

## Impact of Landuse Changes in Kirtipur

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### Introduction

Kirtipur, situated on a hill top, forms a prominent landmark within the Kathmandu valley. The settlement had a population of 12,848 in 1989 with an average density of 800 persons per hectare and with a growth rate of 3.62 per cent per year between 1981 and 1989. The main built up area of the settlement is concentrated on the top of the hill. Around the hill and along flat hill top run level streets marked by long terraces of house.

Kirtipur covers four VDCs of Palifal, Layaku, Bahirigaon and Chithubihar. The total area of these four VDC is about 7.22 km<sup>2</sup> (Fig. 1-2). The area shares 0.88 percent land and 1.60 percent of the population of Kathmandu valley. Although there is some changes in newly built up area, the settlement still has a medieval character.

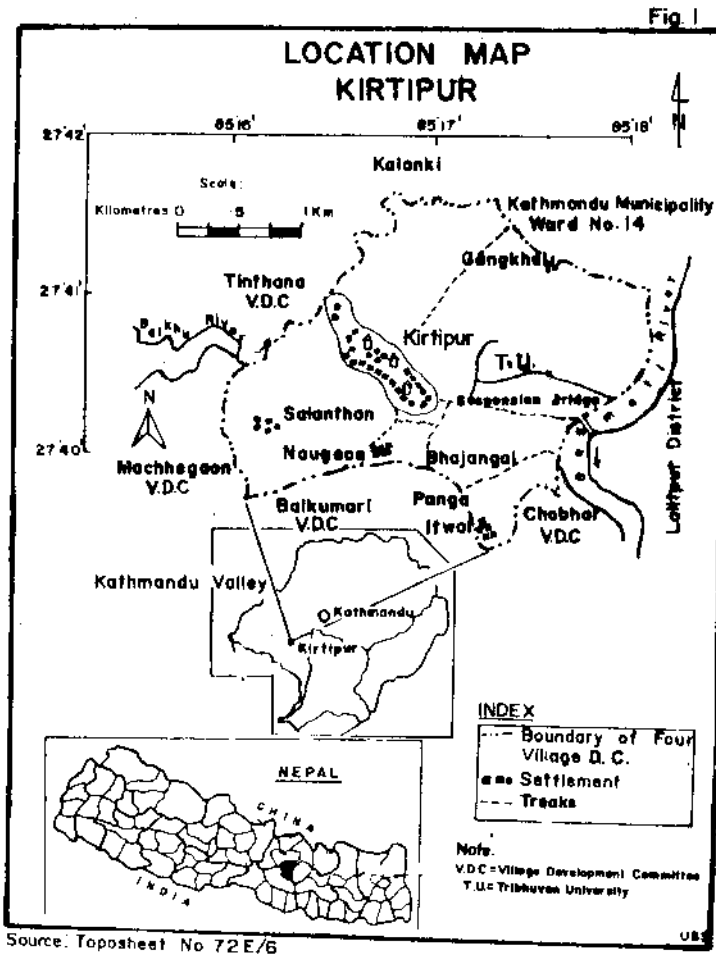
There has been tremendous changes in land use and occupational structure of the people living in this area between 1954-1989. This change is still continuing. The main objective of this study is to analyse the change in land-use and the occupational structure of the people in Kirtipur between 1954-1989.

### Methodology

The study is based on primary as well as secondary data. To document changes in land use information were obtained from aerial survey photographs provided by the Department of Forests as well as Topographical Survey Branch of HMG/Nepal. The aerial photos of different years from 1954-1989 at the scale 1:50,000 (1954); 1:20,000 (1964); 1:50,000 (1978) and 1:8,000 (1989) respectively have been used. But valuable information was also collected from local residents. Interviews with 175 household heads were conducted to collect information on the changes in occupational structure. A pilot survey was conducted in order to determine the standard deviation in income level. Based on this information a sample size of 175 households was determined with confidence level of 95 percent. These households were again distributed to each ward proportional to total number of households. These households were selected randomly with the help of the list of households provided by these VDCs.

