Slums of Urban Bangladesh

Mapping and Census, 2005

Centre for Urban Studies

MEASURE Evaluation

National Institute of Population Research and Training

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Foreword

Slums of Urban Bangladesh, Mapping and Census, 2005 was carried out to physically identify the boundaries of slums and squatter settlements in the six City Corporations of Bangladesh to facilitate implementation of the urban health survey to be conducted for the first time in Bangladesh through a collaborative effort of the National Institute of Population Research and Training (NIPORT) and Measure Evaluation of the Carolina Population Center at the University of North Carolina at Chapel Hill. The Centre for Urban Studies (CUS), Dhaka, an independent research centre, conducted the mapping and census of slums in the six City Corporations of Bangladesh. The financial support for the survey was provided by the United States Agency for International Development (USAID)/Bangladesh.

The information concerning physical, environmental and socio-economic circumstances of urban residents will be instrumental in identifying the poor and slum residents in Bangladesh. The study report will hopefully contribute in explaining role of the community or neighbourhood in shaping the health of its residents.

The contributors of this report deserve special thanks. I express my thanks to the professionals of the research unit of NIPORT, MEASURE Evaluation of the Carolina Population Center, Centre for Urban Studies (CUS) and USAID/Bangladesh for their sincere efforts in the successful completion of the study.

(Md. Delwar Hossain)

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As team leader of the Slum Mapping Study, I express my sincere thanks to all members of the study team, particularly the city coordinators, GIS group, research assistants at CUS, field supervisors and investigators and CUS office staff. The friendly support of officials in each of the city corporations and the kind people in the slum communities is gratefully acknowledged.

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Professor Nazrul Islam
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and
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Contents

Foreword 3

Acknowledgements 4

Abbreviations, Local terms and Equivalents 10

Summary of Findings 11

1. INTRODUCTION 13

1.1 Background of the Study 13

1.2 Objectives of the Study 14

1.3 Definition of Slum 14

1.4 Study Methodology 16

1.4.1 Base Map Preparation using Satellite Images 16

1.4.2 Preliminary Identification of Slums 16

1.4.3 Ground Truthing 16

1.4.4 Survey of Slum Clusters 18

1.4.5 Final Preparation of Maps and Data Processing 18

1.5 Challenges of the Study 18

1.6 Outputs of the Study 19

2. FINDINGS: SLUM MAPPING 20

Introduction 20

2.1 Comprehensive Slum Maps of Six Cities 20

2.1.1 Slum Map of Dhaka City 20

2.1.2 Slum Map of Chittagong City 21

2.1.3 Slum Map of Khulna City 22

2.1.4 Slum Map of Rajshahi City 22

2.1.5 Slum Map of Sylhet City 22

2.1.6 Slum Map of Barisal City 22

Maps (Figures 2.2-2.13) 23-34

3. FINDINGS: SLUM CENSUS 35

3.1 Number of Slum Clusters by City 35

3.2 Year of Establishment of Slum Settlements in Existence in 2005 35

3.3 Slum Size by Households and Messes 35

3.4 Slum Population by Households and Mess Units 37

3.5 Area of Land Covered by Slums 38

3.6 Density of Population in Slums 40

3.7 Housing Conditions 41

3.8 Floor Space (House/Room Size) in Slums 41

3.9 Slum Land Ownership Pattern 42

3.10 Rental Pattern in Slums 42

4. ENVIRONMENTAL AND INFRASTRUCTURAL FEATURES **43**

4.1 Drainage Situation in Slums 43

4.2 Flooding in Slums 43

4.3 Garbage Disposal in Slums 44

4.4 Access to Electricity and Cooking Gas 44

4.5 Sources of Drinking Water 45

4.6 Access to Latrine 46

4.7 Incidence of Fire in Slums 46

4.8 Tenure Insecurity 47

4.9 NGO Coverage of Slums 47

4.10 Slum Dwellers' District of Origin 47

4.11 Occupational Pattern in Slums 48

4.12 Income Pattern in Slums 48

4.13 Slums Dweller's Perception of their Own Settlement 49

4.14 Overall Characteristics of Slums 49

5. CONCLUSIONS **50**

Appendix-1, CUS Slum Study Team 51

Appendix-2, Informed Consent 52

Appendix-3, Checklist 53

List of Tables

Table 2.1	Number of Wards, Area, Total Population and Slum Population of Six Study Cities, 2005	20
Table 3.1	City-wise Distribution of Slum Clusters	35
Table 3.2	Year of Establishment of Slum Settlements by City	35
Table 3.3	Number of Slum Households by City	36
Table 3.4	Percentage of Slum Clusters by Households and Mess Units in Six Cities	36
Table 3.5	Number of Households by Cluster in Six Cities	37
Table 3.6	Breakdown of Slum Population by Household and Mess Units in Slums by City	37
Table 3.7	Distribution of Slums by Population Size in Six Cities	38
Table 3.8	Mean and Median Population Size in Six Cities	38
Table 3.9	Total Land Area Covered by Slum Clusters by City	39
Table 3.10	Percentage Distribution of Slums by Area and City	39
Table 3.11	Land Area Covered by Slums on Public Land and Private Land in Six Cities	39
Table 3.12	Population Density: Slum Area and Overall City	40
Table 3.13	Slum Population Density by City	40
Table 3.14	Number of Persons Living Per Room by City	40
Table 3.15	Housing Structure	41
Table 3.16	Percentage Distribution of House or Room Size in Slums by City	41
Table 3.17	Land Ownership Pattern in Slums by City	42
Table 3.18	Percentage Distribution of Slum Population by Land Ownership Type	42
Table 3.19	Rental Pattern of Slum Households by City	42
Table 4.1	Drainage Condition in Slum Areas by City	43
Table 4.2	Flooding in Slums	43
Table 4.3	Garbage Disposal in Slums by City	44
Table 4.4	Frequency of Garbage Collection in Slums by City	44
Table 4.5	Access to Electricity and Cooking Gas by City	44
Table 4.6	Sources of Drinking Water by City	45
Table 4.7	Tap Water Sharing Pattern by City	45
Table 4.8	Tube Well Sharing Pattern by City	45
Table 4.9	Location of Sources of Drinking Water by City	46
Table 4.10	Household Access to Different Types of Latrine by City	46
Table 4.11	Households' Latrine Sharing Pattern by City	46
Table 4.12	Fire Incidents	47
Table 4.13	Threat of Eviction: Tenure Insecurity	47
Table 4.14	Percentage of Slums Covered NGO Programs	47
Table 4.15	Major Districts of Origin of the Slum Dwellers by City	48
Table 4.16	Pattern of Occupation of Slum Dwellers	48
Table 4.17	Households' Monthly Income Pattern by City	48
Table 4.18	Slum Dweller's Perception of their Settlements	49
Table 4.19	Overall Characteristics of Slum Settlements	49

List of Figures

Figure 1.1	Bangladesh, Urban Centres and Study Cities	13
Figure 1.2	The Process of Map Preparation	17
Figure 1.3	Field Organization and Data Management	18
Figure 2.1	Slums and Squatter Settlements in Dhaka Metropolitan Area, 1996	21
Figure 2.2	Slums in Dhaka Metropolitan Area, 2005	23
Figure 2.3	Slums in Ward No. 17, Dhaka Metropolitan Area, 2005	24
Figure 2.4	Slums in Chittagong City, 2005	25
Figure 2.5	Slums in Ward No. 3, Chittagong City, 2005	26
Figure 2.6	Slums in Khulna City, 2005	27
Figure 2.7	Slums in Ward No. 25, Khulna City, 2005	28
Figure 2.8	Slums in Rajshahi City, 2005	29
Figure 2.9	Slums in Ward No. 29, Rajshahi City, 2005	30
Figure 2.10	Slums in Sylhet City, 2005	31
Figure 2.11	Slums in Ward No. 13, Sylhet City, 2005	32
Figure 2.12	Slums in Barisal City, 2005	33
Figure 2.13	Slums in Ward No. 2, Barisal City, 2005	34

Karail Bastee (part), Mahakhali, Dhaka

Photograph by: Dr. Peter Kim Streatfield, ICDDR,B

Abbreviations, Local Terms and Equivalents

Abbreviations

BBS- Bangladesh Bureau of Statistics
CUS- Centre for Urban Studies
DCC- Dhaka City Corporation
DMA- Dhaka Metropolitan Area
DMDP- Dhaka Metropolitan Development Project
ERDAS- A GIS Software
GIS- Geographical Information System
GO- Government Organization
KCC- Khulna City Corporation
NGO- Non Government Organization
NIPORT - National Institute of Population Research and Training
RAJUK- Rajdhani Unnayan Kartipaksa
SOB- Survey of Bangladesh
TTF- Technical Task Force
UHS- Urban Health Survey
UNC- University of North Carolina at Chapel Hill
USAID- United States Agency for International Development

Local Terms

Bastee - Slum or Squatter Settlement
Kutcha - Structure of temporary building materials
Pucca - Structure of permanent building materials
Semi-pucca - Structure of semi-permanent building materials
Jhupri - Structure of polythen / bamboo / board, etc.
Mahalla - Neighborhood/ part of a ward
Ward - Part of a City / Municipal corporation or Pourashava

Equivalents

One mile	= 1.609 kms
One square mile	= 2.59sq kms
One square kilometer	= 0.3861 sq mile
One hectare	= 2.4710 acres/ 7.4749 bighas
One bigha	= 20 kathas/ 0.13378 hectare
One acre	= 3 bighas/ 60 kathas/ 0.404 hectare
One katha	= 720 sq feet/ 66.91 sq metres
One foot	= 0.305 metre
One square foot	= 0.093 sq metre.
One meter	= 39.37 inches, 3.03 feet
One square meter	= 9.19 sq. feet
One US dollar	= 66 Bangladeshi Taka (December, 2005)

SUMMARY OF FINDINGS

This report presents results from a census and mapping of slums in the six main cities of Bangladesh in 2005. This effort has generated a wealth of information about the location and basic characteristics of their slums. The outputs include detailed maps of the six cities providing timely information on the location of slums within each, including highly detailed ward-level maps revealing the position and geographic size of the slums within them. Accompanying these maps is an extensive database listing the slums within each ward of each city, providing for each an exact address and a set of basic characteristics (including the number of households and total population as well as a basic demographic, socioeconomic and environmental description). Taken together, the outputs provide a powerful set of tools for generating a comprehensive picture of contemporary slum life in the main cities of Bangladesh. The census and mapping focused on the six city corporations of Bangladesh, namely Dhaka, Chittagong, Khulna, Rajshahi, Sylhet, and Barisal. In the case of Dhaka, the effort extended beyond the limits of the city corporation to encompass the Dhaka Metropolitan Area (DMA).

The departure point for this study was, of necessity, a working definition of a slum. To begin with, slums have often been conceptualized as areas of concentrated poverty. However, it is important that the definition be sufficiently flexible as to allow for the realities that not all poor people live in slums and some slum dwellers may actually be affluent. Further, it is necessary to set a minimum size for a slum, for both practical and substantive reasons. A slum was thus defined as a neighborhood or residential area with a minimum of 10 households or a mess unit with at least 25 members with four of the following five conditions prevailing within it:

- Predominantly poor housing;
- Very high population density and room crowding;
- Very poor environmental services, particularly water and sanitation facilities;
- Very low socioeconomic status for the majority of residents;
- Lack of security of tenure.

In pursuing this definition, no distinction was made between slums and communities often referred to as squatter settlements (these are usually unauthorized settlements on public land).

The procedure for identifying slums was a two-stage process representing a powerful and innovative integration of more advanced tools with traditional fieldwork techniques. First, suspected slum clusters were identified by high-resolution satellite photographs of the six study cities. Then, field teams were dispatched to each ward of the six to confirm the status of suspected slum clusters and check carefully for slums not apparent from the satellite images (as was often the case with slums on steep land or under dense foliage). In either case, identification as a slum was made according to the criteria discussed in the last paragraph. The field team collected basic information about each slum from key informants living within them. This information was then conveyed to the offices of the Centre for Urban Studies in Dhaka for quality control and processing for the maps and database which are the central outputs of the study.

Key Findings

Size, Ownership and Age

9,048 slums were identified in the six study cities: Dhaka Metropolitan Area and the City Corporations of Chittagong, Rajshahi, Khulna, Sylhet, and Barisal. Roughly 75% of them were in Dhaka (55%) or Chittagong (20%). Many were small, either in terms of land size or number of households. For instance, around 65% were situated on a third of an acre or less, while 40% consisted of just 10-20 households.

The overwhelming majority (89%) were on privately owned land. With 32% above 1 acre in size, those on public lands were typically larger (the figure for those on private lots was 11%). Over 40% of the slums identified in 2005 had been established before 1981 and thus were at least a quarter of a century old. At least 80% of slums in each of the cities except Sylhet were at least 10 years old (in Sylhet only half of the slums were more than a decade old).

Slum Population

Roughly 35% of the population of the six study cities lived in slums, though they did so on only 4% of the land area of those cities. The total slum population across the cities was over 5.4 million, with 63% residing in Dhaka and another 27% living in Chittagong. Most (67%) lived in slums on private land.

Though Bangladesh has the highest population density in the world (at 2,600 persons per square mile), the population density in the slums was roughly 200 times greater, at 531,000 persons per square mile. This figure becomes even more astonishing when one considers that the slums are dominated by single storey residential structures. The slums of Dhaka and Chittagong were the most densely populated, while those in Rajshahi were least so. Density was generally greater in slums located on public land.

Most of the migrants to the slums of Dhaka came from just 5 (of 64) districts: Barisal, Faridpur, Comilla, Mymensing, and Rangpur. The slum residents in the other City Corporations generally came from nearby districts. Overall, Barisal (19%) and Comilla (11%) contributed most heavily to slum populations in the six cities.

The Growth of Slums in Dhaka

A census of slums in the Dhaka Metropolitan Area from 1996 provides a baseline for assessing the growth of slums there over time (there were no comparable earlier efforts in the other five City Corporations). Between 1996 and 2005, the total population living in the slums of Dhaka more than doubled (from 1.5 to 3.4 million), while the number of slum communities increased by roughly 70% (from 3,007 to 4,966). The proportion of the population of Dhaka living in slums increased from 20% to 37%. The proportion of slums on private land appears to have increased, perhaps due to greater vigilance over public land by the government. Building materials improved somewhat, particularly on private lands.

Slum Environment and Infrastructure

Only 10% of slums had sufficient drainage to avoid water-logging during heavy rains. Over half were typically fully or partially flooded at times when the country experienced general flood conditions.

In terms of services, more than half of the slums had no fixed place for garbage disposal and no mechanism for regular garbage collection. However, 96% had access to electricity. A similar proportion had access to safe water. In Dhaka, slum residents relied mainly on municipal taps for drinking water while in other cities tube wells were the principal source. Only around 5% of slum households did not share their drinking water source, while 40% shared it with more than 11 families. Cooking gas was not available in the slums of Khulna, Rajshahi and Barisal, while almost 58% of the slums of Dhaka did have access to it.

Over 70% of slums had no access to safe latrines. The figure ranged from 65% in Dhaka to 98% or more in Sylhet and Barisal. In nearly all slums, latrines were shared by a number of households; in half of them they were shared by at least 6 families (30 or more persons).

Roughly 6% of slums had experienced fire at some point. The incidence of fire was highest in the slums of Khulna, owing in part to their greater vulnerability to it: dried leaves are a principal building material in them. Around 7% of slums had either been evicted at least once from there present location or were facing the threat of eviction.

Most (56%) residential structures in the slums were made of low quality materials. Another 42% featured brick walls with a tin roof. Less than 1% of slum structures were made of materials that could be considered high quality. The poor quality of the housing materials likely reflected the low socioeconomic status of the residents: roughly 90% of slum households had a monthly income below the poverty line (of 5,000 Taka per household per month).

Over 70% of the slums had at least one NGO providing some sort of service to them. NGO presence was substantially higher in the slums of Barisal, Rajshahi and Khulna. With 42% having no NGO coverage, the slums of Chittagong were least likely to receive their services

1. INTRODUCTION

1.1 Background of the Study

Though still comparatively rural, Bangladesh has an urban population of about 35 million, or just over 25 percent of its total population. Moreover, the urban population has been growing very rapidly since liberation in 1971 and continues to do so at over 3.5 percent annually. The country will likely have an urban population approaching 50 million by 2015.This rapid growth has been due primarily to migration by the rural poor, particularly to large metropolitan areas. On arrival, these poor migrants routinely turn to slums and squatter settlements for shelter.

All major urban centers in Bangladesh have slums and squatter settlements, the largest concentrations being in Dhaka, followed by Chittagong, Khulna and Rajshahi. In a 1996 survey for the Asian Development Bank and the Government of Bangladesh, the Centre for Urban Studies (CUS) found 3,007 slums and squatter clusters with a minimum of 10 households and roughly 1.6 million slum dwellers (out of a population of 5 million) in the Dhaka Metropolitan area alone. Abundant anecdotal evidence has suggested that the number of slum settlements and overall slum population in Dhaka and other cities has continued to increase since that time.

In the last three decades numerous surveys and other research studies have focused on slums and squatter settlements. Most addressed their housing and infrastructure problems or socio-economic circumstances. A limited number focused on health problems, typically in a few randomly selected settlements in Dhaka. However, the health challenges in slums are particularly acute and deserve more thorough consideration.

Seeking to comprehensively examine the health circumstances of urban residents, the National Institute of Population Research and Training (NIPORT), with technical assistance from MEASURE Evaluation of the Carolina Population Center at the University of North Carolina at Chapel Hill and funding from USAID, launched the 2006 Bangladesh Urban Health Survey (UHS). From the outset, the health of the poor and slum residents were an important focus of this study. Another important dimension of the study was to consider explicitly the role of the urban community or neighborhood in shaping the health of its residents. However, incorporating slums explicitly involved some substantive challenges. Most importantly, timely, accurate maps capturing the location and size of slums were not available.

Recognizing the need to develop detailed maps of the slums of the cities of Bangladesh, the UHS Technical Task Force invited CUS to map slums and squatter settlements in the major cities of the country. CUS was also tasked with conducting a survey of slums in order to gather basic information regarding their characteristics. These mapping exercises and the slum survey focused on the six city corporations of Bangladesh, namely Dhaka, Chittagong, Khulna, Rajshahi, Sylhet and Barisal (Fig. 1.1). In the case of Dhaka, the effort extended beyond the limits of the city corporation to encompass the Dhaka Metropolitan Area (DMA). This report focuses on the results from the slum mapping and survey component of our work.

