

Culturally Produced Environmental Health Hazard Maps Of Kathmandu City**

-Mangal S. Manandhar*

Introduction

The good impression created by Kathmandu with its art and architecture is only half the story. The other half is—it has equally incensed visitors by its unforgettable sight of dirt and nauseating stench. We hardly need to recall the praise heaped on Kathmandu by distinguished visitors. It is known to many and often we natives wallow in it. But seldom mentioned are the forceful descriptions of its unsightly sight of culturally produced environmental health hazards. Colonel Kirkpatrick noticed way back in 1811 that: "The streets are excessively narrow, and nearly as filthy as those of Benares".¹ Ambrose H. Oldfield, around 1823, describes the conditions much more vividly. In his words:

There is an utter absence in all the cities of any system of drainage, nearly stagnant gutters on each side of the street, running immediately below the house fronts, do the duty of sewers and into them most of the filth and refuse of the adjacent buildings find their way².

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1. Colonel Kirkpatrick, *An Account of the Kingdom of Nepal*, Special Coronation Reprint (New Delhi: Asian Publication Services, 1975) p. 160.
2. Ambrose (H.) Oldfield, *Sketches from Nepal*, reprinted 1974 (Delhi: Cosme Publications, 1974), p. 99.

Kathmandu until 1877 seemed to have changed very little from Oldfield's description. Daniel Wright with a feeling wrote in 1877: "In short, from a sanitary point of view, Kathmandu may be said to be built on a dunghill in a middle of latrines."³

Henry Ballantine a distinguished visitor around 1896 seemed equally incensed by Kathmandu's sanitary conditions. In his words:

... a city which has dunghills for its foundations, stagnant pools for ornamental lakes, whose streets do duty for drains and latrines, where the widest thoroughfares are narrow lanes wretchedly paved, only fit for inoculated pedestrians. Such's Kathmandu...⁴

Even after nearly a century and a half the description of Kathmandu by its visitors seem to have changed very little. It is still being decried, though sympathetically, 'as a dirty hole but a pleasant one' or 'dirty but charming one.' Others have become too polite and blamed its dirt on poverty which of course, is partly true.⁵

It is quite unfortunate that Kathmandu showed very little improvement in its culturally produced health hazards. Kathmanduites seem awfully unaware of public health hazards created by themselves. Centuries of living in the dirt, shit and stench, they seem indifferent to their unlivable environment. Equally unfortunate is the insufficient services provided by the concerned authorities and the absence of government's efforts to educate the people. In the last few decades there has been hardly any appreciable increase in the facilities for garbage and sewage disposal. How can a facility meant for serving the population of Kathmandu three decades ago (which was utterly insufficient even then) possibly cope with the present need of 150,000 people? There has been an increase not only in the population but also in the amount of garbage being produced by an individual. Just imagine the amount of garbage

3. Daniel Wright, *History of Nepal*, first published in 1877 (Kathmandu: Nepal Antiquated Book Publishers, 1972,) p. 12.
4. Henry Ballantine, *On India's Frontier of Nepal* (London: George Redway, 1896), p. 126.
5. Katharine Hoag, *Exploring Mysterious Kathmandu*, (Kathmandu: Avalok Publishers and Distributors, 1978), p. 2.

to be collected and disposed off-produced by the recent phenomenal increase of hotels and restaurants, of industries, and of the use of disposable cans, bottles and paper. No wonder Kathmandu's sanitary condition remains awfully pitiable !!!

Kathmandu in some aspects seems to get worse rather than better. Mr. Jagadish Chandra Regmi found the historical evidence of official punishment meted out by the 'Shree Paikhana Adda' for urinating in the street eighty-two years ago.⁶ But at present wanton defecation of streets, and of irreplaceable national monuments goes unpunished. There seems to be a complete lack of will on the part of the concerned authorities to preserve the monuments and eliminate the health hazards posed by such despicable acts.

The sorry state of Kathmandu is hidden neither to the natives nor to the tourists. Despite the obviousness of the problem no study has ever been made of its spatial extent. This is the first attempt to show visually the seriousness of the problem in a series of maps.

Objective of the Study

The present study is an attempt to record culturally produced environmental health hazards in maps to show the spatial extent of health problems in the community and to create an awareness of factors posing health problems. Six maps each showing a different environmental health hazard factors have been presented.

