dr. Sudha Shrestha****, my thesis supervisor for her continuous support, valuable suggestions and guidance from the very beginning of the study up to this submission of the thesis. I am really privileged by her deep concern to my work and constructive criticism in the output s of every stage of my study.*

I am also indebted to ***Prof. Dr. Sudarshan Raj Tiwari****, the senior professor of the institute,* ***Prof. Dr. Puskar Kumar. Pradhan, Prof Dr. Jib Raj Pokhrel, Prof. Bharat Sharma and Prof. Mahesh Shrestha*** *for commenting critically on my research and for providing encouragement and inspiration to this study .I am also thankful to* ***Mr. Kirti KKusum*** *for giving me valuable suggestion and providing motivation and also to* ***Mr. Sudarshan Raghubansi*** *for his cooperation during the study.*

I would like to express my sincere gratitude to ***Mr.A.A.Mikrani****, a Project manager of Saibhu land pooling project,* ***Mr. Pit Raj Koirala*** *and staffs of KTM Valley Authority, District Commission Office, Lalitpur for providing documents and drawings of Saibhu land pooling Project. I also like to thanks to DUDBC for library facilities and providing related documents, data and information.*

I am very much grateful to the resident of Saibhu land pooling area for understanding the study and allowed to conduct questionnaire survey with whose understanding the study would not have materialized. Thanks to all MSc Urban planning 067 batch classmates for their help and cooperation. Specially to, Pratigyan shakya and Smriti Rajbhandari, for their help on survey and data collection.

Last but not least, my everlasting gratitude goes to all my family members, my friends and all the people and organization that helped me in the preparation of this thesis.

Niyanta Shrestha
October 2012

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF CHARTS

LIST OF ABBREVIATIONS

CBS	Central Bureau of Statistics
DUDBC	Department of Urban Development and Building Construction
GLD	Guided Land development
GON	Government of Nepal
HMG	His Majesty's Government (now changed to Nepal Government)
KVTDC	Kathmandu valley Town development Committee
LP	Land Pooling
LR	Land Readjustment
LSA	Local Self Governance Act
NLSS	Nepal Living Standards Survey
OS	Open Spaces
POE	Post Occupancy Evaluation
PPP	Public Private Partnership
S&S	Site and services
TDA	Town Development Act
TDC	Town Development Committee
UCs	Users Committees
ULM	Urban Land Management
VDC	Village Development committee

1 INTRODUCTION

1.1 BACKGROUND

Urbanization is defined as the percentage of total population living in settlements designated as urban areas, generally was viewed as closely related to economic development. The urbanization process in Nepal has recorded an outstanding growth rate in recent years with about 17% population presently residing in urban areas with growth rate of 4.4%. The increased urbanization has led to pressure on the available land and infrastructure which clearly indicates the true requirement of urban land. As a matter of fact, Nepal's rapidly growing towns and cities are taking over land at a fast pace.

With the growth of population and the resulting human activities, there will be pressure on the limited urban land. With increasing pressure due to more demand for land, it will be more difficult to implement rules and regulations that will make land administration more complex. Even different methods of housing development are causing haphazard development, which create poor living environment, lack of infrastructure facilities, traffic congestion. The land demand is increasing day by day exponentially due to excessive inflow of the population either in search for better future facilities and it has been further add upon by the current political situation of the country.

With the increasing of the population, agricultural land is converted into the unplanned residential area. The unplanned growth of urbanization in the Nepalese towns is creating problems of great proportions causing serious concern to all who live here and who understand its true implications. Population of the Nepal is increasing rapidly owing to an influx of migrants from other parts of the regions who come to the capital in search of employment, education, health services and security. The housing condition as well as living condition of people is deteriorating day by day such as number of slums and squatters settlements are increasing and are characterized by acute shortage of water supply, congestion, environmental pollution, poor sanitation and lack of proper infrastructure and open spaces.

Thus, as a result, the residents of the city are forced to live in the undesirable living conditions. Due to congestion and unavailability of land for housing and other purpose, the land price has reached its peak during last decade. Due to high potential everyone in the country is willing to own a house in the periphery of the metropolis and ultimately they are landing in the urban fringe of Kathmandu and Lalitpur. The land transaction and rate of construction in the vicinity has indicated that if proper planning intervention is not undertaken in time it will face the consequences of haphazard growth as other towns of the country. Thus, the residents of the town, common man on the street, professionals and intellectuals are feeling the need of a planned urban environment increasingly. Core area of city is densifying due to fragmentation of patriarch land and sprawls growth in fringe area. Due to such type of rapid urbanization basic infrastructure is not sufficient for citizens. Narrow roads, shortage of drinking water and poor management of solid waste collection has been terrifying the people. Therefore to limit such problems, land development techniques have been used in Kathmandu valley.

Thus, land development acts as an alternate solution to a needed change in life style. In Nepal, three forms of land development have so far been adopted which are **Site and Services, Guided Land development (GLD) and Land Pooling (LP)** as an attempt to control the haphazard unplanned growth of the cities and provide a planned space with provision of basic infrastructure and services. In Kathmandu, all three of these land development tools have been tried with mixed success. Among these three, Land pooling has been considered the most effective of all so as to achieve well planned urban land, facilitated with necessary infrastructure and services.

Table 1: Urbanization trend and projection of urban population in Nepal

YEAR	Total population (000s)	Urban population (000s)	Urbanization level(%)
1985	16,503	1,280	7.8
1990	18,772	1,680	9.0
1995	21,456	2,212	10.3
2000	24,347	2,893	11.9
2005	27,439	3,758	13.7
2010	30,722	4,843	15.8
2015	34,125	6,171	18.1
2020	37,478	7,740	20.7
2025	40,554	9,497	23.4

SOURCE: UNHABITAT (1999)

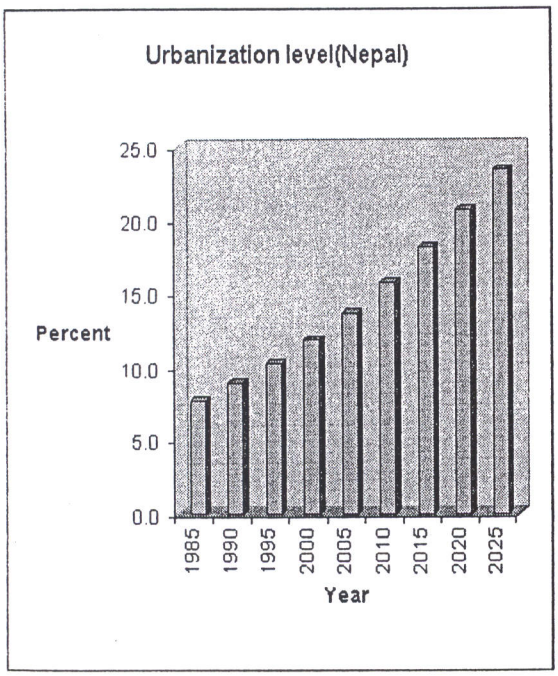


CHART 1: URBANIZATION LEVEL

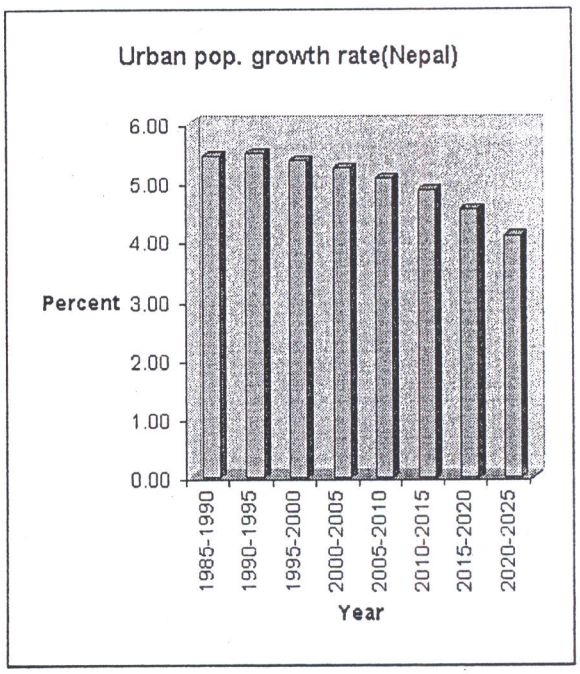


CHART 2: URBAN POPULATION GROWTH RATE

1.2 RATIONALE OF THE STUDY

Land pooling has been considered as a successful tool /technique for urban growth management. Land pooling today is the sole land development tool which is espoused by the government of Kathmandu valley. In spite of this there are certain important aspects which have attracted little attention of those, concerned more importantly on the post implementation or occupancy stages. Despite of fully developed/serviced plots, land pooling areas seems to be developing slowly creating the problem of delay and discrepancy .Due to the delay of land pooling projects, the occupancy rate in the project area has been also affected. The developed vacant plots are resold several times without building construction just for the capital gains between transactions. So, land pooling plots have been measures speculation rather than planned neighborhood development.

Therefore, there is a need for analyzing how well a particular space works or developed after land has been readjusted and developed. Need of monitoring and evaluation of the development after completion to see if it is satisfactory or not or how much the project brief has been met. Also need to identify the reason for vacancy of the developed plots and give an insight into the pace of physical, socio-economic development of the land pooling areas.

1.3 PROBLEM STATEMENT

Kathmandu valley is a fast growing urbanized place and rapid growth rate has not been matched by supply of developed land which has not resulted with the desired impact, due to delay, ineffective decision making process in the system and lack of political support. The rigorous negotiation with landowners causes delay and hence, with delay the attitude of the people may change. The land is vacant due to the ownership disputes and tenants. There is also the problem of estate management in handling over the project to user committee. Plots are sold through open bidding to fetch the highest price. The projects are successful as serviced plots were produced. However, when will the buildings be constructed? Land value is increasing even

when the onsite infrastructure conditions do not change and people buy plots for speculation. Land is going to be owned by those who do not need them. The owners are mainly concerned with the financial returns and not with the full development of the site. Plots remain vacant for many years in the expectation of price rise. New development areas are not well integrated with the city as a whole. The approach tends to increase the standard of the project, which might dislocate the poor and increase speculative practices of land holding.

1.4 STATEMENT OF PURPOSE

1.4.1 RESEARCH QUESTIONS

The following questions are taken into account for the effective outcome that shall probably find a way to overcome the set objective, and they are:-

1. What are the factors behind the vacancy of several serviced plots even after ....years? To what extent, the originally proposed land use plan has been implemented, and what are the factors that have led to the alteration of plan?

2. What policy measures should be followed to expedite development in the serviced plots?

1.4.2 RESEARCH OBJECTIVES

The main objectives of the study are;

- To identify the emerging development pattern after land development of Saibhu Bhainsepati.
- To examine the social-economic characteristic in the newly planned neighbourhood.
- To analyze the post occupancy rate and identify its impact of the project area and its surrounding.
- To formulate guidelines and suggestive measures to address the development of the planned residential area.

1.5 METHODOLOGY

1.5.1 RESEARCH PARADIGMS

The research paradigm is based on positivism and post-positivism. The study focuses on Post occupancy evaluation of Saibhu Land Pooling and emerging development pattern. Land Pooling has special relation on social and economic system. The research is based on inductive thinking. The research is based on qualitative and quantitative data collection. In the qualitative data collection of the research the data is collected through the individual survey and survey to the key person by raising open question.

1.5.2 RESEARCH STRATEGY: **CASE STUDY**

The research strategy was based on the case study research considering the physical development and socio - economic condition of the area and to mitigate urban problem of Saibhu, Bhainsepati. The study basically focuses on the land use, socio-economic changes of the Saibhu, Bhainsepati after the land pooling and analyzes various policies to implement tactics for the development of the planned residential area.

To identify and analyze the various aspects of land pooling through external and internal factors in study area, different research methods are use. The research processes adopted was as follows:

1.5.3 SELECTION OF STUDY AREA

Saibhu one of the land pooling project was selected as the study area with a goal to obtain information about development pattern after land development and its impact on surrounding area Saibhu, Bhainsepati which is situated at Saibhu VDC ward no 4 and ward no 9 in Lalitpur district of Bagmati zone. Bhainsepati is 10 km away from Kathmandu in south Lalitpur, 3 km away from Jawalakhel and 1.5 km away from Ring Road to the south. This land is an agricultural area of 491-5-5 ropanies (24.89 hec) of land. The soil of the area is mostly black in lower layer and then is sandy soil in upper layer.

Problem Identification: The problems in the research area were identified through field observation and interview with local individuals as well as reviewing the related articles.

Formulation of Objectives: The objectives were formulated such that they help to solve the problems identified as well as answer the research questions. The objectives mainly focused on finding out the physical development, socio-economic condition and post occupancy evaluation.

1.5.4 DATA COLLECTION

LITERATURE REVIEW: Literatures were reviewed to understand various aspects of land pooling. It includes collection of previous research materials, journals, articles and relevant materials under similar topic and through review, understanding its issues, problems and prospects associated. Besides articles and journals, government plans and policies related to land management were also reviewed. From the literature review various indicators of the land pooling were identified and a set of questionnaire developed for data collection based on these indicators.

CONCEPTUAL FRAMEWORK: The study was further enhanced and prepared a conceptual framework of the thesis which ultimately helped to formulate the in depth analysis of related issue was be made so as to conceptualize the thesis output in systematic relationship with its various components. Accordingly, the checklist of data and information required were developed for further study to bring the study into a final strategy for the change due to land pooling.

COLLECTING OF DATA AND INFORMATION: Data collection is one of the main base to face the existing reality of the study area. It is an activity done to take ordered information from reality and then synthesizing it for the purpose of analysis in required pattern. Thus, field visits were made for the collection of the data & information. Data were also extracted through sample survey and secondary sources; however, field verification was done. Intensive discussions followed by some specific strategies were formulated for the extraction of the further information. The study was based on two types of data sources: Secondary data and primary data.

a) Secondary Data Collection: Secondary data collection was collected through the census data, magazine, bulletin, aerial photographs, maps and internets etc. The data was collected through the Department of Urban development and building construction, Central Bureau of statistics, VDC Profile, etc through various Secondary sources. Aerial photographs and the CBS data are use to identify the change pattern in land use.

b) Primary Data collection: The research methodology adopted was qualitative as well quantitative research methodology. The study was conducted through field survey using the instrumentality of a structured questionnaire and an in-depth interview to generate a wide range of information on issues bordering post evaluation of land pooling. The study was based on primary data collected from the questionnaire survey in the field and is supported by the secondary information related to policy and programs. Face to face interactions with local people and resource persons, focus group discussions, key informant interview and informal conservations was conducted to gather data and information. Following Steps will be adopted:

- *Questionnaire*: The questionnaire is very extensive and consists of questions regarding the general characteristics of the Land Pooling and on various aspects of the land use. The questionnaire was composed of the following blocks:
  - *Physical aspect*: road conditions, energy supply, water supply, access to safe drinking water, access to transportation facilities, occupancy rate, open spaces and information and communication facilities.
  - *Social aspect*: kind of people living, safety, a good relationship with neighbours and friends, its impact on surrounding area,
  - Economic aspect: Earnings (income level), land price and access to finance.
  - Thus, quantitative data on these topics are gathered.
- *Focus Group Discussions (FGDs):* FGDs were done in order to get more background information on the topics explored in the questionnaires. This discussion covered: Main problems faced in the land pooling area, livelihood issues in area and what can be done for the better land pooling projects.
    - *In-depth interviews:* In-depth interviews provide a great source of valuable qualitative information for this study.

1.5.5 DATA ANALYSIS AND FINDINGS

Quantitative Analysis:

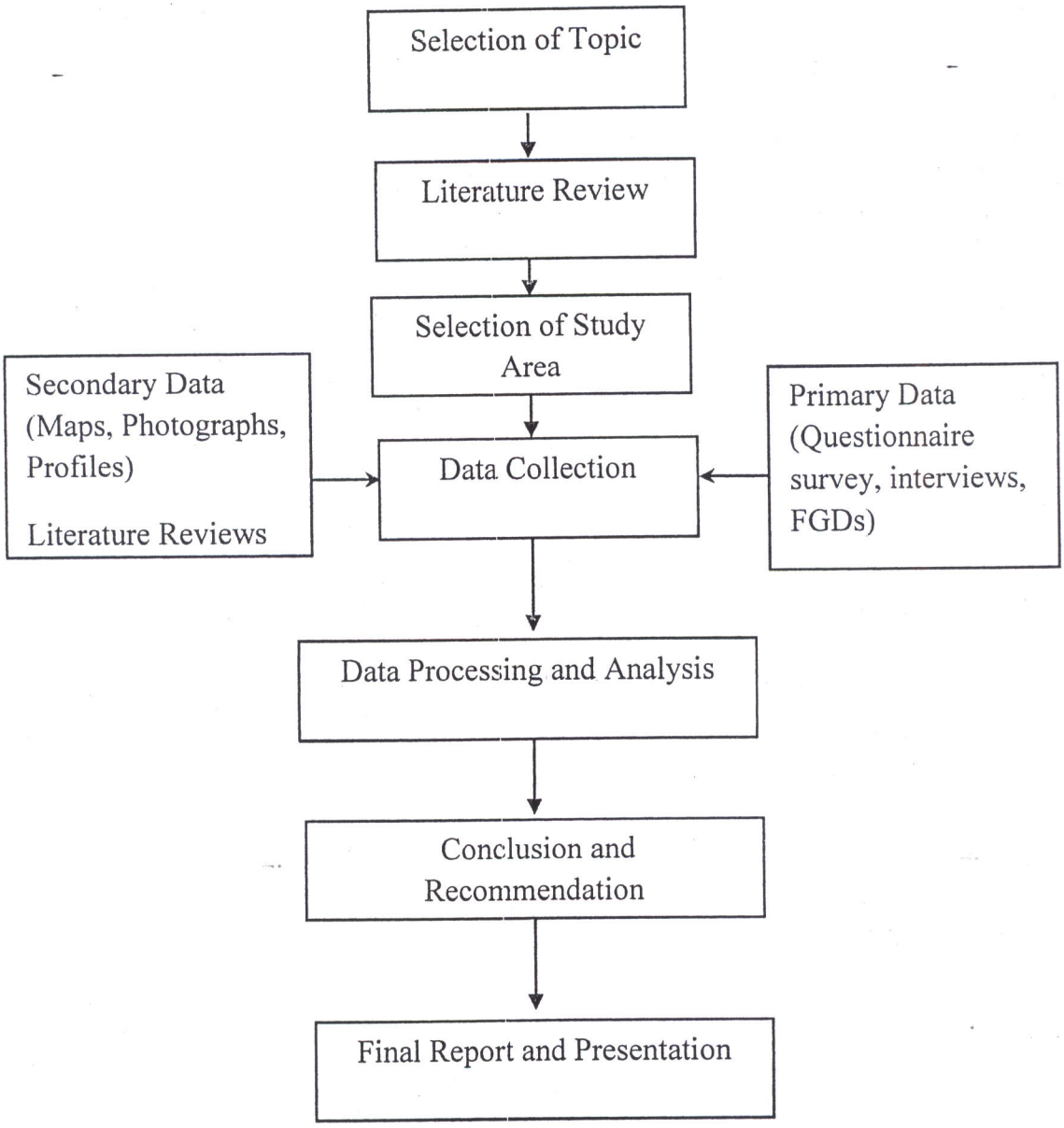
The quantitative analysis mainly involves the analysis of social and economic aspects of Land pooling. After the collection of data, it was tabulated and the statistical analysis was done by using statistical software namely SPSS and EXCEL. The cross tabulation was frequently done to show the pattern of relationship between the variables. The graphic presentation comprising various graphs, charts, diagrams, maps etc. were used for data processing and analysis togive clear picture of relations and differences of variables.

Qualitative Analysis:

Qualitative analysis includes the theoretical aspects that the data collected revealed in the process of post occupancy of land pooling. This analysis is based sampling survey, focus group discussions and in-depth interviews with the key informants. The views of people and local authorities were analyzed descriptively. The data are synthesized to arrive at certain conclusion as the main findings of the research. This includes finding out the problems and potential of the area in the prospect of development.

CONCLUSION AND RECOMMENDATIONS: Final conclusions were drawn from the analysis. Possible ways to incorporate development along with evaluation of post occupancy rate were raised in the analysis part and be studied in detail. The final outcomes of the research were presented in the form of guidelines and suggestion incorporating the planning and developmental aspects of the area and recommendation for mitigating the problems of the study area and it surroundings.

METHODOLOGY CHART



1.6 EXPECTED OUTCOMES

At the end of the study, following outputs are expected to come;

Overview the physical condition of the study area and what is going on in the project after the implementation of land pooling project in Saibhu, Bhainsepati, for which, some key aspects of development need to considered such as pace of development, infrastructure and services provided, their use and condition, land value and land market before and after the project, characteristics of people living in and their perceptions and how far the land pooling project implemented is successful. The comprehensible picture of the development trend which will be helpful in adding a clear concept about the development pattern.

Through identification of the issues, problem and its impact, policies and action for mitigation of urban problems will be proposed. It also includes recommendation for the better implementation and successful development of future land pooling projects.

1.7 SCOPE OF THE STUDY

The scope of the study involves the evaluation of existing land pooling practice used in Saibhu, Bhainsepati. The study will focus on Saibu, Bhainsepati land pooling schemes and in-depth study of physical, socio-economic aspect of land pooling project of Saibhu, Bhainsepati.

1.8 LIMITATION OF THE STUDY

The study depends upon the availability of data of primary and secondary data and cooperation from related institution and individuals during the study. The study will be limited to the collection of primary data from representative sampling survey. So, error that is inherent in the sample survey method is expected. The study does not focus on the environmental aspect of Saibhu. The study and outcome of the study will be an individual effort. The thesis is being prepared as a part of partial fulfillment of the academic exercise in M.Sc. Urban planning.

2 LITERATURE REVIEW

2.1 URBAN LAND

Land is the solid part of the earth's surface. From the general habitat point of view, it is the earth's surface whether it is covered by forest, river and ocean is called the land. Some nations are expanding their land by reclaiming the sea known as the reclamation. Land is a unique resources, limited in its supply, but endless in the variety of its uses. It is the basic for all development. Land is a production means other than capital, labour and entrepreneurship. Land is understood as a place for human habitation, to aid the process of housing which has physical, social and cultural infrastructure, however, with a very thin line of separation among them.

In simple understanding, the habitable lands in urban areas are called urban land. The spatial character of the urban land comprises of urban, urban fringe land and the infrastructural servicing pattern. Whereas, the economic character reveals the multiple use potential, investment capital and the land cost. The role of politics as in every field has the impact on the urban land as well. Political stability, government policies and decisions are some of the factors that affect the urban land.

2.2 URBAN LAND DEVELOPMENT

As our population increases and available land becomes scarce, land development becomes increasingly challenging. There are more government regulations and impact fees today than ever before, plus a host of local restrictions that make development difficult. The interpretation of what is included in the concept of land management varies considerably. Land management is the process of managing the use and development (in both urban and rural settings) of land resources. Urban land management is the primary and most effective approach to control and regularize the growth & approach primarily consists of land use planning, land sub-division regulation, building bye-laws, urban land market management and statutory planning control system. It approach looks for more positive approach to address to the urban planning problems of the rapidly urbanizing nations. It attempts to ensure adequate

land supply by correcting the market imperfections. Land management is dynamic approach which deals with the land use, land supply, institutional coordination, infrastructure improvement, cost recovery etc.

"Land management is the government management of its planning regulatory and infrastructure activities in urban expansion so as to create physical and legal framework to guide many private land subdivision and building projects being under taken through the land market. It is designed to achieve planned urban expansion, adequate land supply and sustainable urban development."(Archer, 1994)

As land is a scarce resource and it cannot grow, efficient land management is necessary for the development of an area. This should be equitable and in approach of all the class of the society. But , unfortunately, in the third world cities, most productive land are under control of different land lords which is inaccessible to poor people. Problem on urban land can be broadly divided in to five categories, such as:

- Lack of enough land at the right price and in the right location
- High cost and low affordability of land and housing
- Ineffective government programs and actions in the area of urban development
- Private sector resistance to government land regulations
- Environmental resource constraints to land development, etc.

Broadly, the land management covers land administration/ record keeping, title and ownership provision, land use planning and control etc.

2.3 URBAN LAND MARKET

Like any other market, land market is governed by the forces of supply and demand. However land is not a homogenous product and each parcel is unique, with a particular set of locational and physical attributes. The actors in the land market area diverse and often have conflicting agendas.

The demand of land is determined by the product or services produced on the land, in other words, by the use of the land. Residential land demand is affected by demography and economic pressure. The land holding as investment is an another problem.

On the supply side, the quantity and price of land are affected by the spatial pattern of infrastructure, the topography, the willingness of the landowners to make land available on the market and by the governmental interventions and restrictions. Following are the some policy interventions which affect the supply of land, such as:

- Property right
- Land titling and registration,
- Land use regulations,
- Direct public intervention in the acquisition of land and
- Fiscal practices

Many poor people are immigrated to the urban areas for the search of better opportunity of employment and basic facilities. This exerts pressure on urban land for housing and rental accommodation. There is high demand of land, if the serviced land supply fails to meet the spiraling demand of urban land, the land price pushes up land the haphazard the scattered development takes its course. The degree of land demand largely depends on the political system and economic determinants (investment /business environment, micro economic activities etc.).

2.4 URBAN HOUSING IN NEPAL

The need of the urban housing is increasing with the passage of time with faster pace of urbanization underway in the country. The new millennium is an era of urbanization, in fact, urbanization should be considered as an asset more than liability. It is thus necessary that the urban housing needs to be given much attention for which there is the need of a policy.
It has been found that a good housing contributes to efficiency, enthusiasm and energy of the people who can contribute meaningfully to the country's economy. Unfortunately, the urban housing scenario is not encouraging in Nepal. The land plots

are difficult to find. The urban houses are in dilapidated state and need up-gradation. Much of the housing is vulnerable to earthquake and flood. It appears that only 10% of the requirement is fulfilled by the private sector. In this context there are series of constraints that the urban area is facing at the moment. These are the lack of finance, unavailability of the serviced land plots, the lack of optimally efficient building materials and construction technology, lack of suitable legislation; need to upgrade the dilapidated housing stock, and above all the lack of recent data in housing. Also, conversion of land from agriculture to urban use has been rapid. Public sector housing is still lacking behind since housing is still considered as an individual responsibility.

2.4.1 Demand and Supply of Housing Plots in the Valley

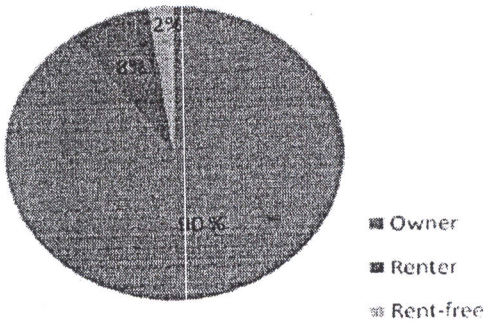
Table 2: Urban growth rate in Kathmandu valley 1991 to 2011

Municipalities	**Population**				
	1991	**2001**	**Growth 1991-2001**	**2011**	**Growth 2001-2011**
Kathmandu MC	421258	671846	4.7	1006656	4.0
Lalitpur SMC	115865	162991	3.4	223285	3.1
Bhaktapur	61405	72543	1.7	83893	1.5
Madhyapur	31970	47751	4.0	84259	5.7
Kritipur	31338	40835	2.7	66070	4.8
Total	**661836**	**995966**		**1464163**	

Table 3: Housing plot demand in 5 municipalities of Valley

category	**In between 1991 to 2001**	**In between 2001 to 2011**	**Remarks**
population increased	334,130	468,197	Developed land plot get from 11 land pooling project in 1990s is **6772** no. i.e., around 6 % of total demand of the period.
Increase in number of family (family size= 5)/ number of housing unit demand	**66,826**	**93,639**	

Figure 3.1: Households occupancy status



- Percentage of house owner 89.7 %
- Percentage of house renter 7.8 %, In the urban area 26 % people pay rent.
- Average surface area of dwelling is 605 square feet in the country. (urban kathmandu 555.4)
- Average area of housing plot is estimated to be 1625 sq. ft. in the country.(urban Kathmandu 1223.7)

Source : NLSS, 2010/11

Similarly, numbers of housing project approved by KVTDC (until March 2009) are as follow:

Table 4: Number of housing projects

Location district	Type of project	No.of projects	No. of dwelling unit	Total
Kathmandu	Group housing	10	626	5042 dwelling units.
	Apartments	32	1838	
Lalitpur	Group housing	11	877	
	Apartments	12	1128	
Bhaktapur	Group housing	1	-	
	Apartments	6	573	

Source: KVTDC, DUDBC, March 2009

Table 5: Dwelling Units Needed To House The Projected Population Of 2021

Category	Persons without housing	Persons per household	Dwelling units needed for the urban poor (below poverty line)	Total number of dwelling units needed
Housing deficit in 2001	242,724	5	1,602	48,545
Housing needed 2001-2011	739,153	5	4,878	147,831
Housing needed 2011-2021	1,076,788	4.5	7,896	239,286
Total new housing needed in 2021			14,376	435,662

Source: Modified from Kathmandu Valley Town Development Committee (2000)

To cope with the rapid growth of urban population and to provide a planned urban space with the provision of basic infrastructure and services, public agencies have launched different land development project: Site and Services, Guided Land Development and Land Pooling.

2.4.2 Nepal Living Standards Survey (NLSS)

The Nepal Living Standards Survey, 1995/96 (NLSS-I) was a milestone in the collection of data for the objective measurement of the living standards of the people and for determining the level of poverty in the country.

NLSS-I for the first time, provided a measure of "extent and dimension" of poverty in Nepal. The survey findings became popular among decision makers in the government agencies, the general public and the international agencies as well. Accordingly, the second round of the survey (NLSS-II) was carried out in 2003/04 after 8 years of the first survey. The findings of the NLSS-II helped the government to monitor progress in improving national living standards and the survey became a good basis for monitoring the Millennium Development Goals (MDGs) over time. Realizing the importance of time series data, the Government of Nepal decided to conduct another round of the Nepal Living Standards Survey. Accordingly, the Central Bureau of Statistics for the third time conducted the survey in 2010/11 (NLSS-III). The survey was carried out with the assistance from the World Bank.

The NLSS-I in 1995-96 had shown 41.76 percent of the population living below the

poverty line, which came down to 30.85 percent in the NLSS-II in 2003-04. NLSS-III: 25.16 percent Nepalese below poverty line.

Housing affordability ratio

Normally it takes about Rs one million to build a single storey house of about 650 sq.ft so:

- Higher income population own big houses built in large plots.
- Middle-income populations own a minimum of 856 sq.ft of land and have a tendency to build their houses in an incremental order.

House price to income ratio

About US $ 24,600 is required to build a single storey house of about 650 sft. , and the average income of Nepalese people is US $ 270 per year, so for a lower income person to own a house is difficult.

For instance, a junior government officer with his current monthly salary of US$89.70 would require seven and half year's total salary to buy a plot of 127 m2 (4 Ana) of land ($8001 will be required as the current average price of a plot is US$63=m2).Even in seven and half years it is not possible to buy the plot because the purchaser cannot save the entire salary and even if 50% is saved, it will require 15 years to purchase the plot. Hence, only the wealthier people have managed to buy plots in projects.