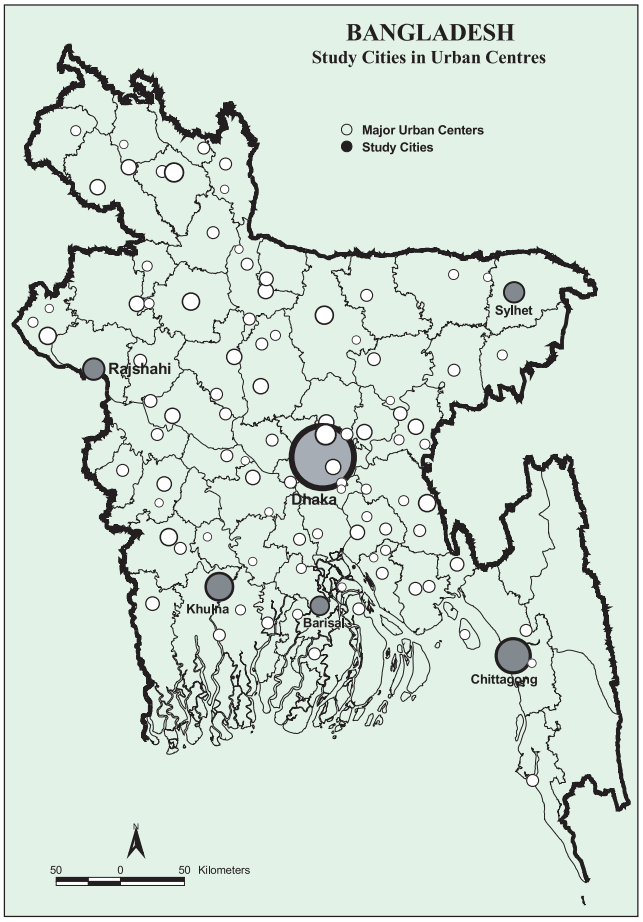


Figure 1.1: Bangladesh, Urban Centres and Study Cities

1.2 Objectives of the Study

The main objective of the slum mapping and survey was to physically identify the boundaries of slums and squatter settlements in the six study cities, along with their approximate area, number of households, population and key characteristics. Beyond the information strictly required for developing a slum community sample frame for the UHS, the aim was to understand their location patterns and major characteristics. Overall, the objectives were:

1. To prepare maps to identify location and boundaries of all slums in the six study cities. The demarcation of boundaries was to be done in such a fashion as to allow the area of each to be identified clearly, not only by the UHS study team but also other groups of researchers and policymakers who might find the maps useful.

2. To record the characteristics of slums and squatter settlements including: population size; the number of households; exact locations within wards; major roads, railway lines, embankments and other important landmarks.

3. To identify the slums and squatter settlements in terms of their physical, socio-economic and environmental characteristics such as water sources, sanitation means, power supply, drainage, access to roads, occupational patterns, ownership of land or household title, year since founding, origins of residents and other characteristics.

4. To determine their overall legal status (that is, whether they are located on public land (squatter settlements) or privately owned land (slums)).

5. To prepare a data base including all of the aforementioned information on slums and squatter settlements using GIS software.

In fulfilling these objectives, CUS drew on its extensive experience from earlier slum mapping exercises as well as tools (such as satellite images) that have emerged more recently.

1.3 Definition of Slum

A survey and mapping of slums must, of necessity, begin with a workable definition of a slum or squatter settlement that is also behaviorally meaningful. To begin with, there is no difference between a slum and a squatter settlement. The latter are simply slums illegally located on land belonging to the government, semi-governmental units, public organizations and other organizations. Then, drawing on both international literature attempting to define slums as well as widely accepted definitions or norms applied in the Bangladeshi context (including by CUS in earlier works), slums were defined for the purposes of the present study as settlements with a minimum of 10 households or a mess unit with a minimum of 25 members and:

- predominantly very poor housing;
- very high population density and room crowding;
- very poor environmental services, especially water and sanitation;
- very low socio-economic status;
- lack of security of tenure.

To qualify as a slum, an urban community had to meet at least four of these criteria.

Each of these criteria rather naturally gives rise to several straightforward and (from the empirical standpoint of conducting the mapping exercise) practical indicators. To begin with, very poor housing conditions can be identified with shacks/Jhupris/ kutcha (flimsy structures of non-permanent materials like bamboo, cheap wood, scraps, etc.), semi-pucca (flimsy structures, but with brick walls and corrugated iron sheet roofs) and dilapidated, fragile old buildings, possibly associated with high structural risk. If more than 50 percent of the structure in a community were of such cheap and weak construction, it was regarded as having very poor housing conditions.

Slum in Sylhet

Defining very high population density and room crowding in practice requires settling on threshold figures for each. For this study we settled on what we felt were quite reasonable standards: 300 persons per acre (or 751 persons per hectare) for overall settlement density and 3 or more adults of mixed sexes per room, 37 sq. ft (or 4 sq. m.) per person floor space and predominantly (over 75 percent of units) single room family occupancy. If more than 50 percent of the dwellings in the cluster had 3 or more persons to a room, it was regarded as being characterized by room crowding.

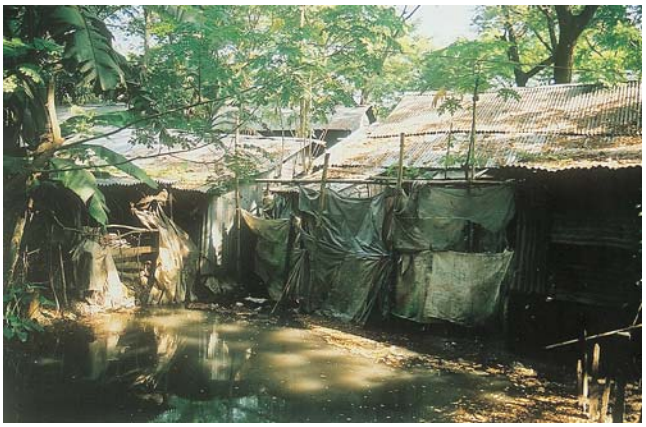
Slum in Khulna

Poor environmental services were considered along several dimensions. For water safety, we considered whether there was normally no drinking water connection to homes (with water collected from a distance of more than 50 m.) or whether water sources were shared (typically by more than 5 households). Our criteria for poor sanitary conditions focused on whether the majority of households lack their own sanitary latrines or access to such latrines (i.e. no direct connection to a sewer line or septic tank, no pour flush latrine/water sealed latrine or no improved pit latrine). In Bangladesh a crucial source of environmental vulnerability comes from poor drainage in the face of the periodic heavy rains that the country is prone to receiving. For this, we considered whether the settlement has poor drainage defined by serious water logging (i.e. stagnation of water) after heavy showers and whether it has proven prone to flooding in the past. Finally, we considered whether the majority of households were without reliable electricity, whether gas was available and whether there was adequate, regular garbage clearance. For the purposes of this study, special attention was paid to sanitation, and the key indicator for poor environmental services was whether less than 50% of households were served with a sanitary latrine (i.e. sewerage, septic tank or water-sealed latrine).

The socioeconomic status of the community was defined by low income, with the majority, or over 50 percent, of households having income below the poverty level of Tk. 5,000 per month[1], the majority of the labour force in informal sector occupations (e.g. rickshaw pullers, hawkers, domestic workers, etc.) or very low paying formal sector positions (in organizations ranging from factories to offices) and low levels of rent. Another important dimension was whether the settlement is socially perceived as a slum. For the purposes of this study, special focus was given to household income, and the key indicator for low socioeconomic status was whether more than 50% of households had an income of less than 5,000 Taka per month. Finally, security of tenure was captured by vulnerability to eviction.

It needs to be stressed that the five sets of overall conditions (and long list of indicators associated with them) are for the purpose of identifying slums at the cluster or settlement level, rather than in any sense characterizing individual households. A household or an individual living in a "slum" or a "squatter settlement" is considered a slum dweller even if his/her economic condition is not necessarily one that would be associated with poverty.

A cluster or a settlement was initially identified as a slum from satellite image on the basis of housing quality and housing/ population density as could be roughly determined from the image. This was followed up with ground truthing through field observation by trained field investigators. The selection of the cluster as a slum for mapping and census listing was based on the field investigator's judgment of the cluster satisfying such indicators as: i) poor housing conditions (over 75% Kutcha/ flimsy/fragile housing); ii) high overall area density, 300 persons per acre, and predominantly of over 75% of single room family occupancy; iii) very poor sanitation and inadequate water access; and iv) high prevalence of of low-income people (over 75% with income below poverty level, Tk. 5,000 household income per month). Once a cluster was identified and mapped as a slum on



Palashpur Bastee, Barisal

[1]The household monthly income of Tk. 5,000 was estimated as the urban poverty line for May 2005 by the CUS study team on the basis of urban poverty line per capita income of Tk. 906 (or Tk. 4,344 for an average urban household) for May 2004 determined by the Bangladesh Bureau of Statistics (BBS) and presented in its "Preliminary Report of the Poverty Monitoring Survey, 2004". p.13.

the basis of these nearly obvious criteria, a survey with a 30-item checklist was conducted in each cluster. In very rare cases (far less than 1 percent), the identification of the cluster as slum was found wrong. Such cases were not included in the final listing and mapping of slum clusters. The 30-item checklist survey findings describe the characteristics of slums in urban Bangladesh.

1.4 Study Methodology

This study involved a rather elaborate multi-stage operation (Figures 1.2 & 1.3). In what follows, we describe each.

1.4.1 Base map preparation using satellite images

To begin with, commercial satellite images were acquired for all six study cities. This entailed purchasing images that covered roughly 1,000 sq. km.(the approximate combined area of the six). For Dhaka City, IKONOS 2003 panchromatic images with one meter resolution were obtained. For the other cities (Chittagong, Khulna, Rajshahi, Sylhet and Barisal), IRS (2001-2003) images with five meter resolution were procured. These images offered tremendous visual detail for the purpose of identifying slums. The next step was to geo-process these images (i.e. relate specific points on them to absolute latitudinal and longitudinal positions). This involved a number of steps, including collection of ground control points through differential GPS for each city, geo-referencing each and using a suitable projection for base map preparation. The images were then used to update maps prepared by the Survey of Bangladesh (SOB), a government organization which surveys and compiles maps in Bangladesh. Road networks and major urban features in all six cities were updated on SOB maps. ERDAS Imagine software and mapping GIS were used in this phase of the work.

1.4.2 Preliminary Identification of Slums

The satellite images were then examined to identify likely slum settlements to be studied further in the field (i.e. during the ground truthing phase). The visual assessment focused on settlement density and building materials. Likely slum clusters were identified on base maps.

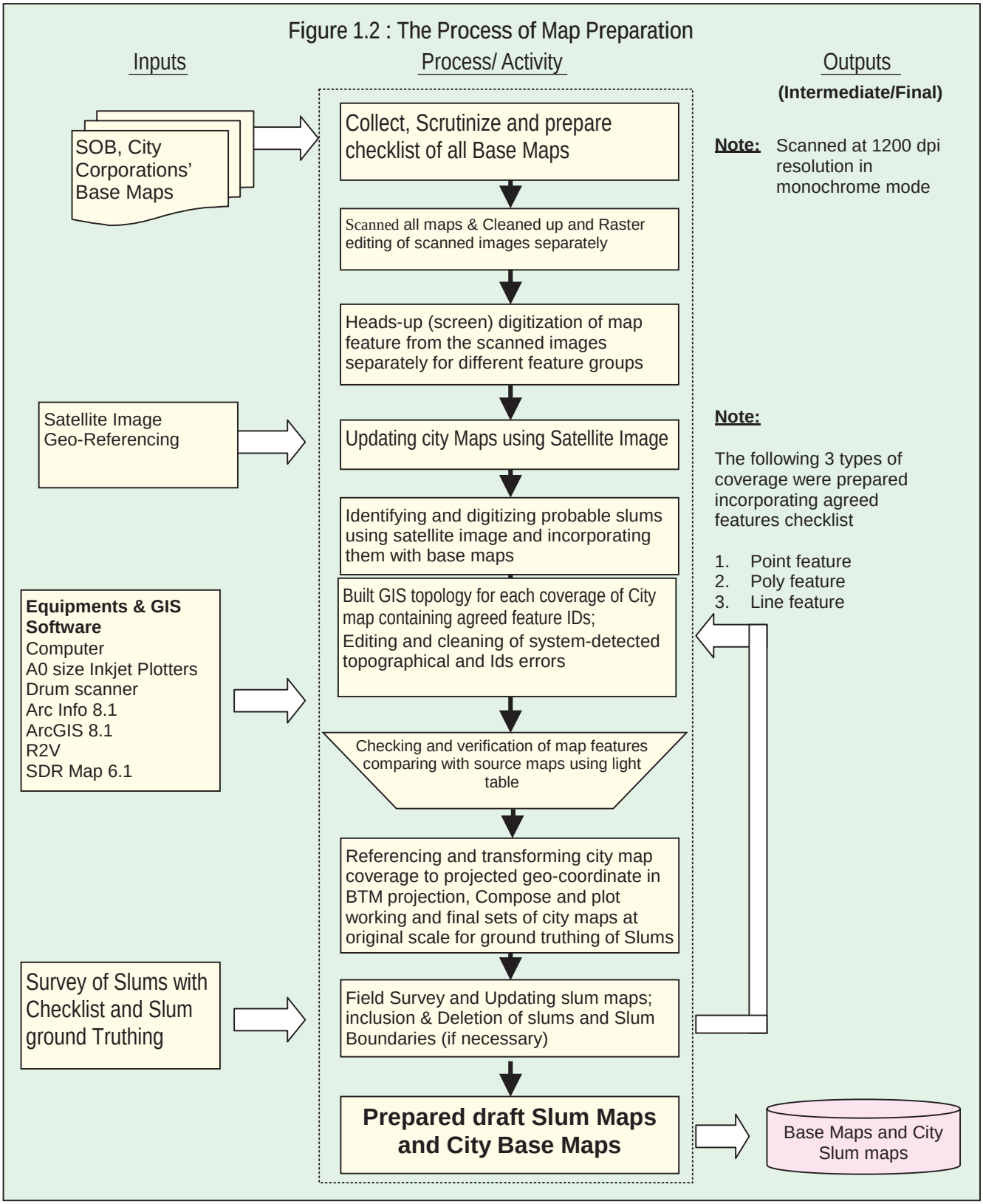
1.4.3 Ground Truthing

Slums identified from the images were then verified by experienced, well-trained, highly motivated field investigators. Aside from visiting candidate slum communities, they also searched on foot in each area of each city for slums not readily apparent from satellite images (as can often occur in settings of high foliage, which can be a particularly great problem outside of Dhaka) or created after the images were taken.

Each ground truthing/survey team consisted of two persons with five or six teams overseen by a trained supervisor. Each city had a city coordinator to manage overall survey activity within it. The survey teams went into the wards in each city to assess conditions on the ground. The team first traversed the whole area designated for them and identified slums. First, they located and assessed likely slum clusters on their base maps, which were based on the results of visual inspection of the satellite images. Second, they thoroughly examined each area for slums and squatter settlements (based on the slum definition provided above) not on their base maps.

Stagnant water in slum, Rajshahi

Figure 1.2 : The Process of Map Preparation



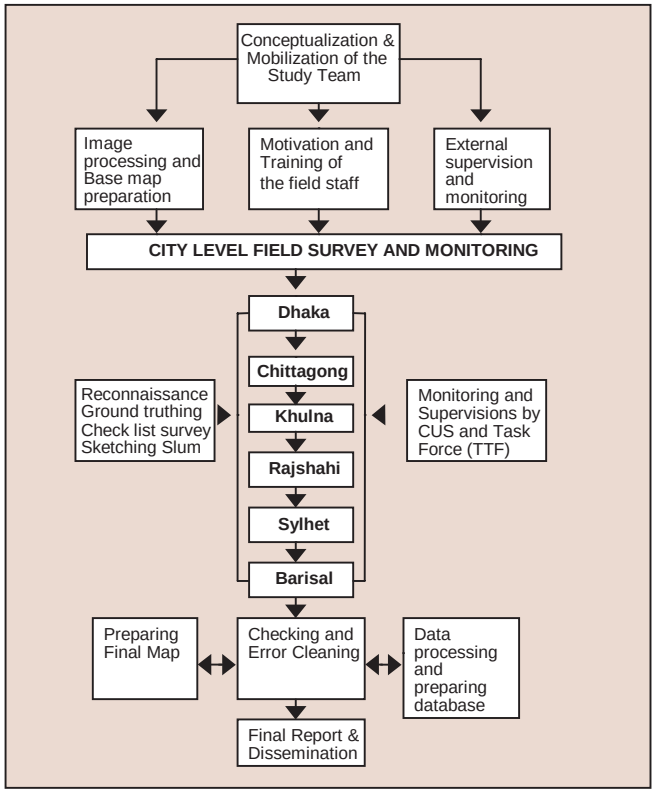


Figure 1.3 Field Organization and Data Management

1.4.4 Survey of Slum Clusters

In addition to ground truthing and mapping of the slums identified, the team also collected important information, such as the slum's size (in terms of physical area, number of households and population) and some environmental and socio-economic characteristics using a short checklist (annex 2). To complete the checklist the team entered the slum and identified key informants who could assist in gathering such information, if nothing else by offering their own informed estimates for many indicators. A minimum of three key informants, knowledgeable persons with some education who have lived in the slum since its formation or for at least five years and who could be regarded as central figures (community leaders, teachers, shop keepers, NGO workers, etc.), were selected for this purpose. Field workers received special training for assessing the information provided by the key informants. Field workers were also selected among graduates from university geography departments with experience estimating population size and number of households in settlements of varying density and crowding conditions. Finally, the team carefully drew a sketch map of the slum which emphasized identifying landmarks (roads, etc.).

1.4.5 Final Preparation of Maps and Data Processing

Identified slums were digitized using GIS (ArcInfo and Arc GIS) techniques. This process involved a number of consistency checks. In instances where problems or inconsistencies were identified the team revisited the site, sometimes more than once. Thus, the maps were repeatedly corrected and re-examined until the study leaders were fully satisfied that they offered an accurate representation of ground conditions. Data gathered through the slum survey was entered into a data base. The data entry process also involved numerous consistency and error checks (Figure 1.3) to insure quality.

1.5 Challenges of the Study

Based on the careful work of our team, we feel that the slum maps and survey are as accurate and timely as they could be under the circumstances. Nonetheless, studies of this nature in Bangladesh are nearly always carried out under challenging circumstances, some of which are important to disclose. We now discuss briefly some important challenges confronting our study team.

Visually obscured slum communities

Although satellite images were very helpful in identifying slums, their effectiveness in many areas was limited by the fact that slums were sited under heavy tree cover or on sharp hill slopes. Visibility from above was often poor in such cases. This was a particularly acute problem outside of Dhaka. Thus, physical survey at ground level was an essential component of the study and not simply a mopping-up exercise to identify the occasional community not readily apparent from the images. In spite of the intensive ground truthing, it is possible that some clusters could have been missed.

Reliance in key informants

The number of households and population size of identified slums were estimated on the basis of information given by key informants in those communities and the informed guesses of the field workers. Despite the experience and training received by fieldworkers for estimating these indicators, such information tends to be more accurate for smaller to medium sized slums. In large slums, estimation of population (and other indicators) was likely more error prone.

Weather conditions

The survey was carried out during the full monsoon, when many of the low lying areas remained submerged, particularly on the fringes of Dhaka. Some slums located in these areas might not have been identified as the people normally living in them had moved temporarily to other areas.

1.6 Outputs of the Study

The study generated the following outputs:

1. Up-dated base maps of six city corporations and for Dhaka, the Dhaka Metro area, each consisting of the following layers:
   - Mahalla boundaries
   - Ward boundaries (and also Union boundaries for Dhaka only)
   - Thana boundaries
   - Road network - Water bodies (rivers, canals, lakes, etc.)

The maps have been printed on A3-size papers in the annexed volume and on A4-size in the present report. However, they can be printed at any scale from digital versions. They are available at http://www.cpc.unc.edu/measure.

2. Comprehensive color maps of the slums in the six study cities, each showing the distribution of all slums and squatter clusters.