Definition of Environmental Health Hazard Factors

Environmentally produced health hazard factors have been defined according to 1953 Communicable Disease Center Project of the U.S. Public Health Service and the 1959 Lebanon Sanitation Demonstration Project, Lebanon, Pennsylvania, U.S.A., with some modifications. Among many potential health hazard factors only six have been chosen for this purpose. They are as follows: a) Refuse storage - absence of refuse storage is taken as a potential health hazard b) Mosquito Source - existence of

6. Jagadish Chandra Regmi, "Shree Paikhana Adda", **Madhuparka**, Vol. 8, No. 2 (June-July, 1975), p. 70. Mr. Regmi argues in this article that because of the presence of Paikhana Adda, the account of Kathmandu as presented by Wright could not have been true. But to a unbiased observer it takes hardly any effort to judge who was right.

stagnant water of permanent or temporary nature where mosquito breeds
c) Vector Prevalence - presence of flies, mice, mosquitos, and rodents,
d) Rodent Harborages - areas likely to harbor rodents such as piles of debris,
lumber, junk, bricks, rubble and dilapidated buildings, e) Animals - refers to
the loose animals in the street such as pigs, dogs, and cats, f) Sewage-
absence of underground sewage and presence of open sewage.

Study Area

Kathmandu city area as defined by Kathmandu Nagar (City) Panchayat has been taken as the study area with a few changes. The city area lying outside the Ring-Road has been excluded from this survey. So parts of ward No. 3, 4, 5, 7, 8, 9, 15 and 16 are not included here. Ward No. 6 lying wholly outside the Ring-Road has also been excluded for this study. The reason for the exclusion of area outside the Ring-Road is because of their totally rural environment and a desire for a well defined boundary for convenience.

Methodology

Wards have been taken as the unit of observation. In each ward a number of observations were taken so as to include the whole area. Observations were made only from the street or alleys. All the violations were recorded on a form as health hazards. Care was taken not to record the same violations twice. For each ward total number of observations was divided by the number of violations to calculate the percentage. Percentage was calculated seperately for all the six health hazard factors under study. Maps were then prepared with seven categories of violations. Forty percent or below category represents the area with the least violations because very few areas in Kathmandu are without any violations.

Limitations

There are a number of limitations in this study. Since ward is taken as an unit, the presence of an area within it with a number of violations affects the general picture of the whole ward. So it is found that even good areas in a ward have been represented in the map by a far worse picture because of the presence of many areas within it with many violations. Similarly a pocket area with many violations included within a cleaner ward is represented by a better picture in the map. Therefore, the maps do not show the health hazard factor in a location specific context.

Observations have been made only from the accessible streets or alleys. No effort has been made to observe and record the presence of innumerable garbage pits or horror pits, generally known as 'Saga' amidst the inaccessible parts of the congested and compact urban area of old Kathmandu.

While recording the observation along the streets which are also the boundary between wards certain rules have been followed to avoid confusion. The observations made along the east-west boundary road has been included in the northern ward, while the observation made along the north-south boundary road has been included in the western ward. This is bound to affect the wards concerned.

The time of observation is an important variable in this study. Observations made at different time periods may not produce the same result. Because the alley dogs or animals may not be present at all times. Similarly the temporary mosquito breeding source may not show at all seasons. The amount of refuse thrown in the street not only varies within a day, it also varies with different seasons. So the maps made with observations taken at different time periods is bound to produce a slightly different picture. The present survey work was done in the month of March-April, 1979. In general, the maps presented here show a far better picture of the hazard problem than would have been the case if the survey was conducted during the Monsoon.

Although extensive instructions were given to the enumerators some differences in their observations are expected. Some are keener in their observations than others. So these maps, if prepared by the data collected by a different set of enumerators, may also result in a slightly different picture.

Even with all these limitations the maps prepared show an authentic picture of the spatial extent of micro - environmental health hazards in Kathmandu. Certainly with smaller units of observations and with more than one observation at different time periods, the survey result could have been improved.

General Comments on Maps

None of the wards are free from all the culturally produced micro - environmental health hazard factors. The map of sewage shows the

highest number of wards totalling twenty-four out of thirty-two under study, in the category of ninety-one to hundred percent violations. Second to the problem posed by sewage, comes the high incidence of vector prevalence, twenty-three wards in the ninety-one to hundred percent violations. Refuse storage presents the third worst picture twenty-two wards fall in ninety-one to hundred percent violations category. Relatively the best picture in the map is that of animals loose in the streets. None of the wards show up in the category of eighty percent or above violations. This is probably an indication of the program launched by the Kathmandu Nagar Panchayat to eliminate the stray-dogs.