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**Land Use Situation Before 1954**

Historically, Kirtipur was known by different names-- Gunde, Padmakastagari, Kirtipur etc. Baghbhairab and Umamaheswor area revealed several images which were dated from third to fifth century (Bangdel 1982). From 1515A.D. onwards inscriptional evidences show continued occupation of Kirtipur hill. Before the reign of Sri Nivas Malla (1661-1685) it became one of the independent principality within the Kathmandu Valley for a very short period. New palace complex was built, new streets paved and ponds were dug. Initially the town was built within the wall, strategically surrounded by dense vegetation and then open ground, Khayas, as outer rings. After the 12th century, during the Malla period (1168-1768

A. D.) another outer defence wall was built with twelve gates surrounding the settlement (Fig 3). The present wall that can be seen is the one built by Mallas. The expansion of the settlement was confined within the wall well up to 1950.

The land use within the study area up to 1989 is given in Table 1.

**Table 1 : Changes In Landuse (in Ropani)**

	1954	1964	1978	1989
Cultivated land	11,110 (89. 21)	6,802 (54. 62)	6,761 (54. 29)	5,978 (48. 00)
Urban area	1,343 (10. 78)	1,343 (10. 78)	1,343 (10. 78)	1,363 (10. 95)
Tribhuvan University		3,408 (27. 37)	3,408 (27. 37)	4,012 (32. 22)
Horticulture Research station		900 (7. 23)	900 (7. 22)	900 (7. 23)
Bricks Kilns			15 (0. 12)	45 (0. 36)
Roads			18 (0. 14)	33 (0. 36)
Fallow Land			8 (0. 06)	122 (0. 98)
Total	12,453 (100. 00)	12,453 (100. 00)	12,453 (100. 00)	12,453 (100. 00)

Note:- 1 Ropani = 72 X 72 feet.

Figures in paranthesis indicate percentages.

Sources:- 1954 Aerial Photo-Nep 102 Scale 1/50,000

1964 Aerial Photo-Nep 114,181-83 Scale 1/20,000

1978 Aerial Photo-Nep 12,13 Scale 1/50,000

1989 Aerial Photo-Nep 53-56, 61-63. Scale 1/8,000 and Fields Survey.

#### Land Use 1954-64

In this period the government acquired a total of 4,308 ropanis of land ( 3,408 for T. U. and 900 ropanis for Horticulture Research Station). The land acquired by the government comes to 34.62 percent of the total land of the study area. The act of land acquisition by the government drastically reduced the cultivated area from 89 percent in 1954 to 55 percent in 1964. (Table. 1, Fig. 4-5)

### Land Use 1964-1978

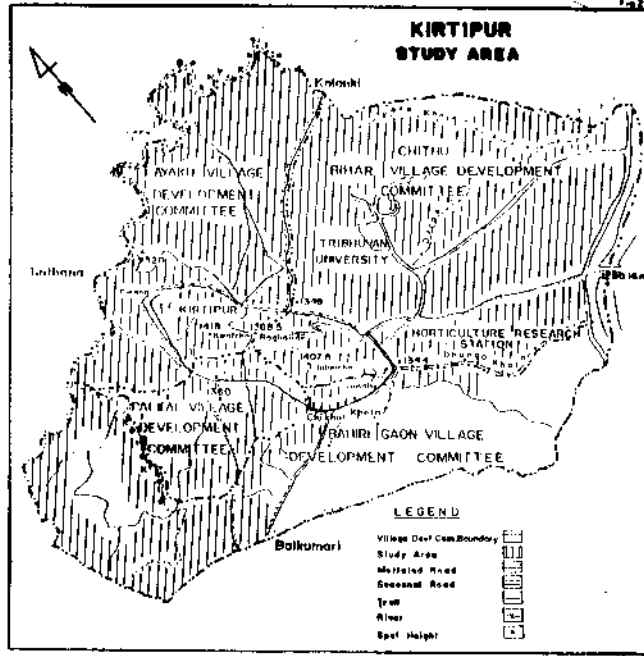
During this period Ring Road was built which made Kirtipur more accessible. People wanting to move out of the congested Kathmandu city and the new comers to the valley started to seek residential plots in Kirtipur. This raised the land value sky high in Kirtipur and prompted farmers to sell their land for non-agricultural purposes. The land value per ropani went up from Rs 25,000 in 1964 to 80,000 in 1978. This reflected in land use changes between 1964-1978. Besides the residential use lands were also acquired for brick kilns and access roads (Table1 and Fig 6).