Access to and cost of basic services

The housing process of Kathmandu can be defined in the following sequence

- People > Land > House > Services

Whereas the international experience shows that the process should be

- Land > Services > House > People

2.5 ISSUES IN URBAN LAND DEVELOPMENT

The uneven population distribution and increasing number of people living in urban areas result heavy pressure on land and its resources. The variation of economic potentials in the districts is creating imbalance and inequalities. The main problem of urban management is related to the land in terms of the ownership, shape, size, quantity, topography, quality, land use etc. among these in our context, ownership, land supply and land use are the main problems of land management in Nepal. The main responsible authorities at the central level including Ministry of Land Reform and Management, Forest, Agriculture, Housing and Physical Planning, Population & Environment, Local Development and Local Actors, the government bodies, public and private agencies are supposed to work together.

This is very prominent issue including the following:

- Lack of umbrella policy for land management.
- Less priority for implementation of effective land management.
- No effective policy for settlements, housing and migration.
- Land use zoning is not enforced by law.
- No control for haphazard settlements by private land developers.
- Lack of adequate legal framework and clear responsibility assignment.
- Deficiency on up to date information about urban land..
- Inadequate government intervention for adequate supply of serviced land
- Less effective environment for private sector investors.
- Less participation of municipalities.
- Less coordination between land development agencies and land administration offices
- Inadequate provision of key network infrastructure.
- Poor land recording and inaccurate cadastral mapping.
- Less access to financing mechanism for ULM.
- Poor urban management (lack of ULM/ land use plan/policy...) etc.

2.6 NEED OF URBAN LAND DEVELOPMENT

- To enhance the supply of developed land.
- Make available adequate land in right locations and at affordable prices.
- To ensure optimum utilization in terms of efficiency and equity.
- To safeguard the interest of urban poor by equitable distribution of urban land.

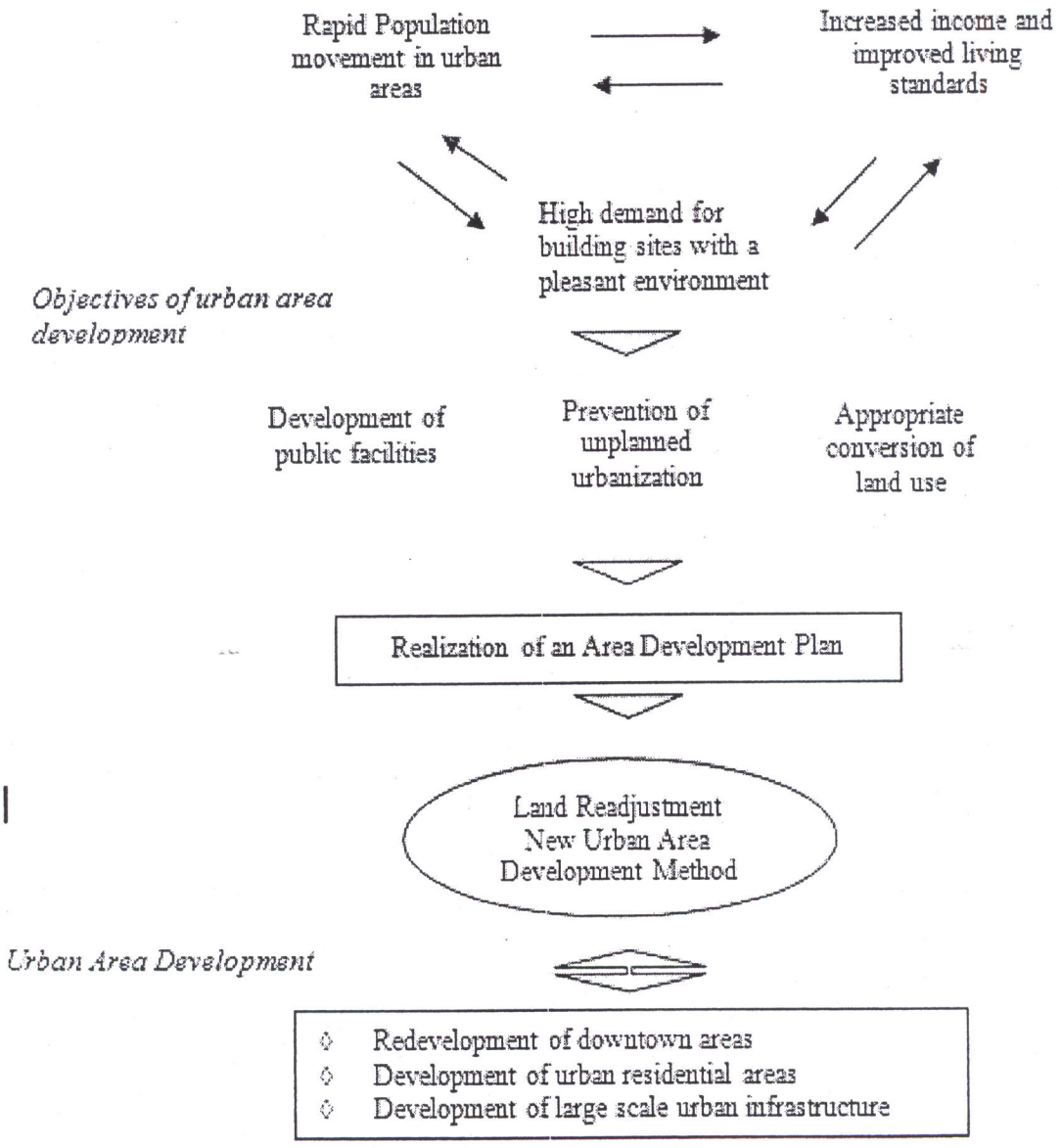


Figure 1: Showing need of Urban Land Development

2.7 POLICY, LEGISLATIONS PROVISION FOR LAND DEVELOPMENT IN NEPAL

There are so many acts and regulations which are used day to day land administration in Nepal. Such as:

- MulukiAen (land related articles)
- Trustee (guthi) corporation Act
- Land related act 2021 BS
- Land survey act 2019 BS
- Land revenue act 2034 BS
- Land survey regulation, 2058
- Land revenue regulation, 2036 B.S.
- Land related regulations, 2021 B.S.

The effectiveness of urban development effort is largely dependent upon the Government policy and the availability of legal framework to support. Some important legal policies which directly influence the urban development are as follows:

The various acts and policies can be summarized as follows:

a. **Town Development Planning Implementation Act- 1973**
b. **Town Development Act -1988 (2045)**
c. **Land Acquisition Act -1977(2034)**
d. **Local Self Governance Act-1999(2055)**
e. **Land Reform Act 1964**
f. **National Shelter Policy-2012**
g. **National Urban Policy- 2007**

a. Town Development Planning Implementation Act- 1973

This Act provides for the establishment of Board for the purpose of implementation of development plans approved by the government. This Board has no role to play

regarding the formulation of town development plans. But it has very wide powers to restrict sale or subdivision of immobile property of any kind, to control possessions and used of agricultural land, places of archeological, religious or historical importance, to regulate construction or demolition of buildings of any type, to stop action affecting natural beauty or landscape and control transportation. Bridges, roads and means of transportation playing thereon, forestation, water supply and lighting etc. The use of the words "regional development centre: in the Act can lead someone to think that this act applies only the centers to the five regions but this not so.

b. Town Development Act- 1988 (2045)

Town Development Act empowers the government constituted committee to formulate and implement land development scheme, to enforce land use regulations and, freeze land and acquire any immovable property and impose restriction on the use of land. In Clause 12.1.2, with the agreement from 75% of the landowners, LP scheme can be implemented in the area. It also Empowers Local Bodies to undertake such development schemes in their respective constituencies.

The Town Development Act (TDA) promulgated in 1989, besides being a comprehensive act for the planned urban development in urban areas, it is also the most important act to date regarding urban land management. The main objective of this act are to carry out the physical development, redevelopment and reconstruction of existing town areas/ establishment of new towns, preparation of land use and comprehensive plans and enforcement of planning norms and regulations.

The act under Sector 12 empowers the Town Development Committee for the initiation and implementation of land development programmes for urban housing and development through Guided Land Development (GLD), Sites and Services (S&S), and Land Pooling. Under /section 16, it has provision to make use of existing Land Acquisition Acts for the public land acquisitions. The act has guiding provision for the involvement of various actors of urban land development process.The salient feature of Town Development Act 1988 is as follows:

- Development and extension of town with provisions for necessary facilities and services
- Determination land utility zones and regulate use of lands and natural resource for town development.
- Initialization of land development program for urban activities
- Checking of activities that affect public health, regulate control and prohibit actions that pollute the environment.
- Order to demolish construction built against standards

c. Land Acquisition Act -1977(2034)

The land acquisition act empowers the government to acquire private properties for public purpose. One of the main legal provision for urban development schemes to be executed is the Land Acquisition Act, 2034. As almost 75% of the total land of the country belongs to the private owners, The Nepal Constitution has specifically given empower the individual freedom to utilize his/her land. This has helped individual to use land in whatever he/her wants to use and at the same time it binds the planning authorities in restricting or regulating the use of land for the benefit of the community. However, Land Acquisition Act has given some room for planning. In accordance to the act, public and private land can be acquired with the provision of proper compensation. District Administration Office has been given empowerment to acquire land on the behalf of the implementing body.

The salient features of Land Acquisition Act 1977 are as follows:

- Empowerment to the government by notification publicly in the specified places to acquire private land for the well-being of the general public or for the purpose on international organizations or diplomatic missions.

- Acquisition of private land for the protection of public property or to cope with any other emergency situation compensation for the acquisition of land is provided to the land owners in cash or if the owner wishes, in other governmental

land. No time table is given in the Act on the period within which compensation must be paid.

Land acquisition thorough expropriation is governed chiefly by Land Acquisition Act 1977. The authority of land acquisition has been entrusted to the Chief District Office of the district.

d. Local Self Governance Act- 1999(2055)

Central government has promulgated LSA Act in 1999 as a policy of decentralization, which entails the spirit and intent to develop local bodies such as municipalities as self-governing autonomous urban local bodies thereby enabling them to play effective role in the context of overall urban development in general and improving the living conditions of the town dwellers in particular.

This act has made provision for local government especially municipalities in urban areas empowering them to initiate land development activities. The Sub-Section (2) of section 111 of the Act, mentions that while formulating periodical and annual development plans of municipal area, the Municipality shall, as per necessity, have to launch plans such as land-use, land pooling and guided land development for making the development of the municipal area balanced and planned.

However, the function of control of unplanned settlement within the municipal area and undertaking land development activities does not include in the functions and duties to be performed by municipality mandatorily, rather included in as optional functions only (Sub Section 2d & 2e of Section 96). The land development work as optional function may not get due priority in municipal plan of action (Uprety,2002).

e. Land Reform Act 1964

Government of Nepal enacted land Reform Act in 1964 to administer all kinds of lands in the country according to which "land buyers and landowners are not only the participants in the urban land market in greater Kathmandu but also the land tenants". Since most of the land is owned under private land or Raikar Ownership, which according to Karki (1991), covered 94% of the cultivated land area or 76% of the

valley area, it makes extremely difficult to resolve issues while getting access to land due to dual ownership. This provision still exists while the conversion of land from agriculture use to urban use has been rapid since the promulgation of this act in 1964.

f. National Shelter Policy-2012

The National Shelter Policy of Nepal was developed and implemented for the first time in 1996 after carrying out a comprehensive housing survey in 1991 under the technical support of UNHABITAT. The policy of GON in the shelter sector has been clearly mentioned as "enabler as well as facilitator for the fulfillment of shelter targets and the private sector should play an important role in formal and informal sectors" (Lamsal, 2008). In other words, the government of Nepal is not a provider of housing but it is a facilitator and enabler only where the role of government will be limited to the formulation of necessary act and regulations together with provision of basic infrastructure services in order to encourage the private sector investment in housing. With regard to provision of housing to the low income people the policy states: "Construction of cost effective shelters for low income people, the shelter-less and the disadvantaged groups, provide smaller plots of land to construct dwelling units, provide the basic services and facilities (Ministry of Housing and Physical Panning, 1996). There is no specific mentioning of urban poor except the low income but the shelter less families indirectly pertains to the squatters and homeless urban poor families. The major instruments proposed to improve housing situation in the country are provision of serviced land through land development programmes (such as land pooling, site and services and guided land development programme), promotion of housing finance, development of construction materials and technology, increasing the production of dwelling units and repair and maintenance of the existing stocks etc. The National Shelter Policy had identified the need of new total dwellings units of 2.5 million (2549200) for a period from 1996-2006 A.D (433,600 units or 17% in the urban areas) and renovation of 731,900 (59,700 units or 8 per cent in urban areas) dwelling units by the end of 2006 (Ibid). National Shelter Policy 2012 clearly mentioned the extension of urban land development programs and formulation of legislation and regulation for land use plans.

g. National Urban Policy- 2007

The National Urban Policy, 2007 is expected to serve as a road map to this sector in order to address the challenges posed by the haphazard urbanization in the country. The policy document realizes the need to have an integrated and coordinated approach to urban development as there are many issues involved in this sector. The urban development pattern in the country has remained imbalanced due to excessive investment mostly in favor of Kathmandu Valley thereby resulting into Kathmandu-centric urbanization process and that has become a major cause for the imbalance in national urban structure leading to increasing trend of migration from rural areas and small town to large urban centers in general and the Kathmandu Valley in particular. Therefore, the major thrust of the urban policy is to achieve balanced urban structure through industrial development and provision of urban infrastructure in a balance manner by prioritizing the backward regions of the country.

As the construction cost of infrastructure development is tremendous and is not possible to be met alone with the investment of the government therefore the policy encourages and tries to attract foreign investment under public private partnership (PPP) model. Similarly, in order to conserve and develop the rich cultural heritage of the Kathmandu Valley and the touristic importance of the valley, the urban policy is planning to relocate those development activities which do not comply with the above vision. In addition to this, the urban policy has envisioned to create more employment opportunities in the urban centres by encouraging various economic development activities based on local potentials and opportunities.

The National Urban Policy does not mentions about the participation of people in the urban planning process and more importantly it is not clear how the voices of the urban poor and low income people regarding their housing problem are going to be addressed and heard through this policy. Moreover, the policy is silent about the inclusive urban planning approach so that all categories of people like Dalits, Janajatis, Madhesis, and Muslims etc. could be integrated within the broader framework of urban development umbrella in the country.

The various acts and policies can be summarized as follows:

S. No	Policy/Law/ Regulation	Major Provision On Land Development	Remarks
1	National Land-use Policy-2012	Urban development effort is largely dependent upon the government policy in coping with the increasing rate of urbanization. Currently, GoN has approved this policy. It focus on land use category and taxation system; vacant land tax, promotion of Land Pooling, etc.	7 categories of land use.
2	1st Interim Plan	Supply, 12000 plots from land pooling	Participation of the government, local agencies, and the private sector will be increased to develop and expand basic urban services, facilities and infrastructure, to improve urban environment, and to preserve the cultural and natural heritage.
3	2nd interim Plan	20 slum up gradation, development of infrastructures for 3 regional and 7 small cities, 7000 cost effective houses, 600 temporary shelters construction	Clearly mentions about, role of private sector, cooperative in the field of land and housing development.
4.	The Tenth plan	Development of 500 hectares of land (20000 residential units) through planned land development schemes.	Clearly mentions the need of private sector involvement in the large scale land development schemes
5	Long term development concept of Kathmandu	Densification of existing urban settlement areas and economic deconcentration in Kathmandu valley	Does not mention the involvement of private sector but mentions participatory programs

	valley-2002		
6	National Shelter policy-2012	Extension of urban land development programs and formulation of ;legislation and regulation for land use plans	Clearly mentions the need of private sector and CBOS involvement in the land development process
7	Habitat II	Launching of land development programs through public private partnership	Indicated that public sector alone cannot fulfill the land demand hence both private and public should go collaboratively
8	Town Development Act 2045	Land development like GLD, LP and SS schemes acquisition of land for these schemes, local bodies or institutions can implement land development schemes, power to announce moratorium.	Private sector could work in the development works but with approval of town development committee
9	Land related Act	Land ceiling and tenancy rights	Nothing is said about private assembly, assembly is hindered due to ceiling
10	Kathmandu valley development Authority act - 1988	Power of announcing moratorium; power to launch LD schemes after government has acquired land ; never has been exercised	The act even though seems sound never came to enforcement. Authority also was never formed and it did not come to effective function
11	Land acquisition act - 1977	Authority to acquire land for public welfare by the Chief district Officer	Land cannot be acquired fro private sector/ purpose even if the concept of the project coincides with the states policies and strategies.
12	Local Self-	Authority to launch Land use or land	Involvement of private

	Governance Act-2055	development schemes by local bodies	sector in local government is mentioned as a policy instrument

Existing legislations from the perspective of private land development work clearly indicates that, although national level policies are talking about private sector involvement, no law, no act have so far made or amended to cater the sector in large scale land development. Similarly the policies though have talked about public private partnership schemes in land development techniques; the details of the guidelines, regulation or procedures are not made legal mandates.

Provision of large scale schemes through land development techniques by private sector is made in TDC act under the term "institutions", but it is not practiced, probably due to the absence of detail mechanisms or because of lack of confidence from private sector part. No law or act empowers the private sector to implement large scale land development schemes. Without legal provision, the private sector is feeling insecure about their investment in infrastructure and land which can be sunk any time.

Similarly the land ceiling act is another great constraint for the process of land assembly, and also the land acquisition process is a very lengthy process with many legal battles to be dealt with along with the confusion in ownership of lands its area and boundary.

2.8 INSTITUTIONAL ARRANGEMENTS FOR LAND DEVELOPMENT

Land development activities in Nepal, especially in Kathmandu valley, are carried out by informal private sector. With the increasing demand of serviced land, the public sector has been doing its best to supply it, but is far behind to meet the people's demand. Only 6%[1](280Ha) of the land demand has been fulfilled by the public sector in the last two decades. Whereas rests of the land development activities are carried

out either by formal private sector or the informal private sector, among these formal sector's contribution is very trifle.

Besides the implementing land development activities, there are several institutions that administer both public and private land. All these institutions related to land administration are government owned. If looked at broadly, the institutions related to land development can be categorized into following:

- Institutions related to Planning and Implementation
    - Public sector
    - Private Sector
        - Formal Private Sector
        - Informal Private sector
- Institutions related to Land Administration

Government Institutions related to Planning and Implementation

- Ministry of Urban Development
- Ministry of Physical Planning and Public Works (MPPPW)
- Ministry of Local Development (MLD)
- National Development Council (NDC)
- National Planning Commission (NPC)
- Kathmandu valley Development Authority
- Department of Urban Development and Building Construction (DUDBC)
- Department of Water Supply and Sewage (DWSS)
- Department of Roads (DOR)
- Town Development Fund (TDF)
- Town Development Coordination committee

- **Public sector**

The government or the public sector so far have played limited role in the land development process in Kathmandu Valley. As mentioned earlier much of the land

development in the urban expansion area of the valley takes places via private sector. Public's contribution in the urban land development has not been significant enough to make major impact towards the planned urban expansion of the city. However, some efforts have been made, by launching few land development schemes such as GLD, sites and services and land pooling in Kathmandu Valley, during the last few decades.

Site and services necessitated the acquisition of private land and was the less preferred model because of high public resistance to land acquisition due to the long process involved and the Government's unrealistically low compensation rates. Guided land development (GLD) was carried out with mixed success throughout most of Kathmandu Valley by DHUD, excepting the city core areas. Though it did help to open up areas which once had no access to roads, the drawback has been that it lacked provision for concurrently incorporating land use and infrastructure development and relied much on the cooperation of landowners to provide access. As a result many GLD programs could not be implemented fully or partially.

The third program introduced was land pooling, which has been implemented with relative success at eleven different locations with the valley. However, in the absence of an overall land use plan, these land development programs have tended to be ad hoc and not properly coordinated with other city functions.

- **Private Sector**

Because of the government's limited role in plan implementation, land development in the urban expansion areas has been conducted primarily by private sector. They have been the main supplier of land in urban Kathmandu having greater influence on the urban land market as compare to the organized public sector. Between 1981 and 1991, 1038 ha of land was developed for residential use by the private sector (IUCN, 1999)

The existing private sector in the context of land development can be categorized under **two categories** based upon their modus operandi in supplying urban land. The

informal private sector which includes landowners and brokers or expeditors comes under first category whereas the second category is the **formal private sector** more organizes group involved in the land subdivision process. Whereas informal private sector have tended to develop residential parcels on a plot by plot basis, formal private sector have developed clusters of plots on relatively large chunks of land.

Of these two, the informal sector takes the lead role in supplying land for housing. In order to give an indication about their scale of operation, according to the Kathmandu Valley Urban Land Policy Study (1986), Between 1971 and 1981 the informal private sector opened up more than 1270 ha of land for residential use in the Kathmandu and Lalitpur Municipalities alone, which was presently supported by broker activities. The informal land development process occurs largely outside the preview of official planning activities. The formal private sector process has been a slight improvement over the piecemeal approach of the individual owners and brokers; however, areas developed by them have been generally too small to make profound impact, between 0.25- 0.5 ha (IUCN , 1995).

The role of private developers is limited strictly to the subdivisions of land on cadastral map without provision of associated utility services. Land development also often tended to be carried out for speculative purposes and served mainly the middle and higher income groups. With the recession in the land market in the mid 90's , most of the land developers have suffered losses or been driven out of the business.

- **Formal Private Sector**

" The private developer is a person or business organization that undertake land and or building development projects to produce plots and /or houses be sold or rented in order to make a profit, and is doing this bears the risks and rewards of the rewards of the project. They are often guided by the professional architects, engineer etc." (Archer, 1989)

Private sector developer undertakes land development and this relieves government from the burden of managing land requirement of the middle class. Private developers will be charging the full cost of development to the buyers. Formal private developers are more capable of planning guidance and monitoring, well managed land development companies an be used as vehicles for implementing physical expansion plans. (sthapit, 1992) In this context of private housing companies (almost 14) have emerged in Kathmandu valley and formal land development companies are operating within the valley.

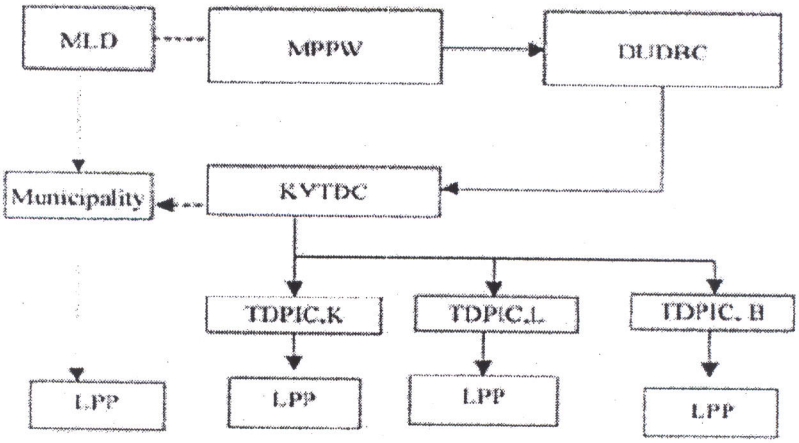
- **Informal Private sector**

The informal land development process occurs largely outside the purview of official planning initiatives, and broker are three principle actors in this process for opening new land for housing and bringing various infrastructure services to the area. (Stahpit, 1992)

As the town expand in its vicinity gets concerted to urban use through an informal land development system. In this process, land brokers in collaboration mainly with land owners take advantage of public investment in collaboration mainly with land owners take advantage of public investment in infrastructure such as roads, water mains to open adjoining properties. This they do by establishing rudimentary access to their newly subdivided plots. Once the area is developed, service agencies come in and install utilities in an incremental basis and often in disjointed fashion. However between 1971 and 1981 informal sector opened up almost 1270 ha of land for residential use in Kathmandu and Lalitpur Municipalities alone.

Government Institutions related to land Administration

- Department of Survey (NapiBibhag)
- Department of Land Revenue (Malpot)
- Department of Land Reform and Management (BhumiSudhar)
- Trustee Corporation (GuthiSansthan)



MPPW	Ministry of Physical Planning and Works
DUDBC	Department of Urban Development and Building Construction
KVTDC	Kathmandu Valley Town Development Committee
TDPIC, K	Town Development Plan Implementation Committee, Kathmandu
TDPIC, L	Town Development Plan Implementation Committee, Lalitpur
TDPIC, B	Town Development Plan Implementation Committee, Bhaktapur
LPP	Land Pooling Projects
MLD	Ministry of Local Development
———	Strong Linkage
- - - - - -	Weak Linkage

Figure 2: Institutional Arrangement of Land Pooling

2.9 TO THE CONTEXT OF KATHMANDU

Kathmandu, being capital city of Nepal, naturally attracts pool of people from different part of the country. But during the last three decades the population and subsequent expansion of settlement has significantly increased compared with the period beyond that. The Valley is being greatly affected with the problem of migration and subsequent increase in population. People from different under-privileged districts, the floating population of commercial, touristic and other sectors have also to be catered by the Valley. Basically, the trend of immigration kept on increasing after the installation of democracy and the rapid growth of population started creating challenge for the local politicians as well as the planners because the planning interventions were not adequate to counter the various problems of haphazard and uncontrolled growth of the valley. As a result the population of the valley grew rapidly to 0.6 million in 1971, 0.74 million in 1981 and 1.1 million in 1991 and more than 1.5 million today. The total urban population of the country is concentrated in the valley itself and the rate of growth in the valley is about 3.73% against national growth rate of 2.1% (Source: CBS database). If the current rate of population in the valley continues unabated, the total population will double in less than 19 years. This implies the demand of developed land for town expansion in the near future.

Regardless of the various planning efforts floored by different governmental or non-governmental agencies, the urban planning implementation could not be achieved in desired scale. The major constraint of this effort is lack of planned urban expansion area with suitable environment for living. The limited funding available for appropriate land development is another reason. Due to these problems, the urban expansion has been creating urban sprawl in unplanned and haphazard fashion, thereby making difficulties in urban service provision and effective utilization of meager house lots. The TDC act empowers Kathmandu Valley Town Development Committee (KVTDC) and local bodies to undertake land development measures adopting three tools namely: Site & Service, Guided Land Development and Land Pooling. In order to address the growing need for developed land in urban areas,

KVTDC has been initiating number of land development schemes in the Kathmandu Valley with which has been accomplished with relatively higher degree of success.

Amongst the several land development techniques, being in practice, land pooling is very popular because of its self-funding nature comprehensive development of the area and moreover, negligible displacement of the landowners. The government should only formulate the project wing and implement it with due consent with the beneficiaries. It is completely participatory urban development technique

Besides these KVTDC in 1989 initiated GLD scheme for whole of the urban areas of the valley. Although this scheme was implemented partly, it was considered insufficient for accommodating required infrastructure services for urbanization. The land development program can be implemented with the help of following acts and regulations of GoN.

Table 6: Kathmandu Valley Population and Growth Rate

Year	1971	1981	1991	2001	2011	2021
Population	544959	741000	1078909	1571683	2020404	2597248
Annual growth Rate	-	3.12	3.83	3.83	2.54	2.54

Source: City Diagnostic Report, 2001

Table 7: Land Use in Kathmandu, 2001

Land use	Area in Hectare	Percentage
Agriculture	3793.85	57.56
Built-up Area*	2509.92	38.08
Open field	125.37	1.90
Forest	133.29	2.02
Water body	29.04	0.44
Total	6591.47	100.00

Source- CBS, 2001

2.10 LAND DEVELOPMENT TECHNIQUES/TOOLS

The gradual conversion of agriculture land to build up area is the main process of urbanization. There is not proper direction of growth and development, thus leading the urban sprawl. People build gradually according to their resources and incremental construction has occurred. There is not proper drainage system and other infrastructure; the field boundaries follow the narrow and winding roads. Due to the lack of development in planned way, there existed lot of problems, i.e. environmental, physical, services, social, etc. For examples, lack of proper open spaces and public facilities, lacks of land for further development than remain undeveloped due to lack of access. To overcome from these problems and to improve the living environment of city various development planning techniques have been developed. Some were done in sole effort of government whereas some were done with the collaboration with the public. The following land development techniques programs are being carried out to increase the land accessibility and to ensure rational use of scarce land resources:

- **Site and Services** (Kuleshwor, Lahan, Biratnagar, Damak)
- **Guided Land Development** (Biratnagar, Pokhara, Bhaktapur, Nepalgunj, etc.)
- **Land Pooling** (Dallu, Gongabu, Nayabazar, Kamal Binayak, Saibu etc.)

All these three land development techniques have been undertaken during the last few decades. Among three techniques land pooling is only one still preferred in valley. Similarly there are other tools deployed for urban land acquisition and development, such as:

- Densification and reconstruction
- Participation
- Cross-subsidy
- Land lease,
- Build-operate-transfer (PPP Model)
- Landowners cooperatives

Here, basic concept of site and services and Guided Land development and their experienced is discussed below:

2.10.1 SITE AND SERVICES

It is the undeveloped raw land acquired to facilitate infrastructure, open spaces, community area, commercial, institutional and residential area. Initial investment is very high. It is a traditional form of lands developments technique in which government buys primarily the cheaper vacant sites and makes available the public land and develop them by adding necessary infrastructure services. All the investment of project cost are made by government or organized entrepreneurs and instead of this they sale the plots with justifiable profits. In site and services, Land is usually acquired with minimum compensation rate and Time schedule can be controlled if provided fund is enough, easy to implement. Sites and Services generally can have provisions for very low income groups also. Planners can imply their plan after land acquisition without any disturbance from landowners.

This technique requires substantial upfront budget to implement the project until the developed plots are sold. The economic viability of project is also associated with availability of public land and the extent of the development area, which is necessary to achieve greater economies of scale in order to minimize the cost of the serviced plots. This can be achieved only through a sustained investment of public agencies on land banking, although this has become increasingly difficult in urban area due to expensive land prices.

The result and experience of site and services project in valley have been mixed and not satisfactory. Only Kuleshwor and Golfutar have completed but took long period hence investment also needed more. Following are some problems of this technique:

- Needs a huge amount of initial fund to acquire land.
- Inefficient project document and lack of trained people.
- People's participation is nil.
- It will be very costly to acquire land giving current market price as compensation.
- Slow and lengthy process of land acquisition and low land compensation rate.
- Land acquired without interest of landowner and plot was sold to land speculators.

- Displacement of original lands owner, mismanagement in selling of land plot and lack of capacity of landowner to build the houses.
- Weak coordination and lack of strong organization of implementation body
- Lack of resources and no time limit for the completion of the project.
- Indigenous people will be displaced partially/totally

Table 8: Site and Services in Kathmandu Valley

Project Name	Total Area Covered Ha.	Project Start	Project Completion	Executing Agency
Kuleswor	26.5	1978	1990	KVTDC
Golfutar	11	1982	1990	KVTDC

Source: KVTDC

2.10.2 GUIDED LAND DEVELOPMENT

It is the process of providing access to the inner land, improving existing roads, preparing local area plan, norms and standards for implementation. This tool is suitable for developing urban fringe. In guided land development programme, the government improves the existing road networks and drainage facilities so as to improve the vehicular movement in the existing settlements areas.

GLD guides and strengths for urban expansion in planned way in desired direction on suitable sites through community participation. It increases land for housing for different groups through free market forces. Inner plots acts as open spaces for the locality if it can be controlled and helps to create rational basis for effective implementation and enforcement of land use plan and administration of building permits. In GLD, Land acquisition is not necessary because community itself contribute free land for road extension and improvement.