In refuse storage map and sewage, none of the wards fall in the under fifty percent violations category. There are only two wards in the Rodent Harborage map with less than forty percent violations, one in each map of mosquito source and vector prevalence, and ten in the map of animals.

Naturally old congested core of Kathmandu seems to be exposed to greater micro-environmental health hazard factors than the newly built up area. But it is amazing to find contrary to our expectation that even the newly built residential areas, even high class residential areas, are hardly free of violations. In fact no distinct pattern can be observed in the maps.

Map 1: Refuse Storage

Most of Kathmandu show hardly any visible indication that refuse is stored. None of the wards are free of violations. Most of the observations found no storage facility and often found the refuse scattered all over. Refuse storage not visible to the observer from the road is not taken into consideration here. The lack of refuse storage could be partly explained by the absence of home-refuse collection facility. It is striking that a city of Kathmandu's size still does not enjoy the home-refuse collection by any organization or agency, private, corporate or governmental.

Map 2: Mosquito Source

Mosquito abounds in Kathmandu. Only the ward 13 has less than forty percent violations. Rest of the wards are not that fortunate, either absence of drainage or poor drainage seems to be the main reasons

providing the fertile ground for mosquitoes.

Map 3: Vector Prevalence

Flies, naturally are the omnipresent vector. Rodents like mice and rats do not oblige the observer so easily and mosquitoes shy away from the sun (observations were made at day time). Like in the map of mosquito source, ward No. 13 agains appears to be the only one with less than forty percent violations.

Map 4: Rodent Harborage

Kathmandu seems to be a good home for rodents with abundant presence of piles of debris, lumber, junk, bricks, rubble or dilapidated buildings, temples or public places. Denizens of Kathmandu do not seem to care to mend their fences or remove their rubble or junk as quickly as possible, either because of poverty or carelessness or both. Neither the government seems to provide a good example of repairing dilapidated temples and public buildings immediately. Nor there is any law against leaving a dilapidated building for ages unbuilt or uncleared, creating an excellent home of rodents and an eye sore. Only ward No. 13 and 22 fall in the category of less than forty percent violations.

Map 5: Animals

This map presents a relatively better picture. Ten wards are in the less than forty percent category. None are above eighty one and above violations. With a little more effort from the concerned authorities the picture could be easily improved.

