Updating Poverty Maps Of Bangladesh

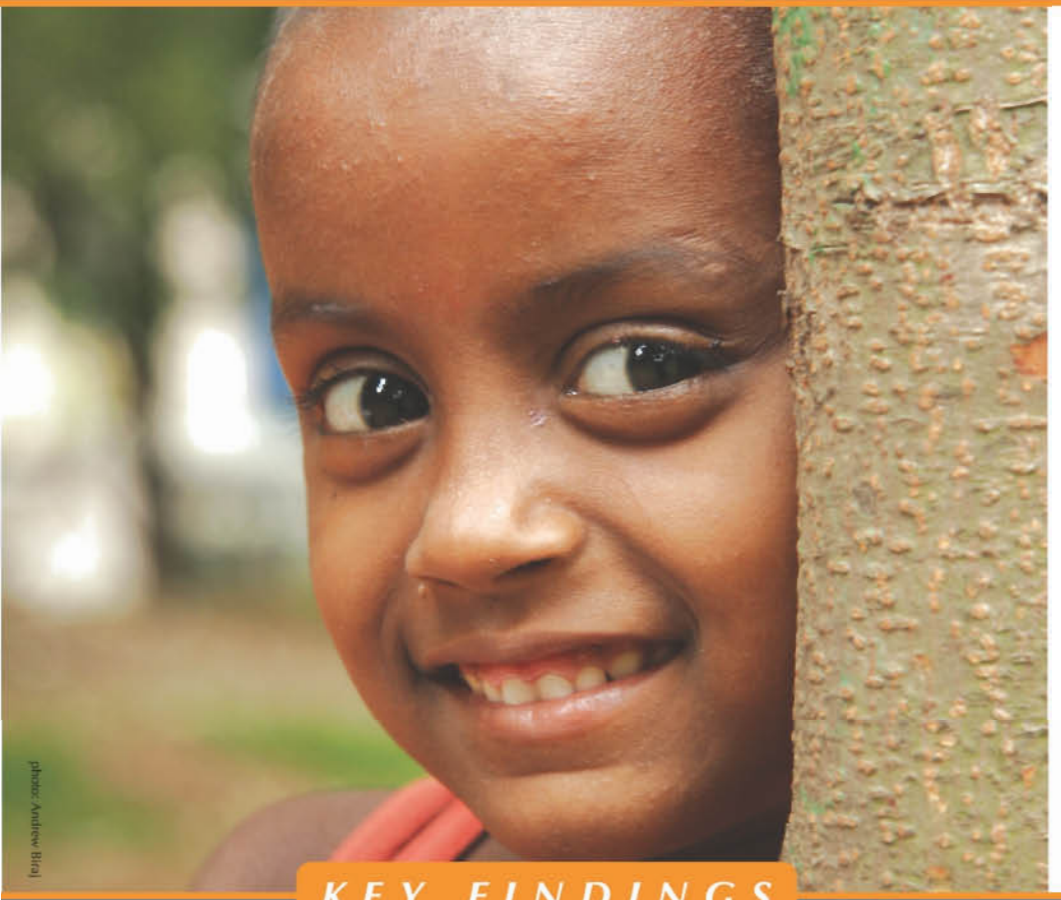
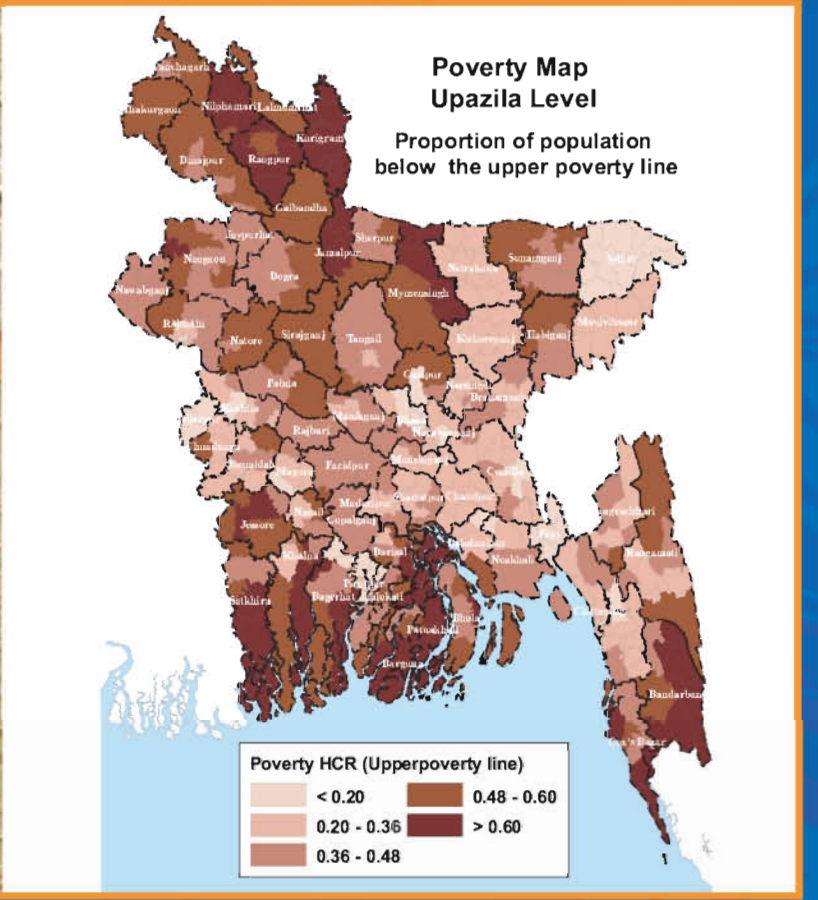


photo: Andrew Biraj

KEY FINDINGS



Preface

In response to increasing demand for updating the poverty maps of 2001, the Bangladesh Bureau of Statistics (BBS) and the World Bank, in collaboration with the World Food Programme (WFP), have produced a new set of poverty maps of 2005.

This updating exercise started in June 2007 and was completed in February 2009 after careful revisions by the technical committee and the steering committee comprising professionals in the relevant field. The steering committee endorsed the new poverty maps of 2005 and cleared their wider dissemination on February 9, 2009.

I would like to take this opportunity to express my sincere gratitude to the concerned officials of the BBS, particularly Mr. Md. Shamsul Alam, focal point officer, poverty mapping, Mr. Zahidul Hoque Sarder, Project Director, HIES, and Mr.Md. Abdul Latif ASO HIES. Also, I would like to thank Dr. Nobuo Yoshida and Mr. Faizuddin Ahmed of World Bank for their technical assistance and capacity building for the BBS staff. I would also like to acknowledge the support provided by Ms. Nusha Yamina Choudhury and Mr. John McHarris of WFP, particularly on the GIS exercises.

Furthermore, I would like to thank the Planning Division and Planning Commission for their guidance and support. I would also like to acknowledge all the technical committee members and the steering committee members for their careful reviews and constructive suggestions, which contributed to improvements in the final version of the poverty maps.

This brochure was prepared by the above mentioned team consisting of the BBS, the World Bank and the WFP, as well as Mr. Diepak Elmer and Ms. Mehrin A. Mahbub of World Bank. I would like to thank all those who contributed to this brochure in time for the dissemination workshop.

Finally, I would like to thank Mr. Xian Zhu, Country Director of the World Bank, and Mr. John Aylieff, Representative of the WFP, for their generous support to the Government of Bangladesh and the BBS. I would also like to acknowledge the generous financial support for this entire project from the UK's Department for International Development.

AYM Ekramul Hoque
Director General

Foreword

Understanding the geography of poverty, regional variations, and spatial patterns is critical if we are to successfully contribute to poverty reduction. Poverty maps can reveal pockets of severe poverty and deprivation that might otherwise go overlooked, and can help planners and implementers to better target their efforts to areas of greatest need.