This program has been applied in most of the peripheral wards of Kathmandu and lalitpur. In this process people have freely contributed their 100 ropani of land for the new road networks proposed in GLD plan. About 25 km of road have built in urban area of valley.

Following are some problems of this technique:

- Such roads are not straight, as it has to go taking half the land from both sides as contribution.
- Plots sizes are not regular and roads do no serve inner plots.
- Government has to invest high on infrastructure development due to wandering roads.
- Difficult to convince landowners who has already access to road and they generally create problems by not cooperating.
- Difficult to provide wider roads & GLD cannot focus particular income groups.
- Since roads alignment does not follow the uniform geometry and many times very difficult to implement other developmental activities.
- No provision made for compensation
- Limited technical manpower for more accurate work and time constraints.
- Encroachment of widened road by constructing steps aprons due to non-construction of road.

Table 9: Guided Land Development in Kathmandu Valley

AREA	ROADS DESIGN	ROAD OPENED		TDCs
		km	%	
KATHMANDU	300	77	25	Kathmandu
LALTIPUR	125	27	20	Lalitpur
BHAKTAPUR	47	14	30	Bhaktapur
TOTAL	472	118	25	

Source: TDCs of Kathmandu, Lalitpur and Bhaktapur, 2000(Upreti,2002)

However, the success of GLD Plan, present a bleak situation as only 25% of the total road designed is completed in ten years' time. Also GLD plan has not been fully successful in terms of opening up new areas for urban expansion where land development activities area desirable for the accommodation of increasing urban population of the valley.

3 LAND POOLING

3.1 INTRODUCTION TO LAND POOLING

Prompted by the urgent need of adequate shelter with comfortable urban infrastructures to all citizens, conservation of prime agricultural land and environment, land consolidation, and planned urban growth, the municipalities have no resources to carry out planning and development of infrastructures, have resorted to the concept of land pooling.

Land Pooling (LP) is an urban development technique, in which different raw/irregular land parcels of a certain area are converted into developed residential plots with the provision of basic infrastructure such as roads, drainage, drinking water, community space etc. This scheme is self-financing and self-sustainable. Each owner of the project area has to contribute an equitable portion of their land for the provision of public facilities and reserve land. The reserved land will be sold to cover the project cost. LP is a participatory program and is very effective in urban development process for the developing countries like Nepal. However, since the project beneficiaries are to be convinced fully for the cause, these schemes are complex in nature and take a considerable time to be implemented. In this scheme, the developed plots **(original land parcels minus contribution for public facilities and reserve land)** are re-distributed to the original landowners. Hence, these schemes are fair and all the beneficiaries are profited proportionately.

Land Pooling addresses the following urban development issues:

- Rapid increase in population and massive requirement for appropriate developed plots
- Efficient public and private investment
- Development of a pleasant living environment
- Control of haphazard sprawl of urban area
- Limitations of other urban development techniques
- Appropriate conversion of land use

The acquiring land by compulsory purchase will be troublesome, displaced the local residence and take very long time, which will further increase the project costs. In order to generate resources for the development of infrastructure in peri-urban or developing areas and the construction project requiring to acquire large land area are now being carried out by land pooling/ readjustment method. It is described by the chart No. 1 below.

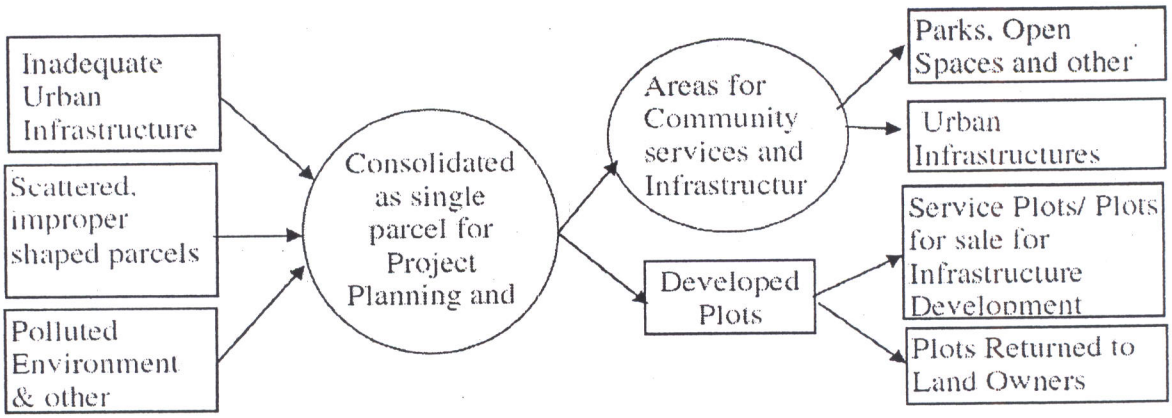


Figure 3: Land assembly and development process inland pooling project

3.2 CONCEPT OF LAND POOLING

The concept of land pooling/ readjustment has a great history and President George Washington used it when he formed an agreement in 1791 with the landowners of the site where the city bearing his name was to be developed. A legal framework was first introduced with the Lex Addickes in Frankfurt -am-Main, Germany in 1902 (ESCAP 2000). This concept has been used in various countries of the world for at least two hundred years. Different forms of land readjustment exist in some countries, like China, Western Australia (land pooling), India (plot reconstitution) and Indonesia. It has been most successfully used in Japan and Republic of Korea in recent years.

"Land pooling is an important method of managing urban land, especially in the area where urban sprawl is likely to occur in absence of any planning intervention. The main objective of land pooling is to convert irregularly developed land parcels into the suitable forms according to town planning requirements." (Yomrliolu and Parker, 1992). The concept of land pooling has been defined by various authors as well as by various institutions. The definitions are as follows:

"Land pooling/readjustment is a process whereby a public authority assembles numerous small parcel of raw land without paying monetary compensation to the owners, services and subdivides the land for urban use, returns most of the resulting building sites to the original owners in proportion to the value of their land contributions, and sells the remaining sites to recover all public costs". (Doebele, 1982)

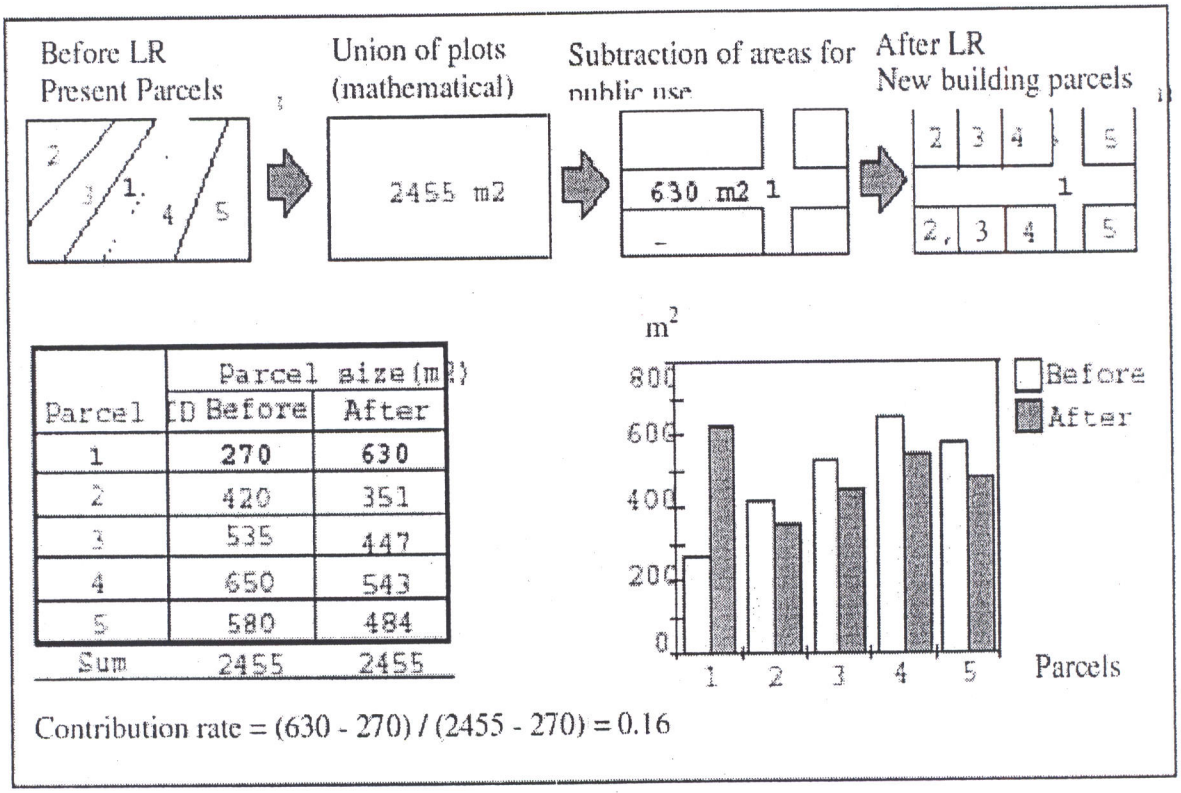
Another definition is that "Land readjustment is a technique for managing the urban development of urban-fringe lands, where by a group of separate land parcels are assembled for their unified planning, servicing and subdivision as a single estate, and redistribution of new building lots back to the original land owners". (Archer, 1992)

Further definition indicates that "The concept of land pooling/readjustment is to assemble small rural land parcels into a large land parcel, provide it with infrastructure in a planned manner, and return the reconstituted land to the owners, after deducting the cost of the provision of infrastructure and public spaces by the sale of some serviced land". (ESCAP, 2000).

According to above definitions the following common features of land pooling can be identified.

1. Involvement of a public authority
2. Assembling of several plots of land
3. Subdivision of the assembles plots
4. Provision of services to the lots
5. Allocation of land for the original owners
6. Sale of the rest to cover the cost

Therefore, in brief land pooling can be identified as a process of consolidating separate small and irregular land parcels in the urban fringe and developing with the agreement of the land owners and reversing some blocks for the original owners and sell the remain. The process is also called land pooling because all owners pool their land into a single large plot.



Parcel ID	Parcel size (m²) Before	After
1	270	630
2	420	351
3	535	447
4	650	543
5	580	484
Sum	2455	2455

Figure 4: A LAND POOLING PROCESS

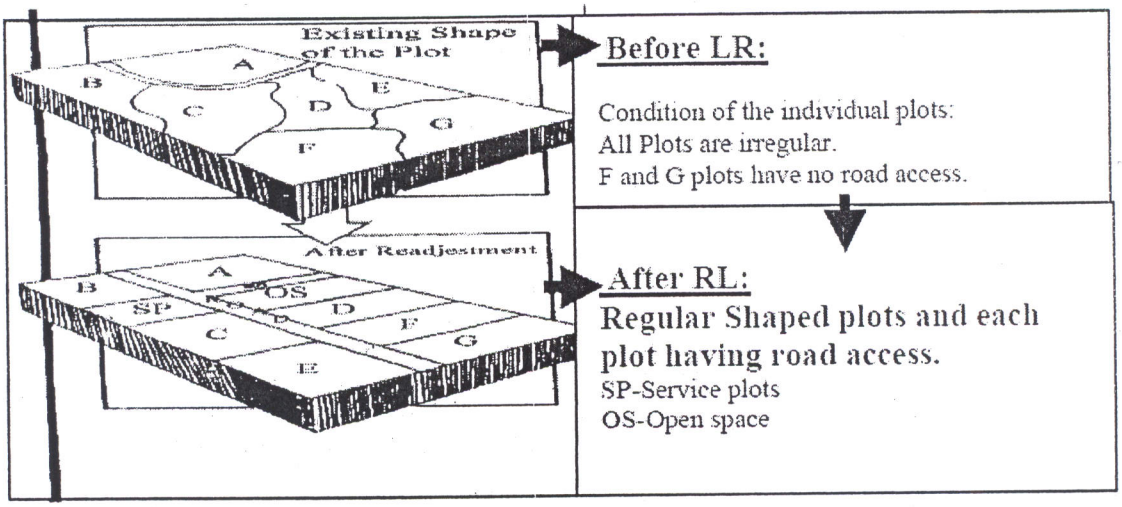


Figure 5: Showing the plots before and After the Land Readjustment process

The main principle of land pooling readjustment is first to provide regular shape and road access to each individual plot (hidden or inaccessible plots) and then after other facilities with the help of contribution of land from each landowner of the project area collectively and proportionately. The target is basically to help to low-income people who couldn't afford themselves to get road access to their plots individually and other local physical environment close around.

The concept of land-pooling consists in acquisition of a plot of land divided into a large number of small parcels belonging to an equally large number of land owners; plan and provide all necessary infrastructure such as road, water supply, drainage, electricity and telephone, open spaces, community service area; consolidate and re-plot the parcels and give back to the owners. The cost of planning and providing infrastructure is covered from the land itself to be contributed by each landowner. Thus the owner gets back about 12- 30% smaller piece of land but with all necessary infrastructure including parks and open spaces. Moreover, the original irregular shape plot is converted into a nice regular geometric shape. Thus, land-pooling can be defined as a land management technique for carrying out unified design, servicing and sub-division of a group of separate land parcels for their planned urban development with the sharing of the project costs and benefits between the land owners and recovery of the project costs by the sale of some of the developed plots.

The concept of land pooling can be explained with the help of two key words, ***unification*** **and** ***partnership.*** **Unification** indicates the consolidation of separate land parcels, the unified design, infrastructure provision and subdivision of these parcels and a unified preparation and implementation of the scheme under a single management. The word **partnership** indicates the partnership between government, private and community for urban land development. It should be borne in mind that for any scheme to be successful, it should offer sufficient benefit to the stakeholders so that they are willing to actively participate to make the project successful. In this context the land-pooling scheme offers the following benefits to the landowners.

- A significant net increase in the market value of his land
- Well-serviced housing plots easy to sell if needed.
- A government agency / local government use its governmental power and status to benefit him.
- Retain part of his original land after its conversion from rural / semi-rural to urban uses.
- All of the above could never be possible by individual effort.

3.3 CHARACTERISTICS OF LAND POOLING

- Self-Financing Mode
- Fair and Transparent Procedure
- Participatory approach
- Open space and Community Space
- Effective use of land parcels
- No displacement of land owners
- Parallel Provision of Infrastructure

3.4 NECESSITY OF LAND POOLING

In most developing countries urban development occurs as the gradual conversion of agricultural land to build uses. As much of the land is privately owned, generally by individual families, the process of urban development is difficult to plan. Common characteristics of development that results are:

- Improvised construction, often along existing roads, leading to urban congestion.
- Incremental construction, as people build gradually according to their available resources,
- Narrow, winding roads that follow the pattern of field boundaries
- Absence of proper drainage
- Incomplete or poorly designed infrastructure
- Insufficient open space and absence of public facilities,
- Creation of land locked areas that remain undeveloped due to lack of access
- Conflicting uses in close proximity to one another and
- Eventual over-development of the area due to absence of building and planning by-laws.

3.5 ADVANTAGES OF LAND POOLING

This is suitable land developed project, which have following advantages:

- It provides the opportunity for a planned development of the land and infrastructure network.
- It discouraging the urban sprawl growth
- It control the design of the living environment within the project area
- It is an attractive method to influence the location and timing of new urban development. The method is typically supported by landowners and would make considerable profit on the project.
- It avoids the land acquiring procedure, which is unpopular and costly also. The major part of land will return to landowner which also a positive aspect of this technique.
- In provides basic infrastructure within developed area by land contribution of owner and not necessary to depend on national financial because it is self-sustained project.
- Its help to clarify about land registration system and help to increase public revenue from property tax.

It could be provide the land for low-income group also with proper management system, which help to equity in land distribution.

Table 10: Comparative analysis of land pooling with other techniques.

Descriptions	GLD	Site & Services	Land pooling	Remarks
No of completed projects	Most of the peripheral wards of Kathmandu and Lalitpur	Kuleswor, Dallu&Golfutar.	Gongabu Lubu Kamalbinayak Bagmati Corridor Libali Siucha tar Saibu Dallu Nayabazar Chabahil Sinamangal	Dallu& Saibhu later changed on Land pooling

Executing Agency	PPP	Government	PPP	
Ownership	Private	Government	Private	
Contribution	People participation scheme	Government or organized entrepreneurs	People participation scheme	
Model	Contribution by the public	Land acquisition by government	Land pooled & later distributed to owner	
Result	No provision made for compensation but successful	Unsuccessful Because original owners are displaced and slow process	Successful among the other tools because it discourages the urban sprawl growth	

3.6 LIMITATIONS OF LAND POOLING

Though land-pooling scheme is relatively better than site and services and guided land development program, it has its own limitations. The fundamental essence of land pooling program is its self-sufficiency. However, due to the slackness in land market the costs of management and site development are recovered. Besides, these projects often face financial crunch during project implementation. The rate of interest being high, delay in project implementation often gives rise to cost overturn.

It is based on participation, cooperation and negotiation, thus requires large number of human resources. For the success of project, skilled negotiators and valuers must be available.

Some other problems are as follows:

- Land prices increase erratically across different plot and landowner difficult to agree to share the cost as per project design.
- Cooperation of landowner is required at every step, which makes delay in project implementation.
- Rigid exercises are required for project design.
- Lack of motivation, inadequate publicity and bureaucratic delays affect the project.

- The market prices continuous to escalate and landowner except higher share forcing reiterative cost exercises.
- Tenants get small plot.
- Inequitable costing raises dissatisfaction among the landowners.

3.7 POST OCCUPANCY EVALUATION

Post Occupancy Evaluation involves systematic evaluation of opinion about lands in use, assesses how well lands match users' needs, and identifies ways to improve usage of land, performance and fitness for purpose. **Post Occupancy Evaluation** is "the process of systematically evaluating the extent to which a facility, once occupied for a period of time, meets the intended organizational goals and user-occupant needs" (Preiser et al., 1988). It is the process of evaluating in a systematic and rigorous manner after they have been built and occupied for some time. It is the feedback about how buildings perform and how they interact with their users. It provide useable information to help manage the building & to be fed back into the brief for the next building project.

- POEs focus on building occupants and their needs.
- They provide insights into the consequences of past design decisions and the resulting outcome. This knowledge forms a sound basis for creating better buildings in the future.
- The performance is evaluated few years after completion of few years, although not necessarily in a self-conscious and explicit way.

The success of land pooling projects as any other projects can be determined by its Post Occupancy Evaluation. So far much attention seems to have been paid in the first/ initial stage of land pooling which is during design and implementation phase of the project .The work end with the completion of replotting and laying out of physical infrastructure and services. Hence, little or no attention is being paid on what is happening thereafter. The Post occupancy evaluation of land pooling projects is necessary so as to know the feedback of how successful the workplace is in

supporting the occupying organization and individual end-user requirements and assess if a project brief has been met. POE is a mechanism for linking feedback on newly built buildings with pre-design decision-making; the goal is to make improvements in public building design, construction, and delivery.

The basic content of evaluation would include – functional use of the land, socio-economic fabric of the developed neighborhood, quantity and reason for vacancy of land. It usually involves feedback from the land occupants, through questionnaires, interviews and workshops, but may also involve more objective measures such as space measurement and cost analysis. And also to ascertain the problems and constraints in attaining those objective and what strategies should be adopted in future to ensure success.

Reasons for doing POEs:

- To develop knowledge about the long-term and even the short-term results of design and construction decisions—on costs, occupant satisfaction, and such building performance aspects as energy management, for example.
- To accumulate knowledge so as to inform and improve the practices of building-related professionals such as designers, builders, and facility managers and even to inform the clients and users who are the consumers of services and products of those same building-related professionals.
- Provide feedback on occupant satisfaction, on performance, and on operating costs and management practices. In sum, POE is a useful tool for improving structures, increasing occupant comfort, and managing costs

3.7.1 ROLE OF POE

- To measure project success
- Feedback and feed-forward
- To set a baseline for measurement

- To establish benchmark data
- Managing response to organizational change
- Inform the design process and improving process of project delivery
- Input to the change management programme

3.7.2 PARAMETERS FOR POE

- Percentage of occupied plots(sold and developed)
- State of infrastructure(Services and Amenities)
- Socio-economic aspect of developing neighborhood
- Present land price
- Functional use of Open Spaces
- Accessibility
- Overall effectiveness (impact)

There are different parameters/criteria for different POE; some of the Sample POE studies:

Name of the Project	Location	Type of the Facility	Criteria Evaluated
DNR Area Offices	DNR Area Offices	DNR Area Offices	The human use patterns, building materials and construction, the design and operation of the environmental control systems
POE Quality of the School Environment	Sao Paulo, Brazil	Elementary and High Schools	Elementary and High Schools
Martha Lake Elementary School POE	Lynnwood, Washington, US	School	Overall design quality, aesthetic quality of interior and exterior, amount of space, adaptability to change, environmental quality, security
POE: The Wyeth Ayerst Chemistry Lab	Boston, Massachusetts, US	Laboratory	Lighting, privacy, services, flexibility
POE in Aviary	Tucson,	Museum	Visitor interest and

	Arizona, US		satisfaction in terms of effects of structure on the behavior of visitors (ceiling height, the down-hill path, sparse vegetation and birds)
Creative Living Inc. POE	Columbus, Ohio, US	Apartment Complex for the Severely Disabled	Analysis of the physical environment: design features describing required physical capabilities, such as overhangs, door knobs and locks
POE of Yale Art and Architecture Building	Yale University, New Haven, Connecticut , US	University Building	Evaluation of different functional areas for such issues as convenience of access to the workplace, lighting, heating, privacy, noise, ceiling height, and amount of.

In summary, a typical POE focuses on the functional effectiveness, layout, design, quality, value, user-occupancy, management, operation, and maintenance of a building, besides other factors related to the type of the facility, and the context it exists in.

3.7.3 BENEFITS OF POST OCCUPANCY EVALUATION

- **Fine tuning new buildings:** By understanding how buildings support and/or frustrate activities, they can be fine-tuned and management practices adjusted. Very often, slight adjustments to buildings and the ways they are used offer significant benefits to users.

- **Improving design for future buildings:** By designing new facilities with an understanding of how similar buildings perform in-use, mistakes can be avoided and successful design features capitalized upon.

- **Accountability:** Post Occupancy Evaluation is a valuable tool for assessing building quality - essential when organizations are required to demonstrate that building programmes are being responsibly managed.

- **Cost savings**: Post Occupancy Evaluation identifies ways people can use buildings and equipment more efficiently and more cost-effectively. Dysfunctional or seldom-used building features can be eliminated or replaced.

- **Renovating existing buildings:** Post Occupancy Evaluation is an important tool in planning the refurbishment of existing buildings. It helps clarify perceived strengths and weaknesses to focus resources where they are needed. It is also used to identify where building design adjustments are needed to support changing practices, markets, legislation and social trends.

- **Staff and/or customer relations:** Post Occupancy Evaluation involves building users in defining how buildings work for them. This participation has been shown to engender greater commitment to solutions, and more willingness to accept shortcomings.

3.7.4 POST OCCUPANCY EVALUATION PROCESS MODEL

There are three levels of efforts at which POE may be conducted, and each is composed of three major phases (**Planning, Conducting and Applying the POE**).

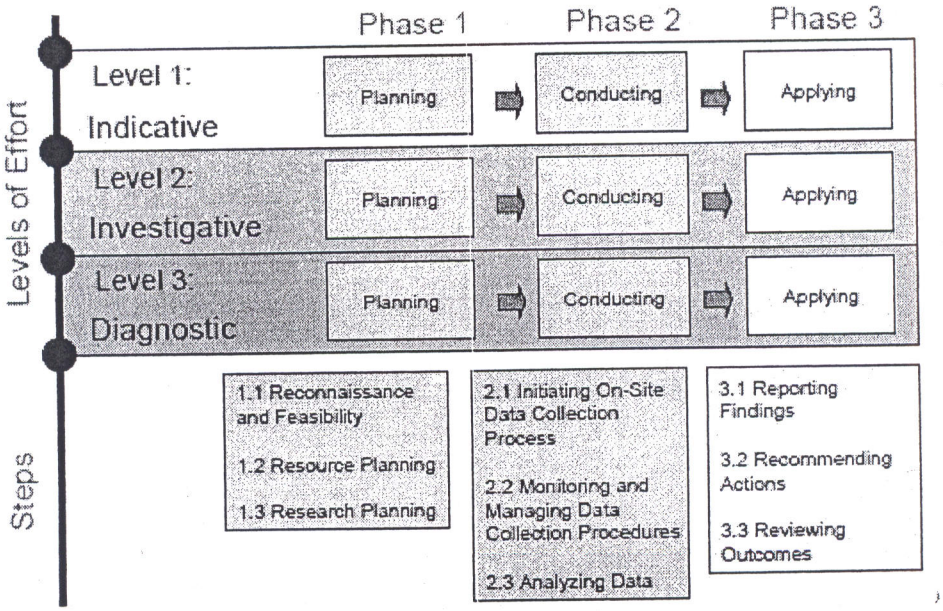


Figure 6: POE PROCESS MODEL

- **Indicative POE**

An indicative POE provides an indication of major failures and successes of a performance. This type of POE is usually carried out within a very short time span, from two or three hours to one or two days. An indicative POE presumes that the evaluator / evaluation team is experienced in conducting POEs and is familiar with the type to be evaluated, as well as the issues that tend to be associated with it.

- **Investigative POE**

An investigative POE is more time-consuming; more complicated, and requires many more resources than an indicative POE. Often an investigative POE is conducted when an Indicative POE has identified issues that require further investigation, both in terms of: A facility physical performance, the occupants' response to it. The results of an indicative POE emphasize the identification of major problems. While the major steps in conducting an investigative POE are identical to those in an indicative POE. the level of effort is higher. Much more time is spent and more sophisticated data collection and analysis techniques are used. Unlike the indicative POE, in which performance criteria used in the evaluation are in part based on the evaluator's or evaluation team's experience, the investigative POE uses researched criteria that are objectively and explicitly stated. The investigative POE can cover more topics in greater detail and with more reliability. It generally requires 160-240 man-hours, plus staff time for support services. In the investigative POE, the evaluation criteria are explicitly stated before the building is evaluated.

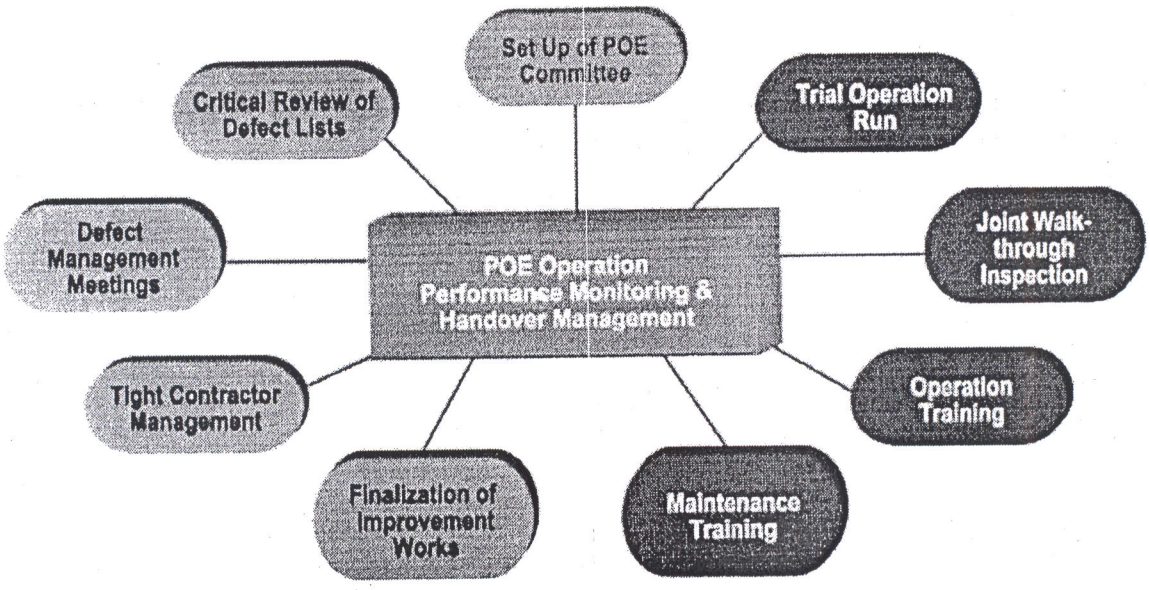
- **Diagnostic POE**

A diagnostic POE is a comprehensive and in-depth investigation conducted at a high level of effort. It follows a multi-method strategy to evaluate each important performance aspects. It includes: Questionnaires, Surveys, Observations, Physical measurements. The diagnostic POE may take from several months to one year or longer to complete. The results recommendations are long term oriented, aiming to improve not only a particular facility, but also the state of the art in a given facility.

Diagnostic POEs hold the potential for making fairly accurate predictions of performance and for adding to the state of the art knowledge through improvements in the design criteria and guideline literature.

As the levels of effort increase from indicative to diagnostic POEs, time, resources, personnel, the depth and breadth of evaluation and cost also increases.

Figure 7: Operational Performance Monitoring Management of Post Occupancy Evaluation



3.8 EXPERIENCES OF LAND POOLING/ READJUSTMENT IN FOREIGN COUNTRIES

Several countries in the world have the experience of applying this technique in managing their lands. For an example, in Japan, about 30% of the urban land supply has been developed by land readjustment whereas, in the city of Nagoya, 77% of all habitable land has been developed by this method (UNCHS, 2000). In the Republic of Korea 342 land readjustment projects have converted 347.1 sq.kms. (Average size of land readjustment project: 1.0 sq.km.) of predominantly agricultural land into urban land until 1987. (UNCHS, 2000)

3.8.1 Experiences of Land pooling in JAPAN

Land development projects in Japan have been an important measure for urban development since the beginning of twentieth century. They have a history of about one hundred years. The area covered by such projects amounted to about 364,000ha, or about one- third of total urban area of Japan (*9th International Seminar on land Readjustment and Urban Development, 1997*). In the course of such wide implementation of land development projects, the development of related laws including Land Readjustment Law has played a significant role.

In 1954, the Land Readjustment Law was enacted to establish the procedure and the legal system related to land readjustment. The law was prepared based on the accumulation experiences gained from many developments. The law was prepared based on the accumulation of experiences gained from many development projects for both new urban area and urbanized area so as to supplement and improve the provisions of public facilities" was added as some purposes of the projects. Land readjustment projects are still one of the measures for implementing city/town planning in the present City Planning Law, which was totally revised in 1968.

The legal urban planning system in Japan consists of three components, viz., "land use", "urban facilities" and "urban development projects". The urban development projects implement land use and urban facility plans. The combination of these three

components makes the planning system in Japan comprehensive. The inclusion of the urban development\ project component into urban planning system was enabled Japan to copy with rapid urbanization.

There are several kinds of implementation bodies for land development projects in Japan. These areas roughly divided into three types, viz, individual implementation bodies, land development cooperatives and public sectors. The land readjustment law stipulates some conditions for each type of implementing body to hold legal force. The individual implementing body and the land readjustment cooperative are granted the public juridical persons' status in LR law. Incidentally, the LR law does not stipulate such status for the public sector because it already has the juridical person' status in other legislative provisions.

Thus, in Japan, private sector per the LR Law can have Juridical Persons' Status and can implement land development schemes legally after getting approval from the prefectural governor. Whether the individual or cooperative body, they have to sublimit their implementation plan to the governor. The standards or the statuette and the plan undergo the procedures for general inspection and the authorization is publicly announced, the said implementing body obtains the juridical persons' status.