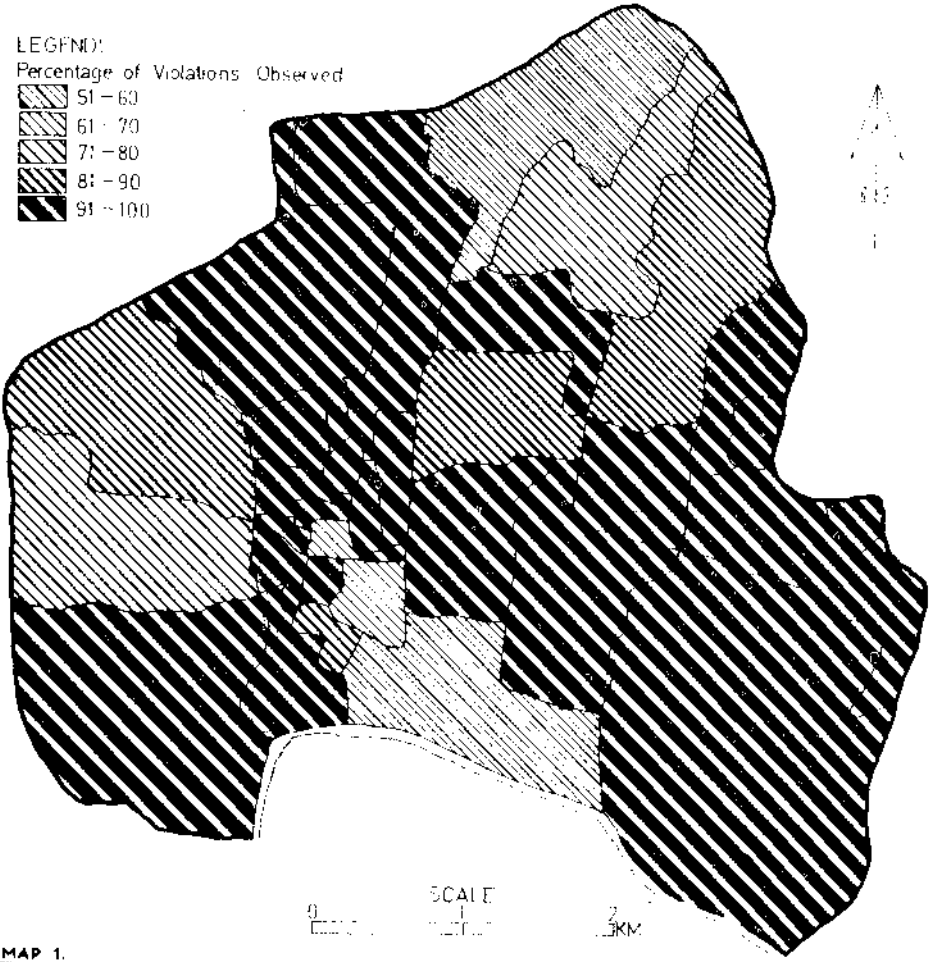
Map 6: Sewage

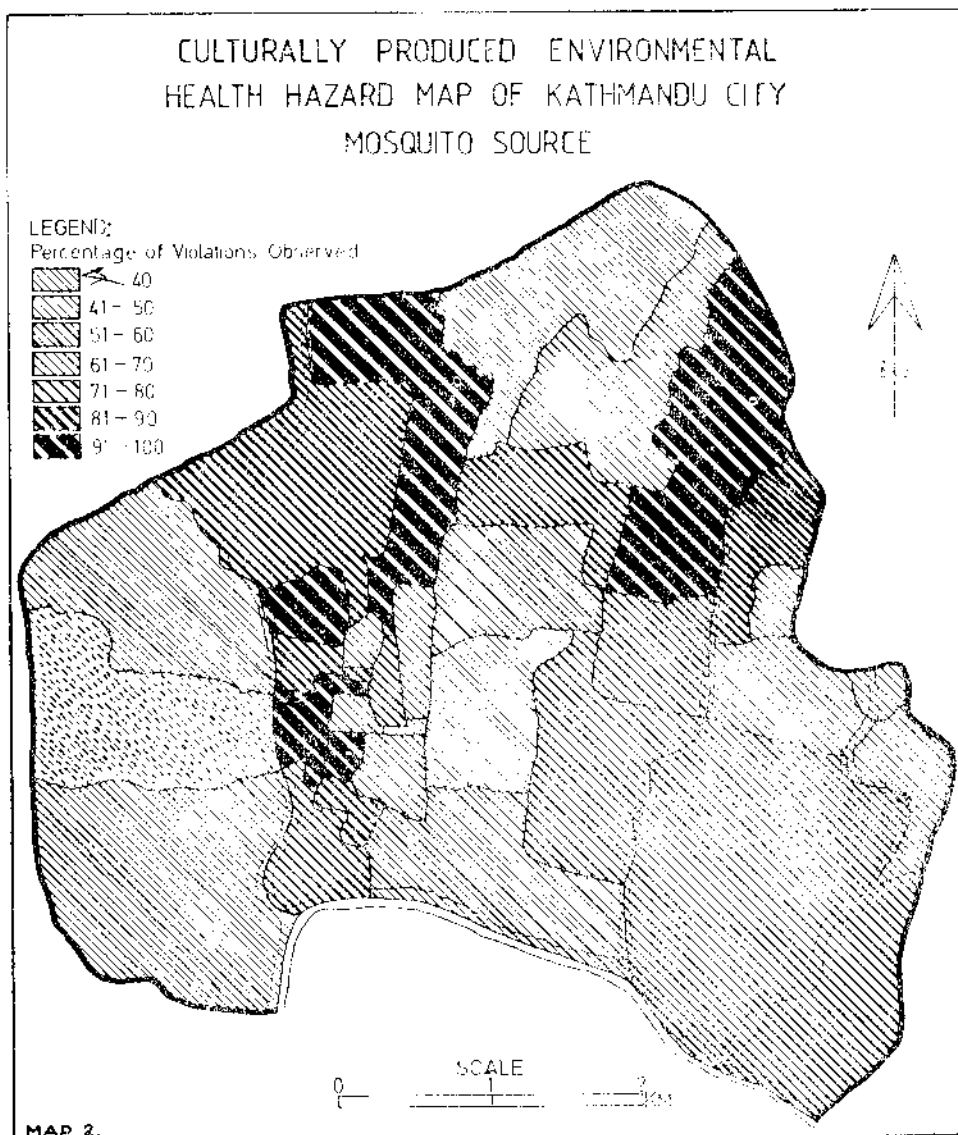
This map shows a disappointing picture of filth. Twenty-eight wards are above the eighty - one and more violations category. This means either open sewage or presence of human excrement and urine in the street in most of Kathmandu. Only three wards are in the forty-one to fifty percent violations and only one in sixty-one to seventy percent violations. There are underground sewage in parts of Kathmandu. A comprehensive sewage network is under construction. We could hope that the condition would change after its completion. But to find excrement and urine in the street even where there is underground sewage is a challenge to the concerned authority-a challenge to change the habits and attitudes of the people. It is equally important to change the