3. Ward-level slum maps for all six study cities (a total of about 265, presented in A3 size, black and white).

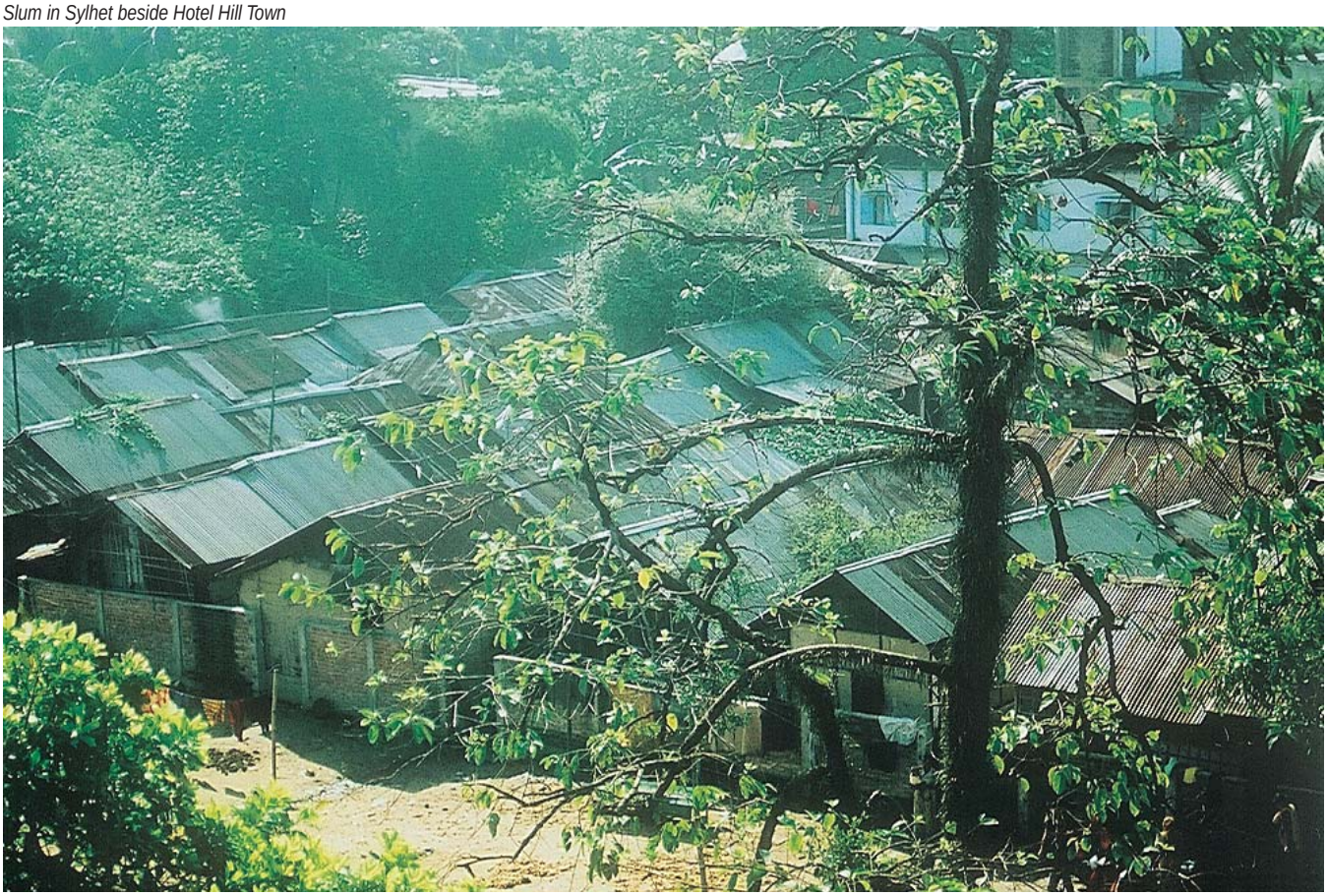
4. Estimated slum and non-slum populations for each of the six study cities and all of the wards and mohallas within them.

5. A ward-level list (inventory) of slums with addresses, number of households and total population

6. A data base containing all of the above items.

The study thus generates a comprehensive picture of the location and size of the slums of the six city corporations and the DMA, in the process providing important information for a wide array of policymakers and researchers.

Slum in Sylhet beside Hotel Hill Town



2. FINDINGS: SLUM MAPPING

Introduction

This study was conducted in the cities of Dhaka, Chittagong, Khulna, Rajshahi, Sylhet and Barisal. With the exception of Dhaka, it focused on that part of each of these cities that fell within its respective city corporation limit. In Dhaka, the study area was the Dhaka Metropolitan Area (DMA). The study found the total slum population in the six cities to be 5.4 million or 35 percent of their combined overall population (Table 2.1). The largest two (Dhaka and Chittagong) had the biggest slum populations. Dhaka had 3.4 million slum residents (or 37.4 percent of the city's total population). Chittagong had 1.5 million (or 35.4 percent of the city population).

2.1.1 Slum Map of Dhaka City

Dhaka, the capital of Bangladesh, is the largest city in the country. It comprises 34 percent of the overall national urban population and is unrivalled among Bangladeshi cities in terms of its economic, social and political opportunities. Dhaka has been growing very rapidly over the last five decades, particularly due to rural to urban migration and urbanization and incorporation of erstwhile outlying areas. Dhaka City Corporation (DCC) has an area of 145 sq. kilometres and an estimated population of 7.2 million (2005). Dhaka Metropolitan Area (DMA), with an estimated 2005 population of 9.1 million, comprises DCC and adjoining areas totaling 306 sq. kilometers.

Table 2.1 Number of Wards, Area, Total Population and Slum Population of Six Study Cities, 2005

City	Number of Wards(1)	Total Area in sq. km (1)	Total City Population 2001 (1)	Total City Population 2005 (Estimated) (2)	Slum Population 2005 (3)	Slum Popn. as % of City Population (2005)
Dhaka Metropolitan Area (DMA)	90 Wards and 12 Unions	306.00	6,550,209	9,136,182	3,420,521	37.4
Chittagong	41	177.39	3021,618	4,133,014	1,465,028	35.4
Khulna	31	47.52	732,720	966,837	188,442	19.5
Rajshahi	30	51.29	367,314	489,514	156,793	32.0
Sylhet	27	27.50	265,372	356,440	97,676	27.4
Barisal	30	51.04	273,384	365,059	109,705	30.1
Total six cities	249	660.74	1,121,0617	15,447,046	5,438,165	35.2

Sources: (1) BBS, 2003, Population Census 2001; (2) Estimated by CUS Slums Study Team, 2005; (3) CUS Slums Study, 2005

2.1 Comprehensive Slum Maps of Six Cities

A central objective of the study was to conduct a census of slums and squatter settlements in each of the six cities and, based on the information gathered, prepare slum maps for each. These reveal the location and boundaries of slum settlements throughout the city corporation area. For Dhaka, coverage actually extended beyond city corporation limits to include the urban fringe, administratively known as the Dhaka Metropolitan area (DMA). The smallest administrative unit of the DMA is the union. The maps show all slum clusters (a cluster is defined as a concentration of at least 10 households or a mess unit with a minimum 25 members in one particular location).

Slums have existed in Dhaka City for a long time but their growth accelerated after the liberation of the country in 1971, mainly due to mass migration by the rural poor. The first significant survey of the slums and squatter population in Dhaka was conducted by the Centre for Urban Studies in 1974 at the behest of the Government of Bangladesh and UNCHS. The slum population found in that survey was 275,000.Another survey was conducted by CUS in the Dhaka Metropolitan Area in 1991 for ICDDR, B. This study recovered a slum population of 718,143 in some 2,156 slum and squatter clusters. CUS conducted yet another survey in 1996 in the same area (the DMA) for the Asian Development Bank and found the total slum population to be 1.5 million in 3,007 clusters. Figure 2.1 shows the distribution of slums in the Dhaka Metropolitan Area in 1996.

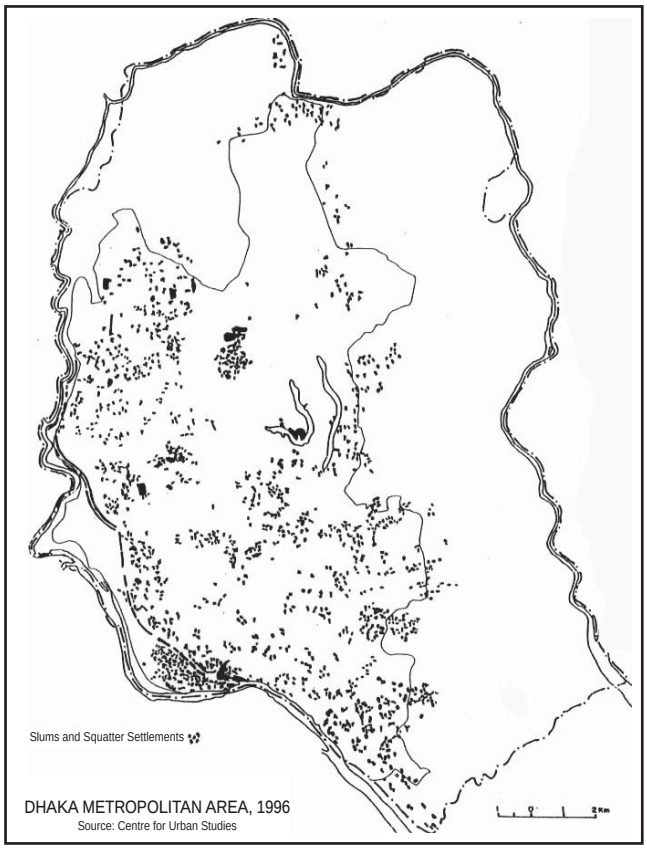


Figure 2.1 : Slums and Squatter Settlements in Dhaka Metropolitan Area, 1996

The 2005 survey identified some 4,966 slum clusters in DMA with a total population of 3.4 million, a 65% increase in the number of clusters and more than doubling of the slum population over the 1996 levels. Of the 4,966 slum clusters of the present survey, 4,342 were within DCC limits. The slum population in the DCC was 2.5 million with an additional 0.9 million in the DMA areas outside of the DCC.

The distribution pattern for slums has been quite similar in the last three major surveys, with more conspicuous growth in peripheral and suburban areas. Both the rate of growth in the slum population and their tendency to emerge in more peripheral locations are likely to persist in the near future with continuing heavy rural to urban migration in the face of an ongoing dearth of land for cheap housing in more central locations. One area of notable change has been in the proportions on government and privately owned land: the share on private property has grown steadily as the government has become more vigilant in guarding its land against squatters. Another notable feature of slum evolution has been an improvement in the quality of housing in some private slums. There has been an increase in the supply of semi-pucca (brick wall-tin roofed) houses in slums which has unsurprisingly been accompanied by increases in rent. Nonetheless, the majority of slum dwellers earn only enough to rent a kutcha jhupri (flimsy dwelling comprised of temporary materials).

Figure 2.2 shows the distribution of slums in Dhaka in 2005. Concentrations of slums were found in the eastern fringe of the city, along the border of the city corporation. A large concentration was found in Khilket, directly opposite to the Zia International Airport. South of this, another agglomeration was identified in Badda-Satarkul area, which is in the vicinity of the Gulshan and Baridhara residential areas. A third concentration can be seen between Meradia and the Kamalapur Raiway Station.

The single largest concentration of slums was found in Kamrangir Char on the western fringe of the River Buriganga (Photo). The area is just outside Dhaka City Corporation (DCC) now, but is likely to be incorporated within the DCC soon. The total population of that area is about 300,000, of whom some 265,000 are slum dwellers.

There were several other agglomerations in the western fringe, particularly along the western embankment. Hazaribagh and west Mohammadpur contained large numbers of slum clusters. Mirpur had one of the largest concentrations of slums, mainly located on public land. In the central areas of the city, slum concentrations were relatively sparse compared with the periphery. The major concentrations there were along the railway line, which runs from Narayangonj to Tongi in the east central city.

The largest single slum in Dhaka was Karail in Mohakhali near Gulshan, with more than 100,100 people (Photo). However, several large slum communities were evicted from the central city during the last few years, with the evictees relocating eventually to peripheral areas.

Figure 2.3 is an example of a ward-level slum map, in this case capturing DCC Ward 17, located between the Nikunja residential area and the newly built Bashundhara residential area on the eastern fringe. Except for these two areas, the ward is otherwise unplanned. A large number of slums can be seen with their identification number. The size of the slums both in terms of area and population varied greatly. A substantial number of slums could be found even in the planned residential areas. Altogether, this ward contained 136 slum clusters of varying sizes.

2.1.2 Slum Map of Chittagong City

Chittagong is one of the most rapidly growing cities in Bangladesh. It is the second largest industrial city with a population of about 4.13 million (2005 estimate) in a 177.4 sq. km. area. Chittagong is the main port city for the country, with more than 80 percent of total exports and imports moving through the city. There were 1,814 slum clusters in Chittagong. Total slum population was 1.46 million, which is 35.4 percent of the total population of the city.

Figure 2.4 shows the location of slums in Chittagong. Slum communities were located all over Chittagong. The larger ones, both in terms of area and population, were concentrated mainly in the Pahartoli,

Nasirabad and Kulgaon areas. There were a number of larger slums, in terms of population size, located in the central area of the city (such as the Agrabad, New Market and Andarkilla areas).

Figure 2.5 is a map of ward 3 of Chittagong City Corporation that shows the location of slums and squatter settlements. This is a relatively small ward with only one Mahalla. Nonetheless, there were 18 clusters of varying sizes throughout the ward. Cluster 17, for example, was a large slum in the foothills with more than 3,000 households.

2.1.3 Slum Map of Khulna City

The third largest city in Bangladesh, Khulna is located in the southwestern part of the country. The area of Khulna city corporation (KCC) is 47.52 sq. km., which is a little smaller than the actual built-up metropolitan area. The 2005 population within the KCC area was estimated to be 966,837. The city's growth has slowed in recent years with the closure of some industrial units, though it has remained a place of commercial and industrial importance since the 1960s.

The city had 520 slum clusters, with a population of 188,442 which is 19.5 percent of city's population. Their locations are shown in Figure 2.6. One of the largest concentrations of slums was along the railway line, which traverses the city almost through the middle. Another large concentration could be found in its two industrial zones, Daulatpur and Khalishpur. Still another was in the Rupsha Ghat area near the city centre. However, some of the largest individual slums were located in Mujgunni and Nurnagar area. Figure 2.7 illustrates the situation in Ward No. 26 of KCC, which contains 32 slums. Though they were small in size, the population density within them was quite high.

2.1.4 Slum Map of Rajshahi City

Located on the River Ganges, the city of Rajshahi is basically an administrative centre (a divisional headquarters) with a population of just 489,514 (2005 estimate) spread over 51.29 sq. km. It is the fourth largest city in the country. Since it is not particularly commercially and industrially vital, its growth has been slow. Rajshahi is usually not the recipient of large scale migration. Most of the slum dwellers originated from the immediate vicinity of the city, and were driven to the slums by, among other things, erosion along the river Ganges.

The survey has found 641 slum clusters in the city with a population of 156,793 (32 percent of the total city population). A major concentration of slums existed along the left bank of the river Ganges (Figure 2.8). This was due to the protection afforded by the embankment along the river, on both sides of which the poor take shelter. The rail line is another place where squatters concentrated. Both sides of the railway line provided space for a huge number of poor, forming the second largest concentration of slums in Rajshahi. Another agglomeration was in the Bongaon area, located at the centre of the city.

Figure 2.9 is a map of ward number 29 of Rajshahi City Corporation which shows the slums and squatter settlements in it. There were 33 clusters, of which a few are quite large. The large slums were located on the bank of the river Ganges in the protected area created by the river embankment.

2.1.5 Slum Map of Sylhet City

Sylhet is a newly created divisional headquarters and City Corporation, with a population of about 360,000. Located in the hilly areas of northeast Bangladesh, it is a booming city due to private sector investment by expatriates (for instance, more than 200,000 people living in the United Kingdom (UK) come from the districts comprising greater Sylhet). Their remittances are a major source of investment capital. Two national level institutions, a university and a medical college, add further vitality. Migrants come from neighbouring poor districts to work as labourers, with most living in slums.

Some 97,676 people (27 percent of the city population) lived in 756 slums and squatter clusters. Large concentrations of slums were found along the river Surma and the many small canals and creeks associated with it. From Figure 2.10 it is apparent that a number of these small canals and creeks traverse the city. All of them were associated with slum concentrations. Another concentration was in the vicinity of the railway station on the right bank of the river Surma. There were also slums in the city periphery. A sample ward map (Figure 2.11, illustrating Ward 13) shows that slums were located throughout it, with no apparent pattern.

2.1.6 Slum Map of Barisal City

The river port city of Barisal is a medium sized urban centre situated in the southern part of Bangladesh. It has an estimated population of 365,059 within an area of 51 sq. km. Trade and communication is the main lifeline of the city. It has only one national level institution, a medical college. The city had a slum population of 109,705 (or around 30 percent of the total population in 351 clusters). The distribution of slums is shown in Figure 2.12. The largest concentration was on the bank of the Kirtankhola river. Some of the inner city slums were also quite large, such as in Kawnia. Although Barisal is a small city, it attracts migrants from surrounding areas. Figure 2.13 shows slums in ward no. 2, which had 47 slum clusters, some of which were very large.