3.8.2 Experiences of Land pooling in city of Nagoya,JAPAN

Nagoya is one of the few planned cities in Japan. But the city is a pioneer in land readjustment schemes. Nagoya city was seriously damaged during World War II as about a quarter of the city area was burnt down. The city rose to the present state through careful planning with public participation. Nagoya use land readjustment techniques to carry out planned urbanization and other cities have also benefited from these techniques since Nagoya has provided training programs for the engineers and planners. The land readjustment law was put into effect in 1955 and since then, land readjustment projects have been carried out for already existing urban areas in the center as well as in old urban areas. The total area for land readjustment projects by the administration and private sectors till 2002 is about 20,300 ha. which is 68% of the total land of the city. It includes ongoing projects of about 1700 ha. One of the

special characters in these projects is that some are carried out by the private sector. There are about 179 land readjustment association were established and about 7910 ha. have been developed by them. (Joshi K.K. 2002).

3.8.3 Experiences of Land Pooling in the Republic of Korea

Land readjustment was introduced in Korea by the Japanese colonial power in 1934 with the colonial city-planning Act. After the Koreas war the method was used to provide basic urban services to urban centers. During the 1960's and 1970's the country experienced comprehensive readjustment projects of typically 300 - 400 hectares were implemented mostly in the urban fringe.

In Korea city government extensively participate in and direct the conversion of raw land into serviced building sites through land readjustment. The process is conceptually simple and when they convert the raw land into urban use, the area is declared as a land readjustment project, by the government or by petition from a qualified percentage (about 80%) of the landowners in the area. The city government or land readjustment authority then prepares site plans for the entire area. It is necessary to sell some plots to recover the expenses incurred by the relevant authorities. In Korea the public authorities pursue a policy of keeping land prices high by making sure that the lots they supply do not outrun demand at any time.

From the period of 1960's to 1980's several projects were undertaken but after 1980's the process was shifted towards development by public authorities because several practical problems like excessive increases in land prices, rampant land speculation in and around the project area, strong resistance from landowners owing to the fact that less than half the land was returned etc. were arises. However up to 1990 about 347 square kilometers of land has been developed with the land readjustment technique since its introduction (UNCHS, 2000).

Similarly, many other countries such as INDIA, GERMANY , PAKISTAN, THAILAND etc has applied this technique of LR in order to increase the living

standard, provision of good infrastructure , adequate supply of land for housing development and improvement of the country situation.

3.9 EXPERIENCES OF LAND POOLING IN KATHMANDU (NEPAL)

Land development at selected areas using the technique of land pooling will have a positive impact on the planned development in a city and also help to restrict the haphazard growth of the city. Land development also helps in the enhancement of the utility of land for individuals and the society as a whole. It leads to an addition to land value and put to a more productive use as a factor of production. It is also used as a tool to control urban sprawl, to provide land for housing, to provide infrastructure and services and to ensure planned development of urban areas

The experiences of the foreign countries indicate that this is a successful technique that can be used to plan the development. As a result of this technique the economic value of private lands increases due to the extra developments. Meanwhile, new built-up lots are created and local authorities can acquire the public land to install new services rapidly. The land readjustment process also provides a great opportunity for government to resurvey the land and demarcate new boundaries.

There are several projects under the name of land pooling and is relatively a new technique in Nepal. Land pooling in Nepal, is still in the stage on infancy. **Land pooling** is a technique for managing the planned development of urban fringe lands, whereby a government consolidates a group of land parcels and then design and services and subdivides them into a layout of streets, open spaces and serviced building plots with the sale of some of the plots for cost recovery and the distribution of the remaining plots back to landowners to develop or to sell for development. It provides governments with a powerful tool for implementing their municipal land use plans and ensuring adequate supply for urban land. "It comprises of land management, allocation and improvement of infrastructures through assembling the groups of land parcels for unified planning, modifying them in terms of shape, location, size and include selling some of the new serviced plots to recover the cost of

redistribution and finally returning the remaining plots back to the owners."(Shrestha, Bijaya K.).

In terms, land pooling projects have been found to be highly feasible and help to increase the supply of urban land for development in a systematic way and makes development more sustainable. It has created a win-win scenario to both government and the land owners. The government was also relieved from the burden of urban infrastructure investment, whereas the landowners benefited from increase in land values after the project and enjoyed a better road network and more efficient plot layouts.

Land pooling was started in 1975 and practiced since 1990s in Kathmandu valley of Nepal. Land pooling scheme is typically initiated by the municipal or the national Government designating an area which is about to be converted from agricultural to urban land use for land development. Nearly 400 ha of land have been developed in different parts of the valley using this technique, about 200ha of urban areas and another 200 ha of land are being developed in Kathmandu valley alone. Land pooling acts as a financing tool for infrastructure provision in urban areas. Till 1999, eight land pooling projects have been completed and four are ongoing. All projects are in Kathmandu valley and the total areas of the projects are 360 hectares in extent. These projects are backed by the Town Development Act and the act says that land pooling can be carried out in any part of the town planning area with the agreement of minimum 75% of the land owners. (Joshi K.K., 2002). "Today 11 land pooling projects have been completed but still it is too little as compared to the total demand" (Karki, 2004). The Town Development Act, 2045 provided the legal basis. HMG will approve the land pooling project on the request of land owners through local authorities and assists on planning and implementation of the project with the assistance of users' committee composed of land owners, tenants, and local representatives and intellectuals. "Since 1990, seventeen land pooling projects covering 300 ha. land have been implemented in ten towns and cities of Nepal" (Sangachhe, S.B., 2006).

Before the initiation of land pooling projects, the government had initiated limited site and services for the planned urbanization and for increasing the access of the people to urban land. In order to avoid the premature loss of prime agricultural land of the urban areas, and to stop haphazard and uncontrolled growth, the government under urban land development programs identified land pooling and included the projects as the major intervention in favor of the planned urbanization. During the implementation of the projects, the public policy was molded. The Eight, Ninth and Tenth development plans envisaged creating favorable environment for urban land development projects and production of the serviced plots became the major objectives.

Moreover, land pooling is a self-financing method that not only provides the plots for private housing and public facilities but also brings a new dimension in public and private partnership. It also discourages the urban growth sprawl providing the necessary infrastructure and services in the most economic ways and controlling the design of living environment within the project area

3.10 GENERAL METHODOLOGY OF LAND POOLING

In a Land Pooling Project, an area is developed by creating and improving public facilities dividing, annexing and exchanging land parcels and altering lot shapes and land conditions. The area is thus altered into a community in which comfortable living results through well-made municipal functions. Unlike individual development of public facilities, such as roads and parks, land pooling is basically designed to develop public facilities and building lots in an integrated manner within a certain area in accordance with planned land use. In this context three basic approaches will be adopted for the feasibility study of the Land Pooling Project.

General Approach

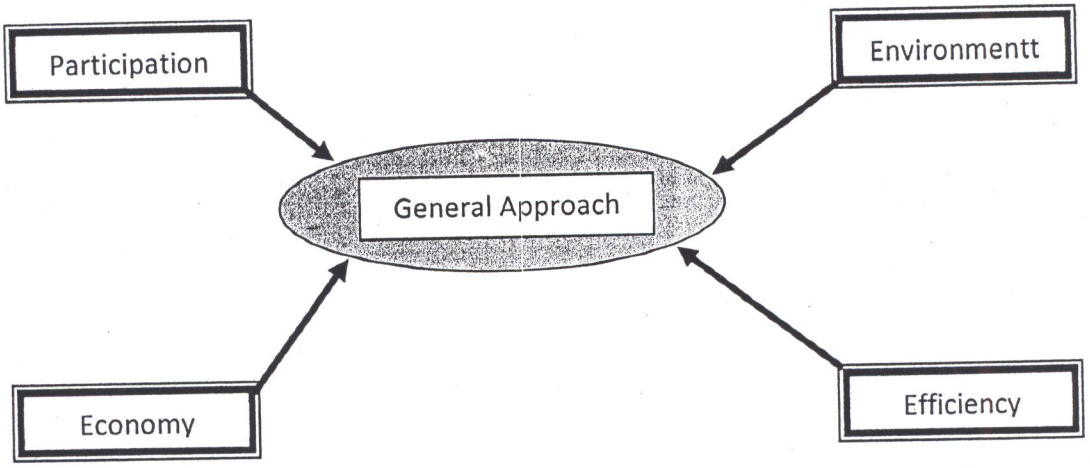


FIGURE 8: GENERAL APPROACH FOR LAND POOLING

Participation is assured by consulting the local people and the user group at every stage of study. They is informed about each development during the study period and in the field, they are consulted to gather information and relevant incidents in the area

Economy is assured by developing the conceptual layout plan such that it consumes less amount of land for laying physical infrastructure and the local material will be chosen for construction of that infrastructure as far as possible.

Environment will be least disturbed by careful treatment of each environmental component during the design phase. The layout will be such that it affects the environment least. The mitigation measures will be adopted during the design phase.

Efficiency should be achieved through the design and appropriate layout of the plan. The network should be such that the services should be centrally located and circulation should be minimized.

In land pooling projects, following areas are selected:

- An area where public facilities are not yet developed or partially developed
- An urbanized or suburban area in which the land including farmland or woods is not utilized in a rational and fruitful manner
- An area where housing lot purchasing and land fragmentation is quite frequent

- An area being used for farming but which cannot be saved as a farmland in a couple of years because of ever increasing housing -lot demand
- An area crucial and strategic for the link of core city and future satellite town

Flowchart of Land Pooling Procedures

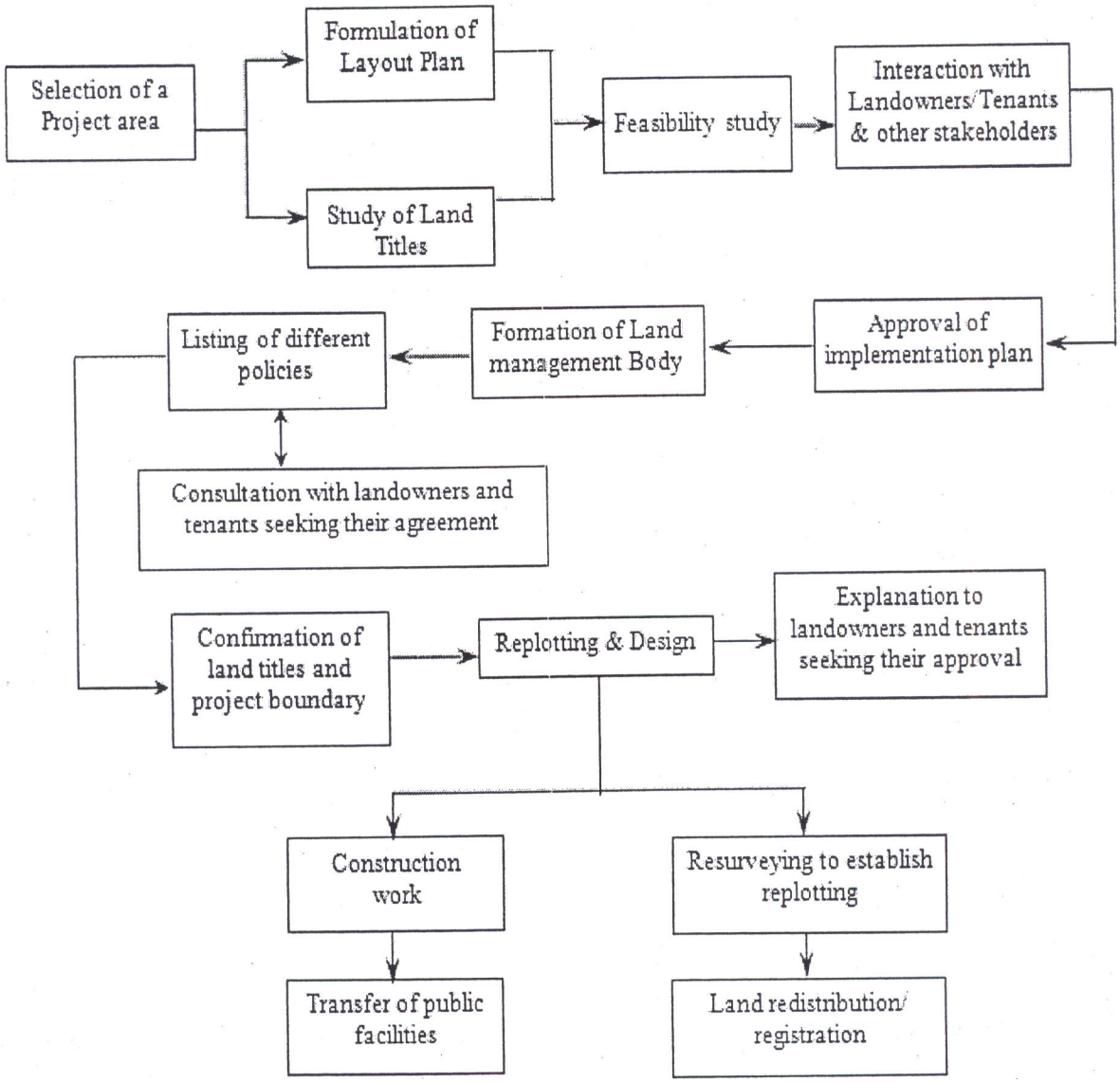


Figure 9: SHOWING FLOWCHART OF LAND POOLING

3.11 ACTIVITIES UNDER LAND POOLING

The different activities thought to be involved in the smooth implementation of the LP scheme as defined are-

1. According to Town Development Act 2054, land acquisition process may not be required for implementation of the scheme. However without land acquisition, there may be several practical problems such as compulsory surrender of land by the landowners. Therefore it is recommended to undertake land acquisition process under the provision as given in the land acquisition Act 2034 and temporary transfer of land-ownership for all land in the project is made to the Land Management Sub Committees (LMSC).
2. As per Town Development Act, there shall be consent of 51% of the landowners in the project area for execution of the project. This shall be obtained through public notification.
3. All the parcels of the land within the LP area are pooled and the area is developed with infrastructure (external and internal) such as roads, storm water drainage, sanitary sewers, solid waste collection, street lighting and provided with open spaces and service plots according to the plan (to be developed). In doing so, the landowners contribute a certain percentage of their land for the infrastructure and for service plots and open spaces. The plots are then readjusted taking into account the contribution of land for this purpose.
4. The LP scheme including infrastructure layout plans and principles for community contribution shall be formulated with participation and approval of the community. In order to bring the community into direct participation; one or more Users Committees (UCs) could be formed. The responsibility of the Users Committees shall be to represent the landowners in all matter related project planning, design and implementation and dissemination of information related to the project. The consultant in all phases of the planning and design shall coordinate with UCs ensuring full confidence of the beneficiaries.
5. Every landowner in the LP area is given back readjusted plots. The size of the readjusted plots is proportionate to the size of the original plots before the scheme

and considers the benefits of the developed land including infrastructure enjoyed by the individual landowners. The service plots (reserved land) will be sold to meet the cost of infrastructure development. Landowners having land less than or equal to the minimum permissible size and having houses in the land parcels where it is not possible to contribute in terms of land shall contribute in terms of cash.

6. A cadastral survey of the readjusted plots will be carried out as per Survey Department format and a cadastral map is prepared showing the location of the boundaries of all the readjusted plots, the location of the internal and external infrastructures and of all other relevant details of the project area. Close co-ordination through all stages of the project will be carried out with the Department of Survey and the Land Revenue Office. After the approval of cadastral map and information from these two agencies, landownership certificates will be issued.
7. After completion of the LP scheme for the entire LP area, temporary landowners' certificate is issued to each and every landowner who is a partner of the project.
8. Land use and Building by- laws regulations providing guidance for further construction activities will be prepared for the project area.
9. Mechanism for operation & maintenance of the infrastructure will be through community involvement and shall be formulated and approved by the community.

3.12 WHY AND WHERE SUCCESSFUL?

It is based upon concept of sustainable urban financing which was initiated by the municipal/central Government designating an area which is about to be converted from agricultural to urban land use. A subdivision plan is developed for a unified planning of the area by providing infrastructure and services which is financed by the sale of some of the plots within the area, often for commercial activities, at last landowners are given plots back within the reshaped area which is well serviced

The Land pooling in Nepal was introduced in 1975 with the initiation of Chipledhunga project in Pokhara, connecting Chipledhunga and Prithvichowk, a popular tourist city, about 200 km west of Kathmandu. However, the concept could

not spread to a wide locality for about a decade. It was Gongabu (14.5 ha, 1988) project which again reinitiated the concept of land readjustment in Kathmandu and can be considered as a pilot application of land readjustment in the country.

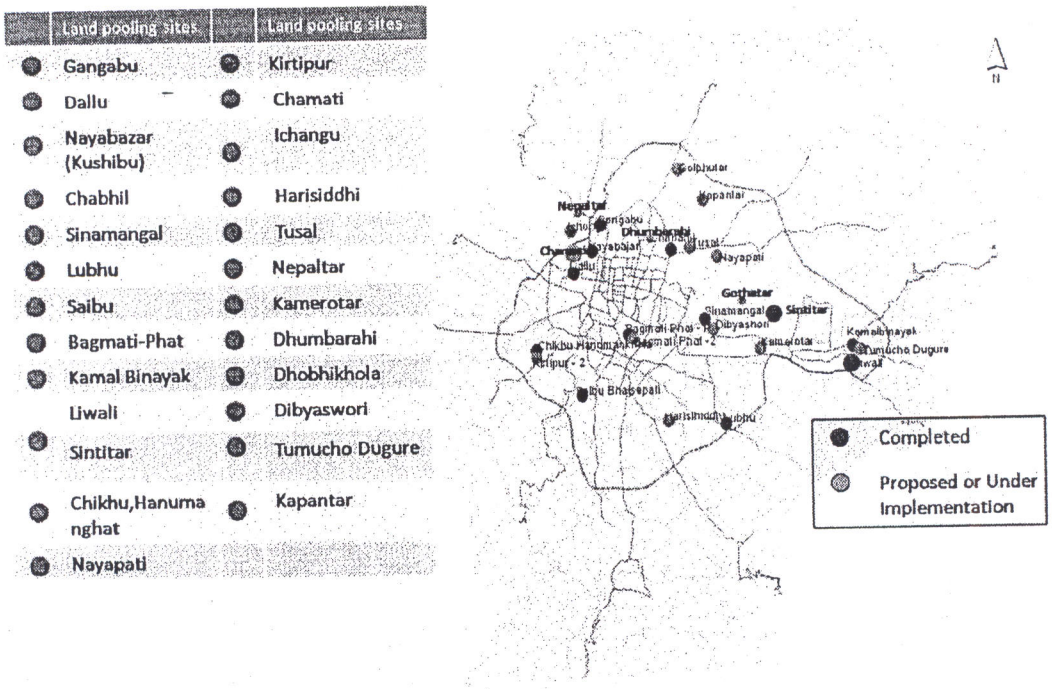


Figure 10: Land pooling completed area in Kathmandu Valley

Table 11: Summary of the Urban Development Schemes Implemented in Ktm Valley

Year	Scheme	Target	Infrastructure & services provided	Shortcomings
1979	Site and services	Low income group / low income government employees	Basic urban services- construction of road, water supply, drainage, electricity, open spaces etc	Lack of trained manpower; Slow and lengthy process of land acquisition; Replacement of original landowners; Weak coordination; Unlimited project duration; inadequate provisions for sewerage system
1988	Guided land development	Residents of areas without basic urban services	Access of road to plots over project area by active initiation of plot owners	Without separate authority for operation; Lack of provision of compensation; Inadequacy of broker system; Insufficient provision of infrastructure; Encroachment of road; Irregular and inadequate plan
1989	Land Pooling	Areas where GLD was implemented (mainly)	Construction of basic urban services like road, drainage, Sewerage, water supply, open space etc	Rapid unequal increase of land price; Delay on implementation of project; Co operation requirement from landowners in each steps; Lack of motivation; Commercialization; Bureaucratic delays
1981	Efforts from Private sectors	Developing areas	Road, drainage, Sewerage & regular plan	Costly; Lack of open space; Insufficient service provision; Lack of management body after obtaining the plots

Source: *Kathmandu* valley town development committee KVTDC, 1999

3.13 LAND POOLING PROGRAM IN KATHMANDU VALLEY

Kathmandu valley town development committee started the implementation of the land-pooling program in December 1991. After the knowledge gained through the Site and Services projects, which were not success as thought, Town Development Committee (TDC) concentrated on innovative land pooling project based on user's participation, full cost recovery and self-financing system and planned extension of urban areas. Land pooling project was proposed at such area, where there is abundant vacant land and at such place where the settlement has already started growing haphazardly.

There are 11 land pooling projects been implemented in Kathmandu valley, which are as follows:

1. Gongabu
2. Lubhu
3. Kamalbinayak
4. Bagmati Corridor
5. Libali
6. Siuchatar
7. Saibhu
8. Dallu
9. Nayabazar
10. Chabahil
11. Sinamangal

Dallu and Saibu started as Site & services project and later converted to land pooling project. Now both of these projects are in final stage. Only the redistribution of lands to landowners is left. Similarly, Gongabu, Kamalbinayak, Libali, Lubhu, Gopikrishnagar land pooling projects are almost completed. Sinamangal land pooling is progressing in slow pace due to unsettled dispute with landowners and Siuchatar project in Thimi is underway in its preliminary phase. There are other two projects

proposed for implementation, Chamati at Kathmandu and Manahara at Thimi (Bhaktapur).

Out of this project, the infrastructure development of 8 projects has been completed with remaining 3 ongoing. A total of 6.774 housing plots have been produced from 240.44 hectares of the valley's land pooling projects-and about 10,000 landowners have benefited from it.

Table 12: Status of Land pooling Projects Implemented in Kathmandu Valley

S.N.	Project name	Project area (ha)	Total number of plots generated	Status of implementation as of September, 2002 #	Actual project implementation period	Number of years taken to complete the project	Implementing agency
1	Saimbu	24.57	540	Completed	(1990-2000)	10	TDC, Lalitpur
2	Dallu	20	750	Completed	(1990-2000)	10	KVTDC, Lalitpur
3	Kamal Vinayak	7.32	205	completed	(1987-1995)	8	TDC, Bhaktapur
4.	Gongabu	14.33	406	completed	(1989-1996)	7	TDC, Kathmandu
5.	Nayabazar	40	1316	completed	(1995-1999)	4	Kathmandu Metropolitan City
6	Liwali	33.45	770	completed	(1996-1999)	3	Bhaktapur Municipality
7	Gopikrishna	10.88	292	completed	(1995-1999)	4	TDPIC
8.	Sinamangal	35.97	1074	Completed	(1995 -2004)	9	TDPIC
9	Sintitar	27.5	920	completed	(1996 -2005)	9	TDPIC
10.	Lubhu	13.5	243	completed	(1992-1996)	4	TDPIC
11	Bagmati Corridor	9.8	256	completed	(1992-1999)	7	TDPIC
12	Total	237.32	6774				

Source: KVTDC, June, 1999

Table 13: Status of different site & services and land pooling projects

Projects	Project area (ha)	Project started	Status of implementation as of September 2002
Kuleshwor sites & services	26.5	1979	Completed
Golfutar site & services	10.8	1982	Completed
Kamal Binayak land pooling	7.32	1987	Completed
Gongabu land pooling	14.33	1989	Completed
Sainbu land pooling	24.57	1990	Completed
Dallu land pooling*	20.00	1990	Completed
Lubhu land pooling	13.5	1992	Completed
Bagmati corridor land pooling	9.8	1992	Completed
Nayabazar land pooling	40.00	1995	Completed
Sinamangal land pooling	35.97	1995	Ongoing
Gopikrishna land pooling	10.88	1995	Ongoing
Liwali land pooling	33.45	1996	Completed
Sintitar land pooling	27.5	1996	Completed
Total	274.62 ha		

Source: KVTDC et al (1999)

* This project was initiated with the concept of site and services in 1981

Table 14: Land Use Allocation for Services

S.No.	Project Name	Project Area(Ha)	Road	Open Spaces	Selling Plots %	Land Contibution	
						min.	max.
1	Dallu	20	25	8	8	40	40
2	Gongabu	14.33	17.5	6.9	6.9	14	46
3	Nayabazar	42	22	4	4	16	24
4	GopiKrishna	10.88	22.7	3.8	7	12.5	54
5	Sinamangal	35.97	20.3	5.3	7	12.5	37
6	Saibhu	24.6	22.8	12.9	20.3	56	50

7	Lubhu	13.5	17.9	4.4	9	18	32
8	Bagmati Corridor	9.8	19	0	2.7	18	33
9	Kamal Binayak	7.32	21.5	4.2	6.8	28	28
10	Liwali	34.54	23.6	2.8	7.1	12.5	38
11	Sintitar	27.5	18.8	3.4	10	12.5	38
	Total	240.44					

Source: KVTDC, 1999

Table 15: Status Of Vacant Plots in Land Pooling Projects

	Project's name	*Total plots*	*Vacant plots in % as of 2002*	*Project completion date*
1.	Sainbu	540	86	2000
2.	Dallu	750	40	2000
3.	Kamal Vinayak	205	80	1995
4.	Gongabu	406	23	1996
5.	Nayabazar	1316	61	1999
6.	Liwali	770	94	1999
7.	Gopikrishna	292	Data not available-	1999
8.	Sinamangal	1074	84	Data not available
9.	Sintitar	920	99.6	Data not available
10.	Bagmati Corridor	243	11	1999
11.	Lubhu	256	90	1996

Source: Urban Planning Studies Survey, 2002

From the above table, it is seen that in Saibhu Land Pooling Project, 86% of the plots were vacant 2 years after the completion of the project and 23% of the plots were vacant in Gongabu LR Project 6 years after its completion. Similarly , 61% were vacant in Nayabazar LP Project 3 years after the completion .

The benefits that a land pooling process brings can be summarized as follows:

Benefits for the government

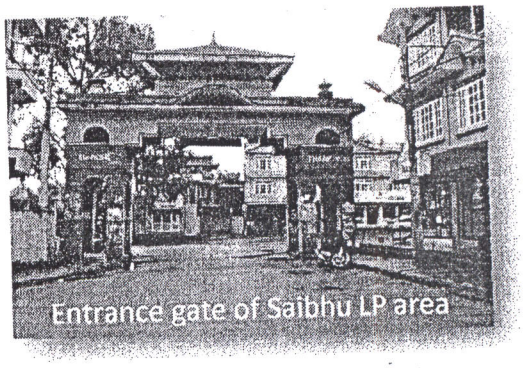
- Compensation expenses for public-use land are greatly reduced and the public areas are captured in a more economical way.
- The ownership of land is clarified and through this the government revenue can be increased from property taxation.
- A zoning plan is realized in a short time, and it ensures a planned development soon.
- The land development programmes in the urban fringe can be carried out systematically.
- The existing cadastral records are updated and reorganized.

Benefits for land owners

- Land value increases and land become more valuable
- The plot is transformed into a sufficient site that can use economically
- Fragmented small parcels are consolidated into buildable plots.
- Basic public services are received.
- No extra charges to land owners for the project expenses.

4 STUDY AREA- SAIBHU, BHAINSEPATI

4.1 INTRODUCTION TO STUDY AREA


Entrance gate of Saibhu LP area

The study area Saibhu, Bhainsepati is situated at Saibhu VDC ward no 4 and ward no 9 in Lalitpur district of Bagmati zone. The Saibhu Bhainsepati project is one of several land development schemes pursed by HMG as part of its national strategy to provide for the nation's basic housing needs. Bhainsepati is 10 km away from Kathmandu in south Lalitpur, 3 km away from Jawalakhel and 1.5 km away from Ring Road to the south. This land is an agricultural area of 491-5-5 ropanies (24.89 hec) of land. The soil of the area is mostly black in lower layer and then is sandy soil in upper layer.

Cost contribution for physical infrastructure

Total Development Income: 37,29,34,567.49

Total Project Cost: 32,44,34,567.490

Infrastructure Cost: 29,19,91,110.75

Project Management Cost (10 % Of Total Cost): 3,24,43,456.74

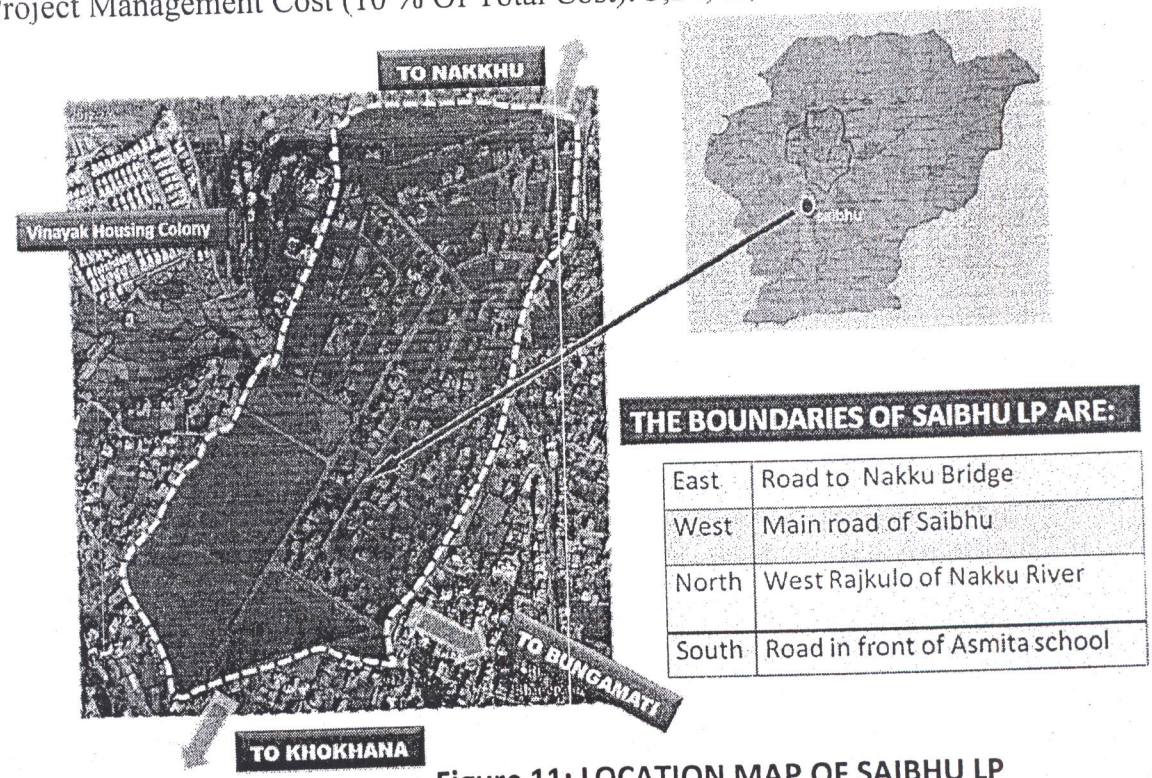


Figure 11: LOCATION MAP OF SAIBHU LP

4.2 BACKGROUND

Physically located at the upper plains, the Saibhu, Bhainsepati 'Tar' considered not very fertile land. There used to be saying about the location that 'ones daughters should not be married away to Bhainsepati because they will have to suffer fetching water from far distance.' In other words, water scarcity was high in that area. Residential areas were also not developing in Saibhu because of the air-pollution caused by Himal Cement Factory located at Chobhar. But in later day's land was utilized for agriculture purpose. in the current land pooling area there were 522 agricultural parcels with an average size less than a ropani(about 508m^2), though many parcels were much smaller than that. The government as early as 1981 completed all legal steps to acquire the land, with the intention to use it for a jail.