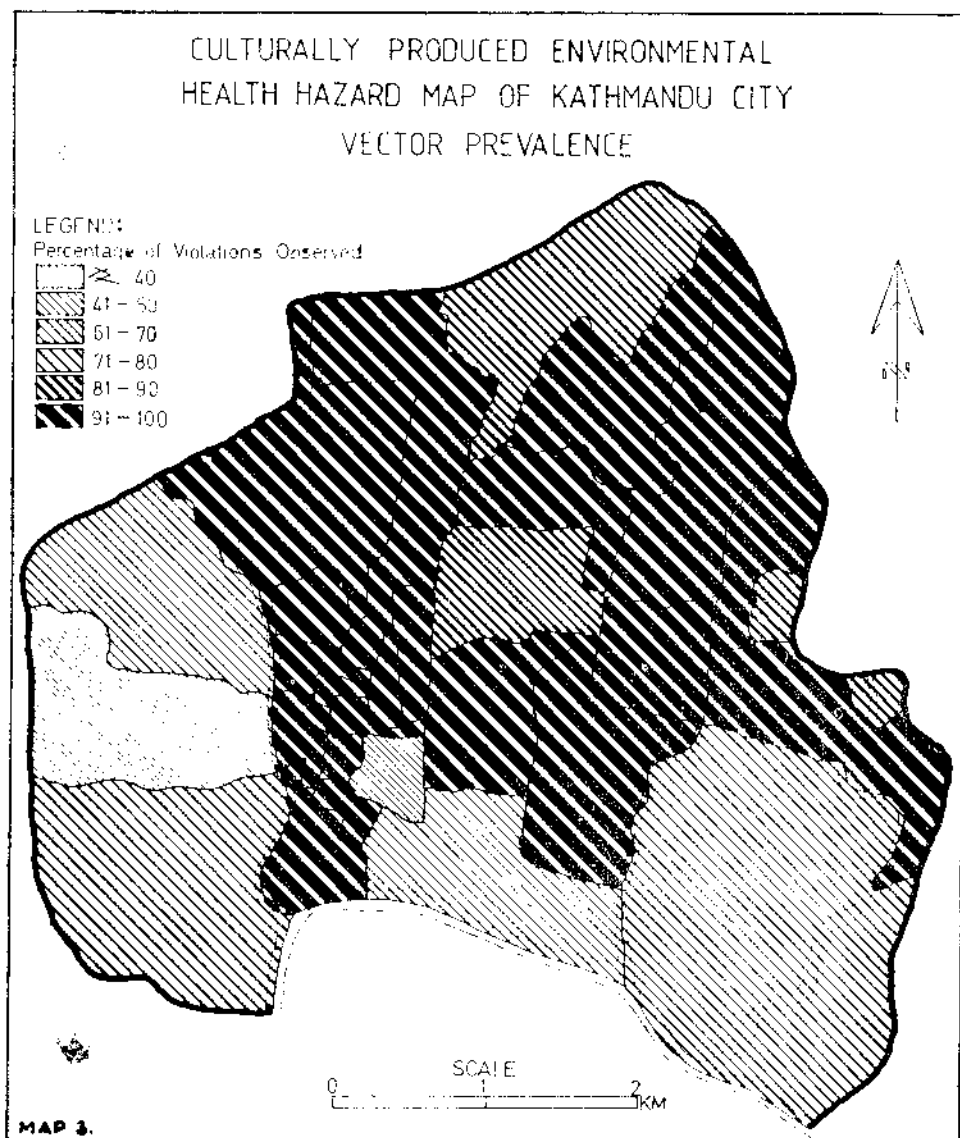
CULTURALLY PRODUCED ENVIRONMENTAL
HEALTH HAZARD MAP OF KATHMANDU CITY
REFUSE STORAGE