Economic growth and setbacks are not static over time, nor are they uniform over space. Poverty maps need to be updated to reflect changing circumstances and a shifting reality. Capturing changing poverty dynamics requires investing both in our knowledge base, and in our analytical capacity; and these are investments surely that are worth making.

We would like to congratulate the Bangladesh Bureau of Statistics and the Planning Commission for successfully completing the update of this new generation of poverty maps. At the same time, we are honored that both the World Food Programme and the World Bank were able to contribute to this great achievement. We would also like to thank the UK's Department for International Development for their invaluable financial support on this project.

Finally, we are very happy to acknowledge that close collaboration between the Government of Bangladesh and the development partners underpinned this great success. We look forward to furthering our collaboration with the Government and all civil society stakeholders to jointly tackle development challenges faced by the people of Bangladesh.

Sincerely,

Xian Zhu
Bangladesh Country Director
The World Bank

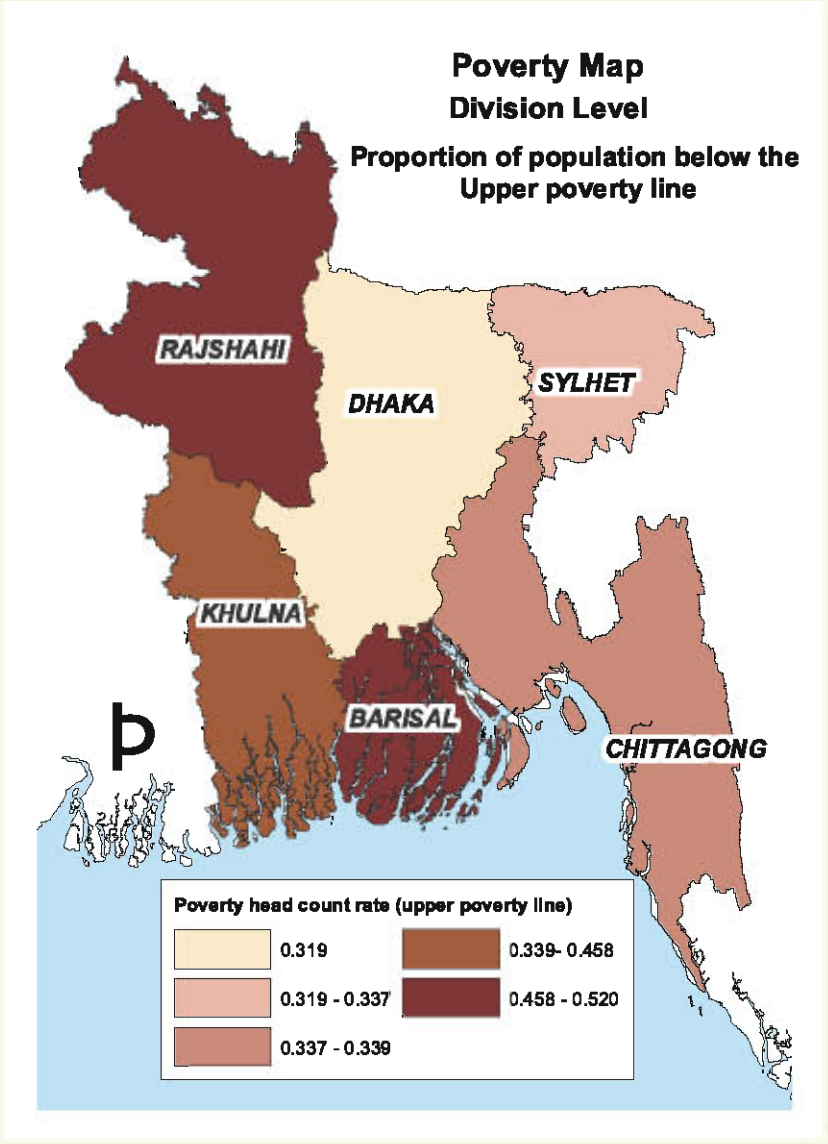
John Aylieff
Representative
United Nations World Food Programme

INTRODUCTION

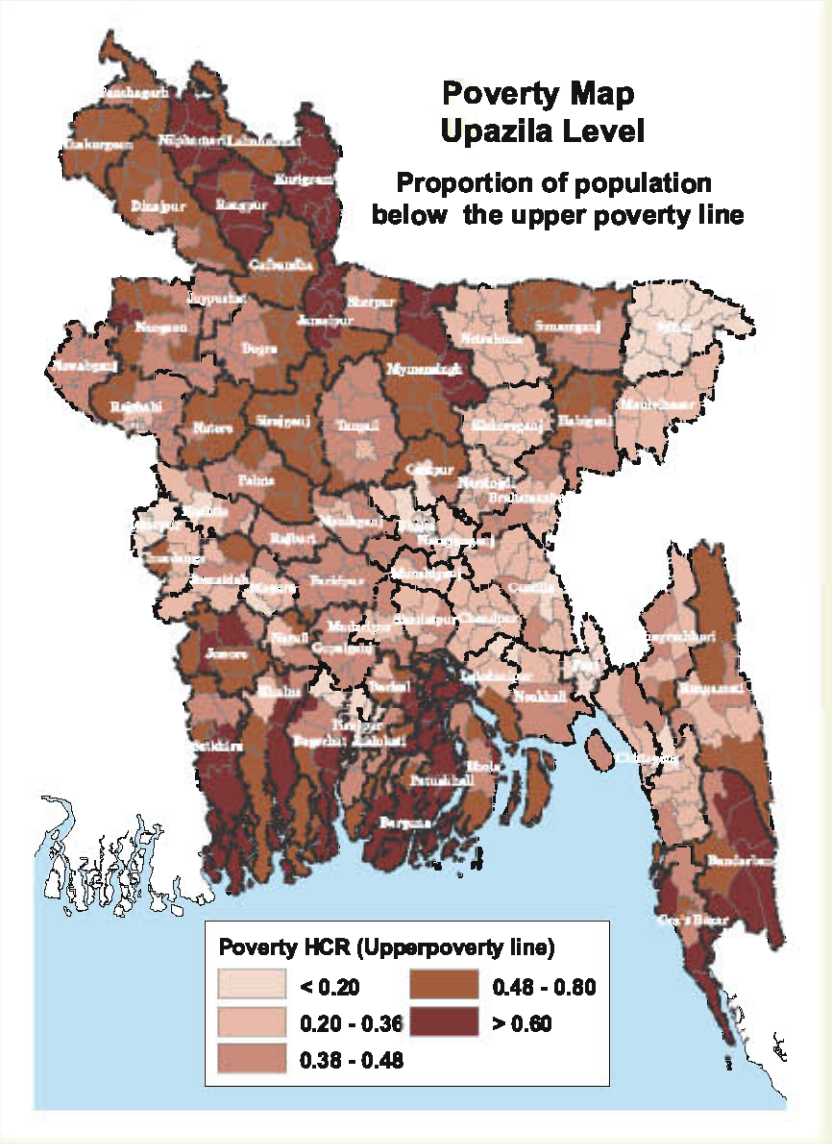
Poverty mapping is a statistical exercise to estimate the incidence of poverty at sub-national levels, which enables government, civil society organizations and development partners to identify locations of poor areas with great accuracy. Recognizing the spatial inequality in growth and poverty allows for more effective targeting of policy interventions, programs and projects based on local conditions.

In Bangladesh, the official poverty rates are produced at the National and Division levels only using Household Income and Expenditure Survey (HIES) data. While the Division Map illustrates a clear east-west division, the Upazila Map unveils large variations in poverty incidence within the east and the west. Mapping the data at lower levels allows us to recognize important patterns at local and community scale levels as well.

Division Level Poverty Map



Upazila Level Poverty Map



Updating Poverty Maps

Poverty maps were produced for Bangladesh based on HIES 2000, but they have become outdated and demand was growing for new poverty maps based on HIES 2005. In response, the Bangladesh Bureau of Statistics (BBS) and the World Bank, in collaboration with the World Food Programme (WFP), committed to updating the poverty maps. The updating exercise was financially supported by the UK's Department for International Development (DfID).