Previously 491-5-1 ropanies (25 hec) of land was acquired by Home ministry to construct central jail which included land of Saibhu VDC ward no 4(ka), 4(ga),and 9(kha).But the central jail construction project was later shifted to Nuwakot district due to some reason (such as local people opposition and also site became quite near to the city area). The land was remaining unused for several years. So the government decided to launch Saibhu Sites and services project which later on change to land pooling project to develop well planned settlement in the area. The government handover all the concerning documents of the land to Ministry of Housing and Physical Planning for Housing Development Project in 23 November, 1989. The Project was completed in 1999 AD.

4.3 WHY SAIBHU S&S PROJECT CHANGED TO LP PROJECT??

The government decided to launch Housing development project in the acquired area and all the concerning papers were handover to Ministry of Housing and the notice was published in 23 November, 1989. Suggestions were given to Kathmandu Valley Town Development Implementation Commttee, Lalitpur to collect required data with the help of District Administration offices, Laitpur for planning process. According to available data, 65% of landowner/tenants had received compensation and 35% of land owner/ tenants had not received compensation due to differences in land certificate

area and holding land area. The remaining landowners/tenants did not agree to receive old compensation rate. So, government decided it to change to Land Pooling Concept for rest of land to be taken for the housing project and meeting was held with and landowners/tenants to decide developed land percentage as compensation. The meeting decided to give 25% of development land as compensation.

But the project could not proceed because the local people were not satisfied with the compensation and later a series of meeting with the people was held on 24 November, 1991, only then they accepted to give their land taking 44% of developed land as compensation. Government approved this proposal on 24 December, 1991. Again they opposed decision made on 24 November. 1991 to give land to Nepal armed police office in the project area .But the project could not go further after the protest of local people when the government decided to allot 183.21 ropanis of land to Nepal Police and due to this reason project work was delayed again. So, then government decided to provide housing for the Honorable Parliament Members of Nepal in those plots separated for Nepal armed police at B.S. 26 kartik 2050(10 November, 1993) and to launch Housing Development Project in remaining plots.

The objective of this Saibhu Bhainsepati land pooling project was:

- To provide planned housing plots
- To provide sufficient open space
- To implement the concept of flat system (Condominium) to accommodate more people in few land.

Figure 13: BEFORE LAND POOLING

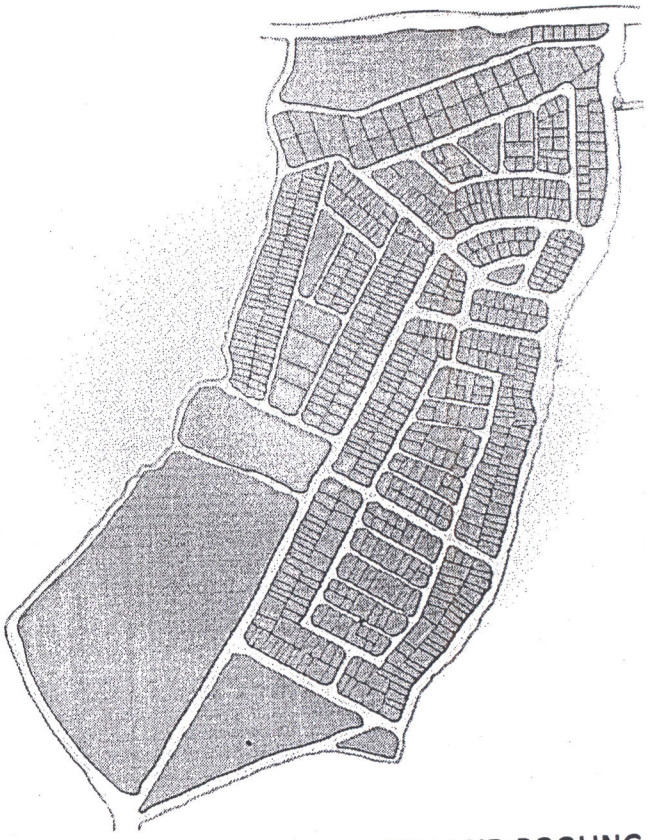


Figure 12: AFTER LAND POOLING

- Irregular land plots
- Unserviced plots
- No access to roads-serpentine tracks

- No. of household get benefitted
- Serviced plots
- Sales plots
- Open space

- Total area-552-3-2-0
- No. of plots- 611
- Developed plot area=418-1-1-2
- Total no. of house built (till now)- 152
- No. of open spaces- 8 (13-2-1-1)
- Parking Area=1-15-0-0

Figure 13: BEFORE LAND POOLING

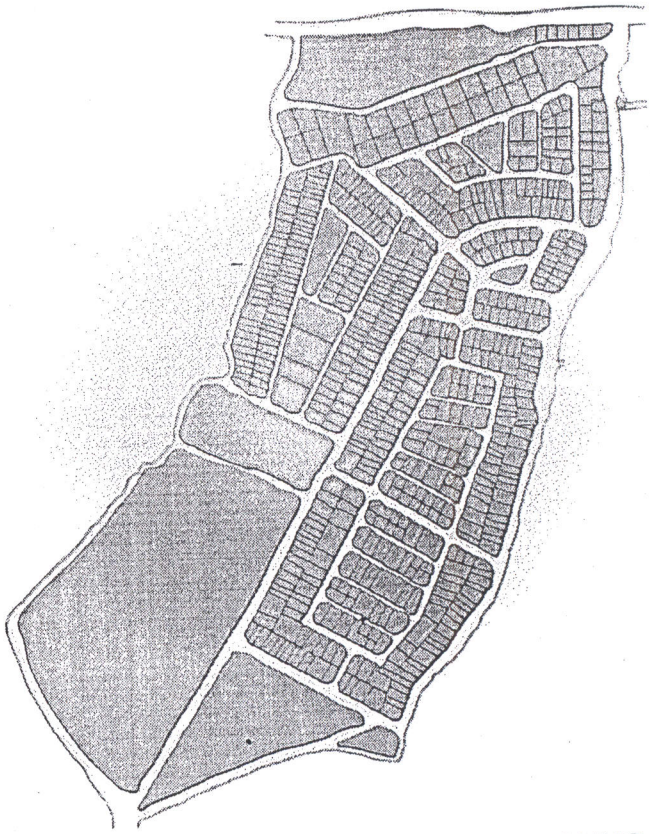


Figure 12: AFTER LAND POOLING

- Irregular land plots
- Unserviced plots
- No access to roads-serpentine tracks

- No. of household get benefitted
- Serviced plots
- Sales plots
- Open space

- Total area-552-3-2-0
- No. of plots- 611
- Developed plot area=418-1-1-2
- Total no. of house built (till now)- 152
- No. of open spaces- 8 (13-2-1-1)
- Parking Area=1-15-0-0

4.4 EXISTING SITUATION

After the remapping of the acquired land for the project, of the total area 552-3-2-0 ropanies, including the land for road and uncultivated land, 117 ropanies were allocated for roads under physical and infrastructure of the 135 ropanies(24%), 18 ropanies allocated for open spaces, community sub -area and market parking area and under social facilities, 19 ropanies were allocated for school, 11 ropanies for community service and line agencies and 18 ropanies for market area with the total of 48 ropanies(8.5%). Of the total 361 ropanies(65%) allocated for residential area, 123.21 ropanies (22.31%) were allocated for the residence for the member of the parliament under the HMG ministry of Parliamentary Affairs, secretariat of Parliament.

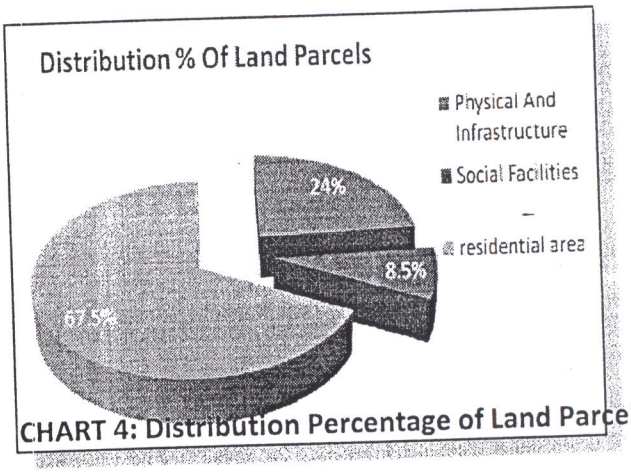


CHART 4: Distribution Percentage of Land Parcels

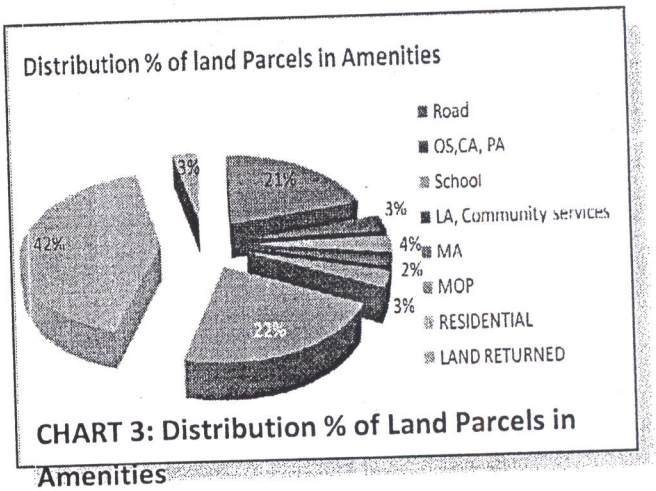


CHART 3: Distribution % of Land Parcels in Amenities

Of the total land under the residence area 86-8-2-0 ropanies have been given back to those land owners and tenants who have not received compensation and the remaining 72-9-2-0 ropanies of land have been sold under developed residence. Under classified land allocated for market area, school, apartment, displaced families including line agencies, 101 ropanies are yet to be sold. Now 19 ropanies of land (minimum area 0-4-0 to be added) remain to be given back to the each and every land owner and tenants. After giving temporary land owing certificate to the land owners and tenants which is to be converted as permanent certificates, 11 ropanies of land still remain.

This area has transformed from agricultural land use to planned residential zone. The development here has been leading to displacement of low income group. The post occupancy transformation of the land pooling reveals the development pattern and physical and socio-economic transformation of the neighborhood.

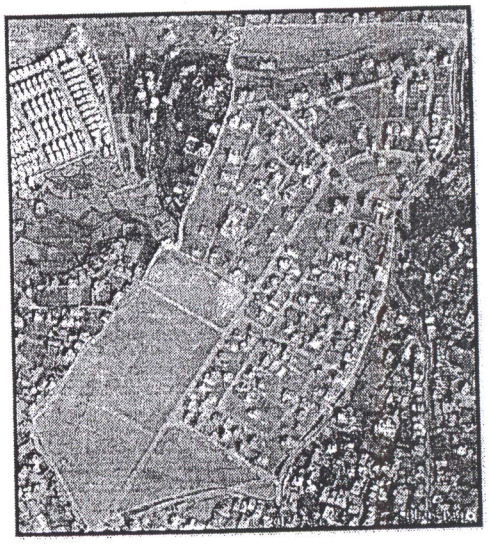
4.5 DEVELOPMENT SCENARIO

SAIBHU LP AREA

2003

2006

2009



2012

Gradual Increment in Land Occupancy Rate (Built-Up Units) is seen from the year 2003-till Present.

5 ANALYSIS

5.1 PHYSICAL ANALYSIS

5.1.1 LAND USE

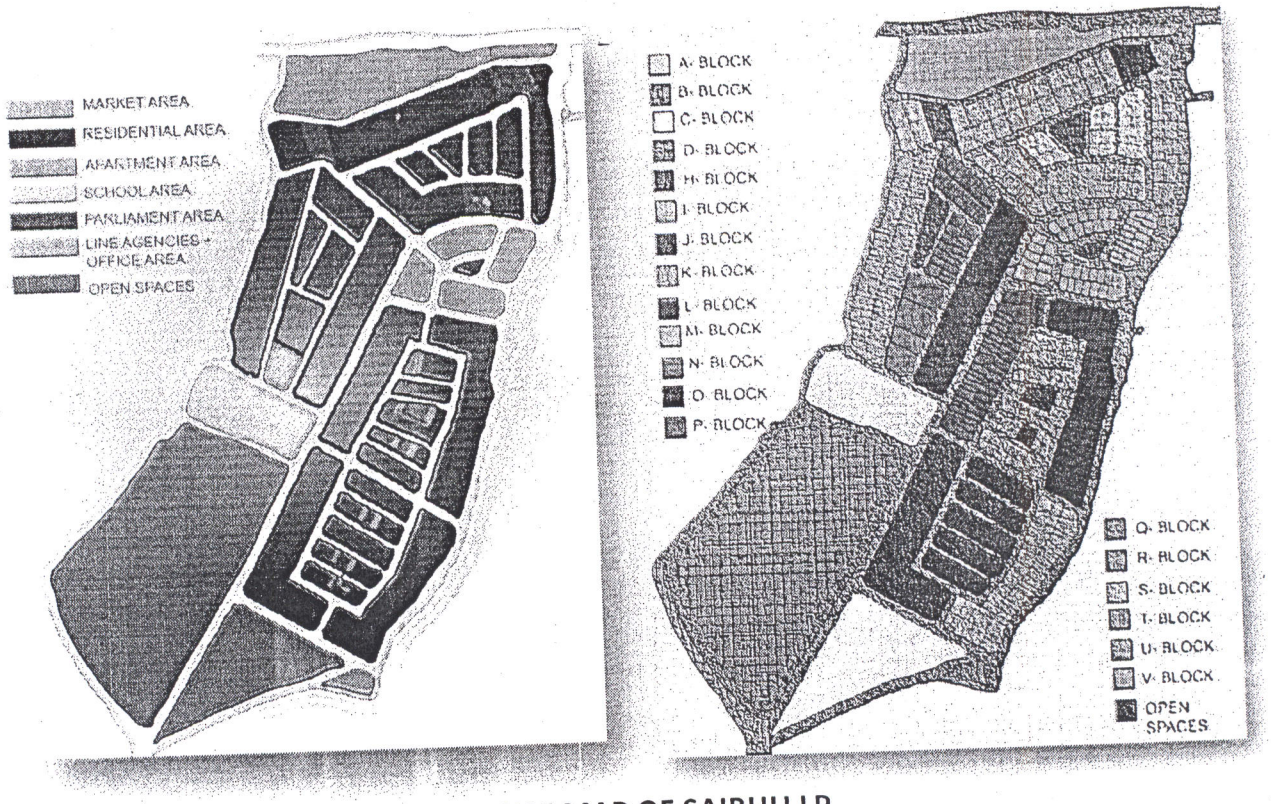


Figure 14: LAND USE MAP OF SAIBHU LP

Different land plots have been allocated for different purposes in Saibhu Land pooling projects. The land have been allocated for market area, residential area, apartment area, parliament area, line agencies and offices, community centre and open spaces .The plots have also given block names so that it will be easy for addressing the location to the people visiting there but its only temporary and will be changed later on.

- **Community Centre**

Construction works for the community building in 4 ropanis of land within the area of the project have been completed. The total expenditure cost of the building is 2 crore 90 lakhs. Though completed with 11 shutters, a big hall, kitchen etc. has not come into use.

- **Apartment Buildings**

Of the 30 ropanis of land allocated by the project for apartment, a building built within the area of 2 ropanis 8 annas by DUDBC on its own investment as model project- 6 units 3 storied residential buildings built 4-5 years ago, has not come into use yet. 14 lakhs 50 thousands have been spent for repairing , painting and constructing compound walls from time to time.

- **Land of the School**

An agreement signed with J.V. unlimited Media Pvt. Ltd. with 2,41,00,000 amount and according to agreement 20% of the amount paid but do not turn up even after repeated request so it was decided to confiscate the paid amount and recently the case is in the supreme court.

- **Land for the Member of Parliament**

Of the total area 280 ropanis taken over by HMG(District Aministration Office, Lalitpur)by giving compensation, 44% of land (123-3-1-2 ropanies)were handed over to Parliamentary Secretariat after making land owing certificate.

Table 16: DESCRIPTION OF LAND USE OF SAIBHU LP

S.NO	DESCRIPTION	BLOCK NO.	AREA
1	**Categories Selling plots**		
a	Apartment	V-1	30-0-0-0
b	Apartment	V2- V7	3-0-0-0
c	Condominium (between SR17 & SR10)	U1- U25	25-0-0-0
d	T Block-Northern side	T14, T15, T6	1-14-0-0
e	Market area	M4	3-12-0-0
f	Market area	M1	1-7-1-2
g	Line Agency + administrative building	P1-1, P1-4, & D1	7-15-2-0
h	School	C1	18-9-2-3
i	Plots remaining to be sold	Other Block	3-8-3-0
	TOTAL		**95-3-1-1**
2	Plots which were already sold	Other Block	72-9-2-0
3	Plots returned to MoP, tenants, land owners,etc.	Other Block	213-5-1-3
4	Plots remaining to be return back to landowners/tenants	Other Block	19-7-1-2
5	Plots which need to be transferred from temporary to permanent certificate	Other Block	9-4-1-0
6	Plots allocated foe clubs and pati	M1 & D2	0-7-2-0
7	Open spaces, community area and market parking area	OS1- OS8,CS-1 & PK1	18-1-1-1
8	Area separated to return back to evicted people	Other Block	7-12-0-0
9	Area allocated for entire road & infrastructure	MR, SR, CR, DR & PR	116-0-3-1
	TOTAL AREA		**552-3-2-0**

SOURCE: KTM Valley Authority, District Commission Office, Lalitpur

Table 17: TOTAL NO OF PLOTS IN THE PROJECT AREA OF SAIBHU LP

S.NO.	DESCRIPTION	NO. OF PLOTS
1	**Plots to be sold**	**71**
	U - BLOCK	25
	V - BLOCK	6
	T - BLOCK	3
	M4 - BLOCK	18
	M1 - BLOCK	4
	L - BLOCK	2
	K6 - BLOCK	1
	T - BLOCK	1
	O - BLOCK	1
	I - BLOCK	2
	J2 - BLOCK	2
	H - BLOCK	2
	P1- BLOCK + OFFICE AREA	2
	C - BLOCK	1
	D - BLOCK	1
2	No. of plots that have been already sold	160
3	No. of plots returned to evicted people	12
4	No.of plots returned after adding	108
5	Plots returned from the project	140
6	Plots need to be transfer from temporary to permanent from the project	24
7	Plots returned for MoP	2
8	Plots sold to the line agencies	1
9	Plots returned for the pati and club	2
10	Remaining to be returned from the project	60
11	Plots need to be returned from evicted	31
	TOTAL NO. OF PLOT	**611**

SOURCE: KTM Valley Authority, District Commission Office, Lalitpur

5.1.2 ROAD NETWORK

The entire road in this Saibhu LP area is blacktopped. There are different hierarchies of road such as Main Road, Secondary Road, Connected Road and Distributory Road. The width of the roads are 11m, 8m , 6m and 5 m respectively. The total length of the road is 7.224 km. The footpath is also provided on either side of along the roads for the pedestrian's, so, it safer and convenience for the pedestrian to walk on the street and in terms of road-use because of the existence of footpath.

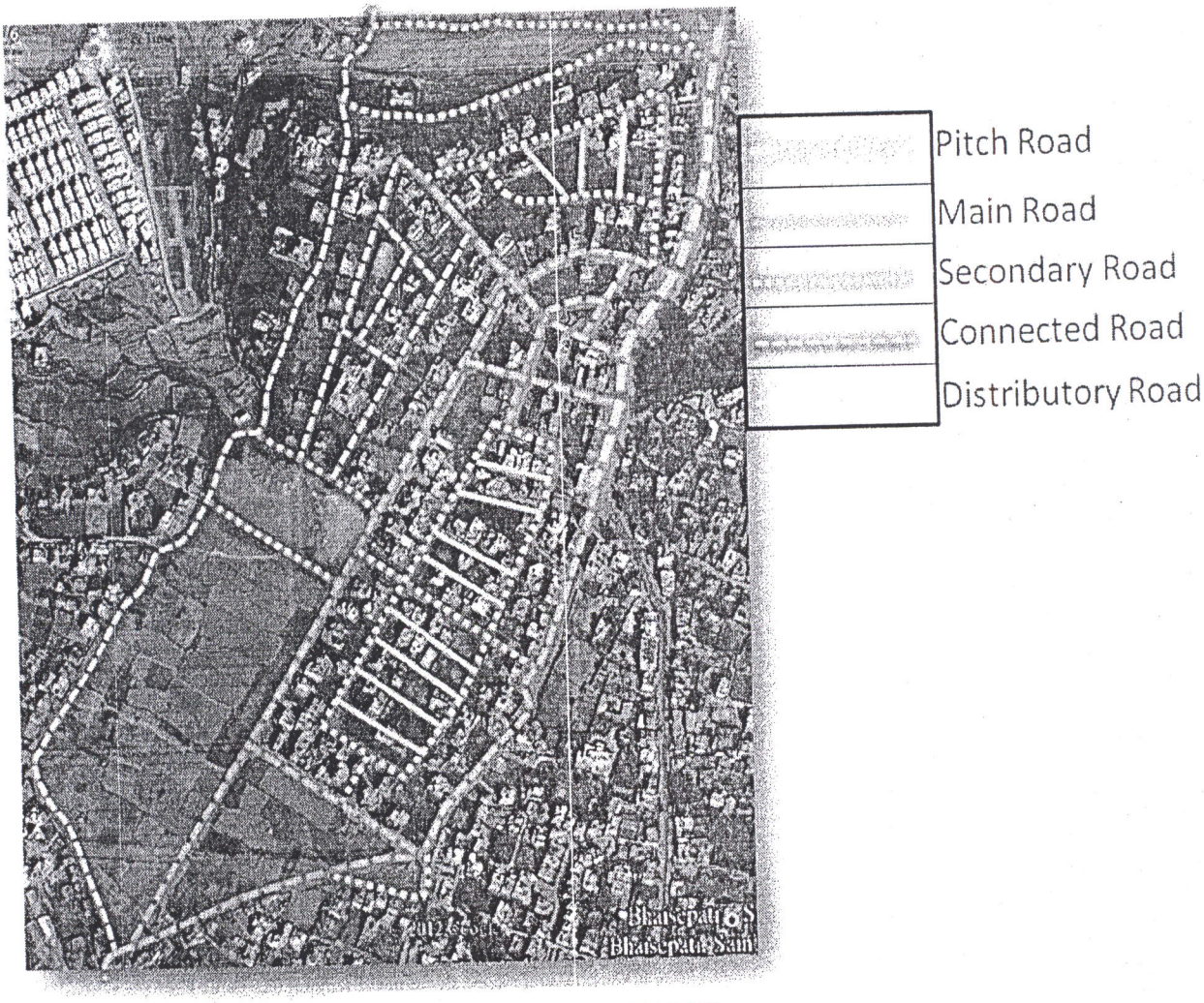
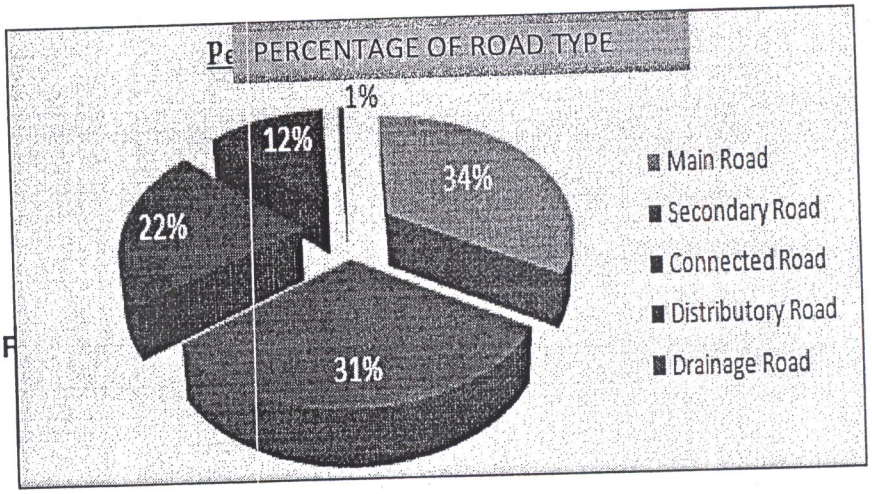


Figure 15: ROAD NETWORK

Table 18: DESCRIPTION OF ROAD OF SAIBHU LP

Width Of Road	Length of Road	Area Of Road
11m	2172 m	23892 sq.m
8m	2267.50 m	18140 sq.m
6m	1574.70 m	9448.2 sq.m
5m	895.7 m	4478.5 sq.m
DR 2m	42 m	84 sq.m
MA 11m	272.51 m	2997.66 sq.m

CHART 5: PERCENTAGE OF ROAD TYPE



5.1.3 WATER SUPPLY

CHART 7: WATER SUPPLY

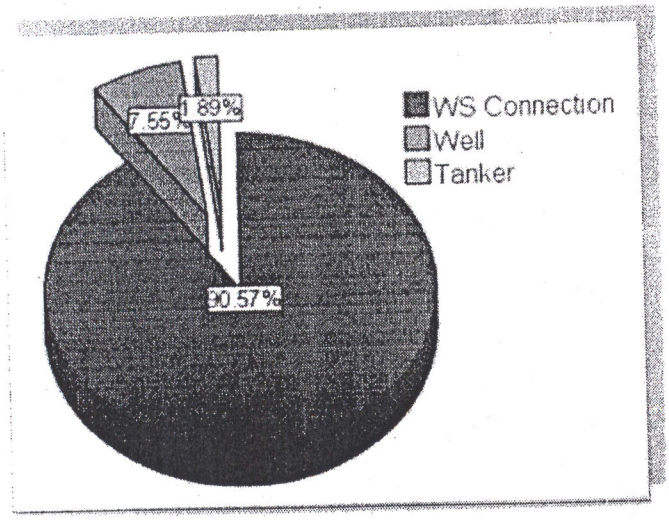
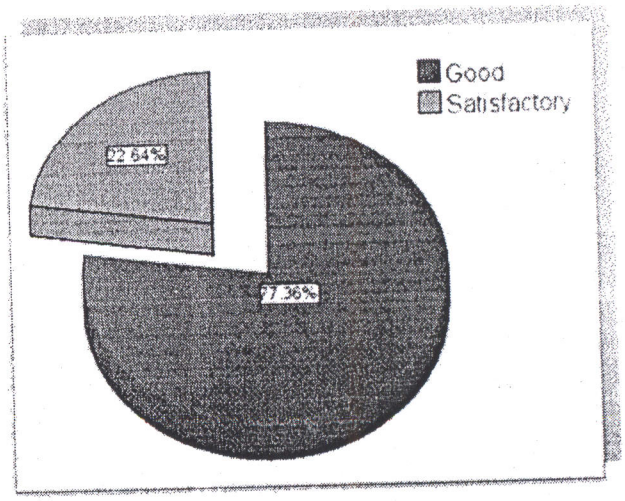


CHART 6: QUALITY OF WATER



The project has water supply lines running on either sides of the road. The diameters of the water pipes used in that area are 8ø, 6ø, 4ø and 2ø.

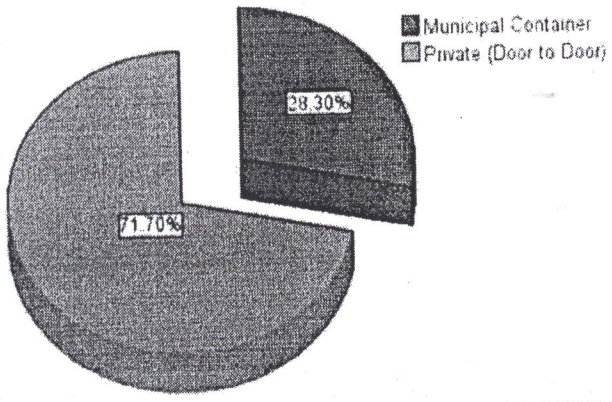
From observation and discussion with the residents while surveying, the planning area is supplied with water from WS connection (90.57%), and other sources applied are well (7.55%) or by tanker (1.89%).The quality and quantity of water supplied is quite satisfied for many of the residents. 77.36% feels that the water is portable and is bacteria free (zero bacteria).

5.1.4 DRAINAGE / SEWERAGE SYSTEM

Each house hold has provision of Septic tank because there was strict regulation for construction of septic tank. Sewer lines are not provided. Surface drains along both sides of the road are directly connected to the **Nakkhu River** and the rain water and waste water is drained through it. However there was no treatment plant provided.

5.1.5 SOLID WASTE DISPOSAL

CHART 8: DISPOSAL OF WASTAGE

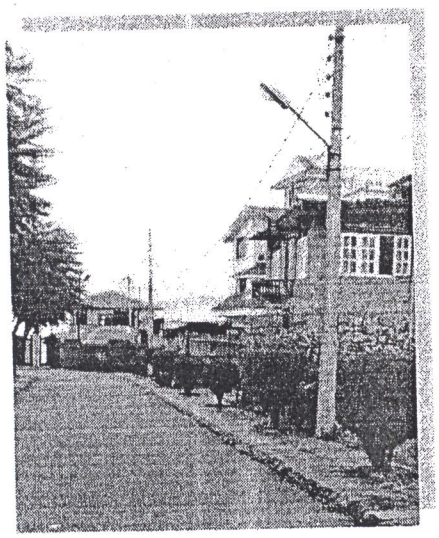


It is found from the survey that solid waste disposal is done in different ways. The most common way of disposal is done by private (door- door) -71.70% followed by municipal container (28.30%).

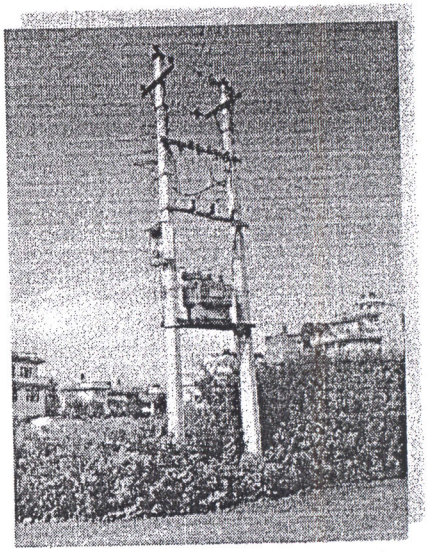
5.1.6 ELECTRICITY

Four transformers are placed within the project area. All households are facilitated with electricity and also few street lights were placed along road sides of all categories with the initiation of community by Nepal Electricity Authority (NEA).But

the street light provided is not enough so, movement during night time is inconvenient.