### Land Use 1978-89

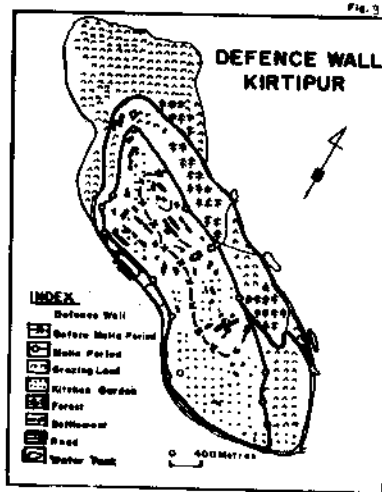
During this period brick kilns were established in the irrigated lands at the northern edge of the settlement. Nearly 48 ropanis of land were left fallow between 1978-81. Additional 600 ropanis (4.85 percent) of land were acquired by Tribhuvan University in the same fashion as it was done in 1957. The proportion of fallow land increased between 1981 and 1987. These were lands sold out by local people for fear of further government acquisition. There were rumours that site would be taken over by the government for the establishment of the main bus terminal of Kathmandu. In order to get more value for their land much of the land was sold by farmers in haste. As a result a total of 105 ropanis of land was turned into fallow land. It remained fallow because there is a time lag between the acquisition of land and building of the house, and the owners do not like to give an opportunity to tenants to establish their right.

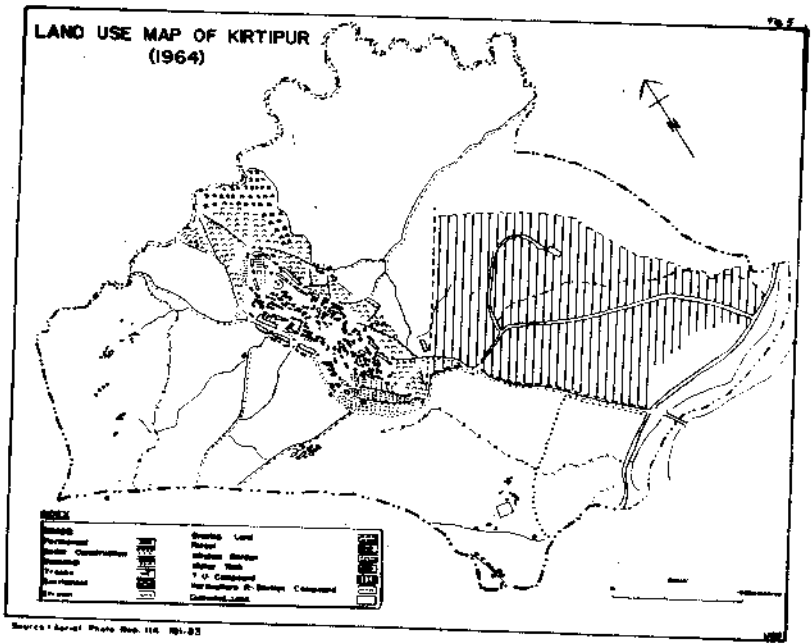
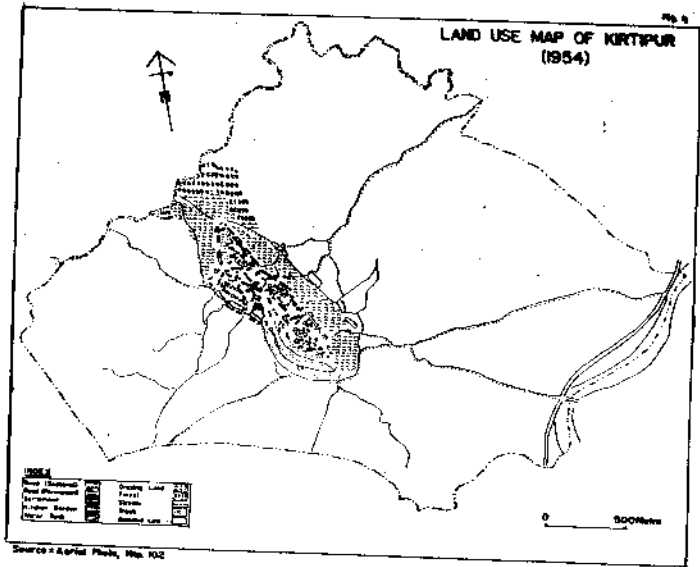
The construction of gravelled road from Kirtipur to Salyanthan in the south in 1986 brought some changes in its land value from Rs 45,000 per ropani to Rs 70,000. Due to road access more and more people changed the cultivated land into residential plots outside the settlement. As a result cultivated land decreased from 6,761 ropanis in 1978 to 5,978 ropanis in 1989. The most remarkable change took place in the south eastern part of the town because of the presence of various facilities like transportation, water supply and electricity (Fig 7). In contrast to the south hardly any change took place in the north, only one house was found to have been built during this period. Between 1987-89 the sale of land continued unabated. Even areas in the southern part were sold because of the rumour of new land acquisition by the government for urban development in the north and barrack construction in the south. Fallow land increased by 17 ropanis within two years i.e. from 105 ropani in 1987 to 122 ropani in 1989 in the northern side.