Amongst the many methodologies available for poverty mapping, the team selected the "Small Area Estimation" method developed by Elbers, et al. (2003).

This methodology takes advantage of the strengths of both the Population Census 2001 and HIES 2005. The Small Area Estimation method has gained wide acceptance and usage among development practitioners due to its statistical rigor and ease of implementation.

The poverty map updating exercise was marked by (i) capacity building at the BBS, (ii) a careful review process, and (iii) some novel validation exercises. The World Bank provided a hands-on training of poverty mapping at the BBS in June 2008. The training was opened to outside researchers and development practitioners. The training helped to strengthen the BBS's ability to produce and update future poverty maps, and deepened the users' knowledge on this methodology.

In June 2009, the preliminary poverty maps were reviewed by technical committee members consisting of local academia and government officials who are familiar with statistical exercises and local conditions. The comments and suggestions received were incorporated and reflected in the final version. The final version of the poverty maps was scrutinized and endorsed in the steering committee meeting, chaired by the Planning Division Secretary, on February 9th, 2009.

The Bangladesh poverty map update faced several technical challenges, requiring different remedies. It is a novelty of the Bangladesh poverty map update that it conducted validation exercises to verify how well those challenges were addressed. Such experience of the validation exercises will undoubtedly provide valuable lessons for future poverty mapping exercises in other countries.

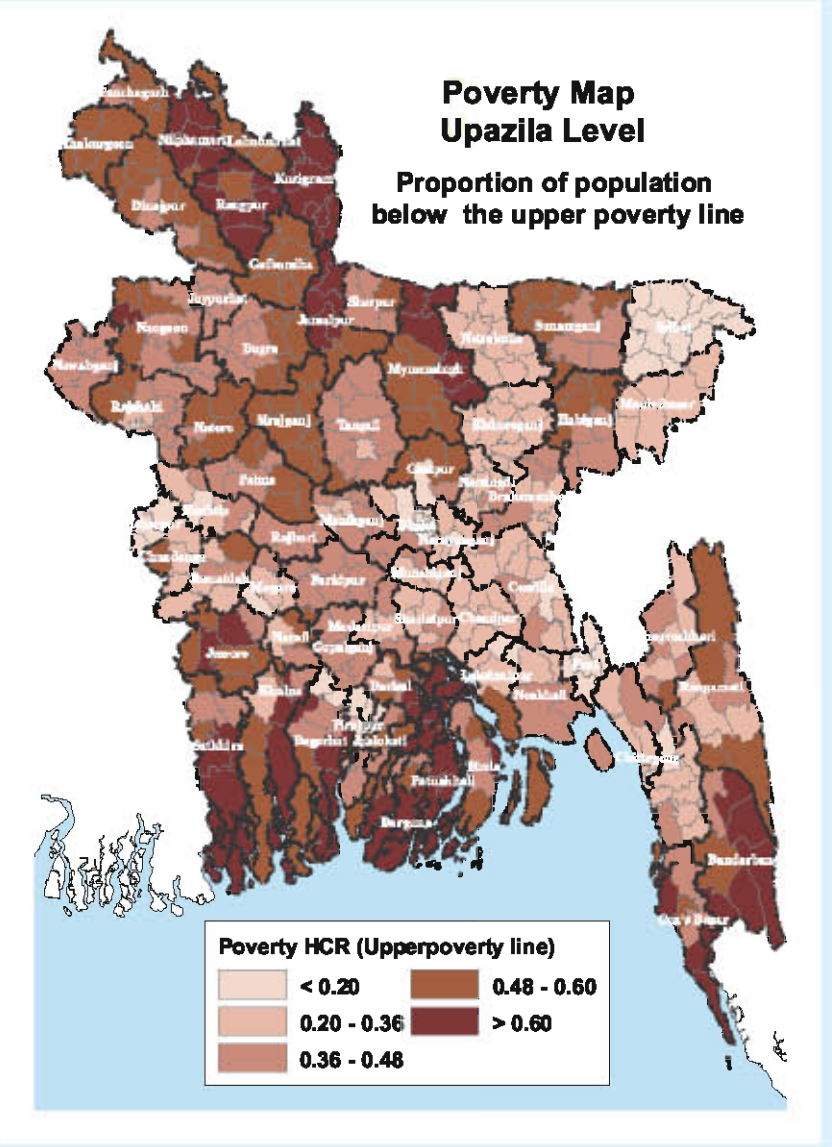
01. Local Estimation of Poverty and Malnutrition in Bangladesh (2004). Government of Bangladesh; Bangladesh Bureau of Statistics (BBS) in collaboration with the United Nations World Food Programme.

02. Elbers, C., J.O. Lanjouw, and P. Lanjouw (2003), "Micro-level Estimation of Poverty and Inequality," Econometrica, 71(1):355-384.

photo: Michael Foley

RESULTS AT A GLANCE

The map on the right shows the proportion of population in each Upazila whose per capita household expenditure is below the upper poverty line. The darker the color, the poorer the Upazila is.



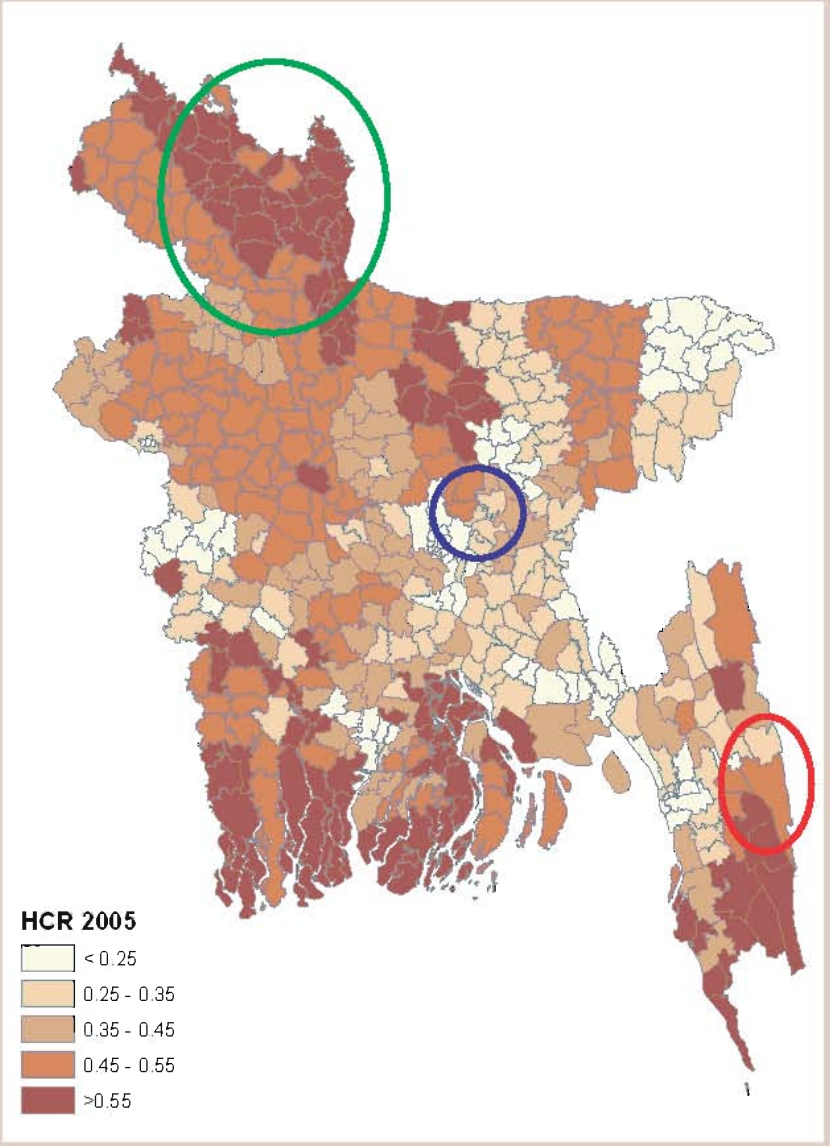
Poverty Headcount Rate vs. Poor Population

The poverty headcount rate refers to the proportion of the poor population living in a specific area. It reflects the density, prevalence, or rate of poverty in a given area. It is one of the most popular poverty statistics used.