Street Lights

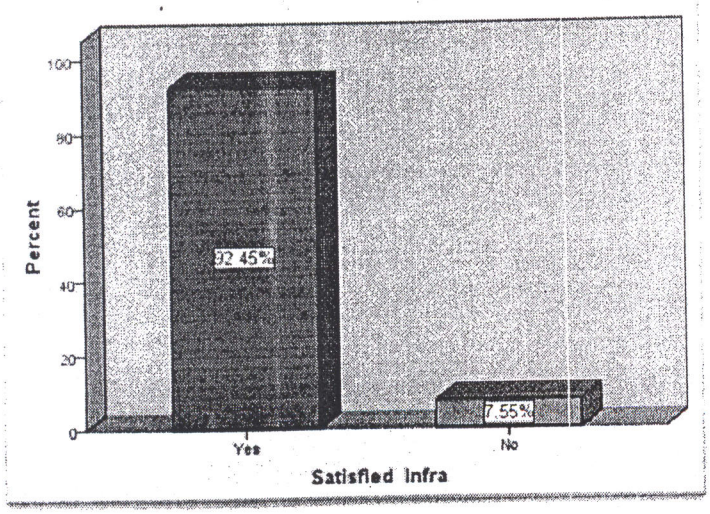


Transformer

5.1.7 TELECOMMUNICATION

Telephone services, internet within the planning area are provided by the concerned line agencies (Nepal Telecom).Thus, all the household are connected with the telecommunication facilities.

CHART 9: ARE THEY SATISFIED WITH THE SERVICES PROVIDED?



Majority of the respondents feel that the infrastructure provided in that area is quite satisfied (92.45%) whereas only 7.55% feel that it is not sufficient because of shortage of water and also lack of sufficient streetlight.

5.1.8 OCCUPANCY RATE

From the survey it has been analyzed that 40 % of land in Saibhu has been covered by built up areas whereas still 60% of land is vacant out of which land for school and Parliament of member which was handover to government has not been used for constructing buildings. And these lands cannot be used for the residential purpose as it is the land of government. Thus, we can analyze that 33% (approx 200 plots) can be considered as vacant land excluding School and Parliament of member.

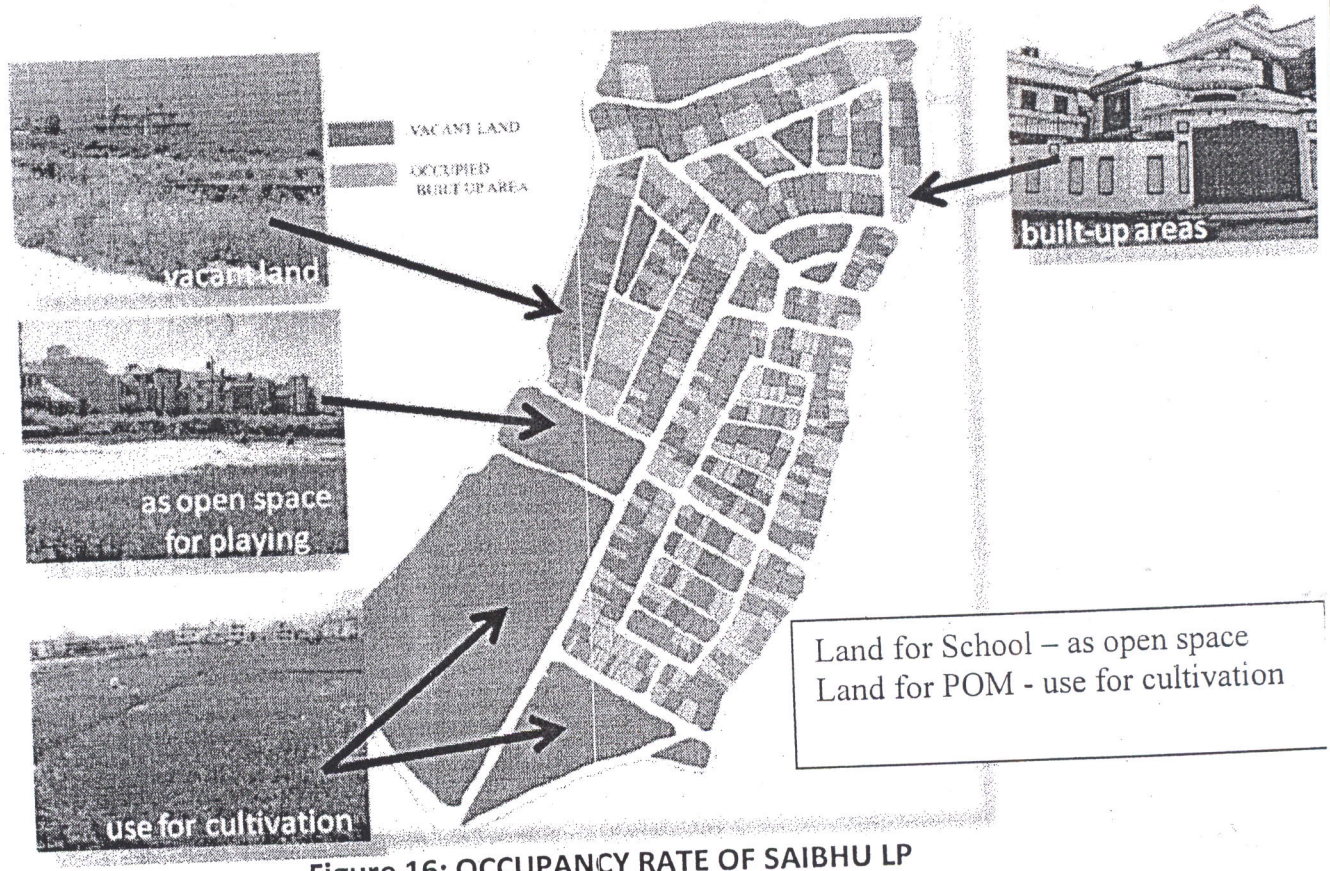


Figure 16: OCCUPANCY RATE OF SAIBHU LP

Here people who had sold their land to government for constructing the building for MOP did the cultivation as the government didn't use the land and the land for school is being used as the open spaces where children came to play games and also do other activities.

In Saibhu, almost all the plots has been sold through tendering by government except the plot separated for apartment (33-0-0-0) which is still remaining to be sold and the land purchase through tender is again resold by the owners at higher price.

CHART 10: LAND ACQUIRED THROUGH

From the survey conducted in the area, it was found that majority of the respondents (53.33%) have acquired the land from the landowners. Those acquiring through tender too is significant with 37.78% and only 8.89% have acquired through land brokers.

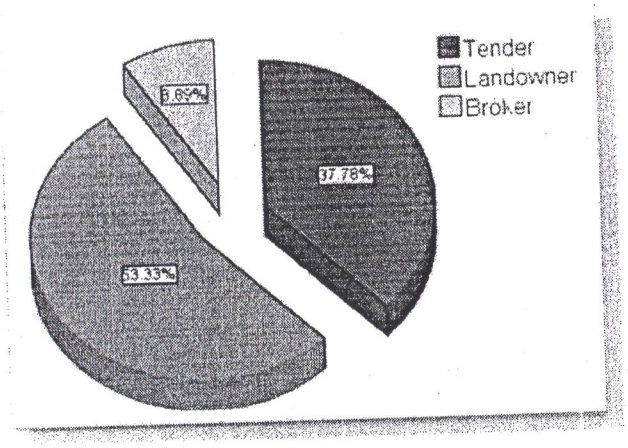


CHART 11: LAND USE BEFORE

The chart indicates the land being used before the planning. From the survey, it was found that only 40.82% of land had been used for cultivation by the people of that area whereas 59.18% of land had left vacant.

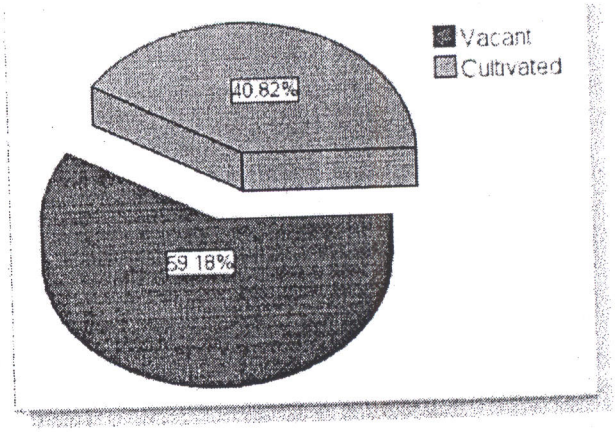
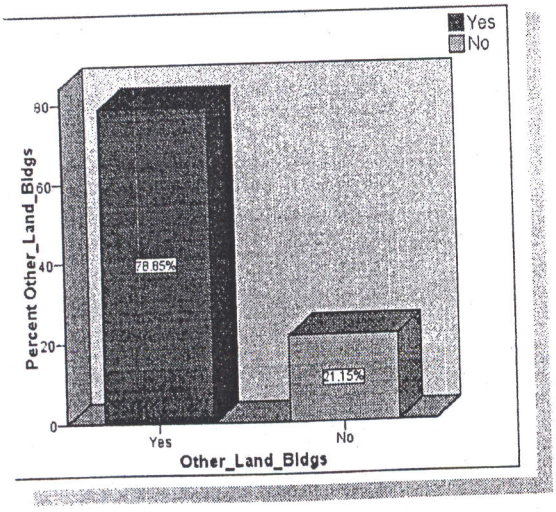
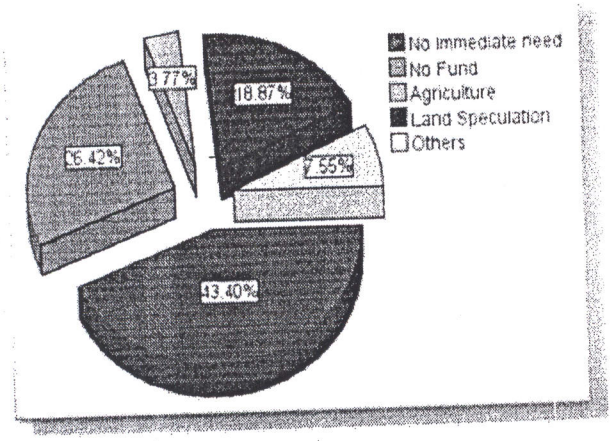


CHART 12: OTHER LAND/BUILDINGS



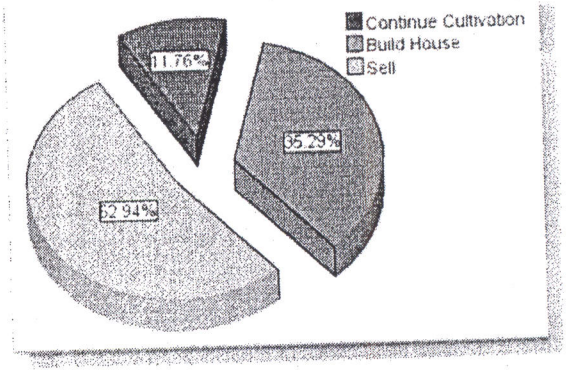
The success of any planning area can be evaluated by its higher occupancy rate of built up structures. In Saibhu, it was seen that many land is still vacant and yet to build the house in their land because the majority of people (78.85%) in that area have land/buildings in other part of the country and only 21.15% of people do not have any land/building except in this Saibhu LP area.

CHART 13: CAUSE FOR DELAY IN BUILDING CONSTRUCTION



So, many people (43.40%) feel no immediate need of housing, whereas lack of fund was the reason 26.43% respondents gave for not building the house and left the land vacant. 18.87% do not build and left land vacant for land speculation and 3.77% using the land for agriculture.

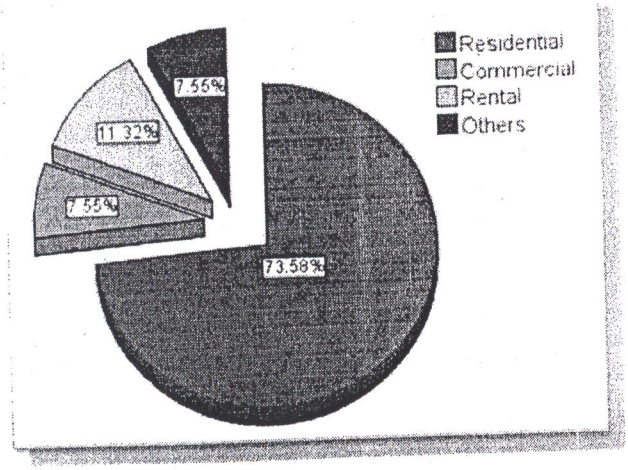
CHART 14: PLAN TO DO WITH LAND



The chart indicates that 52.94% of respondents want to sell their land with the higher price whereas 35.29% want to construct the building in the near future and only 11.76% of people want to continue to do agriculture in their land.

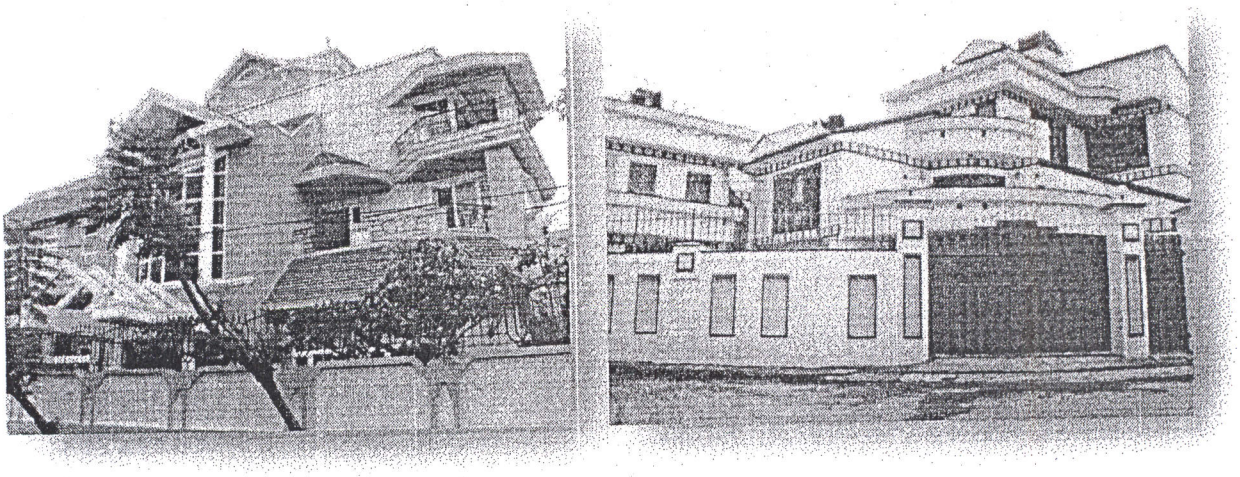
5.1.9 BUILDING USES

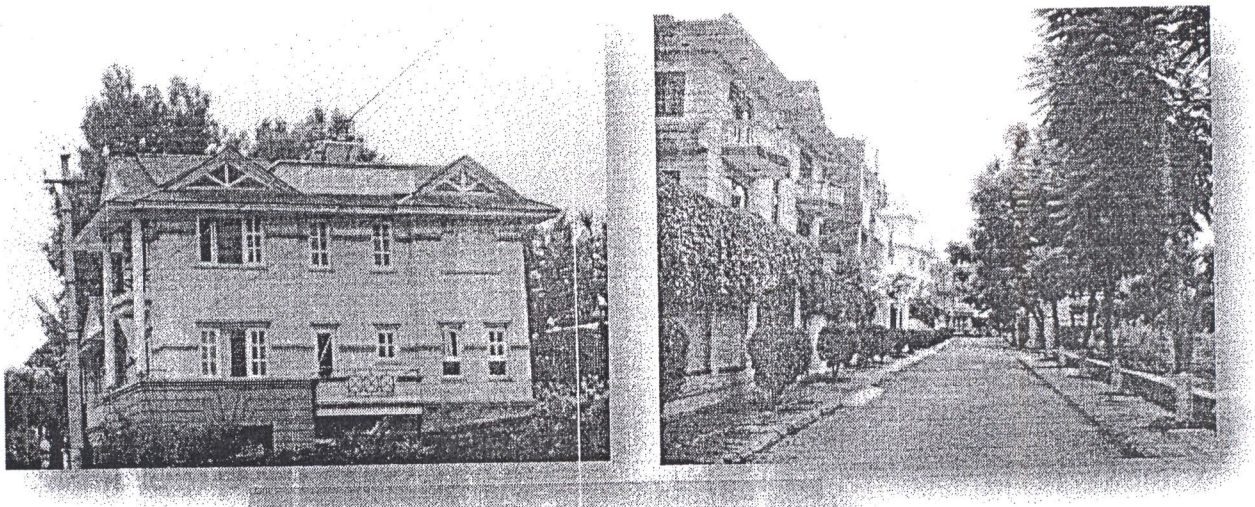
CHART 15: USE OF BUILDINGS



The chart shows the use of building which means whether the owner themselves uses the buildings for residential purpose or is being rented out for residential or commercial use. In Saibhu, it is found that 73.58% of surveyed buildings are used for residential, 18.87% is rented out for commercial purpose fully and partially. It shows that Saibhu is more of a quiet residential type with little commercial activities.

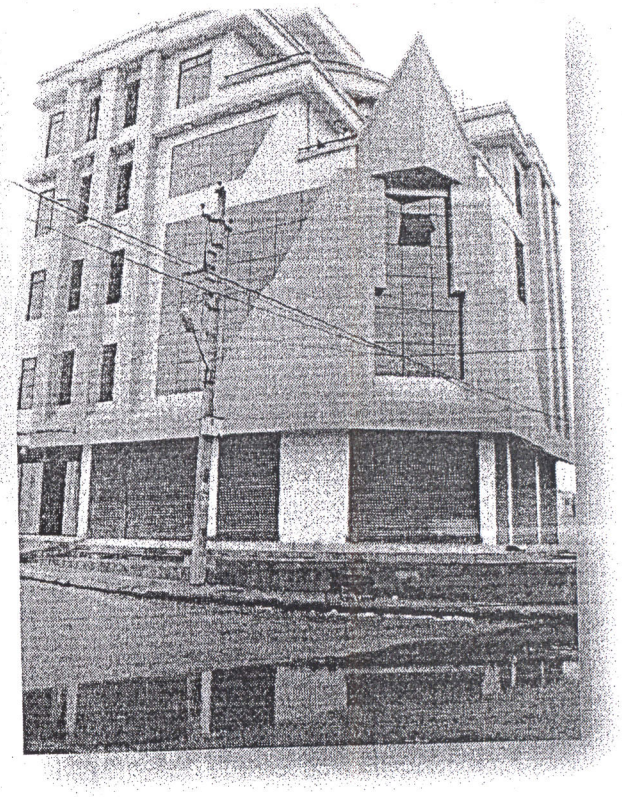
PICTURES OF DIFFERENT BUILDING USES



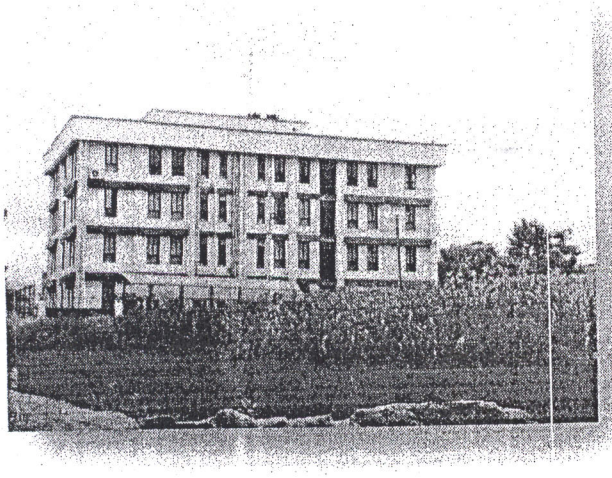


RESIDENTIAL USE

COMMERCIAL USE



MIX USE



LINE AGENCIES USE (NSET)

COMMUNITY USE

5.2 SOCIAL ANALYSIS

5.2.1 PLACE OF ORIGIN

CHART 17: HOUSEHOLD ORIGIN

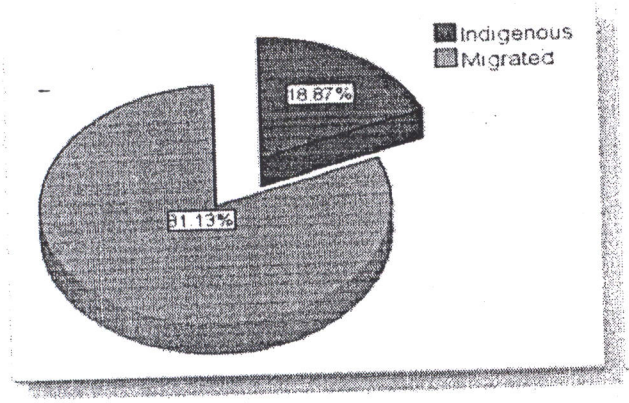
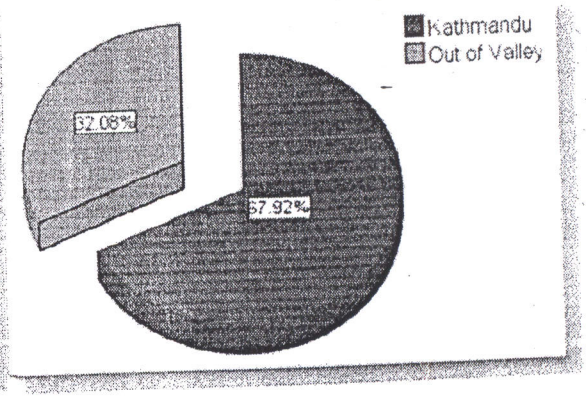


CHART 16: PLACE OF MIGRATION

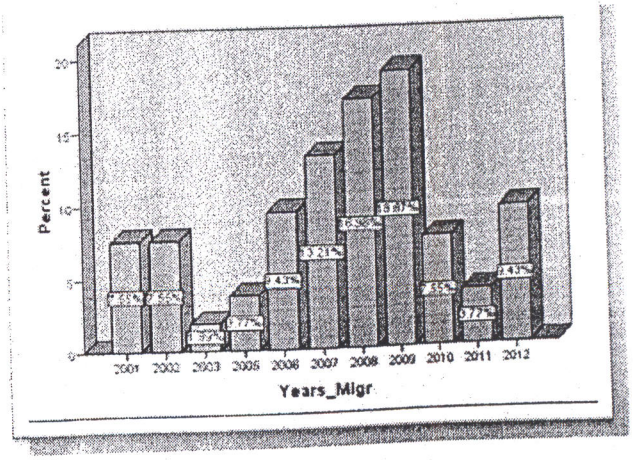


The result of the survey carried out in Saibhu shows that the majority of the residents are migrants (81.13%) having their origin especially from Kathmandu (67.92%) than those from outside the valley(32.08%).Only 18.87 people in this area are indigenous. This show the trends of migration of people from the core city area to the fringe are increasing.

The dominance of migrants also signifies that many original landowners have shifted from that area. The land pooling project upgraded the area and also increased the land value. So, the original owners sold their land for economic benefit and from the income they bought the plot in some other affordable area and settled there.

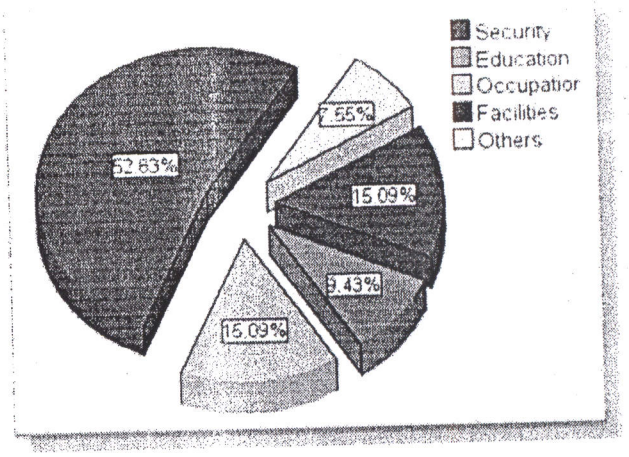
5.2.2 YEARS LIVING SINCE

CHART 18: YEAR OF MIGRATION



For understanding the pace of development taking place in LP area, the occupancy rate with respect to time is important. The chart below shows the year of migration of residents' in this planning area. Most people have migrated within last 5 years. Year 2008, 2009 has been the highest migration rate.

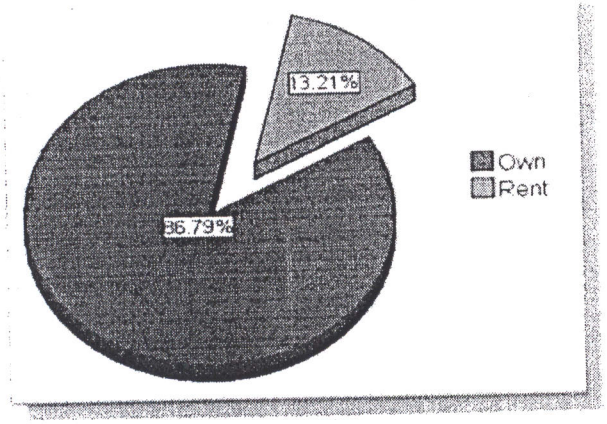
CHART 19: REASON FOR MIGRATION



When surveyed, most of the people migrate in this LP area because the area is well facilitated, managed and well-secured. Some people also migrate because of their occupation.

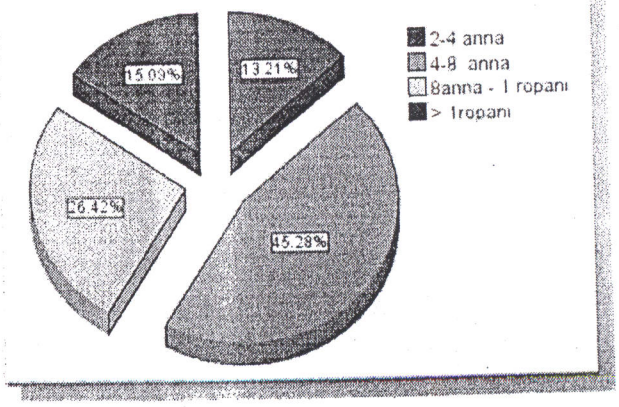
5.2.3 OWNERSHIP

CHART 20: OWNERSHIP



From the above chart, it is seen that most of the people in this area purchase their own house (86.79%) whereas only 13.21 % of people live in rent.

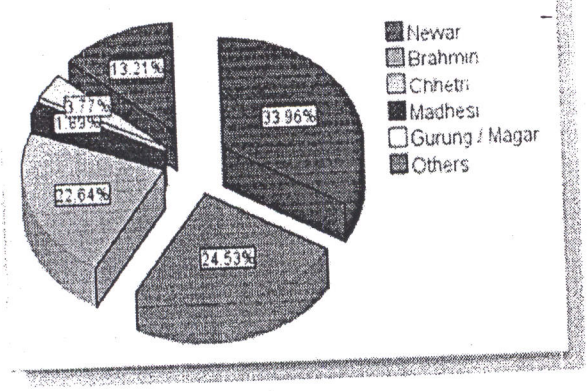
CHART 21: PLOT SIZE



On the basis of affordability & suitability for residential purpose, maximum plots allocated ranges from 4 annas - 8 annas (45.28%) and 8 annas- 1 ropani (26.42%). This shows that people here prefer to build bungalows in large land holdings.

5.2.4 CASTE

CHART 22: CASTE/ETHNICITY

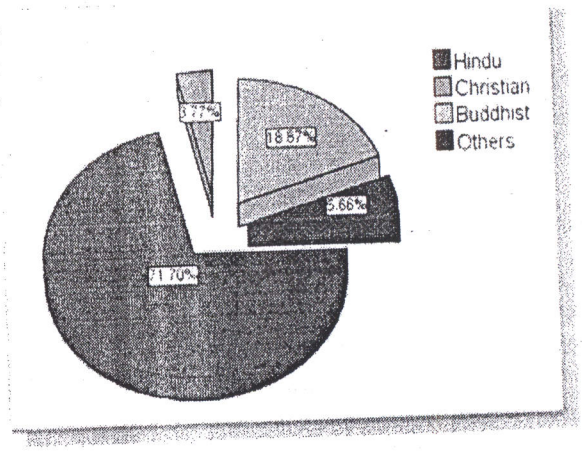


The result of the survey shows that, different caste/ethnicity of people is living in Saibhu which shows that it is the heterogeneous society. Among them, majority of residents are newars(33.96%) and Brahmin (24.53%) followed by Chettri, Madhesi, Gurung, others, etc.

5.2.5 RELIGION

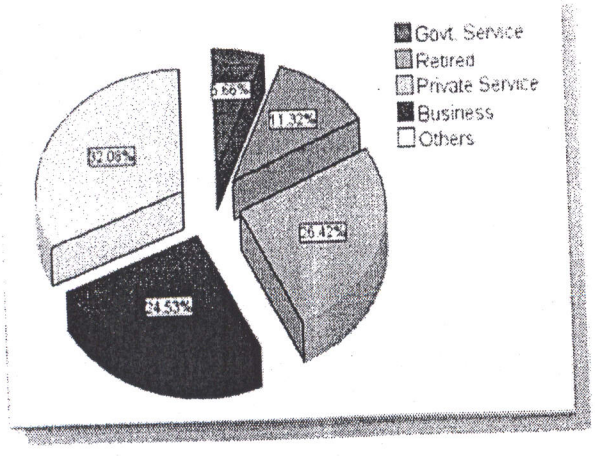
The area consists of predominant Hindu religion, which constitutes almost 71.70%, the Buddhist religion comprises 18.87%, Christian 3.77% and other religions comprise 5.66%.

CHART 23: RELIGION



5.2.6 OCCUPATION

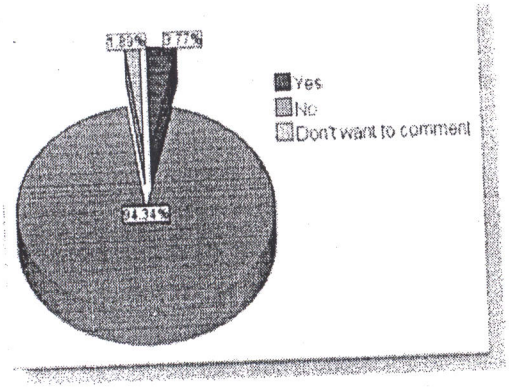
CHART 24: OCCUPATION



In this area, most of the population are involved in private service(26.42%) and business(24.53%).Only 5.66% of population are doing the government service whereas 11.32% are retired. Thus, it shows there is more no. of economically active population in this area.

5.2.7 LAND DISPUTE

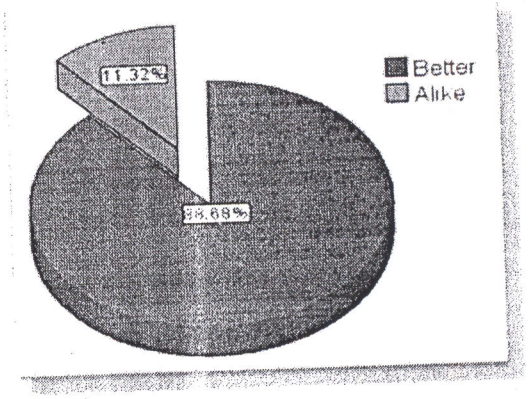
CHART 25: LAND DISPUTE



When surveyed, 94.34% people said that they have no land disputes.