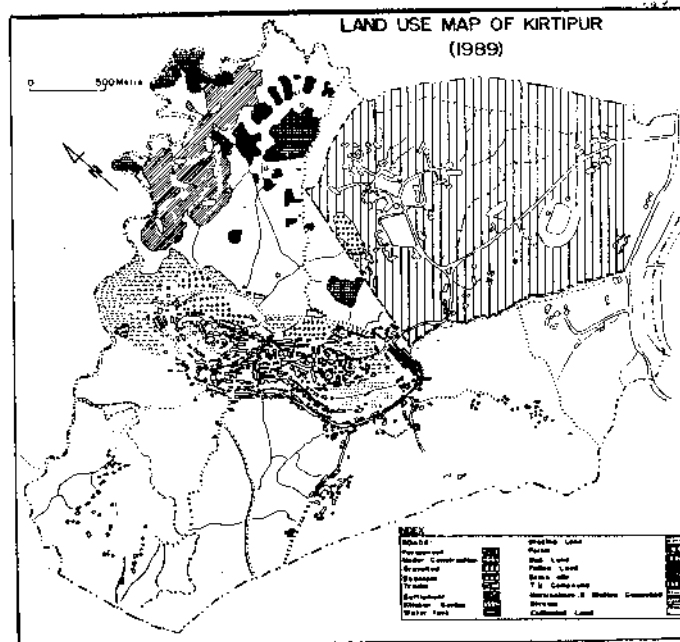
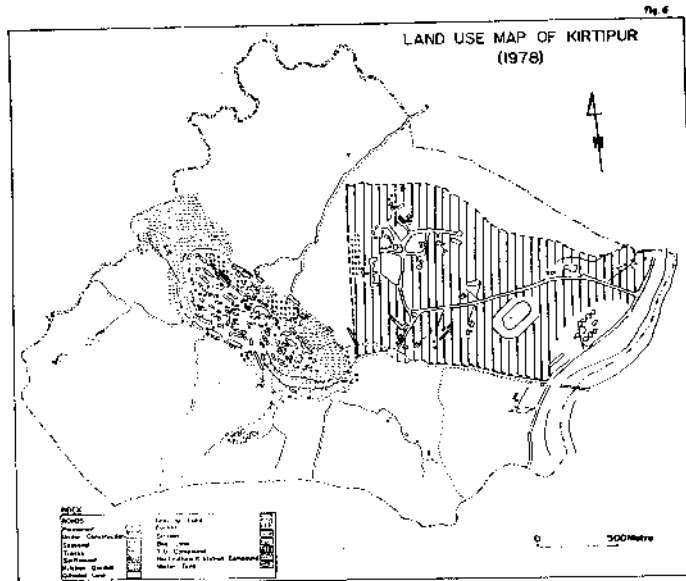
The construction of gravelled road in northern Kirtipur brought about more changes in land use. The land value increased from Rs 60,000 to Rs 100,000 due to this road access. The farmers found the land prices quite attractive. It was estimated that 30-35 percent of the land holders of the area sold their holdings to land developers, real estate speculators and industrialists.