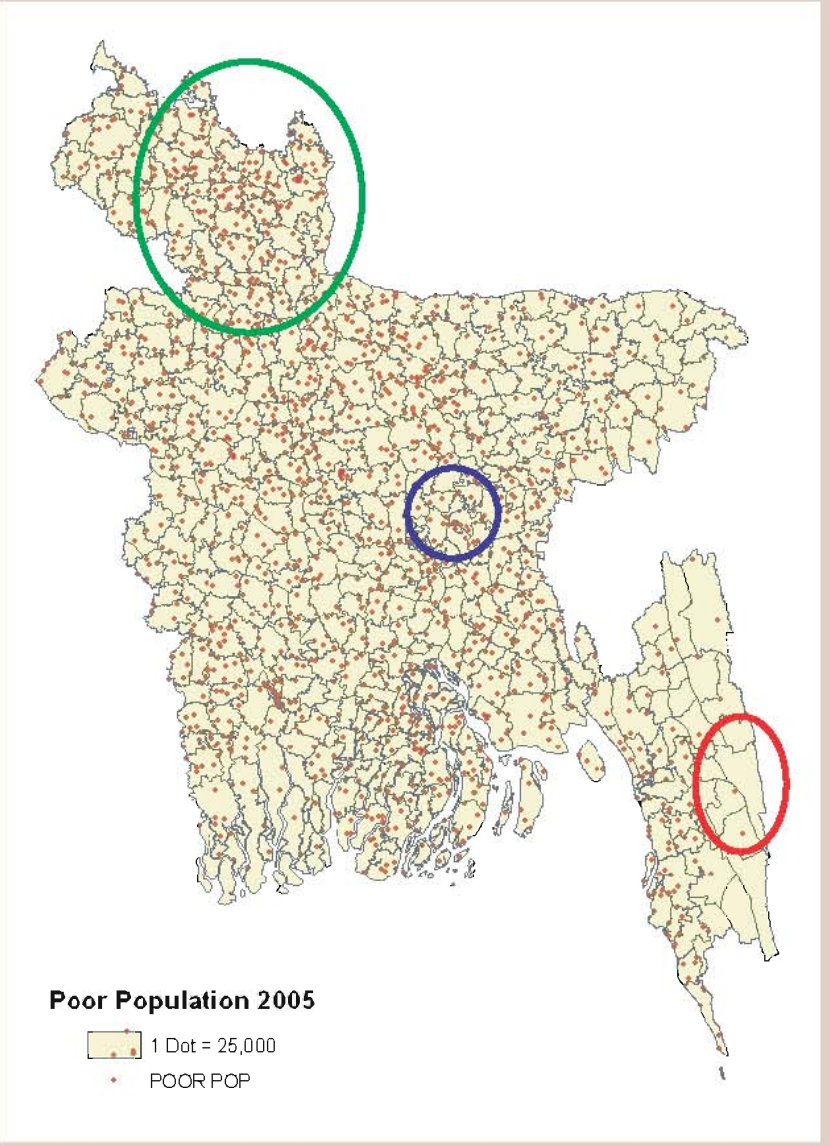
Yet a map of poverty headcount rates is different than a map of "absolute numbers" of poor.

Areas near Dhaka (circled in blue), for instance, record low poverty headcount rates; however the absolute size of the poor population is large. Bandarban District (circled in red), in contrast, has a high poverty rate; however the size of its poor population is relatively small. Finally, Monga areas (circled in green) record high poverty headcount rates, and also have large poor populations.

Poverty Headcount Rates



Poor Population (a dot=25,000)



Poverty vs. Extreme Poverty

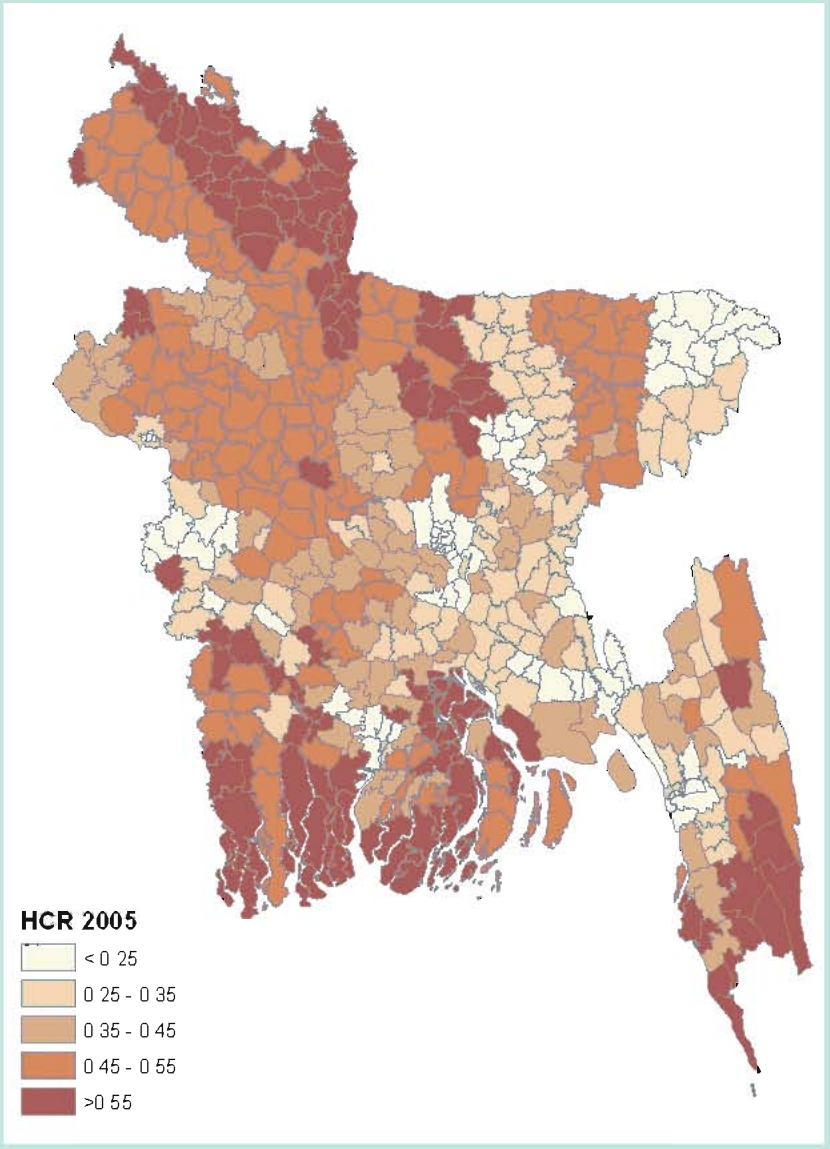
The official Bangladesh Poverty measurement includes two types of poverty lines: (i) Upper Poverty Lines and (ii) Lower Poverty Lines.

An upper poverty line represents a higher level of per capita household expenditure than a lower poverty line. As a result, if an upper poverty line is adopted, more households and individuals are defined as poor than if a lower poverty line is adopted.