5.2.8 DIFFERENCE BETWEEN PLACE OF RESIDENCE (EARLIER AND PRESENT)

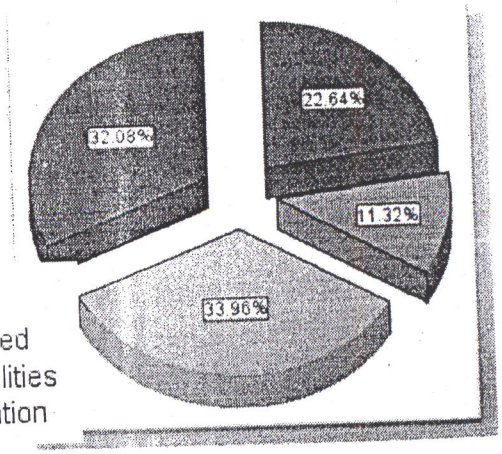
CHART 26: DIFFERENCE FROM EARLIER PLACE



From the survey, it was seen that 88.68% of people living in Saibhu feel the planning area is better from their earlier place of residence whereas only 11.32% feels is same as earlier place. Here, many of the residents come from the Kathmandu area where it is very congested, polluted and getting less services as they are getting in this LP area. This shows that such projects offer better living space for the people in compare to haphazard developed area.

5.2.9 REASON TO OPT THIS AREA

CHART 27: REASON TO OPT THIS AREA

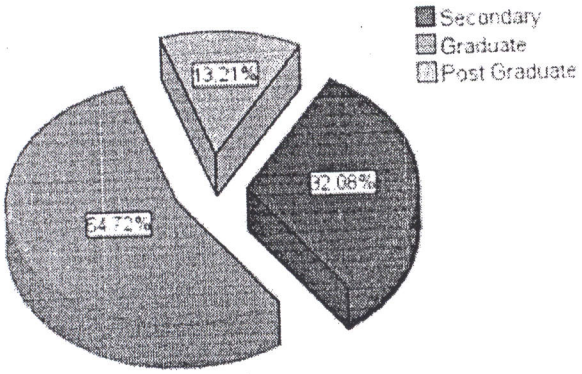


Most of the respondents acquiring land after LP are found to occupy this area because the area are well planned with the provision of basic infrastructure and services .Also, 32.08% respondents in Saibhu selected the area because of its good location and better

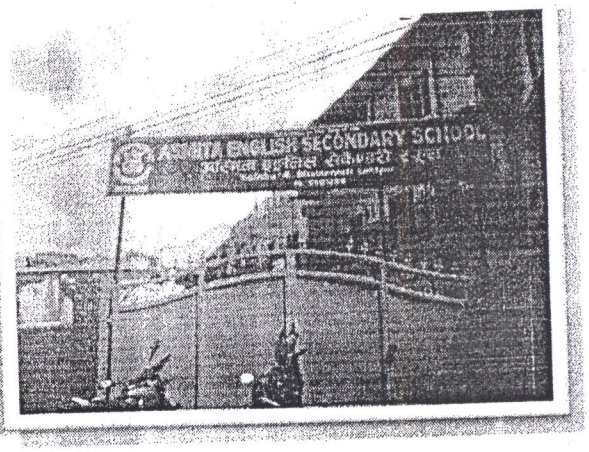
facilities (33.96%) which could be in terms of availability of transportation facilities, peaceful ambience and good environment.

5.2.10 EDUCATION

CHART 28: EDUCATION



ASMITA ENGLISH SEC. SCHOOL

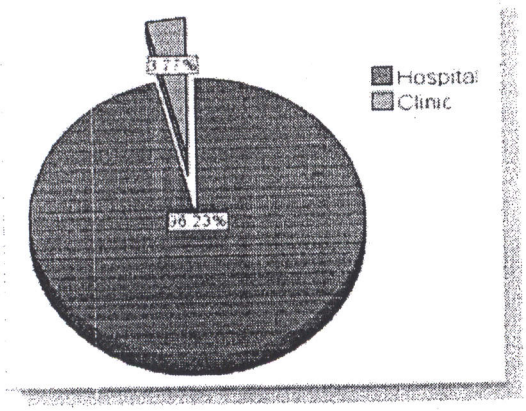


From the survey, it is seen that 32.08% of the population of the LP area are in secondary level of education, 54.72% are bachelors and 13.21% are masters and above. So we can see that the majority of residents in the land pooling area are well educated. In land pooling area, the land designated for school but not yet constructed. So the nearest school, children go to is Asmita school or Mt.Makalu school. Otherwise, the children of higher class rather go to boarding school in the Kathmandu and others.

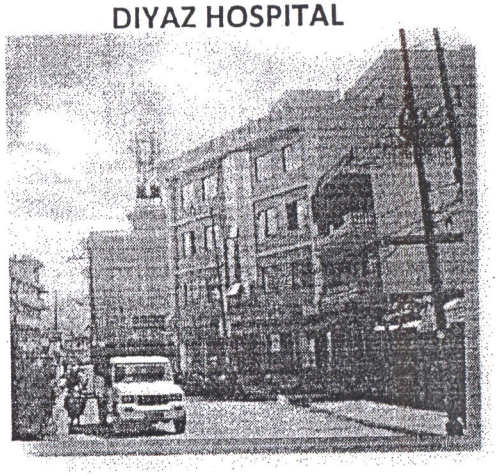
5.2.11 HEALTH FACILITIES

When surveyed, it was found that majority of the residents prefer going to hospital (96.23%) rather than clinic (3.77%) and other places .The nearest hospital they visit during the emergency is Diyaz hospital which is located near this LP area(150 m from the gate entrance gate of Saibhu LP area). Otherwise they visit the hospital such as Patan hospital and others.

CHART 29: HEALTH FACILITIES



DIYAZ HOSPITAL



5.2.12 SAFETY

CHART 31: DO YOU FEEL SAFE?

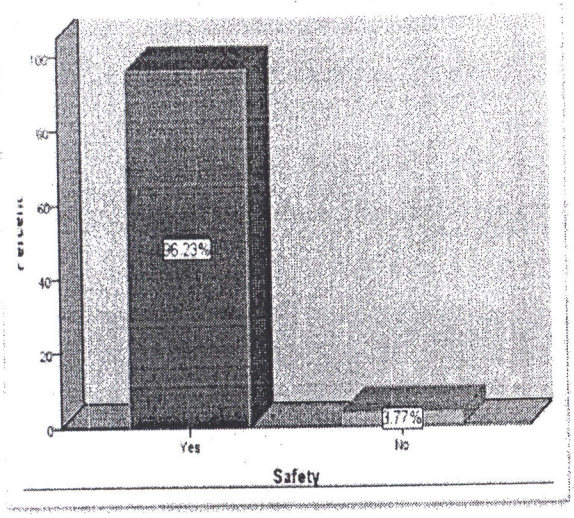
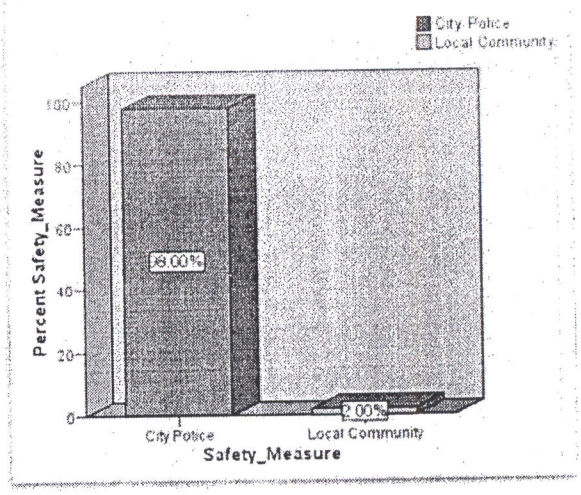


CHART 30: SAFETY MEASURES



It was found from the survey that people feel mostly safe (96.23%) in this area. The common safety measures adopted in Saibhu LP is City Police and Local community. When surveyed, it was found that before, the residents in that area pay for the security purpose (250-300 per month) to the Upabhokta Samiti who is responsible for the maintenance of that LP area. But now no payment is done for the security as the entire resident didn't willing to pay for the security purposes and still many lands are vacant for which the security was not needed .But the police boot was positioned near the LP area for security. The only problem they face in that area is the problem of theft that is also because of the lack of sufficient streetlight.

5.2.13 CONVENIENCE IN TRAVELLING

CHART 32: CONVENIENCE IN TRAVELLING

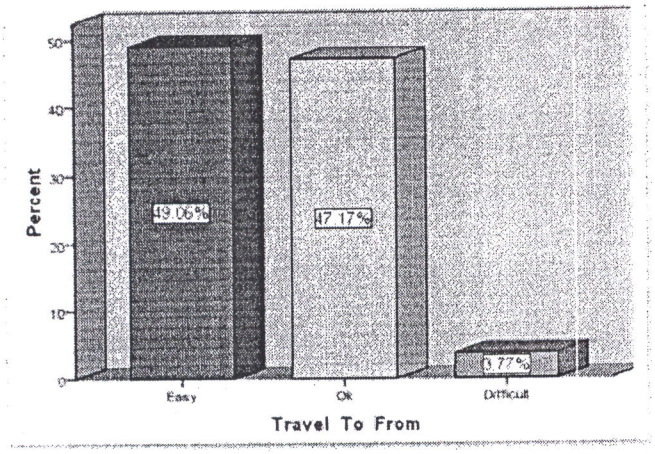


CHART 33: ACCESS TO THE PUBLIC TRANSPORTATION

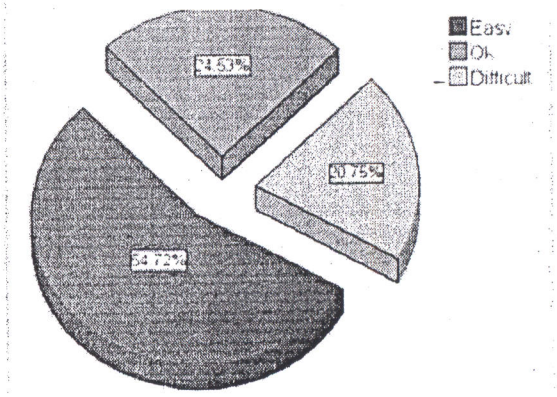
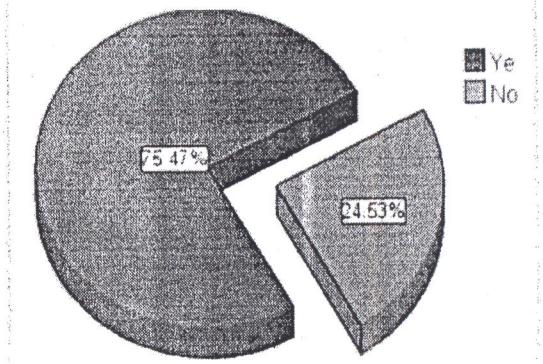


CHART 34: OWN VEHICLE



The above chart shows that 49.06% respondents in Saibhu travelling to and from the planning area easy and 47.17% feels it was Ok. The closeness of the planning area to the ring road and availability and ease for people to get access to public transportation has made it easy. Also many people in Saibhu have their own vehicle (75.47%).As they have their own vehicle, it is convenient for them to travel to and from the planning area.

5.2.14 RELATION WITH NEIGHBORS

It is often observed that the heterogeneous nature of todays urban communities where people of different caste and creed, economic statues and background, belonging to different social and culture behaviour results in no good relation with neighbours living next door and at times may even find them troublesome.

But when surveyed in Saibhu, it was seen that relation of the communities with their neighbours are quite good (90.56%) and have no conflict between them and only around 9.44% have not so good relationship.Eventhough it has the heterogenous society , they have social cohesion among them and live in a harmoniuous environment.Most of the people (79.25%) invite the neighbour during the functions ,

majority of people in that area involve themselves in the community activities (79.25%) and also participate in the cultural activities (83.02%) with the community. Nevertheless, the good relation ship with the neighbours amongst the majority of the residents indicates building up of a good community.

CHART 35: RELATION WITH NEIGHBORS

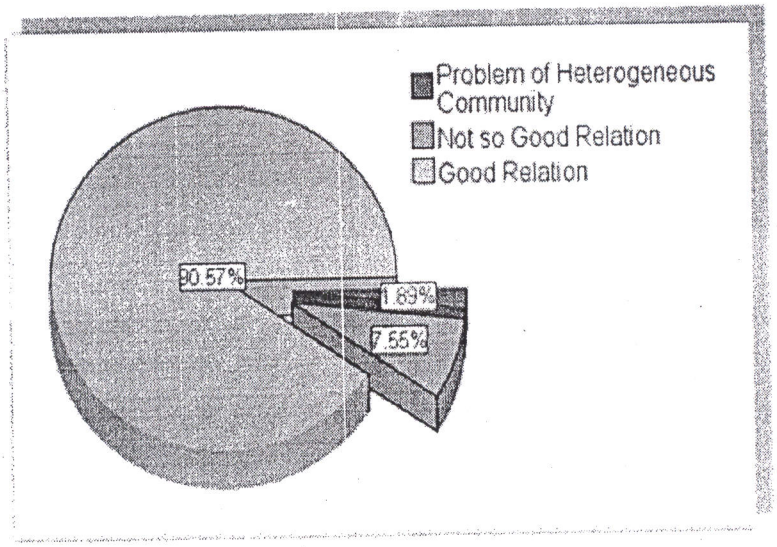


CHART 38: INVITE NEIGHBORS

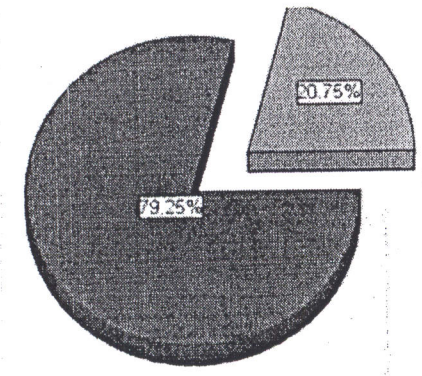


CHART 37: COMMUNITY ACTIVITIES

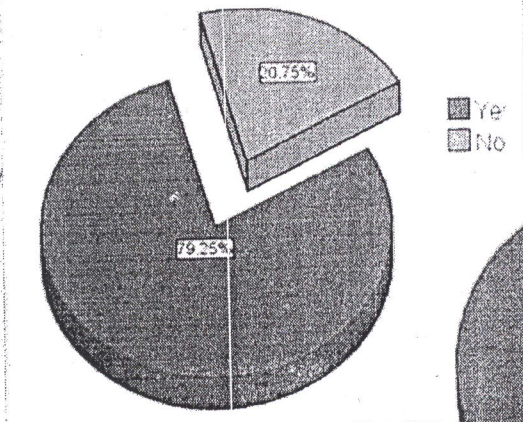
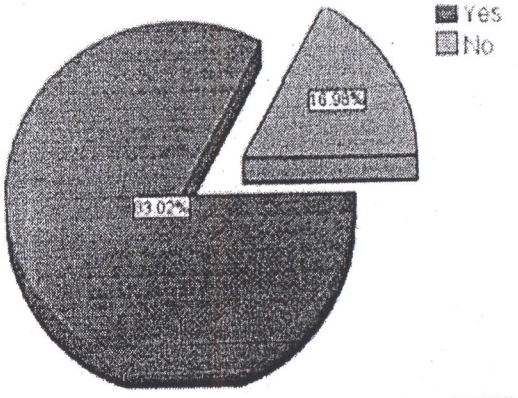


CHART 36: CULTURAL ACTIVITI



5.3 ECONOMIC ANALYSIS

5.3.1 LAND VALUE

Land pooling aims at planned urban expansion and delivery of housing plots with provision of basic infrastructure and services. The value of land and land market operation after land pooling is crucial for achieving its objectives. Hike in land price are essential feature of all the land pooling schemes. Landowners benefitted from 60 to 100% increase in land value after the project & enjoyed a better road network & more efficient plot layouts. Minimum price set initially was revised after finding that the price offered by bidders was more than the minimum price set by the project.

In Saibhu, Min. price of the serviced plots are sold for recovering the project area cost but was again revised later. However, price was kept lower then the prevailing market price to discourage increase in land price in the area.

Table 19: Land Price Before and After Land Pooling Of Saibhu LP

(Before Land Pooling)

Land with road	1.20 lakh per ropani
Land without road	80 thousand per ropani

(After land pooling)

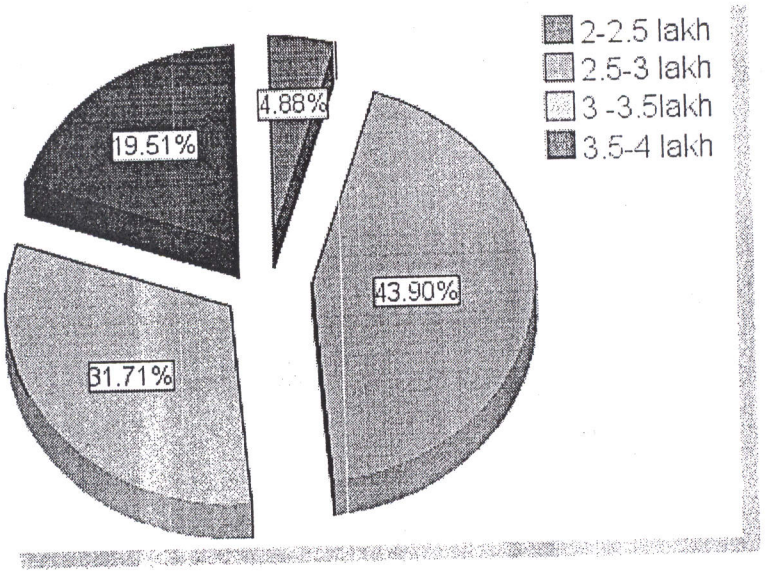
Width of Road	Original Land Cost (Per ropani)	Revised Land Cost (Per ropani)
20m	30 lakhs	30 lakhs
11m	16 lakhs	30 lakhs
8m	14 lakhs	18 lakhs
6m	12 lakhs	16 lakhs
5m	10 lakhs	14 lakhs

Before the execution of the project, the prevailing land values varies from NRs 2.00 lakhs to NRs 4.00 lakhs per anna which now have been raised to significant amount, which is listed below.

Table 20: Land Price along the Side of Road Width Land Of Saibhu LP

S.N.	Land Along The Side Of Road Width	Land Value (per anna)
1	5m	<=6,00,000
2	6m	7,00,000 to 10,00,000
3	8m	12,00,000 to 15,00,000
4	11m	18,00,000 to 20,00,000

CHART 39: PRICE PAID FOR LAND AT SAIBHU LP



The chart shows the price paid by the new residents for their land in this planning area, a couple of years back.43.90% people paid between 2.5 to 3 lakh per anna while 31.71% paid between 3 to 3.5 lakh for same area of land in planning area.The minimum price paid was found to be 2 lakhs while the maximum price paid was 4 lakhs.This shows that not the price increased many times after the implementation of the projects but it has also hiked since then.

5.3.2 INCOME LEVEL

Income level of people coming to live in the land pooling projects is an important aspect to look into. The income level shows the economic status of the people .This also helps to assess the class of people, kind of people currently having access to these planned area. -

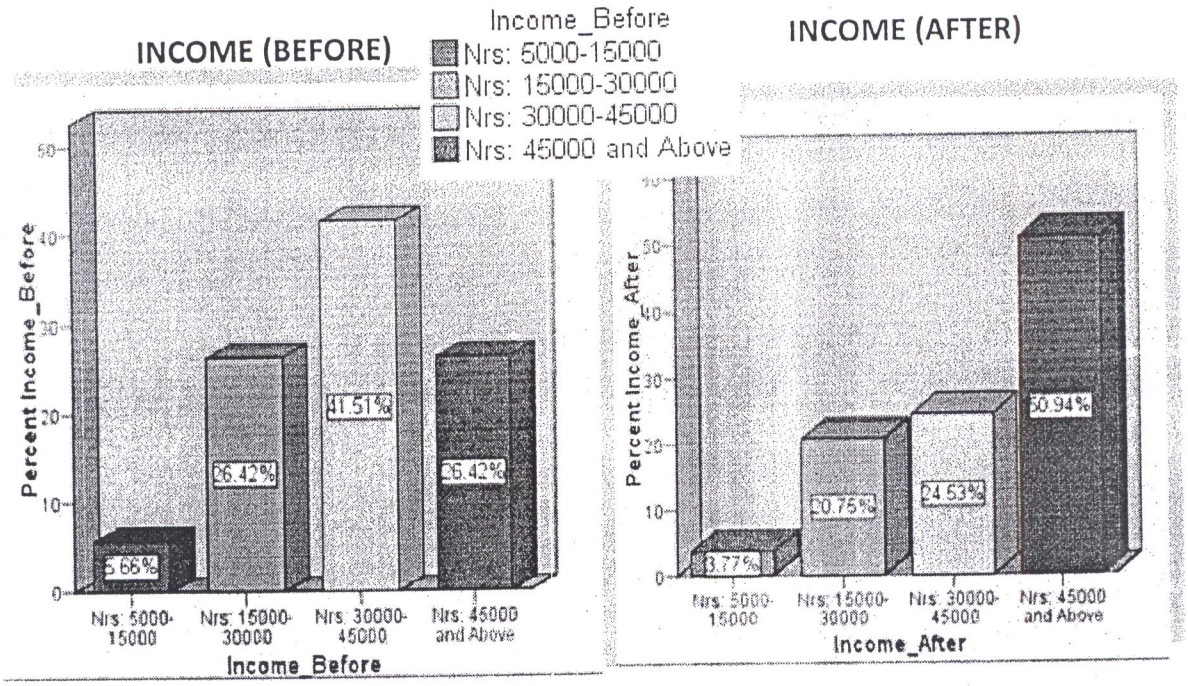


CHART 40: INCOME (BEFORE & AFTER)

From the survey, it was found that before coming to this land pooling area, 41.51% of people had income level 30000-45000, 26.42 % had income level 45000 & above which shows that the plots were mainly bought by the people of upper middle class. It was found that 50.94% of the populations have their monthly income Rs 45000 and above, 24.53% of the populations have monthly income range 30000-450000 after moving to this area. This shows that most of the people presently residing in this area belong to upper-middle & higher income group. Only few populations are middle class income group.

5.3.3 LOAN

Most the people in the planning area haven't take any loans. Out of the total respondents, only 22.64 % have taken some loan whereas 77.36% haven't taken any loans. Here, people take the loan either for the property or business purpose and the source of loan they prefer to take is from bank /finance or service loan rather than cooperative or relatives/friends.

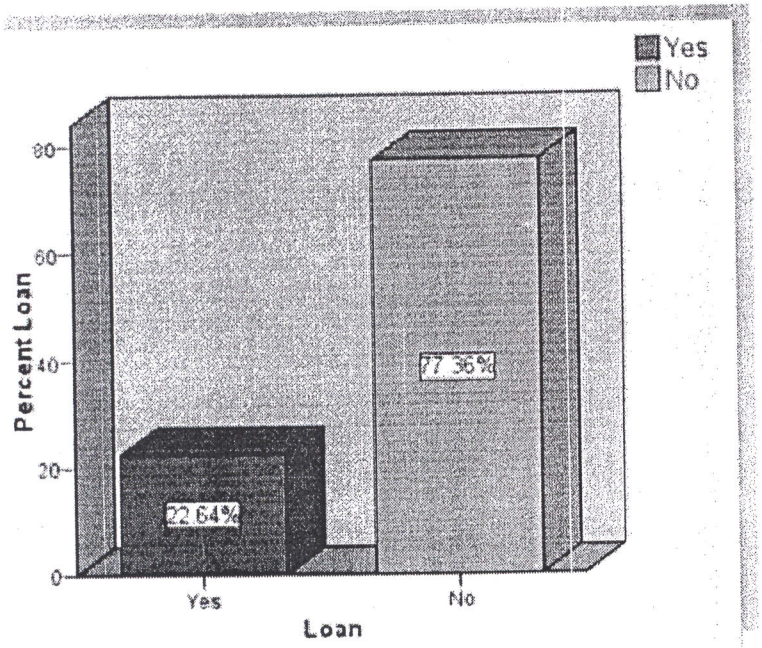


CHART 41: LOAN

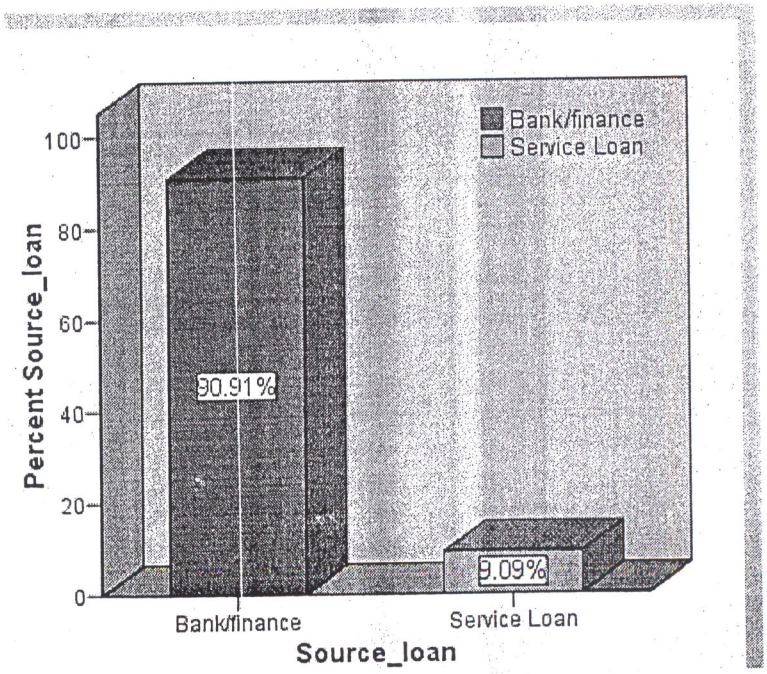
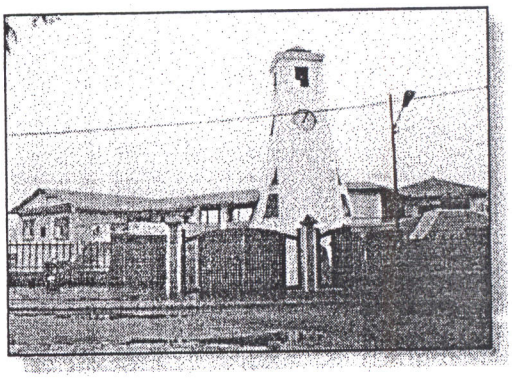


CHART 42: SOURCE OF LOAN

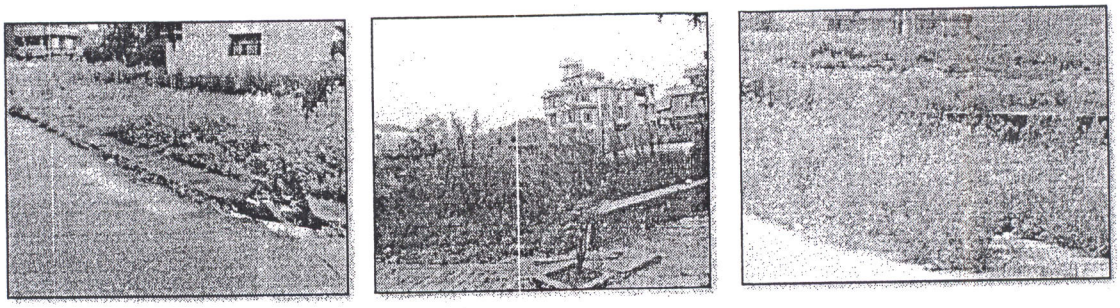
OPEN SPACE 1.

In this open space, the community centre was build and people here used it for social gathering and social function by community people for exchange of greetings during New Year and Dashain, Used during annual program of community and also act as place for cultural program during various festivals of indigenous groups.



OPEN SPACE 2, 3 5, 6 and 7

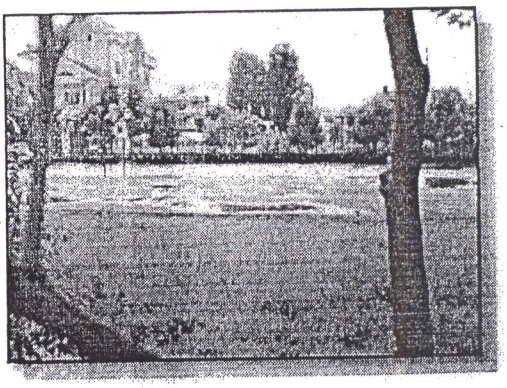
These open spaces are of no use at present and lands are left vacant and left unused. These open spaces are an open land area for the moment.



Unused open

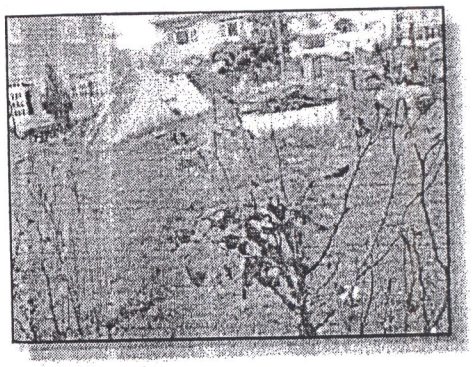
OPEN SPACE 4

This open space is recently used as Badminton court and park by various age groups mostly during morning and evening time and also used for relaxing. This space is fenced and locked so that people did not misuse it for other activities.



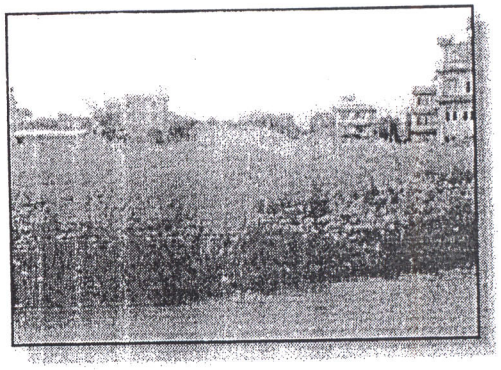
OPEN SPACE 8

This open space is used as a children park for playing.It is also provided with benches so that the people who came for the children can sit and take rest while their children are playing around. And this open space is also fenced.



OPEN SPACE 9

Open space 9 is designated for parking purpose for the market area but the land is not being used currently and left unused.



5.4.1 USE OP OPEN SPACES

CHART 43: USE OF OPEN SPACES

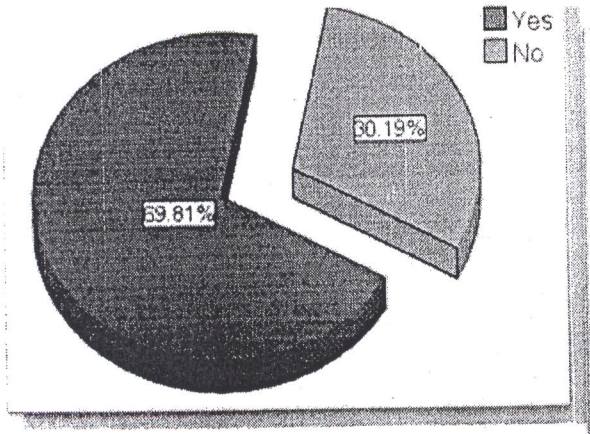
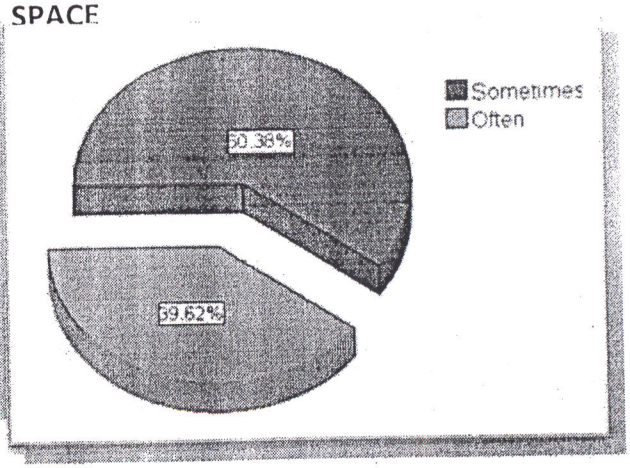


CHART 44: FREQUENTLY USE OF OPEN SPACE



The above chart indicates that only 69.81% use the open spaces and those who use open spaces, 60.38% use sometimes and only 39.62% use it often. Those who frequently use them are often for walking and other young people for playing games and also for some social gatherings.