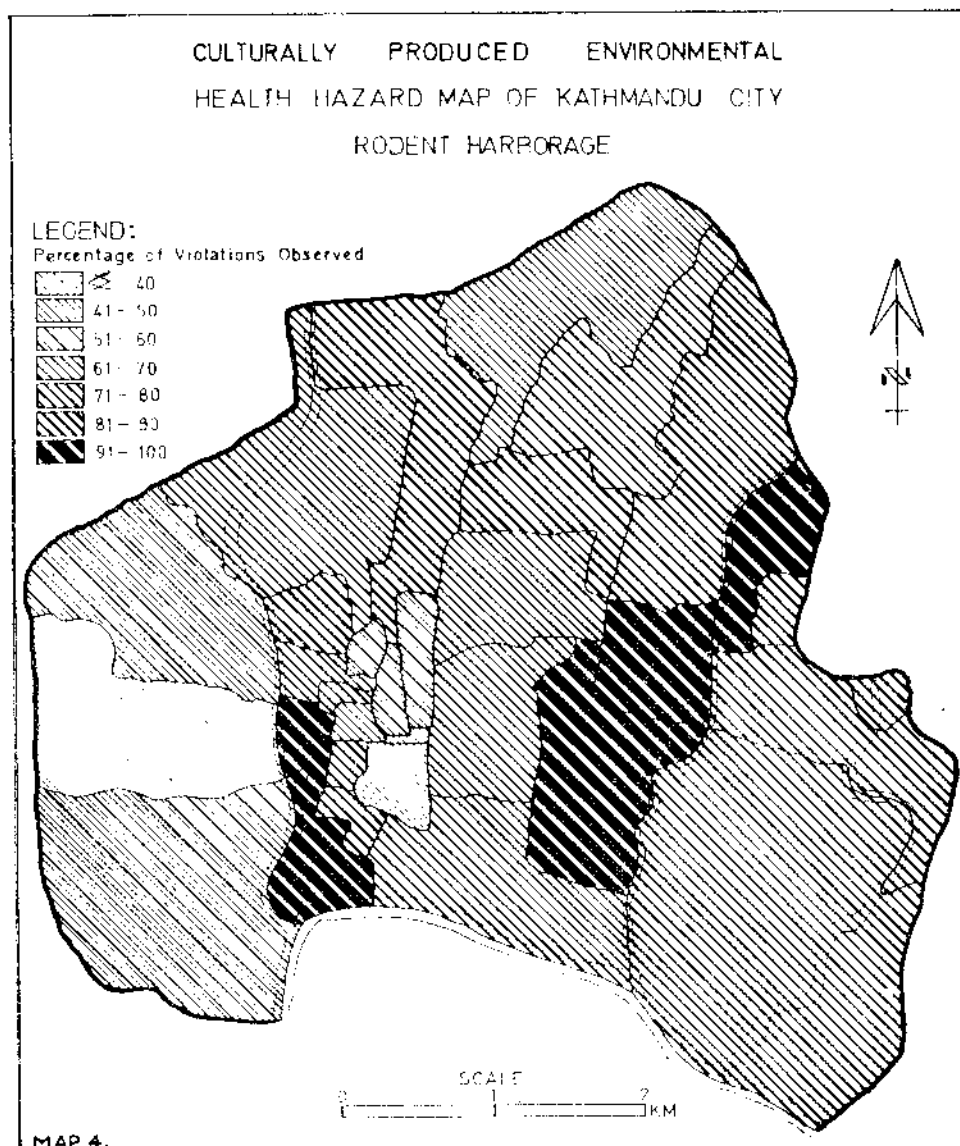
LEGEND:
Percentage of Violations Observed