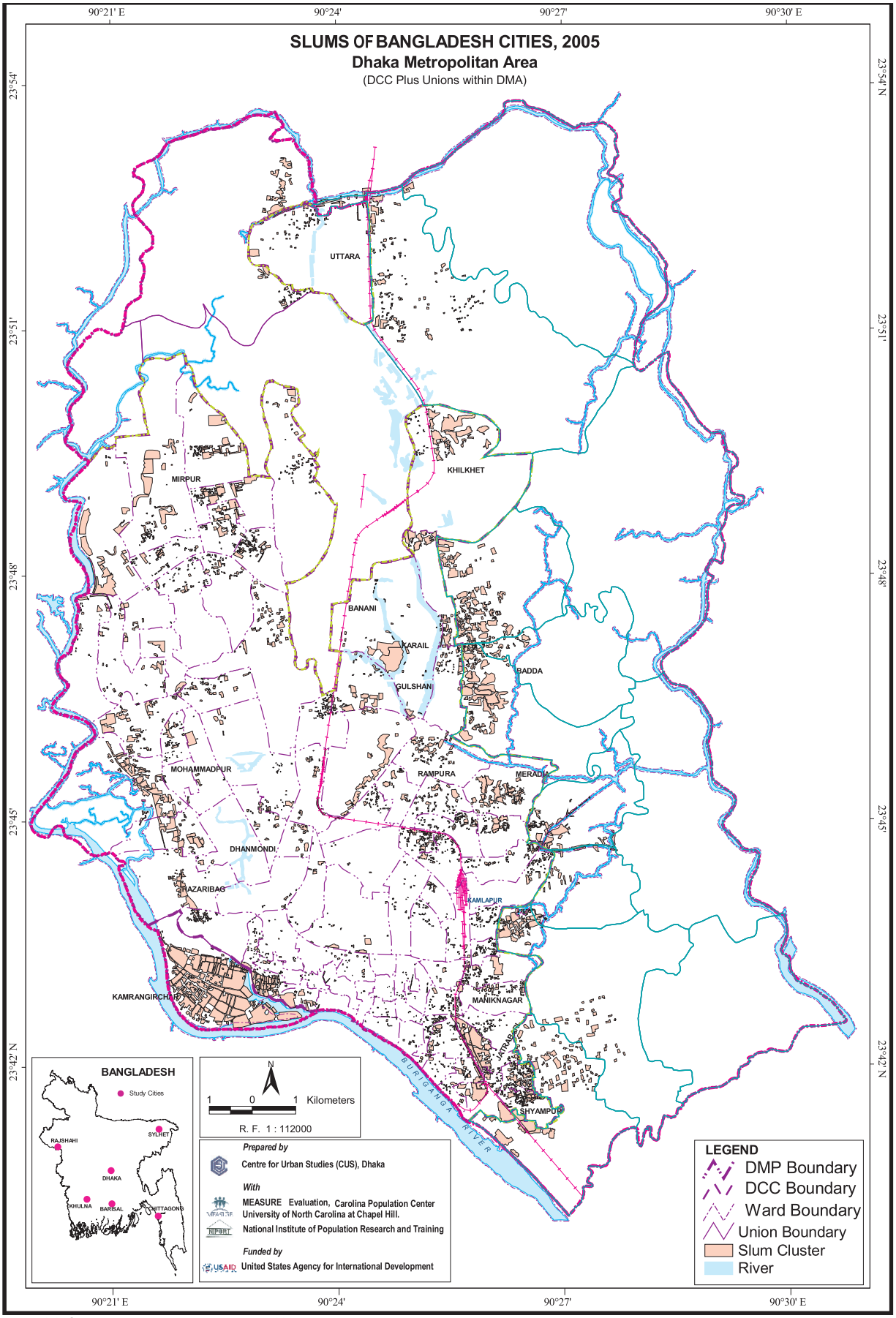


Figure 2.2: Slums in Dhaka Metropolitan Area, 2005

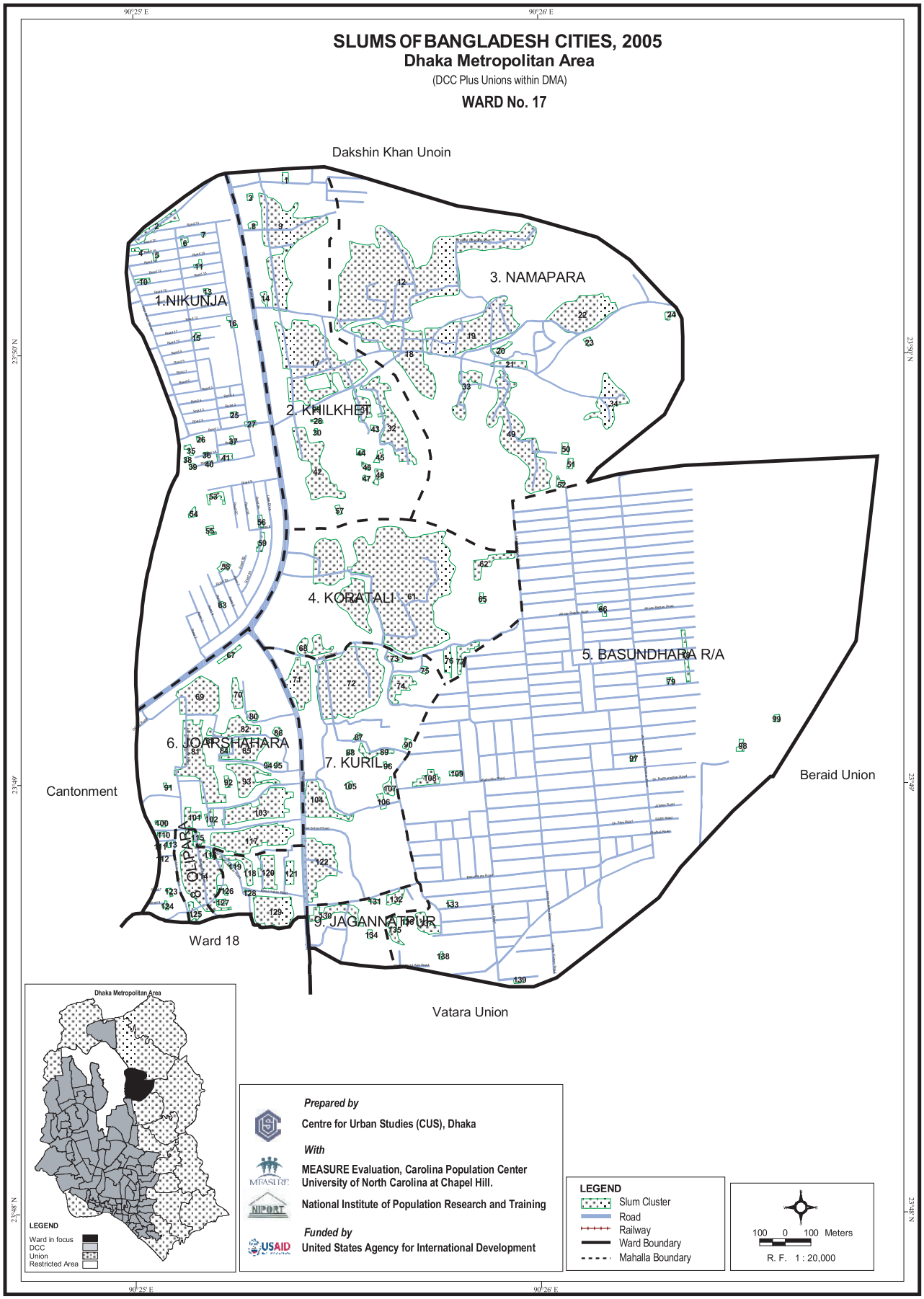


Figure 2.3: Slums in Ward No. 17, Dhaka Metropolitan Area, 2005

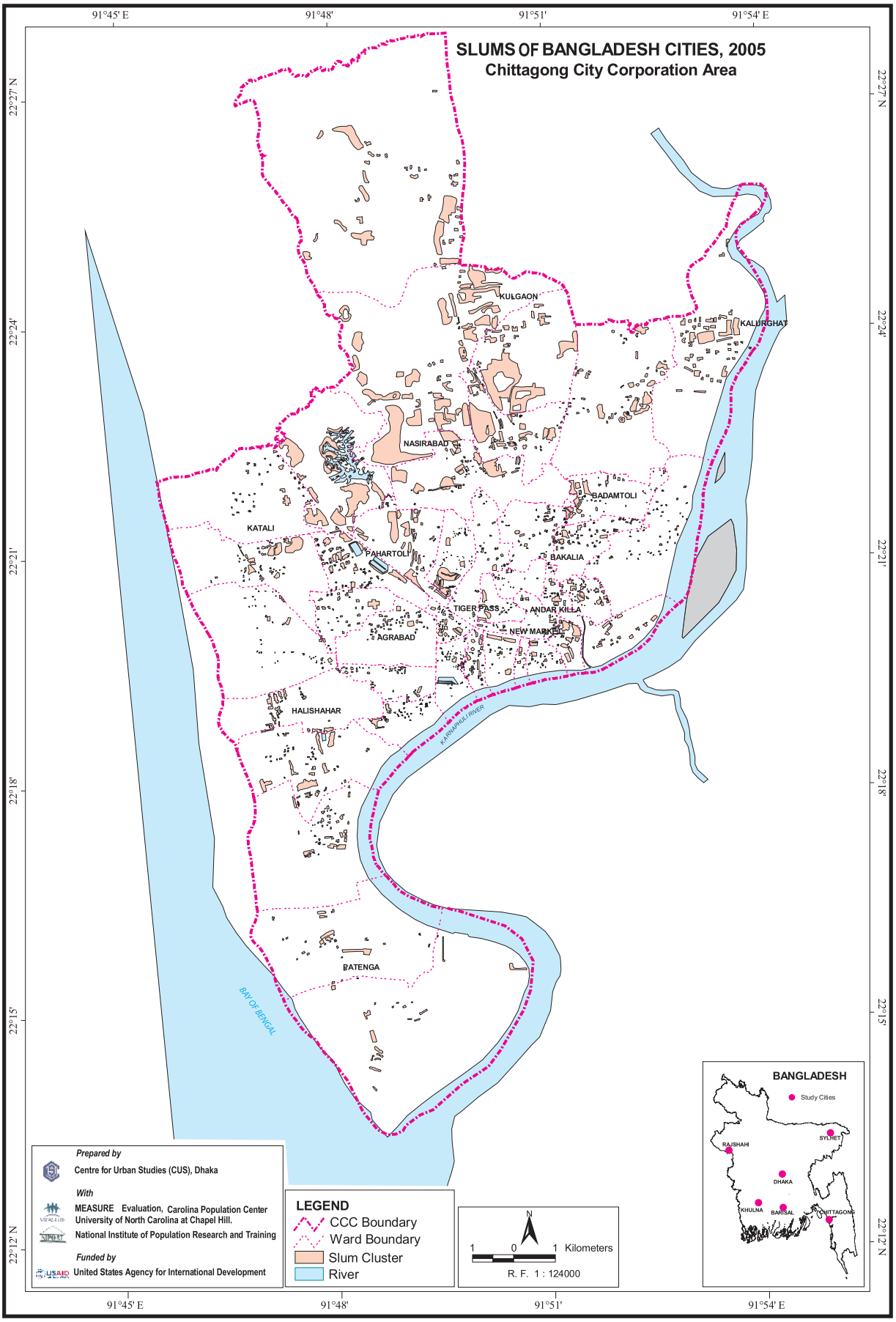


Figure 2.4: Slums in Chittagong City, 2005

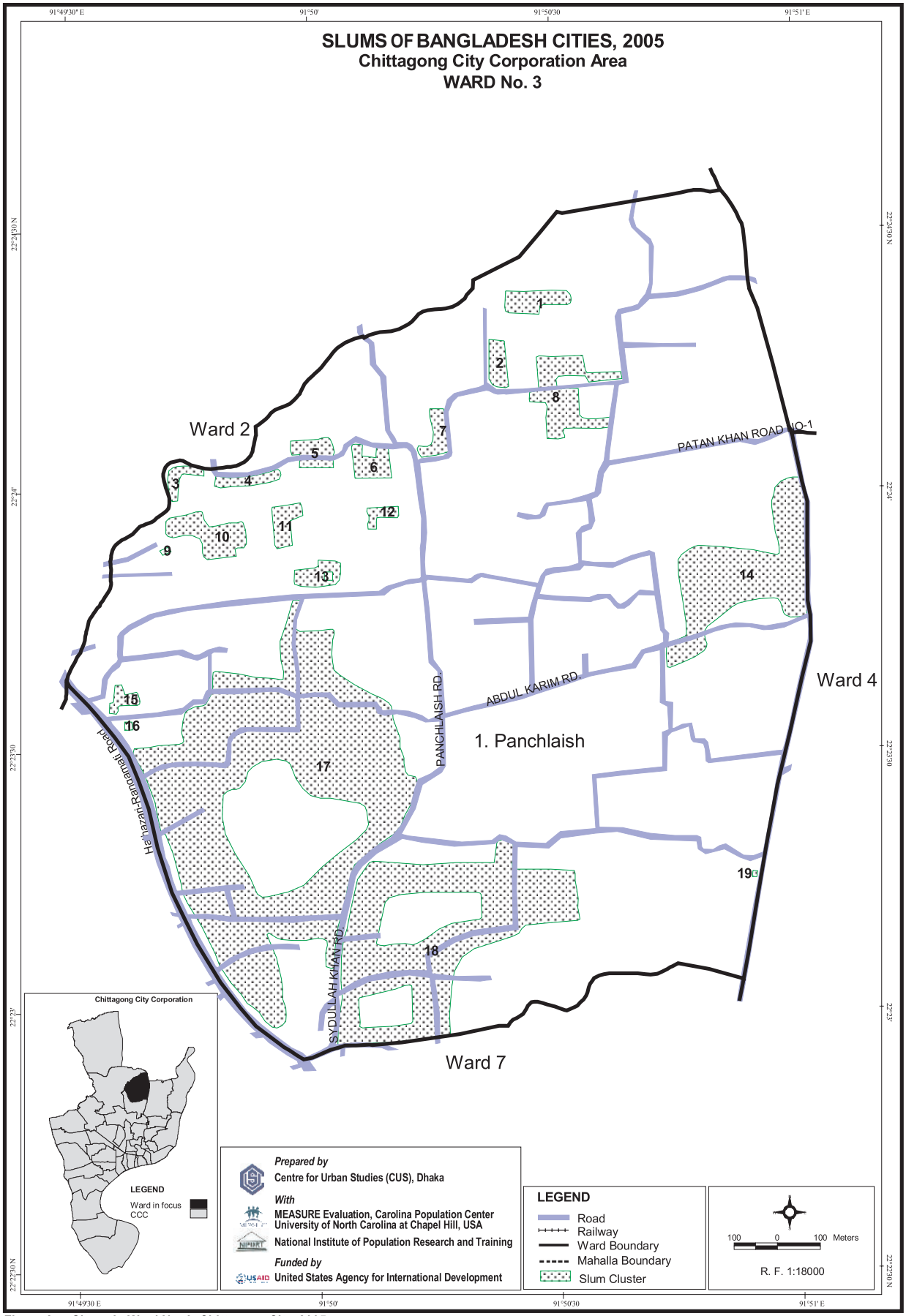


Figure 2.5: Slums in Ward No. 3, Chittagong City, 2005

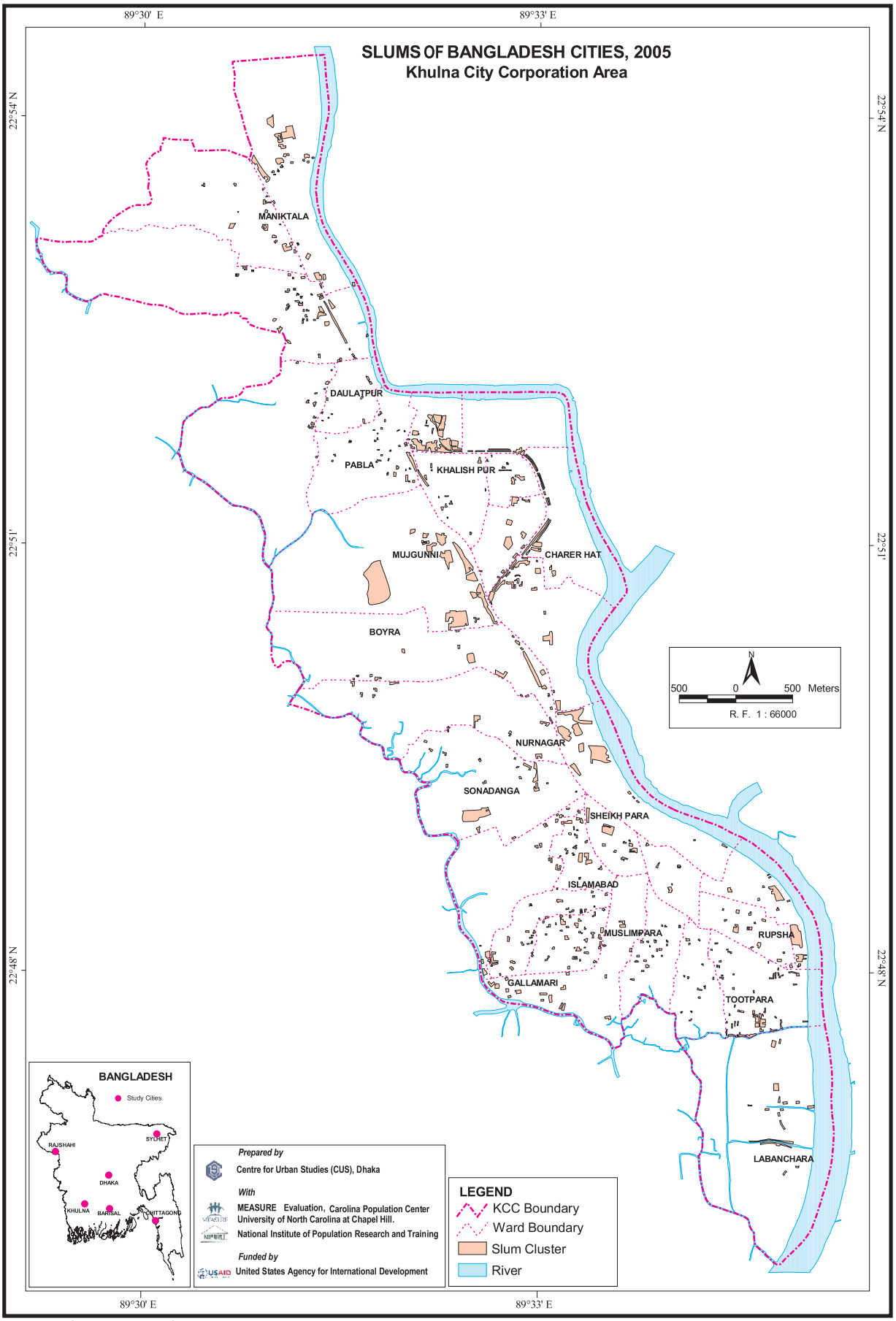


Figure 2.6: Slums in Khulna City, 2005

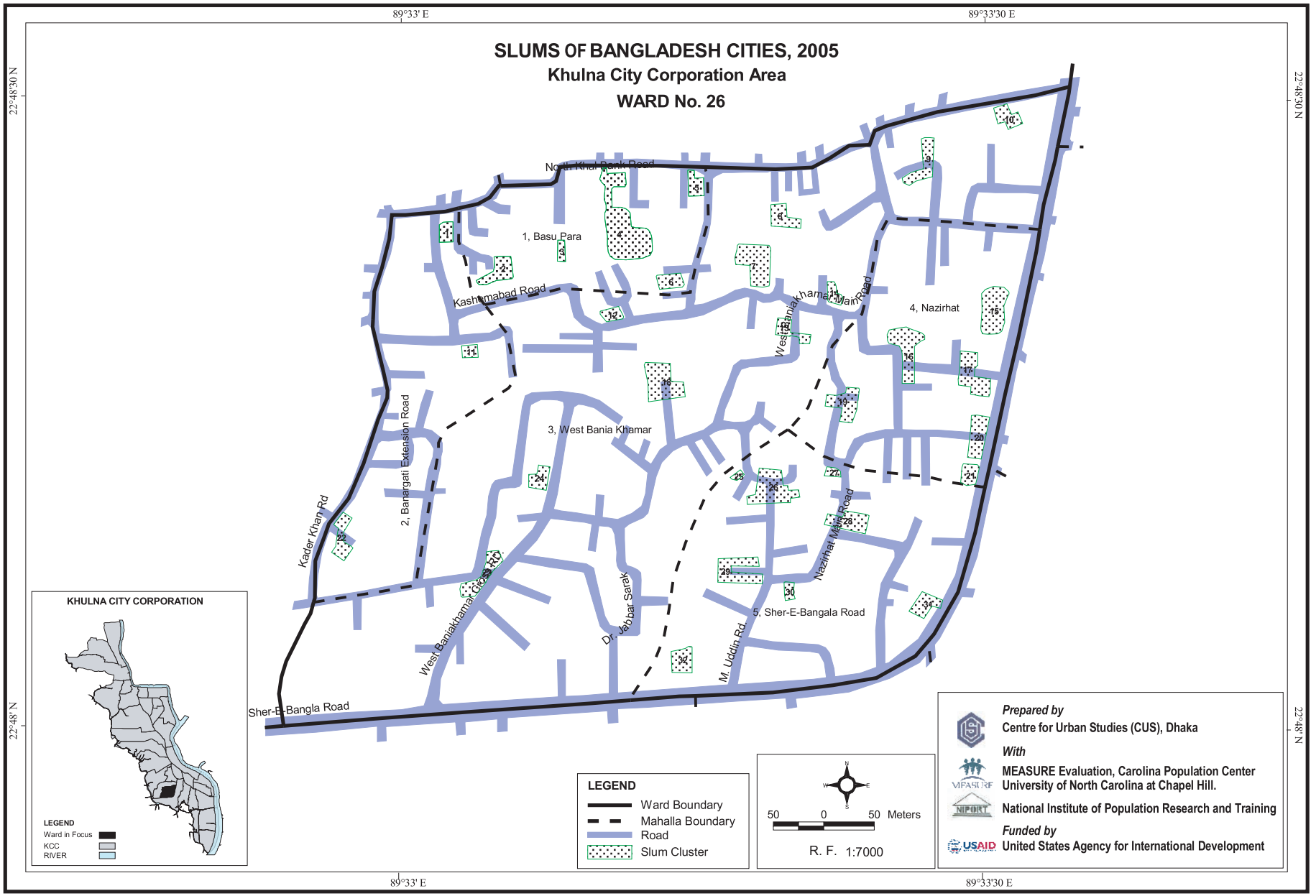


Figure 2.7: Slums in Ward No. 26, Khulna City, 2005

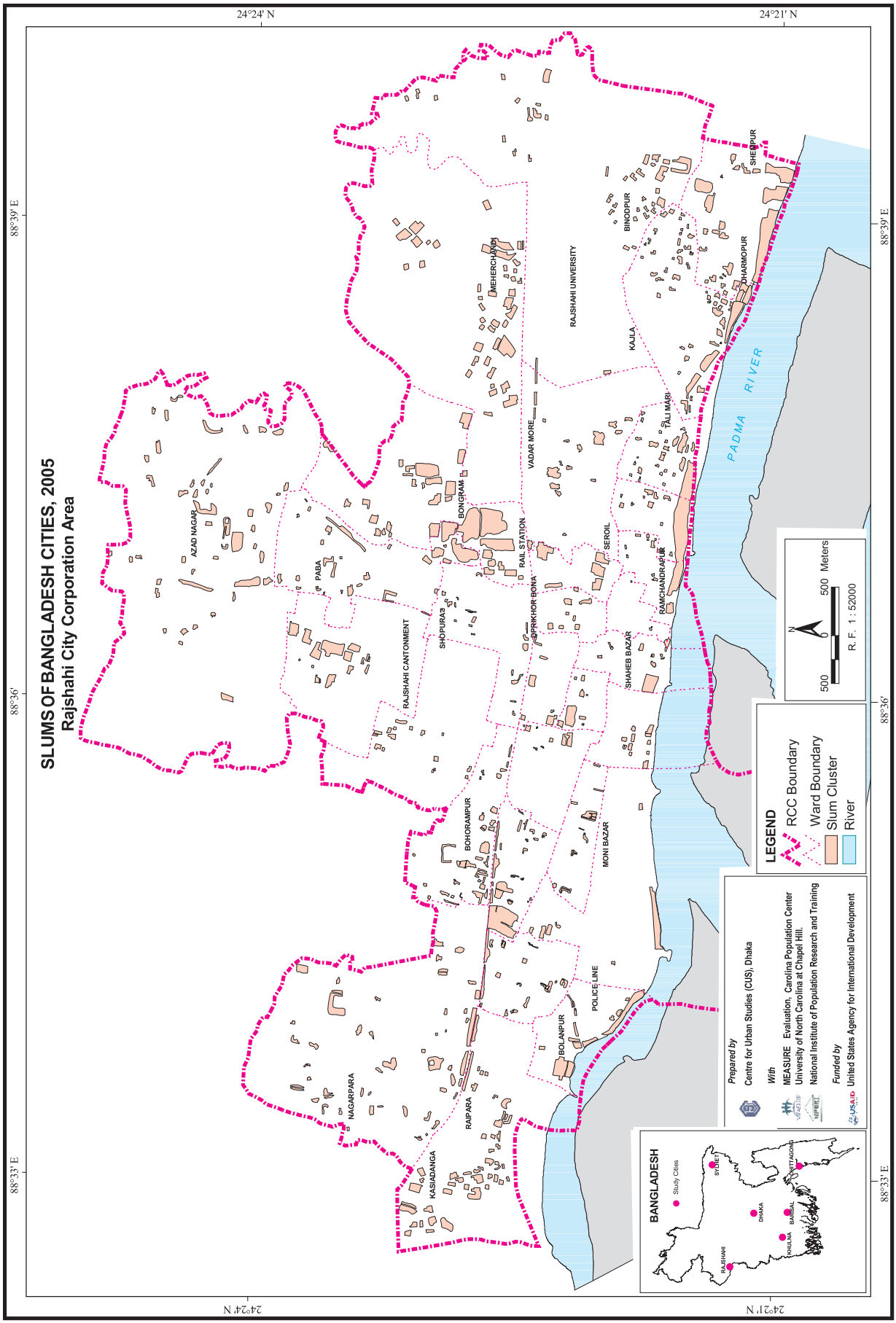


Figure 2.8: Slums in Rajshahi City, 2005

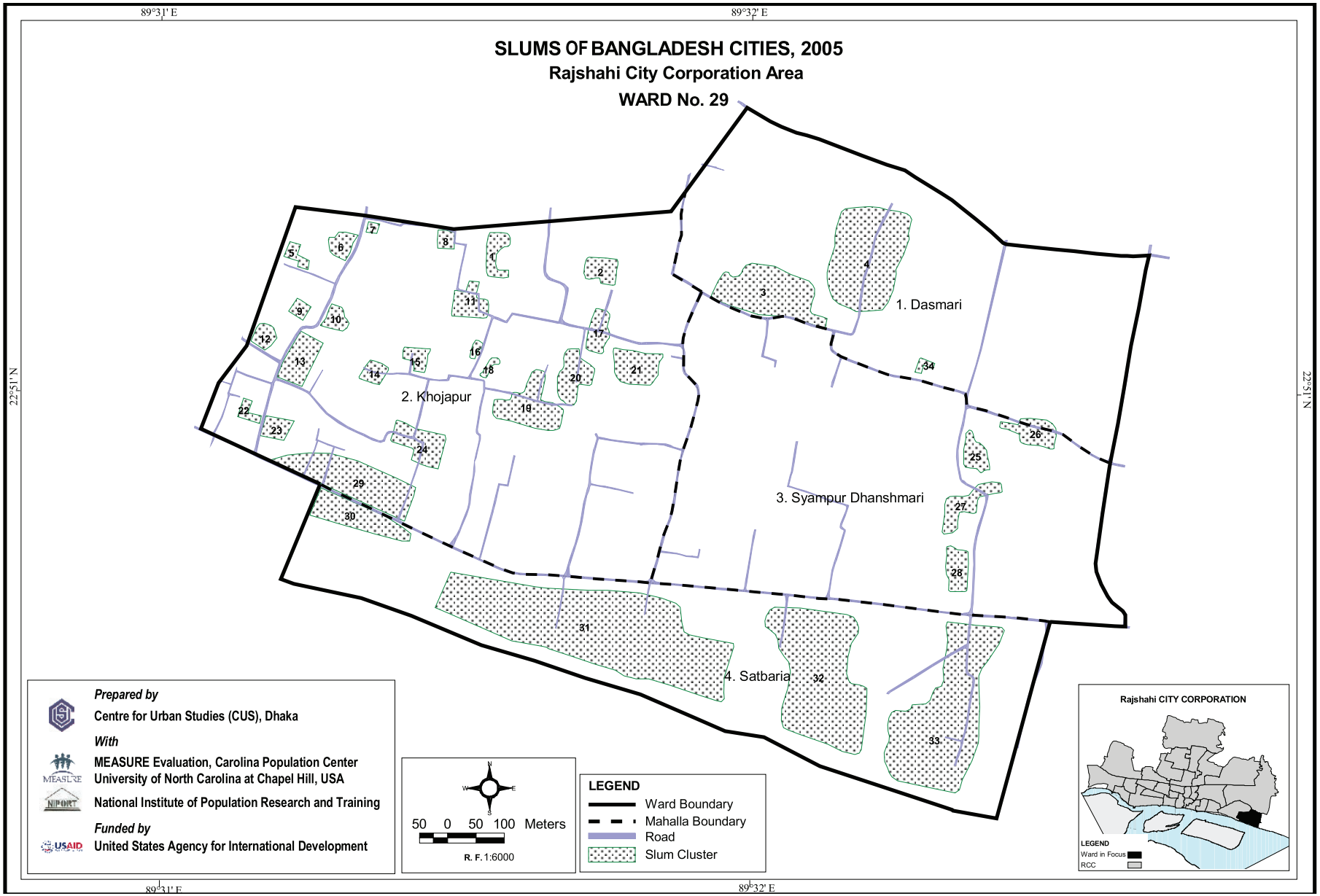


Figure 2.9: Slums in Ward No. 29, Rajshahi City, 2005

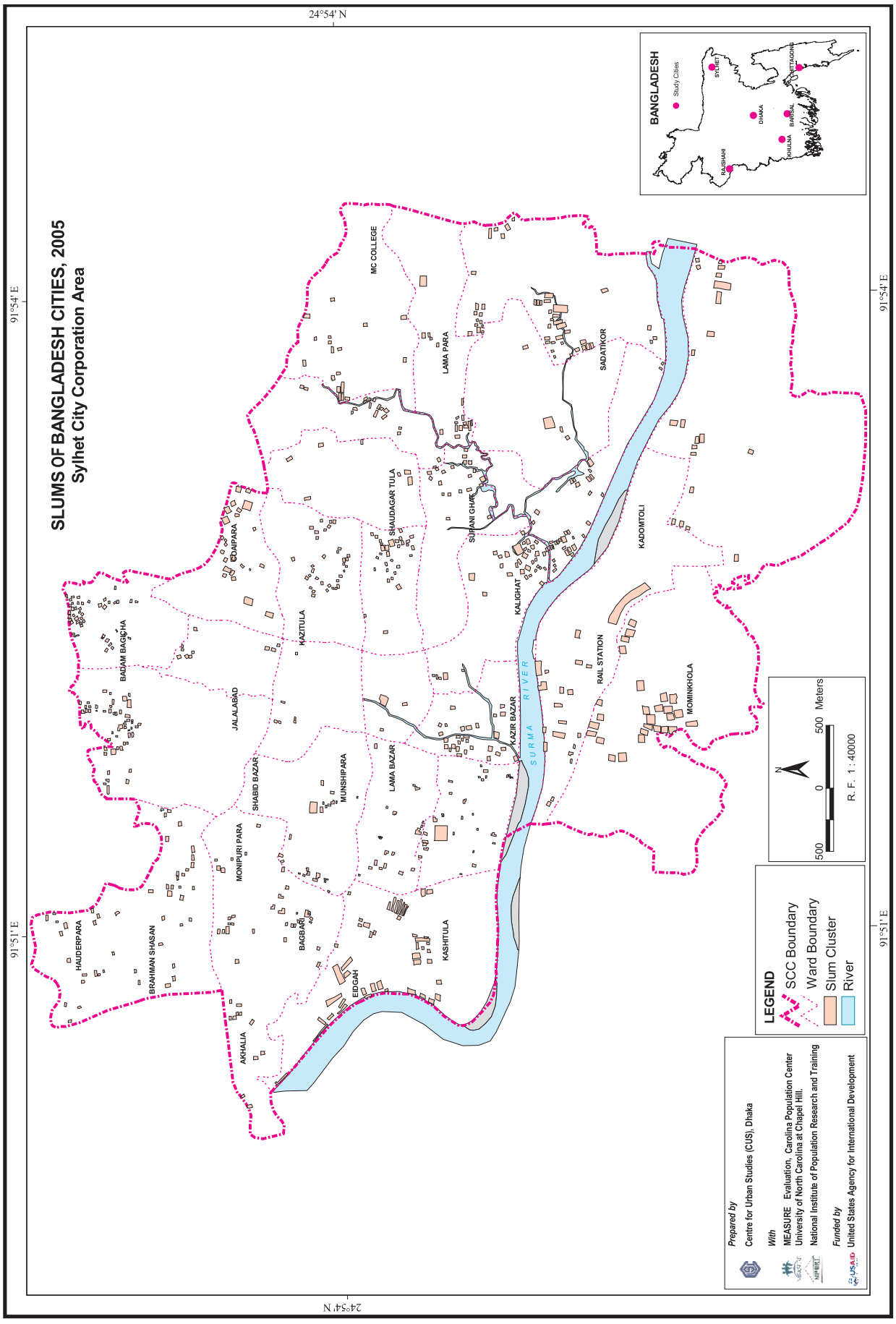


Figure 2.10: Slums in Sylhet City, 2005

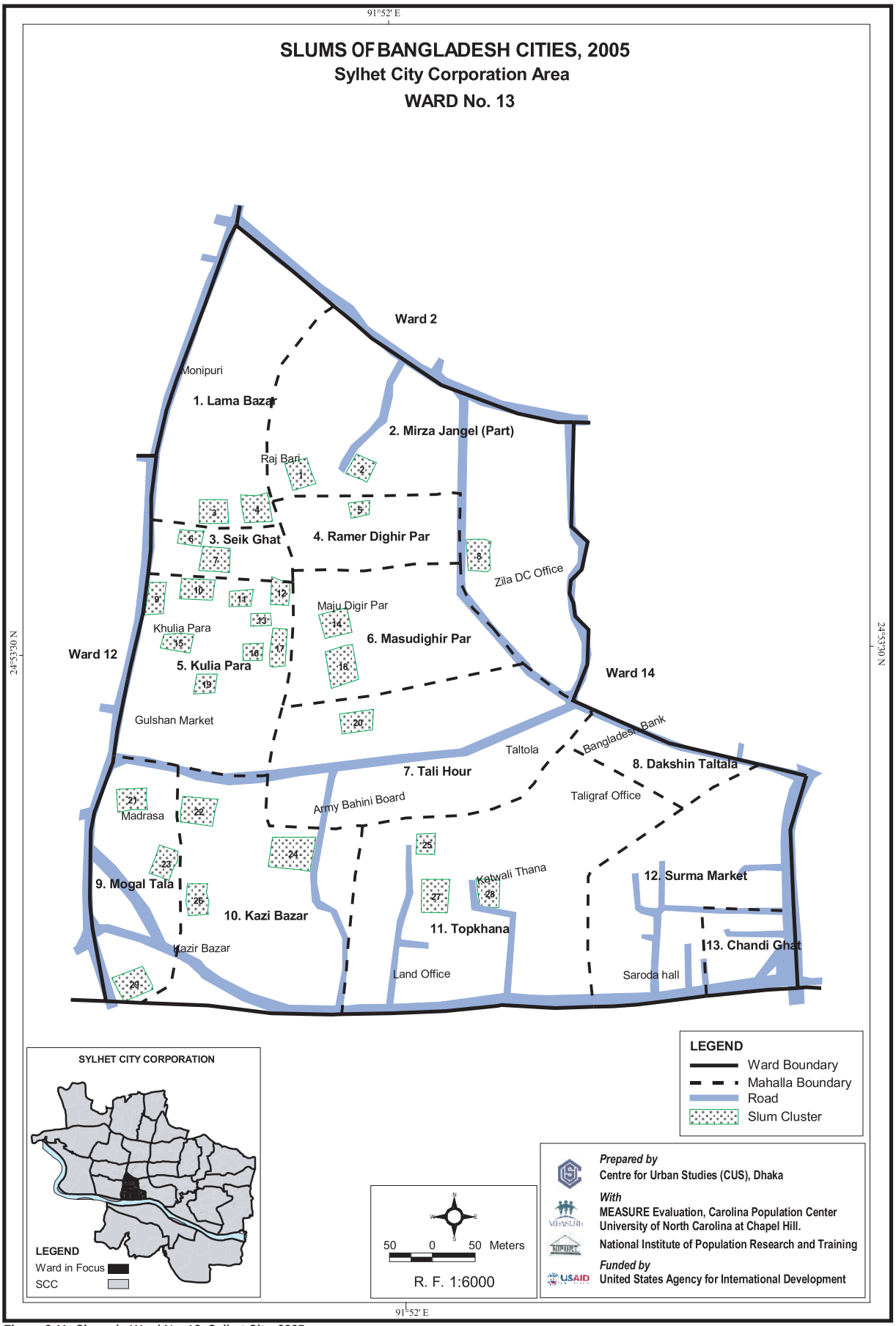


Figure 2.11: Slums in Ward No. 13, Sylhet City, 2005

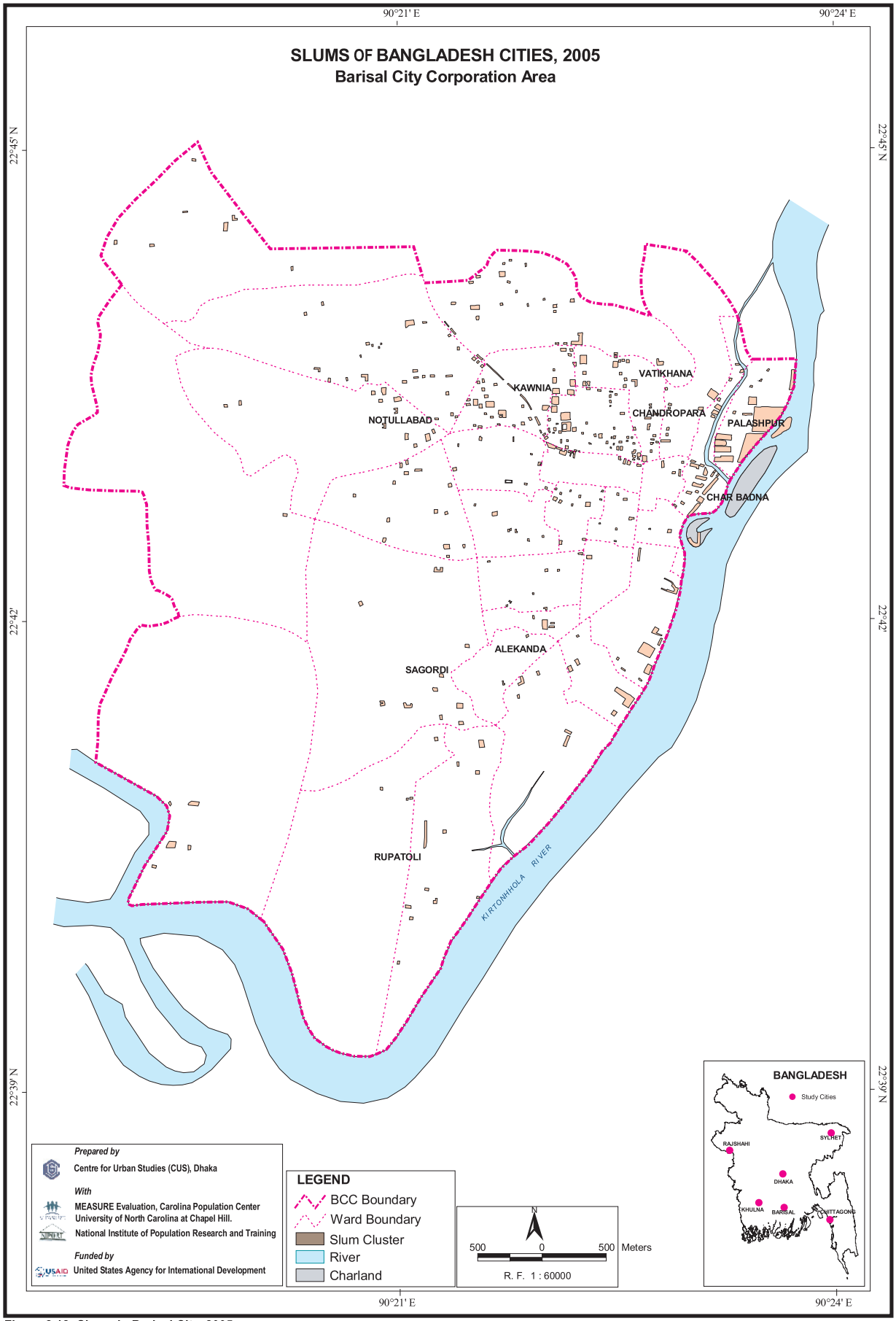


Figure 2.12: Slums in Barisal City, 2005

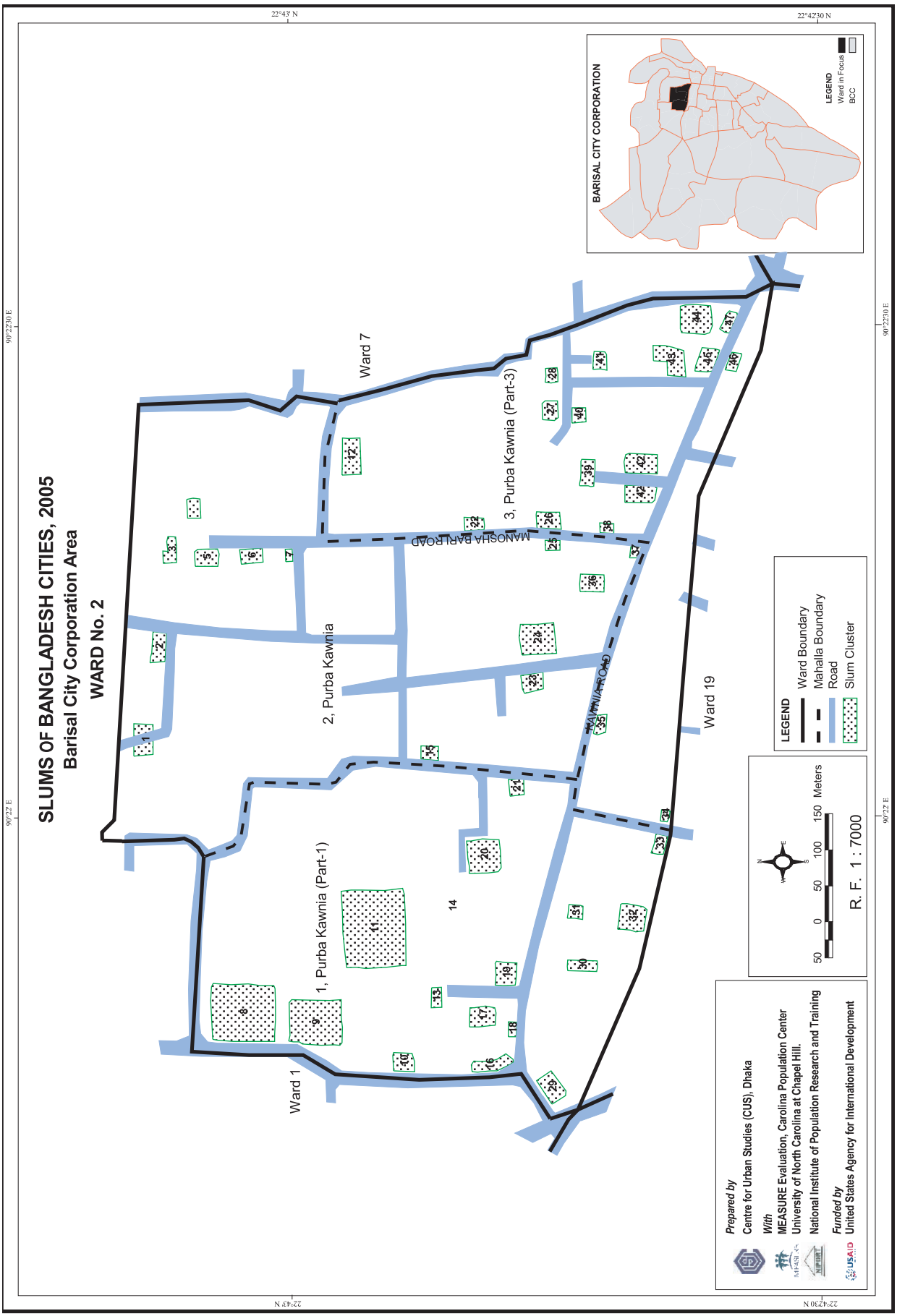


Figure 2.13: Slums in Ward No. 2, Barisal City, 2005

3. FINDINGS: SLUM CENSUS

This section presents findings related to the number of slum clusters, number of slum households and population, mess population, year of establishment of slums, slum size and population density, etc. It also discusses housing conditions and tenure patterns.

3.1 Number of Slum Clusters by City

The total number of slum clusters identified in the six cities was 9,048. As expected, Dhaka accounted for the largest number of slums with 4,966 (or 54.9%) (Table 3.1). Chittagong, the second largest city of the country, had 1,814 slums (20%). Khulna, the third largest, had only 520 (5.7%), even fewer than Sylhet (756 or 8.3%) and Rajshahi (641 or 7.1%). Barisal, which ranks fifth by population size among the six cities studied, had only 351 slums (or 3.9%).

Table 3.1 City-wise Distribution of Slum Clusters

City	Clusters	
	Number	Percent
Dhaka	4,966	54.9
Chittagong	1,814	20.0
Khulna	520	5.7
Rajshahi	641	7.1
Sylhet	756	8.3
Barisal	351	3.9
All Cities	9,048	100.0

3.2 Year of Establishment of Slum Settlements in Existence in 2005

Slums have been a feature of life in the cities of Bangladesh for a long time. Table 3.2 presents the year of establishment of those slums found in 2005. It shows that there were quite a significant number of slums in the cities even prior to 1971, the year of independence of the country. By a five-year period intervals the data suggest that the highest period for establishment of slums for all six study cities combined was 1976-80, which had a concentration of 15 percent of new slums. This was also the peak period for Chittagong (18 percent). For Dhaka the peak period was 1986-90. The most remarkable establishment of slums took place in Sylhet during 1996-2000 (34 percent) and 2001-2005 (17 percent) indicating higher economic opportunities for the poor rural migrants in this city largely contributed by investments by expatriate Sylhetis in the UK.

3.3 Slum Size by Households and Messes

In slum areas people generally live with their families. However, it is also common to see individuals living with other non-related persons in "mess" housing (this is also common in low income non-slums areas). The "mess" system was more common in large cities. The total number of households in the slums of the six cities was 1,043,329, with 673,883 in Dhaka, 266,182 in

Table 3.2 Year of Establishment of Slum Settlements in Existence in 2005, by City (percentage of clusters)

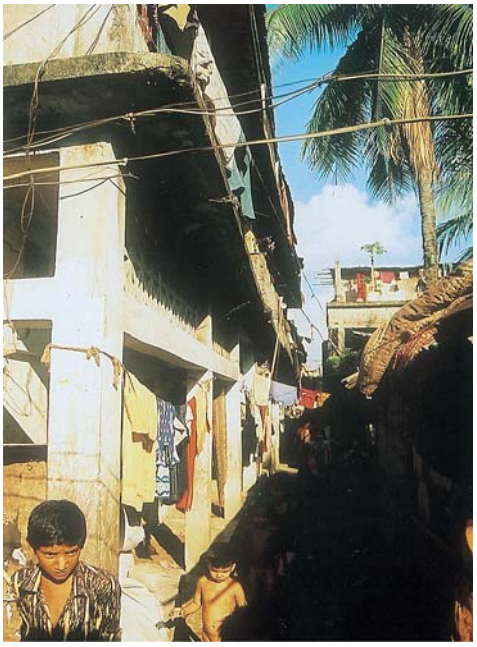
Year of establishment	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	Total
Prior to 1971	12.5	16.3	27.3	47.3	1.8	47.6	17.0
1971-75	9.1	7.4	15.2	16.5	2.8	10.8	9.2
1976-80	14.9	17.9	15.8	17.2	7.7	13.4	15.0
1981-85	12.8	11.7	12.9	7.6	7.7	13.4	11.8
1986-90	17.9	13.4	10.2	6.2	13.9	6.0	14.9
1991-95	13.1	13.3	8.3	2.6	15.1	5.4	12.0
1996-2000	12.3	14.3	6.3	1.7	34.3	2.0	13.1
2001-05	7.3	5.1	3.4	0.8	16.8	1.1	6.7
Don't know	0.0	0.8	0.6	--	--	0.3	0.2
Total %	100	100	100	100	100	100	100
N	4,966	1814	520	641	756	351	9,048

Chittagong, 37,826 in Khulna, 27,665 in Rajshahi, 18,313 in Sylhet and 19,460 in Barisal. Their relative proportions across cities are shown in Table 3.3.

Table 3.3 Number of Slum Households by City

City	Households	
	Number	Percent
Dhaka	673,883	64.6
Chittagong	266,182	25.5
Khulna	37,826	3.6
Rajshahi	27,665	2.6
Sylhet	18,313	1.7
Barisal	19,460	1.9
All Cities	1,043,329	100

Of the 9,048 clusters, only 2.8 percent (253) were occupied exclusively by mess dwellers, while 82.6 percent had only households (Table 3.4). The remaining 14.6% were clusters with a mixture of mess and household units. Table 3.4 shows that mess units were a less prominent feature of slum life in Khulna, Rajshahi, Sylhet and Barisal than in Dhaka and Chittagong.