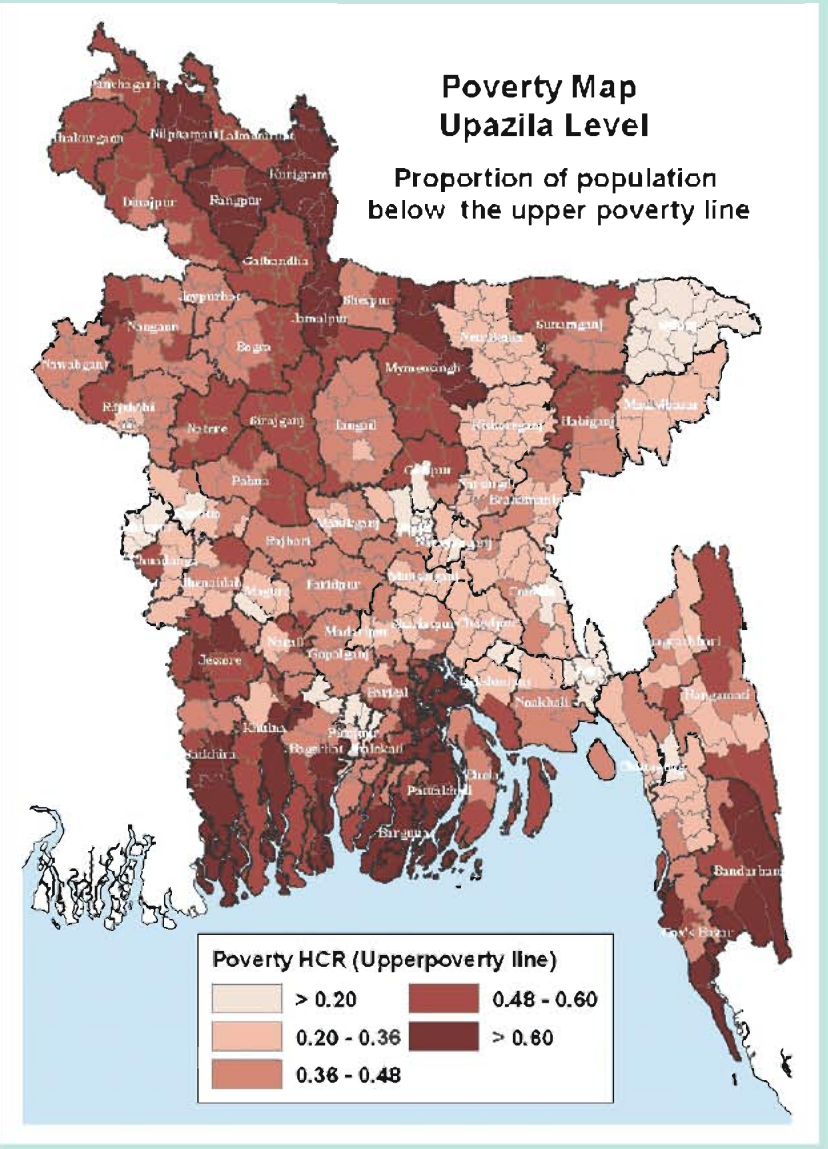
In Bangladesh, the upper poverty lines are on average 20 percent higher than the lower poverty lines.

The following two maps to the right compare the Poverty Map (based on the upper poverty lines) with the Extreme Poverty Map (based on the lower poverty lines). Both maps indicate a similar spatial distribution of poverty. The Extreme Poverty Map displays relatively affluent areas between Dhaka and Chittagong more clearly than the Poverty Map. If resources are limited, the Extreme Poverty Map may provide a useful guiding tool for prioritization and programming of policy interventions and resource allocations.