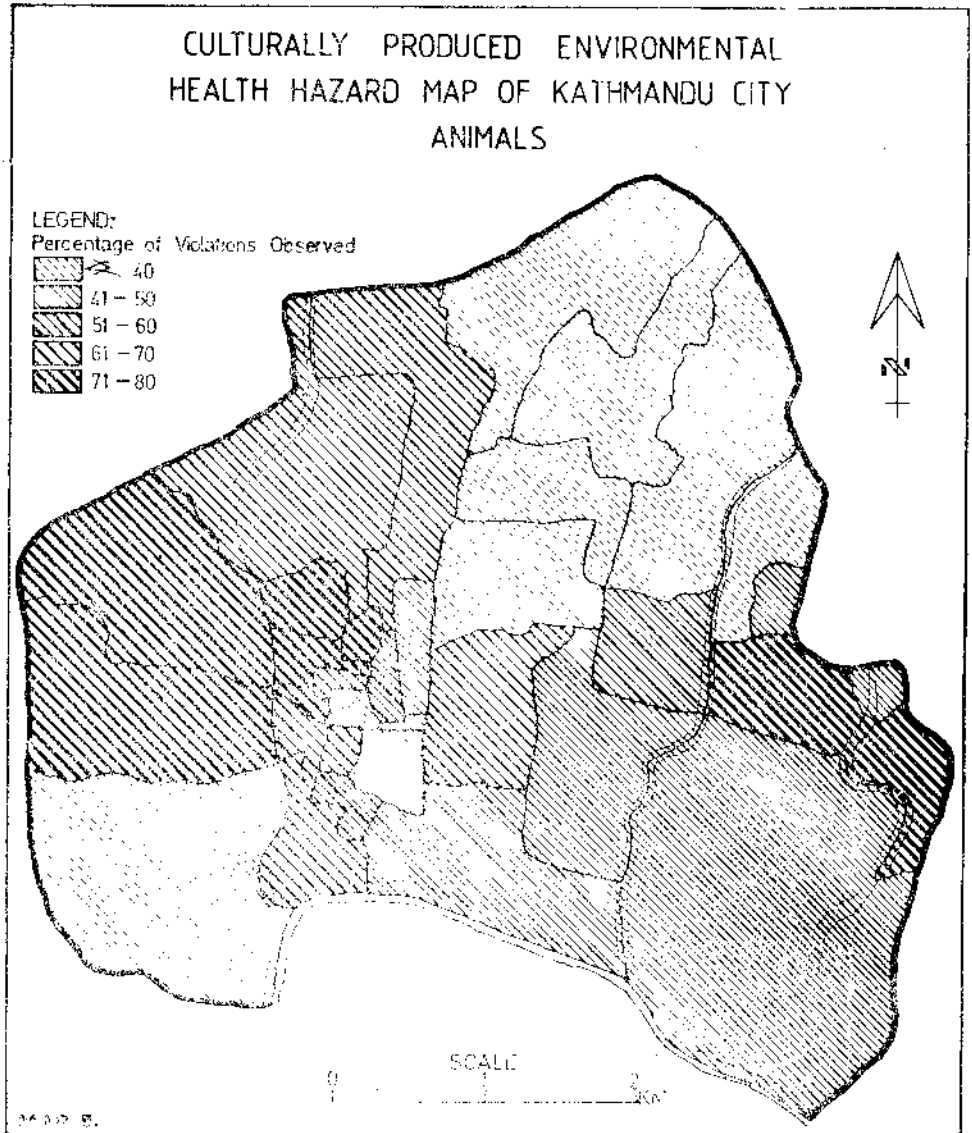
	51-60
	61-70
	71-80
	81-90
	91-100

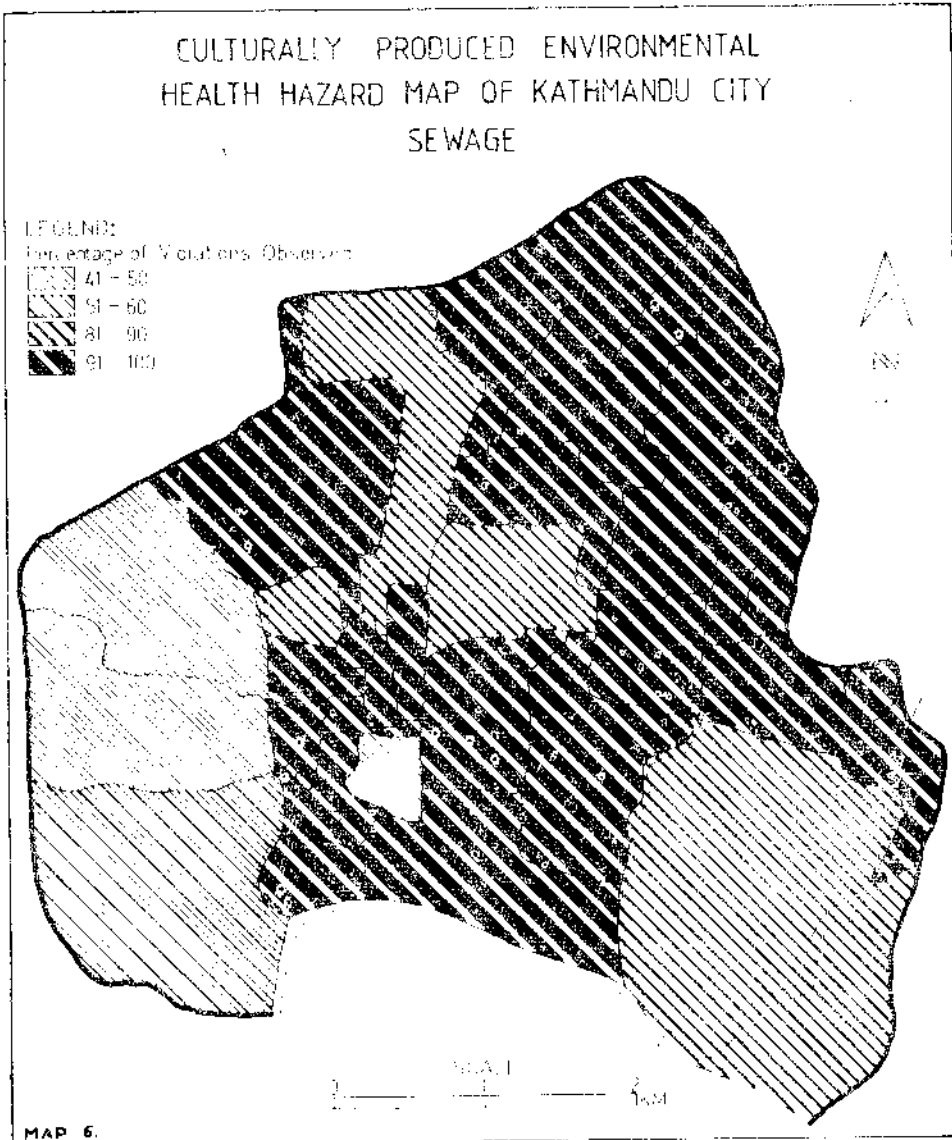












attitudes and habits of concerned authorities to construct latrines in inappropriate places fouling the atmosphere of the whole area, creating sewage floods in the public area and destroying the healthy environment. The latrines built in ward 31 are good examples of what not to do on the name of providing a facility.

Conclusion

The maps show a very grim picture of the sanitary condition in Kathmandu city. The reason for this miserable condition is due to a combination of factors. Kathmandu lacks a comprehensive underground sewage system, a home-refuse collection facility, a good street drainage, a proper education, and laws. Indifference of the people and bad habits developed through ages are equally responsible. Besides those the architectural style of Nepal so often praised for its external beauty seems partly responsible. The concept of bathrooms as a vital functional part of a house seems to have been left out in the old constructions. Most of the houses built as recently as three to four decades ago were completely devoid of bathrooms. Nearness to open fields seem to have served the purpose. With the increasing distance to open field, only in the last two or three decades the necessity of urban living has awakened the need of a private place for the daily nature call of duty.

The rural habits of the Kathmandu urbanites seem equally responsible for the perpetuation of the public health hazards. In many ways Kathmandu still seem totally unaware of their urban environment and continue to live with rural habits. Throwing the refuse out of the window for their pigs or chickens on the street to forage seems a well developed habit—almost natural. They relieve whenever and wherever they like irrespective of consequences. They raise cows, often left to roam around with prominence and sacred dignity in the narrow lanes of Kathmandu.

Naturally, none of the wards were found without any violations. Although there are seven categories of violations only the wards falling in the less than forty percent category can be said to be in a reasonably good condition. Among the wards only the ward No. 13 shows some consistency showing up in the less than forty percent violation category in four maps out of six. The presence of high class residential area seems to explain the relatively better condition of ward no. 13. Other high

class residential areas failed to show up consistently under the forty percent category mainly because of the presence of pockets of serious violations.

The maps present a general picture of the wards as a whole. They do not pinpoint the problem areas because the study is not location specific. So to locate the problem areas, a location specific survey with a smaller unit for observation instead of wards should be carried out. Although the maps are not location specific they show a reasonably authentic visual picture of the spatial extent of the health hazard factors in Kathmandu, and thus, help to create an awareness of the problem.