Slum in three storied building, Sylhet

Table 3.4 Percentage of Slum Clusters by Households and Mess Units in Six Cities

(percentage of clusters)

Clusters with	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All Cities
Households only	80.6	76.0	91.1	94.8	89.3	96.6	82.6
Mess units only	3.1	3.5	0.6	1.2	2.9	1.1	2.8
Households & mess, mixed	16.3	20.5	8.3	3.9	7.8	2.3	14.6
Total %	100	100	100	100	100	100	100
N	4,966	1,814	520	641	756	351	9,048

Slum in Khulna

The majority of slum settlements were small in terms of the total number of households within them (Table 3.5). Almost one third of slums (31.4%) had only 11 to 20 households. This figure varied from 22.6% in Chittagong to 44.4% in Sylhet. In two-thirds of the slums (68.8%) there were 50 households or fewer. Larger slums, in terms of the number of households within them, tended to be located in larger cities, particularly Dhaka and Chittagong. Dhaka, for instance, had 256 slums (2.8% of all clusters in that city) with more than 500 households. Chittagong, the second largest city, had 87 slums (4.8 %) with more than 500 households. Across city corporations, the mean and median number of households per slum cluster was 115 and 26, respectively.

Table 3.5 Number of Households by Cluster in Six Cities

(percentage of clusters)

Size	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All Cities
Up to 10	7.2	5.7	3.5	12.6	16.2	4.0	7.7
11-20	29.7	22.6	37.7	42.5	44.8	40.6	31.4
21-30	14.7	13.1	21.1	18.0	19.6	20.7	15.7
31-40	8.5	7.5	7.7	6.8	9.7	8.9	8.2
41-50	6.0	7.0	3.9	5.7	3.3	5.2	5.8
51-100	12.5	14.9	12.6	5.8	4.5	10.1	11.7
101-150	5.5	6.8	4.6	3.3	1.2	2.3	5.1
151-200	3.3	5.4	2.9	1.7	0.4	2.3	3.3
201-250	1.9	2.5	1.5	0.8	0.1	2.9	1.8
251-500	5.3	9.5	2.7	2.0	0.0	1.4	5.2
501-750	1.6	1.7	0.6	0.5	0.1	0.6	1.3
751-1000	1.3	1.3	0.0	0.0	0.0	0.3	1.0
1000+	2.4	2.0	1.2	0.2	0.0	0.6	1.8
Total %	100	100	100	100	100	100	100
N (hh only)	4,814	1,750	517	633	734	347	8,795
Cluster with mess units only	152	64	3	8	22	4	253
Total clusters	4,966	1,814	520	641	756	351	9,048

3.4 Slum Population by Households and Mess Units

96 percent of the slum population was found in households, with the remainder residing in mess units (Table 3.6). The highest proportion of mess dwellers were found in Sylhet and Dhaka. The largest absolute number of mess dwellers was found in Dhaka (at 133,751)

Table 3.6 Breakdown of Slum Population by Household and Mess Units in Slums by City

City	Slum household population		Slum mess population		Total slum population	
	N	%	N	%	N	%
Dhaka	3,286,770	96.1	133,751	3.9	3,420,521	100
Chittagong	1,403,012	95.8	62,016	4.2	1,465,028	100
Khulna	186,671	99.1	1,771	0.9	188,442	100
Rajshahi	154,803	98.7	1,990	1.3	156,793	100
Sylhet	92,602	94.8	5,074	5.2	97,676	100
Barisal	109,359	99.7	346	0.3	109,705	100
All Cities	5,233,217	96.2	204,948	3.8	5,438,165	100

Table 3.7 presents the distribution of population size across slums. The majority were fairly small. For instance, 62.5% had 200 people or fewer. In Sylhet, almost 90% of slums fell into this category, while in Chittagong only 46% did. Nearly 12% of slums had large populations (with more than 1,000 residents). Some had extremely large populations, including slums with more than 100,000 residents (Karail in Dhaka and Nasirabad in Chittagong). The mean population size in slums for the six cities was 601 (ranging from 808 in Chittagong to 129 in Sylhet). The median population size across the six cities was 145, a figure which varied from 90 in Sylhet to 250 in Chittagong (Table 3.8).

One should bear in mind that the statistics presented in these tables are based on interviews of key informants conducted at the community-level or direct observation of the community by survey teams (as opposed to a formal census or household-level survey), and thus should be approached with a degree of caution. Nonetheless, the information provided in the table is likely indicative of broad patterns.

Table 3.7: Distribution of Slums by Population Size in Six Cities (percentage of clusters)

Slum Population Size (persons)	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	Total
Up to 100	39.0	24.4	45.6	47.7	58.3	33.6	38.5
101-200	22.3	21.5	25.4	28.2	31.5	33.3	24.0
201-300	9.4	12.3	6.3	9.5	5.9	12.5	9.7
301-400	4.9	6.8	4.4	4.2	1.6	4.0	4.9
401-500	3.2	4.0	4.0	1.1	0.8	5.4	3.2
501-1,000	8.4	11.7	7.9	5.0	1.5	4.8	8.1
1,001-2,500	7.3	13.8	4.6	3.4	0.3	4.3	7.4
2,501-5,000	2.8	3.1	0.6	0.6	0.1	1.4	2.3
5,001-10,000	1.6	1.9	1.0	0.2	--	0.6	1.3
Above 10,000	1.0	0.4	0.2	--	--	--	0.6
Total (%)	100	100	100	100	100	100	100
N	4,966	1,814	520	641	756	351	9,048

Table 3.8: Mean and Median Population Size of Slums in Six Cities

City	Mean population size	Median population size