Poverty Map



Extreme Poverty Map

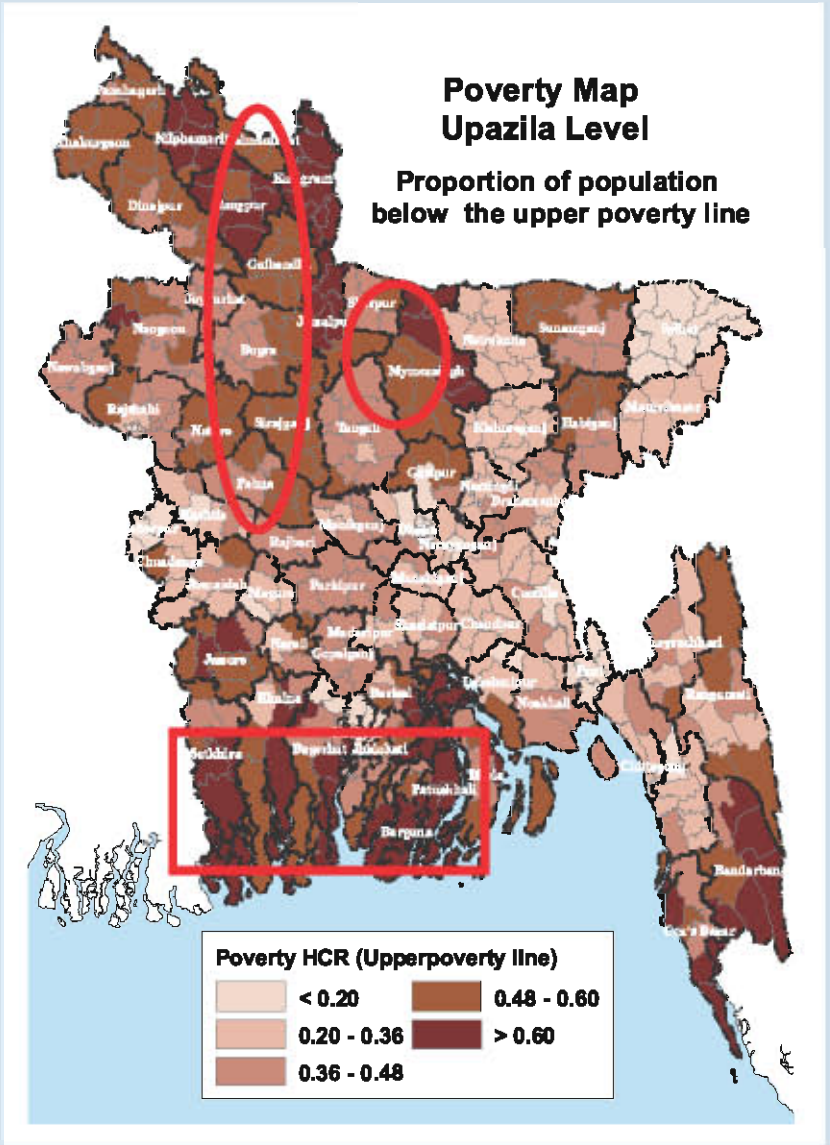


Natural Disasters and Poverty

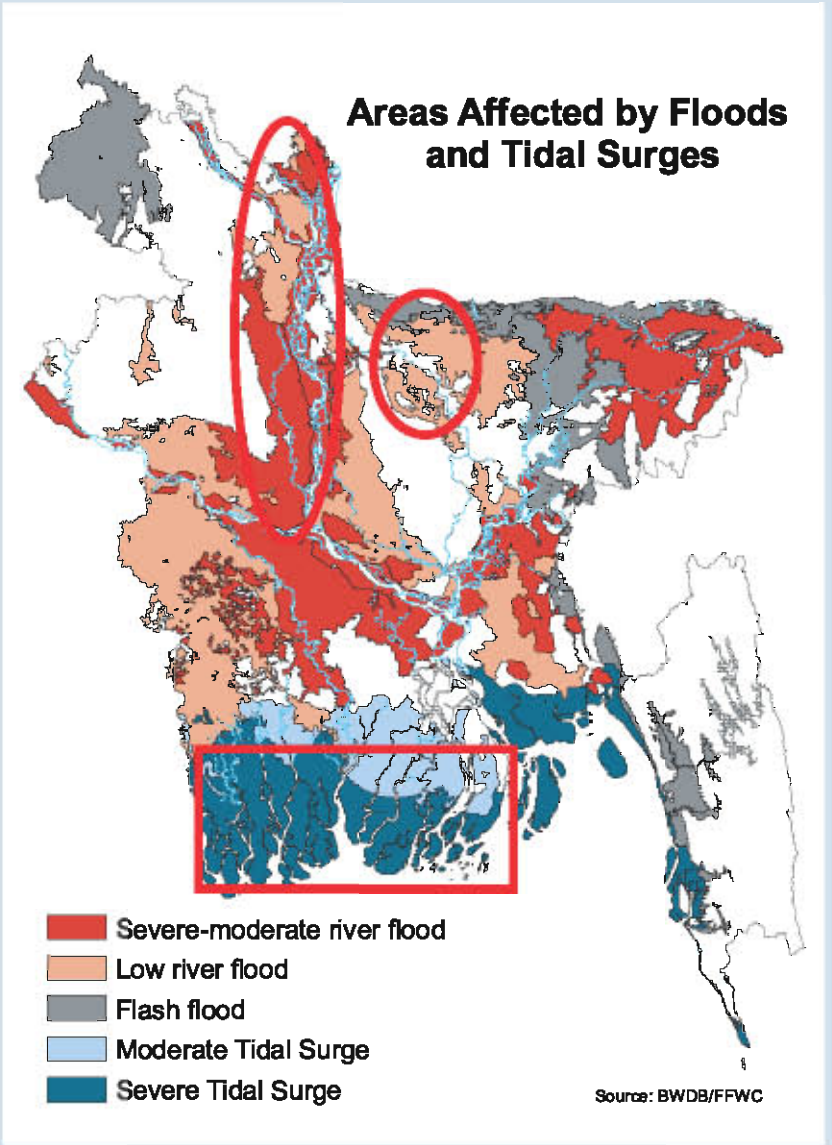
Floods and cyclones frequently cause severe damage to lives and livelihoods, especially for the poor. Poor households are often disadvantaged with regards to land access, and end up settling in vulnerable areas, such as low-lying regions near rivers or coasts. The following maps illustrate the relationship between natural disasters and poverty incidence.

There are some areas where clear correlations exist between poverty and proneness to natural disasters. Monga and Char areas are vulnerable to flooding and are also poor. The coastal areas, where poverty rates are high, are prone to severe tidal surges and cyclones.

Poverty Map



Map of Flooding and Tidal Surges

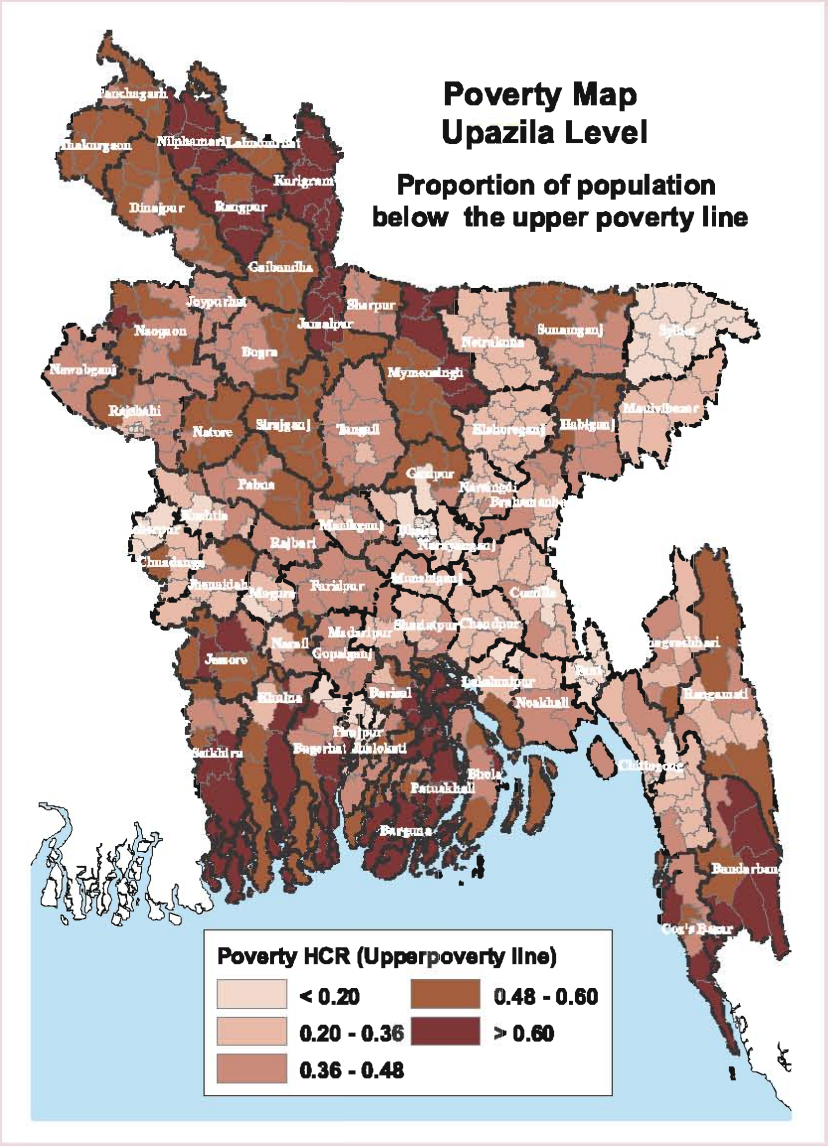


Market Accessibility and Poverty

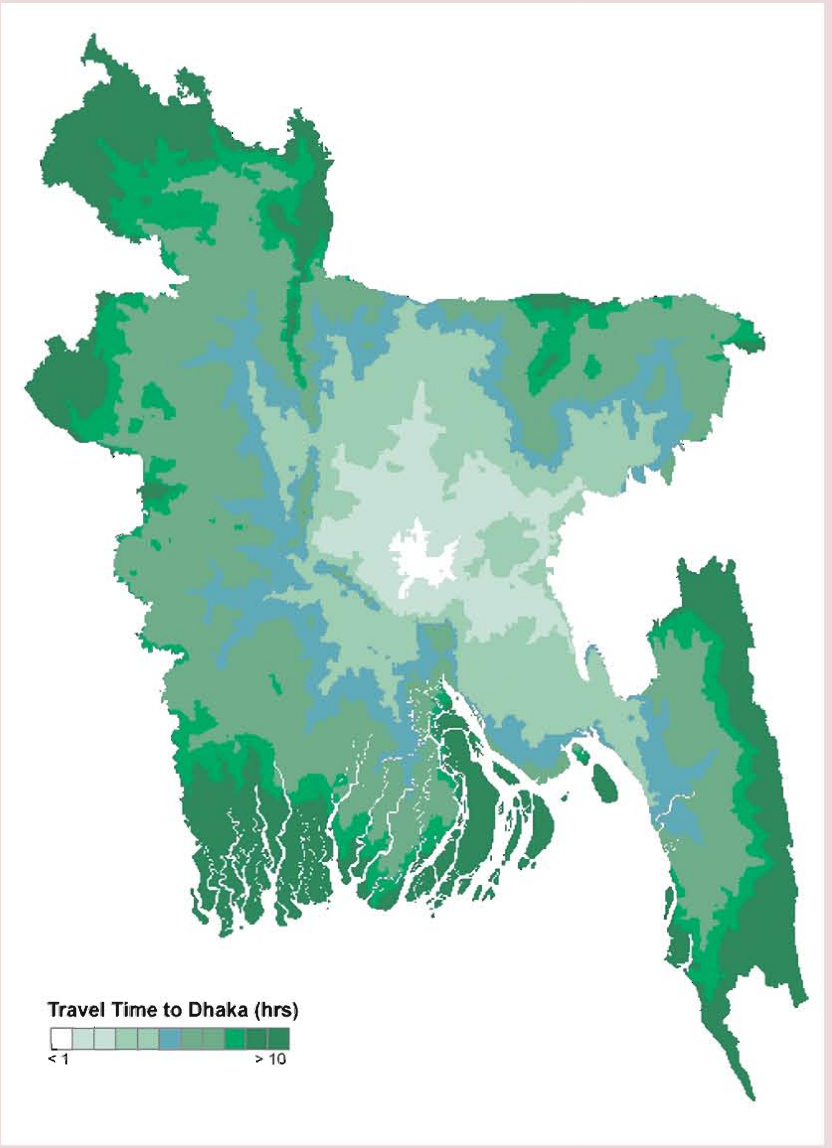
Improved access to markets is an important element of rural development and poverty alleviation. The following two maps illustrate the relationship between poverty and market access. The Map of Travel Time to Dhaka indicates longer travel time using a darker colour. Travel time was estimated from the road network information using GIS software.