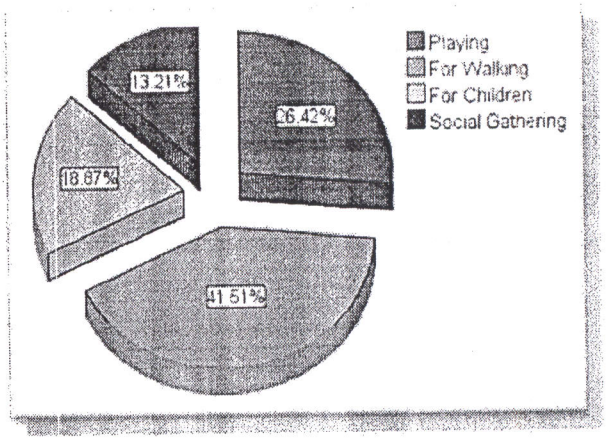
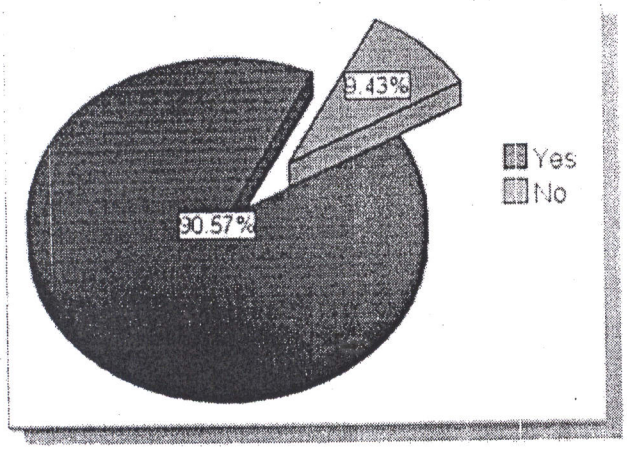


CHART 45: PURPOSE FOR USING OPEN SPACE

5.4.2 ADEQUACY OF OPEN SPACES

CHART 46: ADEQUACY OF OPEN SPACES



The chart indicated that 90.57% residents feel that the open spaces provided are adequate for the people living within the planning area.

5.5 IMPACT OF LP IN ITS SURROUNDING AREA

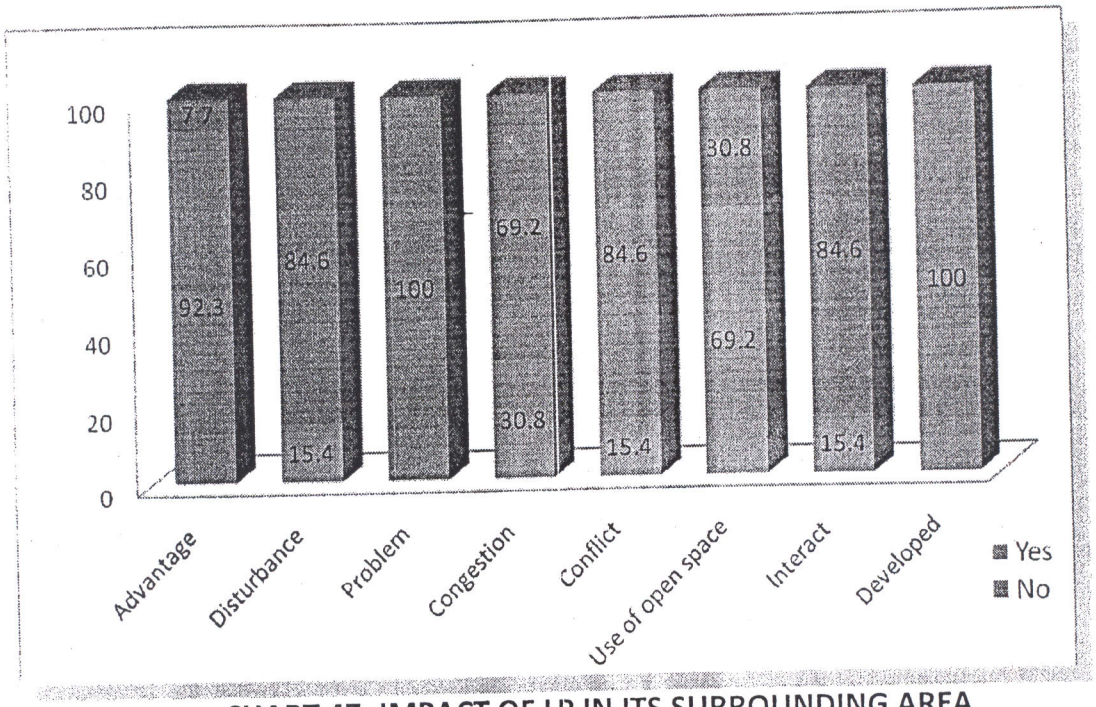


CHART 47: IMPACT OF LP IN ITS SURROUNDING AREA

To know the impact of land pooling area on its surrounding, survey was also conducted with the people living outside the land pooling area. The chart above shows the result of the survey.

92.3 % of people feel that the area has been benefitted from this project. According to them, due to land pooling, infrastructure facilities are developed, such as roads were widened and black topped. This resulted in more comfort for the people, ease in transportation and land prices also have increased greatly. This project has induced a managed development in this area, converting it into a lively civilized society. Also, this Awas Chhetra has become the land mark of Sainbu Bhainsepati.

84.6 % of respondents said that the land pooling area does not create any disturbance for them, and only 30.8% feel that the area has become more congested. However the interaction level between people outside and inside the land pooling project is low only 15.4%. The conflict level is also low, only 15.4 %. 69.2 % of people said that they use the open space inside the land pooling area, especially as play space because the area is more secure and less traffic hassle. But some of the residents restrict the children to play in front of their house. The result also shows that 100 % of people

feel that the area has developed after the land pooling project and they do not have any problem with it. This survey result can be concluded that the land pooling project has created an overall positive impact on its surrounding.

5.6 BYE-LAWS IN SAIBHU LP AREA

- Numbers of open spaces are adopted according to population, area and centrality.
- Min % of open spaces is well met. Minimum size and width of open spaces is well adopted.
- Land has been provided for line agencies, community approached such as schools and community buildings.
- Width of roads is all according to bye-laws that being 11m, 8m, 6m, & 5m.
- Setback use in project area is 2 m along the road n 5ft around the building where windows are provided.
- FAR of 1.75 is seen to be adopted for residential buildings.
- Not allowed to construct the industries, clubs and bar inside the project area.
- Not allowed to make shutter in residential area except those in that of the market area.
- Ground coverage up to 4 Anna is 70% and for 1 ropani and more it is 50 %.

5.7 OVERALL IMPACT

Well planned residential neighborhood - Development of a good community facilitated with proper infrastructure services which was the ultimate goal of any land development projects

Social amenities add convenience to life -Mix land use development with clusters of residences, shops, institutions, offices etc makes the place more convenient and lively.

Accessibility - Proximity of planning area to the ring-road and bus park which makes easy in travelling to & from the planning area.

Economic Upliftment - There is significant increase in land and rental value.

Participatory approach and Community involvement - Participatory approach is used by the committee in the proper operation and maintenance of open space.

Open Space -Total percentage of open space excluding road is 3% which is greater than minimum provision of 2.5%. Open spaces are used for playing and community purpose. Surrounding Environment is improved by developing greenery by planting trees.

Safety & lesser disturbance - There is restriction for constructing the industries and bars inside the planned area. Provision of footpath on either side of road, proves to be convenient to pedestrians, safer in terms of road-use.

5.8 PROBLEMS IDENTIFICATION

- **Tendency of holding vacant land for future land speculation**

After the implementation of this LP project, there is multi-fold increase in land value. Increase in land value encourages the landowners to holding the land for speculation, making the housing plots in LP unaffordable to many common people, especially the lower income section of the society. Thus, unaffordable housing and high rental value, out of reach to poor.

- **Trend of Holding of developed plots**

Trend of Holding of developed plots by those who do not have immediate housing need is seen. Thus, access to the developed plots of LP area for people genuinely in need of housing plots has been seriously restricted because of holding much of the plots by those who are not in immediate need of housing.

- **Slow pace of development**

After 13 years of completion of the project many plots are still vacant. The land designated for parliament members, is being used for agriculture purpose which does not comply with the objective of the project to supply serviced housing plot. For continuation of agriculture Land polling was not necessary. Another objective of the project was to implement the concept of flat system (Condominium) to accommodate

more people in few lands, it is also not accomplished. The land separated for that purpose is unused. So, optimum density is not achieved in the planning area.

- **Underutilization of open spaces**

Some of the open spaces with high tension lines make it inappropriate and unsafe. The land allocated for open space is not utilized to a great extent and is covered with grasses.

- **Insufficient street lights**

Insufficient street lighting creates inconvenience during night time and few incidences of theft have also occurred.

5.9 VERIFICATION WITH OTHER LAND POOLING AREAS

In Gongabu, all roads are pitched but there is no provision of footpath on other roads besides the main road which is inconvenient to pedestrians and intersections provided at right angles make it prone to accidents as well as difficult to drive. In Libali, it is even worse, roads are only graveled and no improvement possibility is seen. But in case of Saibhu, all roads are blacktopped and even provision of footpaths on either side of road which makes it convenient to pedestrians and safer in terms of road-use. The road curvatures at intersections make it easy to drive & fewer accidents. Thus, Saibhu is better in terms of road use.

The existing land pooling areas do not have regulations for height restriction. So we can see higher storey constructions up to 5-6 storeys buildings such as in Gongabu, NayaBazar etc. but in case of Saibhu the constructions are low rise only upto 4 storey's. In other LP areas compact residential development is seen whereas in Saibhu it is not so compact.

In Gongabu, Nayabazar, there is mixed community and houses are constructed in almost all the plots. Only about 5 %(approx) is vacant plots. Middle and upper middle class income people are residing in those LP areas. Moreover, these areas have become more attractive for new development being close to the city core but at the same time, though Gongabu LP area has developed as well planned area but in

Nayabazar haphazard urban growth is seen. However, these this LP area is considered as very much successful projects when compared in the basis of built up units (development). In Libali, although the project was said to be completed, the attainment of standard infrastructure could not be reached well or not well facilitated because municipality will be in loss or use another fund to get standard. People of this project are local and middle class income people are residing in this project. Not many people shift to this area due to lack of water supply and other facilities. Due to this people didn't come and there are lesser emergences of houses and land was not utilized because of which still many plots are vacant even after so many years. Hence, the project was not fully successful. In Saibhu, the built up development percentage is low compared to other LP areas i.e. still 33% of plots are vacant in terms of residential purpose even after so many years but the area has met the well standard services and is well managed. Mixed community people are living in cohesion. Upper middle and higher class income group people are residing in this area. Area is well maintained and has a peaceful ambience. Plots are also being gradually occupied. Hence, Saibhu land pooling project can be considered as a successful project.

6 SUMMARY AND CONCLUSION

6.1 SUMMARY OF FINDINGS

From the general study of literatures of post occupancy evaluation of some samples, some land pooling and the case study give glimpses of how the urban development is taking place in the land pooling implemented area. In order to trigger the urban development land pooling has played a vital role by providing the basic infrastructure. With the introduction of the infrastructure, changes have taken place in different social and physical aspects. These changes in physical and social aspect portray the phenomenon of change and depict the process of urbanization.

The social aspects of any society are natural to be changed after the introduction of organized planning activity. The early mode of life of indigenous people was predominantly agriculture based with rural environment which were changed after the introduction of land pooling projects in those areas. The implementation of LP area has attracted the migrants from different parts of the country even more as new areas have been opened up with well facilitated, well managed infrastructure and services. The land initially use for agriculture practice is sub-divided to meet the demand of the migrants which has created a heterogeneous society. The importance of skill and education has begun to surface. It was apparent that without appropriate knowledge, skill and education, it is not possible to compete in an urban society. A marked change can be observed in this regard as the earlier need of agriculture skill is no more dominant and people have started looking for specific new skills or education.

The economic environment consists of all goods, houses, lands, etc. which people have made for survival, comfort and luxury. In a very theoretical sense economy refers to the mode of production and distribution. The land price has tremendously increased after the implementation of land pooling projects.

The Saibhu land pooling is concerned; it was almost completed in 1999, ten years of its commencement. There is 552-3-2-0 ropanies of land and total no of residential plot is 611. Till now 150 buildings have been constructed and Built up area is gradually developing with relatively more residential density. For the optimum use of scarce

land resource, higher density settlement is preferable but there is tendency of constructing building in larger plots by combing 2 or smaller plots. This area has transformed from agricultural land use to planned residential zone. But there is no allocation of land for the urban poor and low income housing allocation process has not yet been emerged till now.

People are migrating to this area from Kathmandu valley as well as outside valley. Owing to the congestion and pollution of the city core, the development has transferred to urban fringe. People migrated to this LP area because of its good location, peaceful ambience, natural setting and well facilitated infrastructures. Also after the shifting of himal cement factory, this area has become better living place for the people. Area is also not very far from the Kathmandu - Patan city core.

Saibhu areas have a heterogeneous society. Although they are heterogeneous people they have social cohesion among them and live in a harmonious environment and they also have user - community so if any problem arises or any works have to be done meeting is organized to discuss and solve the issues. The infrastructure and services provided in this area have met the standards and is well maintained. The area is away from the city core and hence has a serene environment. From this survey it proves that people living in this area are better and area is also well maintained, well- facilitated and well managed.

From the survey it has been seen 40 % of land is occupied by built up areas whereas still 60% of land is vacant but it can been seen that 33% can be considered as vacant land excluding School and Parliament of member as these lands cannot be used for the residential purpose as it is the land of government. The reason for vacancy of land in Saibhu LP area area:

- Due to landownership delay for the construction of building because the people already have house/land in other place also. So, 43.40% people feel no immediate need of housing.
- According to NLSS, an average Nepali Citizen requires almost 15 years to construct a house, so insufficient fund for building the house can be also one

reason for leaving the land vacant whereas other do not build and left land vacant for land speculation and some for still using the land for agriculture.

The access to public transportation is easy as there are many vehicles going to various destinations in vicinity such as Khokana, Bungamati, Pharsidole,Thampi, etc. Also many people (75.47%) in this LP area have their own private vehicles as the people living there are higher class residents. Thus, the accessibility and mobility through and from the place is not so difficult. But, there is indeed not the optimum use of open spaces. (Out of 9 open spaces, only 3 has been used).But the people here have built their houses according to the byelaws and sincerely followed the land use planning. Although there is no height restriction, the existing buildings are constructed as low rise structures. Thus, the planning is compatible to the existing residents. Most of the respondents (95.45%) are also satisfied with the infrastructure and services provided.

Saibhu, Bhainsepati is now developing as VIP area and many bungalows have come in different places in the project site. Most of people residing here are upper middle and higher income group (more than 50% have income level more than 45000). Hence, this Saibu LP area has been emerging as the popular destination for high class residential neighborhood.

6.2 CONCLUSION

With the successful implementation of many LP schemes, this form of land development had today established itself as a most pragmatic approach best suited in the context of Kathmandu valley. But the success of implementation is being overshadowed by the slow pace of development in most of the LP projects. The Post Occupancy Evaluation study revealed that even a well facilitated land pooling project takes times to get fully occupied. Various factors are responsible for the plots being still vacant, which restrain the optimum utilization of scarce land resource.

Many LP projects took much longer time than originally expected due to various reasons such as delay in administrative works and decision making framework about acquisition and negotiation with people. Original land owners are largely benefited by the development in case of land pooling. Hence to gain more economic benefit they sell their land and migrate somewhere else. This displacement of original landowners and flow of migrants have created a heterogeneous society in the LP areas.

After the implementation of LP project, the value of land in the planning area has increased many folds, making it affordable to selected few. Holding of land by the land owners who may not have immediate housing need has limited the no. of service plots on sale. Income bracket is not well distributed, no place for lower middle class people. Only affordable to middle or upper middle class people. Infrastructures provided in LP areas have been of optimal standard and hence people can enjoy better amenities and habitable environment in compared to existing haphazard growth trend. But open spaces as an activity packages is not implemented, as of today and are just left as an empty land.

Land transaction by owners at higher rates has encouraged land speculation. One of the major issues of land owners is lack of fund to build a house. Having acquired land in planning area at relatively a higher price than other unplanned area, people often run out of fund to build houses one of the cause of delay in construction of houses (as an average Nepali Citizen requires almost 15 years to construct a house-according to NLSS).Hence, it is difficult for lower and middle group people to buy plots in projects.

7 RECOMMENDATION

- Location of land pooling projects plays a vital role in its effectiveness .Thus, location should be chosen considering the past and present trend of city expansion as well as its probable future course.
- Land pooling should promoted as an effective tool for planned urban expansion and containment of urban sprawl through public- private partnership.
- Land pooling in an overall city is very difficult so, it should be conducted by selecting the certain manageable residential pocket which will also help to stimulate planned neighborhood development.
- Land Pooling should not encourage spread out development instead try to achieve optimal density.
- Bye-laws should be fixed accordingly by the government with standardization of the minimum plot size and maximum plot size during implementation stage LP project so that it would be affordable to different income group.
- In order to avoid the government owned plots from remaining vacant for longer duration, budget and time limit for construction should be decided by conducting the several meeting at the initial phase of the project. If the buildings are not constructed within the time limit, the vacant plot must be transferred to private ownership for residential or commercial purpose.
- Promote proper and timely development within LP area. Introduce appropriate and effective laws and regulations to discourage developed lands from being vacant for longer time.
- Ensure strict adherence to the project objectives and implementation duration.
- There should be communication and coordination between the implementing agencies in the operation stage. Incorporate provision of maintenance fund and ways to expand site resources in project design.

- Once a LP project is successfully completed, there is no clear division of responsibility regarding the maintenance and operation of the infrastructure and services provided for the post project management. Thus, there should be clear allotment of roles and responsibility of the government, local government, public co-operations, project team, and implementation body.
- Increasing the supply of serviced housing plots for all and promote housing development through LP. Develop the cross-subsidy mechanisms within LP schemes to make the target classes of low income group accessible to land at a cheaper rate. Allocation of certain percentage of serviced plots for low income group is necessary. For this, government should purchase these at the base price and undertake appropriate housing schemes for urban poor.
- Give preference to people in need of housing/plots or those who does not own land in the valley during the sale of serviced plots.
- Easy access to Housing Finance can also improve the occupancy rate as many people keep the land vacant due to insufficient funds to build the house.
- Establish the role of different public agencies in operation and maintenance work of infrastructure services within LP by conducting the several meetings before land pooling and ensure better coordination in their activities.
- Carry out the impacts study of LP projects: socio- economic as well as physical impact assessment should be made mandatory and obligatory in the planning phase.
- Discourage land speculation and keeping developed land vacant once a transaction has taken place by imposing additional vacant land tax. Government should discourage the transaction of land without infrastructure.
- Phase wise Development of infrastructure would be beneficial. Land pooling area takes some time to get occupied. Fully developed infrastructures at the completion of the project might not be economically feasible if the lands are not totally occupied by the built up area.
- Developing the self-help contribution in the development of the infrastructure.

- Introduce appropriate land use and building regulation so as to achieve a better living environment and good urban form within LP scheme.
- Private developers are more efficient in land development hence they should be promoted for reducing the burden of public sector once the LP project is completed but they should be properly monitored.
- Public investment and social infrastructures should be encouraged at these land development areas to boost up the rate of development in these areas.
- Percentage and location of open spaces should be allocated according to byelaws and should provide recreational purposes and places for utilities.
- Carry out regular post implementation monitoring and evaluation. Land registration and cadastral system needs to be efficient.

8 BIBLIOGRAPHY

Adhikari , Khushi Ram, 2011 "A Comparative Study Of Housing Development In Land Pooling Areas (Gongabu, Liwali And Naya Bazar Sites) " ,Thesis Report , Master of Urban Planning ,IOE, Pulchowk Campus

Bhadra 2059,"Kathmandu Valley Town Development Implementation Committee, Saibhu, Bhainsipati.

Chitrakar, Bipin Kumar , June 2000 "Land Pooling and Urban development(A Case Study Of Kathmandu Valley" ,Thesis Report , Master of Urban Planning ,IOE, Pulchowk Campus

Google maps, 2012, google earth.com

Joshi, Prof. Dr. Jibgar, 2008 "Planning Approach in Nepal"

Joshi,Prof. Dr. Jibgar ,2003,"Regional Planning and Development," First edition

Karki, (2004) "Implementation experiences of land pooling projects in Kathmandu Valley", Habitat International Journal, Vol: 28, Issue 1, pp 67-88, Pergamon Press.

Karki,Tej Kumar*(2005-2008)"Efficiency And Equity Issues Of Land Readjustment projects Implemented In Nepal", Northeastern University, Boston

Karki,Tej Kumar ,"Efficiency and equity issues of land readjustment projects implemented in Nepal "

Pokharel, Prof. Dr.Jiba Raj, 2011," Nepal living standard survey", Third Edition

Pokharel ,Prof. Dr. Jiba Raj, 2006 "A Policy Study on Urban housing in Nepal"

P. P. OLI,(Dec. 2003,)"Land Pooling: The Public Private Participatory Urban Development in Nepal", Marrakech, Morocco,

Pradhan Tribeni ,"Land Readjustment in Kathmandu, The Naya Bazar Project", Nepal

Raghubanshi, Mr. Prakash , Lecture slides of "Urban Land Management"

Raghubansi, Prakash, 2011 class presentation slides," Urban Land Management", MSc Urban Planning

Sanghachhe, S.B.,1999, "Land Pooling in Kathmandu Valley: A Brief Description, KVTDC

Shakya, Rabi Ratna , December 1998 "Land Pooling Practices In Nepal For Urban Land Management" ,Thesis Report , Master of Urban Planning ,IOE, Pulchowk Campus

Singh, Prashant Man, 2000 "Post Land Pooling Development Evaluation(A Case Study of Land Pooling Project in Kathmandu Valley " ,Thesis Report , Master of Urban Planning ,IOE, Pulchowk Campus

Subedi, Bhim Prasad (July, 2010)," Changing social landscape of a capital city", Tribhuvan University, Kathmandu, Nepal.

Tiwari, S.R.,2012 class presentation slides," Research Methodology and Thesis Proposal Writing", MSc Urban Planning

Nepal Urban Policy, 2007

Uprety, Sanjaya; June 2006; Private sector and urban land development in Kathmandu valley: Review of Policy paradoxes, SONA Souvenir

Wickramaarachchi Nishani (Nov. 2003,),"Land Readjustment As A Land Management Technique For Urban Areas", Matara, Sri Lanka

www.docstoc.com/docs/52816781/Land-Readjustment-in-Kathmandu#

www.en.wikipedia.org/wiki/Post-occupancy_evaluation

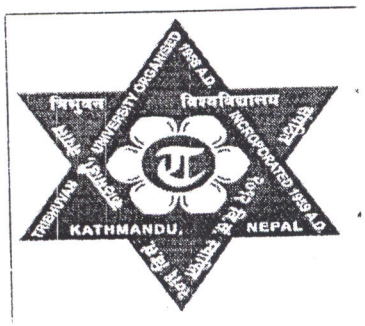
www.eubv2004.com/DE/programm/3_06_Karki_Speech.pdf

www.onlinelibrary.wiley.com

www.lawcommission.gov.np/

www.scribd.com/doc/74863106/Nepal-Housing-Sector-Profile

ANNEXES



Tribhuvan University
Department of Architecture & Urban Planning
M. Sc. In Urban Planning
Thesis Topic: **POST OCCUPANCY EVALUATION OF SAIBHU BHAISEPATI LAND POOLING PROJECT**

SOCIO-ECONOMIC SURVEY

1. FAMILY DETAILS

1 Name of House owner

2 Name of respondents:.....No. of family: .....

3 Caste:.... 1. Newar 2.Brahmi 3.Chhetri 4.Madeshi 5.Gurung/ Magar 6.Others

4 Religion:...1. Hindu 2.Christian 3. Muslim 4.Buddhist 5.Others

5 Education:...1. Illiterate 2. Literate 3.Primary 4.Secondary 5.Graduate 6. PG

6 Occupation:.1 Gov. Service 2 3. Retired 3.Private Service 4.Business 5. Others

2. MIGRATION INFORMATION

1. Place of Origin:.....1. Indigenous 2. Migrated
   If migrated year of migration:.....
   Place of migration:.....
2. Name of the place from where migrated:.....
   1. Kathmandu 2. Out of Valley 3. Others
3. Reason for migration:
   1. Security 2. Educational 3.Commercial 4. Occupation 5.Facilities 6.Other

3. LAND AND BUILDING INFORMATION

1. Land area:.....
2. Ownership:..... .1. Inherited 2. Rent 3. lease
3. Plot Size: 1. < 2anna 2. 2annna- 4anna3. 4-8anna 4.8anna>
4. Land Disputes: 1 yes 2 no 3 don't want to comment
5. Use of Building: 1. Residential 2.Commercial 3.Rental 4. Social institution 5. Others
6. Land Pricing: Before Planning.....per Ana After Planning.....Per Ana
7. Reason for opt this area: 1. Own land 2. Well planned 3. Better Facilities 4. Better Facilities 5. Good location
8. Difference from the place lived before: 1. Better 2. Alike 3. Poor

4. INFRASTRUCTURE AND SERVICE

1. Access Road Type : 1. Black topped 2.Stone Paved 3.Gravel 4.Brick paved 5.Earthen 6.P.C.C
2. Road Width: .....meters Setback .....meters
3. Water Supply: 1. WS connection 2. Well 3. Communal tap 4.Tanker 5. Other
4. Quality of Water: 1. Good 2. Satisfactory 3. Not Satisfactory
5. Sewerage System: 1.Septic Tank 2. Sewer Line 3.Others
6. Disposal of Household waste (Garbage disposal):
   1. Municipal Container 2. CBO 3.Private (door to door) 4. Others
7. Health services provision:
   1. Hospital 2. Ayurved3.Clinic 4.Community Healthpost 5.MediStores 6.Others
8. Safety and Security in your area?1. Yes 2. No
9. If yes, which type of safety measures do you have in your locality?
   1. City Police 2. Private guard 3. Local community 4.Others
10. If no, which types of problem you are facing?
    1. Theft 2. Conflict 3. Drugatics 4. Other
11. Do you pay for the security?1. Yes 2. No
    If yes, how much?.....

12. How do you find travelling to & from the planning area? 1. Easy 2. Ok 3.Difficult
13. Do you have your own vehicle? 1. Yes 2. No
    If yes, how many?.....
14. Accessibility to public transportation: 1. Easy 2. Ok 3.Difficult
15. What accessories do you have in your house? 1. Cable 2. Internet 3.Telephone 4.All
16. Are you satisfied with the level of infrastructure provided? 1. Yes 2. No

5. OPEN SPACES

1. Use of open spaces in planning area? 1. Yes 2. No
2. If yes, how frequent? 1. Sometimes 2. Often
3. For what purpose you often use the open spaces?
   1. Playing 2.For walking 3.For children 4. Social Gathering
4. Is the open spaces provided Adequate? 1. Yes 2. No

6. SOCIAL ASPECT

1. How do you find the neighborhood?
   1.Problem of heterogeneous community 2.Not so goodRelation3.Good Relation
2. Do you invite your neighbor for group gathering?1. Yes 2. No
3. Are you involved in any community activities? 1. Yes 2. No
4. Do you celebrate your cultural activities with community? 1. Yes 2. No
5. Nearest Educational institute?.....
6. Nearest Health facilities?.....

7. ECONOMIC ASPECT (Income & Expenditure)

1. Average monthly income (before moving to LP area)
   1.Nrs: below 5000 2.Nrs 5000-15000 3.Nrs 15000-30000
   3.Nrs 30000-45000 4.Nrs 45000 and above
2. Average monthly Expenditure (before moving to LP area)
   1.Nrs: below 5000 2.Nrs 5000-15000 3.Nrs 15000-30000
   3.Nrs 30000-45000 4.Nrs 45000 and above

3. Average monthly income (after moving to LP area)

   1.Nrs: below 5000 2.Nrs 5000-15000 3.Nrs 15000-30000

   3.Nrs 30000-45000 4.Nrs 45000 and above

4. Average monthly Expenditure (after moving to LP area)

   1.Nrs: below 5000 2.Nrs 5000-15000 3.Nrs 15000-30000

   3.Nrs 30000-45000 4.Nrs 45000 and above

5. Do you have any kind of outstanding loan? 1.Yes 2. No
6. If yes, Type of Loan: - 1. Property 2.Education 3. Vehicle 4.Business
7. Source of Loan: - 1. Bank/Finance 2. Cooperative 3.Service Loan 4.Friends/Relatives

1. Are you satisfied with compensation provided?

   1. Highly satisfy 2. Satisfied 3. Not satisfied 4. Do not know

2. Are you satisfied with land pooling?

   1. Highly satisfy 2. Satisfied 3. Not satisfied 4. Do not know

3. Problems in the planning area.

   .....

   .....

   .....

4. Who is responsible for the maintenance of the area?

   .....

   .....

   .....

5. What do you feel about the location of the area?

   .....

   .....

   .....

6. Did you support the project initially? 1. Yes 2. No Now: 1. Yes 2. No
7. Benefits brought by the LP:.....
8. How did you buy the land? 1.Tender 2. Landowner 3. Broker
9. What was the land use for before LP? 1. Vacant 2. Cultivated

10. Land being used at present? 1. Vacant 2. Cultivated 3. Residential

11. What is your plan to do with the land? 1. Continue Cultivation2. Build house 3. Sell

12. Why delay in building house?

1. No immediate need 2. No Fund 3. Agriculture 4. Land speculation 5. Others

13. Do you own any other land/buildings beside this? 1. Yes 2. No

QUESTIONNAIRE (OUTSIDE LP AREA)

1. Are you satisfied with land pooling?
   1. Highly satisfy 2. Satisfied 3. Not satisfied 4. Do not know
2. Do you feel advantages after the land pooling process? 1. Yes 2. No
   If yes, what?
3. Benefits from Land Pooling
   .....
   .....
   .....
4. Problems being faced due Land Pooling
   .....
   .....
   .....
5. Do you feel disturbance due to LP in that area?1. Yes 2. No
6. Do you find problem with neighborhood after the migration of people to LP area?
   1. Yes 2. No
7. How's your relation with your neighbor? 1. Good 2. Ok 3.Not so good
8. Do you feel congestion due to this project? 1. Yes 2. No
9. Are you having any conflicts with the nearby people? 1. Yes 2. No
10. Are you allowed to use the open space in LP Area? 1. Yes 2. No
11. Do you interact with the people living within the LP area? 1. Yes 2. No
12. Has the area developed after the project? 1. Yes 2. No
13. What changes have you seen in the neighborhood after the land pooling project?

.....
.....
.....