Dhaka	689	150
Chittagong	808	250
Khulna	362	110
Rajshahi	245	110
Sylhet	129	90
Barisal	312	130
Total	601	145

Inside a slum house, Tero Ratan Bastee, Sylhet

3.5 Area of Land Covered by Slums

The slum settlements in the six cities covered roughly 6,545 acres (2,649 hectares) of land, the equivalent of 26.5 square kilometres (Table 3.9). The mean and median size of slum clusters was 0.7 and 0.2 acres, respectively. While the largest single slum in Dhaka was 90 acres, the largest in Chittagong and Khulna were 70 and 33 acres, respectively. The largest slum settlements in the remaining three cities were small. Nearly two-thirds (65.3%) of clusters were up to one 0.33 acre in size, while over three-fourths (78.6%) were up to 0.66 acres (Table 3.10).

Table 3.9 Total Land Area Covered by Slum Clusters by City (area in acre)

City	Slum area		Mean	Median	Minimum	Maximum
	Area	Percent	Area	Area	Area	Area
Dhaka	3,840	58.7	0.8	0.2	0.01	90.0
Chittagong	1,419	21.7	0.8	0.2	0.01	70.0
Khulna	351	5.4	0.7	0.2	0.02	33.0
Rajshahi	575	8.8	0.9	0.5	0.05	14.0
Sylhet	156	2.4	0.2	0.1	0.04	5.0
Barisal	203	3.1	0.6	0.3	0.02	9.2
All Cities	6,545	100	0.7	0.2	0.01	90.0

One acre = 0.404 hectare

Only 13.8 percent (1,248 slum clusters) occupied more than one acre (0.404 hectares). In Sylhet, the overwhelming majority (89.4%) of slums were 0.33 acres or less. In Rajshahi, slum settlements were, in general, bigger in size. Big slums were more often found on public land (i.e. land owned by government and semi-government organizations) (Table 3.11).

The slum clusters in the six cities occupied 4 percent of their total land area (6,545 acres) but accommodated 35.2 percent of their total population. In Dhaka, slums occupied 5.1 percent of the city's total land area but accommodated 37.4 percent of the population. The figures for Chittagong were 3.2 percent and 35.4 percent respectively. Slums on government land were generally larger, with 32 percent being more than one acre (compared to only 11 percent on privately owned land).

Table 3.10 Percentage Distribution of Slums by Area and City (area in acre)

Area in acre	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All Cities
Up to 0.33	67.5	63.0	61.1	31.5	89.4	62.4	65.3
0.34-0.66	11.5	12.2	16.1	33.2	7.5	14.8	13.2
0.67-1.00	6.8	8.3	8.5	17.3	1.8	9.4	7.6
Above 1 acre	14.2	16.5	14.2	17.9	1.2	13.4	13.8
Total %	100	100	100	100	100	100	100
N	4,966	1,814	520	641	756	351	9,048

One acre = 0.404 hectare

Table 3.11 Land Area Covered by Slums on Public Land and Private Land in Six Cities

(percentage of clusters)

Area in Acre	Government Land	Private Land	Other Land	Total
Up to 0.33	41.3	68.7	28.2	65.3
0.34-0.66	15.7	12.7	22.0	13.2
0.67-1.00	11.2	7.2	10.8	7.6
above 1 acre	31.8	11.3	39.0	13. 8
Don't know	0,0	0.01	0.0	0.01
Total %	100	100	100	100
N	840	8,013	195	9,048

Char Rupsha Bastee, Khulna

3.6 Density of Population in Slums

The average population density in slums was 831 persons per acre or 205,415 people per km2 (Table 3.12). This density figure is extraordinary, given that almost all residential structures in slum areas were single storey. Density varied from 272 persons per acre in Rajshahi to 1,032 in Chittagong. Dhaka had the second highest density at 891 persons per acre. The overall gross population density for Dhaka was less than 121 persons per acre. Thus, the population density in slums there was at least 7 times higher than the average for the city as a whole. In Chittagong, the population density in slum areas was 11 times that of the overall city.

Table 3.12 : Population Density : Slum Area and Overall City

City	Persons per acre		Persons per Km^2	
	Slum Area	City Total	Slum Area	City Total
Dhaka	891	121	220,246	29,857
Chittagong	1,032	94	255,100	23,299
Khulna	538	82	132,988	20,346
Rajshahi	272	39	67,236	9,544
Sylhet	626	52	154,741	12,961
Barisal	541	29	133,730	7,152
All Cities	831	95	205,415	23,378

Population density was much higher in cases where slums were located on public land. Except for Rajshahi, low density slums were comparatively rare (Table 3.13). On the other hand, high density slums were usually found in big cities like Dhaka and Chittagong. For example, in Dhaka, the number of extremely dense slum clusters (density above 1,500 persons per acre) was 409 (8.4% of the total in Dhaka), while in Chittagong the figure was 373 (21.1%). There was an average of 5 persons per room in half of the clusters (52.4%). Room density was highest in Sylhet and Dhaka (Table 3.14). Once again, we stress that the figures presented in table 3.14 are based on information gathered at the community-level (as opposed to a household-level survey) and, while likely useful as indicators of broad patterns, should thus be approached with a degree of caution.