Comparing the Map of Travel Time to Dhaka with the Poverty Map, it seems apparent that there exists a high correlation between travel time to Dhaka and poverty incidence. For example, the coastal areas and the Monga areas are both far away from Dhaka and both are very poor. In contrast, the areas between Dhaka city and Chittagong city record less travel time to Dhaka and lower poverty rates.

Poverty Map



Map of Travel Time to Dhaka(hr)



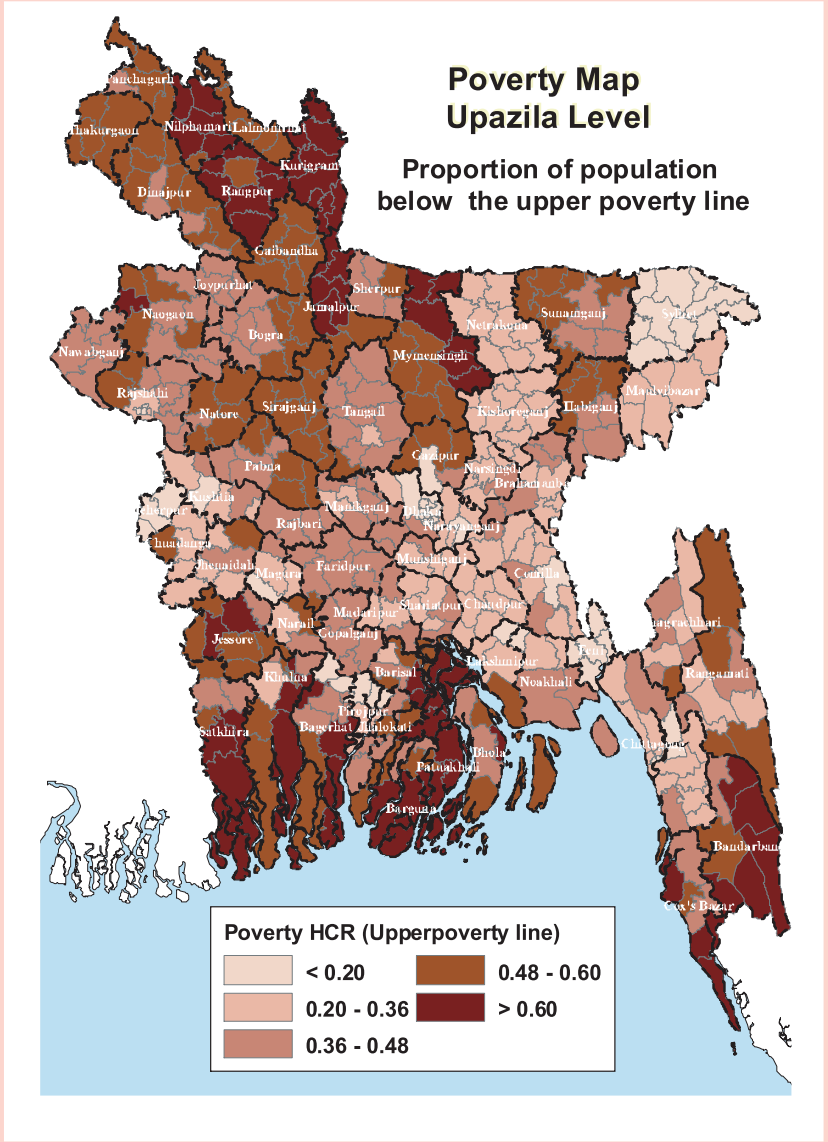
Educational Attainment and Poverty

Education is critical for upward mobility, allowing access to jobs and earning opportunities.

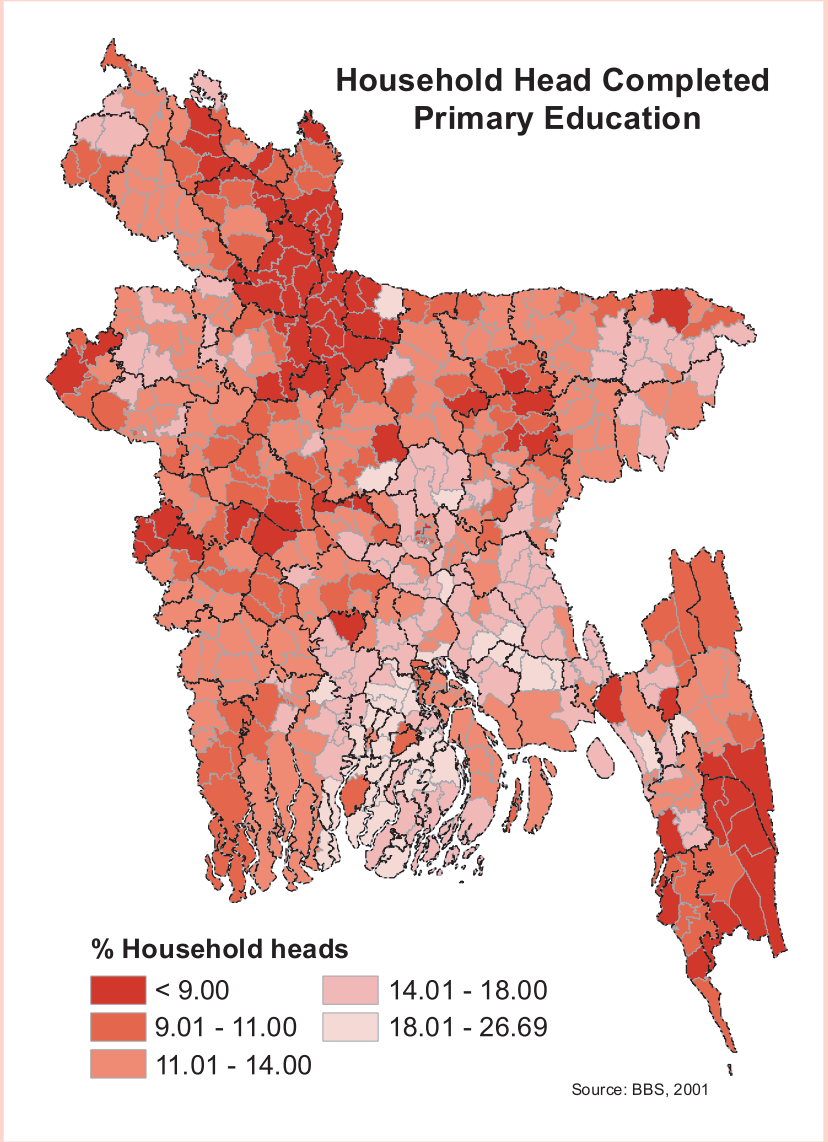
Education levels are often highly correlated with the poverty status "by the heads of Household". The two following maps illustrate poverty and education patterns. Regions near Dhaka and Chittagong show both relatively lower poverty rates, and relatively higher rates of primary school completion by the head of household.

However, like other characteristics, educational attainment by itself cannot explain all variations in poverty. For example, some coastal areas record very high completion rates while they are also amongst the poorest areas in the country.