Source: Hrs.53-56, 61-63







## Impact of Land Use Changes

Majority of land use changes are closely associated with the decision of the government. Given the slow progress in economic transformation in terms of industrial and other tertiary activities people had to depend on decreased resources. As a result out-migration took place in the area. According to Kansakar (1975) "One hundred thirty one persons migrated to Kathmandu city and five hundred ninety five migrated outside the valley. As a result population growth was negative (-2.96 percent per annum). The absolute population decreased from 7,035 to 5,764 between 1952/54 and 1961. Also from the survey conducted in 1989 it was found that the out migration rate was high between 1952/54 and 1961 (Shrestha, 1991).

## Change in Occupation

Land use change is also responsible for change in the occupational structure of the people. Until 1957 the area had abundant agricultural land. But acquisition of land by T. U. and then by the Horticulture Research Station between 1957 and 1961 drastically reduced the area of agricultural land. This reduction forced the people to change their occupation. Change in occupations, however, would not have been possible without the proximity of Kathmandu urban area. This proximity provided alternate job opportunities as well. Weaving became an important feature of the village economy and in many cases contributed to enhance household income (Willan 1965). Many commuted to Patan or Kathmandu to find temporary work as builder, masons, carpenters, brick, layers, etc. Although most of the families own land they were forced to take up off-farm jobs.

In the last two decades activities like tailoring, garments, carpet weaving and other formal and non formal activities have been increasing. Traditional weaving also exists but in a negligible way.

In 1964 over 83 percent of households had agriculture as their main occupation while 4 percent had wage employment and 1.7 percent had industry as their main occupation. There was no household with service as the main occupation (Table 2 and Fig. 8).

By in 1974 the dependence on agriculture had decreased from 83 percent to 63 percent, and wage employment had increased from 4 to 17 percent. The acquisition of 600 ropanis was made by T.U. in 1979 pushed more and more people away from agriculture as their main occupation. The change in occupational structure from 1964 to 1989 is quite remarkable. People with agriculture as main occupation decreased by almost 50 percent (Table 2 Fig 8). Wage employment increased by 500 percent. Increase in service employment was about 383 percent. During this period, there was also a remarkable growth in governmental and non-governmental organization providing employment opportunities.



**Table 2 : Change In Occupational Structure By Household**

				Change		
	1964	1974	1989	1964-74	1974-89	1964-89
1. Agriculture	145 (82.8)	112 (62.6)	73 (41.7)	-33 (22.7)	-39 (34.8)	-72 (49.6)
2. Industry	3 (1.7)	5 (2.8)	3 (1.7)	+2 (66.7)	-2 (40.0)	0 (0.0)
3. Business	6 (3.4)	9 (5.1)	12 (6.8)	+3 (50)	-6 (66.7)	+6 +100
4. Service	0 (0)	6 (3.4)	29 (16.6)	+6 (600)	+23 (450)	+29 (+290)
5. Wage employment	7 (4.0)	30 (17.1)	42 (24.0)	+23 (328.5)	+12 (40.0)	+35 +500
6. Others	14 (8.0)	15 8.6	16 (9.1)	+11	+1	+12.5
Total	175 (100.00)	175 (100.00)	175 (100.00)			

Note : Percentage is shown in parenthesis

Source; Field Survey; 1989

Increased job opportunities induced people to abandon their traditional caste occupations and to adopt new ones, thus today "one in five households in Kirtipur have one of their members working in an office" (Davis et al, 1979/80).

Construction artisans like mason, carpenters etc and those engaged in secondary occupations were also recorded during the field survey. The number of persons engaged in such activities are presented in Table 3.

In 1974/75, 35.5 percent people had reported masonry and 26.1 percent had reported weaving as subsidiary occupation. In 1989, this percentage had declined to 20.3 and 12.5 percent respectively. During the same period farmers had declined from 24.9 percent to 12.1 percent. However, between 1974/75-1989 tertiary occupations like office workers, traders, and other services had conspicuously increased. (Table 3). Because of the competition from imported cloth traditional handloom activity has significantly declined.