Table 3.13 Slum Population Density by City (Percentage of clusters)

Persons per Acre	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All city total
Up to 300	2.0	0.6	18.3	66.9	6.0	2.6	7.6
301-500	12.8	3.0	33.7	27.9	22.2	54.4	15.5
501-1,000	56.7	34.2	44.0	4.7	59.3	38.8	47.3
1,001-1,500	20.3	41.6	3.1	0.2	9.7	3.7	20.6
1,501-2,000	5.5	14.9	0.6	0.3	1.7	0.6	6.2
2,000+	2.8	5.6	0.4	0.0	1.2	0.0	2.8
Missing data	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total %	100	100	100	100	100	100	100
N	4,966	1,814	520	641	756	351	9,048

Table 3.14 Number of Persons Living Per Room by City (percentage of clusters)

Person per room	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All Cities
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.1	0.0	0.5	0.0	4.0	0.2
3	1.5	13.5	4.0	18.9	0.8	47.0	7.0
4	31.8	25.4	49.8	42.8	6.9	25.4	30.0
5	55.2	44.6	41.9	30.3	78.2	12.5	50.8
6	7.4	11.4	3.7	3.9	8.1	7.7	7.8
7	0.3	0.8	0.0	0.3	1.6	2.0	0.6
Above 7	0.5	0.7	0.0	0.5	1.2	0.3	0.6
Don't Know	3.2	3.6	0.6	3.0	3.3	1.1	3.0
Total %	100	100	100	100	100	100	100
N	4,966	1,814	520	641	756	351	9,048

3.7 Housing Conditions

The quality of housing is one of the most basic indicators characterising slum settlements. The majority of slum houses (56%) in the six cities were of very poor quality (weak and temporary structures or kutcha units), while another 42.4 percent were semi-pucca type (homes with brick walls and tin roofs) (Table 3.15). A very small proportion (1.1%) was dilapidated older buildings, while only 0.5 percent was good quality homes. The physical quality of slum housing was generally better in Dhaka and very poor in Khulna and Barisal. However, the fact that slums in Dhaka and some of the other towns showed a relatively high prevalence of semi-pucca structures does not automatically allow one to conclude that the overall housing situation there was good since such houses normally had very high room crowding and very low per capita floor space. The caveat offered for table 3.14 applies here as well: the intrinsically household-level information presented in table 3.15 is based on community-level interviews and observation, and thus should be used primarily for identifying general patterns.

Table 3.15 Housing Structure (percentage of households)

City	Shacks, Jhupris, Mud	Kutcha flimsy structure	Semi pucca flimsy structure	Dilapidated old buildings	Others (better quality)	All houses	Number of households
Dhaka	6.3	39.7	52.3	1.2	0..5	100	673,883
Chittagong	12.5	54.1	32.6	0.3	0.5	100	266,182
Khulna	36.9	48.5	12.3	1.7	0.5	100	37,826
Rajshahi	30.9	20.2	45.2	3.5	0.1	100	27,665
Sylhet	0.9	65.1	33.1	0.5	0.4	100	18,313
Barisal	24.1	62.9	11.6	0.4	0.9	100	19,460
Total	11.3	44.8	42.4	1.1	0.5	100	1,043,329

3.8 Floor Space (House/Room Size) in Slums

Slum dwellers lived in very small, mostly single room homes (Table 3.16). The mean size of a house/room in the six cities was 102.8 sq. ft., the median being 100 sq. ft. (9.55 m2 and 9.29 m2 respectively). In many of slums (46%), the average room size varied between 76 and 100 sq. ft. Slum dwellers in Dhaka usually lived in smaller homes/rooms compared with other cities. In one-fifth of Dhaka's slums (20%), room size was below 76 sq. ft. (7.06 m2), while in three-fifths of clusters (61%) size varied between 76 and 100 sq. ft. Only 2.2% of slums in Dhaka had an average room size above 125 sq. ft., compared with 34 percent in Chittagong, 25.6 percent in Khulna, 33 percent in Rajshahi, 15 percent in Sylhet and 43.9 percent in Barisal (Table 3.16). The same degree of caution exercised in interpreting tables 3.14 and 3.15 should be applied to table 3.16 as well.

Table 3.16 Percentage Distribution of House or Room Size in Slums by City (percentage of clusters)

House size in Sq. Ft.	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All cities
up to 50	2.1	0.3	2.3	0.0	4.6	0.3	1.8
51-75	17.9	2.4	10.8	0.0	22.5	0.0	12.8
76-100	61.0	25.1	20.0	28.9	46.0	12.5	46.0
101-125	16.0	37.6	41.3	37.3	11.8	43.0	24.0
126-150	1.5	21.2	19.2	32.1	3.2	34.8	10.1
151-200	0.4	11.6	5.6	0.5	8.3	8.5	3.9
Above 200	0.3	1.7	0.8	0.0	3.4	0.3	0.8
Don't Know	0.8	0.6	0.0	1.2	0.1	0.6	0.5
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.00
N	4,966	1,814	520	641	756	351	9,048

3.9 Slum Land Ownership Pattern

Table 3.17 shows the pecentage distribution of slum land ownership in the six cities. Most slum clusters (88.6%) were established on privately owned land. Only 9.3 percent were on public land (i.e. on government and semi-government land). A small number (only 195 of the 9,048, or 2.2 percent) were built on land owned by various other organizations. Sylhet revealed a different picture: there were almost no slums on public land. Other studies have suggested that the proportion of slums on private land has been increasing, mainly due to a rapid decline in the availability of public land. (However, it is evident from Table 3.18 that the slums on government land accommodated a greater share of slum population than their sheer proportion among slum clusters might predict.)

Table 3.17 Land Ownership Pattern in Slums by City (percentage of clusters)

Land Ownership	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	Total
Govt./Semi Govt.	9.0	10.8	12.5	13.4	0.8	11.1	9.3
Private	89.8	85.9	79.2	82.7	98.9	87.2	88.6
Other Types	1.2	3.3	8.3	3.9	0.3	1.7	2.2
Total %	100	100	100	100	100	100	100
N	4,966	1,814	520	641	756	351	9,048

The distribution of the slum population by land ownership patterns is presented in Table 3.18. Two-thirds of the slums were located on private land, while 27 percent were on government land and the rest on land owned by various other agencies.

Table 3.18 Percentage Distribution of Slum Population by Land Ownership Type

Land Ownership Type	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All Cities
Government Land	25.7	32.6	27.1	21.4	2.5	30.5	27.1
Private Land	70.3	58.7	54.3	60.3	97.2	63.4	66.7
Others	4.0	8.8	18.6	18.3	0.3	6.1	6.2
Total %	100	100	100	100	100	100	100
N	3,420,521	1,465,028	188,442	156,793	97,676	109,705	5,438,165

3.10 Rental Pattern in Slums

Almost three-fourths (73.9%) of slum households rented their residence, a figure which varied from 17.7 percent in Rajshahi to 96.3 percent in Sylhet (Table 3.19). In Dhaka and Chittagong, the figures were 77.2 and 73.6 percent, respectively. In Rajshahi, a high proportion of slum households (58.9%) were owner occupied. A significant proportion of households (around 25%) in Barisal, Khulna and Rajshahi did not pay any rent.

Table 3.19 Rental Pattern of Slum Households by City (percentage of households)

City	Owner	Rented	Rent Free	Total	
	%	%	%	%	N
Dhaka	11.7	77.2	11.1	100	673,883
Chittagong	16.5	73.6	9.9	100	266,182
Khulna	17.5	59.4	23.1	100	37,826
Rajshahi	58.9	17.7	23.4	100	27,665
Sylhet	0.5	96.3	3.1	100	18,313
Barisal	24.9	49.2	25.9	100	19,460
All Cities	14.5	73.9	11.7	100	1,043,329

4. ENVIRONMENTAL AND INFRASTRUCTURAL FEATURES

This section presents findings related to drainage, sanitation, access to electricity and gas, sources of drinking water, access to latrines and tenure insecurity in slums. It also covers topics such as income levels, vulnerability to fire and place of origin of slum dwellers.

4.1 Drainage Situation in Slums

Bangladesh experiences moderate to heavy rainfall during the rainy season. The drainage situation is, therefore, usually considered to be a very important aspect of the physical suitability of a prospective urban residential area. Slum settlements are often found on land which is in most cases unsuitable in this sense for proper housing. For instance, low lying areas, marshes, sewage canals, riversides, railway tracts and embankments are frequently the site of slums. These sorts of places are prone to suffer from poor drainage and hence water logging (stagnation of water) and flooding, particularly during the rainy season. Tables 4.1 and 4.2 provide the distribution of drainage circumstances in the slums. 52.7% and 37.0% slums were poorly or moderately drained, respectively, while only 10.3% were well drained. The worst drainage situation was in Dhaka and Chittagong, while the best was in Barisal (Table 4.1).

Table 4.1 Drainage Condition in Slum Areas by City (percentage of clusters)

Drainage	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All Cities
Well drained	11.4	2.7	10.2	1.2	6.3	59.8	10.3
Moderately drained	30.0	38.4	51.1	74.6	39.8	34.2	37.0
Poorly drained	58.7	59.0	38.6	24.2	53.8	6.0	52.7
Total %	100	100	100	100	100	100	100
N	4,966	1,814	520	641	756	351	9,048

4.2 Flooding in Slums

Bangladesh suffers from bad floods almost every year and disastrous floods roughly every five years. As they are located on more marginal land, slums are often badly hit. Less than half (46.1%) of slums were normally flood free while over one-fourths (26.5%) typically experienced full flooding and the rest did so on a partial basis (Table 4.2). In Dhaka only about 39.1% of slums were flood free. The situation was notably better in Rajshahi and Barisal.

Table 4.2 Flooding in Slums (percentage of clusters)

	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All Cities
Fully flooded	38.5	20.4	6.1	0.3	10.0	2.3	26.5
Partly flooded	22.4	52.1	36.0	2.2	26.2	6.5	27.4
Flood free	39.1	27.4	57.9	97.5	63.8	91.2	46.1
Total %	100	100	100	100	100	100	100
N	4,966	1,814	520	641	756	351	9,048

4.3 Garbage Disposal in Slums

The majority of slums (55.7%) did not have any fixed place for garbage bins (Table 4.3). Only 39% had regular garbage (Table 4.4) collection (by municipal or other agencies like NGOs). Half (50.5%) appeared to have had no garbage collection at all. Among the six cities, the frequency of garbage collection appeared to be the best in Dhaka.

Table 4.3 Garbage Disposal in Slums by City (percentage of clusters)

Garbage Disposal	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All Cities
Fixed Place	54.6	33.0	42.1	16.2	43.6	12.0	44.3
No Fixed Place	45.4	67.0	57.9	83.8	56.3	88.0	55.7
Don't know	0.0	-	-	-	-	-	0.0
Total %	100	100	100	100	100	100	100
N	4,966	1,814	520	641	756	351	9,048

Table 4.4 Frequency of Garbage Collection in Slums by City (percentage of clusters)

Garbage Collection	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All Cities
Regular	55.7	24.7	19.6	11.9	15.1	7.4	39.0
Irregular	9.2	10.0	20.8	17.2	8.9	6.3	10.4
None	35.1	65.4	59.6	71.0	76.1	86.3	50.5
Don't know	0.1	0.1	-	-	-	-	0.0
Total	100	100	100	100	100	100	100
N	4,966	1,814	520	641	756	351	9,048

4.4 Access to Electricity and Cooking Gas

Table 4.5 shows the level of slum dwellers' access to two critical urban services: electricity and cooking gas. The overwhelming majority of clusters in all cities had electricity. However, the situation was less clear cut at the household level. For instance, in Dhaka, Sylhet and Barisal, electricity was available in over 90% of households, but nearly one fourth in Khulna and Rajshahi didn't have access to this vital service (Table 4.5). Gas was not available in Khulna, Rajshahi and Barisal. In Dhaka, 81.2% of clusters and 57.6% of households in slums had access to cooking gas while in Chittagong and Sylhet gas was available to only 27.9% and 16.1% of slum households, respectively (Table 4.5).

Table 4.5: Access to Electricity and Cooking Gas by City

City	With Electricity		With Cooking Gas	
	Percent of clusters in city	Percent of households in city	Percent of clusters in city	Percent of households in city
Dhaka	97.1	95.4	81.2	57.6
Chittagong	95.5	87.4	54.7	27.9
Khulna	91.5	72.5	--	--
Rajshahi	85.2	72.7	--	--
Sylhet	95.1	93.4	36.0	16.1
Barisal	98.6	95.8	--	--
All Cities	95.5	91.9	58.5	44.6

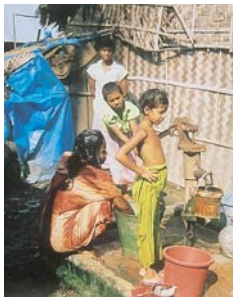
4.5 Sources of Drinking Water

The major sources of drinking water in slums areas were municipal taps and tube wells (Table 4.6). A small proportion of households (1.9%) collected drinking water from other sources (rivers, ponds, lakes, canals etc.). Dhaka's slum residents typically relied on municipal tap water while those in the other cities usually used tube wells. In the overwhelming majority of clusters (95.5% of 5,965) where tap water was available (Table 4.7), households shared it. In 40.9% of these clusters, one tap was shared by 6-10 households while in 22.7% a single tap was used by 11 to 20 families (Table 4.7). Table 4.8 shows the pattern of sharing tube well water. In nearly one third (31.6%) of clusters where tube wells were available, a single one was shared by 11 to 20 households while in 28.6% the figure was 6-10 households.

It is important to bear in mind that the figures in these tables, which involve intrinsically household-level characteristics, were gathered through community-level interviews and observation, and hence they are perhaps most useful for the identification of broad patterns.

Table 4.6 Sources of Drinking Water by City (percentage of clusters)

City	Municipal Tap	Tube well	Other Sources	Number of Cluster
Dhaka	92.3	6.5	1.2	4,966
Chittagong	28.7	65.2	6.1	1,814
Khulna	2.1	97.9	0.0	520
Rajshahi	12.8	87.3	0.0	641
Sylhet	36.3	62.8	0.9	756
Barisal	15.6	84.4	0.0	351
All Cities	61.1	37.0	1.9	9,048



Khulna

Table 4.7 Tap Water Sharing Pattern by City (percentage of clusters, among those with tap water source)

Number of households Sharing One Tap	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All cities
Not Shared	1.4	24.2	38.1	8.7	1.0	--	4.5
2 -5	19.6	24.4	4.8	20.9	6.5	26.1	19.6
6 – 10	45.8	23.7	4.8	34.9	20.3	14.5	40.9
11- 20	21.7	15.7	28.6	28.6	45.9	43.5	22.7
21 -30	4.7	3.9	23.8	4.4	20.3	8.7	5.4
Above 30	6.8	8.0	-	2.4	5.9	8.7	6.8
Total %	100	100	100	100	100	100	100
N	4,641	738	21	206	290	69	5,965

Table 4.8 Tube Well Sharing Pattern by City (percentage of clusters, among those with tube well water source)

Number of households Sharing One Tube Well	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All cities
Not Shared	27.9	2.4	--	2.8	--	4.5	4.6
2 -5	6.5	16.0	7.4	52.0	6.6	2.9	17.3
6 – 10	27.4	37.4	18.3	24.3	30.0	13.8	28.6
11- 20	26.2	30.4	42.5	15.6	40.9	43.4	31.6
21 -30	5.0	7.9	16.8	5.0	14.1	19.3	10.1
Above 30	7.0	5.8	15.0	0.3	8.4	16.1	7.6
Total %	100	100	100	100	100	100	100
N	401	1,391	513	604	487	311	3,707

Although tube well or tap water is accessible to over 90% of the slum dwellers, the location of such sources of water is not very ideal. For the six cities, at least 10 percent of the slum clusters had their water source outside the cluster. Some cities (Khulna, Barisal and Chittagong) had a large proportion of such clusters (Table 4.9). Although tube well or tap water is accessible to over 90% of the slum dwellers, the location of such sources of water is not very ideal. For the six cities at least 10 percent of the slum clusters had their water source outside the cluster. Some cities (Khulna, Barisal and Chittagong) had a large proportion of such clusters (Table 4.9).

Table 4.9 Location of Sources of Drinking Water by City (percentage of clusters)

City	Within Slum		Outside Slum		Total	
	N	%	N	%	N	%
Dhaka	4710	94.84	256	5.16	4966	100
Chittagong	1483	81.75	331	18.25	1814	100
Khulna	306	58.85	214	41.15	520	100
Rajshahi	627	97.82	14	2.18	641	100
Sylhet	742	98.15	14	1.85	756	100
Barisal	274	78.06	77	21.94	351	100
All Cities	8142	89.99	906	10.01	9048	100

4.6 Access to Latrines

Latrines linked to sewers and septic tanks and water sealed latrines are considered safe from a hygienic standpoint. Only 28.8% of slum households had access to one of these three types of latrines (Table 4.10). Dhaka slum residents had the best access to safe latrines (35.6%) while those in Sylhet and Barisal had very poor access (only 2.1% and 0.4%, respectively). Pit latrines, a variety widely regarded as unsafe, were common in slum areas. In almost all slums, latrines were usually shared by two or more households (Table 4.11). In 13.4% of slums, one latrine was shared by 11 or more families.

Table 4.10 Household Access to Different Types of Latrine by City (percentage of households)

City	Sewerage /septic Tank	Water sealed	Pit	Hanging	Open	Others	Total HHs	
							%	N
Dhaka	33.7	1.9	46.3	13.9	3.2	1.0	100	673,883
Chittagong	10.9	6.4	60.5	16.0	5.7	0.4	100	266,182
Khulna	1.0	9.1	79.9	4.0	5.2	0.	100	37,826
Rajshahi	5.6	31.5	50.6	8.8	3.5	0.0	100	27,665
Sylhet	1.6	0.5	90.6	3.8	3.1	0.3	100	18,313
Barisal	0.0	0.4	86.5	0.7	11.9	0.4	100	19,460
All Cities %	24.8	4.0	52.8	13.5	4.1	0.8	100	1,043,329

Table 4.11 Households' Latrine Sharing Pattern by City (percentage of clusters)

Number of Households Sharing One Latrine	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All cities
Not Shared	1.1	2.5	1.5	13.1	0.5	8.0	2.5
2 -5	48.6	40.8	41.9	81.4	21.0	70.9	47.5
6 - 10	38.8	37.5	42.9	4.0	50.8	17.1	36.5
11- 20	7.8	13.8	11.1	0.9	23.9	2.6	9.9
21 -30	1.7	3.4	1.7	0.5	2.0	0.6	1.9
Above 30	1.9	1.9	0.8	-	1.7	0.8	1.6
Total	100	100	100	100	100	100	100
N	4,966	1,814	520	641	756	351	9,048

4.7 Incidence of Fire in Slums

Being predominantly comprised of kutcha housing and densely settled, slums are vulnerable to fire. About 6.1% of slums had experienced at least one fire (Table 4.12). The worst situation, with 24% of slums having experienced fire, was in Khulna, where slums are normally built of golpata (dry leaves), while the best was in Sylhet.

Table 4.12 Fire Incidents (percentage of clusters)

Fire Incidence Ever	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All Cities
None	96.2	91.0	76.0	95.0	99.1	89.5	93.9
Once	2.7	5.3	12.9	3.4	0.8	8.3	4.0
Twice/More	1.1	3.2	11.1	1.6	0.1	2.3	2.1
Total	100	100	100	100	100	100	100
N	4,966	1,814	520	641	756	351	9,048

4.8 Tenure Insecurity

Wholesale evictions of slums on government land are a common event. Of the 9,048 slums, 6.5% experienced one or more evictions in their present location or were currently under the threat of eviction (Table 4.13). It must be emphasized, however, that this provides only a partial indication of the extent of eviction: we cannot observe slum clusters permanently evicted prior to the survey.

Table 4.13 Threat of Eviction: Tenure Insecurity (percentage of clusters)

Eviction Incidence	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All Cities
None	95.5	89.6	82.5	91.1	98.9	94.9	93.5
Once	1.4	2.8	5.0	--	0.5	1.7	1.7
Twice/More	1.9	1.9	6.0	6.9	0.1	3.1	2.4
Currently under eviction threat	1.2	5.7	6.5	2.0	0.4	0.3	2.4
Don't know	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Total %	100	100	100	100	100	100	100
N	4,966	1,814	520	641	756	351	9,048

4.9 NGO Coverage of Slums

Nearly three-fourths of the slums (71.5%) received services from one or more NGOs. Barisal and Rajshahi were the best serviced and while the slums of Chittagong benefited least from the efforts of NGOs (Table 4.14).