Poverty Map



Map of HH Heads Completed Primary Education

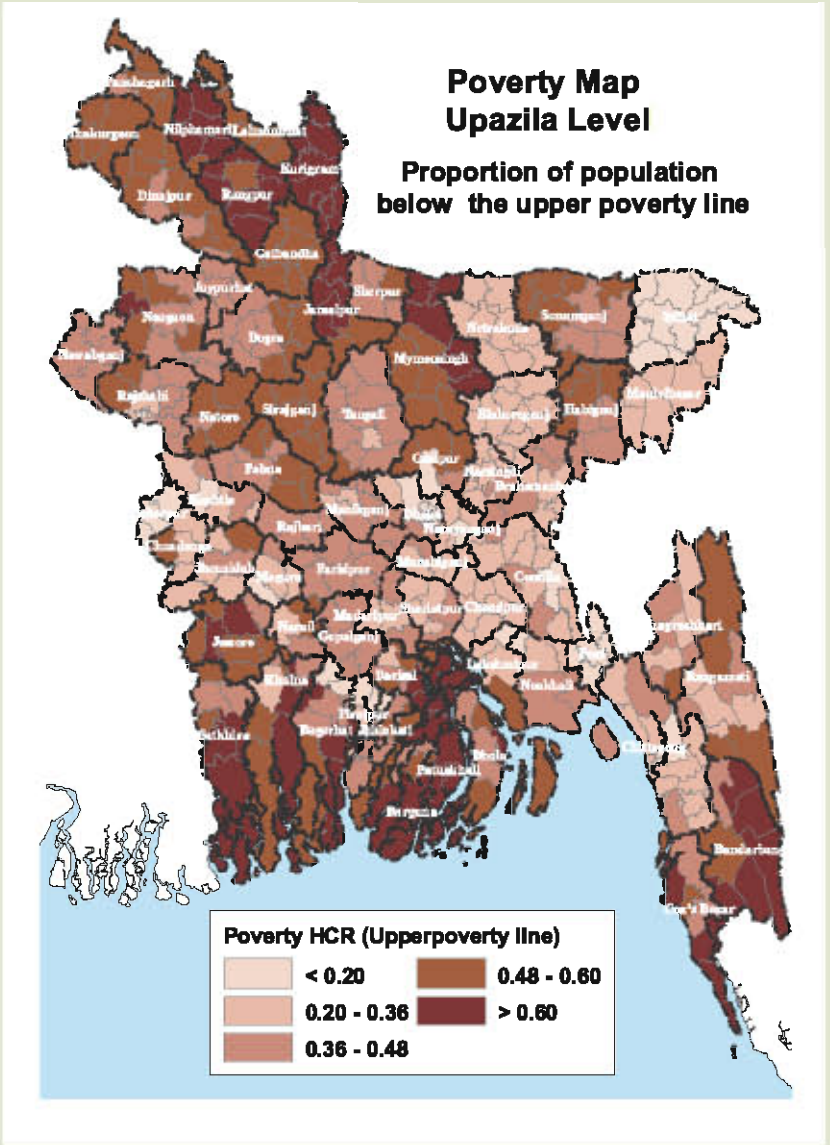


Poverty and Agriculture Wage Rate

For many landless and marginal land holders, agricultural labor is the dominant source of income. However, such income is unstable, seasonal, and vulnerable to natural disasters. Agricultural laborers constitute a large proportion of the poor and the vulnerable in the country, and the level of agricultural wages is a key determinant of rural poverty.

The following two maps show both poverty and agricultural labor wage rates. Poor areas suffer from low average agriculture wage rates. For example, in the north western part and south western parts of the country, the agriculture wage rates are low and the poverty rates are high. Also, the agriculture wage rate in the west is in general lower than in the east, which could be contributing to the east-west division noted earlier.

Poverty Map



Agriculture Wage Rate

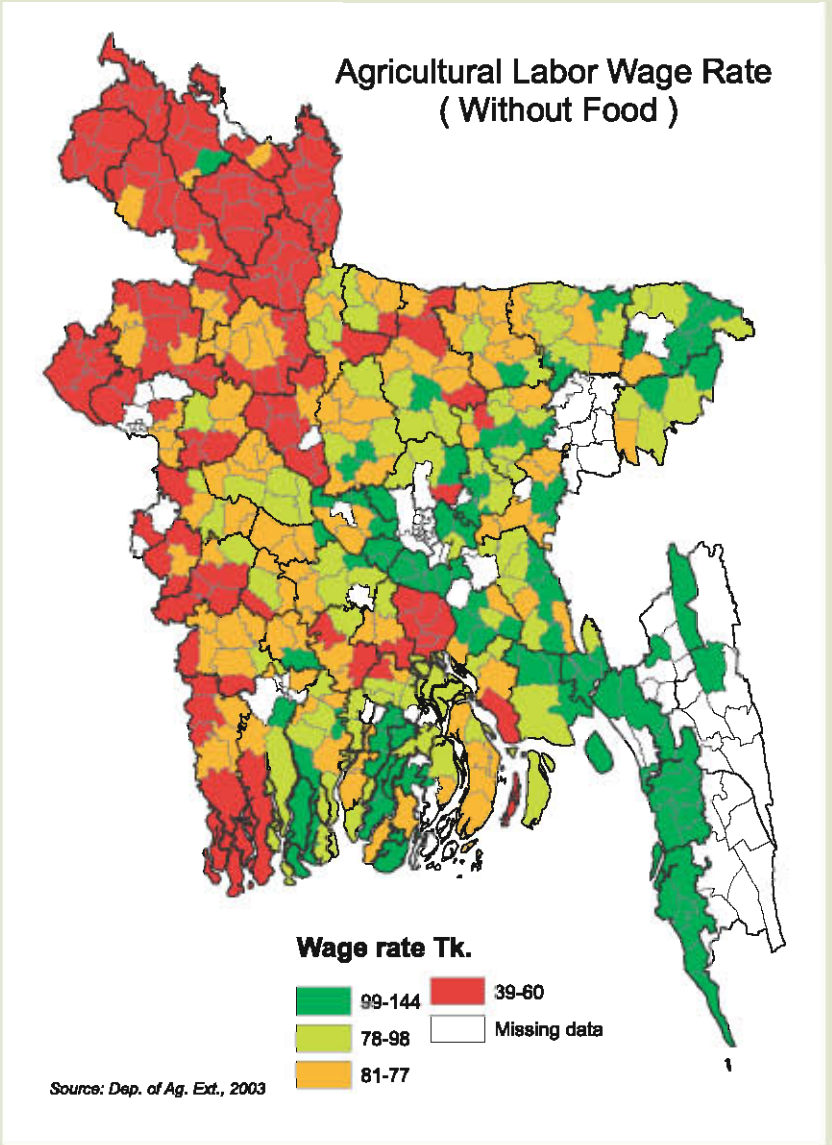


photo: Michael Foley

CONCLUSION

Poverty mapping is a powerful tool for identifying and monitoring pockets of poverty and affluence. Its usefulness can be further reinforced by combining it with other geo-referenced databases such as maps of natural disasters and human development indicators. These maps provide a rich information base and can be used to help policy makers and development partners better plan their resource allocations. This in turn can contribute to more effective poverty reduction.

Poverty mapping for a regular monitoring instrument

Results of poverty maps will be more useful if poverty maps are updated regularly. Tracking poverty trends at the Zila and Upazila levels will strengthen the government's ability to monitor and evaluate the impact of their policies and resource allocations.

photo: Michael Foley

To make poverty mapping a regular monitoring instrument, it is critical to maintain the quality of Census and HIES data and ensure this new methodology will be passed on to and used by the next generation.

photo: Michael Foley

THE WORLD BANK

Plot: E-32, Agargaon, Sher-e-Bangla Nagar,
Dhaka 1207, Bangladesh Tel: 880-2-8159001-28
Fax: 880-2-8159029-30
www.worldbank.org.bd

BANGLADESH BUREAU OF STATISTICS

Planning Division, Ministry of Planning
Parishankhyan Bhaban,
E-27/a, Agargaon, Sher-e-Bangla Nagar
Dhaka-1207, Bangladesh

WORLD FOOD PROGRAMME

The United Nations World Food Programme
IDB Bhaban (17th Floor)
E/8-A ,Rokeya Sharani
Sher-e- Bangla Nagar
Dhaka-1207, Bangladesh