**Table 3 : Changes in Subsidiary Occupation (in percent)**

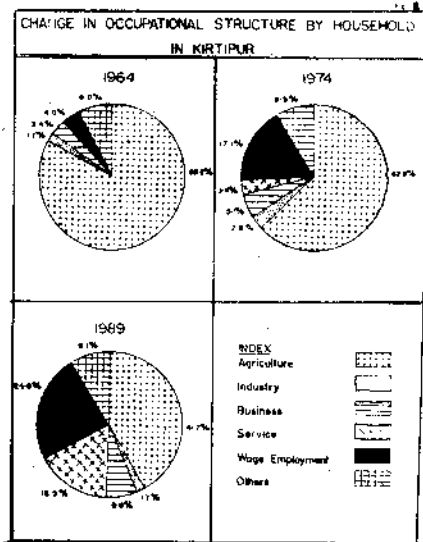
Occupation category	1974/75(a)	1980(b)	1989(c)
1. Mason	35.50	24	20.27
2. Carpenters	6.58	16	11.38
3. Farmers	24.88	15	12.52
4. Weavers	26.10	12	12.07
5. Office workers	0.85	8	21.18
6. Traders	3.04	5	8.65
7. Tailors	0.16	7	3.64
8. Blacksmith	0.41	2	0.68
9. Barbers	0.16	1	0.68
10. Sweepers	0.49	2	2.96
11. Other Services	1.76	6	5.92
12. Unemployment		2	
Total	100	100	100.00

Sources :

(a) Reinhard Herdick, 1974/75

(b) Davies et al, 1970/80

(c) Field Survey, 1989



### Conclusion

The process of land use change in Kirtipur was brought about by decision of the government. Acquisition of land forced people to adopt new occupation and large area came under non-agricultural use. At present the conversion of agricultural land into non agricultural land is gaining its own momentum. As a result the occupational structure of the people of Kirtipur is shifting towards secondary and tertiary activities. Although most of the people seem to be partly engaged in agriculture, very few households are entirely supported by agriculture.

It is expected that the trend of putting land under non -agricultural use would accelerate in the future.

### Reference

- Bangdel, L.S. (1982). Early Sculpture of Nepal, New Delhi: Vikas publishing House.
- Davis, E. P. et al. (1979/80). Kirtipur, A Newar Community in Nepal Development in Debate, Bristol: The Kirtipur Programme Bristol University.
- Department of Housing, Building and Physical Planning (1969). The Physical Development Plan for the Kathmandu Valley Kathmandu : H.M.G. Dept. of Housing, Building and Physical Planning, Nepal.
- Department of Statistics (1958). Population census of Nepal 1952-54, Kathmandu: CBS.
- Herdick, R. (1975). Kirtipur Stadtgestalt, Prinzipien Der Raumordnung Und Gesellsen ftliche Funktionen Einer Newar Stadt, An Unpublished, Ph. D. Dissertation, University of Aachen, West Germany.
- Joshi, H.R. (1978). "Kirtipur Umamaheswor Sthit Saraswati Ek Adhyan (in Nepali)", Prachin Nepal No. 7, PP. 56-59.
- Kansakar, V. B. S. (1975). Population Change in Nepal: A Study of Mobility During 1911-1961; , Unpub. Ph. D. Thesis (memograph) Department of Geography, Patna University.
- Pradhan, B. L (1975). "Kirtipur Ko Stapan", Madhupark ( in Nepali) Vol. 2 Kathmandu: PP. 3-72
- Sherstha N. S. (1985). A Study of Cottage and Small Scale Industries of Kirtipur With Special Reference to Weaving Units, Unpub. M.A. Thesis , Kathmandu : Economics Instruction Committee, Tribhuvan University.
- Sherstha, S. S. (1984). Art and Architecture of Kirtipur, Unpub. M. A. ,Thesis , Kathmandu:

Nepalese History, Culture and Archeology Instruction Committee, Tribhuvan University

Sherstha, U. S. (1991). Land Use Changes in Kirtipur 1954-1989. Unpub. M. A. Thesis, Submitted to the Central Department of Geography T. U., Kirtipur.

Willan Lucina (1965). Influence of Physical Environment of Livelihood in Kirtipur. Unpub Thesis submitted to Bristol University, U.K.