Table 4.14 Percentage of Slums Covered by NGO Programs (percentage of clusters)

NGO Coverage	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All Cities
One NGO	11.3	7.2	27.1	7.0	34.8	13.1	13.1
More than one	58.5	50.4	61.3	86.0	40.7	81.2	58.4
None	30.2	42.4	11.5	7.0	24.5	5.7	28.5
Don't know	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	100	100	100	100	100	100	100
N	4,966	1,814	520	641	756	351	9,048

4.10 Slum Dwellers' District of Origin

Except for Dhaka, the slum dwellers of the various study cities mostly originated from districts adjoining them (Table 4.15). The slums of Dhaka attracted significant numbers of migrants from nearly 28 districts (out of 64 in the country). However, the majority (52.9%) came from only 5 of them: Barisal (22.7%), Faridpur (9.2%), Comilla (9.1%), Mymensingh (7.3%) and Rangpur (4.6%). In Chittagong, 53.5% of slum dwellers came from only 3 districts: Chittagong (19.6%), Comilla (19.0%) and Noakhali (14.9%). In Khulna, 70.7% migrated from 3 districts: Barisal (35.9%), Bagerhat (17.9%) and Faridpur (16.9%). Slum dwellers in Sylhet mostly (59.1%) originated from Mymensingh (15.6%), Sunamganj (13.8%), Comilla (10.7%), Rangpur (9.5%) and Habigonj (9.5%). Over two-thirds (70.3%) of slum dwellers in Rajshahi originated in Rajshahi District. Similarly, Barisal District supplied 65.3% of slum dwellers in that city. Across the 6 city corporations, only 6 districts out of 64 in the nation supplied 54% of the total slum population. These were Barisal (19.4%), Comilla (11.0%), Faridpur (6.6%), Noakhali (6.2%), Mymensingh (5.5%) and Chittagong (5.3%).

Table 4.15 Major Districts of Origin of the Slum Dwellers by City (percent age of total slum dwellers of respective city)

Study City						
Dhaka (%)	Chittagong (%)	Khulna (%)	Rajshahi (%)	Sylhet (%)	Barisal (%)	All Cities (%)
Barisal, 22.7 Faridpur, 9.2 Comilla 9.1 Mymensingh, 7.3 Rangpur, 4.6	Chittagong, 19.6 Comilla, 19.0 Noakhali, 14.9	Barisal, 35.9 Bagerhat, 17.9 Faridpur,16.9%	Rajshahi,70.3	Mymensingh,15.6 Sunamganj, 13.8 Comilla, 10.7 Rangpur, 9.5 Hobiganj, 9.5	Barisal 65.3	Barisal, 19.4 Comlla, 11.0 Faridpur, 6.6 Noakhali, 6.2 Mymensingh, 5.5 Chittagong, 5.3
Total 52.9	53.5	70.7	70.3	59.1	65.3	54.0

4.11 Occupational Pattern in Slums

As expected, slum dwellers typically work in (low wage) informal sector occupations such as day labour (24.0%), transport work (25.4%), formal and informal factory work (17.7%, most likely concentrated in formal sector garment factories), domestic work and hawking or vending (Table 4.16). Few have low level jobs in government or formal sector private organizations. Table 4.16 presents intrinsically household- or individual-level information gathered only indirectly through community-level interviews or observation, and hence should be approached with caution except perhaps for the purpose of considering broad patterns.

Table 4.16 Pattern of Occupation of Slum Dwellers (percentage of gainfully employed persons*)

City	Business / trade	Hawker/ Vender	Service	Day Labour	Domestic Worker	Transport	Factory worker	Others	Total
Dhaka	10.1	3.7	10.8	18.6	5.0	24.0	22.4	5.0	100
Chittagong	9.4	1.5	10.2	25.3	2.6	23.0	21.3	6.5	100
Khulna	9.5	1.9	5.0	32.0	3.1	31.3	13.8	3.2	100
Rajshahi	20.3	0.6	8.6	32.8	1.2	30.4	0.3	5.9	100
Sylhet	6.1	2.3	8.9	29.1	3.2	41.3	0.6	8.4	100
Barisal	14.0	2.3	9.2	54.3	1.7	5.6	7.4	5.4	100
Total	10.5	2.8	10.0	24.0	3.9	25.4	17.7	5.6	100

* Excluding housewives.

4.12 Income Pattern in Slums

Slums are generally places of concentrated poverty, with many residents below the poverty line. Using a household income of Tk. 5,000 per month as a reference, 91% of slum residents were poor with 37.5% having incomes below Tk. 3,000 per month, a situation representing hardcore poverty (Table 4.17). Dhaka was slightly better off, with 14.6% having incomes above the poverty line and 23.4% having incomes that fell below the hardcore poverty line. Poverty was most widespread in the slums of Barisal. It must be stressed that same caveats applied to Table 4.16 are relevant here as well.

Table 4.17 Households' Monthly Income Pattern by City (percentage of households)

City	<2000 Tk	2001-3000 Tk	3001-4000 Tk	4001-5000 Tk	Above 5000 Tk	Number of Households
Dhaka	3.8	19.6	34.5	27.6	14.6	673,883
Chittagong	21.0	36.8	27.6	11.6	2.9	266,182
Khulna	34.4	54.3	9.4	1.5	0.3	37,826
Rajshahi	8.8	52.1	33.9	4.7	0.5	27,665
Sylhet	0.8	1.9	22.0	69.3	5.9	18,313
Barisal	44.6	44.8	9.9	0.6	0.1	19,460
Total	10.7	26.8	29.6	23.7	9.1	1,043,329

4.13 Slums Dweller's Perception of their Own Settlement

The concept of a slum (or "bastee", as they are named in Bangladesh) can be as much about perception as physical or socio-economic reality. The term "bastee" (or slum) normally carries a negative image and even residents of a "bastee" often do not like their settlements to be so labelled, preferring instead the term "residential area" (as in the case of middle class or non-poor neighbourhoods). However, some slum dwellers do not mind describing their neighbourhoods as a "bastee." For instance, in Khulna, 42.9% of slum dwellers described their settlements as "bastee" (Table 4.18). In the Bangladeshi context, the terms "camp" and "colony" normally indicate "refugee" or squatter resettlements. Almost all slum dwellers in Sylhet described their settlement as a "colony". Only 13 percent of slums were described as residential areas ("Abashik Elaka") by their residents, with those mainly concentrated in Dhaka.

Table 4.18 Slum Dweller's Perception of their Settlements

(percentage of clusters)

How is the settlement known?	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All Cities
Residential Area	22.9	0.3	5.8	0.0	0.5	3.1	13.1
Mohalla	43.9	1.7	16.7	38.4	0.0	80.0	31.2
Colony/squatter	3.3	69.2	7.3	3.9	98.7	3.1	24.8
Camp	0.6	0.00	0.8	0.2	0.0	0.0	0.4
Bastee	18.8	2.5	42.9	7.0	0.0	13.4	14.3
Others	10.4	26.3	26.5	50.5	0.8	0.3	16.2
Don't know	0.0	-	-	-	-	0.0	0.0
Total	100	100	100	100	100	100	100
	4,966	1,814	520	641	756	351	9,048

4.14 Overall Characteristics of Slums

In addition to the nearly thirty indicators used to describe the slum status of clusters in the six cities, the slum investigators were asked to make their own assessments based on the five key criteria: housing, population density, environmental services, socio-economic status and security of tenure. These observations were highly subjective and yet they did capture the overall status of the slums quite effectively. More than 93% of slums were reported to have very high population density and very poor environmental services, and 85% had very poor housing conditions (Table 4.19). Interestingly, less than 10% of slums seemed to suffer from lack of tenure security. This can be explained by the fact that most were on private land and run on a commercial basis. Sudden evictions were not very common in such slums.

Table 4.19 Overall Characteristics of Slum Settlements

(percentage of clusters in respective city)

Characteristics	Dhaka	Chittagong	Khulna	Rajshahi	Sylhet	Barisal	All cities
Very poor housing	80.4	96.5	98.8	99.7	56.6	95.1	84.6
Very high pop. density	97.5	99.7	85.0	48.5	97.1	98.9	93.8
Very poor environmental service	99.5	99.6	98.6	98.6	99.1	96.6	99.2
Very low Socio-economic status	98.7	98.9	91.3	97.3	98.7	64.1	96.9
Lack of security of tenure	9.4	12.1	8.6	14.5	0.4	6.5	9.4
Number of clusters (N)	4,966	1,814	520	641	756	351	9,048

5. CONCLUSIONS

Slums are a pervasive feature of life in urban Bangladesh. Based on the results of earlier efforts to gauge the extent of slums in Dhaka, it would seem that the growth there in the number of slum clusters and their population has continued to be impressive. In addition to physically delineating and determining the area and population of slums, this study also gathered information on a large number of indicators which characterize slums. To begin with, five basic, widely recognized characteristics were used to define slums. These were: housing quality; population density and crowding; environmental/sanitation services; income or socio-economic status; tenure security. These were selected because they have often emerged, in both the international and more narrowly Bangladeshi context, in discussions of what constitutes a slum. Interestingly, however, this study suggests that tenure security would seem to have less relevance in Bangladesh, though to be sure it does remain a concern for appreciable numbers of slum dwellers in Dhaka, Chittagong and Rajshahi. Most previous studies of slums and squatter populations in Dhaka or other Bangladeshi cities have concluded that secure tenure was the most important and pressing need confronting slum dwellers.

Slums have often been conceptualized as areas of concentrated poverty. Certainly this proved true in the present study, with over 90 percent of slum dwellers living in households with monthly incomes falling below the poverty line. However, this also suggests that roughly one in ten slum dwellers was not poor. This is an important dimension of slum life that deserves further attention. For instance, given the generally tenuous and challenging conditions in slums, why do so many non-poor individuals elect to live in them? What role do they play in slum life, and how do they help to shape outcomes in them (compared with what might have prevailed in their absence)?

This survey revealed that slum circumstances vary greatly across the six cities. In many instances, there are two overall prevailing situations: the circumstances in the largest cities (Dhaka and Chittagong) and those in the smaller ones. This realization should lead to the casting of a wider net in future studies focusing on slums: the circumstances of the slums of the largest cities of Bangladesh (or, likely, those of the slums of the largest cities of most other poor and middle-income nations) are in all likelihood not particularly representative of those in smaller and medium sized cities. Unfortunately, studies into the causes or consequences of slum life to date in Bangladesh have generally focused on a limited number of slums in Dhaka.

The great variation in slum characteristics also suggests that, while our five overall characteristics worked fairly well in identifying slums, there really is no "typical" slum. Along with serving as a further caution regarding case-studies focusing on just a few slums, this also suggests that we should maintain a fairly flexible conceptualization of slums. While everyone may feel that they know a slum when they see one, a working empirical definition is a challenge. Studies that rely on them (including, admittedly, our own) may suffer from an empirical definition that fails to capture some slum communities. At the same time, it is important to recognize, given the complex set of characteristics that define the policy environment within communities and the tremendous variation in these circumstances across slum clusters, that it is unlikely that "one size fits all" policies will be efficacious in all slum communities.

Appendix-1

The 2005 Slum Study Team, CUS

Key Persons

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Professor AQM Mahbub
Professor Nurul Islam Nazem

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Shahab Uddin
Tarikul Islam

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Mr. Mostaque Ahamed

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A N M Safiqul Alam
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Khulna:	Dr. Taslima Begum Ehsanul Kabir
Rajshahi:	Dr. Raquib Ahmed
Sylhet:	Saidur Rahman Delwar Hossain
Barisal :	Zahid Hossain

Word processing

Mostafa Md. Mostafizur Rahaman

Appendix-2

Centre for Urban Studies (CUS)

House No. 59/B, Road 16, Dhanmondi R/A, Dhaka

BASIC INFORMATION ON LOW INCOME SETTLEMENTS

Delineation of Slums in Six city Corporations of Bangladesh

INFORMED CONSENT

Assalamu Alaikum

We come from the Centre for Urban Studies (CUS), an independent research organization, located in Dhaka. To assist in the implementation of socio-development programs in the country. we conduct different types of surveys. We are carrying out a mapping exercise to identify your communities to get a picture of services available to the communities and to understand how services can be best planned in your community.

We would like to ask you some questions about your community. Please be assured that this discussion is strictly confidential, the information gathered will never be linked back to you and you may choose to stop the interview at any time. Whatever information you provide will be used for program evaluation purposes and will be seen only by staff and researchers at the organizations mentioned.

Participation in this survey is totally voluntary and you can choose not to answer any individual question or all of the questions. However, we hope that you will participate in this survey since your views are important. If you wish to know more about your rights as a participant in this study you may write the Institute Review Board at the School of Public Health. CB#7400. Universityof North Carolina at Chapel Hill, NC27599-7400 U.S.A., or call, collect if necessary, 001-919-966-9347. If you have further questions regarding the nature of this study you may contact Centre for Urban Studies (CUS), House # 59/B, Road # 16 (new) 27 (old), Dhanmondi, Dhaka-1209 or Phone 8120047.

At this time, do you want to ask me anything about the survey?

May I begin the interview now?

Sketch Map of the Slum N

Survey Team: 1. _____ Date: _____

2. _____

Appendix-2

Centre for Urban Studies (CUS)

House No. 59/B, Road 16, Dhanmondi R/A, Dhaka

BASIC INFORMATION ON LOW INCOME SETTLEMENTS

Delineation of Slums in Six City Corporations of Bangladesh

Name of key informants _____

(with ege & identification) _____

1 IDENTITY NO

City Ward Cluster no

1 DCC 2 CCC 3 KCC 4 RCC 5 SCC 6 BCC

2 ADDRESS

Name of the Settlement : _____

Street (with no)

Elaka/Para/Mahalla _____

Union _____ Thana _____

3 YEAR OF ESTABLISHMENT _____

4 AREA _____ (in acre)

5 TOTAL HOUSEHOLDS _____

6 MESS POPULATION _____

7 TOTAL POPULATION _____

8 SETTLEMENT TYPE (%)

1 Family Dwelling _____

2 Mess _____

9 SETTLEMENT CHARACTERISTICS

1 Predominently very poor housing condition/ Poor structure/low durability
2 Very high population density
3 Very poor environmental services(water/sanitation)
4 Very low socio-ecpmp,oc statis
5 Lack of security of tenure

10 LAND USE (%)

1 Residential _____
2 Commercial _____
3 Industrial _____
4 Others _____

11 LAND OWNERSHIP

1 Govt./Semi Govt./khas
2 Private
3 Waqf
4 Mixed
5 Unclear/Disputed

12 HOUSING STRUCTURE (%)

1 Shacks/Jhupris/Mud _____
2 Kutcha flimsy structure _____
3 Semi pucca flimsy structure _____
4 Dilapidated old buidings _____
5 Others (better quality) _____

13 ROOM CHARACTER

1 Single R. _____ (%)
2 Double R. _____ (%)
3 Average Room Size _____ sft

14 POPULATION DENSITY

1 Persons/acre _____
2 Persons/room (Predominant) _____

15 RENTAL PATTERN

1 Owner ____%
2 Rented ____%
3 Rent free ____%

If rented

4 Average rent/m/h _____Tk
5 Rent range _____

16 WATER SOURCE

1 Tap ____%
2 Tube well ____%
3 Well ____%
4 Pond/River ____%
5 Others ____%

17 LATRINE TYPE

1 Sewerage/septic %
2 Water sealed ____%
3 Pit ____%
4 Hanging ____%
5 Open ____%
6 Others ____%

18 WATER/LATRINE SHARING (within slum)

1 Own tap/TW _____ %
2 One tap shared by No. of hhs _____
3 One TW shared by No. of hhs _____
4 One latrine shared oy No. of hhs _____

19 ACCESS TO UTILITY SERVICES (%)

1 Electricity _____
2 Cooking gas _____

20 LOCATION OF WATER SOURCE

1 Within slum
2 Outside the slum
3 Distance _____ (m)

21 DRAINAGE

1 Well drained
2 Moderately drained
3 Poorly drained

22 FLOODABILITY

1 Fully flooded
2 Partially flooded
3 Flood free

23 GARBAGE DISPOSAL

1 Pixed Place
2 No Fixed Place

24COLLECTION

1 Regular
2 Irregular
2 None

25 SCHOOLING

1 Percent of school going children _____

26 MAJOR OCCUPATION

1 Business/trade ____%
2 Hawker/Vendor ____%
3 Service ____%
4 Day Labour ____%
5 Domestic Worker ____%
6 Transport ____%
7 Factory worker ____%
8 Others ____%

27 MONTHLY HH INCOME

1 < 2000 Tk ____%
2 2001-3000 Tk ____%
3 3001-4000 Tk ____%
4 4001-5000 Tk ____%
5 Above 5000 Tk ____%

28 DWELLER'S ORIGIN

(4 Major District of Origin)

1 _____ (%)
2 _____ (%)
3 _____ (%)
4 _____ (%)

29 FIRE INCIDENCE EVER

1 None
2 Once
3 Twice/More

30 EVICTION INCIDENCE

1 None
2 Once
3 Twice / More
4 Currently under eviction threat

31 NGO COVERAGE

1 One NGO
2 More than one
3 None

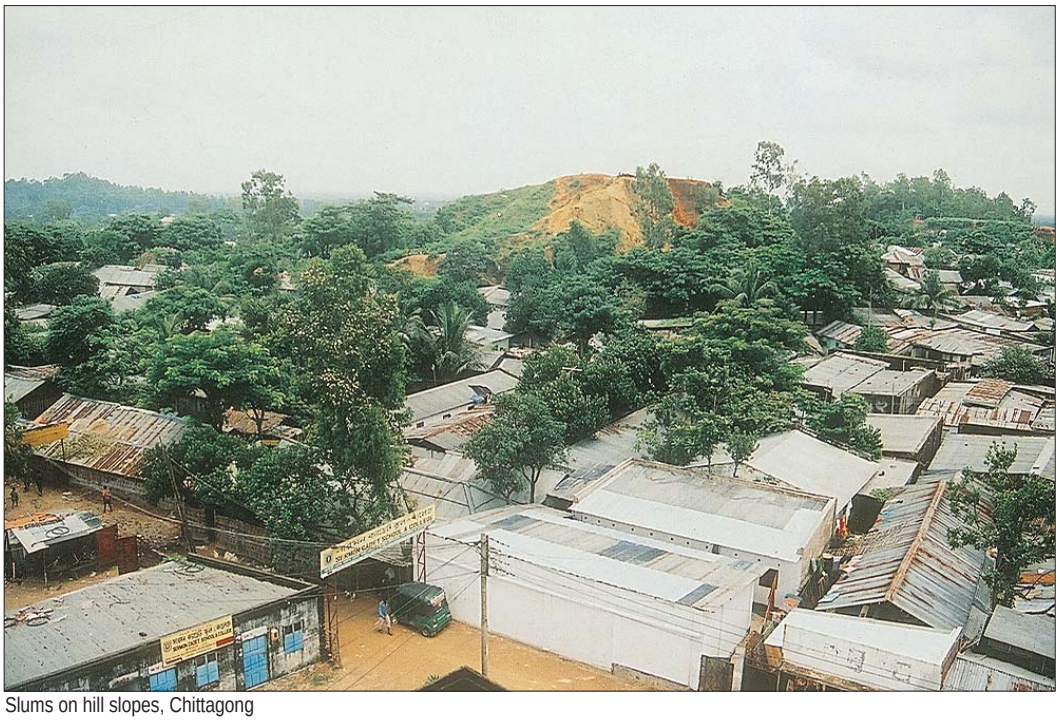
32 GO COVERAGE

1 Yes 2 No

33 HOW IS THE SETTLEMENT KNOWN

1 Residential Area / Abashik Elaka
2 Mohalla
3 Colony/staff quarter
4 Camp
5 Bastee
6 Others _____

Thank You Very Much For Giving Us Time



Slums on hill slopes, Chittagong